U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-244/84-04

Docket No. 50-244

License No. DPR-18

Licensee: Rochester Gas & Electric Co.
49 East Avenue
Rochester, New York 14649

Facility Name: R. E. Ginna Station

Inspection At: Ontario and Rochester, New York

Inspection Conducted: February 5-15, 1985

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for M. Stamatelatos — 8/9/85
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PWR-RPS, EPRPB, DRSS

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Michael Schaeffer, Reactor Engineer — date

Peter C. Wen — 8/6/85
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Lee H. Bettenhausen, Chief, — date
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Division of Reactor Safety

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1.0 SUMMARY AND INTRODUCTION

1.1 Inspection Summary:

Inspection Conducted February 5-15, 1985 (Report No. 50-244/85-04)

Areas Inspected: Special Operations Assessment Team inspection of maintenance activities and such related activities as quality control, quality assurance, radiological protection and engineering support. The inspection involved 397 hours onsite by six region-based inspectors.

Results: One violation was identified (failure to accomplish preventive maintenance reviews on valves). Three weaknesses were found (documentation of maintenance activities, slow implementation of maintenance training programs and deficiencies in the control and calibration of measuring and test equipment). Three notable strengths of licensee programs were identified (a strong commitment to ALARA, thorough and safety-conscious reviews by the Nuclear Safety and Review Board and experienced, well-qualified plant staff members).

1.2 INSPECTION OBJECTIVES

This inspection involved a multidisciplinary examination of maintenance and surveillance activities. In each functional area inspected, the conduct of activities, the qualification of staff members, the interactions with other functional areas, the development of and adherence to work procedures and the documentation and analysis of trends and data were examined. Mechanical, electrical and instrument/control maintenance and surveillance activities conducted by operations and results and test personnel were selected for inspection. Personnel were interviewed; procedures were reviewed and examined in use; on-going activities were inspected; and, documents, training data, and qualifications were reviewed. The information gathered was then assembled by inspection team members to obtain the basis for an operational assessment of the conduct of maintenance and surveillance at Ginna Station.

1.3 INSPECTION FINDINGS

- Safety-related maintenance is performed expeditiously and conscientiously by well-qualified personnel. (Strength)
- Recordkeeping in several areas of maintenance - Maintenance Work Requests, maintenance history files and closeout of quality control surveillance findings - is incomplete and not timely. (Weakness)
- Preventive maintenance for rotating equipment and for valves was being controlled, performed and documented. However, the review functions of A-1015 for valves were not being done. (Violation)
- A well-defined training program for maintenance staff has been developed, but has not been implemented. (Weakness)

- Calibration and control of mechanical measuring and test equipment was adequate. Discrepancies in the calibration procedures were noted. Several discrepancies in the calibration and control of electrical measuring and test equipment were identified. (Weakness)

- Reactor trip breaker testing was performed with no difficulties. Plant personnel were familiar with procedures and results. However, there was no procedural requirement for trending data as had been committed to in a licensee letter. (Unresolved Item)

- Information exchanges, meetings and informal communications were observed to be viable and effective.

- Test result data and trending information was readily available to Results and Test staff.

- Outage radiation exposure planning is thorough, although accomplished informally.

- A strong commitment to radiation safety and ALARA is evident. (Strength)

- Acceptability of audit finding invalidations for the triennial fire protection audit will be examined by NRC. (Unresolved Item)

- Onsite inspection and surveillance exceeds QA program requirements.

- Nuclear Safety Audit and Review Board overviews are thorough, detailed, well-planned and competent. (Strength)

- An ambitious flow diagram upgrade program using a computer-based drawing and data base system is nearing completion. This is one measure of strong engineering support for plant activities.

- Trending, analysis and reporting for station events done under supervision of the Operational Assurance Engineer are thorough and provide useful outputs.

- Deficiencies in reporting of data for the Nuclear Plant Reliability Data System have been recognized and are being addressed.

In sum, the team found maintenance and surveillance activities at Ginna Station to be conducted by an experienced, well-qualified staff through a thorough and controlled management system. Some minor deficiencies in review of preventive maintenance, recordkeeping and record handling and responses to quality control reports were identified in the course of this inspection, as well as the notable licensee strengths mentioned above.

1.4 PERSONS CONTACTED

*C. Anderson, QA Manager
J. Bodine, Administrative Manager
*L. Boutwell, Maintenance Manager
*C. Edgar, I&C Supervisor
*D. Filkins, Manager HP & Chemistry
*J. Hutton, Mechanical Engineer
*R. Kober, V.P. Electric and Steam Production
*J. Larizza, Operations Manager
*T. Marlow, Steam Generator Project Manager
*R. Mecredy, Manager Nuclear Engineering
*K. Nassauer, QC Inspection Supervisor
*C. Peck, Nuclear Assurance Manager
*J. St. Martin, Station Engineer
*T. Schuler, Maintenance Manager
*B. Snow, Superintendent Nuclear Production
*S. Spector, Assistant Superintendent
*W. Stiewe, QC Engineer

NRC

*W. Cook, Senior Resident Inspector

The personnel identified with a asterisk(*) attended the exit interview on February 15, 1985. Other managers, supervisors, corporate and plant personnel were contacted during the course of the inspection as activities involved their areas.

2.0 MAINTENANCE

The Maintenance Manager is responsible for the overall conduct of maintenance activities. Fifty-three persons assigned to various sections carry out these activities.

Maintenance activities at the Ginna station are conducted by three functional disciplines: mechanical, electrical and instrumentation and control (I&C). These three disciplines and the functional and administrative controls governing their activities were reviewed for conformance to applicable codes, standards and procedures.

The paragraphs which follow document the inspector's review of each of these disciplines and their integration into the operation of Ginna station.

Procedure A-1603, rev. 6, establishes the system for initiating, prioritizing, scheduling and controlling corrective maintenance. Any person can initiate a Maintenance Work Request (MWR) and Trouble Report. The Shift

Supervisor or his designee reviews MWR's to assess impact on plant operations, assigns a sequential number and indicates approval of the MWR. The Maintenance Manager or his designee establishes priority for the work and assigns the work group. The work group supervisor is responsible for the coordination necessary to perform the work and to complete the post-performance activities. This coordination includes Shift Supervision, a Special Work Permit or Radiation Work Permit, Quality Control, and Results and Tests, as applicable.

The inspector reviewed the MWR's initiated in 1985, the MWR's outstanding from 1984 and a random sampling of completed MWR's to assess the quantity of corrective maintenance, priority and timeliness for safety related work and the coordination before and after work performance. Approximately 4000 MWR's are initiated each year. 415 MWR's had been initiated between January 1 and February 7, 1985. Several of these were rewritten from previous (1983) MWR's as a result of maintenance supervision's annual review as mandated by section 3.5.2 of A-1603. Of the 415 MWR's issued to date in 1985, only 6 were safety-related. These were properly prioritized. Informal communication between operations and maintenance personnel usually results in work completion contemporaneous with MWR initiation for operational or safety-related work. A review of outstanding (1984) MWR's yielded about 600; many of these require plant shutdown to accomplish and are scheduled for the 1985 refueling outage. Others are completed work, according to various supervisors interviewed, but administrative review is not yet complete. A review of 45 in-process MWR's awaiting the Maintenance Manager's closeout, the final step in the MWR process, showed a typical time of 1 month from initiation to closeout and 3-7 days from initiation to work completion, except that safety-related work is completed the day of initiation unless deferred until plant conditions permit the work.

While no problems were evident regarding safety-related activities, the large number of open and incomplete MWR's, (several hundred), and the tenuous tracking system for MWR's contributes, with other problems identified later in this report, to an assessment of untimely and incomplete recordkeeping for plant maintenance activities.

2.1 MECHANICAL MAINTENANCE

Mechanical maintenance activities include preventative and corrective maintenance for pumps, piping and supports and valves. The majority of work is accomplished by the mechanical, pipe and day/night maintenance shops. Each of these shops has an assigned staff headed by a shop foreman. The foremen report to the Mechanical Maintenance Supervisor.

Mechanical maintenance activities were reviewed to ensure that safety-related work is conducted in accordance with approved plant procedures. Maintenance activities are controlled through the use

of administrative (A) procedures describing programs and controls and maintenance (M) procedures giving detailed work instructions. Corrective maintenance, either safety or non-safety-related, is initiated by use of the MWR. The inspector reviewed several hundred MWR's to verify completeness and ascertain the extent of safety-related maintenance. It was evident from this review that the majority of safety-related maintenance is routine scheduled preventative maintenance (PM).

Administratively, mechanical PM activities are governed by A-1010, Mechanical Preventative Maintenance Program; A-1011, Equipment Inspection Period and Lubrication List; A-1015, Three Month Lubrication and Maintenance Inspection; A-1020, Valve Preventative Maintenance Program; and A-1021, Safety and Relief Valve Testing Program. The conduct of safety-related maintenance, whether preventative or corrective, is controlled through the use of detailed procedures. The inspector reviewed the performance of several maintenance activities completed during 1984. These included major/minor inspections of pumps; removal and installation of seismic pipe supports; installation of valve packing; inspection and testing of valves; and inspection of heat exchangers. Within each procedure, certain provisions are to be met prior to commencing or continuing work. These provisions include:

- Quality Control(QC) notification prior to start
- Limiting Conditions for Operation evaluation (A-52.4)
- Equipment Tagging (A-1401)
- Health Physics work permit issued if applicable
- QC hold points
- Notification of Results and Test group for possible post-maintenance testing
- Replacement parts, if necessary (A-801)
- Housekeeping and cleanliness requirements

For those maintenance activities reviewed by the inspector, a sampling of procedural provisions was reviewed to verify that all work had been completed as required. The inspector found all work to be complete and well documented.

The Results and Test (R&T) group performs post-maintenance testing following completion of maintenance on safety-related equipment in order to verify equipment operability and develop baseline operating characteristics. No safety-related mechanical maintenance was conducted during this inspection, so the inspector was unable to observe post-maintenance testing. All procedures reviewed had adequate provision for

post-maintenance testing. The inspector did observe the monthly surveillance test and transfer of operations for the component cooling water pumps. The inspector noted that R&T personnel performed the test in accordance with a current approved procedure, with an issued Radiation Work Permit (RWP) and with a QC inspector present. Appropriate supervisory reviews were performed following completion of the test.

A review of calibration and control of measuring and test equipment (M&TE) used by mechanical maintenance personnel was performed to verify the adequacy of the M&TE program in the conduct of maintenance and adherence to applicable procedures. Torque wrenches are maintained, controlled and calibrated by the mechanic shop. All other M&TE, i.e., micrometers, vernier calipers, etc., are calibrated by QC, but assigned to individuals within the various mechanical shops; it is the responsibility of these individuals to maintain and control the instruments. The inspector reviewed the 1984 usage log and calibration records for torque wrenches and noted that torque wrenches were always tested for acceptability prior to use. Other areas verified were: storage and labeling of test equipment; certification records for calibration of test equipment, including torque wrench bench tester; test equipment denoted as used in various completed M-procedures calibrated when in use. The inspector witnessed calibrations by QC for several inside and outside micrometers, depth micrometers and vernier calipers. All calibrations were performed using appropriate approved procedures.

A number of problems with the control and calibration of meausuring and test equipment were identified in the licensee's audit 84-05:SB conducted in the spring of 1984. Corrective actions on several of these problem areas had been taken and others were under way at the time of this inspection. One of these, a major revision to procedure A-1201, Calibration and Control of Measuring and Test Equipment, was made and approved in January, 1985. During the witnessing of calibrations, the inspector noted several discrepancies between A-1201 and the individual calibration procedures (CP's). The CP's in question include CP 80.0, 80.1, 80.2, 80.3, 80.4, 81.0 and 81.1. The discrepancies included incorrect or deleted references and incorrect equipment classifications. These discrepancies and other minor problems with the CP's were discussed with the QC Supervisor. This supervisor was aware of the problems and of the need to review and correct the CP's. The fact that this had not been accomplished at the time of this inspection contributes to assessment of a weakness in control and calibration of M&TE as further discussed later in this report.

The maintenance history program is described in procedure A-1705. A review of files kept for this program showed that the procedure was complied with in that the Maintenance Manager determined those entries to be made. The usefulness of the existing history file is very questionable because of these observations: the last inspection noted for the manipulator crane was 2/22/79 but the crane had since been used for several refuelings; the history for safety injection pump 1C only covered the interval 4/22/75 to 10/30/81; entries for snubbers ranged from 5/7/75 to 8/30/83. In contrast, selected entries in pump histories were current. The

out-of-date entries and the sheer bulk of these files make it difficult to place reliance on this history information for trending or tracking. This is regarded as another example of weakness in maintenance recordkeeping.

Procedures A-1010 and A-1020 outline the preventive maintenance program for rotating equipment and for valves. The inspector reviewed these procedures to verify that inspection frequencies had been established, desired maintenance was being performed and this work was being adequately documented. Discussions were held with the responsible foremen, the mechanical maintenance supervisor and the maintenance manager regarding their involvement by scheduling, supervising and reviewing the PM program. Documentation of completed PM's is accomplished by using appropriate procedures and/or annotating equipment history cards. A computerized maintenance tracking and scheduling system (COMMS) is in trial use and will eventually document the PM program.

During reviews of the scheduled and completed PM on valves and discussion with foremen and supervisors, the inspector determined that many aspects of A-1015 were not being accomplished. The Maintenance Supervisor was not performing the procedurally required monthly schedule reviews to ensure that scheduled activities were being accomplished nor was he reviewing the program annually for improvements, changes or updates. Valve inspections were not being done within the inspection intervals specified by the procedure. Failure to adhere to an approved procedure is a violation (50-244/85-04-01).

The mechanical maintenance section is made up of well-qualified and experienced personnel. A well-defined training program has been developed, but has not yet been fully implemented. Management control and coordination is accomplished formally through a weekly interdepartmental meeting among the discipline foremen and supervisors and informally through many other means. With the exception of the PM program for valves, identified as a violation above, mechanical maintenance activities are accomplished as scheduled and are well controlled through the use of detailed maintenance procedures. Weaknesses in maintenance recordkeeping (Inspector Followup Item 50-244/85-04-04) and calibration and control of measuring and test equipment were noted.

2.2 ELECTRICAL MAINTENANCE

The Maintenance Manager is responsible for electrical maintenance. Performance of day-to-day activities is supervised by the I&C/Electrical Supervisor and the shop foremen. Staffing of this activity was reviewed by the inspector and appeared adequate to handle the work load. Electrical maintenance personnel, including the foreman, had documented evidence of training and qualification appropriate to their function. The inspector assessed performance of these activities by observation of work in progress, review of completed work and discussions with workers and supervisors. These activities were directly witnessed:

- Calibration and maintenance of the turbine-driven auxiliary feedwater pump discharge flow loop 2032; performance of CP-2032, rev. 3.

- Performance of PT-5.10, rev. 25, Process Instrumentation Reactor Protection Channel Trip Test (Channel 1).

- Periodic testing and maintenance of the security emergency diesel generator per PT-12.3, rev. 5.

Each of these activities was performed in accordance with adequate procedures.

In performing I&C/Electrical maintenance activities, review is required for failure analysis and reporting (A-25.2). These reports are initiated by I&C/Elect staff any time that a failure is identified in a safety-related activity. When a failure report is generated in this manner, it is evaluated by the I&C supervisor for appropriate corrective action. The inspector reviewed these failure reports:

Item:	Function:	Failure:	Corrective Action:
FQ-619	power supply, comp. cool loop 619	voltage out of tolerance	replacement
RMS R-2 LT-2044 TT-401	power supply sump A level Tave Ch 1 dual current source	HV below spec failed high capacitors & potentiometer	replacement ordered, replaced replaced parts

These specific reports and a sampling of about 50 others generated in the period 1982-1985 were reviewed by the inspector for adherence to the administrative procedure, proper identification of failures and use in trending failures. No problems were identified. No trends were observed.

The inspector reviewed the use of M&TE by electrical maintenance personnel to verify adherence with procedure A-1201. The results of this review were:

- Digital multimeter Fluke model 8200A, s/n 75949, was not on a shop recall list for February 1985 as required by section 3.1.2.3 of A-1201. This discrepancy was corrected during the inspection.

- Digital multimeter HP mode 3466A, s/n 15926, was not calibrated on its milliamp range. Section 3.1.2.5 of A-1201 requires labels to indicate restrictions. Upon questioning, licensee staff were aware of the restriction and showed the inspector the restriction label.

- AMP electrical crimping tool, s/n B-43, was noted to be past due for calibration. The due date was 11/24/84 as penciled in Scotch tape on the tool handle, with no calibration date. The inspector examined the electrical tool calibration log maintained by the R&T group and noted seven crimping tools were listed as missing: B-2, B-9, B-11, B-43, B-47, B-51, and B-52. The inspector informed this group that he found B-43. No explanation could be given to determine what circuits may have been crimped with the tools listed as missing.

- Multi-Amp test set model CB-7150, s/n 18553, was identified by QC surveillance not to have been calibrated. Corrective Action Report (CAR) 1595 dated 10/24/84 stated that the test set had not been calibrated since purchase in 1971. The inspector reviewed the calibration report generated by the vendor as part of this corrective action. The calibration was done on 1/23/85. While the vendor found the test set out of tolerance as found, an analysis of the as found and as left values performed by the inspector concluded that the differences were not significant (maximum 3% on one range).

The inspector noted no case of performance of safety-related activity performed with improperly calibrated instruments. However, the discrepancies noted above, along with those noted elsewhere in this report, result in an assessment of weakness in the oversight and control of M&TE.

In following QC surveillance of electrical activities, the inspector reviewed Quality Control Surveillance Report (QCSR) 85-0013 which described cutting of a ring tongue terminal attached to alarm bistable PC-937 A/B used for control room annunciation if pressure transmitter PT-937 failed. This transmitter is one of two measuring Accumulator Tank 2 pressure. The QCSR was dated 1/18/85 when QC witnessed performance of CP-939. The I&C/Elec maintenance foreman who dispositioned the QCSR did not recommend any corrective action. QC rejected this disposition and generated Nonconformance Report G-85-013 dated 1/28/85 requesting a corporate engineering disposition. The engineering disposition was "use as is" on the basis that Specification EE-29, rev. 6 dated 12/20/83, states that a ring tongue terminal shall be used unless an alternate tongue is approved by engineering. The inspector questioned the specific application and examined the installation in the presence of a licensee representative in the relay room cabinets in order to verify that the L1 hot leg on the bistable was for annunciation only and that a separate power supply fed the loop for PT-937 so that the accumulator pressure channel would function as designed in event of loss of L1. This was verified by the inspector and satisfied his question.

The inspector reviewed procedure M32.2, rev. 4,"DB-50 Reactor Trip Circuit Breaker Inspection, Maintenance and Test" to verify that the testing provisions of NRC Generic Letter 83-28, "Required Actions Bases on Generic Implications of Salem ATWS Events",have been implemented at Ginna. Review of the completed procedures and discussions with responsible staff revealed no difficulties in performing this maintenance and testing. However, the licensee's response letter dated 11/4/83 stated that trending

the performance of the reactor trip breakers started with the 1983 refueling outage. Staff members were familiar with test results and trends, but there was no procedural requirement for trending. Since the procedure is being revised to incorporate other NRC comments regarding vendor owners' group recommendations, an Unresolved Item (50-244/85-04-02) results until all commitments are incorporated in plant procedures. Control and availability of vendor manuals, vendor information and use of this information in maintenance and procurement activities was reviewed by the inspector. No discrepanices were identified.

Corrective and preventive I&C/Electrical maintenance activities were performed by experienced, adequately trained, qualified personnel. Procedures used were adequate for controlling activities. Quality control hold points were established where required, observed and documented. Additional problems in calibration and control of measuring and test equipment were noted, further substantiating the assessment of weakness. (Inspector Followup Item 85-04-05).

2.3 INSTRUMENTATION AND CONTROL ACTIVITIES

Under the Maintenance Manager, the I&C Supervisor is responsible for overall supervision of the I&C group and the plant electrician group. Each group has a foreman responsible for the group's activities. The inspector noted that the staffing level in the I&C group is adequate, with twelve regular technicians reporting to the I&C foreman and three temporary helpers reporting directly to the I&C Supervisor; the group has a very low turnover rate. Training provided by the licensee was primarily vendor-information oriented. The inspector learned that plant systems training for the technicians is planned; the individuals expressed a desire for this training, particularly if it emphasizes reactor control and protection.

The inspector selectively followed up on the licensee's review of IE Information Notice 84-70, Reliance on Water Level Instrumentation with a Common Reference Leg, to determine the adequacy of review and incorporation of operating experience. This information notice was handled through the plant's task assignment system and jointly reviewed by I&C and Operations staffs. The conclusion reached by these groups that no similar event is likely to occur in this plant was forwarded to the Assistant Superintendent. Based on document review and discussions with cognizant personnel, the inspector determined that the review was timely and technically sound.

The inspector observed on-going I&C calibration and surveillance activities to verify the following:

- Required procedures were available, in use and followed.

- Special test equipment was calibrated and in use.
- Test prerequisites were met and initial conditions were properly observed.
- Technical content of procedures was adequate to result in satisfactory component or system calibration and test.

Calibration, maintenance and surveillance tests observed in addition to those previously noted included:

- CP-2019, Calibration and/or Maintenance of Turbine Driven Auxiliary Feedwater Pump Discharge Pressure Loop 2019

The inspector noted that these activities were being performed in accordance with approved procedures by qualified personnel using calibrated instruments.

CONCLUSIONS

Maintenance is performed by an experienced, well-qualified staff who follow approved procedures. A well-defined training program for this experienced staff has been developed, but not fully implemented. (Inspector Followup Item 50-244/85-04-06). One instance of failure to adhere to a procedure for preventive maintenance of valves was noted. A procedural weakness in trending reactor trip breaker test results was in the process of being addressed. Maintenance Work Requests and other documents were complete; however a large number were outstanding and administrative closeout was slow, leading to an assessment of weakness in documentation of maintenance activities. This assessment is further borne out by the incompleteness and out-of-date entries in the maintenance history file. Problem areas were also noted in the calibration and control of measuring and test equip ment, but no safety-related work appeared to be affected by these problems.

3.0 SURVEILLANCE

Various groups perform surveillances depending upon the type needed. Several surveillance activities have been discussed in preceeding sections of this report. The performance type of surveillance (PT series) is scheduled by the R&T group in accordance with the time interval specified in Technical Specifications (TS). This schedule is then transmitted to the appropriate groups through the weekly plant interface meeting. The R&T Supervisor has the overall responsibility to ensure that all PT surveillance tests are properly performed, evaluated and documented. Operational surveillances such as daily thermal power calculation, nuclear instrumentation response and reactor coolant system (RCS) leak rate are conducted by operations personnel. Observation of conduct and discussion of methods and results in the areas of Operations, Results and Tests and Reactor Engineering were carried out by the inspector during this inspection.

3.1 OPERATIONS

The safe and efficient operation of the plant is the primary responsibility of the Operations Manager, who reports directly to the Assistant Superintendent. An Operations Supervisor provides the manager with a comprehensive day-to-day review of plant activities. There are five shifts in plant operations, with one shift rotating into the office for a six-month in-office duty schedule. Activities and interfaces affecting maintenance were discussed with various members of the operating staff by the inspector.

All shift supervisors interviewed stated that they were given very good support from the maintenance group. The normal channel for requesting maintenance work is the MWR (A-1603). However, when a problem necessitates expedited solution, informal methods are also used. An example occurred during this inspection. On February 6, 1985, at about 4:15 pm, minutes before the regular quitting time, the control room operator noted that the Tavg circuit exhibited erratic behavior which caused unwanted control rod motion, an alarm on Tavg deviation and an increase in charging pump speed. The I&C group was notified by telephone and quickly responded. The cause was identified as a bad switch contact and was corrected by about 6:30 pm when the plant returned to normal operation. Discussion with the I&C foreman revealed that no followup paperwork was generated in this case because a similar problem occurred earlier in the week and it was being tracked with MWR 85-374.

The inspector observed plant operations during the course of the inspection. Control room and shift manning were observed for conformance with TS and administrative procedures. Various alarm conditions which were acknowledged were discussed with shift personnel to verify that the reasons for the alarms were understood and corrective action, if required, was being taken.

The inspector reviewed results and performance of several operational surveillance procedures. S-12.4, "RCS Leakage Surveillance Record Instructions", rev. 15, describes methods for RCS leak rate determination. These consist of radiation monitoring of containment air particulate and radiogas, humidity in containment, containment sump pump actuation and RCS system inventory. Indication of leakage by any monitoring method exceeding a pre-determined value constitutes a significant increase in leak rate. Operators are then required to initiate action per procedure S-12.2 and report the results through the Operations Manager to the Plant Operations Review Committee (PORC). The inspector reviewed a two-month sample, October 1 to November 30, 1984, and noted that there were 47 S-12.2 reports (33 due to R-11 radioparticulate, 2 due to R-12 radiogas, 4 due to sump pump actuations and 8 due to humidity) which triggered a significant leak rate investigation. In none of these cases was there a true RCS leak. Much operator time was diverted to performing and documenting these unwarranted investigations.

The inspector reviewed the system inventory method used in S-12.4 for technical adequacy. The accuracy of the current method is adequate if it is employed with no change in pressurizer level and Tavg for a reasonable test duration. None of these conditions are given as precautions or limitations in the procedure. Interviews with operations personnel indicate that they are aware of the limitations and have not experienced difficulty in executing the procedure when the unit was in steady state conditions. There were times, however, when the test had to be repeated to meet acceptance criteria, especially when power level was changed.

The licensee is in the process of evaluating data obtained from these tests in an effort to improve the procedures and reduce the number of unwarranted leak rate investigations.

During control room observation, the inspector noted that level indication from both accumulator tanks was irregular. Both accumulators were experiencing leaks. The leak pathway is believed to be through the liquid fill isolation valves, V-835A and B, into the 3/4" safety injection test line and then through the test line safety relief valve SRV-887 to the Pressurizer Relief Tank (PRT). The inspector made independent observations and calculations to verify that the inventory loss from the accumulators is approximately equal to the PRT inventory gain. TS limits for accumulator water volumes are maximum, 82% and minimum ,50%. Alarm setpoints are high, 75% and low, 57%. As a result of existing leakage, the accumulators have to be charged about twice per shift. The inspector noted that the charging operation was conducted in accordance with procedure S-16.13. This problem was initially identified in May, 1984 and described on MWR's 84-1351 and 84-1411; these MWR's were still open at the time of this inspection. The rate of leakage and the conduct of the charging operation were familiar to maintenance and operations personnel interviewed. The leakage problem is being closely monitored by operations and maintenance personnel. Repair of the valves is scheduled for the March, 1985 refueling outage.

The inspector found that the plant was operated by highly knowledgeable personnel in a concientious manner. Key positions in the operations group are held by very experienced staff; most have worked with the plant for more than 10 years. Information exchanges include weekly discussion sessions and circulating memoranda for operations personnel. No unacceptable conditions were identified.

3.2 RESULTS AND TEST GROUP

The R&T Supervisor is responsible for all TS surveillance items. Surveillance schedules are disseminated at weekly plant interface meetings. There are seven test technicians in the group. The R&T Supervisor reports to the Technical Manager. The inspector verified that all test personnel are qualified as Level II inspectors in accordance with procedure A-1102. Through staff discussions and test observations, the inspector determined that test personnel were knowledgeable in their areas of performance.

The inspector observed portions of these surveillance tests, both in the field and in the control room:

- PT-37.8, 1A & 1B Vapor Container Auxiliary Filter Fans Mass Air Flow Check, performed February 6, 1985
- PT-2.3.1, Post Accident Charcoal Filter Dampers, performed February 6, 1985
- PT-16, Auxiliary Feedwater System, performed February 13, 1985

Reviews of the completed tests were conducted by the R&T Supervisor. The inspector found the tests and post-test reviews to be adequate.

While observing PT-16, the inspector noticed that the manual isolation valve, V-4345, from the service water line was closed and padlocked; however, the Piping and Instrumentation Drawing 33013-545, rev. 3, showed a normally open valve on a controlled copy drawing. In discussion with control room operators, the inspector learned that there is awareness of this information conflict. The operations staff relies on procedure A-52.2.1, "Inventory of Locks and Keys", rev. 4 for the proper locked valve positions and not on P&ID drawings. A major drawing update and revision effort is nearly complete; the inspector examined a draft P&ID for the auxiliary feedwater system, 33013-1237, rev. 0, and noted that the correct position is shown for valve V-4345. The drawing update program is discussed elsewhere in this report. The inspector had no further questions.

In the course of reviewing open MWR's, two similar reports - 84-1351 dated 5/15/84 and 84-1411 dated 5/22/84 - identified a similar problem. The inspector ascertained that the problem identified, possible check valve leakage on the auxiliary feed pumps, was identified as industry wide at the time. The approach used at Ginna was to revise Procedure PT-16, the monthly surveillance test on auxiliary feedwater, to include an additional step 6.6.18 to check that all discharge piping returned to ambient temperature at the conclusion of the surveillance. The inspector verified in a quarterly sample that Revision 41 which contained this step was performed on 7/2/84, 8/6/84 and 9/14/84 and the step was initialed and checked. Maintenance and Results and Test staff interviewed were familiar with the problem and solution. On further inquiry, the inspector ascertained that the open MWR's were in the possession of the mechanical maintenance foreman, who wanted to assure himself during the March 1985 outage that no further problems were associated with these check valves before closing out the MWR's. The inspector had no further questions.

Another function of the R&T group is trending of test results to analyze performance and identify adverse trends. The inspector reviewed log-books on valve stroke time tests, plots of pump performance data, logs of containment penetration leakage data, monthly summaries of total containment leakage and the reports of performance of the program for

leakage reduction outside containment. The logs and plots noted acceptable ranges for the various parameters and were kept in a neat and logical manner which made it a simple task to identify adverse trends. The inspector noted no adverse trends in this review.

3.3 REACTOR ENGINEERING

Core performance evaluation is the primary responsibility of the Reactor Engineer. He reports to the Technical Manager. The inspector reviewed several aspects of core performance. Measured values of the reactivity anomolies plot maintained since the beginning of this fuel cycle are in good agreement with predicted values. The plant is now near its predicted End-of-Cycle (EOC) fuel burnup and is undergoing coastdown. As of February 12, 1985, the cycle burnup value is 8660 MWD/MTU. The reload safety analysis covers burnup up to 9700 MWD/MTU. The coastdown operation is conducted according to operations procedure O-6.2, Plant Operation During Coastdown, rev. 2. Average Tavg during this coastdown is planned to decrease about 3°F below T-reference. A thorough study of plant behavior resulting from Tavg reduction was conducted on September 23, 1982 by actually reducing Tavg by 15°F in a test. The test demonstrated no operational difficulties.

During the course of this inspection, control room parameters were observed; these were closely monitored by the operators and printed on the trend typer. Tavg was maintained within the intended range. Through discussions with the reactor engineer and control room operators, the inspector determined that the plant staff was knowledgeable in the technical issues associated with coastdown operations. No deficiencies were noted.

CONCLUSIONS:

No problems were noted for the surveillances observed and reviewed. The Operations, Results and Test and Reactor Engineering staff who performed these surveillances were knowledgeable, experienced and qualified. A viable information exchange process was observed, as well as good working relationships with the maintenance staff. A large number of leak rate investigations per procedures S-12.4 were identified by the plant staff and discussed in detail with the inspector; evaluation and possible revision of procedures is underway. Trends of test results were available and analyzed appropriately by Results and Test Staff. Control Room operations were conducted in conformance with regulatory requirements and procedures.

4.0 RADIOLOGICAL CONTROLS

The Manager of Health Physics (HP) and Chemistry is the responsible manager for radiological controls. He is a member of the Plant Operations Review Committee (PORC). In this capacity, he participates in the review of safety-related work and changes to safety-related procedures. He also participates in station planning meetings such as daily and Outage Planning meetings. From these interactions, the Manager of HP is made

aware of ongoing and planned work. The Manager and the department staff are well experienced and highly qualified. All key positions are filled. Turnover of personnel has been very low at all levels.

During the planning stages for outages, a major function of the station radiation protection organization is to provide reviews of planned work for radiation exposure minimization (ALARA). As specific work is scheduled, the ALARA coordinator arranges for a formal review by the ALARA committee. As the planning and workload are developed from these analyses and reviews, the HP staff arranges for additional technician support and material and equipment such as protective clothing and radiation survey instruments to support the outage.

The corporate Health Physicist, a position recently filled, is not currently involved in outage planning, although a large part of the outage work involves modifications determined by corporate engineering. The corporate HP has provided corporate management, including the Nuclear Safety And Review Board (NSARB) with information regarding HP-related performance during past outages and with impacts of regulatory changes. The inspector noted that a position description for the corporate HP had not yet been developed.

The HP department does not provide training for outage workers; this is provided by the Training Department. The steam generator repair group provides its own extensive training, including practical work on two mockup steam generators for workers assigned to the testing and repair of the steam generators. A separate building and staff are dedicated to this effort. Other training in support of the HP program and outage preparations is determined and provided by the Training Manager. The Training Department provides this training at the Training Center adjacent to the station.

The inspector noted from review of reports and records that, until the year 1984, accumulated worker exposures had been higher than average for pressurized water reactor facilities. A notable change occurred in 1984 when the exposure total (380 man-Rem) was less than 40% of the exposure total for 1983 (960 man-Rem). The licensee has been trending and analyzing the exposure data. The licensee has concluded that most of the personnel exposure is associated with two major outage activities, steam generator inspection and repair and installation of seismic restraints inside containment. The sharp drop in exposure from 1983 to 1984 was attributed to the completion of major portions of these activities which began in 1977. Further sizeable decreases in cumulative exposure are not anticipated.

An exposure estimate made prior to the 1983 outage indicated that all work scheduled for the B steam generator channel head could not be completed. As a result, the licensee performed a chemical decontamination of the B steam generator using the London Nuclear process. An initial reduction factor of 10 was obtained. The dose rates measured during the 1984 outage indicate that the radiation levels have increased only slightly. The

result of the decontamination was a significant reduction in personnel exposure during work on the B steam generator. The licensee has not decontaminated the A steam generator and has no current plan to do so.

Discussions with the steam generator repair group revealed that an aggressive search is underway to identify exposure reduction techniques. Several of these have been identified, but there is no firm plan to implement these in the 1985 outage. Funding for purchase of a steam generator head manway bolt detensioner apparently has been approved, but the equipment has not yet been ordered. A plan to purchase a robot manipulator arm in 1986 has been discussed. Several designs have been reviewed and experiences of others have been sought, but no selection has been made. The capital outlay associated with this equipment is a major concern to the licensee and has led to slow and cautious progress.

Discussions with maintenance foremen and engineering personnel indicated that no major changes to present practices in order to reduce exposure were anticipated. The widespread belief held by several groups was that most work improvements have already been incorporated into procedures and practices and that only experienced workers are used in radiation exposure situations.

An estimate for the expected exposure for the 1985 outage scheduled to begin in early March was not available. This was due, in part, to the fact that a firm schedule of outage work was not completed. An Outage Coordinator was designated during the inspection to oversee outage work planning and control of work during the outage. However, this was done only three weeks prior to the outage. Corporate engineering direction of their portion of the outage work schedule was not firm and further redirection was possible. The inspector expressed concern that the brief time remaining may not allow completion of thorough ALARA reviews or the implementation of the recommended ALARA controls. The ALARA coordinator advised that reviews were completed for work, although the jobs were not yet scheduled. If specific jobs are postponed to the next outage, the ALARA review would be filed until needed. Work that was not reviewed would be controlled by withholding issuance of a Radiation Work Permit (RWP). The inspector noted that the ALARA committee consists of supervisors from several groups, including HP. This permits a good exchange of information regarding the work.

Cooperation and coordination between the various groups was excellent. All supervisors interviewed were knowledgeable of the HP requirements and displayed a good understanding of the ALARA concept. The HP Manager , his staff and the ALARA coordinator were fully knowledgeable of the status of outage planning, including ongoing changes. There was much informal communication between groups. Formal information such as the outage schedule was generally sparse and outdated due to rapid and frequent changes.

A review of procedures showed that all repetitive maintenance is controlled by procedure. These procedures contain hold points that ensure the necessary radiological precautions are taken. Due to this good control,

only new maintenance and non-recurring work are afforded a formal ALARA review. Changes in scope that occur while a job is in progress due to unanticipated situations are controlled by issuance of a Procedure Change Notice (PCN). HP personnel participate in the review prior to issuance of a PCN to ensure that the radiological controls are adjusted or an ALARA rereview is performed. During an outage, foremen are provided the exposure status of their personnel on a weekly basis.

Post-job reviews are conducted by the ALARA committee to review exposure estimates which were in error by 25% or more and also by maintenance personnel to document any lessons learned. Significant concerns identified during the post-job reviews are brought to the Post-Outage Review meeting. Any improvements or suggestions are documented for use during subsequent outages.

CONCLUSIONS:

Outage radiation exposure planning at Ginna station is competent and thorough, although much is accomplished on an informal basis. Workers will be protected adequately by the various controls that are in place. All levels of management exhibit a strong commitment to radiation safety and the ALARA program. The various programs and procedures receive frequent attention in order to identify areas for improvement. Channels of communication and cooperation to effect changes are very good. These excellent indicators are somewhat shadowed by some complacency and acceptance of current levels of personnel exposure rather than setting improvement goals and ALARA target reductions. The review of station safety programs by NSARB are rigorous.

5.0 QUALITY ASSURANCE PROGRAM OVERVIEW

The Manager of Quality Assurance reports through the Chief Engineer to the Senior Vice President - Operations. The Manager of Quality Assurance and his staff are located at the corporate engineering offices. In addition, a Nuclear Assurance Manager on the staff of Ginna Station oversees the work of the onsite Quality Control Engineer and his group. There is also an interface with Project Quality Control inspectors who do on-site inspections of contractor work. The inspection reviewed efforts of all of these groups and their interfaces with maintenance and surveillance activities.

5.1 AUDITS AND VENDOR SURVEILLANCE

The Quality Assurance (QA) group has been delegated the responsibility to conduct those audits required by 10CFR50, Appendix B, and TS. These responsibilities include evaluation and surveillance of suppliers and vendors and also trending of quality program elements.

The group consists of a QA Manager and four QA inspectors, with one vacant position. The manager stated that recruitment is ongoing to fill the vacancy. The QA inspector hired within the past year has been attending training courses to fulfill his auditor qualification requirements. The remainder of the staff are long term employees who had completed these requirements. There are no formal refresher training programs and none are anticipated. The experience level and training provided meet QA program commitments.

The 1985 audit schedule lists two semiannual, three triennial and forty annual audits. The matrix format of the schedule also identifies organizations to be audited (Engineering, Purchasing, Service Contractors, Ginna Station) and the functional activities to be audited within those organizations. The 1984 audit schedule was similarly constructed.

Vendors are evaluated prior to their classification as suppliers of certain products.Evaluations of acceptable vendors are done biennially and an onsite audit of each acceptable vendor is conducted triennially.

The vendor audit schedule lists seventeen audits for 1985. Vendor surveillances are conducted as needed. Participation in and use of the industry CASE audits represents the basic tool for vendor evaluation; considerable use of consultants is made to conduct the CASE audits.

The majority of audits were conducted by one person and averaged three days. It was noted that the QA Manager was designated lead auditor for 12 of the scheduled 1985 internal audits and would participate in a number of others, in addition to his managerial duties. Checklists were standardized, but showed evidence of slight modification from year to year. The seven audit checklists reviewed in depth by the NRC inspector ranged from marginal adequacy to comprehensive overviews. Examples of the former were 85-04 CA, Corrective Actions, and 84-08 CA, Maintenance Activities; these checklists did not provide guidance or instruction to the auditor to sample both existing QC Surveillence Logs for the status of open findings nor an adequate sampling technique for maintenance activities. As a consequence, the auditor failed to identify a buildup of open QC surveillance findings (see Section 5.2.2) and to note the deficiencies in performance of PM on valves (Section 2.1) since only 8 pumps were sampled from a potential population of 5000 specific maintenance activities. On the other hand, checklists and manual tracking matrices for audit of TS requirements assured that each individual TS item would be sampled during a given time period.

The failure of the corrective action audit described above to identify the backlog and buildup of open QC surveillance findings indicated that the actions described in the licensee's August 9, 1984 response to Item A of the Notice of Violation attached to the NRC Region I letter of July 16, 1984 were not fully effective. This noncompliance (50-244/84-13-01) remains open for further review of the effectiveness of the proposed corrective action.

In the course of reviewing audit 84-30 SB, Triennial Fire Protection, the inspector noted that many of the findings were invalidated by the QA Manager during his review of the audit. Upon questioning, the manager stated that the auditor did not understand the relief requests made to NRR for exception and relief from certain requirements in this area. The acceptability of these invalidations is an unresolved item (50-244/85-04-03) and will be examined in a future NRC inspection.

Trend analysis conducted by the QA group, including the formal report, is quantitative only. No effort is made to present analyses or statements of significance of trends.

On the whole, the QA group meets its functional and performance responsibilities.

5.2 QUALITY CONTROL

The onsite group assigned the inspection and surveillance or monitoring of ongoing activities is designated Quality Control (QC). Six plant QC inspectors (five contract, one RG&E) report to the Plant QC Supervisor. Four contracted Project QC inspectors report to a Project QC (contractor) Supervisor. Both supervisors report to the Plant QC Engineer. Plant QC inspectors generally overview operational activities, while Project inspectors generally overview contract work, mostly modification activities. The Plant QC Supervisor reviews qualifications and interviews contractor inspectors prior to their acceptance for onsite QC work. He also administers testing for certification as required by the QA program, schedules and coordinates supplementary training for inspectors. All QC inspectors have taken or are scheduled to take the licensee's onsite PWR Systems Course. Supplementary in-house inspection courses and offsite third party courses are regularly provided to QC inspectors. A review of several inspector qualification folders indicated extensive experience, formal classroom training, and proper certification, obtained for the most part by examination. A more formalized training program is under development.

Plant QC regularly conducts surveillances of ongoing activities. Project QC conducts surveillances of contractor site QA and QC activities. Plant work procedures, including maintenance procedures, are reviewed by QC; these procedures include inspection points. There are also a number of instances where licensee witness or inspection points have been inserted into contractor work procedures. Approximately 120 QC hold points have been completed to date in addition to more than 1000 QC surveillances.

Deficiencies identified by these surveillances and inspections are documented and tracked for corrective action on QC Surveillance Reports (QCSR). If the deficiency is significant, it can be escalated to a Corrective Action Request (CAR) and resolved by the mechanism of station procedure A-1601. Review of the Plant QC Surveillance Log identified an open backlog of over 50 QCSR's, some dating to 1983. The NRC inspector reviewed all open QCSR's to ascertain their significance and the effectiveness of this corrective action system. The review yielded 12 QCSR's

of some safety significance; these were presented to the licensee to determine status prior to conclusion of the inspection. The documented status of all of these reports (e.g., work orders written, CAR's being resolved, engineering requests formulated) were reviewed in depth by the inspector and it was determined that actual or proposed corrective actions had been adequate and timely. The apparent inattention to QCSR responses was discussed with licensee management; this management had already identified the problem and provided a recent procedure change that establishes response times for QCSR's. The large backlog and the lack of attention to timely closure of QCSR's are further indicators of the weakness in completion of maintenance and surveillance administrative documents in a timely manner, as noted previously in Section 2.

5.3 WAREHOUSE ACTIVITIES

One of the in-plant storage areas was toured to determine that adequate environmental, cleanliness, access, shelf life and traceability controls had been implemented.

The area was temperature controlled, clean, locked and not overcrowded. Identification was on items and their location was accurately controlled by the inventory log (a sample). Several items subject to deterioration (i.e. shelf life) were sampled and found to be included in the shelf life program.

Practices in this particular area were deemed to be in accordance with QA Program requirements.

CONCLUSION:

The onsite inspection and surveillance effort exceeds the licensee's QA program requirements, particularly in areas such as inspector training and qualification and inspection scope which includes non-safety-related activities. Lack of QCSR closeout contributes to an assessment of a weakness in timely documentation.

6.0 OTHER ORGANIZATIONS AND ACTIVITIES

6.1 OFFSITE SAFETY REVIEW COMMITTEE

The Nuclear Safety Audit and Review Board (NSARB) has the responsibility to perform the corporate overview function as established in TS. Membership of the Board comprises senior plant and corporate managers. This is supplemented by outside consultants who have extensive experience and expertise in specific areas.

The personal secretary to the Vice President - Production assembles documents requiring Board review. This secretary forwards these to the Board members and performs the other administrative duties associated with the Board's operation. The Board members review the information packages, request additional information and communicate with others. The NSARB

Secretary, the Plant QC Engineer, develops the meeting agenda and performs other administrative duties. No procedures have been formalized to describe these functions. Further, the NSARB charter has not been reviewed nor updated since issuance in 1978.

The inspector attended a portion of a regularly scheduled NSARB meeting. The agenda and the report were formatted to coincide with the responsibilities set forth in TS. The agenda identifies the subjects and the speakers. Individuals making technical presentations were identified and scheduled. Board members were well prepared and did participate in discussions. Technical presentations were well planned and used effective visual aids.

This Board is executing its responsibilities in an agressive and competent fashion. However, review of TS audit activities is not so thorough as the Board's involvement in other areas. In sum, this Board is performing in a manner that is a strength of the licensee.

6.2 ENGINEERING SUPPORT

The inspector discussed engineering support with maintenance supervisors and members of the onsite and offsite engineering staff. The engineering personnel were knowledgeable of projects supporting Ginna. Their involvement fell into one of three categories - support of ongoing maintenance and operations, modifications to meet regulatory requirements and modifications to improve plant performance. Examples of all three types were discussed. One major project which touches on all three categories is the computer-based plant drawing and diagram program. This project was in the final stages of verification with implementation planned upon restart from the March 1985 refueling outage. The computer based drawings will replace the original plant drawings at that time. Some of the capabilities demonstrated to the inspector included the uniformity of nomenclature, lettering and symbology, the design and specification detail maintained in the computer data base for components such as valves and the ease of revision under a carefully controlled change system. Drawings were available within minutes from the computer plotter; it is planned to have a plotter at the Ginna site as well as the existing one in the engineering offices. The inspector also reviewed the drawing verification program being conducted by the Operations Department. An example of the detail available is noted in Section 3.3 above.

The inspector noted that there was considerable communication between the engineering department and various Ginna Station staff which included frequent meetings on issues of interest engineering reviews and recommendations for events at Ginna and other plants.

6.3 TRENDING AND REPORTING

The Operational Assurance Engineer (OAE) and Shift Technical Advisors (STA) have a responsibility to review the many reports and events and analyze these for patterns and trends. Such items as the A25.4 Post-Trip

Review, A52.4 Technical Specification Limiting Condition for Operation Evaluation, A25.1 Plant Events, Operations Department Reports and Surveillances are gathered reviewed, analyzed and reported in a monthly summary prepared by an STA and reviewed and approved by the OAE. The inspector reviewed several of these and noted that they were thorough. The many leakage investigation reports per Procedure S12.2 identified by the inspector and discussed in Section 3.3 were previously identified in these trend analyses; the OAE has recommended a review and change in the threshold for initiation of leakage search to reduce the number of unwarranted leakage investigations. The review and analysis done by this group is technically adequate and useful.

The inspector reviewed the licensee's data input to the Nuclear Plant Reliability Data System (NPRDS) with the NPRDS coordinator. There were approximately 2400 entries made to NPRDS. It was recognized in December, 1984 that a major effort would be needed to obtain and enter the additional 2500 items needed to bring the system current and meet commitments in this area. A staffing increase to 5 persons has been approved; 2 are presently at work, one is expected soon and two more have been approved. The coordinator is required to submit monthly status reports to the Vice President and Senior Vice President. The effort under way is designed to meet a commitment of being up to date with NPRDS entries by October, 1985.

CONCLUSIONS:

The Offsite Safety Review Committee is a strength of the licensee in the depth and competence of its reviews. Strong engineering support is evident and closely integrated with maintenance, operations and modifications. Nuclear assurance trending and analysis is thorough and useful. Deficiencies in reporting NPRDS data were recognized and efforts to reduce the backlog and become current are underway.

7.0 MANAGEMENT MEETINGS

A meeting was held on February 5, 1985 to introduce the inspection team and to identify the scope of the inspection. Preliminary results of the inspection were presented to station management on February 8, 1985. An exit management meeting was conducted on February 15, 1985 to present the findings of the inspection. Participants are identified in Section 1.3 of this report. No written material was given to the licensee in the course of the inspection.