

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-354/88-17

Docket No. 50-354

License No. NPF-50 Category C

Licensee: Public Service Electric & Gas Company
80 Park Plaza - 17C
Newark, New Jersey 07101

Facility Name: Hope Creek Generating Station

Inspection At: Hancock's Bridge, New Jersey

Inspection Conducted: May 9-13, 1988

Inspectors: Jason C. Jang 6-2-88
J. C. Jang, Sr. Radiation Specialist date

Approved by: J. J. Kottan 6-2-88
J. J. Pasciak, Chief, Effluent Radiation Protection Section date

Inspection Summary: Inspection on May 9-13, 1988 (Inspection Report No. 50-354/88-17)

Areas Inspected: Routine, unannounced inspection of the licensee's effluent controls: liquid effluent, gaseous effluent, effluent monitor calibration, ventilation system, and ODCM. Areas reviewed included: one previously identified item and 1987 Semiannual Effluent Release Reports.

Results: Within the areas reviewed, no violations were identified.

Details

1. Individuals Contacted

- R. Choromanski, System Engineer
- *J. Clancy, Radiation Protection/Chemistry, Manager
- J. Defebo, QA Operations, Lead Engineer ✓
- *S. Funsten, Planning Department Acting Manager
- *R. Gary, Radiation Protection Supervisor
- *A. Giardino, Manager - Station QA
- J. Hawrylak, System Engineer
- *E. Karpe, Radiation Protection - Sr. Radiological Engineer
- M. LaVacchia, QA Operations, Principal Engineer
- *K. Maza, Chemistry Supervisor
- *P. McNulty, Asst. Engineer, Radiation Protection/Chemistry Services
- G. Morill, Radiation Protection Supervisor, Effluents
- *J. Nichols, Technical Manager
- *A. Schettino, QA Operations, Sr. Staff Engineer
- *M. Sesok, Sr. Engineer
- D. Smith, System Engineer
- *L. Wenrick, Nuclear Technical Supervisor, Chemistry
- J. Wilkens, I&C Supervisor
- *J. Wray, Radiation Protection Engineer (Salem)

*denotes those present at exit interview on May 13, 1988.

Other licensee employees were contacted and interviewed during the inspection.

2. Licensee Action on Previous Finding

(Closed) Followup Item (50-354,87-07-01) Delay time calculation of Xe-133 and Kr-85. The inspector reviewed the licensee's delay time calculations and the results met the FSAR commitments.

3. Audits

The inspector reviewed the following QA audits with respect to Technical Specification requirements:

- (1) Audit Number 87-342; Technical Specification - Operations, July 27, 1987
- (2) Audit Number 87-480; 7 Chemistry/Sampling and Analysis, October 20, 1988
- (3) Audit Number 88-043; Radiation Protection Count Room, February 12, 1988
- (4) Audit Number 88-280; Radiation Protection Count Room, March 15, 1988

(5) Audit Number 88-334, Chemistry Analysis of RCS Dose Equivalent
I-131, April 13, 1988

The audits appeared to cover the stated objectives and were thorough. The inspector also noted the audits were performed by a qualified lead auditor and audit-identified deficiency followups were excellent. No violations were identified.

4. Liquid Effluent Controls

The inspector reviewed the following procedures to determine the implementation of the Technical Specification requirements (3/4.11.1 Liquid Effluents, and 3/4.11.1 Dose):

- (1) CH-TI-.ZZ-014(Q); Manual Liquid Effluent Calculation, Rev. 1
March 27, 1987
- (2) CH-TI.XX-015(Q); Radioactive Liquid Effluent Permit, Rev. 4
February 25, 1988
- (3) RP-ST.SP-001(Q); Monitor Source Check and Setpoint Calculations
Prior to Liquid Effluent Release, Rev. 15 March 21,
1988

The inspector also reviewed the liquid radwaste discharge permits for May 1988. The licensee generally discharged liquid radwaste four times per day. The discharge permits contained the total amount of radioactive material released and the dose calculations for each discharge. The inspector determined that the licensee was meeting the requirements for sampling and analysis at the frequencies and lower limit of detections established in Technical Specification Table 4.11.1.1.1. All discharges met the Technical Specification requirements.

Within the scope of this review, no violations were identified.

5. Gaseous Effluent Controls

Procedure RP-ST.ZZ-004(Q): Gaseous Effluent Surveillance, implements Technical Specification requirements (Sections 4.11.2.1.1, 4.11.2.1.2, 4.11.2.2, 4.11.2.3, and 4.11.2.5.1). The inspector reviewed the procedure and associated records and then determined that the licensee met the Technical Specification requirements.

The inspector reviewed Procedure RP-SA.ZZ-001(Q): Airborne Radioactivity Sampling, Revision 8, April 19, 1988. This procedure describes the sampling techniques for particulates, iodines, noble gases, and tritium. The licensee uses Procedure IAW RP-SA.ZZ-002(Q), Airborne Radioactivity Analysis for airborne samples.

Within the scope of these reviews, no violations were identified.

6. Radiation Monitoring Instrumentation

6.1 Introduction

The inspector examined the liquid and gaseous effluent monitors and process monitors with respect to Technical Specification requirements for calibration and functional testing. Electronic calibration and functional tests are performed by I&C personnel. Also source calibrations of the radiation monitors are performed by I&C personnel but the current radioactivity (decay calculations) of the sources are calculated by Radiation Protection personnel.

6.2 Liquid Effluent Monitors

The inspector reviewed the following calibration procedures and results:

- (1) IC-CC.SP-025(Q); Channel Calibration, Monitor RY-4861, Liquid Radwaste Discharge Monitor
- (2) IC-SC.SP-028(Q); Sensor Calibration, Channel RE-4861, Liquid Radwaste Discharge Monitor, Calibration Date: February 27, 1987
- (3) IC-CC.SP-022(Q); Channel Calibration, Monitor RY-8817, Cooling Tower Blowdown
- (4) IC-SC.SP-029(Q); Sensor Calibration, Channel RE-8817 Cooling Tower Blowdown, Calibration Date: March 6, 1987

During the previous inspection in this area (Inspection Number 50-354/86-33) the licensee had a plan to compare the monitor readings against grab sample results determined by laboratory analysis. The results of this comparison study would provide the licensee information about the reliability of the monitor. The inspector reviewed the comparison results during this inspection and noted that the monitor results were in good agreements with the grab sample results.

Within the scope of the review, no violations were identified.

6.3 Gaseous Effluent Monitors

The inspector reviewed the following calibration procedures and results:

- (1) IC-SC.SP-008(Q); Sensor Calibration, RE-4811 A Filtration Recirculation Ventilation (FRVS) System
Calibration Date: April 21, 1988
- (2) IC-CC.SP-031(Q); Channel Calibration RY-4811 Filtration Recirculation Vent

- (3) IC-CC.SP-021(Q); Channel Calibration, RY-4875B South Plant Vent (SPV)
- (4) IC-SC.SP-014(Q); Sensor Calibration, RE-4875B South Plant Vent Noble Gas
- (5) IC-CC.SP-015(Q); Channel Calibration, RY-4873B North Plant Vent (NPV)
- (6) IC-SC.S $\frac{1}{4}$ -020(Q); Sensor Calibration, RE-4873B North Plant Vent Low Range Calibration Date: February 17, 1987

All procedures contain acceptance criteria and calibration results were within the acceptance criteria.

In reviewing the noble gas monitor calibration data, the inspector noted that the licensee had a contractor (Watts-Bar Jones, Nuclear Service Inc.) who performed noble gas monitor efficiency measurements (NPV, SPV, FRVS) in 1986. The licensee used these measurement results to correct the monitor conversion factors for NPV, SPV, FRVS (conversion factor = $\mu\text{Ci}/\text{cc}/\text{counts per minute}$). The contractor used NBS traceable Xe-133 and Kr-85 radioactive gas sources to determine the monitor efficiencies.

The inspector also reviewed test results of particulates and iodine loss in the sampling line for NPV and SPV. The inspector noted that the licensee applied line loss factors in the gamma counting system as part of the calculations.

Within the scope of the review, no violations were identified.

6.4 Offgas Radiation Monitor

The inspector reviewed offgas radiation monitors calibration procedures and results for Channels A and B. Channels A and B were calibrated on August 13, 1986 and July 6, 1986, respectively. The inspector determined that the calibrations were performed as required by the appropriate procedures and Technical Specifications.

7. Testing of Air Cleaning Systems

The inspector reviewed the licensee's air cleaning systems (control room and FRVS) with respect to Technical Specification requirements and the results of the 1987 HEPA and charcoal absorber in-place and laboratory tests. All results met the requirements.

8. Offsite Dose Calculations

The inspector reviewed the Offsite Dose Calculation Manual (ODCM), Rev. 8, June 1987, and Semiannual Effluent Release Reports for 1987. The inspector also reviewed total error calculations for liquid, gaseous, and

solid radwaste. The estimated total errors of reported liquid and gaseous releases and solid radwaste shipment were listed in the semiannual reports. The inspector performed a spot check on the calculated dose using the model equations in the ODCM. The spot check calculations performed by the inspector agreed with those of the licensee.

Within the scope of the review the licensee complied with Technical Specification requirements.

9. Exit Interview

The inspector met with the licensee's representatives (denoted in Detail 1) at the conclusion of the inspection on May 13, 1988. The inspector summarized the scope of the inspection and results as described in this report.