U.S. NUCLEAR REGULATORY COMMISSION
REGION I

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Report No.	50-244/98-08
Docket No.	50-244
Licensee:	Rochester Gas and Electric Corporation (RG&E)
Facility Name:	R. E. Ginna Nuclear Power Plant
Location:	1503 Lake Road Ontario, New York 14519
Inspection Period:	June 22, 1998 through July 26, 1998
Inspectors:	P. D. Drysdale, Senior Resident Inspector C. C. Osterholtz, Resident Inspector R. C. Ragland, Radiation Specialist
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EXECUTIVE SUMMARY

R. E. Ginna Nuclear Power Plant
NRC Inspection Report 50-244/98-08

This integrated inspection included aspects of licensee operations, engineering, maintenance, and plant support. The report covers a 5-week period of resident inspection. In addition, it includes the results of an announced inspection by a regional radiation specialist.

Operations

Operators entered the appropriate procedures and limiting conditions for operation (LCOs) for improved technical specification (ITS)-related equipment out-of-service during the report period. All applicable LCO entries were made promptly, and the required actions were accomplished well within the required time periods. Entries into LCOs were generally of short duration, and ITS-related equipment out-of-service was restored to operable status in a relatively short period. Operator performance during the period was good.

The licensee made good enhancements to their corrective action process. The training conducted for managers on corrective action program revisions was generally effective. One deficiency existed in communicating management expectations to plant personnel when an ACTION Report was delayed, and new requirements for formally documenting the operability status of equipment prior to troubleshooting anomalies had to be re-emphasized by station management.

The licensee effectively evaluated recent equipment deficiencies as potential operator workarounds. The revisions made to formally track the evaluation, addition, and removal of workarounds from the program were good program enhancements.

Operations personnel adequately documented plant status in the operating logs, but two exceptions were noted. The administrative guidance placed in the control room plan-of-the-day on logging equipment out of service appeared adequate to properly document control room activities and plant status.

Maintenance

Controlled procedures were used at job sites. The procedures were up to date and were properly used by technicians involved in maintenance and surveillance work. The inspectors observed good personnel and plant safety practices. Equipment tested met the acceptance criteria specified for operability.

Engineering

The licensee effectively compensated for average temperature variations caused by primary coolant streaming, which allowed the rod control system to be returned to the automatic mode of operation.

Plant Support

Efforts to reduce radiation exposure were successful as evidenced by declining radiation exposures. The projected radiation exposure total for 1998 was the lowest in the station's history.

Plans and preparations for scheduled fuel pool diving and procedural guidance for support of radiography activities were well developed and included sufficient measures to prevent unplanned exposures.

An exception to good housekeeping was identified in the residual heat removal (RHR) pump room in that several gallons of water were present on the floor adjacent to the A-RHR pump, and licensee staff had not identified the source of the standing water.

Changes in personnel assignments and responsibilities resulted in some loss of continuity with regard to oversight of issues related to potential spent fuel pool leakage.

The ACTION Reporting system was readily and effectively used to identify, evaluate, and resolve radiological deficiencies. Detailed analyses were performed to evaluate trends, significance reviews were performed, and adequate corrective actions were taken.

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ATTACHMENTS

Report Details

I. Operations

O1 Conduct of Operations[1]

O1.1 General Comments (Inspection Procedure (IP) 71707)

The inspectors observed plant operations to verify that the facility was operated safely and in accordance with licensee procedures and regulatory requirements. This review included tours of the accessible areas of the facility, verification of engineered safeguards features (ESF) system operability, verification of proper control room and shift staffing, verification that the plant was operated in conformance with the improved technical specifications (ITS) and appropriate action statements for out-of-service equipment were implemented, and verification that logs and records accurately identified equipment status or deficiencies.

O1.2 Summary of Plant Status

The Ginna Plant was operated at 100% power and sustained very good operations without a plant trip, transient, or significant operational challenge throughout the inspection period. Operators entered the appropriate procedures and LCOs for ITS-related equipment out of service during the report period. All applicable LCO entries were made promptly, and the required actions were accomplished well within the required time periods. Entries into LCOs were generally of short duration, and ITS-related equipment out of service was restored to operable status in a relatively short period. Operator performance during the period was good.

O3 Operations Procedures and Documentation

O3.1 Revision 8 to Interface Procedure IP-CAP-1, "Corrective Action Program"

a. Inspection Scope (71707, 40500)

The inspectors reviewed a recent revision to the licensee's corrective action program, and attended a training session for management personnel on the revision.

b. Observations and Findings

Interface Procedure IP-CAP-1, "Abnormal Condition Tracking Initiation or Notification," was recently revised to enhance the licensee's corrective action program by providing more specific guidance and by changing the ACTION Report format. The changes were made in response to findings from Quality Assurance (QA) audits, in response to licensee concerns regarding the identification and

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[1] Topical headings such as O1, M8, etc., are used in accordance with the NRC standardized reactor inspection report outline. Individual reports are not expected to address all outline topics.

analysis of degraded equipment with respect to recommendations provided in NRC Generic Letter 91-18 (Information on Resolution of Degraded and Nonconforming Conditions and on Operability), and in response to NRC concerns raised in the corrective action program inspection in February, 1998 (see IR 50-244/98-01). Notable enhancements to the program included the following aspects:

- Additional guidance to specify that ACTION Reports should be written in response to operability questions.

- More space provided for documenting the description of a problem and its disposition.

- Enhanced guidance on ACTION Report generation, such as using key words in the title and providing more information in the description section of the Report.

- Additional guidance for an ACTION Report to be hand delivered or faxed to the control room for an operability determination that would be retained as a permanent part of the ACTION Report if the ACTION Report was generated due to an equipment operability question.

- Added a means for providing information in the ACTION Report form for tracking the completion of all corrective actions associated with a noted deficiency, and to reference the ACTION Report number in any follow-up tracking mechanism.

On June 22, 1998, the inspector attended one of the training sessions conducted by the Plant Production Superintendent for all department managers on the revisions. The training focused on corrective action process changes and program enhancements. Personnel in attendance exhibited good interest in the subject and routinely participated in the discussions. Other site employees (e.g., system engineers) received training through their individual managers and through an inter-office correspondence issued June 30, 1998. The program revisions became effective on July 1, 1998.

On July 14, 1998, licensee personnel heard an abnormal noise in the A-service water pump (A-SWP) motor. The inspectors noted that the generation of an ACTION Report (98-0994) and subsequent operability assessment was delayed for at least one day while engineering and maintenance personnel performed testing on the pump to gather additional information on the abnormal condition. The shift supervisor had previously determined that the A-SWP was operable based upon pump performance parameters; however, the inspectors expressed concern to licensee management that the operability status of a safety-related component whose condition was in question was not formally documented in an ACTION Report in a timely manner under the new program requirements. On July 16, 1998, licensee management issued an inter-office correspondence to all departments emphasizing the need to initiate ACTION Reports in a timely manner in order to ensure that abnormal equipment conditions are initially reviewed for operability by

operations and documented in accordance with the revised corrective action program.

c. Conclusions

The licensee made good enhancements to the corrective action process. The training conducted for managers on corrective action program revisions was generally effective. One deficiency existed in communicating management expectations to other plant personnel when an ACTION Report was delayed, and new requirements for formally documenting the operability status of equipment had to be re-emphasized by station management.

03.2 Closure of Operator Workarounds

a. Inspection Scope (71707)

The inspectors reviewed recent additions to and subtractions from the operator workaround program, and reviewed recent program enhancements.

b. Observations and Findings

The inspectors noted that one operator workaround had been added, one removed, and one added and removed from the workaround list since the program was last reviewed (see IR 50-244/97-12).

- Maintaining the rod control system in the manual mode was added as a workaround on February 24, 1998, due to the effects of primary coolant temperature "streaming" effects. An engineering analysis allowed the system to be returned to the automatic mode of operation and the workaround was removed on June 29, 1998 (see section E2.1).

- Since the inception of the operator workaround program in 1995, Motor-Operated Valves (MOVs)-4615/4616, "Auxiliary Building Service Water Isolation Valves," had been a proceduralized workaround, because the MOVs had to be locally throttled open when restoring from an automatic isolation of non-essential service water piping. This was specified in Emergency Operating Procedure (EOP) Attachment 2. The reason for the workaround was the potential for water hammer to damage SW system piping due to a vacuum being drawn in the downstream piping after the isolation. The licensee installed vacuum breakers in the system piping to prevent a vacuum condition from occurring, thus minimizing the potential for water hammer event. EOP Attachment 2 was revised, and the workaround was removed on June 29, 1998.

- The turbine #4 control valve was added to the workaround list on June 24, 1998 due to a failure of its Linear Variable Differential Transformer (LVDT), which could cause the valve to slam shut should power be reduced below 50%. The licensee is currently evaluating whether it would be desirable to

perform a controlled power reduction below 50% to isolate and repair the control valve LVDT prior to the 1999 outage.

The inspectors also reviewed procedure A-52.16, "Operator Workarounds/Challenge Control," which was last revised on February 28, 1998. The revised procedure required that a written record of the workaround evaluation be made, and that the addition and removal of operator workarounds be formally tracked.

c. Conclusions

The inspectors concluded that the licensee effectively evaluated recent equipment deficiencies as potential operator workarounds. The revisions made to formally track the evaluation, addition, and removal of workarounds from the program were good program enhancements.

07 Quality Assurance In Operations

07.1 Control Room Operations Autolog

a. Inspection Scope (71707)

The inspectors reviewed recent operations autolog entries for accuracy and completeness.

b. Observations and Findings

The licensee recently instituted a computerized logging system (autolog) in the control room for recording the operational status of the plant (see IR 50-244/98-01). The inspectors' routine reviews normally noted no discrepancies in the logs. However, during a review of autolog entries on July 13, 1998 the inspectors noted that the entry for 6:14 p.m. on June 23, 1998, indicated that the electric plant was placed in a 100/0 offsite power lineup on circuit 767. In actuality, the plant had been placed in a 0/100 offsite power lineup on circuit 751. Also, a 3:13 a.m. entry on July 4, 1998, indicated that the Improved Technical Specification (ITS) Limiting Condition for Operation (LCO) 3.3.1 for intermediate range nuclear instrument channel N-35 was entered because N-35 was removed from service. However, this LCO was not applicable in operating MODE 1. The licensee indicated that some operators were logging equipment out of service through the control room computer for the ITS (AutoSpec), which automatically recorded an actual LCO entry in the autolog.

Since the autolog data of plant activities could not be changed after it was archived at the end of every shift, the inspectors expressed concern that the official plant record was not always accurate. The printed hard copy of the logs needed to be amended by hand to indicate correct information. The licensee generated an ACTION Report (98-0988) to document this issue, and indicated that a process for editing archived computer logs and maintaining the official plant record would

be evaluated. Also, the Operations Manager placed guidance in the control room plan-of-the-day to refrain from using AutoSpec for logging equipment out of service until further notice. After the current report period, the Nuclear Assurance Manager indicated that the quality assurance organization would perform a review to assure that the official plant records were properly maintained.

c. Conclusions

The inspectors concluded that operations personnel normally documented plant status in the operating logs well, with two exceptions. One deficiency in the autolog computer was incorporated into the licensee's corrective action process. The administrative guidance placed in the control room Plan-of-the-Day on logging equipment out of service appeared adequate to properly document control room activities and plant status.

O8 Miscellaneous Operations Issues

O8.1 (Closed) Licensee Event Report (LER) 1998-002: Control Room Emergency Air Treatment System Actuating Function Not Operable, Due to Inadvertently Mispositioned Switch, Causes a Condition Prohibited by Plant Technical Specifications

On July 14, 1998, the licensee submitted LER 1998-002 to the NRC after discovering a previous inoperability of the Control Room Emergency Treatment Air System (CREATS) that occurred prior to June 15, 1998, and that represented a condition prohibited by the ITS. The inoperability involved the CREATS instrument channel (R-37) that monitors for control room particulate radiation that was repaired in October 1997 following a failure. The R-37 channel has two selectable modes ("INT" and "DIFF"), but must be selected only to the INT mode to be considered operable in accordance with the ITS. The channel was apparently not left in the INT mode following the October 1997 repair.

During a routine surveillance test in April 1, 1998, the licensee discovered that the mode selector switch on R-37 was not in the required position, and placed the switch in the correct position. On June 15, 1998, an investigation concluded that the mode switch was inadvertently mispositioned in October 1997, and that the maintenance and testing at that time did not require the position of the mode selector switch to be verified. A verification of its position was apparently not performed, and the mispositioning went undetected until April 1998.

Since the R-37 channel was operable at the time the previous inoperability was determined, the licensee took no further immediate corrective action. However, the licensee initiated a procedure change notice (PCN) for the maintenance procedure used to replace rack-mounted control modules to require recording as-found and as-left switch positions. The licensee also planned to change the calibration procedures for all CREATS channels to require switch setting verifications in the restoration portions of the procedure. In addition, training on this event was

conducted for I&C technicians, and the corrective actions program was enhanced with a requirement to perform timely reviews for past operability.

The inspectors concluded that the LER adequately described the root cause(s) for this event, and identified the necessary corrective actions to prevent a recurrence. Although the event resulted in a condition not permitted by the plant's technical specification and was not identified in a timely manner, it was licensee identified and promptly corrected upon discovery. No other instruments (R-36 for noble gases and R-38 for iodine) that could actuate CREATS indicated high radiation levels in the control room during the period of inoperabilty. Therefore, this was an event of minor safety significance and is a non-cited violation of technical specification requirements consistent with the NRC Enforcement Policy. This LER is closed **(LER 1998-002; NCV 50-244/98-08-01).**

O8.2 (Closed) Inspection Follow-up Item 50-244/97-07-01: Surveillance Requirements for Emergency Plan Radiation Monitors

Prior to implementation of the ITS at the Ginna Station, the licensee's customized technical specifications (CTS) listed the minimum frequencies for checks, calibrations, and tests of plant instrument channels (CTS Table 4.1-1). The supporting documentation for the conversion to the ITS in February 1996 indicated that the relevant specifications for Emergency Plan Radiation Instruments were relocated to the Offsite Dose Calculation Manual (ODCM). However, during an April 1997 NRC audit of the ITS conversion, the licensee was not able to identify specifically which instruments this relocation applied to. Some instruments in the CTS required monthly channel and functional checks, and some instruments in the ODCM required quarterly checks. The licensee did not have explicit documentation to indicate how surveillance test requirements for radiation monitors specified in their Emergency Plan (E-Plan) would be implemented after conversion to the ITS in February 1996.

The licensee subsequently performed a review of this discrepancy, and identified that the instruments identified in the CTS were intended to be hand-held radiation instruments used by field survey teams during a potential radiation release event. Appendix 12A of the Ginna Updated Final Safety Analysis Report (UFSAR) contained the licensee's radiation E-Plan, and specified additional testing requirements beyond the CTS. The licensee concluded that the documentation used for converting to the ITS should have indicated that the applicable radiation instruments were relocated and maintained under the E-Plan, which met specific requirements of 10 CFR 50.54. The inspectors reviewed the licensee's E-Plan implementing procedure (EPIP) 5-2, which specified which radiation monitoring instruments were applicable to the plan, and the applicable surveillance frequencies for checks and tests of each instrument. This item is closed **(IFI 50-244/97-07-01).**

II. Maintenance

M1 Conduct of Maintenance

M1.1 General Comments on Maintenance Activities

The inspectors observed portions of plant maintenance activities to verify that the correct parts and tools were utilized; the applicable industry codes and technical specification requirements were satisfied; adequate measures were in place to ensure personnel safety and prevent damage to plant structures, systems, and components; and to ensure that equipment operability was verified upon completion of post maintenance testing.

a. Inspection Scope (62707)

The inspectors observed selected maintenance activities to verify that approved procedures were in use, procedure details were adequate for the work in progress, equipment used was appropriate for the tasks in progress, and that work was proceeding in accordance with documented instructions.

b. Observations and Findings

The inspectors observed all or portions of the following work activities:

- W.O. 19801167, Major Overhaul of the B-Traveling Screen; observed on July 10 and 16, 1998.
- W.O. 19802744, Troubleshoot Spiking in Intermediate Range Nuclear Instrument N-35; observed on July 16, 1998, and daily thereafter.
- W.O. 19802905, Troubleshoot A-SWP Motor Noise; observed on July 16, 1998.
- W.O. 19802969, Disassemble and Inspect A-SWP Motor in Accordance with Procedure M-45.0, "Mechanical/Electrical Inspection and Maintenance of Ginna Station Motors;" observed on July 20, 1998.
- W.O. 19802970, Remove A-SWP; observed on July 20, 1998.
- W.O. 19802201, Electrical Diagnostic Testing on A-SWP Motor; observed on July 22, 1998.

c. Conclusions

The maintenance activities described above were not completed by the end of the current inspection period. However, the inspectors observed that controlled procedures were in use at the job site, were up to date, and were properly utilized by technicians involved in the work. The inspectors observed good personnel and plant safety practices during the maintenance work.

M1.2 General Comments on Surveillance Activities

a. Inspection Scope (61726)

The inspectors observed selected surveillance tests to verify that approved procedures were in use, procedure details were adequate, test instrumentation was properly calibrated and used, technical specifications were satisfied, testing was performed by knowledgeable personnel, and test results satisfied acceptance criteria or were properly dispositioned.

b. Observations and Findings

The inspectors observed portions of the following surveillance activities:

- PT-12.1, "Emergency Diesel Generator - A;" observed on July 7, 1998;
- PT-2.2Q, "RHR System - Quarterly;" observed on July 8, 1998
- PT-39, "Leakage Evaluation of Primary Coolant Sources Outside Containment;" RHR portion observed on July 8, 1998; License Condition 2.C.(5)(a),(b),&(c)
- PT-17.4, "Control Room Radiation R-36, R-37, R-38, and Toxic Gas Monitor;" observed on July 22, 1998

c. Conclusions

The inspectors confirmed that procedures used during surveillance tests were current and properly followed. The equipment tested met the acceptance criteria specified in the procedures for operability.

M8 Miscellaneous Maintenance Issues

M8.1 (Closed) Inspection Follow-up Item 50-244/96-01-02;Check Valve CV-4009 Maintenance Problems

This item was opened in March 1996 after routine surveillance testing of the A-motor driven auxiliary feedwater (A-MDAFW) pump discharge check valve CV-4009 demonstrated excessive seat leakage. The valve had previously leaked during a plant forced outage in early March 1996, and was subsequently repaired

by replacing its disk. Upon disassembly and inspection of the valve following the later surveillance test, the licensee determined that an earlier modification to the valve disk's seating angle prior to March 1996 had not been incorporated into the maintenance repair package used during the forced outage. Consequently, an approximate 6° difference existed between the valve disk and its seating surface, and caused the valve to leak during the next surveillance test.

The licensee completed a root cause analysis on June 11, 1996, and identified deficiencies in the work planning process, the control of contractors, and the modification process. The work package for the repairs in March 1996 was assembled under rush conditions without a historical review of the valve. Also, a generic maintenance procedure was used for the repairs since an upgraded ("MPUP") procedure had been quarantined when a periodic review became overdue. The previous modifications performed by the contractor were not properly captured into the licensee's records for the valve.

The licensee subsequently issued a series of work control administrative procedures including A-1603.3, "Work Order Planning." This procedure established detailed instructions and criteria for maintenance work planners to ensure that the job scope and technical requirements placed into work packages are based on a review of the maintenance history. The procedure also contained instructions for accomplishing a formal modification turnover for those work packages used to implement an equipment design change. In addition, the licensee developed interface procedure IP-DES-2, "Plant Change Process," and engineering procedure EP-3-S-0306, "Change Impact Evaluation Form," to strengthen controls over the modification process, and to provide a detailed checklist of plant processes, including maintenance procedures, that could be affected by a plant modification. The inspector reviewed the procedures listed above and concluded that they represented a significant enhancement to the work planning and modification control processes. No other known instances have occurred where equipment modifications were not incorporated into maintenance procedures. This item is closed **(IFI 50-244/96-01-02).**

M8.2 <u>(Closed) Inspection Follow-up Item 50-244/95-15-01;Water Leakage Into The Residual Heat Removal (RHR) Pump Room</u>:

This item was opened to monitor the licensee's efforts to identify the sources and quantities of water in-leakage to the RHR pump room. The licensee determined that an orifice in a floor drain line was restricting flow causing water to back-up and ultimately leak into the RHR pump room, and groundwater mixed with a previous or current fuel pool/transfer canal leak was leaking through the wall into the room. In response to this, the flow orifice in the floor drain line was replaced; mineral deposits and boric acid were cleaned from the wall; a water funneling system was set-up to direct in-leakage to a 55-gallon drum; a log was established to document the volume of water pumped from the catch drum, and the log indicated that approximately two gallons of water per day were collected in the drum. The licensee had effectively identified the sources of the inleakage to the RHR pump

room, and established a method to quantify the leakage rate. This item is closed (IFI 50-244/95-15-01).

M8.3 (Update) Inspection Follow-up Item 50-244/98-07-01;Deficiencies in Work Planning, Spare Parts Requisitioning, and Potential Inventory Control Problems:

This item was opened after an instance on June 17, 1998, where the licensee did not identify that an incorrect replacement relay (RT-9-A) was requisitioned from the stockroom until just prior to its installation into a safety-related reactor protection system (RPS) control circuit. A 120 VAC relay was requisitioned from the stockroom, tested in the I&C shop, then delivered to the RPS cabinet for installation into a 125 VDC circuit. The inspectors asked stockroom personnel to identify the location where the 120 VAC replacement relay had been stored. The stockroom manager showed the inspectors requisition sheet No. 76007 for Material ID# 9084436 in storage location 2B-14-2. However, that location contained only 125 VDC relays. On a separate occasion, the inspectors asked other stockroom personnel to identify the location of the 120 VAC relay issued for RT-9-A, and were shown requisition sheet No. 67156 for Material ID# 9083839 in location QAV 73-8-01. That location contained only 120 VAC relays. The inspectors were concerned that potentially inadequate inventory controls in the stockroom could have contributed to issuing the incorrect relay.

The licensee investigated the apparent discrepancy and determined that requisition sheet No. 67156 was actually used to obtain the 120 VAC relay from the stockroom. Subsequent to inspection report period 98-07, the stockroom manager indicated that he had mistakenly believed that requisition sheet No. 67156 was for the 120 VAC relay. The inspectors also interviewed the I&C maintenance planner who assembled the work package for the relay replacement. He confirmed that sheet No. 67156 was originally used for the incorrect 120 VAC relay, and that sheet No. 76007 was later used to requisition the 125 VDC relay. The work package he prepared for the relay replacement contained all of the requisition sheets used for the work, and the information on each sheet was consistent with the material ID#s and storage locations for both relays. The inspectors concluded that the inventory controls in the plant stockroom did not contribute to issuing incorrect parts for the RT-9-A replacement. However, at the end of the current inspection period, the licensee was still investigating how inadequate maintenance planning led to requisitioning of an incorrect part for the RT-9-A relay. The inspectors will continue to evaluate the licensee's work planning process and material identification system. This item will remain open (IFI 50-244/98-07-01).

III. Engineering

E2 Engineering Support of Facilities and Equipment

E2.1 Rod Control System Analysis and Change to Reactor Coolant System Average Temperature (Tave) Control Setpoint

a. Inspection Scope (37551)

The inspectors reviewed the licensee's analysis and actions for returning the rod control system to the automatic mode of operation.

b. Observations and Findings

The rod control system had been intermittently placed in manual operation since the November 1997 refueling outage due to inadvertent outward rod motion while in automatic control. This was a result of reactor coolant system (RCS) "streaming" that caused momentary variations in Tave (see IR 50-244/97-12).

The licensee performed an analysis of Tave compared to the RCS "Reference Average Temperature" (Tref) as seen by the rod control system and the Plant Process Computer System (PPCS). The licensee's analysis concluded that the Tave indication on PPCS was reading approximately 0.8 Degrees Fahrenheit (°F) higher than that seen by the rod control system. The difference was within system tolerance and was apparently caused by line transmission variations and calibration tolerances between the primary resistance temperature detectors (RTDs), and the rod control and PPCS systems. Therefore, when control room operators maintained Tave at 561.0 °F as indicated on PPCS, the rod control system was seeing 560.2 °F. This put the rod control system in the lower end of the allowable 1.5 °F operating band for Tave, and thus made it more susceptible to the effects of Tave streaming.

The licensee therefore utilized the allowable 1.5 °F temperature band for Tave by having control room operators maintain Tave at approximately 561.8 °F as indicated on PPCS, which correlated to 561.0 °F as seen by the rod control system. The licensee also calibrated the Overpower Delta Temperature (OPDT) setpoints to the middle of their control bands to minimize the possibility that the Tave streaming effects could generate an inadvertent turbine runback. The licensee generated procedure change notices (PCNs) revising calibration procedures to indicate that the OPDT setpoints should still be adjusted to the middle of their bands, even if the as-found setpoint was within tolerance.

The licensee returned the rod control system to automatic control on June 29, 1998. No inadvertent rod motion was noted throughout the remainder of the inspection period. The licensee indicated that modifications to the primary RTDs (discussed in IR 50-244/97-12) would still be scheduled for the 1999 refueling outage to further alleviate the problem.

c. Conclusions

The inspectors concluded that the licensee effectively compensated for average temperature variations caused by primary coolant streaming, which allowed the rod control system to be returned to the automatic mode of operation.

E8 Miscellaneous Engineering Issues

E8.1 (Update) Inspection Follow-up Item 50-244/98-07-02: Evaluation of the Licensee's 10 CFR 50.54(f) Review Project:

This item was opened in June 1998, following inspector concern over a weakness in the licensee's design-basis records for the containment spray (CS) chemical injection flow eductors, and the lack of an adequate basis for test acceptance criteria in the periodic surveillance test of the CS system (see IR 50-244/98-07). The licensee performed a detailed engineering analysis of the surveillance test conditions in order to correlate design-basis functional requirements necessary to assure that the minimum amount of sodium hydroxide would be injected through the CS system following a design basis accident, prior to transitioning into long term recirculation cooling.

The inspector reviewed the licensee's current project to determine the adequacy of the existing design basis of the Ginna Plant against the criteria contained in an NRC letter to RG&E on October 9, 1996 (JM Taylor to RW Kober) pursuant to 10 CFR 50.54 (f), "Conditions of Licenses." The licensee established a Design Basis Management Program, assigned a 10 CFR 50.54(f) Project Manager, and developed four high-tier documents that outlined the scope, objectives, schedules, and responsibilities for the project. The licensee incorporated the ongoing UFSAR verification project within the scope of the 10 CFR 50.54(f) reviews, and linked both activities to ensure they are consistent. The licensee's 10 CFR 50.54(f) project also incorporated plans to develop design basis documents for important plant systems, to assure that all license commitments are captured and addressed, to enhance calculation controls, to develop an information technology strategy, and to formalize an engineering work management system. The licensee recently began issuing bi-weekly status reports which indicated the current progress on the UFSAR verification project. The inspector noted that the work in this project appeared somewhat behind schedule; however, the report contained specific information on the status of individual project elements and the amount of work remaining to allow project completion by October 18, 1998. The licensee indicated that October would remain the target date for completion of the UFSAR verification.

The inspector noted that the licensee had not included an effort to validate the acceptance criteria bases (ACBs) that are currently contained in all ITS-related surveillance test procedures. However, the 10 CFR 50.54(f) project manager agreed that the project scope should be modified to include this item, since it would be required to satisfy the project criteria relating to "the rationale for concluding that design basis requirements are translated into operating, maintenance, and testing procedures." The inspector concluded that the licensee's 10 CFR 50.54(f) project

was well developed, and appeared comprehensive in scope. The project will require additional refinements over time, and the inspector will continue to evaluate the licensee's progress in future inspections (IFI 50-244/98-07-02).

IV. Plant Support

R1 Radiological Protection and Chemistry (RP&C) Controls

R1.1 ALARA Performance, Spent Fuel Pool Diving, and Radiography

a. Inspection Scope (83750)

The inspectors performed a review of the licensee's radiation dose performance for 1998, their plans for scheduled fuel pool diving activities, and their controls for radiography. Information was gathered by a review of station dose records, a draft procedure for planned fuel pool dives, procedure RP-JC-Radiograph "Support Radiography Operations," and through interviews with cognizant personnel.

b. Observations and Findings

ALARA Performance

The licensee's radiation exposure challenge goal for 1998 was increased from 15 to 25 person-rem due to increased dose rates in the auxiliary building basement resulting from a crud burst that occurred during startup activities in 1997 and an increase in the number of entries into containment with the plant at power. Radiation exposures were closely monitored and appropriate dose reduction measures such as system flushing and detailed planning were taken. Records showed that radiation exposures at Ginna Station, including annual totals and the three-year rolling averages, had steadily declined and the projected station dose for 1998 of 25 person-rem was the lowest in the station's history.

Fuel Pool Diving

The licensee scheduled a spent fuel pool re-rack project for the late summer and early fall of 1998, with a work scope that included fuel pool diving activities. Work plans included adequate controls to prevent unplanned exposures including use of tethers to prevent access to high radiation areas, diving baskets, vacuuming, constant health physics oversight, detailed ALARA briefings, and strict work control.

Radiography Controls

The health physics organization used procedure RP-JC-Radiograph, "Support Radiography Operations," to support and control radiography at the Ginna station. The procedure contained sufficient warnings and procedural steps to prevent unplanned exposures. For example, the procedure directed health physics to verify

that radiological boundaries were intact and no unauthorized personnel were within radiography areas prior to initiation of radiography activities.

c. Conclusion

Efforts to reduce radiation exposure were successful as evidenced by declining radiation exposures and the projected radiation exposure total for 1998 was the lowest in the station's history.

Plans and preparations for scheduled fuel pool diving and procedural guidance for support of radiography activities were well developed and included sufficient measures to prevent unplanned exposures.

R2 Status of RP&C Facilities and Equipment

R2.1 Housekeeping, Radiological Boundaries, Contamination Control

a. Inspection Scope (83750)

The inspector conducted plant tours to evaluate housekeeping and cleanliness, maintenance of radiological boundaries, and contamination controls. Areas inspected included the auxiliary building (AB), the intermediate building (IB), the contaminated storage building (CSB), and outside storage areas.

b. Observations and Findings

Housekeeping

Major walkways and aisles were well illuminated, and clear and free of debris. Ground water intrusion into the IB sub-basement had been noticeably reduced by sealing concrete walls. Several gallons of standing water were observed in the residual heat removal (RHR) pump room next to the A-RHR pump. Although the volume of water was small and did not represent a threat to plant equipment, licensee staff had not identified the source of the standing water.

Radiological Boundaries

Radiological boundaries were clearly posted and access to high radiation areas was appropriately controlled with radiation work permits, radiological postings, and locks for areas with dose rates greater than 1000 mrem per hour.

Contamination Control

The licensee's records showed that plant areas maintained as contaminated were less than an established goal of 6,500 ft^2. During tours of the AB, several potentially recoverable contaminated areas were identified such as the charging pump room and the sodium-hydroxide (NaOH) tank room. A health physics supervisor reported that the contaminated area boundary around the charging

pumps was expanded primarily to accommodate frequent maintenance performed in 1998, and access to the room could easily be obtained by donning shoe covers and gloves. However, he indicated that plans were in place to assemble a multi-disciplined team including operations, maintenance, engineering, and health physics, to evaluate the rational for maintaining various areas contaminated. Examples of areas targeted for review included the charging pump room, residual heat removal pump room, the NaOH tank room, the boric acid storage tank room, and the spent fuel pool skimmer room.

Due to the initiation of a fuel pool re-rack project, the major personnel access point to the AB through the IB was re-routed. Station personnel were directed to access and egress the AB through the CSB. Personnel contamination monitoring practices were modified to be performed in a two step process: first, personnel were required to use a "hand-and-foot" monitor at the CSB; then if successful, personnel were directed to use a "whole-body" personnel contamination monitor located at the health physics control point. The health physics staff reported that strict compliance with the revised contamination monitoring process was required in order to prevent the spread of contamination, and plant personnel had adjusted to the revised process. Based on field observations including personnel use of contamination monitoring equipment, the inspector concluded that revised contamination monitoring practices for primary auxiliary building egress appeared reasonable.

c. Conclusion

An exception to good housekeeping was identified in the residual heat removal (RHR) pump room in that several gallons of water were present on the floor adjacent to the A-RHR pump, and licensee staff had not identified the source of the standing water.

Radiological boundaries in the primary auxiliary building, intermediate building, and contaminated storage building were well defined and clearly posted, and access to high radiation areas was sufficiently controlled with postings, barricades, and radiation work permits.

R2.2 (Open) Inspection Follow-up Item 50-244/98-08-02: Groundwater Tritium Monitoring

a. Inspection Scope (83750)

A review was performed of licensee efforts to monitor and evaluate groundwater tritium activity. Information was gathered by a review of sampling results, an interoffice correspondence regarding "Spent Fuel Pool/Transfer Canal Leakage Issues," dated July 2, 1998, and through plant tours and discussions with cognizant personnel.

b. Observations and Findings

Licensee sampling data and studies indicated that ground water tritium activities were stable and possibly declining, no significant amount of water from the spent fuel pool was migrating offsite to the north, the drain system at Ginna provided an effective capture mechanism to prevent releases, and monitoring strategies provided an effective mechanism for the detection of potential radionuclide leakage offsite. However, sampling data also indicated that tritium was present in samples collected adjacent to the fuel pool at concentrations greater than ten times those of EPA drinking water standards (2E-5 μCi/cc). For example, a sample from the intermediate building sub-basement (IBSB) southeast corner had a tritium activity of approximately 7E-4 μCi/cc, a sample from IBSB drain No.1 had a tritium activity of approximately 8E-4 μCi/cc, and water intrusion into the residual heat removal pump room had a tritium activity of approximately 1E-3 μCi/cc.

Although a representative from engineering was assigned to assemble information on potential fuel pool leakage, it did not appear to the inspector that any one person or group had primary responsibility for evaluating potential fuel pool leakage. For example: 1) the chemistry group could not readily retrieve current sample results for the water collected by the fuel pool leakage collection system or for the water that had leaked through the RHR pump room wall; 2) the leak rate for water captured by the fuel pool leakage collection system was not formally tracked; and 3) attempts to estimate fuel pool leakage by performing a water inventory balance were discontinued due to high error associated with variables such as temperature, humidity, and lack of accurate measurement devices. The plant manager acknowledged that changes in personnel assignments and responsibilities had resulted in some loss of continuity with regard to oversight of issues related to potential leakage. However, he added that this information was being collected and once assembled, engineering would act as the focal point for oversight and evaluation of potential spent fuel pool leakage issues. The plant manager subsequently assigned a representative from engineering to investigate the source of tritium activity in samples adjacent to the spent fuel pool, to monitor potential radionuclide migration to the local ground water, and to implement appropriate corrective actions. On July 29, 1998, the radiation protection manager stated in a telephone conversation that the engineer's specific duties were to provide overall systematic coordination of Ginna Station engineering, chemistry, and operations actions focused on investigating the source of tritium to the containment foundation collection system and auxiliary building sub-basement, monitor for potential radionuclide migration to the environment, and implement appropriate corrective measures.

c. Conclusion

Changes in personnel assignments and responsibilities had resulted in some loss of continuity with regard to oversight of issues related to potential spent fuel pool leakage. An inspection follow-up item was opened to monitor licensee efforts to investigate and evaluate elevated tritium activity at sample locations near the northeast corner of the spent fuel pool (IFI 50-244/98-08-02).

R7 Quality Assurance in Radiological Protection and Chemistry Activities

R7.1 Corrective Action System

a. Inspection Scope (83750)

The inspectors reviewed the effectiveness of the corrective action system for the identification and resolution of radiological control problems. Information was gathered by a selected review of approximately 50 radiological control issues placed into the Abnormal Condition Tracking Initiation or Notification (ACTION) reporting system in 1998 and through interviews with cognizant personnel.

b. Observations and Findings

The station's ACTION Reporting system was readily used to investigate and document radiological issues such as ALARA concerns, radiological boundary deficiencies, instrumentation malfunctions, and communication problems. A selected review showed that adequate corrective actions were implemented for issues placed into the system. A detailed analysis had been performed of the type of radiological issues placed into the system in 1997 and the first quarter of 1998 to identify trends and weaknesses. In 1997, trends in boundary control deficiencies and electronic dosimeter malfunctions were identified and appropriately addressed. No significant trends were identified for radiological ACTION Reports for 1998.

c. Conclusions

The ACTION Reporting system was readily and effectively used to identify, evaluate, and resolve radiological deficiencies. Detailed analyses were performed to evaluate trends, significance reviews were performed, and adequate corrective actions were taken.

R8 Miscellaneous RP&C Issues

R8.1 (Closed) Inspection Follow-up item 50-244/97-11-02; Quality and Content of Radiological Briefings Provided to Plant Personnel:

This item was opened to determine if guidance provided to station workers regarding their response to electronic dosimeter (RADOS) alarms was clear and consistent. To ensure that guidance provided to health physics technicians was clear, revisions were made to procedure A-1, "Radiation Control Manual," Rev. 42 and A-1.8, "Radiation Work Permit," Rev. 4, and a required reading entitled "Electronic Dosimeter Alarms" was issued to the radiological controls staff on February 5, 1998, to emphasize and clarify required actions to take in response to electronic dosimeter alarms. The procedural revisions were determined to provide adequate clarification regarding personnel response to electronic dosimeter alarms. This item is closed (IFI 50-244/97-11-02).

R8.2 (Closed) Inspection Follow-up Item 50-244/97-11-03;Use of Isotopic Scaling Factors for Internal Dose Assessment:

This item was opened to review the licensee's evaluation and use of isotopic scaling factors for internal dose assessment. The licensee had suspected that an increase in alpha activity in plant contamination was due to known fuel damage that occurred in 1997. Correct assessment of specific alpha activity (hard-to-detect nuclides) would be necessary to assure accurate evaluation of air sampling results and for the performance of internal dose assessment.

To address this issue, samples were obtained from various plant areas during the fall 1997 outage and were sent to an offsite laboratory for detailed isotopic analyses (10 CFR 61 analysis). Concentrations of hard-to-detect nuclides were compared to the activity of cobalt-60 (Co-60). Alpha activity was estimated to have increased by approximately 30 percent, and it was estimated for every 1 millirem of internal dose received from Co-60, 22.5 millirem would be received from hard-to-detect nuclides. The licensee developed scaling factors and proposed revisions to procedures. The licensee also proposed a process for making timely revisions to procedures for air sampling and internal dose assessment based on changes in the plant isotopic mix. Licensee progress in this area was determined to be adequate. This item is closed (IFI 50-244/97-11-03).

V. Management Meetings

X1 Exit Meeting Summary

After the inspection was concluded, the inspectors presented the results to members of licensee management on August 6, 1998. The licensee acknowledged the findings presented.

The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

L2 Review of UFSAR Commitments

While performing the inspections discussed in this report, the inspector reviewed the applicable portions of the UFSAR that related to the areas inspected. The inspector verified that the UFSAR wording was consistent with the observed plant practices, procedure and/or parameters. Any discrepancies had been incorporated into the licensee's update project for the UFSAR.

ATTACHMENT I

PARTIAL LIST OF PERSONS CONTACTED

Licensee

B. Flynn	Primary Systems Engineering Manager
C. Forkell	Electrical Systems Engineering Manager
G. Graus	I&C/Electrical Maintenance Manager
A. Harhay	Chemistry & Radiological Protection Manager
J. Hotchkiss	Mechanical Maintenance Manager
G. Joss	Results and Test Supervisor
R. Marchionda	Production Superintendent
P. Polfleit	Emergency Preparedness Manager
R. Ploof	Secondary Systems Engineering Manager
J. Smith	Maintenance Superintendent
J. Widay	Plant Manager
T. White	Operations Manager
G. Wrobel	Nuclear Safety & Licensing Manager

INSPECTION PROCEDURES USED

IP 37551:	Onsite Engineering
IP 40500:	Problem Resolution
IP 61726:	Surveillance Observation
IP 62707:	Maintenance Observation
IP 71707:	Plant Operations
IP 71750:	Plant Support
IP 83750:	Occupational Radiation Exposure
IP 92901:	Follow-up - Operations
IP 92902:	Follow-up - Maintenance
IP 92903:	Follow-up - Engineering

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

NCV 50-244/98-08-01	Radiation Monitor R-37 inoperable for six months not allowed by technical specifications.
IFI 50-244/98-08-02	Monitor licensee efforts to investigate and evaluate elevated tritium activity at sample locations near the northeast corner of the spent fuel pool.

Closed

LER 1998-002 NCV 50-244/98-08-01	Radiation Monitor R-37 inoperable for six months not allowed by technical specifications.
IFI 50-244/95-15-01	Water leakage into the residual heat removal system pump room.
IFI 50-244/97-11-02	Information provided during a radiological control prejob briefing was not fully consistent with procedural guidance.
IFI 50-244/97-11-03	Evaluate the use of isotopic scaling factors in light of a vendor analysis that indicated that alpha contamination levels had increased.
IFI 50-244/97-07-01	Surveillance requirements for Emergency Plan radiation monitors.
IFI 50-244/96-01-02	Check valve CV-4009 maintenance problems.

Updated

IFI 50-244/97-11-04	Evaluate licensee actions taken to investigate the refueling cavity leakage pathway, its safety significance, and the necessary corrective actions.
IFI 50-244/98-07-01	Deficiencies in work planning, spare parts requisitioning, and potential inventory control problems.

LIST OF ACRONYMS USED

AFW	Auxiliary Feedwater
ALARA	As Low As Reasonably Achievable
AR	ACTION Report
CCW	Component Cooling Water
CFR	Code of Federal Regulations
CSB	Contaminated Storage Building
EOP	Emergency Operating Procedure
EPA	Environmental Protection Agency
ESF	Engineered Safety Feature
IB	Intermediate Building
IBSB	Intermediate Building Sub-basement
ID#	Identification Number
IFI	Inspection Follow-up Item
IP	Interface Procedure
IR	Inspection Report
ISI	Inservice Inspection
ITS	Improved Technical Specification
LCO	Limiting Condition for Operation
LER	Licensee Event Report
LVDT	Linear Variable Differential Transformer
MOV	Motor-Operated Valve
MDAFW	Motor-Driven Auxiliary Feedwater
μCi	microcurie
NRC	Nuclear Regulatory Commission
NRR	Nuclear Reactor Regulation
PCN	Procedure Change Notice
PORC	Plant Operations Review Committee
PPCS	Plant Process Computer System
PT	Periodic Test
QA	Quality Assurance
RG&E	Rochester Gas and Electric Corporation
RHR	Residual Heat Removal
RP	Radiation Protection
RP&C	Radiological Protection and Chemistry
RTD	Resistance Temperature Detector
RWP	Radiation Work Permit
SAFW	Standby Auxiliary Feedwater
SEV	Safety Evaluation
SI	Safety Injection
SRV	Safety Relief Valve
SW	Service Water
Tave	Reactor Coolant System Average Temperature
TDAFW	Turbine-Driven Auxiliary Feedwater
TLD	thermoluminescent dosimeter
Tref	Reference Reactor Coolant System Average Temperature
UFSAR	Updated Final Safety Analysis Report
VIO	Violation