

U. S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-244/84-23

Docket No. 50-244

License No. DPR-18 Priority -- Category C

Licensee: Rochester Gas and Electric Corporation
49 East Avenue
Rochester, New York 14649

Facility Name: R. E. Ginna Nuclear Power Plant

Inspection At: Ontario, New York

Inspection Conducted: October 5, 1984 through October 19, 1984

Inspectors:

William A. Cook 10/25/84
W. A. Cook, Resident Inspector, Ginna Date

W. J. Lazarus 10/25/84
W. J. Lazarus, Project Engineer Date
Reactor Projects Section No. 2C

Approved by:

Samuel Collins 10/25/84
S. J. Collins, Chief, Reactor Project Date
Section No. 2C DPRP

Inspection Summary: Inspection on October 5, 1984 through October 19, 1984
(Report No. 50-244/84-23)

Areas Inspected: Special inspection by the resident inspector (44 hours) and one Region-based inspector (8 hours) of the licensee's actions associated with fuel handling in the Auxiliary Building with the required ventilation exhaust flow path and charcoal adsorber system inoperable.

Results: The inspectors determined that there are four areas where the licensee's actions appear not to be in strict adherence to Technical Specification, regulatory requirements and administrative procedures.

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DETAILS

1. Persons Contacted

The below listed technical and supervisory level personnel were among those contacted:

- E. Beatty, Operations Supervisor
- L. Boutwell, Maintenance Supervisor
- C. Edgar, Instrumentation and Control Supervisor
- D. Filkins, Health Physics and Chemistry Manager
- D. Gent, Results & Test Supervisor
- R. Kober, Vice President Steam & Electric Production
- G. Larizza, Operations Manager
- T. Meyer, Technical Manager
- J. Neis, Project Liaison Engineer
- M. Sexton, Shift Supervisor
- B. Snow, Plant Superintendent
- S. Spector, Assistant Plant Superintendent
- J. Widay, Reactor Engineer

The inspectors also interviewed and talked with other licensee personnel during the course of the inspection.

2. Followup of Fuel Handling With Inoperable Ventilation Flowpath

On October 5, 1984, the licensee reported to the NRC Headquarters Duty Officer, via the Emergency Notification System, a violation of a Technical Specification limiting condition that required the auxiliary building exhaust fan 1C to be operating. During the inspectors' followup of this report the following information was developed.

On Monday, October 1, 1984, while conducting a routine tour of the auxiliary building, the auxiliary operator noted that the auxiliary building manometer indicated a positive pressure in reference to outside ambient air pressure. Ginna Station Maintenance Work Request/Trouble Report Number 84-2745 was immediately initiated by the control room operators and plant staff was made cognizant of the condition at the Morning Priority Action Required (MOPAR) meeting. During the MOPAR meeting, the operations staff was assigned to investigate the probable cause for the positive pressure condition. Operations verified that the auxiliary building ventilation system was properly aligned, ie. fans, filters and damper indications were in the required configuration. The apparent cause for the abnormal pressure condition could not be determined. In addition, a satisfactory check was performed to verify the manometer was indicating properly.

On Wednesday, October 3, 1984, plant staff reviewed the abnormal auxiliary building pressure condition and concluded that the ventilation system was operating satisfactorily and that fuel handling could be conducted the following day, October 4. While establishing the initial conditions of Refueling Procedure RF-8.4, "Fuel and Core Component Movement in the

Spent Fuel Pit", Revision 20, dated June 25, 1984, on October 3, the auxiliary operator reverified the auxiliary building ventilation system line-up, inclusive of a verification of damper positions. Damper positions are verified by viewing the position of the damper operating piston. Based on discussions with the Auxiliary Operator (AO), the inspector determined that the auxiliary operator reported that all dampers appeared to be positioned properly, however, he noted that the pressure exerted on the 1C auxiliary exhaust fan plenum room door appeared to be less than normal and informed the control room of his observation. Apparently, this discrepancy was not further evaluated at this time.

Fuel transfer operations were conducted in accordance with RF-8.4 between 8:21 A.M. and 7:42 P.M. on Wednesday, October 4. A total of 73 fuel assemblies were handled. In addition, on October 4, the roughing filters for the 1-A Auxiliary Building Supply Air Handling Unit were replaced due to high differential pressure resulting in reduced efficiency. No significant change in the positive pressure condition resulted from the changing of the supply fan filters and the investigation continued.

On Friday, October 5, upon further investigation into the reduced pressure on the 1C exhaust fan plenum door, members of the plant maintenance group determined, by visual inspection of the 1C auxiliary exhaust fan dampers, that the dampers were closed and that the coupling between the damper operating piston and the damper actuating mechanism had mechanically failed. Cause of the coupling failure is being evaluated.

3. Immediate Corrective Actions

Upon determination of the damper failure, the licensee immediately established a negative pressure condition in the auxiliary building by securing the 1-A supply fan. Normal auxiliary building ventilation system configuration includes, as a minimum to ensure that flow is via a filtered exhaust, the operation of the 1-A supply fan, 1C exhaust fan and either the 1A or 1B exhaust fan. The licensee also made the required notification of this apparent violation of Technical Specifications to the NRC via the Emergency Notification System. During the evening of October 5, after prompting by the resident inspector and members of the operations staff to restore normal auxiliary building ventilation prior to further spent fuel pool activities, the damper couplings for the 1C exhaust fan were replaced and the normal auxiliary building ventilation configuration restored with a negative pressure condition.

4. Subsequent Corrective Actions

On Wednesday, October 10, in response to earlier inquiries by the resident inspector, the licensee conducted a series of auxiliary building ventilation flow tests and verifications. All flow tests results, with exception of the test reproducing the closed 1C exhaust damper condition, verified inleakage of air to the auxiliary building. The closed 1C exhaust damper test indicated a stagnant or zero pressure condition. Neither in-leakage

nor out-leakage was observed via smoke indication and the auxiliary building manometer read zero differential pressure. In addition, testing conducted on flow alarm FA 2012, installed upstream of the IC exhaust fan, determined that the flow alarm was inoperable. The licensee placed a hold on all further fuel handling until a final review and changes could be incorporated into procedure RF-8.4.

On October 14, 1984, the licensee performed (PT)-24, "Spent Fuel Pit Filter Bank) Mass Air Flow Check", in order to verify proper ventilation flow prior to resumption of fuel handling in the auxiliary building. During the visual inspection of the ventilation system, which is a part of this test procedure, the blanking plates positioned to block the bypass ducting appeared to be loosely bolted in place. Based on this observation, the licensee reported via the ENS to the NRC Headquarters Duty Officer, an apparent violation of Technical Specification 3.11.1.e, which requires the charcoal adsorber to be installed and operable while handling fuel in the auxiliary building. In order to determine the extent of flow bypassing the charcoal adsorbers, the licensee performed (PT)-24.1, "Spent Fuel Pit Charcoal Filter Bypass Flow" on October 17, 1984. This test identified a removal efficiency of 97 percent. After tightening the bolts on the bypass ducting blanking plates, removal efficiency was 99.73 percent. Based on this testing, the charcoal adsorbers were apparently not operable from August 6, 1984, to October 17, 1984, since the removal efficiency was less than 99 percent and thus the system was not capable of performing its intended function. The inspector determined that numerous fuel assemblies had been transferred in the auxiliary building on 8 separate days between August 7 and October 4, 1984.

Further review by the inspector determined that the surveillance requirements of Technical Specification (TS) Section 4.11, "Refueling", are clearly required prior to a "major fuel handling", which is defined as "removal of 20 percent or more of the fuel assemblies from the reactor vessel". Although TS 3.11.1 requires that the auxiliary building ventilation system, including the charcoal adsorbers, be operable during fuel handling in the auxiliary building, the method of verifying operability is not clearly defined.

Station policy to determine charcoal adsorber system operability has been to rely on the previously documented results of surveillance testing performed prior to annual refueling outages in accordance with Section 4.11.1.1. Additional surveillance testing required in Section 4.11.1.2, when either charcoal filter drawers are replaced or structural maintenance is performed, has been determined by the Plant Operations Review Committee (PORC) to not apply to the changing of the spent fuel pit damper plates. In order to clarify the requirements for determining ventilation system operability, the licensee has committed to submit a Technical Specification amendment to section 4.11 to more clearly define the surveillance requirements.

The licensee is considering procedural changes to RF-8.4 to prevent recurrence of these problems, which include: verification of negative differential pressure condition in auxiliary building; weekly performance of PT-24 if fuel handling is conducted over an extended time period; performance of PT-24.1 after completion of blanking plate installation; verification of IC exhaust fan flow alarm operability, and independent verification of exhaust ventilation flow. In addition, quality control surveillance will be performed during blanking plate installation.

5. Inspector Findings

- a. As reported by the shift supervisor on October 5, 1984 to the NRC Headquarters duty officer via the Emergency Notification System (ENS), by the licensee, this incident represents an apparent violation of Technical Specification 3.11.1(b) which requires that during the handling of all irradiated fuel assemblies "The auxiliary building exhaust fan IC, which takes suction from the spent fuel storage pit area, shall be operating". This requirement and the additional initial conditions specified by Technical Specification 3.11 are based on the establishment of the necessary air flow path, when handling irradiated fuel, to ensure that in the event of a fuel assembly accident the potential release of radioactive fission products will be properly contained within the confines of the auxiliary building and filtered prior to venting to the outside environment. With the IC fan exhaust damper shut, fan IC is not considered to be "operating". The conduct of fuel handling activities on October 4, 1984, under this condition appears to be contrary to the requirements of Technical Specification 3.11.
- b. As reported by the shift supervisor on October 18, 1984, to the NRC Headquarters duty officer via ENS, the licensee was in apparent violation of Technical Specification 3.11.1.(e) which requires that during the handling of all irradiated fuel assemblies the "Charcoal adsorbers shall be installed in the ventilation system exhaust from the spent fuel storage pit area and shall be operable". As previously discussed, the method for determining operability is not clearly defined by Technical Specifications. Since Technical Specification section 4.11, "Refueling", specifies that charcoal adsorber removal efficiency shall be at least 99 percent, and the fact that PT-24.1 test results obtained on October 17, 1984, indicated that the charcoal adsorbers were less than 99 percent efficient, they were apparently not capable of performing their function in the intended manner. This condition apparently existed during the performance of eight separate fuel movement operations between August 7, 1984 and October 4, 1984 and appears to be contrary to the requirements of Technical Specification 3.11.
- c. Title 10 of the Code of Federal Regulations, Part 50, Appendix B, Criterion XVI, "Corrective Action", requires that significant conditions adverse to quality shall be promptly identified, the cause of the condition determined and corrective action taken to preclude

repetition. Technical Specification 6.5.1.6.f requires that the Plant Operations Review Committee be responsible for "Review of facility operations to detect potential safety hazards." Contrary to the above, the licensee identified symptoms of an abnormal ventilation condition in the auxiliary building on October 1, however, apparently failed to properly review, investigate and determine the cause of these symptoms until five days later on October 5.

- d. American National Standard (ANSI), N18.7-1972, to which the licensee is committed by their approved QA program, states in part that surveillance tests and inspections, required during the lifetime of a nuclear power plant, ensure that failures or substandard performance do not remain undetected and that the required reliability of safety systems is maintained. Further, Ginna Station Administrative Procedure (A)-1105, "Calibration and/or Test Surveillance Program for Instrumentation/Equipment of Safety Related Components", Revision 15, dated May 1, 1984, defines a surveillance program for instrumentation and/or equipment not specifically listed in plant Technical Specification but which is used for protection or satisfactory operation of safety related equipment. After testing of flow alarm FA 2012 on October 10, 1984, the licensee determined that the alarm was inoperable. It appears that this flow alarm functions to provide remote indication in the control room of a possible abnormal ventilation flow condition at the inlet to the 1C exhaust fan, a flowpath required to be operable during fuel handling by Technical Specifications. Contrary to the above requirements, the inspector determined that surveillance testing is not performed on flow alarm FA 2012 and the previous status of operability could not be determined.

6. Exit Interview

A meeting was held with the licensee at the conclusion of the inspection to discuss the scope and findings of the inspection as detailed.