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LICENSEE: Rochester Gas and Electric Corporation

FACILITY: R. E. Ginna Nuclear Power Plant (RG&E)
Rochester, New York

DATES: January 17-20 and January 30 - February 3, 1995

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EXECUTIVE SUMMARY

R. E. Ginna Nuclear Power Plant

Two inspectors and an inspector in training reviewed the maintenance program and its implementation during the weeks of January 17 and January 30, 1995.

Maintenance:

Overall, the inspectors found that the maintenance program and its implementation were very good. The program implementation procedures were well written and delineated the necessary direction to provide good predictive, preventive, and corrective maintenance. The inspectors interviewed management and workers and found them to be in complete support of the maintenance program. Each person interviewed or observed was very professional and all exhibited a cooperative work attitude. Good teamwork was demonstrated between the departments during the observation of several of the maintenance activities.

The work procedures were well written, precise, and were utilized in the field, as observed by the inspectors. Little or no changes were required during their utilization.

Management oversight of the maintenance was strong. Through interviews and observations, the inspectors determined that there is a strong commitment to plant and personnel safety.

Observations by the inspectors found that the plant was very clean, with an excellent valve and component tagging system. Observed gages within the plant and the control room were clearly marked with calibration tags, showing that they were in calibration and were in specification with the program. Portable instruments, observed in use, were also in calibration.

The inspectors observed an excellent interface among and between the different departments at Ginna. Very good interface between health physics and maintenance was observed on one activity, and operations and maintenance was observed on several others.

One weakness was observed, by the inspectors, in the storage of materials in the warehouse area. Items stored in the warehouse, that require maintenance performed on a periodic basis, did not have a procedure to restore the items to a usable status if the surveillance were missed for any reason. This item is unresolved pending resolution by RG&E.

One violation and two previously identified unresolved items were closed in the procurement area.

Plant Support:

The maintenance program and its implementation is continuously undergoing self-assessment that the inspectors considered effective. The Quality Assurance Department is proactive in the assessment of maintenance. Improvements were noted in the maintenance program procedure changes that resulted from RG&E audits. Very good quality control (QC) was demonstrated during several of the observed maintenance activities.

Engineering:

The inspectors noted very good cooperation between the site engineering organization and maintenance.

DETAILS

1.0 PURPOSE

This announced inspection of maintenance and the departments that support maintenance at Ginna Station consisted of 2 weeks onsite and 1 week in the NRC regional office.

The first week onsite, January 17 - 20, 1995, was to examine programs related to maintenance and how these programs interface to control corrective, preventive, and predictive maintenance, as well as certain monitoring (surveillance) and testing. The second week onsite, January 30 - February 3, 1995, was to inspect maintenance performed on selected safety systems. The inspectors also conducted maintenance worker interviews, and had discussions with plant supervisors and management to aid in their inspections.

This inspection assessed the Ginna station maintenance activities and was designed to assist the NRC in a complete evaluation of the maintenance effectiveness at the Ginna station.

2.0 OBSERVATIONS OF THE MAINTENANCE CONTROL SYSTEM

The maintenance program at Ginna Station, including preventive, predictive, and corrective maintenance, is directed by a series of administrative procedures. These procedures delineate the manner in which maintenance is initiated, planned, scheduled, executed, tested, and finally closed out. The inspectors found this program and its implementation to be very good. (A complete description of the maintenance control system can be read in Section 21.0 of this report.)

The inspectors reviewed the weekly maintenance schedule and selected maintenance activities scheduled for the second week onsite to be observed. In their selection, the inspectors considered mechanical, electrical, and instrument and control work. The following are the results and conclusions of the inspectors' observations of the work in progress.

2.1 Spare Breaker Modification

The inspector observed a modification to install amptector overcurrent devices in a spare Westinghouse DB-75 breaker. This work was being performed by a facility electrician in the electrical maintenance shop. This was a low priority job and was being performed in a piecemeal fashion over several days between other jobs. Nonetheless, the work was being performed by one assigned individual. Site-specific procedures had been written for this modification, and were actively in use with each step signed off as it was completed.

Good performance by QC and interaction with engineering was noted. On the second day of work, the electrician was actively discussing several steps of the procedures with the QC inspector. The QC inspector had witnessed this modification to several other breakers and was able to answer technical questions about the job. The QC inspector also demonstrated good knowledge and safety concern by noting a discrepancy that was not explicitly identified as a procedural hold point. The problem was that the new current sensing coil for one breaker phase did not fit flush against the breaker backplate, but rather rode up on a support rib welded to the backplate. The electrician did not consider this a problem because this coil did not interfere with reassembly of the breaker. The QC inspector was concerned that tightening the sensor's mounting bracket would cock and stress the coil. The engineer assigned to this job was contacted. The engineer and QC inspector were able to find a field change request for a similar problem that called for the use of specified washers to provide additional clearance for the bracket and sensor. The job proceeded with the washers being installed.

2.2 Charging Pump Plunger Replacement

The inspectors observed the start of work on a positive displacement charging pump that involved the replacement of the plunger assemblies with rebuilt assemblies. This job also demonstrated good cooperation between work groups. The health physics technicians monitoring the work were appropriately cautious and required all personnel in the pump room to wear face shields for the initial system breach. Tools and previously rebuilt plunger assemblies were stored in the pump room. The job foreman had made a field copy of the maintenance procedure for use in the contaminated area; this procedure was actively in use and being signed off in a step-by-step manner as the job progressed. Health physics personnel were also willing to assist the mechanics with communications to obtain a QC inspector and by providing a "runner" to obtain a forgotten tool.

2.3 Repair of "A" Instrument Air Compressor

The inspector observed the completion of the repair of "A" instrument air compressor (AC). The AC had been leaking air around the head gasket. During the repair, the gasket was found cracked and broken in the area of the discharge portion of the AC. This area of the compressor operates in the 400 degree region and had caused the gasket to become brittle. The inspector learned that the gasket had been sent to engineering to have analysis performed because the mechanic suspected there may have been a different gasket used than originally supplied by the manufacturer. The results were not available at the time of this write up.

After the reassembly of the AC, the inspector observed an operator performing a valve line up and the starting of the compressor for an operability test run. The mechanic and the operator worked well together in performing the operability test. An electrician was called to take ampere readings on the compressor motor while the compressor was loading and unloading as per the direction in the procedure. All of the work was accomplished in an efficient

and professional manner. The inspector also witnessed the operator finding another air leak on the "B" AC, then writing the work request (WT/TR) and hanging the tag identifying that a WT/TR had been written.

2.4 Calibration of R-7 Radiation Detector for the Incore Instrument Area of the Containment

The inspector observed two I&C technicians performing a calibration of the radiation monitor for the detector in the incore instrument area of the containment. The voltage detector being used had been calibrated and was current at the time of use. The monitor is located in the control room. The inspector observed the coordination with the control room operators for the permission to begin through the initiation and acknowledging of alarms, and the eventual return to service. All of the work observed was by the procedure, professional and documented in accordance with the procedure.

2.5 Diesel Generator Back Draft Damper

The inspector observed the cleaning and exercising of the "B" diesel generator room back draft damper. The mechanics performing the job were knowledgeable and followed the procedure.

3.0 LICENSEE EVENT REPORTS AND WORK PACKAGE REVIEWS

To further evaluate the maintenance program at Ginna Station, the inspectors reviewed licensee event reports (LERs) for 1994 and selected four of these for evaluation of associated maintenance activities.

The inspector reviewed the work packages and maintenance procedures for the maintenance performed in relation to these LERs. The work packages had been prepared acceptably and in accordance with maintenance administrative procedures. All procedures or applicable procedure sections for the actual conduct of maintenance were completed, including a corrected version of one of the erroneous breaker maintenance procedures discussed below.

3.1 Main Feedwater Control Valve Failure

LER 94-007 describes a reactor trip that resulted from loss of the ability to control the "A" main feed regulating valve. The cause of the valve failure was determined by RG&E to be due to an improperly secured set screw in the valve positioner. This valve positioner had just been replaced the day prior to the failure. However, RG&E determined, by root cause analysis (RCA), that the fault was due to a manufacturing defect since this set screw is adjusted and locked tight by the manufacturer prior to delivery. The facility replaced both feed-regulating valve positioners with an earlier design, and determined that the manufacturer already used a different method of securing the set screw on current models of the positioner that failed. RG&E's decision to use the earlier design, after their RCA, appears to have been a sound decision because no further problems with the feed-regulating valves were identified in the work order-computerized data base.

3.2 "B" Safety Injection Pump

LER 94-008 addresses a failure of the "B" safety injection (SI) pump motor. The failure was a broken rotor bar, determined to be caused by repeated magnetically-induced stresses due to motor starting. Corrective actions for this failure included evaluation of other motors considered to have similar failure potential, including the disassembly and inspection of the "C" SI pump. Additional corrective actions encompass other SI pump problems in addition to this particular failure.

LER 94-009 addresses a weld crack in the common minimum flow recirculation line in the vicinity of the B SI pump. The facility performed a root cause analysis of this failure as specified by the work package, and determined the probable cause to be repeating bending moments induced by high vibration in the "B" SI pump.

Safety injection pump problems have been rectified at the Ginna station; see Section 6.0 for more detail.

3.3 Procedure Deficiency

LER 94-010 addresses a maintenance procedure deficiency that resulted in an inadvertent loss of a 4160 volt bus and diesel start. This deficiency considered the assumption, during procedure development, that placing Powell 4160 volt breakers in the test position disabled associated interlocks, including an interlock prevents both feeder breakers from being closed at the same time. A newly developed procedure for maintenance of these breakers required post-maintenance operability testing by cycling the breaker in the test position. When this was performed, the closure of the breaker in the test position tripped the other breaker that was supplying power to the bus, resulting in the loss of 4160V bus 12B and two 480V safeguard busses. In addition, there was an auto start of the "B" diesel. A total of eight procedures with this deficiency were identified by RG&E. The inspector verified that RG&E had corrected the procedures. This was done by adding a procedural warning and independent verification steps to open a terminal block to disable the contacts of concern prior to cycling the breaker.

4.0 REVIEW OF COMPLETED WORK PACKAGES

The inspector selected eight completed work packages for review. The systems were chosen from safety significant systems identified in the facility Probabilistic Risk Assessment (PRA), and the particular packages were selected from a list of completed work in these systems. These work packages included:

- Preventive maintenance of an ECCS system limitorque motor-operated valve;
- Troubleshooting of an inaccurate flow transmitter on the auxiliary feedwater system;
- Inspection of a pressurizer PORV (power operated relief valve);

- Replacement of a service water expansion joint with a new improved design;
- Rebuilding of check valve 891C in the safety injection system;
- Tube plugging of the diesel generator jacket water cooler;
- Repair of a nitrogen supply valve to the pressurizer relief tank; and
- Replacement of the internals for Valves 4031, 4300, and 4301 in the auxiliary feedwater system.

The completed work packages and procedures were reviewed against the maintenance planning and review processes described in the facility's A-1603 series maintenance procedures. In all instances, activities required by facility procedures were documented in the work packages, the actual work procedures or applicable sections were completed and signed off in a step-by-step manner, and the required post-maintenance testing and reviews were documented as completed. All requested information, including any documentation, was obtained very quickly. Record retrievability was outstanding.

5.0 SURVEILLANCE, SCHEDULING, AND TRENDING

Surveillance and trending is performed in accordance with Administrative Procedure A-1101, "Performance of Tests," that provides instructions for performance, documentation, evaluation, and the disposition of results. It also provides instructions for governing the operability status of safety systems/components during the performance of the surveillance testing. Instructions are also provided for the performance of specified tests as a result of maintenance and repair of systems and performance, and finally, the procedure provides instructions for the performance of specified tests for newly-installed station modifications.

The inspector reviewed the surveillance testing program that was scheduled, trended, tracked, and prepared via computer. The inspector concluded that surveillance, including post-maintenance and new component installation, is being performed by qualified personnel in a professional and organized manner with all surveillance being tracked and trended on a computerized system. The scheduled surveillances and maintenance work are discussed at the daily 2:30 meeting conducted by Maintenance Planning. Several meetings were attended by the inspector who found them to be informative and effective in promoting the scope of work for the next day. Department heads present at the meetings demonstrated concern for schedule and priorities concerning safety. The inspector did not identify any missed surveillance in his review of the surveillance program.

6.0 EQUIPMENT FAILURE AND ROOT CAUSE ANALYSIS

Equipment failure and root cause analysis are performed at Ginna Station with the guidance of Procedures M-1601, "Equipment Failure - Cause Analysis Process," and M-1601.2, "Root Cause Analysis." The first procedure, M-1601, provides instructions for identifying probable cause(s) (PC) or root cause(s) (RC) of equipment performance problems and/or failure, and provides for development of corrective actions to preclude recurrence. The second procedure, M-1601.2, describes the process for utilizing root cause analysis techniques for investigation of other conditions or events.

The inspector reviewed the above procedures and determined they were of sufficient detail to perform a complete analysis of any type of problem or equipment malfunction that could occur at Ginna Station. The inspector also reviewed previously performed root cause analysis regarding a series of problems that had occurred on "B" safety injection (SI) pump over the period April - June 1994. There were four failures of the "B" SI pump during this period: a seal failure, a cracked rotor bar, a failed spring, and a cracked recirculation line. These events were documented in the resident inspector's reports over the period of time listed above.

The inspector reviewed four root cause analysis (RCA) performed on the "B" SI pump. In the first and second RCA, the problem associated with the SI "B" pump was identified, however, after discussions with station representatives, the inspector concluded that RG&E seemed to settle on the one problem identified, and closed out the investigation. Later analysis, the third and fourth, demonstrated that multiple causes can be present, thus, the later investigation pointed to additional problems.

RG&E hired a consultant to perform root cause analysis on the problems of the "B" SI pump. The findings of the consultant agreed with the findings of RG&E. Continuing problems with the "B" SI pump were compounded by several factors: 1) a technical manual, used by RG&E maintenance personnel in the rebuilding of the pump after the first seal failure did not contain the tight tolerances required to perform a successful rebuilding of the pump. This was corrected on subsequent rebuilding because a pump manufacturer brought in to assist in the repairs pointed out that the tolerances in the technical manual were correct, however, they were required to be tighter in order to rebuild and, subsequently, realign the pump and motor assembly of the pump; and 2) a faulty spring seal assembly was used in one of the repairs to the pump, causing a third problem with the pump. In addition, a concern identified by Westinghouse compounded the operability assessment of the "B" SI pump because of cracked rotor bars in the motor.

Because of the SI pump RCA experience, RG&E has appeared to learn to conduct a much more in-depth root cause analysis. The later root cause analysis reviewed by the inspector was in much greater depth than the earlier ones.

Discussions with RG&E senior maintenance management identified that the analysis does not stop when one problem is identified. More rigorous probing into causes is performed to try and identify if other influences could have led to the failure.

The inspector concluded that improvements have been made in the root cause analysis process, and found that revisions were made to the administrative process because of earlier shortcomings.

The inspector noted that RG&E contracted with the manufacturer of the SI pump to bring one to the site for training. Training for mechanics, engineers, QA/QC, and electrical personnel was being conducted while the inspection was in progress. Predictive maintenance equipment was purchased and is now in use at the site. The "condition monitoring equipment" is state-of-the-art vibration monitoring that can identify pump deficiencies, including if the pump has not been vented properly. Anytime work is performed on SI or auxiliary service water (ASW) pumps, this equipment is used to assess pump performance prior to releasing them as being operable.

7.0 CALIBRATION AND CONTROL OF MEASURING AND TEST EQUIPMENT

Ginna has established a calibration and control program that is governed by Procedure A-1201. This program establishes the requirements and assigns the responsibilities for establishing measures to assure that tools, gages, instruments, and other measuring and testing devices used in activities affecting quality are properly controlled, calibrated, and adjusted at specified periods to maintain accuracy within specified limits.

The inspectors verified that the traceability of the standards for calibration has a known valid relationship to nationally recognized standards or accepted values of nationally recognized physical constants. If no national standards exist, the basis for calibration was documented.

During inspection within the facility, the inspector noted that plant gages were marked with calibration stickers that were in keeping with the procedure. The inspector also observed that all gages checked were in calibration current with the procedure. The inspectors also checked instruments used during the calibration of installed equipment. These instruments were within the calibration standards of the procedure.

8.0 STAFFING AND MANAGEMENT OVERSIGHT

The inspectors found the maintenance department at Ginna to be staffed sufficiently to keep up with plant maintenance. Additional personnel are brought into the facility during outages to supplement the maintenance staff. Most of these workers come from the RG&E system.

The inspector reviewed the "monthly indicator performance indicator report" for December 1994, and found that maintenance work orders are all below goals. The goals are conservative and manageable for Ginna Station. Examples are as follows:

> Corrective maintenance goal is 800. Currently, the number of work orders is 763. This includes outage and non-outage. Outage work orders are at 264.

RG&E management was effectively involved in the daily maintenance meetings at Ginna. Managers were observed at the morning and afternoon meetings. They presented input and concern involving ongoing maintenance. Interviews with management and staff showed that the staff feels that they are being supported by management in obtaining the safety goals to meet NRC and industry standards. Management's focus is to get the job done right the first time. The staff echoed this in the work observed by the inspectors.

The inspectors attended a plant operating review committee (PORC) meeting that was convened to discuss a leak in the blowdown sample line from the "B" steam generator. The committee discussed the events leading up to the discovery of the leak, then listened to the presentation of the analysis that had been done to assess the leaks potential for causing concerns over safety. The following analysis was presented:

- ASME Code that gave an allowable leak of 0.5 gpm;
- Technical Specification 3.6 also gives allowable leak of 0.5 gpm;
- High energy line break analysis assumed double-ended break of the other steam generator steam line and a double-ended break of the 1-inch line in question;
- An examination of installation x-rays of the affected piping for flaws or erosion within the pipe;
- Repair options in accordance with the ASME Code;
- Line break flow rate; and
- All of the above performed on the simulator took 7 minutes to receive a MS isolation signal with no operator action.

Ginna operators had been monitoring the containment sump discharge and were aware of how much leakage there was in containment. For analysis purposes, the assumption was that all of the water was coming from this leak, even though they had been monitoring a leak on a steam generator manway. The sump leakage was 0.1 gpm, and had been for several weeks.

All analyses were bounded by Chapter 15 of the FSAR and the leak was not exceeding any specification or regulation. Therefore, the committee decided to continue operation with a restriction that if containment sump leakage reached 0.5 gpm, a shutdown would commence. A directive was written to operations to take the appropriate action if required.

The inspectors also attended a routine PORC meeting and found that the performance of the participants was in keeping with technical specification requirements.

The inspectors concluded that management at Ginna is closely involved in maintenance and has a strong safety focus.

The following sections (9.0-19.0) describe how the support organizations interface with maintenance at Ginna.

9.0 PRA INVOLVEMENT IN MAINTENANCE

RG&E is using the PRA to aid in system outage planning for on line maintenance. The PRA engineers have performed analysis for the systems to be taken out of service to perform maintenance, and the analysis identifies the total length of time any given system can be off line for any given year without affecting the overall risk for core melt identified in the PRA. This is usually in hours. RG&E decided that they will use only one-half of this time to allow the system to be out of service for on line maintenance in that year. If a system breakdown were to occur and the system was out of service while the plant continued to operate, then reinstated within the Technical Specification limit, another analysis would be performed prior to additional outages on the system. Although not looked into in-depth, the inspectors have also learned that the PRA is currently being used to support the following:

- INPO Safety System Performance Indicators;
- Shutdown Risk;
- Fire Protection;
- Justification for Continued Operation/Notice of Enforcement Discretion;
- Response to Generic Letters/Proposed Rules;
- Graded Quality Assurance;
- Modification Prioritization; and
- Risk-Based Inservice Inspection and Inservice Testing.

The inspectors also learned that the current PRA for Ginna has been deemed too conservative by RG&E management. Currently, the PRA is undergoing an upgrade and will be complete (Level 1 only) by September 1995. Ginna hopes to submit the document to the NRC by December 1995.

Discussions with RG&E management revealed that the new PRA will be a living document and will be updated on a continuous basis. RG&G will also use the PRA for the maintenance rule support and on line maintenance support, beginning in mid 1995.

10.0 SYSTEM ENGINEERS

Within the past year, RG&E has implemented a System Engineer Program. The responsibilities of the system engineers and their interaction with maintenance is still under development. The intended interaction with maintenance is for the system engineer to monitor system parameters, inservice testing results, and initiate maintenance if degradation of system performance warrants. They will also assist in coordinating complex maintenance work as well as in RCA evaluation. Although a training program for system engineers is still under development, the engineers are functioning to assist in plant performance and maintenance. An example of this was demonstrated by a secondary systems engineer who identified a tube leak in a feedwater heater via analysis and trending of secondary system parameters. This resulted in an extensive program of eddy current testing planned for the next outage.

11.0 TRAINING

This inspection did not include a detailed evaluation of maintenance training. However, the inspectors verified that the facility does have ongoing training for both supervisors and craft personnel. The Training Department tracks which personnel are qualified to perform specific jobs and periodically passes this information to the Maintenance Department to aid in job assignments. Curriculum committee minutes and personnel interviews demonstrated that training is updated based on anticipated needs, and plant and industry events. Personnel are also sent to outside training or other facilities as budgets permit.

The inspectors toured the site and training center and noted that the facility makes good use of mockups for training. The facility had two steam generator mockups, a limitorque motor operated valve mockup, various voltage-rated switchgear components, various instrument and control mockups and training aids such as: cut-away valves and heat exchanger. In addition, RG&E demonstrated a training followup to maintenance-related safety injection pump problems in parallel with this inspection. RG&E obtained a Worthington pump similar to the design of the SI and auxiliary feedwater pumps (AFP) and was conducting training activities with it at the training center.

The inspector also observed an impromptu electrical training activity. A vendor was onsite marketing a hardware and software upgrade to facility motor testing equipment. The facility brought him into the electrical maintenance shop where he spent several hours demonstrating the upgraded equipment and testing techniques. He also answered questions for the those present. The shop foreman stated that their opinions would be considered by management in any purchase of such equipment.

12.0 WELDING

Welding is performed for maintenance, as needed, by the RG&E welding department. There is one representative onsite on a daily basis. All welders are qualified to ASME Code 9 and are tested in accordance with the Code. The welders can be obtained on very short notice. The inspectors did not have an opportunity to witness any welding or welding-related activities.

13.0 FIRE PROTECTION PROGRAM

The fire protection program at Ginna is formulated to satisfy the requirements of 10 CFR 50.48(a) and is governed by Procedure A-202, "The Fire Protection Program and Ginna Station Staff Responsibilities for Fire Protection." The procedure delineates the staff responsibilities during operation, maintenance, modification, or construction work to assure that the activities involving potential fire hazards, that could adversely affect the ability to safety shutdown and cooldown of the plant, are properly controlled.

After a review of the procedure, conducting interviews, and taking plant tours, the inspector concluded that the training and implementation of the program are in keeping with 10 CFR 50.48(a), and that the personnel were knowledgeable of the codes and standards for the prevention of fires at Ginna Station.

As an example, the inspectors noted that the facility was kept clean and free of debris throughout the plant, including the outside support facilities. During the plant walkdown, and on other entries into the plant, the inspector noted several good practices regarding fire safety. For example, a fire watch was observed stopping a grinding operation on the feedwater heater to be installed during the next outage. The grinding was stopped because the sparks were going over the barrier that was set up to contain them. The barrier was corrected and grinding resumed.

Another example of good practice observed was the marking of fire barriers such that anyone working in the area would be alerted to the attention signs posted that state, "Penetration must be reported to fire protection and safety." This practice should prevent the inadvertent penetration of the fire barrier without proper precautions being taken for proper procedures and post-maintenance testing.

The inspectors concluded that the fire protection program was being effectively implemented at the Ginna station.

14.0 QUALITY ASSURANCE

The auditors have a diverse background including engineers, operators, and maintenance personnel. Five of the QA auditors are former senior reactor operators (SROs) or shift technical advisors (STAs).

Audits are conducted to satisfy technical specifications, however, they may also be performed in other areas where management seeks more insight. Surveillances are performed on a specific task, i.e., field maintenance, e.g., the replacement of a valve. The following are RG&E's definitions of an audit and a monitoring. (RG&E refers to a monitoring as a surveillance):

Audit - A documented activity to determine, through investigation, the adequacy of and adherence to, specifications, codes, standards, or other requirements, and the effectiveness of implementation.

Monitoring- The physical presence to monitor, by observation, the designated activity to assure that they are performed in a specified manner.

The following audits were reviewed:

93-11:	HMG	Audit of Outage Activities
93-33:	HMG	Audit of Procurement
93-28:	HMG	Audit of Ginna Maintenance
94-13:	CJK	Audit of Outage Activities
94-24:	TGT	Audit of Ginna Maintenance
94-28:	CJK	Audit of Indoctrination and Training Retraining and Qualification or Maintenance Personnel
94-30:	CJC	Biannual Assessment of QA Program Implementation (lead by Florida Power Corporation with help from Houston Lighting and Power, and NYPA)

The audits performed by RG&E QA were thorough, and identified both strengths and weaknesses. The weaknesses were documented within the inspection findings. These findings were presented to the responsible organization for resolution. The organization head then responded, in writing, to the QA department. The findings were tracked via a computer tracking system. These findings were considered delinquent after 30 days. There are measures in place to heighten the awareness of delinquent responses to the audit findings. These measures include formal written documentation presented to higher management, up to and including, the vice president.

Quality surveillances were reviewed for various activities performed by the maintenance department, including the material accountability log (S/Gs when opened), receipt inspection, maintenance planning, maintenance team training,

management involvement in potential safety issues, fire equipment maintenance, and equipment failure/cause analysis process. These surveillances, like the QA audits, exhibited strengths and weaknesses that were handled similar to those identified in audits described above.

The inspector reviewed the computer printout for departmental response to QA findings and verified that responses by department heads show that findings are taken seriously, and improvements are made to correct QA audit findings. The inspector verified that QA follows up on these improvements to document the completion of and compliance with the findings.

The inspector concluded that RG&E currently does self-assessment on all aspects of maintenance and is getting positive improvements. This was evident by the inspector's review of two successive audits regarding the maintenance outages of 1993 and 1994. The reviews indicated that the second audit had identified fewer findings involving the same subjects such as: use of procedures, use of procedure changes, use of field changes to planned design changes, and individual's knowledge of the work in progress. In general, the audits showed improvements in maintenance working techniques.

QC is involved, as needed, in accordance with the job being performed. The QC department reviews all procedures to assess the hold points and then witnesses these hold points as necessary. The inspector witnessed a QC check being made while witnessing the rebuilding of a breaker. See Section 18.0 for more details.

15.0 TECHNICAL MANUALS

As part of the quality assurance program at Ginna, the technical manuals are updated as changes are received. In addition, if no manual changes are received, there is a program for contacting all vendors that supply manuals for installed equipment. The contact is made every 2 years in order to determine if changes are warranted to technical manuals that have not been updated within the period. This program governed under Procedure EP-2-S-900, "Vendor Technical Manual Periodic Vendor Contact," is in the process of being computerized to track the changes made to manuals and contacts made with vendors.

The procedure also outlines the process for placing changes received into the technical manuals. The inspector reviewed this process and found the process to be in good order.

16.0 OPERATING EXPERIENCE (FEEDBACK PROGRAM)

Ginna uses Administrative Procedure A-1404, "Operational Assessment Program" to review lessons learned and resolution of concerns from the nuclear industry operating experiences that are pertinent to NRC, INPO, and vendor information. This information is processed and distributed to the departments in order to

present recurrence of industry events at Ginna. The inspector, while attending the morning meeting, witnessed part of the process in progress. The designated individual read aloud and distributed information from several other facilities that had reported difficulties.

Other aspects of the feedback program were not inspected in-depth, however, discussions with the person in charge of the program and a review of the procedure used to administer it indicated to the inspector that implementation of the program as written would be effective in alerting station personnel of other industry problems.

17.0 IN-STORAGE MAINTENANCE (ISM)

The ISM program is described in Procedure A-407, "Evaluation of Items for In-storage Maintenance Requirements," A-1303, "Storage and Preservation of Materials and Equipment Ginna Station," and PEGG-2, "Instructions for Evaluating Items for In-storage Maintenance Requirements." The following two paragraphs describe two parts of the IMS.

17.1 Inventory Control System

The inventory control system is computerized and well organized. The system program is called "Materials Management System" (MMS). The computer code is semi-custom, developed to meet Ginna's inventory process. There is a computer programmer on staff working on further upgrading the MMS. ISM worksheets are automatically printed approximately every 2 months prior to the required completion date of the ISM activity. The worksheets are printed again approximately 2 weeks prior to the completion date if the activity has not yet been completed. On the date an ISM activity becomes past due, the system will again print an ISM worksheet.

The system will automatically put a "hold" on the item that is past due, which is highlighted on the terminal screen, and will not allow anyone to complete the computer input process required to remove the item from storage. Included on the worksheet is the name and material identification number of the item, the storage location, a description of the ISM activity, the required ISM completion date, and a location to write down a nonconformance report number if one is initiated. The inspector randomly selected and reviewed 13 ISM worksheets, all of which had work performed in January 1995. Except for one worksheet, all ISM activities were performed on schedule. After further investigation on the one late worksheet, it was found that the ISM activity was, in fact, performed within the allowable grace period. At the conclusion of an ISM activity, a preventive maintenance analyzer reviews and approves completion of the ISM worksheet. The MMS database is then updated showing the completed ISM work.

17.2 ISM Operators

The inventory control operators that performed the ISM activities were found to be well trained, organized, and detail-oriented in performing the maintenance work. For example, one work order required the operator to measure and record ac voltage on a pre-amplifier to determine ripple. The data was to be compared against the manufacturer or system specifications. The inspector questioned as to where the manufacturer or system specification data was obtained and where the pass/fail criteria is defined. The operator presented the location where the manufacturer's data and the pass/fail criteria was obtained. All data was obtained from controlled documents, kept neatly stored in binders.

The inspector randomly selected one work order that had the work scheduled for that week. The operator obtained the documentation and tools required to perform the ISM. The inspector observed the ISM work in progress and questioned the operator on the work activity being performed. The operator was well-versed, and his attitude was very professional.

18.0 OPEN ITEMS

While conducting the inspection of the ISM, the inspector conducted interviews to obtain clarification on the procedures and to obtain updates on the following open items.

(Closed) Violation (50-244/94-17-01) Failure to Protect, Clean, or Report Nonconforming Equipment in Level "B" Storage

Inventory control personnel in plant Level "B" storage areas had not been protecting, cleaning, or reporting nonconforming equipment conditions. The inspection had identified components with missing connector and port protection. Seven Limitorque switches had been found leaking oil/grease while in their protective packaging material, and no nonconformance reports (NCRs) had been initiated. Also, several instruments had been found with dust accumulation around the electrical terminations.

The inspector reviewed the RG&E actions taken to address this violation. The material and procurement organization completed a comprehensive inspection of the storage areas. Their inspection showed only a few isolated cases still existed where components were missing plugs, caps, or seals, and these infractions were immediately corrected. Management expectations and standards describing the importance of caps, plugs, or seals and cleanliness of Level "B" stored equipment have been reaffirmed to the inventory control organization.

The inspector reviewed the QA report describing a surveillance that had recently been performed on the material/procurement maintenance department. The report gave a performance rating of "Satisfactory" to both the "Inspect Level B Storage Areas" and the "Covers, Caps or Plugs Intact" inspections. The inspector toured the Level "B" storage area and randomly inspected 14

safety-related storage cabinets. All components were found to be clean and very well organized, and were stored with proper protection. In addition, numerous Foxboro modules were inspected for cleanliness. The modules were clean and free of dust.

Inventory control personnel had initiated a nonconformance report to address the issue of grease seepage from the Limitorque switches that were in storage. The valve manufacturer's engineering organization submitted documentation substantiating the conclusion that seeping grease is not an issue of concern, that is, the switches are not designed to be leak-free during storage or other periods of significant inactivity.

The inspector concluded that RG&E's corrective actions were comprehensive and thorough to address the above findings. This item is closed.

(Closed) Unresolved Item (50-244/94-17-02) Maintenance Control of Safety-related Parts

Procedures had not addressed storage of safety-related items in the shops during the time the item was issued from inventory control until it was installed in the plant.

The inspector reviewed Procedure A-1303, "Storage and Preservation of Material and Equipment - Ginna Station," which had been revised to include Level "B" storage areas located throughout various maintenance shops. This revision described an interim storage area between the time items are issued from inventory control and installed in the plant. The inspector reviewed the interim Level "B" storage areas located in the mechanical, electrical, and I and C maintenance shops and noted the following: the storage areas were clean, storage cabinets were clearly marked and segregated, and access to the specific storage areas were controlled and restricted when unattended.

Based on this review and review of supporting documentation, this unresolved item is closed.

(Closed) Unresolved Item (50-244/94-17-03) Quality Assurance Audit

Review of a QA audit report had indicated that the audit concentrated on compliance-type evaluations, and was weak in the area of performance-based evaluations.

The inspector interviewed representatives from QA and obtained a description of improvements being implemented in the QA surveillance program. QA is committed to performing more performance-based evaluations. Audit personnel were trained on performance-based evaluations. The interviews indicate that surveillance reports may be changed to contain quantitative data that can be tracked to determine trends. The inspector reviewed the latest surveillance report for the surveillance performed on the material/procurement maintenance

department. This report contained a performance-based assessment criteria on each item surveyed, i.e., each item was given a rating of strength, satisfactory, weakness, or deficiency. In the future, these ratings can be compared after subsequent surveillance to help assess performance trends.

Based on the above review and verification of increased performance-based evaluation effort, this unresolved item is closed.

(Open) URI 50-244/95-01-01 Completed ISM Work Approvals

Procurement engineering is responsible to identify items that require ISM, initiate ISM reviews, develop ISM required activities, and determine associated frequencies. Each ISM activity has a completion date grace period. Ginna procedures require a preventive maintenance analyst (PMA) to provide technical justification for any ISM activities performed beyond the allowed grace period. The inspector identified that the PMAs were approving ISM worksheets, which were performed beyond the grace period. These items can potentially be released to the plant when, in fact, they may require additional evaluation. The process did not ensure the overdue ISM items go through a technical evaluation prior to being released back to the plant. There are no documented procedures describing the technical justification process and required sign-offs. This is considered an unresolved item pending NRC review of procedure changes (50-244/95-01-01).

19.0 MAINTENANCE CONTROL SYSTEM DESCRIPTION

Anyone can initiate a maintenance work request/trouble report (WR/TR) that identifies and documents plant deficiencies, equipment malfunctions, or failures, or any problem identified in the facility.

The WR/TR consists of two sections: the trouble report (TR) section and the work request (WR) section. The initiator of a WR/TR completes one of these sections, depending on the nature of the work being requested. A TR is initiated whenever an equipment malfunction or failure, which affects a plant system, is identified. A WR is initiated for modifications, specified surveillance tests, preplanned outage work, preventative maintenance (PM), or work that does not impact plant systems. This distinction is made to allow parallel processing of the WR/TRs. WRs are submitted directly to the scheduler, while TRs are submitted first to the shift supervisor and then to the scheduler.

Separation of work into WRs and TRs provides two benefits. First, it allows quick initial separation of work activities that are of a routine nature, or have no impact on plant systems from equipment malfunctions or failures that may require immediate attention. Second, it minimizes the number of WR/TRs that have to be reviewed and processed by the shift supervisor, reducing his workload. Only non-routine work that can potentially impact plant operations

is validated by the shift supervisor; it subsequently receives a second check by the scheduler. The scheduler screens and evaluates the valid WR/TRs and, when satisfied that all the requirements are met, initiates a work order (WO) to control the work requested.

The WO is then sent to planning, the assigned planner classifies the type of work (corrective, preventive, predictive, and NRC notification where applicable), identifies required support groups, determines required procedures, permits, and materials, and in general, performs all activities necessary to ensure that the job will be ready for work and that company, QA, and regulatory requirements will be met. The planner also determines what pre-work notifications and authorizations are needed, post-maintenance testing requirements, and post-maintenance required reviews. These reviews are indicated in a checklist format in the work packages. The prepared work package is then reviewed by the scheduler and entered into the work control system computer as "planned, awaiting scheduling." The planner also ensures that parts, tools, and other materials are available for the work. QC hold points are also added at this point in order to ensure quality of certain functions of maintenance.

The WO is then scheduled by a responsible scheduler. The scheduler is intended to be, or have been, a senior reactor operator (or equivalent, as determined by management) to ensure operational needs are considered during the processing of work. The scheduler evaluates the failure to determine if a root cause analysis is required, safety classification, priority, applicability to NPRDS and other tracking systems, Technical Specification applicability, and assigns the work to a group/discipline for planning.

After all the conditions required by the scheduling procedure are met, the WO is turned over to the maintenance department for implementation. The lead foreman reviews scheduled WOs and assigns the work to a "lead technician/worker" (LT/W) and conducts a pre-briefing for the more complex jobs. The use of mockups are also used when available. Questions are answered, and the job proceeds after it is tagged out and approved by the operations department and the shift supervisor. The scheduler groups plan the work by equipment location or grouping, required constraints, and other factors. One such constraint is Technical Specification (TS) allowed outage times. Facility procedures permit planned work scope for a given job on TS equipment up to 50% of an allowed outage time with approval by the shift supervisor; longer jobs require plant superintendent approval. Daily, weekly, and 1-month look ahead schedules are prepared. The scheduler then monitors the status of scheduled work and notifies responsible individuals and support groups of delays.

If delayed work involves preventive maintenance, the responsible preventive maintenance analyst (PMA) is notified. The PMAs are responsible for developing and maintaining preventive maintenance programs and procedures in their discipline, for trending the results of PM, and for modifying the program and/or participating in troubleshooting or root cause analysis of

failures based on those results. In the event of a delay in scheduled preventive maintenance, the PM analyst determines if the work can be rescheduled within any allowed grace period, or initiates any required additional evaluations or licensing involvement.

After completion of the job, post-maintenance testing is required to restore the equipment to the operational status. The testing requirements are included in the WO. Other departments, such as engineering or operations, may be needed to perform such testing.

When the work order is completed, closeout reviews identified by the planner are performed. The final review is performed by the maintenance history analyst, who determines which documents need to be retained, other than by being filed with the completed work package. He/she also cross-references the work order to related work orders and documents, and enters work history information as applicable in the work control computer system.

20.0 UNRESOLVED ITEM

An unresolved item is an area in which more information is needed to determine if the item is acceptable, a deviation, or a violation. An unresolved item is addressed in Section 18.0 of this report.

21.0 EXIT MEETING

An exit meeting was conducted on February 3, 1995. At the meeting, the inspectors reviewed the scope of the findings of the inspection, which were acknowledged by facility management in attendance. Key persons contacted during the inspection and attenders at the meeting are listed below. None of the information reviewed during the inspection was identified as proprietary.

EXIT MEETING ATTENDERS

Rochester Gas and Electric Corporation

T. Alexander, Manger, Nuclear Assurance
J. Cook, Scheduling Manager
E. Fischer, Director, Maintenance Rule
C. Forkell, Manager, Engineering and Computer Support
P. Gorski, Component Engineer
J. Hotchkiss, Manager, Mechanical Maintenance
R. Mecredy, Vice President, Nuclear Operations
T. Plantz, Manager, Maintenance Systems
R. Podlena, Director, Procurement Engineering
R. Popp, Electrical/I&C Manager
T. Schuller, Manager, Performance and Reliability
M. Shaw, Manager, Material and Procurement
M. Smith, STA Engineer, Mechanical Maintenance
B. Stanfield, QA Engineer, Independent Assessment
J. Wayland, Manager, Systems Engineering
G. Wrobel, Manager, Nuclear Safety and Licensing

U.S. Nuclear Regulatory Commission

J. D'Antonio, Operations Engineer
T. Kenny, Senior Operations Engineer
T. Moslak, Senior Resident Inspector
J. Reyes, Operations Engineer