

U.S. NUCLEAR REGULATORY COMMISSION  
REGION I

Report No. 50-244/88-03

Docket No. 50-244

License No. DPR-18 Priority - Category C

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

Facility Name: Ginna Nuclear Power Plant

Inspection At: Ontario, New York

Inspection Conducted: February 15-19, 1988

Inspectors: A. Weadock 3/24/88  
A. Weadock, Radiation Specialist date

R. Loesch 3/24/88  
R. Loesch, Radiation Specialist date

Approved by: M.M. Shanbaky 3/24/88  
M.M. Shanbaky, Chief, Facilities Radiation Protection Section date

Inspection Summary: Inspection conducted on February 15-19, 1988 (Report No. 50-244/88-03)

Areas Inspected: Routine, unannounced inspection of the licensee's Radiation Protection Program during an outage. The following areas were reviewed: posting and labeling, management organization and controls, training and qualifications, external exposure controls, and internal exposure controls.

Results: Two violations were identified: failure to control access to a High Radiation Area (T.S. 6.13); failure to follow RWP and whole body counter source check procedures (T.S. 6.8).



## DETAILS

### 1.0 Persons Contacted

*D. Bryant	QC Engineer
*D. Filkins	Manager, Health Physics & Chemistry
*W. Goodman	Radiation Protection (RP) Foreman
J. Jones	I&C Supervisor
*N. Kiedrowski	Training Coordinator, Health Physics & Chemistry
M. Klueber	Acting RP Foreman
*R. Marchionda	GINNA Training Manager
*T. Meyer	Superintendent, GINNA Support Services
F. Mis	Health Physicist
*B. Quinn	Corporate Health Physicist
*T. Schuler	Operations Manager
S. Spector	Station Superintendent
*J. St. Martin	Station Engineer
*J. Supina	Dosimetry Supervisor/ALARA Coordinator
*S. Warren	Health Physicist
*J. Widay	Technical Manager
W. Zak	Brooks Site Coordinator

\* Attended the exit interview on 2/19/88.

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 implementation of the licensee's Radiological Safety Program. The following areas were included in this review:

- status of previously identified items,
- posting and labeling of radiological areas,
- management organization and controls,
- training and qualifications,
- external exposure controls,
- internal exposure controls.



### 3.0 Status of Previously Identified Items

#### 3.1 (Closed) Unresolved Item (244/87-19-01): Audits to review qualifications of Radiation Protection (RP) professional as well as technician staff.

The inspector reviewed the audit checklists and final reports associated with the following audits:

- No. 87-55:JB, "Ginna Station Indoctrination, Training, Retraining, Qualification and Performance",
- No. 87-69:DB, "Audit of Ginna Health Physics Activities."

The inspector noted that within the scope of the above audits, experience and training of the plant chemist, radiochemist, and health physicists were reviewed against applicable standards. No deficiencies were identified. The licensee stated that the checklist for the RP audit contains the requirement to review qualifications for new personnel. This item is closed.

#### 3.2 (Closed) Noncompliance Item (244/87-19-03): Calibration procedure for containment high-range monitors failed to incorporate all calibration criteria of Table II.F.1-3 of NUREG-0737.

The inspector reviewed licensee corrective actions for the above finding as discussed in their response to the above violation, and noted them to be complete. These included:

- revision of the applicable procedures (CP-224) to include a one-point source check on the 0-10R scale,
- performance of the source check for both containment high-range monitors in August, 1987,
- issuance of a memo to plant staff (dated October 1, 1987) emphasizing the necessity for adequately proofreading procedure changes to ensure technical requirements are not inadvertently deleted.

This item is closed.

### 4.0 Posting and Labeling of Radiological Areas

The licensee's program for posting and labeling of radiological areas was reviewed against criteria contained in the following:

- 10 CFR 20.203,
- Technical Specifications, Section 6.13, "High Radiation Area",
- Procedure HP-5.2, "Posting of Radiation Areas and Container Labeling",
- Procedure A-54.6, "Health Physics Tours."



Performance of the licensee relative to these criteria was determined from:

- Tours of the Auxiliary Building and Containment,
- Performance of independent survey measurements.

During tours of the Containment and the Auxiliary Building, the inspector identified the following posting weaknesses:

- The containment personnel access hatch was noted to be posted as a High Radiation Area (HRA), yet HRA controls as outlined in T.S. 6.13 were not being carried out for each entry. Subsequent NRC review identified that each specific HRA inside containment had been individually posted and the HRA posting at the access hatch was unnecessary.

The licensee indicated that during shutdown conditions the containment hatch HRA posting is routinely downgraded to a radiation area posting, in part to avoid the need for unnecessary HRA controls. The licensee stated that the failure to do so during the current outage was an oversight and immediately downgraded the posting.

- Radiological warning signs (i.e., "High Radiation Area", "Airborne Radioactivity Area") were not conspicuously posted at the access to the steam generator (S/G) work tents on February 15, 1988. These signs had been hung on the outer temporary plywood doors used to lock the S/G tents while not in use. An inner herculite door provided the negative pressure boundary for the tents. The inspector noted that while work was ongoing the plywood doors were left open, obscuring the required posting. Although no posting was visible, a citation was not issued as area RP technicians had positive control over all entries.
- Two cubicles within the Auxiliary Building, posted "High Radiation Area", had been subsequently posted "Contamination Area" by the licensee. The inspector noted the "Contamination Area" signs had been hung over the "High Radiation Area" signs and partially obscured the original sign, leading to possible confusion as to the radiological conditions in the cubicle. The inspector noted that both cubicles were locked and survey information was posted which would inform readers of radiological hazards.
- A box of seals located on the refueling floor had a piece of masking tape covering a portion of the posting such that the dose rate information was not apparent. The licensee had identified the need to post the box (reading 60 mR/hr), but in securing the sign to the box, the important dose rate information was obscured.

In all of the above situations, when the inspector brought the problems to the licensee's attention, immediate action was taken to correct the posting



deficiencies. The nature of the problems indicate a lack of attention to detail on the part of the Radiation Protection (RP) staff. The inspector noted a plant tour is performed weekly by the Station Health Physicist in accordance with procedure A-54.2, "Health Physics Tours." The multiple examples of posting deficiencies despite these frequent inspections raises concerns as to the adequacy of RP supervisory oversight. This is discussed further in the following section.

#### 5.0 Management Organization and Controls

The inspector reviewed the effectiveness of the licensee's Radiation Protection (RP) organization by the following methods:

- Discussions with cognizant licensee personnel,
- Observations of outage activities,
- Review of security door entry logs.

Within the scope of the review, no violations were identified. The licensee's organization was consistent with Technical Specification descriptions. An outside contractor has supplemented the licensee's RP staff with 22 Senior RP technicians and 7 Junior RP technicians for the outage. House technicians act as area lead technicians for different plant areas; assignments are made for the duration of the outage to assure continuity of job coverage.

The inspector reviewed containment security access logs for the outage period (2/5 - 2/15) to identify the level of management and supervisory oversight of outage activities. Total time in containment for the RP supervisors (including 2 RP foremen, 3 Health Physicists, and the Manager, Health Physics and Chemistry) during this period was 3.3 hours; several of the individuals had only made one entry into containment since the onset of the outage.

The following observed weaknesses indicate a need for increased supervisory review of outage activities:

- Loss of RP controls over significant radiological operations (see Section 7.1).
- Several instances of failure to follow procedures (see Sections 7.2, 8.0).
- Radiation Work Permits (RWPs and SWPS) were being generated by the Manager, Health Physics and Chemistry, a job normally performed by Senior Health Physics technicians. This time consuming activity may impact the Manager's ability to oversee significant radiological



evolutions.

- Quality control records for the Whole Body Counter were not routinely reviewed (see Section 8.0).
- Multiple examples of posting deficiencies (see Section 4.0).

The licensee stated that current work loads may be impacting management visibility in the work place and that the need for increased supervisory oversight would be evaluated.

#### 6.0 Training and Qualifications

The inspector reviewed the training and qualification of contractor Radiation Protection (RP) technicians with respect to criteria contained in the following:

- Technical Specifications, Section 6.3, "Station Staff Qualifications",
- ANSI Standard N18.1-1971, "Selection and Training of Nuclear Power Plant Personnel",
- Procedure A-103.10, "Radiation Protection Technician Training and Responsibility Limits".

The evaluation of the licensee's performance in this area was based upon the following:

- Review of selected resumes and training documentation for contract RP technicians,
- Discussion with cognizant licensee personnel,
- Observation of work in progress.

Within the scope of this review, no violations were identified. Senior contract Radiation Protection Technicians are certified by the vendor and verified by the Manager, Health Physics and Chemistry. Resumes of prospective candidates are reviewed for ANSI N18.1 qualifications by RP management. A screening examination is then administered to verify the technical knowledge of the technicians. Initial site specific training, which includes administrative procedures, is presented followed by a second examination. Individuals who fail to pass either examination are allowed to retest, at the discretion of RP management.

It was noted by the inspector that the technical qualification and performance of the technicians was not as high as in previous outages. This can be partially attributed to the short duration of the outage and



the resulting recruitment difficulties in obtaining highly experienced personnel. In discussions with the Training Coordinator, Health Physics and Chemistry, and review of selected training records, the inspector noted that approximately 44% of the technicians failed to initially pass the technical screening examination. In addition, approximately 44% also failed to initially pass the procedural examination. In all cases, the individuals were allowed additional study time, and were subsequently retested and successfully passed the examination. Inspector discussions with technicians in the field verified the same technical weaknesses initially identified in the screening examination.

A review of selected resumes identified two RP technicians whose total experience credited was inconsistent with their previous job descriptions. The inspector raised concerns resulting from the licensee's acceptance of questionable non-power reactor experience. In both cases, the licensee had not contacted the employer to validate the documented job descriptions. A reevaluation of the technician's experience identified they did meet minimal ANSI N18.1 qualifications. The inspector stated, however, that the licensee's review and qualification process, particularly for personnel claiming non-power reactor experience, should provide enough scrutiny to ensure ANSI requirements are met prior to allowing contractor technicians to perform onsite functions.

The licensee's use of the screening tests for the first time this outage was seen as a strength. Continued use and upgrading of these methods will help ensure qualified and technically competent contractor technicians.

#### 7.0 External Exposure Controls

The licensee's program for controlling and maintaining occupational exposures ALARA during the refueling outage was reviewed against the following criteria:

- Technical Specifications (T.S.) Section 6.13, "High Radiation Area",
- Procedure HP-4.3, "Health Physics Work Permit Use",
- Procedure A-1.1, "Locked Radiation Areas",
- Procedure A-52.2.1, "Inventory of Locks and Keys."

Licensee performance in this area was evaluated by the following methods:

- discussions with cognizant personnel,
- observations of ongoing work activities, including steam generator inspection, pressurizer insulation, and reactor vessel head stud tensioning,



- inventory of control room High Radiation Area (HRA) key lockers,
- review of selected Special Work Permits (SWPs), with associated surveys, sign-in sheets, etc.

Within the scope of the above review, two apparent violations were identified.

#### 7.1 High Radiation Area Control

Licensee T.S. Section 6.13, High Radiation Area, requires in part that any individual or group permitted to enter a High Radiation Area (HRA) be provided with one or more of the following:

- a radiation survey meter,
- an integrating, alarming dosimeter,
- an individual, qualified in radiation protection procedures, who is responsible for providing positive control and who performs periodic radiation surveillance at the frequency specified in the Health Physics Work Permit.

On February 15, 1988, at approximately 1830, the inspector noted an individual climb a ladder from the lower level of containment to the pressurizer intermediate level platform. The access ladder was posted with signs denoting "High Radiation Area", "Airborne Activity Area", and "Respiratory Protection Required." The individual was not wearing a respirator; however he was wearing a lapel (BZA) air sampler. The inspector questioned the worker concerning activities on the platform and identified the following: 1) three other individuals were already on the platform, 2) two of those three were wearing respirators, 3) none of the four in the work party were wearing alarming dosimeters or had a survey meter, 4) no RP technician was noted in the area, and 5) the workers were working on SWP #20936, "Lower Tent Materials into B Loop Area and Move to PZR Intermediate Area for PZR Insulation Removal."

The inspector reviewed SWP #20936 and noted the following:

- respiratory protection was not required on the permit, which consequently conflicted with area posting,
- alarming dosimeters were required,
- no frequency for RP radiation surveillance was included on the SWP.

Presence of the work party in the posted HRA without a survey meter, alarming dosimeter, or positive RP control of the work with periodic radiation surveillance as specified on the work permit constitutes an



apparent violation of T.S. section 6.13 (244/88-03-01). The inspector subsequently performed a survey of the PZR intermediate platform and verified whole body dose rates in the work area exceeded 100 mR/hr.

The inspector investigated the above loss of control by discussion with the involved workers and cognizant RP personnel, including the RP technician responsible for controlling the work. The inspector identified the PZR platform was not posted as an airborne radioactivity area at the time SWP No. 20936 was generated. Subsequent valve work on the platform, performed under another SWP, created a small localized area of contamination in excess of 100,000 dpm/100 sq. cm. Upon review of this survey, the RP foreman had the PZR platform posted as "Airborne Activity Area - Respiratory Protection Required."

The following weaknesses were identified as contributing to the above loss of control:

- The SWP was not revised to be consistent with area posting requirements.
- The change in PZR platform posting was not clearly communicated to all area technicians.
- The RP technician responsible for covering the work stated he had not read the SWP and was unaware of its requirements. The technician did state, however, that he performed a survey in the area prior to start of work and was aware of area dose rates.
- Due to confusion over area posting, the work party received information from two area technicians that respirators were "optional" and could be worn at the individual's discretion. The inspector identified that respirators were in fact not warranted by area conditions; contamination levels in the work area were relatively low and air samples taken during the previous valve work and the subject activity showed little activity.
- The BZA sampler had been placed on one of the workers not directly involved with the work.

Licensee corrective actions were noted to be incomplete. The licensee immediately pulled the two workers without respirators from the work area and provided a BZA sampler for the remaining two workers. The licensee did not provide an alarming dosimeter for the remaining workers, as required by the SWP, until prompted by the inspector.

The licensee's response to the above violation should evaluate and address appropriate corrective actions to resolve the above-noted contributing weaknesses.



## 7.2 Implementation of the Work Permit

Technical Specifications section 6.8, "Procedures", requires in part that written procedures shall be established and implemented in accordance with activities recommended in Appendix "A" of Regulatory Guide 1.33, November, 1972. Appendix "A" of Regulatory Guide 1.33 recommends procedures for radiation work permits.

The licensee's system for use of Radiation Work Permits (RWP) and Special Work Permits (SWPs) is described in procedure HP-4.3, "Health Physics Work Permit Use." The following requirements are included in this procedure:

- Each Health Physics Work Permit shall contain a description of the radiation hazards which may be encountered (section 6.1.2).
- For instances where RP surveillance intervals are established on the work permit, documentation of the RP coverage must be either indicated on an attachment sheet (Attachment V) to the work permit or by RP technician sign-in with the workers on the specific work permit (section 6.4.20.3).

The inspector reviewed selected SWPs and RWPs to evaluate adequacy of controls and compliance with the procedure. The following instances were noted in which the controlling procedure was not complied with.

A. No radiological survey information (i.e., radiation or contamination levels) was included on the following SWPs:

- 20290, "Install Vent Flanges on PZR, Reactor Coolant Drain Tank, and RHR V2764 By A Loop",
- 20475, "B S/G Tent and Channel Head Entry (Nozzle Dam Installation)",
- 20947, "Replace Transfer Tube Flange."

Additionally; other SWPs were noted in which incomplete radiological information (contamination levels only, maximum area dose rate only) was stated on the SWP.

B. No documentation of periodic RP surveillance, either by use of Attachment V or by HP sign-in on the specific SWP, was made for SWP Nos. 20342, 20387, or 20337. These three SWPs all required RP survey every 60 minutes to satisfy HRA control requirements. The inspector verified each of these permits were worked for a period greater than 60 minutes.

The inspector stated that the above examples of failure to comply with procedure HP-4.3 constitutes an apparent violation of T.S. section 6.8 (244/88-03-02).



The licensee stated in response that the above examples represent a failure to document rather than a failure to adequately brief workers or provide coverage as required by the SWP. The licensee stated that it was an occasional practice not to include survey information on the work permit. This was typically done in two instances:

- information on the routine survey used to write the SWP was not specific enough, or
- the work was to be performed in several different locations, with differing radiological conditions.

The licensee indicated that for the two instances described above, a SWP is generated and an RP technician is assigned to give "start of job" or "continuous" coverage. Part of this technician's responsibility then becomes the performance of a pre-job survey and subsequent briefing of the worker. The licensee indicated that although workers are consequently aware of radiological conditions prior to work, the SWPs are not always updated with the specific radiological survey information. The licensee also stated that RP technicians did provide coverage as required by the SWPs listed in paragraph B above, but again this was not always documented as required.

The inspector noted that the practice of leaving survey information on the initial SWP blank is allowed by procedure HP-4.3; however the procedure indicates that if area dose rates and contamination levels are initially left blank, a technician "should" be assigned to determine them and enter or attach them to the permit (sections 6.4.14.1, 6.4.15). The inspector noted the flexibility allowed by the "should" statement conflicts with the previous "shall" requirement of section 6.1.2.4. Concerns with the liberal use of the word "should" and with the level of procedural guidance to RP technicians related to documentation of SWP surveys have been previously raised by the NRC (see NRC Reports Nos. 87-05, 86-04).

The inspector stated that, given the above poor documentation practices, the licensee has no clear documentation that workers are appropriately briefed concerning radiological conditions prior to work. SWPs were noted to be lacking survey information; additionally, the licensee does not use pre-job briefing sign-off sheets and RP technicians do not always document job coverage as required. The inspector interviewed several workers observed in the radiological areas, however, and could not identify any instances where the worker was unaware of area radiological conditions or where the work had begun without a pre-work survey by the RP technician.

### 7.3 High Radiation Area Key Control

The licensee's High Radiation Area (HRA) keys are controlled by the operations staff and issued from the control room. Two sets of HRA keys are available; one set is located in a drawer in the control room and is



used for routine issue. The other set is located in a locker in the shift supervisor's office and is used for emergencies. Key issue is logged in a key control book listing date and time of key issue, the recipient, and date and time of return.

An annual inventory of HRA keys is required by procedure A-52.2.1 and is performed by the operations staff. Additionally, the RP supervisor tour checklist, which is performed weekly, includes a check for HRA keys.

The inspector verified that all HRA keys were either in place or accounted for. Several deficiencies with the inventory/accountability system were noted and are described below.

- The annual inventory requirement was noted to be much less frequent than those typically seen at other plants (i.e. shiftly or daily).
- The list of HRA keys included in procedure A-52.2.1 was incomplete and may not provide an adequate assurance that all HRA keys were accounted for since it did not list keys for two HRAs (North Radwaste Building, HP TLD Calibrator Room).
- Multiple copies of several HRA keys were located in the Shift Supervisor's key locker. The licensee could not indicate how many copies were supposed to be present or whether any were missing.
- The RP supervisor tour procedure did not include specifics as to how to audit HRA keys. Consequently, different RP supervisors performed this task differently; some inventoried the actual keys, some just reviewed the issue log.

The licensee stated that procedural revisions would be made to address the above concerns. This area will be reviewed during a subsequent inspection.

## 8.0 Internal Exposure Controls

The licensee's program to control internal exposures was reviewed against criteria contained in:

- 10 CFR 20.103,
- Technical Specifications, Section 6.8, "Procedures",
- Procedure HP-2.2.1, "Whole Body Counter Source Check",
- Procedure HP-14.8, "Operation and Calibration of Radeco Model HD-29A Air Sampler",
- Procedure A-1.6.3, "Ginna Station Respiratory Protection Program."



The licensee's performance relative to these criteria was determined from:

- Discussions with cognizant personnel,
- Observations of Whole Body Counter operations,
- Review of air sampling sheets and MPC-hour logs,
- Review of the contamination event log,
- Tours of the Radiologically Controlled Area.

Technical Specifications, Section 6.8, "Procedures", requires in part that written procedures shall be established and implemented in accordance with activities recommended in Appendix "A" of Regulatory Guide 1.33, November, 1972. Appendix "A" of Regulatory Guide 1.33, recommends procedures for surveys and monitoring.

Procedure HP-2.2.1, "Whole Body Counter Source Check", requires the following actions when a daily source check result falls outside of the plotted 3 sigma control limits: 1) the Health Physicist is to be notified, and 2) the Whole Body Counter (WBC) is not to be used for counting personnel until repaired.

During a review of the WBC QC records on February 15, the inspector noted two instances (January 19 and January 25) when the 3 sigma control limit was exceeded. In discussions with licensee personnel, it was determined that the WBC had not been removed from service on those dates as required, and had processed 13 individuals on January 19, and 21 individuals on January 25. No repairs to the WBC were performed prior to the subsequent counting of individuals. It was further noted that at the time of the inspectors' review, the QC data plots were four days in arrear. In discussions with the Manager, Health Physics and Chemistry, it was determined that management was not aware of the instrument's performance on those dates. In addition, the inspector noted that supervision does not routinely review the WBC QC data. A subsequent review by the inspector of the control charts on February 19 noted a third example, February 15, when the control limits were exceeded and the unit remained in service.

This failure to follow procedures constitutes an additional example of failure to comply with Technical Specification 6.8 (244/88-03-02).

Problems related to counting instrumentation control charts have been previously identified by the licensee in Audits 85-59, 86-59, and 87-69. An apparent lack of timely corrective actions to previous audit findings indicates a need to improve the tracking and resolution of problems identified by the QA group.



The licensee's air sampling program appeared adequate. The licensee has performed studies to determine isotopic composition, particle size distributions and solubility coefficients for airborne particulates. Based upon this data, the licensee has selected the appropriate MPC limits. In addition, when the inhaled MPC-fraction exceeds 0.25, further calculations are performed, based on identified isotopic ratios, to determine the MPC contributions from Strontium, transuranics and gross unidentified alpha emitters. This information strengthens the licensee's ability to evaluate a worker's exposure to airborne radioactive materials.

#### 9.0 Exit Meeting

The inspector met with licensee representatives, denoted in Section 1.0 of the report, on February 19, 1988. The inspector summarized the purpose of, scope and findings of the inspection.

