U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-244/90-08

Docket No. 50-244

License No. DPR-18

Licensee: Rochester Gas and Electric Corporation
49 East Avenue
Rochester, New York 14649

Facility Name: R. E. Ginna Nuclear Power Plant

Inspection At: Ontario, New York

Inspection Conducted: April 16-20, 1990

Inspector: Jason C. Jang 4-27-90
Jason C. Jang, Sr. Radiation Specialist date
Effluents Radiation Protection Section
Facilities Radiological Safety and
Safeguards Branch

Approved by: Robert J. Bores 4-30-90
Robert J. Bores, Chief, Effluents Radiation date
Protection Section, Facilities Radiological
Safety and Safety Branch, Division of Radiation
Safety and Safeguards

Inspection Summary: Inspection conducted on April 16-20, 1990 (Inspection Report No. 50-244/90-08)

Areas Inspected: Routine, announced inspection of the licensee's radiological environmental monitoring program (REMP) and liquid and gaseous effluent control program for operations including: management controls; quality control program for analytical measurements; effluent/process monitor calibrations; meteorological monitoring program; and implementation of the above programs.

Results: Within the scope of this inspection, no violations were identified. However, some weaknesses in the area of quality control program for REMP were identified as described in Section 5.5 of this inspection report.

DETAILS

1.0 Individuals Contacted

1.1 Licensee Personnel

J. Brown, Health Physics and Chemistry Technician
J. Catlin, Environmental Laboratory Technician
*D. Filion, Radiochemist
*D. Filkins, Manager, Health Physics and Chemistry
*A. Gillet, Erosion/Corrosion Coordinator
J. Jones, I&C Supervisor
G. Joss, Results & Test Supervisor
*P. Lewis, Nondestructive Examination Outage Coordinator
*R. Mecredy, Division Manager, Nuclear Production
F. Mis, Health Physicist
*J. Quigley, Quality Services Coordinator
B. Quinn, Corporate Health Physicist
*M. Saporito, Supervisor, Materials Engineering
*B. Selbig, Quality Control, Health Physics and Chemistry
*R. Smith, Senior Vice President, Engineering and Production
*J. Smith, Manager, Materials Engineering
*J. St. Martin, Corrective Actions Coordinator
*K. Wachter, Eddy Current Coordinator
*R. Watts, Director, Corporate Radiation Protection
*J. Widay, Superintendent, Ginna Production

1.2 NRC Personnel

*J. Carrasco, Reactor Engineer, Region I
*P. O'Connell, Radiation Specialist, Region I
*A. Johnson, Office of Nuclear Reactor Regulation
*H. Kaplan, Reactor Engineer, Region I
*T. Moslak, Resident Inspector, Three Mile Island
*T. Polich, Office of Nuclear Reactor Regulation
*N. Perry, Resident Inspector, Ginna
*R. Wessman, Office of Nuclear Reactor Regulation

*Denotes those individuals present at the exit interview on April 20, 1990.

Other licensee personnel were also contacted during the course of this inspection.

2.0 Purpose

The purpose of this inspection was to review the licensee's ability to control and quantify radioactive liquids, gases, and particulates, and to conduct the radiological environmental monitoring program during normal and emergency operations.

3.0 Audits

The inspector reviewed the following audits of the Radiological Environmental Monitoring Program (REMP) and Radioactive Effluent Control Program (RECP) with respect to Technical Specification requirements.

- o Audit # 88-58:JB, December 12-21, 1988
- o Audit # 89-59:GS, December 18-23, 1989

These audits appeared to cover the stated objectives and to be reasonably thorough and complete; it addressed both acceptable and unacceptable findings and corrective actions as appropriate. The inspector also noted that the licensee's followup to identified items was thorough. No violations were identified in this area.

4.0 Liquid and Gaseous Effluent Controls

4.1 Program Changes

There were no significant changes in the licensee's radioactive liquid and gaseous effluent control programs since the previous inspection (May 1987) in this area. The Radiochemist of the Health Physics and Chemistry Section has responsibility for liquid and gaseous effluent controls.

4.2 Review of Semiannual Reports

The inspector reviewed the semiannual radioactive effluent release reports for 1988 and 1989. No obvious mistakes, anomalous measurements, omissions or trends were noted. These reports provided total released radioactivity for liquid and gaseous effluents, including projected radiation exposures to the public.

4.3 Radioactive Liquid and Gaseous Effluent Controls

The inspector reviewed the following radioactive effluent release control procedures and also reviewed selected radioactive liquid and gaseous release permits to determine the adequacy of implementation of Section 4.12, "Effluent Surveillance", of the Technical Specifications and of the Offsite Dose Calculation Manual (ODCM).

- o RD-4, "Plant and Containment Ventilation System Background Calculation"
- o RD-5, "Ventilation System Releases"
- o RD-6, "Gas Decay Tank Releases"
- o RD-6.1, "Gas Decay Tank Releases (Preparation of a Gas Release Permit)"
- o RD-7, "Liquid Waste Release"
- o RD-7.1, "Liquid Waste Release (Preparation of a Liquid Release Permit)"

- o RD-8, "Liquid Radwaste Compositing and Analysis"
- o RD-17.1, "Preparation of Monthly Reports for Effluent Releases"

The inspector noted that the above procedures were found to be detailed and well written. The reviewed liquid and gaseous release permits were meeting the requirements for sampling and analysis at the frequencies established in Tables 4.12-1 (for liquid) and 4.12-2 (for gaseous) of the Technical Specifications.

Based on the above review, the inspector determined that the licensee was implementing Technical Specification requirements. No violations were identified.

4.4 Calibration of Effluent/Process Radiation Monitors

The inspector reviewed the most recent calibration results for the following effluent/process monitors to determine the implementation of the Technical Specification requirements.

- o Spent Fuel Pit Heat Exchanger Service Water Monitor (R-20)
- o High Conductivity Waste Tank Monitor (R-22)
- o Air Ejector and Gland Steam Exhaust (R-15)
- o Steam Line Monitors (R-31 and R-32)
- o Auxiliary Building Noble Gas Monitor (R-14)
- o Containment Vent Monitor (R-12)
- o Liquid Waste Disposal (R-18)
- o Containment Service Water (R-16)
- o Steam Generator Blowdown (R-19)
- o Retention Tank (R-21)
- o SPING-4 (R-12A, R-14A, and R-15A)

The I&C Department has the responsibility to perform electronic and radiological calibrations for the some effluent and process monitors and the Chemistry Department has responsibility to perform radiological calibrations for certain effluent monitors (e.g., plant vent). Based on the above review, the inspector determined that the licensee is meeting the Technical Specification requirements with respect to these monitors. No violations were identified in this area.

4.5 Air Cleaning System

The inspector reviewed the licensee's most recent surveillance test results to determine the implementation of Section 4.5.2.3, "Air Filtration System", of the Technical Specifications. The test results for the (1) control room emergency air treatment system, (2) post accident charcoal system, and (3) containment recirculation system were reviewed.
For the above systems, the inspector reviewed the results of the following inspections and tests.

- o Visual Inspections
- o In-Place HEPA Leak Tests
- o In-Place Charcoal Leak Tests
- o System Air Flow Rate Tests
- o Pressure Drop Tests
- o Laboratory Tests for the Iodine Collection Efficiencies

All reviewed test results were found to be within the licensee's acceptance criteria.

Based on the above review, the inspector determined that the licensee was implementing the requirements for the air cleaning system effectively. No violations were identified in this area.

5.0 Radiological Environmental Monitoring Program (REMP)

5.1 Program Changes

The inspector reviewed the licensee's REMP organization. Responsibility for the REMP is held by the Health Physics and Chemistry (HP/Chem) Section. The Radiochemist of the HP/Chem Section is responsible for the REMP, calculation of offsite dose due to liquid and gaseous effluents, and preparation of the REMP Annual Report and Semiannual Effluent Release Report. This individual reports to the Manager of HP/Chem Section, who reports to the Superintendent, Ginna Production. The Environmental Technician has the responsibility to collect all environmental samples and analyze these samples (with exception of thermoluminiscent dosimeters (TLDs)). Environmental TLDs are processed by the Dosimetry Group of the HP/Chem Section. The Environmental Technician also has the responsibility to conduct daily QC checks for Environmental Laboratory counting instruments (liquid scintillation counter, alpha/beta counter, and gamma counting system). The Environmental Technician in practice runs the Environmental Laboratory under the Radiochemist's supervision.

5.2 Direct Observation

The inspector examined sampling stations, including air samplers for iodines and particulates, milk sampling locations, thermoluminescent dosimeter (TLD) stations, intake and discharge water composite sampling stations, and vegetation sampling stations. All air sampling and composite water sampling equipment at the selected stations was operational at the time of this inspection. Milk samples appeared to be available at the sampling locations. Vegetation samples also appeared to be available during growing seasons. TLDs were placed at the designated monitoring stations.

5.3 Review of Annual Reports

The inspector reviewed the Annual Radiological Environmental Reports for 1986, 1987, and 1988. These reports provided a comprehensive summary of

the results of the REMP around the Ginna Nuclear Power Plant and met the Technical Specification reporting requirements. The inspector also reviewed available 1989 analytical data for the REMP during this inspection.

While reviewing the above annual reports, the inspector noted that several analytical results for iodine-131 (I-131) in milk and water samples for each year did not meet the required lower limit of detection (LLD). The licensee submitted the reasons for failure to achieve the LLDs (e.g., low chemical yield) in the annual reports as required by the Technical Specifications.

The U.S. Nuclear Regulatory Commission (NRC) Direct Radiation Monitoring Network is operated by the NRC (Region I) to provide continuous measurement of the ambient radiation levels around nuclear power plants (75 sites) throughout the United States. Each site is monitored by an arrangement of approximately 20 to 50 TLD stations. The NRC monitoring results are published in NUREG-0837 quarterly. One of the purposes of this program is to serve as a basis of comparison with similar programs conducted by individual utilities which operate nuclear power plants. Therefore, several NRC TLDs are collocated with each licensee's TLD stations. Three TLD stations are collocated around the Ginna site. The inspector noted that the licensee compared and reported collocated environmental TLD results in their annual reports. Although there are some differences between the NRC and the licensee's program, measurement results were in good agreement.

No violations were identified in this area.

5.4 Review of REMP Procedures

The inspector reviewed the following procedures to determine the adequacy of the implementation of Section 4.10, "Radiological Environmental Monitoring", of the Technical Specifications.

- o CE-1, "Schedule for Environmental Samples and Parameters Analyzed"
- o CE-2.3, "Iodine-131 Analysis of Milk"
- o PC-1.9, "Operation of Baird Low Background Alpha/Beta/Gamma Counter"
- o PC-3, "Tritium in Liquid Samples"
- o PC-9.1, "Operation of ND-66B Multichannel Analyzer in Environmental Trailer"

Even though the licensee had some difficulties in meeting the required LLD for I-131 analysis as described in Section 5.3 of this report, the inspector noted that the licensee has a good analytical procedure (Procedure CE-2.3) with which to analyze I-131 in milk samples, with exception of the preparation of iodine carrier solution. The inspector discussed with the licensee that a reducing chemical reagent, such as sodium bisulfite, must be added into the carrier solution to keep the iodide in the solution. The inspector examined the carrier solution and

noted that the carrier solution was yellowish. This was an indication of iodine in the carrier solution rather than iodide. This is the likely cause of the low chemical yields. The licensee stated that the section of the procedure involved with the preparation of the iodine carrier solution would be revised in the very near future. The inspector stated that this item will be reviewed during a subsequent inspection.

Based on the review of the above procedures, the inspector determined that the licensee generally has good procedures to conduct the REMP. No violations were identified.

5.5 Quality Control Program for REMP

The inspector reviewed the licensee's program for the quality control of analytical measurements for the Environmental Laboratory, including procedures, data, and control charts. Control charts had been established for the liquid scintillation counter (LSC), the Baird low background alpha/beta/gamma counter (ABG counter), and the gamma spectroscopy system. A review of the licensee's control chart for the gamma spectroscopy system indicated that source checks results were generally within the two-sigma warning limit. However, a review of the licensee's control charts for the LSC and ABG counter indicated that results for source checks and background checks fluctuated significantly within the three-sigma control limits, and exceeded the three-sigma control limits in some cases. The inspector noted that the licensee had an unrefrigerated LSC. Because it is not refrigerated, it is not suitable for measurement of low tritium activity in the environmental samples due to significant background fluctuations. The inspector also noted that the licensee did not run the plateau check for the ABG counter to determine the proper operating voltage for the counter, which might also result in high background fluctuations. The licensee had indicated that the maintenance of the ABG counter had been difficult because the instrument was an outdated model. The inspector stated that the plateau check must be performed to determine the appropriate operating voltage for any model. The inspector also noted that the licensee did not perform the Chi-square tests for the LSC and ABG counters. The results of the Chi-square tests indicate the relationship between the expected and the observed (or tested) values in order to determine the behavior of counters. This should be used as one of the QC checks for the LSC and ABG counters.

The inspector noted that the Environmental Technician had limited knowledge of the counting statistics and counting equipment. The inspector stated that this individual should receive appropriate training for the counting equipment and in counting statistics, because this individual essentially runs the Environmental Laboratory.

The inspector noted that the HP/Chem Section filled the QC Specialist position in 1989. This QC Specialist developed appropriate QC checks for the in-plant primary and secondary chemistry laboratories. The inspector noted the measurements capabilities of these laboratories had improved

since these checks were initiated. The inspector was informed that the QC Specialist will develop QC checks (e.g., spike samples) for the Environmental Laboratory. Currently, the QC Specialist reviewed daily source and background checks and the control charts at the Environmental Laboratory.

The inspector reviewed the analytical results of the EPA cross-check samples. These data indicated, with several exceptions, agreement between EPA spike samples and the licensee's results. Where discrepancies were found, reasons for the differences were investigated and resolved.

Based on the above reviews, the inspector stated that the following actions should be taken to meet the standard industry practices.

- o Upgrade counters (LSC and low background proportional counters) and implement Chi-square tests and plateau check as part of the QC program for these counters.
- o Develop and implement a training program for the Environmental Technician.
- o Contact other environmental laboratories to obtain information with respect to high-quality practices to be implemented in the licensee's Environmental Laboratory.

The licensee stated that the above recommended actions will be evaluated and taken in the very near future. The inspector stated that this area will be reviewed during a subsequent inspection. No violations were identified in this area at the time of this inspection.

6.0 Meteorological Monitoring Program

The inspector reviewed the 1988 and 1989 meteorological instrumentation calibration results for wind speed, wind direction, temperature, and delta temperature. Semiannual calibration of meteorological equipment for the primary system and the backup system was performed. All reviewed calibration results were within the licensee's defined acceptance criteria. No violations were identified.

7.0 Exit Meeting

The inspector met with licensee representatives, denoted in Section 1.0 of the report, on April 20, 1990. The inspector summarized the purpose scope and findings of the inspection.