

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-244/85-14

Docket No. 50-244

License No. DPR-18 Priority -- Category C

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

Facility Name: R. E. Ginna Power Plant

Inspection At: Ontario, New York

Inspection Conducted: August 20-22, 1985

Inspectors: *Hawley Zibulsky* 10-9-85
H. Zibulsky, Chemist date

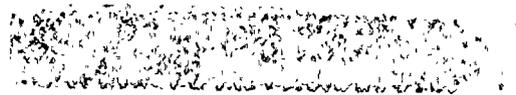
Approved by: *W. J. Pasciak* 10/11/85
W. J. Pasciak, Chief, BWR Radiation date
Protection Section, DRSS

Inspection Summary: Inspection on August 20-22, 1985 (Report No. 50-244/85-14)

Areas Inspected: Routine, announced inspection of the nonradiological chemistry program. Areas reviewed included training, measurement control and analytical procedure evaluations. The inspection involved 28 inspector hours by one NRC region based inspector.

Results: No violations were identified.

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DETAILS

1) Individuals Contacted

*S. Spector, Assistant Superintendent
*D. Filkins, Manager HP and Chemistry
*A. Harhay, Supervisor Power Plant Chemistry
W. Goodman, HP Foreman
B. Dahl, Plant Chemist

*denotes those present at the exit interview.

The inspector also interviewed other licensee employees including members of the chemistry staff.

2) Action on Previous Licensee Findings

(Closed) 84-09-01-IFI (84725) - The licensee did not have a requalification program in nonradiological chemistry. The licensee contracted with a commercial laboratory to supply the licensee with certified water solution standards for the laboratory technicians to analyze. The technicians' analytical results will be evaluated and documented by the Plant Chemist. Each technician will perform these tests on an annual basis.

3) Measurement Control Evaluation

The licensee's measurement control program was verified through analysis of actual plant water samples. The spent fuel tank and secondary coolant were sampled and duplicate samples were sent to Brookhaven National Laboratory (BNL) for independent verification. Boron, chloride and fluoride analyses will be performed on the spent fuel tank sample and ammonia, hydrazine, silica, chloride, iron, and copper analyses on the steam generator blowdown sample. On completion of the analyses by both laboratories, a statistical evaluation will be made (Inspector Follow-up Item 85-14-01).

4) Analytical Procedures Evaluation

During the inspection, standard chemical solutions were submitted by the inspector to the licensee for analysis. The standard solutions were prepared by BNL for NRC Region I, and were analyzed by the licensee using normal methods and equipment. The analysis of standards is used to verify the licensee's capability to monitor chemical parameters in various plant systems with respect to Technical Specification and other regulatory requirements. In addition, the analysis of standards is used to evaluate the licensee's analytical procedures with respect to accuracy and precision.

The results of the standard measurements comparison indicated that with the exception of two measurements and the three iron analyses, all of the results were in agreement under the criteria used for comparing results (see Attachment 1). The disagreements are not considered significant. The iron disagreements were due to a malfunction of the graphite furnace. The results of the comparisons are listed in Table 1.

The licensee also analyzed the chloride standard using a spectrophotometric method. The inspector did not evaluate the results because they were erratic and because the procedure was insensitive. For the purposes of primary coolant analyses, the inspector advised the licensee to use the Dionex or Specific Ion Electrode Method because of their greater reliability and sensitivity. The licensee said they had ordered the electrodes and will replace the spectrophotometric method with the Specific Ion Electrode Method. They are also planning to purchase another Dionex instrument (ion chromatography) for the primary coolant analyses.

5) Exit Interview

The inspector met with the licensee representatives (denoted in paragraph 1) at the conclusion of the inspection on August 22, 1985, and summarized the scope and findings of the inspection. At no time during this inspection was written material provided to the licensee by the inspector.

Capability Test Results

R. E. Ginna Power Plant

<u>Chem. Parameter</u>	<u>NRC Value</u>	<u>Lic. Value</u>	<u>Ratio Lic/NRC)</u>	<u>Comparison</u>
Results in parts per million (ppm)				
Boron	1014 ± 15	1002 ± 1.5	0.988 ± 0.015	Agreement
	3047 ± 26	2986 ± 26	0.980 ± 0.012	Agreement
	5040 ± 130	4806 ± 19	0.954 ± 0.025	Agreement
Results in parts per billion (ppb)				
Hydrazine	52.4 ± 1.3	51.3 ± 0.6	0.979 ± 0.03	Agreement
	19.3 ± 1.6	20.0 ± 0	1.036 ± 0.09	Agreement
	100.0 ± 2	101.3 ± 3.1	1.013 ± 0.04	Agreement
Chloride	10.3 ± 0.7	10.0 ± 0.4	0.971 ± 0.08	Agreement
	69.7 ± 3	65.3 ± 3.1	0.937 ± 0.06	Agreement
	27.7 ± 2.8	32.0 ± 2	1.155 ± 0.14	Agreement
Fluoride	96.1 ± 4.1	100 ± 0	1.041 ± 0.04	Agreement
	329 ± 20	340 ± 0	1.033 ± 0.06	Agreement
	149 ± 7	130 ± 0	0.872 ± 0.04	Disagreement
Copper	15.5 ± 0.20	16 ± 0.5	1.03 ± 0.03	Agreement
	10.3 ± 0.20	10.2 ± 0.6	0.990 ± 0.06	Agreement
	5.2 ± 0.04	5.0 ± 0.1	0.962 ± 0.02	Agreement
Iron	15.2 ± 0.2	20.3 ± 0.6	1.336 ± 0.04	Disagreement
	10.13 ± 0.2	16.9 ± 0.8	1.668 ± 0.09	Disagreement
	5.07 ± 0.04	9.2 ± 0.23	1.815 ± 0.05	Disagreement
Ammonia (AsNH) 3	1168 ± 15.7	1200 ± 0	1.027 ± 0.014	Agreement
	119.9 ± 2.7	100 ± 0	0.834 ± 0.019	Disagreement
	356 ± 8.7	360 ± 0	1.011 ± 0.02	Agreement

ATTACHMENT

Criteria For Comparing Analytical Measurements

This attachment provides criteria for comparing results of capability tests. In these criteria the judgement limits are based on the uncertainty of the ratio

of the licensee's value to the NRC value. The following steps are performed: (1) the ratio of the licensee's value to the NRC value is computed

(ratio = $\frac{\text{Licensee Value}}{\text{NRC value}}$); (2)

the uncertainty of the ratio is propagated.¹

If the absolute value of one minus the ratio is less than or equal to twice the ratio uncertainty, the results are in agreement. ($|1 - \text{ratio}| \leq 2 \text{ uncertainty}$)

¹ $\frac{Z^X}{Y}$, then $\frac{S_z^2}{Z^2} = \frac{S_x^2}{X^2} + \frac{S_y^2}{Y^2}$

(From: Bevington, P.R., Data Reduction and Error Analysis for the Physical Sciences, McGraw-Hill, New York, 1969)