

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-244/90-30
Docket No. 50-244
License No. DPR-18 Category C
Licensee: Rochester Gas and Electric Corporation
49 East Avenue
Rochester, New York 14649
Facility Name: Genoa Nuclear Power Plant
Inspection At: Ontario, New York
Inspection Conducted: December 10 - 14, 1990

Inspector: *P. O'Connell* 12-21-90
P. O'Connell, Radiation Specialist date
J. Hoyle 12/21/90
J. Hoyle, Radiation Specialist date
Approved by: *RL Numb* 12/27/90
W. Pasciak, Chief, Facilities Radiation Protection Section date

Inspection Summary: Inspection conducted December 10 - 14, 1990 (Inspection Report No. 50-244/90-30)

Areas Inspected: This inspection was a routine unannounced inspection of the licensee's radiological controls program. Areas reviewed included: Status of Previous Findings, Organization and Staffing, Internal Exposure Controls, External Exposure Controls, Contamination Controls, and ALARA.

Results: Within the scope of this inspection no violations were identified. One unresolved item was identified involving the licensee's lack of accreditation for certain categories of dosimetry processing.

DETAILS

1.0 Persons Contacted

1.1 Licensee Personnel

- *D. Filkins, Manager, Health Physics and Chemistry
- *W. Goodman, Health Physics Foreman
- A. Herman, Health Physicist
- *N. Kiedrowski, Training Coordinator, Health Physics and Chemistry
- *M. Lilley, Manager, Nuclear Assurance
- *F. Mis, Health Physicist
- B. Quinn, Corporate Health Physicist
- *E. Selbig, Quality Control, Health Physics and Chemistry
- *J. St. Martin, Corrective Actions Coordinator
- *R. Watts, Director, Corporate Radiation Protection
- *J. Widay, Superintendent, Ginna Production

1.2 NRC Personnel

- *A. Chu, Project Engineer, NRR
- T. Moslak, Senior Resident Inspector, Ginna
- *N. Perry, Resident Inspector, Ginna

* Attended the exit meeting on December 14, 1990.

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

2.0 Purpose

The purpose of this routine, unannounced inspection was to review the licensee's radiological controls program. Areas reviewed included: Status of Previous Findings, Organization and Staffing, Internal Exposure Controls, External Exposure Controls, Contamination Controls, and ALARA.

3.0 Status of Previous Findings

(Closed) Violation 50-244/90-07-01: The licensee did not set administrative dose limits in accordance with radiation protection procedures.

The inspector verified that the licensee had implemented their actions as specified in their response letter dated May 29, 1990. The corrective actions included upgrading the computer software to set administrative dose limits in lieu of having an individual manually calculate the limit. The corrective actions appeared sufficient to preclude recurrence. This item is closed.



4.0 Organization and Staffing

The licensee's Health Physics (HP) organization was reviewed and the following changes were noted since the last inspection. The licensee hired eight new HP Technicians since the last inspection. However, two HP Technicians have left the department since that time, so there are currently two HP Technician vacancies. In addition to the two HP technician vacancies, the inspector noted that the position of Health Physicist, which was vacated early this year, and the position of Operations Health Physicist, which was created early this year remain unfilled. Currently, the two station Health Physicists, who report to the HP and Chemistry Manager, are sharing the burden of supervising all station HP program areas.

The next refueling outage is scheduled to commence three months away. The inspector noted that it appears that the licensee may have difficulty preparing for the upcoming outage with a less than fully staffed radiological controls organization.

5.0 Internal Exposure Controls

The inspector reviewed the licensee's records of personnel exposures to airborne radioactivity, i.e. MPC-hour tracking log. The inspector noted that very few individuals had exposures which required tracking and that the exposures were very low. The inspector reviewed selected whole body count records and noted that there were no instances of individuals having positive whole body counts which required follow up counting or other evaluation. The inspector reviewed selected air sample counting results and noted that the MPC-hour tracking, whole body count records and air sample results were all in agreement and indicated that the licensee was effectively minimizing individual intakes of radioactive material.

The inspector reviewed the quality control of the whole body counter. The quality control checks for the whole body counter were conducted on a daily basis, the results were plotted on control charts, and HP Supervision routinely reviewed the control charts to identify adverse trends. No deficiencies were noted in this area.

The inspector toured the Mask Shop, where respiratory protection equipment is disinfected, decontaminated, serviced, and repaired. Discussions with the Respirator Protection Specialist indicated that the licensee plans on making a substantial improvement in their program for maintaining respiratory protection equipment by establishing a new, larger, better equipped, respirator maintenance facility during the early part of 1991.

The inspector noted that, under the licensee's current respirator maintenance program, a thorough leak test is not performed on all cleaned or repaired devices as recommended in Section 10.2 of NUREG 0041, "Manual of Respiratory Protection Against Airborne Radioactive Materials", 1976. Respirator wearers currently perform a negative pressure check which will identify respirators with major leaks but may not identify respirators with minor leaks. The licensee stated that they do not currently have the equipment to conduct the leak tests but, once the new respirator maintenance facility is operable, they will be capable of leak testing the respirators and plan on initiating a leak test program.

The inspector reviewed the licensee's program for ensuring that only trained individuals with current fit tests and medical evaluations are issued respiratory protection equipment. The licensee uses a "Personnel Respirator Use Qualification Log" to control the issuance of respiratory protection equipment. The log automatically identifies whether or not an individual could be issued a specific type of respirator. Inspector review of respirator issuance records indicated that the licensee had an adequate program for issuance and control of respiratory protection equipment.

While conducting tours of the Radiologically Controlled Areas of the facility the inspector noted that the high efficiency particulate air (HEPA) filters, both on air handling units and vacuum cleaners used in contaminated areas, did not have labels on them indicating the date they were last dioctyl phthalate (DOP) tested. Discussions with cognizant licensee personnel indicated that the licensee did not have a program for DOP testing HEPA filters. The licensee was relying solely on the fact that they only used certified filters. However, after maintenance or filter replacement, the licensee did not verify the proper installation of the HEPA filters in the air handling units or vacuum cleaners.

The inspector noted that this practice is not keeping with industry standards. American National Standard Institute (ANSI) standard N101.1-1972, "Efficiency testing of Air-Cleaning Systems Containing Devices for Removal of Particulates", recommends DOP testing the filtration efficiency of HEPA systems. A system consists of the HEPA filter, its installation and housing or holder.

While reviewing Radiological Incident Reports, the inspector noted that the licensee had identified improper HEPA maintenance and installation as a potential root cause of a personnel contamination incident, however the licensee failed to implement DOP testing of HEPA units as a follow-up corrective action. During the exit meeting on December 14, 1990 the licensee stated that they will develop a program for DOP testing HEPA units and they anticipate the program to be fully implemented prior to the next refueling outage. This item will be reviewed during a future inspection.

6.0 External Exposure Controls

The inspector conducted several tours throughout the controlled areas of the facility. The inspector verified that areas were properly posted, barricaded, or locked as required. The inspector independently verified that the dose rates recorded on selected posted surveys were accurate. No discrepancies were noted in these areas. General housekeeping and postings throughout the facility were good.

The inspector examined locked high radiation areas and key controls. All locked high radiation areas were verified as secure. Locked high radiation area key control as maintained in the control room was auditable with no deficiencies noted.



The inspector reviewed the licensee's program for periodic source checking, calibrating, and performance of quality control checks of portable radiation survey instruments and radiation counting instruments. The licensee had an effective program for ensuring the operability of radiation counting instruments. The inspector noted the following weaknesses in the licensee's program for ensuring the operability of portable radiation survey instruments and monitoring personnel exposures in the vicinity of the spent fuel pool (SFP).

- On December 12, 1990 the inspector observed two individuals working on the SFP bridge. The workers were repositioning spent fuel in the spent fuel storage racks using the fuel handling tool. There was no HP Technician with a survey meter in the area and the workers were not wearing alarming dosimeters. The licensee was relying primarily on an portable Area Radiation Monitor (ARM), secured to the SFP bridge railing, to alert the workers of adverse radiological conditions. The licensee's program for verifying the operability of the ARM was considered poor, in that, the licensee did not routinely, while the ARM was in use, verify that the alarm was functional.

Also, in lieu of a periodic ARM source check, using a radioactive source, the licensee used a portable radiation survey instrument, that had been source checked, to verify ARM response. However, the dose rate in the area of the ARM was less than 1 mR/hr, therefore the licensee was conducting a source check on less than one percent of the instrument scale. This is considered a weakness.

NRC Information Notice 90-33, "Sources of Unexpected Occupational Radiation Exposures at Spent Fuel Storage Pools", offers guidance on enhancing radiological controls for working in the vicinity of SFPs. Information Notice 90-33 recommends enhancing the use of alarming personnel dosimeters and of alarming ARMs around SFPs. The licensee stated that they would evaluate their program for source checking ARMs and radiological coverage for SFP work. This item will be reviewed during a future inspection.

- On December 12, 1990 several individuals made a containment power entry. While reviewing the radiological coverage for the entry, the inspector noted that the neutron survey meter, which the HP Technician used for the entry, had not been source checked prior to use. The instrument had been calibrated five months prior to its use for the entry. The licensee stated that, when operating at 100% power, there is a known neutron dose rate field at the personnel access hatch and the HP Technician verifies the neutron survey meter response in this manner. However, this method of conducting source checks is not documented in the licensee's procedures and, as was the case for the December 12, 1990 power entry, this method can not be used when the reactor is not at 100% power.

On December 12, 1990 the reactor was at less than 3% power and the HP Technician stated that there was no response on the neutron survey meter until after he entered containment. During the exit meeting on December 14, 1990 the licensee stated that they would implement a neutron survey meter source check program using their neutron calibration source. This item will be reviewed during a future inspection.

The inspector reviewed the licensee's program for issuing dosimetry to individuals making containment entries at power. During routine operations, individuals are issued thermoluminescent dosimeters (TLDs) for which the licensee holds National Voluntary Laboratory Accredited Program (NVLAP) accreditation in Categories I to VII. For containment power entries individuals turn in their routine-use TLDs and are issued a holder which contains two TLDs. The dosimetry processing of one of the TLDs is NVLAP accredited in only Category VIII (neutron). The other TLD processing is accredited in Categories IV (high energy photons), V (beta particles), and VII (mixtures, high energy photons and beta particles). The licensee's TLD processing did not have NVLAP accreditation in Categories I (accidents, low energy photons), II (accident, high energy photons), III (low energy photons), and VI (mixtures, high and low energy photons).

The licensee stated that the results of past TLD responses during containment power entries indicated that individuals had not entered into radiation fields with a significant low energy photon component. The licensee is planning on taking gamma spectroscopy measurements inside containment in January 1991. The licensee stated that they would evaluate the applicability of the other accreditation categories for containment power entries and until their evaluation is complete, individuals making power entries will wear the routine-use TLD. This item is unresolved pending completion of the licensee's field measurements and evaluation. (50-244/90-30-01)

7.0 Contamination Controls

The licensee's program for controlling radioactive contamination was reviewed during this inspection. Total plant contaminated areas, numbers of personnel contaminations, and contamination control instrumentation were specific areas examined. Also one instance of uncontrolled contamination spread was witnessed by the inspector.

The licensee established a total plant contaminated area goal of 7,000 square feet. This goal was considered the optimum with regard to plant functional design. This minimum area goal has been met and maintained since September of this year up to the date of this inspection. The accomplishment of minimizing contamination is considered a good strength.



With fewer contaminated areas one would expect fewer personnel contamination incidents. The annual goal of 250 personnel contaminations was exceeded by 20% for a 1990 total of approximately 300. Nonetheless, this number is down from 484 personnel contaminations for 1989. Corporate and station HP management has focused on this problem and determined the biggest cause to be poor worker practices. Action plans have been developed to counteract the poor performance. These plans call for:

- Provide training for decontamination workers
- Expand the application of ALARA pre-job briefings to include work occurring in high contamination areas
- Emphasize HP Technician responsibilities for assisting worker undress from high contamination areas

These are considered good initiatives and will be reviewed during future inspections.

The inspector reviewed contamination detection instrumentation and procedures used for the release of personnel and material from the station. Eberline PCM-1B gas-flow proportional detectors are used for contamination monitoring of personnel leaving the controlled area. These units are calibrated annually. Instrument efficiency is verified on a daily basis using a mixed Cs-137 and Co-60 source which has approximately 50 times the activity required to alarm the instrument. By review of the daily efficiency check data, it was not apparent to the inspector that each detector would alarm at the appropriate level. Also, no checks are made at the minimum radioactivity release level to verify proper instrument performance. This is considered a weakness in instrument performance documentation.

There appears to be no station procedure which addresses the monitoring of clean trash from the controlled area or from the station. There is an applicable procedure which does provide an appropriate methodology, procedure no. RD-10.7, "Methods For The Segregation, Sorting And Handling Of Radioactive Wastes". This procedure states that after surveying each piece of clean trash, a second survey is performed. Section 6.3.3.1 states, "Each transparent bag is again surveyed by a station HP Technician or a Senior Contractor HP Technician, to ensure that there has been no accumulation of activity resulting from a buildup of multiple, non-detectable quantities. A detector that is sensitive to gamma radiation at low levels, such as a sensitive scintillation detector in a low background area, must be used." The inspector reviewed instrument resources and found only one "sensitive scintillation detector" which is not calibrated, and there currently does not exist an approved onsite calibration method for such instruments. The licensee stated that no trash is currently released from the controlled area as clean. However, without these calibrated instruments, clean trash leaving the station cannot be periodically sampled to ensure contamination control has been maintained.



During the inspection, contamination samples were taken in suspect areas of the controlled area and found to be below contamination control limits. Sample frisking of station outdoor areas also showed no contamination discrepancies. On December 12, 1990, the inspector noted water dripping from a valve stem onto the floor in a clean area next to the nuclear sample station. A sample of the spill, upon analysis, indicated radioactivity of greater than 200,000 disintegrations per minute. The inspector immediately informed the licensee. The leak was stopped and the floor area was decontaminated promptly. A Radiation Incident Report (RIR) was not written for the event while there still remained the question of causality and the possible need for valve maintenance to prevent recurrence. Apparently the RIR program is currently undergoing substantial revision including what events shall be classified as radiation incidents. This will be reviewed during a future inspection.

In summary, the station has reduced the total contaminated area to a minimum. The personnel contamination incidents are on a downward trend with significant management attention to reduce them further. A few weaknesses were noted with regard to contamination detection instrumentation. Overall, contamination control in and around the plant appears to be good.

8.0 ALARA

The inspector attended ALARA pre-job planning meetings for a job task involving a valve replacement inside containment at power. During the meetings there was good communication between the workers, the ALARA coordinator, and the HP Technicians providing job coverage. The scope of discussions at the meetings indicated that the licensee was performing adequate ALARA planning and briefings.

The inspector reviewed the station cumulative personnel exposure for 1990. As of mid December the station exposure was approximately 348 person-rem. Although this value compares favorably with the 1990 exposure goal of 480 person-rem, cumulative personnel exposures are higher than average for similar sized facilities. The licensee was evaluating additional methods for minimizing personnel exposures. The methods included the installation of more shielding inside containment, the shielding of the residual heat removal lines, and the use of more effective reactor head shielding. The licensee was also in the process of evaluating the need to perform a steam generator decontamination effort in 1992.

9.0 Exit Meeting

The inspector met with licensee representatives, denoted in Section 1.0 of the report, on December 14, 1990. The inspector summarized the purpose, scope and findings of the inspection.



OUTSTANDING ITEMS FILE SINGLE DOCKET ENTRY FORM

REPORT HOURS

- | | | | |
|------------------|----------|--------------------------------------|-------|
| 1. Operations | _____ | 7. Outages | _____ |
| 2. Rad-Con | <u>2</u> | 8. Training | _____ |
| 3. Maintenance | _____ | 9. Licensing | _____ |
| 4. Surveillance | _____ | 10. QA | _____ |
| 5. Emerg. Prep. | _____ | 11. Other | _____ |
| 6. Sec/Safegrds. | _____ | 12. Fire Protection/
Housekeeping | _____ |

Docket No. 1501-1214141

Originator O'Connell

Reviewing Supervisor Poscille

Item Number	Type	SALP Area	Area	Action Due Date	Updt/Clsout Rpt/	Date O/M/Clsd
<u>190-07-01</u>	<u>MCHY</u>	<u>RA010101</u>	<u>RA01</u>	<u>1-1-11</u>	<u>190-1310-11</u>	<u>1/21-1/31-1910</u>
Originator/Modifier				Resp Sec	Descriptive Title	
<u>O'Connell</u>				<u>11</u>		

Item Number	Type	SALP Area	Area	Action Due Date	Updt/Clsout Rpt/	Date O/M/Clsd
<u>90-30-01</u>	<u>VNR</u>	<u>RA010101</u>	<u>RA01</u>	<u>1-1-11</u>	<u>190-1310-11</u>	<u>1/21-1/31-1910</u>
Originator/Modifier				Resp Sec	Descriptive Title	
<u>O'Connell</u>				<u>11</u>		
evaluate necessity of LICPNSP dosimetry processing to be NULAP accredited in all categories						

Item Number	Type	SALP Area	Area	Action Due Date	Updt/Clsout Rpt/	Date O/M/Clsd
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Originator/Modifier				Resp Sec	Descriptive Title	
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21

