May 21, 2003

Dr. Robert C. Mecredy
Vice President, Nuclear Operations
Rochester Gas and Electric Corporation
89 East Avenue
Rochester, New York 14649

SUBJECT: R. E. GINNA - NRC INSPECTION REPORT NO. 50-244/03-009

Dear Dr. Mecredy:

On April 21-24, 2003, the U.S. Nuclear Regulatory Commission (NRC) conducted an emergency preparedness (EP) supplemental inspection at your R. E. Ginna Nuclear Power Plant. The inspection was conducted to assess the evaluation and corrective actions associated with the alert and notification system (ANS) siren feedback system, which was not capable of performing its function. The feedback system was incapable of identifying failed sirens in a timely manner so that Monroe and Wayne counties could implement route alerting for notification of the public. This issue resulted in a violation with White significance which was documented in Inspection Report No. 50-244/02-04. The enclosed report documents the supplemental inspection findings which were discussed on April 24, 2003, with you and other members of your staff.

The supplemental inspection was conducted to determine if the root and contributing causes of the White finding were understood, to assess the extent of the condition review, and to determine if the corrective actions for risk significant performance issues were sufficient to address causes and to prevent recurrence. To accomplish these objectives, the inspector reviewed your root cause analysis and evaluation of extent of condition and conducted an independent inspection to assess your conclusions. Based on the root cause analysis, the NRC concluded that a sufficiently broad evaluation of this issue was conducted and the corrective actions were adequate to address the underlying causes of the violation.

Given your acceptable performance in addressing the ANS siren feedback system issue, the White finding associated with this issue will only be considered in assessing plant performance for a total of four quarters in accordance with the guidance in IMC 0305, “Operating Reactor Assessment Program.”

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Sincerely,

/RA/

Wayne D. Lanning, Director
Division of Reactor Safety

Docket No. 50-244
License No. DPR-18

Enclosure: Inspection Report 50-244/03-009

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*Concurrence with comment

U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No:	50-244
License No:	DPR-18
Report No:	50-244/03-009
Licensee:	Rochester Gas and Electric Corporation (RG&E)
Facility:	R. E. Ginna Nuclear Power Plant
Location:	1503 Lake Road Ontario, New York 14519
Dates:	April 21 - April 24, 2003
Inspector:	J. Laughlin, Operations Engineer
Approved by:	R. J. Conte, Chief Operational Safety Branch Division of Reactor Safety

Enclosure

SUMMARY OF FINDINGS

IR 05000244/2003-009; 04/21-24/2003; R. E. Ginna Nuclear Power Plant; Supplemental Inspection Report - Violation - White significance.

The emergency preparedness (EP) supplemental inspection was performed on site by a region-based inspector. No findings were identified. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

Cornerstone: Emergency Preparedness

The NRC performed this supplemental inspection to assess the licensee's evaluation and corrective actions regarding the alert and notification system (ANS) siren feedback system, which was not capable of performing its function. The feedback system was incapable of identifying failed sirens in a timely manner so that the counties could implement route alerting for notification of the public. During this supplemental inspection, performed in accordance with Inspection Procedure 95001, the inspector determined that RG&E performed a comprehensive evaluation of the ANS feedback system issue. RG&E's evaluation identified the primary root cause of this issue to be the congestion of radio communication signals due to unsolicited siren reports of abnormal conditions to system controllers. The large volume of unsolicited siren reports caused the radio frequency to become saturated, which prevented siren control units from receiving accurate reports of siren activations.

Given the licensee's acceptable performance in addressing the siren issue, the White finding associated with this issue will only be considered in assessing plant performance for a total of four quarters in accordance with the guidance in IMC 0305, "Operating Reactor Assessment Program."

REPORT DETAILS

01 INSPECTION SCOPE

The NRC performed this supplemental inspection to assess RG&E's evaluation associated with the inability of the alert notification system (ANS) siren feedback system to identify failed sirens in a timely manner so that backup route alerting could be implemented for notification of the public. This performance issue was previously characterized as a White finding in NRC Inspection Report number 50-244/02-04 and is related to the emergency preparedness (EP) cornerstone in the reactor safety strategic performance area.

02 EVALUATION OF INSPECTION REQUIREMENTS

02.01 Problem Identification

a. Determination of who (i.e., licensee, self-revealing, or NRC) identified the issue and under what conditions.

On May 9, 2002, RG&E conducted the annual full duration audible test of the siren system as required by section 6.3.13 of the Ginna Station Nuclear Emergency Response Plan (NERP). During the test, the total time required to perform automatic siren verification was approximately 150 minutes. The failure of the siren feedback system to provide timely information on proper siren activation left the two affected counties (Monroe and Wayne) without the means to determine if the sirens had activated. Both counties rely upon this information to determine when and where to conduct route alerting for timely notification of the public. In accordance with FEMA-REP-10/November 1985, section E.6.2.4.6 the total elapsed time for alert and notification using police, fire, or rescue vehicles and personnel should not exceed 15 minutes (or 45 minutes, when the design objective of route alerting is to ensure coverage of a population who may not have received the initial alert and notification). RG&E documented this deficiency in Action Report (AR) 2002-1214.

The licensee declared the full system activation test a success since only five sirens failed to activate and the NERP allows up to 10 failures. However, NRC inspectors identified that, should siren failures occur, the ability to notify the public in a timely manner (i.e., approximately 45 minutes) within the 10 mile emergency planning zone was compromised. The performance deficiency is considered self-revealing.

b. Determination of how long the issue existed, and prior opportunities for identification.

The inspector determined that this issue existed since the last ANS full system activation in May 2001, documented in AR 2001-0789. During that test, five sirens failed to sound, six sirens sounded but their status could not be determined by the feedback system, and six sirens sounded but did not properly shut down. The licensee had at least two other opportunities to identify the issue. On March 25, 2002, a Monroe County (MC)

"silent" siren test showed a failure of all 24 sirens (AR 2002-0661). On April 8, 2002, the MC silent test again showed a failure of all 24 sirens (AR 2002-0878).

c. Determination of the plant-specific risk consequences (as applicable) and compliance concerns associated with the issue.

The means to alert and notify the public in a timely manner is a Risk Significant Planning Standard (RSPS), and according to the EP Significance Determination Process (SDP), the failure to meet this RSPS is considered a finding of substantial safety significance (Yellow). RG&E did not meet the requirements of the RSPS set forth in 10 CFR 50.47(b)(5) because the siren feedback system was not capable of identifying which, if any, sirens failed to activate so that the two counties could conduct route alerting to notify the public in a timely manner. This affected the EP cornerstone objective of ensuring that the licensee is capable of implementing adequate protective measures to protect the health and safety of the public in the event of a radiological emergency.

This finding was determined to be more appropriately characterized as White, i.e., low to moderate safety significance, because:

- The function of planning standard 50.47(b)(5) was not lost, but more appropriately considered degraded.
- Both counties had in place the procedures, processes, and equipment to conduct route alerting and in fact they would have completed route alerting, though possibly in an untimely manner (i.e. > 45 minutes).
- In an actual event, external factors would more than likely have resulted in route alerting being commenced and completed sooner rather than later.

02.02 Root Cause and Extent of Condition Evaluation

a. Evaluation of methods used to identify the root causes and contributing causes.

To evaluate this issue, RG&E used the methodologies of Human Performance Event causal analysis, document review, and personnel interviews. The inspector determined that the licensee followed its procedural guidance for performing a root cause analysis. The investigation was performed by a two-person team who were knowledgeable in root cause analysis methods.

b. Level of detail of the root cause evaluation.

The licensee's root cause evaluation identified a primary root cause for the failure of the siren feedback system, and seven human performance issues that were contributing causes to the siren testing problems. The root cause for the feedback system malfunction was the congestion of radio communication signals due to unsolicited siren reports of abnormal conditions to system controllers. The large volume of unsolicited siren reports caused the radio frequency to become saturated, which prevented siren control units from receiving accurate reports of siren activations. The contributing

causes included procedural, training, and management oversight issues concerning the county personnel who routinely test and activate the sirens.

c. Consideration of prior occurrences of the problem and knowledge of prior operating experience.

RG&E's evaluation included a review of the corrective action system for similar events to determine if repetitive problems had been identified at Ginna Station. The system engineer stated that an operating experience search was performed to determine if other utilities had similar ANS issues. He also discussed the issue with several other plants. The inspector determined that these actions were adequate.

d. Consideration of potential common causes and extent of condition of the problem.

RG&E's root cause analysis (RCA) procedures do not specifically call out the need for an extent of condition review. However, the inspector determined through documentation review and personnel interviews that an acceptable review was performed for the siren feedback failure. The inspector noted that RG&E wrote AR 2003-0886 to further evaluate the need to provide additional procedural guidance for extent of condition reviews.

02.03 Corrective Actions

a. Appropriateness of corrective actions.

RG&E established immediate and long term corrective actions to address the root cause and contributing causes for this issue. The existing siren control system contained a design deficiency such that it could not adequately receive unsolicited siren messages while simultaneously trying to verify the activation of all 96 sirens. The siren vendor (ATI) could not provide adequate assurance that this deficiency could be resolved. Therefore, RG&E replaced the siren controllers and communication equipment with a new system from American Signal Corporation. This was completed via Plant Change Record 2002-0027. The system installation was completed on September 25, 2002 and tested satisfactorily by a full system activation on October 24, 2002.

RG&E addressed the human performance issues associated with this issue by upgrading the procedural guidance for siren system operation, incorporating the procedures as emergency plan implementing procedures instead of less formal EP guidelines, and establishing a formal training/re-training program for county personnel responsible for siren testing and activation. Additionally, a system engineer was assigned to oversee the system operation and configuration control, and maintenance responsibility was assigned to the I &C Special Projects group. Previously the system did not have a responsible engineer and maintenance was provided by the supervisory control and data acquisition technicians under corporate jurisdiction.

The inspector concluded that corrective actions were appropriate.

b. Prioritization of corrective actions.

The inspector determined that immediate and long term corrective actions were appropriately prioritized and given reasonable due dates to restore regulatory compliance. Interim compensatory measures, i.e., focused route alerting coincident with siren activation, ensured that the public would be notified of an emergency while RG&E completed the ANS modifications.

c. Establishment of schedule for implementing and completing the corrective actions.

The inspector determined that the licensee's schedule for implementing and completing the corrective actions was adequate.

d. Establishment of quantitative or qualitative measures of success for determining the effectiveness of the corrective actions to prevent recurrence.

The inspector reviewed the corrective action effectiveness review for corrective actions completed for the siren feedback system failure. This review was performed by a four-person team comprised of two RG&E managers, the siren system engineer, and the corporate nuclear emergency planner, and completed on February 25, 2003. The review concluded that all corrective actions were completed and were effective in correcting the issue. Additionally, it provided eight recommendations, which were also completed by the time of this inspection. The inspector determined that the review was thorough and well-documented, and had no concerns with its conclusions.

03 MANAGEMENT MEETINGS

Exit Meeting Summary

The inspector presented the inspection results to Dr. Robert Mecredy, Vice President, Nuclear Operations, and other members of licensee management, on April 24, 2003, at the conclusion of the inspection. The licensee acknowledged the findings presented.

The licensee did not indicate that any of the information presented at the exit meeting was proprietary.

Attachment 1

SUPPLEMENTAL INFORMATION

Key Points of Contact

Licensee Personnel:

M. Flaherty	Nuclear Safety and Licensing Manager
T. Harding	Licensing Engineer
T. Laursen	Nuclear EP/Training Support Manager
R. Mecredy	Vice President, Nuclear Operations
P. Polfleit	Corporate Nuclear Emergency Planner
R. Popp	Production Superintendent
R. Watts	Nuclear Training Department Manager
J. Widay	VP, Plant Manager

NRC Personnel:

K. Kolaczyk	Senior Resident Inspector

List of Items Opened, Closed, and Discussed

Opened: None

Closed:

AV 50-244/02-04-01	White. RG&E failed to correct problems with the ANS siren feedback system which resulted in a loss of ANS function per 10CFR50.47(b)(5).

Discussed: None

List of Documents Reviewed

AR 2002-0661, “Monroe County Silent Test Failure”
AR 2002-0878, “Monroe County Unsuccessful Silent Test”
AR 2002-1214, “Excess Time Required For Siren Verification”
Event Evaluation: “Monroe County Silent Test Failure”
Event Evaluation: “Unsuccessful Silent Test”
Corrective Action Effectiveness Review for the Ginna Alert and Notification System Self-Assessment 2002-0053
RG&E letter dated 6/14/02, “ Interim Compensatory Measures Associated with Prompt Notification System”
RG&E letter dated 6/28/02, “Update of Interim Compensatory Measures Associated with Prompt Notification System”
RG&E letter dated 8/21/02, “Response to NRC Letter Dated July 25, 2002, Regarding Preliminary White Finding Involving the Alert and Notification System (ANS)”

Ginna Siren Corrective Action Plan (AR2002-0661, 2002-0878)
Plant Change Record (PCR) 2002-0027, “Siren System Upgrade”
IP-CAP-1, Rev 15, “Abnormal Condition Tracking Initiation or Notification (Action) Report”
IP-CAP-2, Rev 6, “Root Cause Analysis for Equipment Failures”
IP-CAP-3, Rev 3, “Investigation Teams”
IP-NPD-4, Rev 8, “Nuclear Operations Group Work Prioritization”
IP-HPE-1, Rev 4, “Human Performance Event Evaluation Process”

List of Acronyms

ANS	Alert and Notification System
AR	Action Report
CFR	Code of Federal Regulations
EP	Emergency Preparedness
I & C	Instrument and Control
MC	Monroe County
NERP	Nuclear Emergency Response Plan
NRC	Nuclear Regulatory Commission
RCA	Root Cause Analysis
RG&E	Rochester Gas and Electric
RSPS	Risk Significant Planning Standard