NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-354/90-09

Docket No. 50-354

License No. NPF-50

Licensee: Public Service Electric and Gas Company
Post Office Box 236
Hancocks Bridge, New Jersey 08038

Facility Name: Hope Creek Generating Station

Inspection At: Hancocks Bridge, New Jersey

Inspection Conducted: April 16-20, 1990

Inspector: Jason C. Jang for J. Furia, Radiation Specialist, Effluents Radiation Protection Section (ERPS), Facilities Radiological Safety and Safeguards Branch (FRSSB) — 4-30-90 date

Approved By: Robert J. Bores — 4/30/90 date
R. Bores, Chief, ERPS, FRSSB, Division of Radiation Safety and Safeguards

Inspection Summary: Inspection on April 16-20, 1990 (Inspection Report No. 50-354/90-09)

Areas Inspected: Routine, unannounced inspection of the transportation and solid radwaste programs including: management controls, audits, quality assurance, and implementation of the above programs.

Results: Within the areas inspected, no violations or deviations were noted.

DETAILS

1.0 Personnel Contacted

1.1 Licensee Personnel

* M. Azzaro, Quality Assurance Engineer
* R. Beckwith, Station Licensing Engineer
* J. Buchanan, Shift Support Supervisor
* T. Cellmer, Radiation Protection Engineer
* J. Clancy, Radiation Protection & Chemistry Manager
  A. Giardino, Manager, Quality Assurance Programs and Audits
* R. Griffith, Sr., Manager, Station Quality Assurance
* J. Hagan, General Manager, Hope Creek
* S. Jones, Nuclear Training Coordinator
  W. Reuther, Principle Engineer, QA Procurement Control
  S. Sacca, Lead QA Auditor
  B. Sebastian, Nuclear Technical Supervisor
* L. Silvey, Senior Operations Support Supervisor
* M. Trum, Senior Nuclear Shift Supervisor
  G. Young, Nuclear Training Coordinator

1.2 NRC Personnel

  T. Johnson, Senior Resident Inspector
* S. Barr, Resident Inspector

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

2.0 Purpose

The purpose of this routine inspection was to review the licensee's program to properly prepare, package and transport licensed radioactive materials.

3.0 Previously Identified Items

(Closed) Inspector Follow-Up Item (50-354/87-28-01) Review of isotope library and modification to laboratory crosscheck program. The licensee has taken all necessary actions to improve both the isotope library and the crosscheck program utilized as part of its Quality Control program. This item is closed.

4.0 Transportation and Radwaste

The transportation and radwaste programs at Hope Creek were shared by both the Operations and Radiation Protection Sections, together with support provided by the Salem Generating Station. Specifically, the Operations Section processed plant water through filters and demineralizers. The spent bead and Powdex resins were solidified and dried in one of two extruder/evaporator systems. The Radiation Protection Section packaged for offsite shipment Dry Active Wastes (DAW), laundry, and all other radioactive materials not classified as radwaste. Arrangement for shipping casks, transport vehicles and the

preparation of shipping documentation for waste shipments were provided by staff from the Salem Generating Station as part of a site memorandum of understanding.

4.1 Radwaste

The Operations Section processed plant water through a series of filters and demineralizers. The spent bead and Powdex resins were processed through phase separators and then solidified and dried in one of two extruder/evaporators. The licensee has been successfully operating this bitumen solidification system since early 1989. Solidified wastes were processed in 55-gallon drums and were typically shipped for disposal in groups of 14. In addition, the licensee had available the services of Chem-Nuclear Systems, Inc. (CNSI), who were on site at the time of this inspection dewatering spent resins in High Integrity Containers. DAW was collected in the plant and then bulk-loaded in SeaVans for transport to the Scientific Ecology Group (SEG) facility in Oak Ridge, Tennessee, for supercompaction and disposal. The licensee was also investigating the feasibility of utilizing the SEG incinerator for certain types of DAW.

As part of this inspection, the following procedures related to the processing and packaging of radioactive wastes were reviewed.

Process Control Program, Rev 1, dated November 1986

VOP-SO.HC-101(R), Rev 4, "Chem-Nuclear Systems, Inc. FO-OP-040, Set Up and Operating Procedure for RDS-1000 Unit"

VOP-SO.HC-102(R), Rev 1, "Chem-Nuclear Procedure FO-OP-023, Bead Resin/Activated Carbon Dewatering Procedure for CNSI 14-195 or Smaller Liners"

VOP-SO.HC-104(R), Rev 0, "Chem-Nuclear Procedure FO-AD-002, Operating Guidelines for Use of Polyethylene High Integrity Containers"

RP-TI.ZZ-902(Q), Rev 1, "Radioactive Waste Sampling and Classification"

RP-TI.ZZ-903(Q), Rev 0, "Use of RADMAN"

RP-TI.ZZ-904(Q), Rev 0, "Dose Curie Conversion Calculations"

RP-TI.ZZ-905(Q), Rev 3, "Transfer of Radioactive Waste to SNGS"

RP-TI.ZZ-909(Q), Rev 1, "Shipment of Radioactive Material Excluding Wastes for Burial"

RP-TI.ZZ-913(Q), Rev 1, "Shipment and Receipt of Laundry"

RP-TI.ZZ-918(Q), Rev 0, "Operating Procedure for Asphalt Software"

These procedures were determined to be complete, to accurately reflect current plant operations, and to have been properly reviewed and approved by the licensee staff.

Scaling factors for the various plant waste streams were analyzed on an annual basis for determination of scaling factors. Composited plant waste stream samples were sent to the TMA/NORCAL laboratory for total isotopic analysis. The results were provided to the Radiation Control Section for review and computation of scaling factors.

4.2 Transportation

The Radiation Control Section in conjunction with the Salem Generating Station staff were responsible for the shipment of radioactive materials. Radioactive waste shipments to a burial site or to SEG were coordinated by the Salem Generating Station staff, who prepared the final shipping paperwork and arranged for transport vehicles and shipping casks. The Radiation Control Section prepared the preliminary paperwork for these shipments, and was wholely responsible for all other radioactive material shipments.

As part of this inspection, the following 23 waste shipment records from 1990 were examined.

Shipment	Activity (Ci)Volume (cu ft)	Type
90-01	4.38E+00 157.5	Bitumen
90-02	1.45E+00 2560.0	DAW
90-03	4.35E+00 105.0	Bitumen
90-04	6.68E+00 105.0	Bitumen
90-05	6.76E+00 105.0	Bitumen
90-06	7.85E+00 105.0	Bitumen
90-07	8.07E+00 105.0	Bitumen
90-08	7.74E+00 105.0	Bitumen
90-09	1.81E+01 105.0	Bitumen
90-10	4.20E+01 105.0	Bitumen
90-11	6.84E+01 105.0	Bitumen
90-12	1.14E+02 105.0	Bitumen

Shipment	Activity (Ci)	Volume (cu ft)	Type
90-13	1.14E+02	105.0	Bitumen
90-14	9.13E+01	105.0	Bitumen
90-15	8.52E+01	105.0	Bitumen
90-16	8.30E+01	105.0	Bitumen
90-17	8.26E+01	105.0	Bitumen
90-18	8.71E+01	105.0	Bitumen
90-19	8.22E+01	105.0	Bitumen
90-20	6.60E-01	2560.0	DAW
90-21	9.78E-02	406.5	Oil
90-22	1.02E+02	105.0	Bitumen
90-23	1.03E+02	105.0	Bitumen

All records were found to be complete and in accordance with the regulations set forth in 10 CFR Parts 20, 61 and 71, and 49 CFR Parts 100-177. In addition, the inspector observed the loading, inspection and shipment of a High Integrity Container (HIC) containing dewatered resins for burial at Barnwell, South Carolina. This shipment, number 90-25, was conducted in a highly professional manner by the staffs of both Hope Creek and Salem Generating Stations.

4.3 Quality Assurance

The licensee's program for the assurance of quality involved audits of vendors and plant radwaste activities, surveillances and hold points. Audits of vendors were conducted triennially by the Quality Assurance (QA) Procurement Control Group. Audit SNA 89-06, dated March 6, 1989, was conducted to verify the Chem-Nuclear Systems, Inc. QA program. Upon completion of this audit, this vendor was approved for continued utilization by the licensee in the areas of radwaste processing and as a supplier of liners and shipping casks.

QA Audits conducted an audit of the licensee's radwaste and Process Control Program (PCP), which was documented in audit report NM 88-05, dated September 23, 1988. At the time of this inspection, the licensee was preparing to commence an audit of the Radiological Controls programs, which would include the radwaste and PCP programs at both Hope Creek and Salem Stations. This audit will be conducted by four auditors and two technical specialists.

Station QA conducted surveillance of all radwaste and radioactive materials shipments. The results were documented in surveillance reports. In addition, Quality Control had hold points within the various procedures utilized in the PCP and transportation program. This program of surveillances and hold points was determined to be excellent.

4.4 Training

The licensee's Training Department provided initial and continuing training to both the Operations and Radiation Controls staff involved in the processing and shipment of radioactive wastes. The training program for the Operations personnel was outlined in TP-301 HC, Rev 4, "Non-Licensed Operator Training". This program included both initial and annual continuing training for the Radwaste Operations staff. Lesson plans 49989-LES013-00, "Radwaste Packaging and Shipping Regulations", and 45004-LES002-00, "Shipping Regulations", were utilized for the training of the Radiation Protection staff. Both training programs were determined to be excellent.

4.5 Interim Radwaste Storage

In preparation for the anticipated loss of burial privileges at the three current burial sites on January 1, 1993, the licensee has begun examining the feasibility of onsite storage of packaged radwaste until the Northeast Compact's New Jersey Low-Level Waste Disposal Site is prepared to accept radwaste. Under consideration were plans to construct a storage pad east of the Hope Creek reactor buildings, where DAW containers and On-Site Storage Containers (OSSC) would be located. Also being considered was the utilization of either the Unit 2 Turbine Building or Reactor Building for the interim storage of radwaste. The licensee has storage capacity for up to one year's worth of bitumen encapsulated drums in the East and West Storage Vaults in the Radwaste Building.

5.0 Exit Interview

The inspector met with the licensee's representatives (denoted in Section 1.0) at the conclusion of the inspection on April 20, 1990. The inspector summarized the purpose, scope, and findings of the inspection.