May 28, 2003

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

SUBJECT: R. E. GINNA NUCLEAR POWER PLANT
NRC INSPECTION REPORT 50-244/03-002

Dear Mr. Mecredy:

On April 17, 2003, the NRC completed a team inspection at the Ginna Nuclear Power Plant. The enclosed report documents the results of the inspection which were discussed on April 17, 2003, with Mr. John White, Maintenance Superintendent, and other members of your staff.

The inspection examined activities conducted under your license as they relate to safety system design and performance capability of the safety injection system and the emergency diesel generators, and compliance with the Commission's rules and regulations, and with the conditions of your license. The inspection consisted of system walkdowns; examination of selected procedures, drawings, modifications, calculations, surveillance tests and maintenance records; and, interviews with site personnel.

Based on the results of the inspection, the team identified one finding of very low safety significance (Green), which was determined to involve a violation of NRC requirements. However, because of the very low safety significance and because it was entered into your corrective action program, the NRC is treating this finding as a non-cited violation (NCV) consistent with Section VI.A of the NRC Enforcement Policy. If you contest the NCV in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator Region I; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at Ginna.

In accordance with 10CFR2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of the NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

**/RA/**

Lawrence T. Doerflein, Chief
Systems Branch
Division of Reactor Safety

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

Enclosure: Inspection Report 50-244/03-002
w/ Attachment: Supplemental Information

cc w/encl:
P. Wilkens, President, Rochester Gas and Electric
P. Eddy, Electric Division, Department of Public Service, State of New York
C. Donaldson, Esquire, State of New York, Department of Law
N. Reynolds, Esquire
W. Flynn, President, New York State Energy Research and Development Authority
J. Spath, Program Director, New York State Energy Research and Development Authority
D. Stenger, Ballard Spahr Andrews and Ingersoll. LLP
T. Wideman, Director, Wayne County Emergency Management Office
M. Meisenzahl, Administrator, Monroe County, Office of Emergency Preparedness
T. Judson, Central New York Citizens Awareness Network

Distribution w/encl **(VIA EMail)**:
Region I Docket Room (with concurrences)
K. Kolaczyk, NRC Senior Resident Inspector
H. Miller, RA
J. Wiggins, DRA
A. Kugler, RI EDO Coordinator
R. Laufer, NRR
R. Clark, PM, NRR
P. Milano, PM, NRR (Backup)
J. Trapp, DRP
N. Perry, DRP
R. Junod, DRP
B. Norris, DRS
DRS File

DOCUMENT NAME: C:\ORPCheckout\FileNET\ML031480586.wpd
After declaring this document "An Official Agency Record" it **will** be released to the Public.
**To receive a copy of this document, indicate in the box:**
"**C**" = Copy without attachment/enclosure "**E**" = Copy with attachment/enclosure "**N**" = No copy

| OFFICE | RI/DRS | c | RI/DRS/SRA | | RI/DRP | | RI/DRS | |
|---|---|---|---|---|---|---|---|---|
| NAME | B Norris | | E Cobey | | J Trapp | | L Doerflein | |
| DATE | 05/06/03 | | 05/20/03 | | 05/07/03 | | 05/28/03 | |

**OFFICIAL RECORD COPY**

**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION I**

| | |
|---|---|
| Docket No: | 50-244 |
| License No: | DPR-18 |
| Report No: | 50-244/03-002 |
| Licensee: | Rochester Gas & Electric Corporation (RG&E) |
| Facility: | R. E. Ginna Nuclear Power Plant |
| Location: | 1503 Lake Road<br>Ontario, New York 14519 |
| Dates: | March 31 - April 17, 2003 |
| Inspectors: | B. Norris, Senior Reactor Inspector, Team Leader, DRS<br>F. Arner, Senior Project Engineer, DRP<br>L. Cheung, Senior Reactor Inspector, DRS<br>M. Gray, Senior Reactor Inspector, DRS<br>S. Pindale, Senior Reactor Inspector, DRS<br>H. Anderson, NRC Mechanical Contractor |
| Approved By: | Lawrence T. Doerflein, Chief<br>Systems Branch<br>Division of Reactor Safety |

## SUMMARY OF FINDINGS

IR 05000244/03-002; on 03/31 - 04/18/2003; R. E. Ginna Nuclear Power Plant; Safety System Design and Performance Capability.

This announced inspection was conducted by five regional inspectors and one NRC contractor. One finding of very low safety significance (Green) was identified, which was considered to be a non-cited violation (NCV). The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. NRC-Identified and Self-Revealing Findings

Cornerstone: Mitigating Systems

- Green. The inspectors identified a non-cited violation of 10 CFR 50, Appendix B, Criterion III, for failure to support the ventilation ductwork over the safety injection (SI) and containment spray (CS) pumps, as assumed in the seismic design evaluation. In addition, the required supports were not included on the design drawings associated with the ventilation for the SI and CS pumps.

  The finding is greater than minor because it affects the design control attribute of the mitigating system cornerstone objective to maintain the reliability of mitigating system equipment. The finding adversely impacts the reliability of the SI pumps and CS pumps to remain functional subsequent to a postulated seismic event, since the seismic class I ductwork and supports were not installed and configured consistent with the design analysis. The finding is of very low safety significance because it involved a qualification deficiency that did not result in a loss of function and the affected pumps remained operable.

## REPORT DETAILS

## 1. REACTOR SAFETY

### Cornerstones: Mitigating Systems, and Barrier Integrity

1R21 Safety System Design and Performance Capability (IP 71111.21)

a. Inspection Scope

The team reviewed the design and performance capability of the emergency diesel generator (EDG) and the safety injection (SI) systems. From a risk perspective, the team focused inspection activities on components and procedures that would minimize the effects of a loss-of-offsite power (LOOP) initiating event and mitigate the associated accident sequences.

For both systems, the team verified that the existing systems were in accordance with the design basis, licensing commitments and regulatory requirements, and that the design documents, such as drawings and design calculations, were correct. The documents reviewed included engineering analyses, calculations, permanent and temporary plant modifications, piping and instrumentation drawings (P&IDs), electrical schematics, instrumentation and control drawings, logic diagrams, and instrument setpoint documentation. The team interviewed system engineers, design engineers, plant operators, and work management personnel regarding the design, operation, maintenance, and overall performance health of the EDG and SI systems and the associated support systems.

The team reviewed the operating procedures and engineering design calculations for the EDG and SI support systems in order to verify that procedure actions match design analysis assumptions. The types of procedures reviewed included: system operating procedures, abnormal and emergency operating procedures (APs and EOPs), alarm response procedures, and engineering design control procedures.

The team conducted walk-downs of accessible portions of the systems, and the associated safeguards switchgear systems, to verify the systems were consistent with design documents, calculations, and assumptions. The team used the updated final safety analysis report (UFSAR), technical specifications (TS), P&IDs, and isometric drawings as references during the walk-downs to verify the physical installation was consistent with design bases assumptions for major components, including piping, piping supports, pumps, valves, generator, and circuit breakers. During field walkdowns, the team examined the material condition of the systems, and the physical line-up of the major components. The team also walked down supporting systems including the residual heat removal system (RHR), and direct current (dc) power supplies.

The mechanical design review focused on the capability of the EDG and SI systems, including associated supporting pumps, tanks, valves, and piping under the design basis and transient conditions. Additionally, the current performance and test criteria for the EDGs and the SI pumps and accumulators were reviewed to ensure consistency

between allowable component performance and minimum allowable capabilities assumed in the accident analyses and associated design basis calculations.

The electrical design review focused on the capability of the EDGs to supply the safeguards busses and the ability of associated actuation, control, and instrumentation systems to support the design basis. The team reviewed one-line diagrams, elementary diagrams, control schematics, steady state and dynamic loading calculations, sequencer timing calculations, and protective device setpoints. The review included related operating instructions, instrument calibrations, and surveillance test procedures.

The team assessed the reliability and unavailability performance of the EDG and SI systems by reviewing selected corrective and preventive maintenance work orders (WOs) over the past two years. The team also used the Maintenance Rule System Performance Quarterly Reports and discussions with the system engineers to understand system reliability and availability. The team reviewed post-maintenance testing results for various WOs to verify the demonstrated capability of the components to perform their intended safety function.

The team also reviewed modifications to the SI and EDG support systems as well as changes to the license, TSs or plant design that could impact the functionality or reliability of the systems.

The team reviewed performance data acquired during EDG and SI TS surveillance testing (ST) activities to verify that the results demonstrated functional capability and met the acceptance criteria. Selected component performance data was reviewed to verify that test results reflected design conditions. The team observed portions of the monthly EDG STs from the field. Test acceptance criteria were reviewed and compared to design calculations, TS requirements, and inservice testing (IST) requirements. Surveillance test acceptance criteria and component online performance data results were compared with design limits to determine if the design margins were being maintained and components were properly monitored.

The team reviewed operator actions in normal procedures, APs and EOPs for operating, monitoring, and controlling the EDG and SI systems. This included a review of the adequacy of the active and passive portions of the SI system, including the injection phase and the recirculation phase. The team verified that normal, abnormal, and EOPs were consistent with systems design bases. System interfaces (instrumentation, controls, and alarms) were reviewed to assess the support to operator decision making. The team also reviewed the ability to respond to anomalous conditions and complete recovery activities.

b. Findings

Introduction: The team identified the licensee had failed to support the ventilation ductwork over the SI and containment spray (CS) pumps as assumed in the seismic design evaluation. In addition, the required supports were not included on the design drawings associated with the ventilation for the SI and CS pumps. This finding was determined to be of very low safety significance (Green) and non-cited violation (NCV) of 10 CFR 50 Appendix B, Criteria III, Design Control.

Description: During a plant walkdown, the team observed that the ventilation ductwork air hoods over each of the SI pumps were positioned in close proximity to the shaft couplings and bearing oilers. However, only the air-hood for the ventilation over the "B" SI pump was supported by attachments to the pump pedestal. The team observed that the "A" and "C" SI pump air-hoods were not rigidly supported, and questioned whether the air-hoods could interact with the pump components during a postulated seismic event. Also, the team observed that there was significant rust on the flanged connections where the three SI pump air-hood assemblies bolted to the ductwork. In addition, the team noticed that the air-hoods over the CS pumps were removed.

The team reviewed UFSAR Section 9.4.2.4, and the associated thermal analyses, and determined that the ductwork was classified as safety significant and designed with supports to meet Seismic Class 1 requirements. However, the design no longer credited the cooling function provided by the ductwork and the upstream cooling coils had been isolated. In reviewing the seismic design, the team determined that the analysis calculated the SI and CS ductwork stiffness assuming the air-hood assemblies were connected to the pump pedestals; but the air-hoods over the "A" and "C" SI pumps were not supported. In addition, air-hood to pedestal supports for the SI and CS pumps were not included on design drawing D-118-002. Ginna personnel could not identify if the supports had been installed previously on the SI pump air-hoods.

With regard to the two CS pumps, Ginna personnel identified that the air-hoods had been removed in 1998, under PCR 98-049, because they physically interfered with the installation of new valve actuators. While the modification package concluded that the cooling function was not required, the impact of removing these air-hoods on the seismic design was not evaluated. Additionally, drawing 33013-1869 had not been updated to reflect the air flow volume change at the CS pumps.

In response to these issues, Ginna personnel walked down the equipment and initiated AR's 2003-0762 and 2003-0804 to evaluate these conditions. The evaluations concluded that the SI ductwork stiffness was likely adequate to preclude seismic interactions with pump components, and that the guards over the SI pump couplings should prevent damage to the shaft and coupling. Ginna personnel also concluded that while the CS and SI pump ductwork may deform, it would not fail during a postulated seismic event. Considering the air-hood and ductwork weight, the evaluations concluded that, notwithstanding the surface rust, the bolted joints have sufficient margin to maintain the air-hoods in place during a postulated seismic event. The team walked

down the pump and duct configuration and confirmed the shaft coupling shields provided significant protection.

At the end of the inspection, Ginna personnel were preparing a plant modification (PCR 2003-010) to add support braces to the SI pump air-hoods and the CS pump ductwork to anchor them consistent with the seismic design analysis.

Analysis: The finding adversely impacts the reliability of the "A" and "C" SI pumps and both CS pumps to remain functional subsequent to a postulated seismic event, since the seismic Class I ductwork air-hoods and supports were not installed and configured consistent with the design analysis. The finding is greater than minor because it affects the design control attribute of the mitigating systems cornerstone to maintain the reliability of affected SI and CS pumps. However, the issue was determined to have very low safety significance (Green) using Phase One of the NRC Significance Determination Process (SDP) for At-Power Situations because the finding involved a qualification deficiency that did not result in a loss of function and the affected SI and CS pumps remained operable.

Enforcement: 10 CFR Appendix B, Criteria III, "Design Control," requires, in part, that measures be established to correctly translate the design basis of safety related equipment, including seismic Class I equipment, into drawings and instructions; further, it requires that design control measures provide for verifying or checking the adequacy of the design. Contrary to these requirements, the air-hood supports required by the seismic design for the "A" and "C" SI pumps and the CS pumps were not shown on drawing D-118-002, likely since initial plant start-up, and were not installed in the plant. Secondly, in 1998, modification package PCR 98-049 did not evaluate the impact on the seismic analysis of removing the air-hoods over the CS pumps, specifically, the credited connection to the floor. However, because of the very low safety significance of the issues, and because they were entered into the Ginna corrective action program (ARs 2003-0762 and 2003-0804), these issues are being treated as a non-cited violation consistent with Section VI.A of the NRC Enforcement Policy. **(NCV 50-244/03-02-01)** Failure to Maintain the Ventilation Over the SI and CS Pumps in Accordance with the Design Basis

## 4. OTHER ACTIVITIES

### 4OA2 Identification and Resolution of Problems

a. Inspection Scope

The team reviewed a sample of Action Reports (ARs) associated with the EDG and SI systems, as identified in the Attachment, to assess if Ginna personnel were identifying issues at an appropriate threshold, entering them in the corrective action program, and taking appropriate corrective actions commensurate with the significance of the issue. The team also evaluated the basis for operability determinations resulting from the ARs.

The team also reviewed a sample of quality assurance audits and reports in the area of engineering to determine if corrective actions have been entered into the corrective action program, and if the actions were completed to resolve identified deficiencies. Additionally, the team reviewed corrective actions for selected issues identified during two earlier NRC inspections - the previous safety system design inspection (IR 2001-05), and an electrical distribution system functional inspection (IR 1991-80).

b. Findings

No findings of significance were identified.

4OA6 Meetings, Including Exit

On April 17, 2003, the team presented the inspection results to Mr. John Smith, Maintenance Superintendent, and other members of the licensee's staff. The inspectors verified the inspection report does not contain proprietary information.

Attachment: Supplemental Information
Key Points of Contact
Items Opened, Closed, and Discussed
Abbreviations Used
Documents Reviewed

## SUPPLEMENTAL INFORMATION

## KEY POINTS OF CONTACT

| | |
|---|---|
| J. Banke | Boric Acid Corrosion Monitoring Program Coordinator |
| L. Berthiaume | System Engineer, Safety Injection |
| K. Blackall | System Engineer, Emergency Diesel Generators |
| M. Fitzsimmons | Analysis Engineer |
| M. Flaherty | Manager, Nuclear Licensing and Safety |
| B. Flynn | Manager, Primary Reactor Engineering |
| D. Gomez | Shift Supervisor |
| T. Harding | Nuclear Licensing and Safety Engineer |
| G. Hermes | Manager, Reliability (acting) |
| B. Hunn | Design Engineer, Electrical |
| G. Joss | IST Coordinator |
| T. Miller | System Engineer, Electrical Systems |
| J. Pacher | Manager, I&C/Electrical Engineering |
| F. Puddu | Operating Experience Analyst |
| W. Rapin | System Engineer, Reactor Systems |
| J. Smith | Superintendent, Maintenance |
| W. Tono | Analysis Engineer |
| C. Vitali | System Engineer |
| J. Widay | Plant Manager |
| J. Zapetis | Reliability Engineer |

## ITEMS OPENED, CLOSED, AND DISCUSSED

Opened & Closed

50-244/2003-02-01 NCV Failure to Maintain the Ventilation over the SI and CS Pumps in Accordance with the Design Basis

## LIST OF ACRONYMS

| | |
|---|---|
| AP | Abnormal Procedure |
| AR | Action Report |
| CFR | Code of Federal Regulations |
| CS | Containment Spray |
| dc | Direct Current |
| ECCS | Emergency Core Cooling System |
| EDG | Emergency Diesel Generator |
| EOP | Emergency Operating Procedure |
| IP | Inspection Procedure (NRC) |
| IST | Inservice Test |
| LOOP | Loss of Offsite Power |
| MDCN | Modification Design Change Notice |

| | |
|---|---|
| NCV | Non Cited Violation |
| NRC | Nuclear Regulatory Commission |
| P&ID | Piping and Instrumentation Drawing |
| PCR | Plant Change Record |
| RHR | Residual Heat Removal |
| RWST | Refueling Water Storage Tank |
| SDP | Significance Determination Process |
| SI | Safety Injection |
| ST | Surveillance Test |
| TS | Technical Specification |
| UFSAR | Updated Final Safety Evaluation Report |
| WO | Work Order |

## LIST OF DOCUMENTS REVIEWED

**Procedures:**

| | |
|---|---|
| A-52.16 | Operator Workaround/Challenge Control [Aggregate Impact Report], Revision 14 |
| AP-CR.1 | Control Room Inaccessibility, Revision 19 |
| AP-SW.2 | Loss Of Service Water, Revision 2 |
| AR-C-11 | Accumulator 1A (Loop B) Press 720psi760, Revision 6 |
| AR-C-3 | Accumulator 1A (Loop B) Level 60%75, Revision 9 |
| ATT-2.1 | Attachment MIN SW, Revision 5 |
| CME-50-02-52/SWP1B | Maintenance for 52/SWP1B (480V Air Circuit Breaker, Type DB-25), Revision 4 |
| CME-50-02-52/EG1A1 | Maintenance for 52/EG1A1 (480V Air Circuit Breaker, Type DB-75), Revision 1 |
| CPI-LVL-921 | Calibration of Refueling Water Storage Tank Level Loop 921, Revision 6 |
| E-1 | Loss of Reactor or Secondary Coolant, Revision 26 |
| ECA-0.0 | Loss of All AC Power, Revision 24 |
| EPIP-1-17 | Planning for Adverse Weather, Revision 3 |
| ER-D/G.1 | Restoring Diesel Generators, Revision 11 |
| ER-D/G.2 | Alternate Cooling for Emergency Diesel Generators, Revision 11 |
| ER-FIRE.1 | Alternate Shutdown for Control Complex Fire, Revision 12 |
| ER-FIRE.2 | Alternate Shutdown for Cable Tunnel Fire, Revision 10 |
| ER-FIRE.3 | Alternate Shutdown for Aux Building Basement/Mezzanine Fire, Revision 11 |
| ER-FIRE.4 | Alternate Shutdown for Battery Room A Fire, Revision 11 |
| ER-SC.1 | Adverse Weather Plan, Revision 9 |
| ES-1.3 | Transfer to Cold Leg Recirculation, Revision 35 |
| GME-50-02-DBTROUBLE | Westinghouse, DB Breaker Troubleshooting, Revision 3 |
| IP-CAP-1 | Abnormal Condition Tracking Initiation or Notification (ACTION) Report, Revision 15 |
| IP-CAP-1.9 | Boric Acid Leakage Initial Investigation, Revision 0 |
| IP-DES-3 | Temporary Modifications, Revision 9 |
| IP-IIT-7 | Boric Acid Corrosion Monitoring Program, Revision 0 |

| | |
|---|---|
| IP-QAP-1 | Structure, System, and Component Safety Classification, Revision 4 |
| IP-REL-2 | Equipment Diagnostic Monitoring, Revision 2 |
| IP-SEV-4 | Operating Experience Program, Revision 2 |
| M-15.1M | A or B Diesel Generator Mechanical Inspection and Maintenance, Revision 6 |
| M-15.1P | A or B Diesel Generator Fuel Oil System Inspection and Maintenance, Revision 4 |
| M-15.2.3.1 | Ingersoll Rand Air Start Motor Inspection and Maintenance, Revision 3 |
| M-15.3 | 1A or 1B Diesel Fuel Oil Transfer Pump Maintenance, Revision 15 |
| M-32.1.25 | DB-25 Circuit Breaker Maintenance, Revision 6 |
| M-56.10 | Removable/Reusable Flexible Fiberglass Insulation Blanket Fabrication and Installation, Revision 7 |
| O-6 | Operations and Process Monitoring, Revision 77 |
| O-6.11 | Surveillance Requirement / Routine Operations Checklist, Revision 107 |
| O-6.13 | Daily Surveillance Log, Revision 129 |
| PR-1.1 | Protective Relay Calibration, 480 Undervoltage and Ground Alarm Scheme for Buses 14,16,17 and 18, Revision 29 |
| PT-12.1 | Emergency Diesel Generator A (w/ TPCN 2002-T-2260), Revision 107 |
| PT-12.1 | Emergency Diesel Generator A, Revision 111 |
| PT-12.2 | Emergency Diesel Generator B, Revision 118 |
| PT-12.6A | Diesel Generator Fuel Oil Transfer Pump A Test, Revision 3 |
| PT-2.1Q | Safety Injection System Quarterly Test, Revision 47 |
| PT-2.3 | Safeguard Power Operated Valve Operation, Revision 93 |
| RHR-P629 | Instrument Loop Performance Evaluation and Setpoint Verification, Revision 2 |
| RSSP-2.1A | Safety Injection Functional Test Alignment / Realignment, Revision 27 |
| RSSP-2.2 | Diesel Generator Load and Safeguard Sequence Test, Revision 53 |
| RSSP-24 | Safety Injection Accumulator Check Valve Operability Test, Revision 2 |
| RSSP-25 | Service Water System Flow Test, Revision 2 |
| S-16.13 | RWST Water Makeup to Accumulators, Revision 31 |
| S-16A | Safety Injection System Alignment, Revision 65 |
| S-3.4G | Transfer of Boric Acid Concentrates, Revision 25 |
| S-3.4I | Recirculation of Monitor Tank A or B, Revision 33 |
| S-30.1 | Safety Injection System Valve & Breaker Position Verification, Revision 44 |
| SEG-4.1 | Emergency Diesel Generator Reliability and Unavailability Performance Criteria Program, Revision 1 |

**Calculations/Evaluations:**

| | |
|---|---|
| D-118-01, -02 | Seismic Analysis of Ductwork Supports and Units A to G of the R. E. Ginna Power Station for J & K Boiler Co., (06/03/68) |
| DA-EE-1992-0049 | Instrument Loop Performance Evaluation and Setpoint Verification for Loop # RHR P629 (EWR 5126), Revision 2 |
| DA-EE-1992-036-21 | Instrument Loop Performance Evaluation and Setpoint Verification - Instrument Loop Number RWST - L921, Revision 2 |
| DA-EE-1992-048-21 | EWR 5126 - Instrument Loop Performance Evaluation and Setpoint Verification - Instrument Loop Number BSMP-L942, Revision 1 |
| DA-EE-1992-083-21 | Instrument Loop Performance Evaluation and Setpoint Verification - Instrument Loop Number ACC-L934, Revision 1 |

| | |
|---|---|
| DA-EE-1992-084-21 | Instrument Loop Performance Evaluation and Setpoint Verification - Instrument Loop Number ACC-P936, Revision 1 |
| DA-EE-1992-098-01 | Diesel Generator A Steady State Loading Analysis, Revision 3 |
| DA-EE-1992-111-01 | Diesel Generator Dynamic Loading Analysis, Revision 1 |
| DA-EE-1993-006-08 | Instrument Performance Evaluation and Setpoint Verification, Undervoltage Relays and Voltmeters on 480V Safeguards Buses, Revision 2 |
| DA-EE-1997-0097 | Performance Evaluation and Setpoint Verification - (TDG01A) Diesel Generator Tank Fuel Oil Level, Revision 0 |
| DA-EE-2000-0025 | Instrument Loop Performance Evaluation and Setpoint Verification - Loop LIT-2050A, Revision 0 |
| DA-EE-2000-0035 | Diesel Fuel Oil Specific and API Gravity, Revision 0 |
| DA-ME-1991-0010 | D/G Buildings HVAC Analysis (ME Calc. No. ME-91-0010), Revision 2 |
| DA-ME-1991-0011 | Diesel Fuel Oil Minimum Onsite Storage Requirements, Revision 1 |
| DA-ME-1993-0101 | Evaluation of Safety Injection Pump Operability Assuming No Service Water Flow, Revision 0 |
| DA-ME-1993-0102 | Diesel Generator Air Receiver Discharge Time, Revision 0 |
| DA-ME-1997-0045 | Service Water System Hydraulic Model, Revision 0 |
| DA-ME-1998-0138 | Emergency Diesel Generator Lube Oil and Jacket Water Heat Exchanger Plugging Limits and Thermal Performance at Limiting Service Water Flows, Revision 0 |
| DA-ME-1998-0139 | Emergency Diesel Generator Lube Oil and Jacket Water Heat Exchanger Service Water Differential Pressure Limits, Revision 1 |
| DA-ME-1998-0161 | Time to Sump Switchover and Containment Pressure for LOCA Containment Integrity Analysis, Revision 0 |
| DA-ME-2000-0032 | Evaluation of Minimum Wall Thickness of Pipe Segment on Residual Heat Removal Line RHR0450 (SI Suction Side), Revision 0 |
| DA-ME-2000-0036 | CCW Heat Exchanger Service Water Side Differential Pressure Target During Normal Operation and LOCA Recirculation Phase, Revision 1 |
| DA-ME-2002-0056 | Evaluation of Pipe Segments SI-300 & RHR-450 due to Permanent Installation of SI Pump (PCR #2002-0035), (10/14/02) |
| DA-NS-1997-0051 | Calculation of SI Accumulator Water Volume as a Function of Water Level Indication, Revision 0 |
| DA-NS-1997-0065 | Post-LOCA Sump "B" Level, Revision o |
| DA-NS-2002-0037 | Sump A and B Volumes, Revision 0 |
| DA-NSL-5080-0002 | MOV Program Scope Evaluation for Valve 1815A, Revision 11 |
| EWR #1444 | Class 1E Bus Voltage Profile, Revision 0 |
| EWR #3021 | Design Criteria Ginna Station Diesel Generator Cooling, Revision 0 |
| EWR #3596 | Test Report Design Criteria Diesel Generator Air System (MET-051), Revision 0 |
| EWR #3596 | Design Criteria Diesel Generator Air System, Revision 2 |
| EWR #3990 | Design Analysis, Chapter 21, Canopy Missile Design, Revision 0 (July 10, 1989) |
| EWR #3990 | Interior Fire Service Water Wall Hydrant and Fire Hydrant Yard Loop Piping Modification for the Diesel Generator Building Modification, Revision 1 |
| EWR #3990 | Design Criteria for the Diesel Generator Building Modification, Revision 6 (February 3, 1992) |

| | |
|---|---|
| EWR #4526 | Ginna Station Diesel Generator Fuel Oil Storage Tank Usable Volume, Revision 0 |
| EWR #4529 | Auxiliary Building Ventilation Systems, Revision 0 |
| EWR #4761 | MOV-857A, RHR Pump B, Revision 0 |
| EWR #4960 | Design Analysis for Diesel 1A & 1B Overcrank Protection Time Delay Relays, Revision 3 (February 28, 1991) |
| EWR #4971 | Add SI System Redundant Flow Loop, (January 8, 1998) |
| MET-051 | Test Specification for the Diesel Generator Air Start System, Revision 0 |
| NSL-0000-DA027 | Residual Heat Removal Pump NPSH Calculations During Accident Conditions, Revision 1 |
| NSL-2258-DA033 | Revised LOCA Analysis Injection Curves for LHSI and HHSI, Revision 0 |
| NSL-2258-DA033 | ECCS: Upper Plenum Injection (EWR 2258) Revised LOCA Analysis Injection Curves for LHSI & HHSI Revision 1 (October 21, 1998) |

**50.59 Screenings & Safety Evaluations:**

| | |
|---|---|
| SCRN2002-0469 | for PCR #2002-0035 |
| SCRN2003-0023 | for MDCN #2337 for Drawing 33013-2846 |
| SCRN2003-0044 | for MDCN #2351 |
| SCRN2003-0029 | for MDCNs #2342 & 2343 |
| SEV-1076 | Safety Evaluation, Basis for Change of Minimum SI Differential Pressure to 1336 psid, (October 16, 1998) |
| SEV-1077 | Use of Hydro Pump on Safety Injection Pump Discharge Line, Revision 0 |
| SEV-1101 | Safety Evaluation, Alignment of MOV-857A, 857B, and 857C during Sump Recirculation in ES-1.3, Revision 0 |
| SEV-1119 | Safety Evaluation, Adjustable Travel Stop Set Position for HCV-624 and HCV-625, PCR 98-068, Revision 1 |
| SEV-1121 | PCN #98-4517 Safety Evaluation, Change to ATT-2.1, Attachment MIN SW, to Address Action Report 98-1042 Concerns, Revision 1 |
| SEV-1126 | Safety Evaluation, Revise Restart / Stopping Criteria for Containment Spray Pump during the Sump Recirculation Phase, Revision 0 |

**Design Change Packages:**

| | |
|---|---|
| MDCNs #2337, #2351, #2342, #2343 | Changes to PCR #2002-0035 / DA-ME-2002-0056 |
| PCR #1994-0002 | Delete BAST / RWST Swap Over Logic, Revision 0 |
| PCR #1995-0063 | RWST Modification, Revision 0 |
| PCR #1997-0101 | Ground Water Damage in Plant Structures, Revision 1 |
| PCR #1998-0046 | Raise Set Pressure of RV-887, Revision 1 |
| PCR #1998-0049 | Replacement of Motors on MOV's, October 1998 |
| PCR #2001-0047 | Removal of Valve Internals from Emergency Diesel Generator Fuel Oil Transfer Pump Discharge Check Valves, Revision 0 |
| PCR #2002-0035 | Permanent Installation of SI Make Up Pump, Revision 0 |
| PCR #2002-0060 | Generic PCR - Replacement of Carbon Steel SW Piping, with Stainless Steel, on the Inlet / Outlet Lines of the SI Pump Thrust Bearing Coolers, Revision 0 |
| TM #1994-0012 | Diesel Generator Cooler Alternate Discharge Flow Path, Revision 0 |

**Drawings:**

| | |
|---|---|
| ------ | Worthington Pump Shop Test Curves for A/B/C Safety Injection Pumps, March 1968 |
| 10904-397 | Diesel Generator Storage Tanks 1A & 1B Suction Piping Foot Valve Replacement, Revision 2 |
| 10904-398 | Screen Modification for 3" Foot Valve - "A" & "B" Diesel Fuel Oil Storage Tank, Revision 2 |
| 10905-0620 | Safety Injection Pump C Discharge to Loop A MOV-871A Elementary Wiring Diagram, Revision 5 |
| 10905-0632 | Safety Injection Recirc to RWST MOV-897 Elementary Wiring Diagram, Revision 3 |
| 10905-0636 | Safety Injection Pump C Suction Valve MOV-1515A Elementary Wiring Diagram, Revision 3 |
| 11302-0135 | Refueling Water Storage Tank Level, Instrument Loop Wiring Diagram, Sheets 1 & 2, Revision 1 & 2 |
| 11302-0138 | SI Accumulator B Level, Instrument Loop Wiring Diagram, Revision 1 |
| 11302-0143 | SI Accumulator B Pressure, Instrument Loop Wiring Diagram, Revision 1 |
| 21488-0110 | Sheet 3 - Fire Barrier General Arrangement Sheet, Diesel Generator "A" Room Vault East & North Walls Penetration Locations Floor Elev. - 244'-0", Revision 5 |
| 21488-0111 | Sheet 3 - Fire Barrier General Arrangement Sheet, Diesel Generator Room 'B' Vault North Wall Penetration Locations Floor Elev. - 244'-0", Revision 4 |
| 21488-0111 | Sheet 4 - Fire Barrier General Arrangement Sheet, Diesel Generator Room 'B' Vault South & West Walls Penetration Locations Floor Elev. - 244'-0", Revision 4 |
| 21489-490 | 1B Diesel Gen. Cable Vault Appendix 'R' - Cable Chase Fire Barrier Heat Expanding Sheet Layout, Revision 1 |
| 21946-167A | DG A Fuel Oil Transfer Pump Control Schematic, Revision 5 |
| 21946-320A | DG A Fuel Oil Transfer Pump Auxiliary Relay (Day Tank) Control Schematic, Revision 6 |
| 33013-0603 | Safeguard System, SI Racks, Safety Injection Sequence and Main steam Isolation, Revision 13 |
| 33013-0662 | Safeguard System, SI Racks, Safety Injection, Revision 13 |
| 33013-1239 | Sheet 1 - Diesel Generator - A, Revision 20 |
| 33013-1239 | Sheet 2 - Diesel Generator - B, Revision 18 |
| 33013-1247 | Residual Heat Removal, Revision 36 |
| 33013-1261 | Containment Spray, Revision 34 |
| 33013-1262 | Sheet 1 - Safety Injection and Accumulators, (SI), Revision 19 |
| 33013-1262 | Sheet 2 - Safety Injection and Accumulators, (SI), Revision 6 |
| 33013-1266 | Chemical Volume Control System / Boric Acid, Revision 25 |
| 33013-1537 | 1B Diesel Gen. Cable Vault Appendix 'R' Cable Chase Fire Barrier, Revision 2 |
| 33013-1736 | Diesel Generator A Control Schematic, Sheets 1 & 2, Revision 14 |
| 33013-2104 | Plant Arrangement Turbine Building Plan - Basement Floor EL. 253' 6", Revision 3 |
| 33013-2539 | AC System Plant Load Distribution One Line Diagram, Revision 6 |

| | |
|---|---|
| 33013-2741 | Appendix A to Ginna ECCS System, 3S61-M-10, Hydraulic Computer Model Node Map Base Model ECCS06, Revision 3 |
| B-1995 | 6000 Gal. No. 2 Diesel Oil Tank (Gilbert Associates Inc. Drawing), Revision 1 |
| D-215-013 | Electrical, Diesel Generator Rooms & Lube Oil Storage Room Conduit Layout, Revision 9 |
| D-215-161 | Electrical, Emergency Diesel Generators Power Duct Run, Revision 7 |
| D-304-223 | Piping System Fire Service Water below Elevation 253' 6" Plan & Sections, Revision 71 |
| D-304-281 | Miscellaneous Piping (Diesel Generator Building) Plan & Schedule, Revision 8 |

**Completed Surveillances:**

| | |
|---|---|
| CPI-PRES-629 | Calibration of Residual Heat Removal Pressure Loop 629, Revision 13 (March 26, 2003) |
| PT-12.1 | Emergency Diesel Generator A: Revision 92 (March 20, 1999), Revision 99 (September 29, 2000), Revision 106 (August 30, 2002), Revision 111 (February 4, 2003) |
| PT-12.2 | Emergency Diesel Generator B: Revision 98 (April 2, 1999), Revision 107 (October 4, 2002), Revision 113 (May 6, 2002), 118 (February 18, 2003) |
| PT-2.1Q | Safety Injection System Quarterly Test, Revision 46 (January 27, 2003 - A SI Pump; 01/29/03 - B & C SI Pumps) |
| PT-2.3 | Safeguard Power Operated Valve Operation, Revision 93 (January 13, 2003) |
| PT-9.1.14 | Undervoltage Protection - 480 Volt Safeguard Bus 14, Revision 19 |
| PT-9.1.18 | Undervoltage Protection - 480 Volt Safeguard Bus 18, Revision 18 |
| RSSP-1.1 | Valve Interlock Verification - Residual Heat Removal System, Revision 27 (April 16, 2002) |
| RSSP-2 | Safety Injection Pump C Interlock Verification, Revision 8 (March 24, 2002) |
| RSSP-2.1 | Safety Injection Functional Test, Revision 59 (April 9, 2002) |
| RSSP-2.1A | Safety Injection Functional Test Alignment / Realignment: Revision 27 (April 29, 1991) |
| RSSP-2.2 | Diesel Generator Load and Safeguard Sequence Test: Revision 42 (May 2, 1992), Revision 44 (April 21, 1993), Revision 46 (April 8, 1994), Revision 48 (April 25, 1995), Revision 49 (May 12, 1996), Revision 51 (November 15, 1997), Revision 53 (April 14, 1999, October 13, 2000, April 13, 2002) |
| RSSP-2.3A | Diesel Generator A Trip Testing, Revision 12 (March 29, 2002) |
| RSSP-2.3B | Diesel Generator B Trip Testing, Revision 13 (April 5, 2002) |
| RSSP-2.7A | Train A Safety Injection Sequence Timers, Revision 6 |
| RSSP-25 | Service Water System Flow Test: Revision 2 (October 20, 2000) |

**ACTION Reports:** (those with * were initiated due to inspection activities)

| | | | | | | |
|---|---|---|---|---|---|---|
| 1997-0638 | 2000-1266 | 2001-0284 | 2002-0364 | 2002-1295 | 2003-0271 | 2003-0762* |
| 1998-0573 | 2000-1271 | 2001-0618 | 2002-0477 | 2002-1444 | 2003-0376 | 2003-0771* |
| 1999-0488 | 2000-1278 | 2001-0661 | 2002-0698 | 2002-1729 | 2003-0423 | 2003-0800* |
| 1999-0684 | 2000-1395 | 2001-0905 | 2002-0703 | 2002-1839 | 2003-0626* | 2003-0804* |
| 2000-0187 | 2000-1653 | 2001-0973 | 2002-0809 | 2002-1898 | 2003-0632 | 2003-0822* |
| 2000-0291 | 2001-0046 | 2001-1011 | 2002-0841 | 2002-2244 | 2003-0651 | 2003-0824* |
| 2000-0529 | 2001-0051 | 2001-1302 | 2002-0842 | 2002-2289 | 2003-0652 | 2003-0825* |
| 2000-0572 | 2001-0056 | 2001-1404 | 2002-0888 | 2002-2498 | 2003-0658 | 2003-0830* |
| 2000-0865 | 2001-0082 | 2001-1893 | 2002-0889 | 2002-2590 | 2003-0710* | 2003-0832* |
| 2000-0877 | 2001-0087 | 2001-1901 | 2002-0890 | 2003-0035 | 2003-0711* | 2003-0834* |
| 2000-0915 | 2001-0088 | 2001-1921 | 2002-0929 | 2003-0229 | 2003-0712* | 2003-0840* |
| 2000-1146 | 2001-0167 | 2001-2218 | 2002-1256 | | | |

**Work Orders:**

| | | | | | | |
|---|---|---|---|---|---|---|
| 19600405 | 19802472 | 19902003 | 19902791 | 20100146 | 20103055 | 20200040 |
| 19603866 | 19802473 | 19902224 | 19902938 | 20100167 | 20103199 | 20200875 |
| 19702892 | 19900094 | 19902225 | 20001947 | 20100725 | 19504448 | 20202008 |
| 19801822 | 19900967 | 19902364 | 20002053 | 20101246 | 20104000 | 20202054 |

**Vendor/Industry Documents:**

33250, RHR Pump Curve - Pacific Pump Test Curve, (March 4, 1968)

E-196637, Ingersoll-Dresser Pump Company to RG&E (Alan C. Miller to Glenn Hermes) Subject: Worthington Pump Curve E-196637, (June 16, 1997)

GE Locomotives Canada, Locomotive & Engine Division, Subject: Order DE-35202 No. 1 and No. 2 Performance Test Certificate (Emergency Diesel Generators)11

GE Locomotives Canada, RG&E, PO #CP-36081-C-RD /GELC, Project No. 1404-005840 Subject: D/G Ambient Air / Combustion Air Temperatures

M1-11272C, Engine Maintenance Schedule - Nuclear Standby Engines, (November 2000)

VM A152-0076.00, Alco Diesel Generator Vendor Manual, (September 1, 1996)

VM W318-0017.00, Worthington Pumps Vendor Manual, (June 1, 1996)

WCAP-14426, Small Break Loss-of-Coolant Accident Engineering Report for the R.E. Ginna Fuel Upgrade and Steam Generator Replacement, Revision 0

Westinghouse letter #JSM-23, (April 11, 1968), regarding Safety Injection Recirculation Phase

Westinghouse letter #RFS-G-1120, (May 10, 1968), regarding JSM-23 and GDC 44

Westinghouse letter #RFS-G-1134, (May 20, 1968), regarding Addition of New Valves for Safety Injection Recirculation

Westinghouse letter #RGE-2218, regarding Responses to NRC SSFI Questions (December 6, 1989)

Westinghouse to RG&E, (NSD-E-RCS-1182, RGS-71-78), Subject: Ginna SI Test Pump Curve (May 28, 1971)

Westinghouse to RG&E, Subject: Ginna Nuclear Station ECCS Switchover to Recirculation, Revision 1

Westinghouse to RG&E, (NSD-SAE-ESI-97-684), Subject: LBLOCA PCT Margin Recovery Evaluation for Accumulator Water Volume (December 16, 1997)

**Other Documents:**

A-52.16 (Aggregate Impact Report) for March 20, 2003
Approval of Altran Technical Report 99-124-TR-001, Gothic Model of Heat-up Transient in the Auxiliary Building, Revision 0 (October 18, 1999)
CATS ID# M07360, Closure Verification Form - New pump curve from October 15, 1998 testing (Johnson Pump Company), (October 18, 1998)
Corrective Action Report #1831 (November 18, 1987): Potential Loss of Recirculation Paths for RHR Pumps When Running on Sump Recirculation
Ginna Probabilistic Safety Analysis, Revision 4
Ginna Station Fire Protection Program Report, Revision 1
Ginna Technical Specifications, Amendment 80
Ginna Updated Final Safety Analysis Report, Revision 17
Inservice Testing Program Review Sheet for System 65 Valves 5961 & 5962, (January 7, 2002)
Inservice Testing Program Technical Position Justifications TJ-2 and TJ-3, Revision 2
Inservice Testing Pump/Valve Program Plan, 4th Interval, Revision 1
LER 50-244/87-07, Discovery of Apparent Design Inadequacy During High Head Recirculation Phase
Licensed Operator Training, Loss of 12A and/or 12B Transformer, AP-ELEC-1 (July 13, 1994)
Maintenance Rule System Performance Quarterly Report, for 2001 and 2002
Non-Licensed Operator Requalification (NLOQRV), Secondary Side, Revision 25
NRC to RG&E, Subject: SEP Topic IX-4, Boron Addition System (August 26, 1981)
NRC to RG&E, Subject: SEP Topic VI-7.B, ESF Switchover from Injection to Recirculation Mode, Automatic ECCS Realignment (December 31, 1981)
QA Audit AINT-2001-0009-JMT, Engineering and Configuration Control
Quality Assurance Program for Station Operation, Revision 30 (December 18, 2002)
Reply to NRC IR 50-244/91-80-01 and NOV 50-244/91-80-04
RG&E to USNRC, Subject: SEP Topic VI-7.B, ESF Switchover (June 25, 1982)
RGE-08, Training System Description - Emergency Diesel Generators, Revision 23
RGE-26, Training System Description - Safety Injection, Revision 14
RGE-27, Training System Description - Emergency Core Cooling System, Revision 7
Self-Assessment 2000-0032, Program Assessment for Westinghouse Type DB Circuit Breakers
SQUA-2003-0025, Implementation of a Configuration Change
Systems Engineering Guideline, Control Of Vendor Analysis Inputs, Revision 0