



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W., SUITE 2900
ATLANTA, GEORGIA 30323-0199

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Report Nos.: 50-413/94-03 and 50-414/94-03

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: January 10-14, 1994

Inspector: D. W. Jones 2/8/94
D. W. Jones Date Signed

Approved by: T. R. Decker 2/8/94
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, announced inspection was conducted in the areas of meteorological monitoring, Control Room area ventilation systems, audits, and followup on previously identified issues.

Results:

The licensee had complied with the Technical Specification (TS) requirements for the meteorological monitoring instrumentation. New equipment for displaying current meteorological data had been installed in the Control Room during 1993 (Paragraph 2).

The licensee had complied with the operational and surveillance requirements for the Control Room pressurization and air filtering systems. System components and associated ductwork had been well maintained. Functional tests of system equipment and leak tests of system filters had been performed in accordance with licensee procedures at the required frequencies. (Paragraph 3).

The licensee had implemented a very effective audit program. Audits in the areas of radiological environmental monitoring, radiological effluents, water chemistry, and transportation of radioactive material were conducted on a biennial frequency. The audits were thorough and well documented and the results were reported to facility management in a timely manner (Paragraph 4).

One unresolved item (URI) concerning calculational methods for radiation dose from gaseous effluents will remain open pending implementation of procedural changes (Paragraph 5).

One inspector followup item (IFI) concerning modification of surface water sampling equipment used for environmental monitoring was closed (Paragraph 5).

During this inspection, the licensee informed the inspector of a violation concerning failure to conduct a timely investigation of a recent radioactive waste shipment for which receipt acknowledgment had not been received within the time allotted by regulations. This licensee identified violation is not being cited because the criteria specified in Section VII.B of the NRC Enforcement Policy were satisfied (Paragraph 6).

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *S. Coy, Manager, Radiation Protection
- *W. McCollum, Station Manager
- †*K. Nicholson, Compliance Specialist, Regulatory Compliance
 - R. Propst, Manager, Chemistry
 - S. Putnam, Engineer, Systems Engineering
- †*D. Rehn, Vice President
 - *P. Simbrat, System engineer, Systems Engineering
 - R. Smith, Technical Specialist, Safety Review Group
- *Z. Taylor, Manager, Regulatory Compliance
- *J. Twiggs, General Supervisor, Radiation Protection
- J. White, Engineer, Component Engineering
- *C. Wray, Scientist, Radiation Protection

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

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- *R. Freudenberger, Senior Resident Inspector
- P. Hopkins, Resident Inspector
- J. Zeiler, Resident Inspector

†Attended entrance interview

*Attended exit interview

2. Meteorological Monitoring Program (84750)

Technical Specification (TS) 3/4.3.3.4 described the operational and surveillance requirements for the meteorological monitoring instrumentation. The instrumentation was required to be operable at all times and demonstrated to be operable by the performance of daily channel checks and semiannual channel calibrations. An Action Statement specified that when one or more of the monitoring channels is inoperable for more than seven days, a Special Report would be submitted to the NRC within 10 days outlining the cause of the malfunction and the plans for restoring the instrumentation to operable status.

The inspector reviewed the procedures listed below and determined that they included provisions for performing the required surveillances.

- PT/1/A/4600/02A "Mode 1 Periodic Surveillance Items"
- IP/0/B/3343/13 "Meteorological Monitoring System (EEB) Calibration and Maintenance Procedure"

The inspector reviewed records for recent performances of those procedures and determined that the channel checks and instrument calibrations had been performed in accordance with the above procedures

and at the required frequency. The inspector visited the Control Room and found that the meteorological monitoring instrumentation was then currently operable. The licensee had installed new equipment for displaying current meteorological data in the Control Room during 1993. The new equipment was calibrated during May 1993 by the above listed procedure and declared operable the following month.

Based on the above reviews and observations, it was concluded that the licensee had complied with the TS requirements for the meteorological monitoring instrumentation.

No violations or deviations were identified.

3. Control Room Area Ventilation Systems (84750)

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, filter leak testing, air flow measurements, differential pressure measurements, and charcoal adsorption efficiency testing were specified.

The inspector toured the mechanical equipment room 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.

4. Audits (84750 and 86750)

TSs 6.5.2.9 and 6.5.2.10.c required the licensee to perform audits of site activities under the cognizance of the Nuclear Safety Review Board and to forward the audit reports to licensee management within 30 days of completion of each audit. The audits were required to encompass, in part, the following: the conformance of facility operation to provisions contained within the TSs and applicable license conditions; the performance, training, and qualification of the facility staff; the Radiological Environmental Monitoring Program (REMP) and the results thereof; the Offsite Dose Calculation Manual (ODCM) and implementing procedures; the Process Control Program (PCP) and implementing procedures; and the performance of activities required by the Quality Assurance (QA) Program for effluent and environmental monitoring.

The inspector noted that the required frequency for audits of each of the above areas had been deleted from TS 6.5.2.9, by Amendments No. 96 for Unit 1 and No. 90 for Unit 2, and relocated to the licensee's QA Program. Duke Power Company Topical Report "Quality Assurance Program, Duke-1-A", Amendment 15, and selected Quality Verification Department auditing procedures were reviewed by the inspector. Those documents indicated that the above activities would be audited at least on a biennial frequency.

The inspector reviewed the licensee's reports for Audit No. NG-92-06(CN) "Radiation Protection Group Activities, Chemistry Group Activities, and Corrective Action" and Audit No. NG-93-05(CN) "Radiation Protection, Chemistry and the Process Control Program." Those audits were conducted during the periods March 16 through April 23, 1992, and March 15 through April 6, 1993, respectively, by the licensee's Quality Verification Department. The scope of those audits included facility activities in the following areas: environmental monitoring, liquid and gaseous effluents, off-site dose calculations, post-accident sampling systems, laboratory quality control, chemistry, process control program, records, training, shipment of radioactive material, and radiation protection. Substantive issues identified by the audits were characterized as good practices, findings, document discrepancies, follow-up items, observations, or recommendations. Pursuant to the licensee's auditing procedures, findings and document discrepancies required documented corrective actions. Each identified issue was tracked for completion of warranted follow-up actions through the licensee's Problem Investigation Process (PIP). The inspector reviewed PIP records for selected issues identified by the audits and determined that the issues had been adequately addressed. The audit reports included conclusions which indicated that the conduct and performance of activities in the

Radiation Protection and Chemistry Departments were satisfactory. The inspector determined that the audits were thorough and well documented, that the results were reported to facility management in a timely manner, and that follow-up actions were prudent and timely.

Based on the above review, it was concluded that the licensee had implemented a very effective audit program.

No violations or deviations were identified.

5. Followup on Previously Identified Issues (92701)

- a. (Open) Unresolved Item (URI) 50-413, 414/93-16-01: Increase in the radiation dose from gaseous effluents. During the inspection conducted on May 10-14, 1993 (reference NRC Inspection Report Nos. 50-413/93-16 and 50-414/93-16), it was noted that the air dose due to gamma radiation from gaseous effluents had increased to 31 percent of the limit during 1992. Those doses had ranged from 2 to 4 percent of the limit during the previous three years. The licensee's gaseous effluent release records and method of determining the quantity of activity released were reviewed with the licensee. Each month the licensee determined the amount of activity released in gaseous effluents from batch and continuous releases. The amount of activity in the batch releases were determined from sampling and analysis of each batch prior to their release. The amount of activity in the continuous releases was determined by subtracting the amount of activity in the batch releases from the total amount of activity released through the unit vents. That total was based on the count rate from the noble gas monitors in the vents. The radionuclide distribution of the activity in the continuous releases was assumed to be the same distribution found in the batch releases. Review of the gaseous effluent release records revealed that the predominate contribution to the air doses during 1992 was from the calculated amount of Ar-41 in the continuous releases. During previous years Xe-133 was the predominate source term for air doses. There was no significant change in the total amount of noble gas activity released but the ratio of Ar-41 activity to Xe-133 activity in the batch releases increased during 1992. This resulted in assignment of a larger proportion of the activity in the continuous releases to Ar-41, which has a dose factor that is 26 times larger than that of Xe-133. Therefore the calculated air dose increased significantly. During this inspection the licensee's investigation of that increase was reviewed. The licensee documented the results of that investigation in a report dated May 26, 1993, and provided a copy of the report to the Resident Inspectors on June 7, 1993. The licensee found that Ar-41 and Xe-133 were primarily released during batch releases from the Reactor Building Pressure Release System. The source of the Ar-41 was neutron activation of Ar-40 in the air inside of the containment building and the source of the Xe-133 was fuel leakage. The Ar-41 production rate, and therefore the amount in the batch releases, had remained consistent during

power operations but the amount of Xe-133 being released had decreased due to improved fuel integrity and reduced primary system leakage. The license reviewed the results from routine samples of containment air and confirmed that the Ar-41 to Xe-133 ratio had increased as indicated in the batch release data. Based on those findings, the licensee concluded that the above method for assignment of radionuclide distribution in the continuous releases resulted in overly conservative estimates of the air doses and that results for weekly grab samples from the unit vents would be a more representative basis for the radionuclide distribution. The license had revised their procedures to incorporate this method for calculating the radionuclide content of continuous releases and had commenced training of personnel in the use of those revised procedures. Implementation of those procedures was planned for March 1994. This item will remain open pending NRC review of the licensee's implementation of those revised procedures.

- b. (Closed) Inspector Followup Item (IFI) 50-413, 414/93-16-02: Modification of surface water sampling equipment used for environmental monitoring. During the inspection conducted on May 10-14, 1993 (reference NRC Inspection Report Nos. 50-413/93-16 and 50-414/93-16), it was noted that the licensee's 1992 Annual Radiological Environmental Operating Report indicated that there had been a significant number of malfunctions of the surface water sampling equipment. Improved water sampling equipment was scheduled for installation during 1993. During this inspection it was found that the licensee had tracked this issue to completion by their Problem Investigation Process. Those records indicated that new sampling equipment had been installed and was operational by November 15, 1993. This issue is closed.

6. Transportation of Radioactive Material (86750)

10 CFR 20.2006(d) requires each person involved in the transfer for disposal and disposal of low-level radioactive waste, including the waste generator, waste collector, waste processor, and disposal facility operator, to comply with the requirements specified in section III of Appendix F to 10 CFR 20.1001-20.2401. Section III C.1 of Appendix F requires any waste processor to acknowledge receipt of the waste from the generator within 1 week of each receipt by returning a signed copy of the manifest or equivalent documentation. Sections III A.8 and E.1 of Appendix F requires any generating licensee who transfers waste to a licensed waste processor to conduct an investigation of any shipment for which acknowledgment of receipt has not been received within 20 days after transfer.

During this inspection, the licensee informed the inspector that an investigation of a recent waste shipment had not been initiated within the time allotted by the above requirements. The licensee indicated that on December 10, 1993, two containers of radioactive waste were shipped to a waste processor for compaction prior to disposal and that

acknowledgment of receipt of that shipment was not received until January 11, 1994. An investigation of this event was initiated by the licensee on January 13, 1994. The inspector was provided with copies of the licensee's shipping papers and the waste processor's confirmation of receipt form for review. The inspector noted that the receipt acknowledgment form was dated December 22, 1993, which was two days after the licensee should have initiated an investigation. In order to prevent recurrence of this situation the licensee revised the procedure for radioactive waste shipments to include specific instructions for initiating an investigation if receipt is not acknowledged within 20 days of shipment. The inspector verified that procedure HP/O/B/1006/01 "Shipment of Radioactive Material" was revised before the end of the inspection. The licensee's failure to initiate an investigation within the time allotted by the above requirements has been deemed to be a licensee identified violation but is not being cited because the criteria specified in Section VII.B of the NRC Enforcement Policy were satisfied (NCV 50-413, 414/94-03-01).

7. Exit Interview

The inspection scope and results were summarized on January 13, 1994, with those persons indicated in Paragraph 1. The inspector described the areas inspected and discussed in detail the inspection results listed above. No dissenting comments were received from the licensee. Proprietary information is not contained in this report.

<u>Type</u>	<u>Item Number</u>	<u>Status</u>	<u>Description and Reference</u>
URI	50-413, 414/93-16-01	Open	Increase in the radiation dose from gaseous effluents (Paragraph 5.a).
IFI	50-413, 414/93-16-02	Closed	Modification of surface water sampling equipment used for environmental monitoring (Paragraph 5.b).
NCV	50-412, 414/94-03-01	Closed	Failure to initiate an investigation within the time allotted by 10 CFR 20.2006(d) (Paragraph 6).