UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30323

MAR 30 1992

Report Nos.: 50-413/92-08 and 50-414/92-08

Licensee: Duke Power Company
422 South Church Street
Charlotte, NC 28242

Docket Nos.: 50-413 and 50-414 License Nos.: NPF-35 and NPF-52

Facility Name: Catawba 1 and 2

Inspection Conducted: March 9-13, 1992

Inspector: J R Hicks Jr 3/27/92
D. W. Jones Date Signed

Approved by: J R Hicks 3/27/92
T. R. Decker, Chief Date Signed
Radiological Effluents and Chemistry Section
Radiological Protection and Emergency
Preparedness Branch
Division of Radiation Safety and Safeguards

SUMMARY

Scope:

This routine, unannounced inspection was conducted in the areas of Control Room pressurization and air filtering systems, transportation of radioactive material, solid waste management, radiological effluent monitoring and control, reactor coolant chemistry, post accident sampling systems, and training.

Results:

No violations or deviations were identified.

The licensee had complied with the operational and surveillance requirements for the Control Room pressurization and air filtering systems (Paragraph 2).

The licensee had effectively implemented a program for shipping radioactive materials (Paragraph 3).

The licensee effectively implemented a program for properly classifying and preparing radioactive waste for shipment (Paragraph 4).

The licensee had implemented an effective program for monitoring and controlling radioactive effluents. The activity released during 1991 in the liquid and gaseous effluents and the resulting doses were well within the limits specified in the TSs, 10 CFR 20, and 40 CFR 190. The licensee's system for monitoring the operability of the effluent monitors was considered to be a program strength. A new project for replacing the effluent monitor's analog output modules with digital output modules was to be considered a program improvement (Paragraph 5).

The licensee had implemented an adequate program to ensure the capability to obtain and analyze samples of reactor coolant and containment atmosphere under accident conditions (Paragraph 7).

The licensee had implemented a very effective program for training and qualification which was considered an overall program strength (Paragraph 8).

REPORT DETAILS

1. Persons Contacted

Licensee Employees

B. Barker, Supervisor, Component Engineering
J. Bryant, Radiation Protection Specialist
*P. Deal, Manager, Radiation Protection
M. Drost, Supervisor, Chemistry
T. Lanning, Radiation Protection Specialist
*J. Lowery, Compliance Engineer
S. Putman, System Engineer
P. Simbrant, Scientist, Radiation Protection
C. Wrey, Scientist, Radiation Protection

Other licensee employees contacted included engineers, technicians, and administrative personnel.

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*P. Hopkins, Resident Inspector
W. Orders, Senior Resident Inspector
J. Zeiler, Resident Inspector

*Attended exit interview.

2. Control Room Area Ventilation Systems (84750)

Technical Specifications (TSs) 3/4.7.6 described the operational and surveillance requirements for the control room pressurization and air filtration systems. Two independent systems consisting of fans, heating elements, pre-filters, high efficiency particulate air (HEPA) filters, and charcoal adsorber filter beds were required to be operable during all operational modes. Action statements applicable to various modes were provided for conditions in which one or both of the systems were inoperable. The frequencies for functional testing, visual inspection, filter leak testing, air flow measurements, differential pressure measurements, and charcoal adsorption efficiency testing were specified.

The inspector toured the plant area in which the pressurization and air filtering systems were located. The licensee's cognizant system engineer located and identified, for the inspector, the major components of the systems. The inspector observed that the components and associated ductwork were well maintained structurally and that there was no physical deterioration of the ductwork sealants.

The inspector reviewed the procedures listed below and determined that they included provisions for performing the above operability and performance tests at the required

frequencies. Review of selected records of those tests indicated that they had been performed at the required frequencies.

PT/1/A/4600/02A "Mode 1 Periodic Surveillance Items"

PT/0/A/4450/08 "Control Room Ventilation System Performance Test"

PT/0/A/4450/08A "Control Room Area Outside Air Pressure Filter Train "A" Test"

PT/0/A/4450/08B "Control Room Area Outside Air Pressure Filter Train "B" Test"

PT/0/A/4450/01B "Control Room Area Outside Air Pressure Filter Trains Performance Test"

PT/0/A/4450/17 "Safety Related Filter System Run Time Monitoring"

Based on the above reviews and observations , it was concluded that the licensee had complied with the above operational and surveillance requirements for the Control Room pressurization and air filtering systems.

No violations or deviations were identified.

3. Transportation of Radioactive Material (86750)

10 CFR 71.5 required the licensee to comply with the applicable regulations of the Department of Transportation (DOT) in 49 CFR Parts 170 through 189 when transporting licensed material outside the confines of the plant or other place of use, or when delivering licensed material to a carrier for transport.

The inspector reviewed the procedures listed below and determined that they adequately addressed the following: assuring that the receiver has a license to receive the material being shipped; assigning the form, quantity type, and proper shipping name of the material to be shipped; selecting the type of package required; labeling and marking the package; placarding the vehicle; assuring that the radiation and contamination limits are met; and preparing shipping papers.

HP/0/B/1006/01 "Shipment of Radioactive Material"

HP/0/B/1006/05 "Periodic Sampling of Radioactive Waste for 10 CFR 61 Scaling Factor Determination"

HP/0/B/1006/08 "Shipment of Dry Active Waste"

HP/0/B/1006/09 "Shipment of Radioactive Filters and Filter Media"

HP/0/B/1006/10 "Shipment of Solidified Radwaste"

HP/0/B/1006/12 "Shipment of Dewatered Resins"

The inspector reviewed the licensee's records for the first six shipments made during 1992 (RSR-CNS-92-001...006). Those records indicated that the shipments were made in accordance with the above procedures and 10 CFR 71.5.

Based on the above reviews, it was concluded that the licensee had effectively implemented a program for shipping radioactive materials.

No violations or deviations were identified.

4 Solid Radioactive Waste Management Program (86750)

10 CFR 20.311(d)(1) required the licensee to prepare all radioactive waste transferred to a land disposal facility such that the waste is classified in accordance with 10 CFR 61.55 and meets the waste characteristic requirements of 10 CFR 61.56. TS 3/4.11.3 required the licensee to process solid radioactive waste in accordance with the Process Control Program (PCP). TS 6.8 1 required the licensee to establish, implement, and maintain written procedures for activities related to implementation of the PCP.

The inspector reviewed procedure HP/0/B/1006/13 "Determination of the Waste Classification for Radioactive Waste Offered for Shallow Land Burial" and determined that it included adequate provisions for properly classifying the waste and for ensuring that it meets the required characteristics, pursuant to 10 CFR 61.55, 10 CFR 61.56, and the PCP.

As indicated above, the inspector reviewed selected records for recent shipments of radwaste. Those records indicated that the waste had been classified and prepared for shipment in accordance with the written procedure.

Based on the above reviews, it was determined that the licensee effectively implemented a program for properly classifying and preparing radioactive waste for shipment.

No violations or deviations were identified.

5. Radiological Effluent Monitoring and Control (84750)

TS 6.9.1.7 required the licensee to submit Semiannual Radioactive Effluent Release Reports within 60 days after January 1 and July 1 of each year covering the operation of the facility during the previous six months of operation. The reports were required to include summaries of the quantities of radioactive liquid and gaseous effluents released from the facility and an assessment of the radiation doses due to those releases.

The effluent data presented in Table 1 were extracted from the licensee's reports for the years 1990 and 1991.

Table 1

Effluent Release Summary for Catawba Units 1 and 2

Activity Released (curies)	1990	1991
Liquid Effluents		
Fission and Activation Products	1.96	0.76
Tritium	594	646
Dissolved Noble Gases	8.66E-2	5.52E-2
Gaseous Effluents		
Noble Gases	1068	04
Halogens	1.19E-2	0.90E-2
Particulates	6.14E-2	3.92E-2
Tritium	91.0	124.6
Dose Estimates (mrem)		
Liquid Effluents		
Whole Body	1.03	0.70
Gaseous Effluents (Noble Gas Exposure)		
Whole Body	0.28	0.54

The inspector reviewed the licensee's reports for the year 1991 and discussed their content and the data presented in Table 1 with the licensee. As indicated above, the total activity released as fission and activation products in liquid effluents decreased during 1991. The whole body dose resulting from those releases also decreased. The reports indicated that more than 90 percent of the calculated whole body dose from the liquid effluents was attributed to the Cs-134 and Cs-137 content of the liquids released during 1991. The licensee indicated that as of the beginning of 1991 the liquid waste was processed through demineralizers containing resins which were specifically designed for removing contaminants such as cesium. This change in liquid radwaste processing was noted by the inspector as a program improvement. The inspector also noted that the activity released as noble gases in gaseous effluents decreased during 1991 but the whole body dose resulting from those releases increased. The licensee indicated that this issue would be discussed with their General Office personnel who prepare the effluent reports. This apparent anomaly will be further examined during a subsequent inspection. The activity released during 1991 in the liquid and gaseous effluents and the resulting doses were well within the limits specified in the TSs, 10 CFR 20, and 40 CFR 190.

TSs 3/4.3.3.1, 3/4.3.3.10 and 3/4.3.3.11 described the operational and surveillance requirements for the radiation monitoring instrumentation associated with plant operations and radioactive effluents.

The inspector reviewed summary reports for availability of effluent monitors. Those reports included a listing of each effluent monitor and the percent of the time that the monitors were operable each month. They also provided the year-to-date percent availability for each monitor and the average year-to-date percent availability over all monitors listed. The reports for 1990 and 1991 had a combined listing of TS required and non-TS required monitors. The overall average percent availability increased to 89% for 1991 from 87% for 1990. The report for 1992 provided separate listings for the TS required and non-Ts required monitors. As of February 1992, the overall average percent availability for the Ts required monitors was 92%. The licensee's system for monitoring the operability of the effluent monitors was considered a program strength.

The licensee also apprised the inspector of a new project for replacing the effluent monitor's analog output modules with digital output modules. This project, which involves

changing out approximately 100 output modules in the control room, was in the planning/implementation stage. The target date for starting the changouts was March 9, 1992. This project was considered to be a program improvement.

No violations or deviations were identified.

6. Reactor Coolant Chemistry (84750)

TS 3/4.4.8 described the operational and surveillance requirements for reactor coolant specific activity.

The inspector reviewed trend plots of reactor coolant dose equivalent I-131 (DEI) for the period June 1991 through February 1992. During steady state operations, the DEI for Unit 1 was typically 9E-3 μCi/ml. Before the outage late in 1991, the DEI for Unit 2 was typically 2E-3 μCi/ml; after the outage the DEI was typically 2E-4 μCi/ml. These values were well below the TS limit of 1 μCi/gm and indicated that the integrity of the fuel cladding had been adequately maintained.

No violations or deviations were identified.

7. Post Accident Sampling Systems (84750)

TS 6.8.4.e required the licensee to establish, implement, and maintain a program which would ensure the capability to obtain and analyze samples of reactor coolant, radioactive iodines and particulates in plant gaseous effluents, and containment atmosphere under accident conditions. The program was required to include training of personnel, procedures for sampling and analysis, and provisions for maintenance of sampling and analytical equipment.

The licensee's program included the use of a Post Accident Liquid Sampling (PALS) system and a Post Accident Gas Sampling (PAGS) system for each unit. As discussed in previous inspection reports (50-413,414/91-14 and 91-24) the licensee has had problems in maintaining these systems in an operable status but was making adequate progress towards improving their operability. During this inspection the operational status of the PALS and PAGS systems was discussed with licensee radiation protection and chemistry personnel. The licensee indicated that the new PALS system, which was installed during the fall of 1991, continued to perform satisfactorily. The inspector reviewed records for recent tests of the PAGS systems and determined that the systems were being adequately maintained.

It was concluded that the licensee had implemented an adequate program to ensure the capability to obtain and analyze samples of reactor coolant and containment atmosphere under accident conditions.

No violations or deviations were identified.

8. Training and Qualification (84750 and 86750)

TSs 6.3 and 6.4 described the requirements for training and qualification of licensee personnel.

The licensee's program was implemented through the Employee Training and Qualification System (EQTS) which consisted of general employee training, technical training, and employee/professional development training. The technical training consisted of initial training, on-the-job training and qualification, and continuing training. The inspector reviewed training records for two individuals assigned to the Radiation Protection organizational unit. The assigned duties of one of those individuals involved preparation of radioactive material for shipment. The other individual was assigned to the count room. The records reviewed included EQTS Task Lists and Qualification Summaries. The EQTS Task List was a list of tasks which had been developed for each position and for which an individual must have been trained and qualified prior to independently performing the task. The Qualification Summary was maintained for each individual and listed the tasks for which the individual had received training and qualification. The inspector compared the EQTS Task List and the Qualification Summary for both of the individuals selected and determined that they had completed the specified training for their assigned positions.

Based on the above reviews, it was concluded that the licensee had implemented a very effective program for training and qualification which was considered an overall program strength.

No violations or deviations were identified.

9. Status of Steam Generators

The licensee provided the inspector with the following information regarding the status of the steam generators.

The "effective" number of plugged tubes in the Unit 1 steam generators was 493. The licensee calculated the number of tubes "effectively" plugged from a combination of the number of sleeved tubes and the number of plugged tubes (20 sleeved tubes equated to one plugged tube). The "effective" number of plugged tubes in the Unit 2 steam generators was 92.

The licensee plans to replace the Unit 1 steam generators during the year 2000 provided an acceptable level of performance can be maintained. Replacement may be necessary as soon as 1996. There were no current plans for replacement of the Unit 2 steam generators.

Recent practice has been to clean the steam generators every other outage by sludge lancing. Typically less than 25 pounds of sludge would be removed from any one steam generator during these cleaning operations.

10. Exit Interview

The inspection scope and results were summarized on March 12, 1992, with those persons indicated in Paragraph 1. The inspector described the areas inspected and discussed in detail the results listed above. No dissenting comments were received from the licensee. The licensee did not identify as proprietary any information provided to the inspector during this inspection.