U. S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-244/90-17

Docket No. 50-244

License No. DPR-18

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

Facility Name: R. E. Ginna Nuclear Power Plant/Corporate Engineering Office

Inspection At: Ontario, New York/Rochester, New York

Inspection Conducted: August 13-17, 1990

Inspectors: Harold I. Gregg — 9/27/90
Harold I. Gregg, Senior Reactor Engineer — date

Approved by: E H Gray for PKE — 10/1/90
P. K. Eapen, Chief, Special Test Programs Section — date

Inspection Summary: Routine unannounced inspection on August 13-17, 1990 (Inspection Report 50-244/90-17)

Areas Inspected: Design, design changes and modifications, installation and testing of modifications, on site and corporate engineering interface, technical support of site activities, engineering organization and its capability, staffing and management support.

Results: No violations were identified.

DETAILS

1.0 Persons Contacted

1.1 Rochester Electric and Gas Company

R. E. Ginna Site Personnel

* S. Adams, Technical Manager
  J. Baker, Electrical PM Analyst
* T. Harding, Modification Support Coordinator
* M. Lilley, Manager Nuclear Assistance
* T. Marlow, Superintendent Ginna Support Services
  L. Prill, Valve Maintenance Engineer
  W. Rpain, Backup Liaison Engineer
  S. Spector, Plant Manager Ginna Station
* J. St. Martin, Corrective Action Coordinator
* J. Widay, Superintendent Ginna Production

Corporate Engineering Personnel

R. Baker, Lead Electrical Engineer
G. Goetz, Manager Structural and Construction
G. Hermes, Senior Engineer
M. Kennedy, Director, Configuration Management Program
R. Mecredy, Vice President, Ginna Nuclear Production
J. Metzger, Senior Mechanical Engineer
T. Newberry, Lead Engineer
W. Roettger, Electrical Engineer
C. See, Coordinator Management Services Group
* E. Voci, Manager Mechanical Engineering

1.2 U. S. Nuclear Regulatory Commission

* T. Moslak, Senior Resident Inspector
* N. Perry, Resident Inspector

* Denotes those present at exit meeting on August 17, 1990.

2.0 Scope

The scope of the inspection was to review the engineering support of the design modifications and their installation and testing to assure that the requirements of the design modifications were satisfied and that required calculations, safety evaluations and testing were included in the design modifications. Cooperation between site and corporate engineering, drawing upgrade activities, engineering task assignments, interface between plant engineering and other site organizations, capabilities of the engineering organizations, staffing and management support of engineering were also included in the inspection plan.

3.0 Engineering and Technical Support (37700 and37828)

3.1 Engineering Organization

3.1.1. Site Engineering

Site Engineering, as reorganized a year and a half ago as a separate major modification support group and a technical engineering group with a separate reporting chain directly to the plant manager, has been effective. The staffing level of these groups has been relatively stable with a personnel complement similar to that reviewed a year ago.

The modification support group has been able to handle the major modification support activities with the existing staff. The technical engineering group has a more diverse scope which includes minor and temporary modifications, evaluations of small non like-kind equipment and part replacements, implementation of inservice inspection and inservice testing, technical specification surveillance, core physics, and special projects involving drawing upgrade, configuration management and probability risk assessment interfaces. Some of the technical engineering evaluations and minor modifications are involved and require considerable work effort. At present, there is a backlog of 187 technical staff requests which indicates a need to review allocation of staffing.

3.1.2 Corporate Engineering

The recent Corporate Engineering changes of the appointment of a Vice President of Ginna Nuclear Production and the separation of nuclear engineering from a combined fossil and nuclear engineering group have improved accountability and responsibility. The corporate nuclear engineering staffing has increased from 105 in December 1989 to 118 in August 1990, and there is presently authorization of further staffing to 144 persons to be fully completed by early 1991 to further improve corporate nuclear engineering effectiveness and support of site activities.

Based on the review of both corporate and site engineering tasks, the engineering personnel were technically competent in their performance, provided all information requested, and were open-minded in their review of each inspector inquiry.

3.2 Major Modifications

Several completed, in process, and planned major modifications were reviewed by the inspector. The reviewed modifications are performed through the licensee's Engineering Work Request (EWR) process and included:

- EWR 4859 Valve Stem Packing Improvements (Replacement of asbestos packing with die-formed grafoil and graphite filament end rings, and use of live load packing on selected valves).

- EWR 4875 Reactor Coolant Pump Motor Oil Spill Collection System (Oil collection system added in response to NRC Fire Protection Safety Evaluation Report).

- EWR 4553 Reactor Bottom Mounted Instrumentation tubing supports (analysis and modification to satisfy seismic capability - identified by licensee).

- EWR 4862 NIS Trip Bypass (Replacement of existing trip function test relay switches with maintainable switches).

- EWR 3990 Diesel Generator Building - in process modification (Structural upgrade to enable building to withstand wind pressure, differential pressure, and missile loads associated with a 132 mph tornado).

- EWR 4764 Contaminated Storage (Construction of pre-engineered metal building for contaminated equipment laydown and storage).

- EWR 4525 Offsite Power Reconfiguration (Completion of the final phase of the modification to increase the power availability margin by dedicating a 34.5/4.16kV transformer to each of the two offsite transmission lines. The modification involved splitting the existing 34.5kV onsite bus and energizing both 12A and 12B transformers during normal operating conditions).

- EWR 4998 Steam Generator Penetration (modifications to existing spare mechanical penetration No. 2 to provide access into containment for Steam Generator Inspection/Maintenance cabling during annual inspection and outage).

- EWR 4996 LTOP (Low Temperature Overpressure Protection System Relief Valves 8615 A&B. Installation of flanges on the valves and piping to enable valve removal for set point testing).

In addition to the above EWRs, the inspector reviewed the conceptual design and the preliminary design criteria and safety evaluation for EWR4773, the Advanced Digital Feedwater Control System. This is a high priority major modification planned for installation in the 1991 outage. This modification will replace an aging Foxboro control system that required considerable operator control at low power and has been a major contributor to prior reactor trips associated with S/G low level and steam flow/feed flow mismatch. The existing system contributed to two trips since the 1990 post outage startup. The new system is a Westinghouse digital/microprocessor feedwater control

system that has been successful in recent installations at several plants. The licensee's engineering staff has communicated with similar plants with this control system and has visited a plant with this system to review it's design, construction, and operation. The licensee's visit was made with a team of corporate and site engineering and operating personnel. Based on experience information from the other sites and from the visit and use of the simulator, the system enables stable and automatic control of the feedwater system.

In each of the completed modifications reviewed, there were detailed design criteria and safety analyses, and the work packages contained appropriate test requirements that were implemented.

The inspector observed the diesel generator building being prepared for the construction of the concrete roof slab and the installation of the D/G mufflers. This work was being performed in a carefully controlled manner by a new site contractor (Fluor Daniels) and was being monitored by the corporate design engineer and the site modification support staff.

3.2.1 Outage and Major Modification Planning

The inspector reviewed the outage and major modification planning and determined that Corporate and Site Engineering effectively support these activities. The licensee's continued good outage performance reflects the planning efforts and engineering support. The inspector reviewed the projects proposed for the forthcoming outages. The planning scopes the EWR priority modifications for the future five year period and the items are listed as either pre-outage or outage activities. The modifications for the first two years are more definite since they have been in the prior planning base and the necessary preparatory work has been completed. The subsequent three years of planned activities are not as definite because issues, such as material availability and coordinating related projects and the listing for these projects, are smaller. The project lists are constantly updated.

The inspector reviewed a prior licensee problem of construction packages not being completed with sufficient lead time prior to outages. Corporate Engineering effectively addressed this problem with three mandatory cutoff completion dates: the conceptual design by September 1, the bid package by December 1, and the construction package by January 15 (the outage starts in mid-March). Management is in full support of these requirements and the vice president must approve actions if any dates are not met.

The data base for EWR major modifications has recently been improved to show project deferrals and project completions. The overall project listing does not appear to be backlogged. This is another prior issue that has been appropriately addressed by the engineering staff.

3.3 Site Technical Engineering Activities

The inspector reviewed selected completed and inprocess Technical Staff Requests (TSR). The TSR is the mechanism used by Site Engineering to perform and control assignments of minor modifications and engineering evaluations. TSRs reviewed by the inspector included:

- TSR 90-154 Valve 9572B Replacement (Evaluation of a 2" Lunkenheimer check valve replacement with a Jenkins valve. The evaluation justifies form, fit, and function equivalency through a detailed comparison of the valves).

- TSR 90-115 Material Upgrades for Pressurizer Safety Valves, Tag Nos. 434, 435. (Evaluations of Crosby Valve Company proposed parts material changes. This involved comparison and evaluation, a complete review of the original ordering requirements, and additional verification from the valve vendor concerning complete interchangeability with no change in form, fit and functionability).

- TSR 90-004 1990 Valve Inspection and Refurbishment Program Valve Upgrade. (Minor Modification continuation of the Ginna valve and valve actuator improvement program started in 1989. This modification inspected and refurbished 38 valves including motor operated valves (MOVs), manual valves, and check valves considered vital to plant safety and operability. The refurbishment encompassed recommendations of vendors, industry, and and NRC Generic Letter, Bulletin, and Information Notices. The upgrades included component metallurgical changes, including bolting and other internal parts, and vendor initiated minor design changes. The design criteria and design analysis were comprehensive and listed each of the valves, the changes to be made, and a comparison analyses justification for each change).

- TSR 89-47 Actuator Upgrades and Diagnostic Testing for MOVs in the 1990 Refueling Outage. (Minor Modification under the continuing primary valve improvement program to disassemble, inspect, refurbish, and perform diagnostic testing of 26 valves.) The purpose is to upgrade the valve actuator to current industry standards. The modification includes: replacement of old style two rotor limit switches with four rotor types to

provide improved valve position indication, replacement of the one piece spring cartridge covers with a three piece design which facilitates adjustments and MOVATS testing, replacement of degraded and obsolete spring packs with a new design, replacement of leaf type torque switches with a balanceable design for SMB 00 actuators, replacement of the main gearcase grease with approved Exxon Nebula EP-0, and replacement of limit switch gearbox and cartridge assembly grease with Mobil 28. The grease changes are being made for all applications including outside of containment which is conservative approach. Additionally, the modification establishes limit switch and torque switch settings based on either differential pressure testing on an identical valve or calculated thrust with adequate margin, and requires Movats/diagnostic testing upon completion of the refurbishment.

- TSR 90-24 Material Upgrade of Masoneilan Valves (Evaluation and justification of material changes).

- TSR 90-25 Material Changes of ITT Company Valves (Evaluation and justification of material changes).

- TSR 89-08 Installation of a Sight Glass on Ammonium Hydrogen Storage Tank (Minor modification to install a sight glass to provide a safer and more effective method to determine fluid level).

Each of the design criteria and safety analyses for the above items were clearly written and several of the data packages were broad in scope and required in depth engineering expertise (as in the actuator upgrade and the valve refurbishment upgrade). It was also noted by the inspector that the minor modifications are performed with the same detailed design criteria and safety analyses requirements as a major modification.

3.4 Configuration Management

The inspector reviewed the new configuration management program being directed by Corporate Engineering. This program was initiated in mid-1989 to provide accountability for all aspects of plant documentation. The program has complete management support and funding of over $50,000,000 has been authorized for its completion, scheduled for 1994. The program's purposes are to ensure that the Ginna Station is operated and modified within its design basis, that plant documentation is accurate and information can be made available for the plant life extension process. There are multifacets to the

program, including electrical control configuration drawing (ECCD) upgrade, Q-list, maintenance procedures upgrade, setpoint verification and calibration, P&ID program and reconciliation, vendor manual program, administrative procedure and document control improvements, commitment tracking, individual plant evaluation, design bases documentation (DBD), work and change control, etc. Work has started in the above areas.

The inspector reviewed the program efforts and determined that the ECCD upgrade will include 6200 upgraded or new drawings of which 1000 drawings have been completed and issued. Further, the program includes instrument loop wiring drawings that were not in existence prior to this effort. The ECCD upgrade has required many walkdowns and verifications of wire routing, landings, and interlocks. Twenty-two hundred drawings are currently in some phase of progress. The P&ID upgrade also required walkdown efforts and currently all 147 P&IDs have been issued and punch list items are being worked. The updated P&IDs now include 6000 instrument, drain, and vent valves which had to be tagged and added to the valve listing. In addition, 38 skid-mounted equipment drawings and fire sprinkler drawings are being created. The schedule for final completion of the P&IDs and 38 additional drawings is December 1990.

The DBD program was reviewed and the inspector determined that several pilot DBDs were performed in 1989 (Aux Feedwater, Safety Injection, and Instrument Air). These DBDs have not had full RGE review and because there has been no finalized content and format decision by RGE, the pilots are not fully useable as DBDs. The inspector determined that the licensee has been involved with the Westinghouse two loop owners group with the intent of completing several DBDs on common systems. A pilot DBD by this group (on the RHR system) is scheduled in 1990. Additional DBDs are not planned until the baseline knowledge of the plant through drawing upgrades is completed. Configuration management completion schedule for all DBDs is in 1994.

3.5 Licensee's Activities in Response to NRC Items

The inspector reviewed several licensee engineering activities which were noted in prior NRC reports as in need of improvement. In the case of safety evaluations, the inspector reviewed both major and minor modification safety analyses and determined they were appropriately written with detailed descriptions and improvement was evident.

Communication between Corporate Engineering and the site was very evident in major modification efforts. Communication between Corporate Engineering and Site Technical Department Engineering was not as evident since there was more informality in the interface between these groups.

The inspector discussed the findings of the recent NRC SSFI inspection that related to problems in engineering support. The inspector determined that the licensee was fully involved in the review of the findings through an internal review and a contractor review of the issues. The purpose of these reviews is to assure that the major underlying defective areas are properly resolved. Also, a self assessment of engineering is planned to be performed by the licensee in 1990 to further resolve this issue.

3.6 Other Licensee Actions

The licensee has a stable and qualified engineering staff. The use of computer electronic data processing is evident at both Corporate and Site Engineering.

The licensee's engineering management and staff provided all information requested by the inspector and all discussions were open and meaningful.

4.0 Exit Meeting

The inspector met with the licensee's representatives at the conclusion of the inspection on August 17, 1990.

During the inspection, the inspector did not provide any written material to the licensee. The licensee representatives did not indicate that this inspection involved any proprietary information.