U. S. NUCLEAR REGULATORY COMMISSION
REGION I

Inspection Report 50-244/91-23 **License: DPR-18**

Facility: R. E. Ginna Nuclear Power Plant
Rochester Gas and Electric Corporation (RG&E)

Inspection: October 1 through November 4, 1991

Inspectors: T. A. Moslak, Senior Resident Inspector, Ginna
E. C. Knutson, Resident Inspector, Ginna

Approved by: _____ 11/20/91
W. J. Lazarus, Chief, Reactor Projects Section 3B Date

INSPECTION SCOPE

Plant operations, radiological controls, maintenance/surveillance, emergency preparedness, security, engineering/technical support, and safety assessment/quality verification.

INSPECTION OVERVIEW

Plant Operations: Operations were stable throughout this period.

Radiological Controls: Radiological controls were conscientiously implemented.

Maintenance/Surveillance: A service water leak in the B Containment Recirculation Fan Cooler was expeditiously repaired.

Measures taken to refurbish circuit cards for the Undervoltage Monitoring/Protection System were effectively coordinated between corporate engineering and site organizations, with significant QC oversight.

Emergency Preparedness: A medical emergency drill demonstrated good coordination between the site Health Physics organization and the local medical facility in the transport and care of a contaminated and injured patient.

Engineering/Technical Support: Corporate Engineering was promptly involved in analyzing the safety aspects and performing a root cause analysis for a failed pipe hanger.

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DETAILS

1.0 PLANT OPERATIONS

1.1 Operational Experiences

The plant operated at approximately 97% power throughout the inspection period. No significant operational problems occurred affecting plant stability.

1.2 Control of Operations

Overall, the inspectors found the R. E. Ginna Nuclear Power Plant to be operated safely and in compliance with regulatory requirements. Control room staffing was as required. Operators exercised control over access to the control room. Shift supervisors consistently maintained authority over activities and provided detailed turnover briefings to relief crews. Operators adhered to approved procedures and understood the reasons for lighted annunciators. The inspectors reviewed control room log books for activities and trends, observed recorder traces for abnormalities, verified compliance with Technical Specifications and audited selected safety-related tagouts. During normal work hours and on backshifts, accessible areas of the plant were toured. No inadequacies were identified.

1.3 Decreases in Accumulator Levels

Following a period of observing a slow (about 0.09 gpm) but persistent decrease in accumulator water levels, operators submitted a work request (Work Order No. 910780) on October 17, 1991 to have the problem investigated. Based on corresponding increases in Pressurizer Relief Tank (PRT) levels, the leak path appears to be seat leakage through relief valve (RV) 887 in the Safety Injection System Test line. RV-887 is on a three quarter (3/4) inch test line that relieves to the PRT. It is designed to lift at a pressure (setpoint) of 1575 psig and would experience a nominal pressure of about 750 psig during stable plant conditions when communicating with the accumulators.

In addition to RV-887, operations personnel suspected that one or more normally closed valves located upstream of RV-887 were also experiencing seat leakage. These suspect valves are:

- Air Operated Valves (AOV) 839 A&B that are in test lines upstream of the A-accumulator discharge check valves AOV 842A and AOV 867A, respectively,
- AOV 840A&B that are in test lines upstream of the B-accumulator discharge check valves AOV 842B and AOV 867B, respectively,
- AOV 835A&B that are the fill line isolation valves for these respective accumulators.
- Check valves 878 G&J, Safety Injection (SI) pump A&B discharge check valves, respectively, that are in the SI Test Line flow paths.

A series of entries were made into the containment vessel in an attempt to identify the leak path by examining the suspect valves. An audio sensor was used to try to detect flow across the valves. However, high background noise levels have made detection of a low flow rate difficult.

Diagnostic tests were performed on the air operated valves (Copes-Vulcan Reverse Acting Valves, Air to Open/Spring to Close) to confirm that the operating air pressure across the diaphragm was at 28 PSIG and that the spring tension was within specification. Examination of RV-887 cannot be performed during power operations. RV-887 is located inside the biological shield and is not accessible for examination due to high radiation levels. To date, the exact flow path from the accumulators to RV-887 has not been firmly established. The licensee is continuing to evaluate possible flow paths and corrective measures.

As a result of flow through RV-887, control room operators are maintaining proper (approximately 70% filled) borated water levels in the accumulators by using a safety injection pump to transfer water from the Refueling Water Storage Tank (RWST) to the accumulators when the low level alarm setpoint (57% on the level indicator) is reached or being approached (The minimum indicated level as required by Technical Specification 3.3.1.1 b is 50%), using Reactor Plant System Operations (S) procedure S-16.13, RWST Water Makeup to Accumulators. This task was occurring on a 24 hour frequency and required about 10 minutes to complete.

The RG&E Nuclear Engineering Service Department evaluated the safety implications of the leak. Corporate engineering concluded that the full open rated capacity for RV-887 at its setpoint of 1575 psig is 1 gpm. Consequently, maximum valve leakage for RV-887 cannot exceed 1 gpm. The supporting safety analysis for the Safety Injection (SI) system indicates that this system can accommodate a two and one-half (2 1/2) gpm leak and still perform its intended function. The 2 1/2 gpm is a conservative minimum margin between SI system flow with an assumed 3% pump degradation and a minimum RWST level, and the Updated Final Safety Analysis Report (UFSAR) assumed SI flow.

The inspectors evaluated the actions taken by the licensee following identification of leakage through RV-887. Based on a review of relevant documentation, observation of control room operations and discussions with corporate engineering, site maintenance, and operations personnel, the inspectors concluded that the design functions of the accumulator system are not jeopardized by this off-normal plant condition, since required level (>50%) and pressure (>700 psig) are being maintained. Although the immediate actions are considered adequate, the licensee's long term actions are evolving. The inspectors will continue to monitor the licensee's actions regarding this matter.

2.0 RADIOLOGICAL CONTROLS

2.1 Routine Observations

The resident inspectors periodically confirmed that radiation work permits were effectively implemented, dosimetry was correctly worn in controlled areas and dosimeter readings were accurately recorded, access to high radiation areas was adequately controlled, and postings and labeling were in compliance with procedures and regulations. Through observations of ongoing activities and discussions with plant personnel, the inspectors concluded that radiological controls were conscientiously implemented. No inadequacies were identified.

3.0 MAINTENANCE/SURVEILLANCE

3.1 Corrective Maintenance

3.1.1 Service Water Leak in B-Containment Recirculation Fan Cooler

On October 11, 1991, control room operators observed that the B-Containment Recirculation Fan Cooler Condensate Collector level began increasing with the fan unit secured. Calculations indicated that the level increase was about 0.02 gallons per minute. Operators suspected that the level increase was due to a service water leak in the fan cooling coil. The service water was isolated to the fan and the unit was declared inoperable. In accordance with Technical Specification 3.3.2.1, a seven (7) day action statement was entered to repair the leak. Additionally, the licensee prepared a report to be submitted to the NRC within 14 days to comply with a commitment made in response to IE Bulletin No. 80-24, Prevention of Damage Due to Water Leakage Inside Containment. A material Non-Conformance Report (NCR 91-535) was prepared to document the as-found condition. Work Order Package No. 9101754 was subsequently prepared to repair the pinhole leak. In support of the work order requirements, Emergency Maintenance Procedure EM-745 was used to control the work performed on October 13, 1991. Upon completion of the repair, a ten minute leakage examination at operating pressure was performed to ensure the adequacy of the repair and the integrity of the B-fan cooling coils.

Although this leak is considered to be an isolated event since similar failures have not been routinely experienced, examination of the other fan coolers will be conducted during the 1992 outage.

The actions taken by operators, maintenance personnel, and RG&E management in response to the leak are considered to be timely and prudent to improve the reliability of the containment recirculation fan coolers.

3.1.2 (Closed) Unresolved Item (50-244/91-15-01) Undervoltage Monitoring Protection System Circuit Card Failures

This item addressed the scope of the licensee's corrective actions in response to a series of circuit card failures in the Undervoltage Monitoring/Protection System (UM/PS). Following root cause identification that a high wattage resistor was causing solid state switch card components (i.e. diodes, transistors, and other resistors) to prematurely, thermally age, the licensee began procuring and commercially dedicating components to refurbish failed cards. RG&E chose this course of action since the stock of spare qualified cards became rapidly depleted and reordering from the manufacturer required a long lead time due to the card's custom design.

In assessing licensee response, the inspector observed actions and reviewed various records that supported the quality control receipt inspections, the commercial dedication process, card installation, and post-maintenance system testing following card replacement. Included in this review were the Quality Assurance Acceptance Plan and Commercial Grade Item Engineering Evaluations (CGIEE 91-062, 91-065, 91-067, 91-069) that identified the acceptance criteria, acceptance methods, and test procedures for the zener diodes, transistors, fixed composition resistors, and wire wound resistors, respectively, that were used to refurbish the cards. These CGIEEs were found to be sufficiently detailed to ensure verification of the critical characteristics and electrical attributes of the tested components. Following initial batch screening and destructive and nondestructive testing, qualified components were released for use. Solid State Switch (SSS) cards were subsequently refurbished and bench tested. Bench testing was performed in accordance with a PORC approved maintenance (M) procedure M-71.2, Module Rework/Test Procedure, effective July 12, 1991. Per this procedure, Level II I&C Test personnel verified that the reworked cards were returned to the original manufacturer's specifications. Upon acceptance by QC personnel, the reworked cards were released for installation in the UM/PS for Buses 17 and 18. Installation of one (1) SSS card in Bus 17 (Work Order 9121802) and two (2) SSS cards (Work Orders 9121801 and 9121803) in Bus 18 were performed on September 24th and 20th, respectively, per M-48.10, Isolation of Bus 17 Undervoltage System for Troubleshooting, Rework and Testing, Revision 7, effective 7/31/91 and M-48.11, Isolation of Bus 18 Undervoltage System for Troubleshooting, Rework and Testing, Revision 7, effective 7/26/91. Immediately following installation, end-to-end testing to confirm that the respective diesel would start on a bus undervoltage condition was subsequently performed in accordance with Periodic Test (PT)-9.1.17, Undervoltage Protection-480 Volt Safeguard Bus 17, and PT-1.9.18, Undervoltage Protection-480 Volt Safeguard Bus 18.

Through this assessment of the licensee's response to addressing the circuit card failures, the inspector determined that there was effective coordination and communication between the procurement, nuclear assurance, corporate/ site engineering, corrective action, maintenance, and operations groups. The Quality Control (QC) group provided significant oversight in various phases of the process. In response to QC findings nonconformance reports were promptly and adequately resolved by the responsible departments.

Using the guidance provided in NUREG-1022, Licensee Event Report (LER) System, RG&E submitted a voluntary LER 91-008 to alert other utilities which may have similar UM/PS. In determining the reportability of the circuit card failures, the licensee evaluated the adequacy of plant response with a card failure present. The results of this evaluation indicate that a diesel generator would provide adequate system voltage and frequency and would accept the most severe block of loads. Accordingly, the LER was not required to be submitted in accordance with 10 CFR 50.73. The licensee previously submitted a 10 CFR Part 21 notification to the NRC upon identifying the design defect in the SSS printed circuit cards. The inspector had no additional questions on this matter.

3.1.3 Seismic Anchor Installation for Valve Supports

On November 1st, the inspector witnessed the installation of four (4) Hilti anchor bolts in valve supports for Solenoid Operated Valves (SOV) 14292S and 14293S. Original anchor bolts were found to be loose or missing from the supports by NRC examiners performing a partial system walkdown in preparation for administering the NRC license examination. A material Nonconformance Report (NCR No. 91-550) was subsequently generated. Corporate engineering evaluated the NCR and concluded that during a seismic event a postulated failure of the as-found supports could conceivably crimp the air line preventing the venting of air from the associated AOVs. The SOVs, upon receiving a containment isolation signal, vent air from Containment Isolation Valves (CIV) AOV 1728 and AOV 1723, respectively. The CIVs are in the flow path that transfers liquid radwaste from the A-Containment Sump to the Waste Holdup Tank, located in the Auxiliary Building. Upon receipt of this information from engineering, operations personnel declared these valves inoperable in accordance with T.S. 3.6, on October 28, 1991, and immediately placed them in the closed (accident) position. A Work Request (No. 9101843) was subsequently issued for resecuring the valve supports.

In witnessing the work, the inspector determined that the Work Package was properly authorized by the responsible departments, prior to work initiation, and that detailed work instructions and the applicable PORC-approved procedure, Emergency Maintenance (EM)-768, The Installation of Hilti Kwik Bolts for Supports on Solenoid Valves 14292S and 14293S, (effective 10/30/91), was adhered to. The inspector noted strong attention to detail by technicians covering the work. In particular, the quality control technician meticulously verified the layout spacing, material/tool specifications, and work quality. Additionally, the Radiological Controls Technical, conscientiously, insured that maintenance workers used dust control measures to minimize airborne and personnel contamination and directed nonparticipants to low dose rate areas.

Through these observations, the inspector concluded that RG&E promptly responded to the condition identified and properly coordinated corporate and site resources to effectively address regulatory considerations. Additionally, the inspector noted very good procedure adherence in the planning, scheduling and performance of the work.

3.1.4 Steam Leak on AOV-3334

During this inspection period, a body-to-bonnet steam leak occurred on AOV-334B, a level control valve for the 2B-Moisture Separator/Reheater (MSR). Following discovery of the leak, site maintenance initially tried to stop the leak by retorquing the top and bottom valve flanges (Work Order No. 9122173). Since this was not entirely successful, a clamp was installed around the leak and a chemical sealant was injected, using contracted services. This method was effective.

Through observations of licensee response to the steam leak, the inspector concluded that the repairs were satisfactorily completed in a timely manner and in accordance with the licensee's work control system. The leak did not have any effect on plant stability.

4.0 EMERGENCY PREPAREDNESS

4.1 Radiological Emergency Medical Drill

On October 24, 1991, the site Emergency Preparedness staff simulated a contaminated medical emergency for the purpose of assessing the medical emergency response capabilities of the site Health Physics staff and the primary medical facility, Newark/Wayne Community Hospital. Drill participants were to implement their respective procedures to transport and handle a contaminated and injured patient. Through discussions with licensee representatives, and through scenario review the inspector concluded that the appropriate techniques in exposure/contamination control were demonstrated during the exercise and that there was effective coordination between the site and hospital staffs.

5.0 SECURITY

5.1 Routine Observations

During this inspection period, the resident inspectors verified that x-ray machines and metal and explosive detectors were operable, protected area and vital area barriers were well maintained, personnel were properly badged for unescorted or escorted access, and compensatory measures were implemented when necessary. Site modifications are in progress to upgrade site security systems. No unacceptable conditions were identified.

6.0 ENGINEERING/TECHNICAL SUPPORT

6.1 (Closed) Unresolved Item (50-244/91-14-02) Control of Temporary Structures Which Could Affect Safety Equipment

This item addressed the control of temporary wooden scaffolding installed in the battery rooms. The inspectors had observed that scaffolding was in place longer than originally expected and that some structural deterioration had been observed. The scaffolding was erected prior to the 1991 refueling outage to facilitate replacement of fire penetration seals in the battery rooms. The scaffolding was removed during this inspection period.

In response to the inspector's concern regarding monitoring the structural integrity of scaffolding when left in place for extended periods, the site engineering and maintenance departments were tasked to resolve the issue. Revisions are presently under review to Administrative Procedure, A-1406.1, Installation and Removal of Temporary Structural Features, to address scaffolding as a special class of temporary modification. Procedural revisions under review include conducting secondary reviews of the construction package by a cognizant engineer or licensed staff member to assess safety implications prior to erection and specifying a reinspection frequency following the initial construction inspection.

Based upon this review of the licensee's progress in revising administrative controls for temporary scaffolding,the inspector had no additional concerns about this item.

6.2 MSR Drain Piping Support Failure

On October 22, 1991, an auxiliary operator, while performing his shift verifications on plant secondary systems, identified a failed pipe hanger that supported MSR drain lines. Upon notifying the control room, the Shift Supervisor dispatched maintenance personnel to install temporary bracing to resupport the piping. Though the piping was hanging lower than normal, no deformation was readily apparent. The following day, new pipe hanger support rods were fabricated and the support was repaired.

In response to this isolated failure, site management requested corporate engineering to evaluate the root cause of the sheared hanger and analyze the stresses experienced by the unsupported piping.

Subsequently, corporate mechanical engineering conducted a walkdown of the affected pipe run and performed a computer stress analysis. Preliminary results of the computer analysis, that simulated the MSR drain piping with failed supports, indicates that the yield strength of the pipe was not exceeded, i.e. there was no permanent deformation. As a precautionary measure, the point in the piping run that experienced maximum stress will be nondestructively examined during the 1992 outage. Additionally, the failed support rod has been sent to the RG&E Materials Engineering Laboratory for examination and testing to determine its failure mode.

Through examination of the piping and failed hanger, discussions with representatives of RG&E corporate engineering and site management, and review of supporting documentation, the inspector concluded that corporate engineering was readily informed of this plant condition and responded expeditiously to assess the safety aspects and root cause of the failed pipe hanger.

7.0 SAFETY ASSESSMENT/QUALITY VERIFICATION

7.1 Periodic Reports

Periodic reports submitted by the licensee pursuant to Technical Specifications 6.9.1 & .2 and 6.9.1.4 were reviewed. Inspectors verified that the reports contained information required by the NRC, that test results and/or supporting information were consistent with design predictions and performance specifications, and that reported information was accurate. The following report was reviewed:

-- Monthly Operating Report for September 1991.

No unacceptable conditions were identified.

7.2 Licensee Event Report (LER)

An LER and Special Report submitted to the NRC were reviewed to determine whether details were clearly reported, causes were properly identified, and corrective actions were appropriate. The inspectors also assessed whether potential safety consequences were properly evaluated, generic implications were indicated, events warranted onsite follow-up, and applicable requirements of 10 CFR 50.73 were met. The following were reviewed:

-- 91-008, During Maintenance, A Failure of One of Two Trains of Undervoltage Protection, was Discovered on Safeguards 480 Volt Bus 14, submitted September 4, 1991.

-- Event Report Per IE Bulletin No. 80-24, Prevention of Damage Due to Water Leaking Inside Containment, submitted October 24, 1991..

The inspector concluded that the reports were accurate and met regulatory requirements. No unacceptable conditions were identified.

8.0 ADMINISTRATIVE

8.1 Backshift and Deep Backshift Inspection

During this period, deep backshift inspections were conducted on the following dates: October 14 and 26, and November 2nd.

8.2 Exit Meetings

At periodic intervals and at the conclusion of the inspection, meetings were held with senior station management to discuss the scope and findings of this inspection. The following additional NRC exit meetings were held with RG&E management during this inspection.

-- Operator Requalification Examination, 50-244/91-24, on October 18, 1991.
-- Operator Initial Licensing and Upgrade, 50-244/91-25, on October 25, 1991.
-- Radiological Controls Program, 50-244/91-26, on November 1, 1991.

The exit meeting for inspection report 50-244/91-23 was held on November 5, 1991 with the following individuals attending:

Name	Title
NRC	
Thomas Moslak	Senior Resident Inspector
LICENSEE	
Steven Adams	Technical Manager
John Fisher	Maintenance Planning & Scheduling
Paul Gorski	Manager, Mechanical Maintenance
Andy Harhay	Manager, Health Physics & Chemistry
Alan Herman	Health Physicist
Ron Jaquin	Engineer Nuclear Safety and Licensing
Michael Lilley	Manager, Nuclear Assurance
Richard Marchionda	Superintendent, Support Services
Fred Mis	Supervisor, Health Physics
John St. Martin	Corrective Action Coordinator
Bob Popp	I&C Station Engineer
Terry Schuler	Operations Manager
Joe Widay	Plant Manager