

ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No.: 50-285
License No.: DPR-40
Report No.: 50-285/98-22
Licensee: Omaha Public Power District
Facility: Fort Calhoun Station
Location: Fort Calhoun Station FC-2-4 Adm., P.O. Box 399, Hwy. 75 - North of
Fort Calhoun
Fort Calhoun, Nebraska
Dates: September 14-18, 1998
Inspector(s): Michael C. Hay, Radiation Specialist
Plant Support Branch
Approved By: Blaine Murray, Chief, Plant Support Branch
Division of Reactor Safety
Attachment: Supplemental Information

EXECUTIVE SUMMARY

Fort Calhoun Station
NRC Inspection Report 50-285/98-22

This routine, announced inspection reviewed the implementation of the radiological environmental and meteorological monitoring programs.

Plant Support

- Overall, an effective environmental monitoring program was implemented. Environmental air sampling stations were properly maintained. Excellent sampling and handling practices were used for collecting environmental samples. Environmental media sample shipment and analyses were properly performed. The addition of an environmental sampling control air and thermoluminescent dosimetry station was performed in 1997 increasing the effectiveness of the radiological environmental monitoring program's ability to reliably determine the plant's impact on the environment.
- Overall, an effective meteorological program was in place. The meteorological monitoring equipment was maintained in excellent operating condition. Calibrations were performed at the required frequencies. Housekeeping of all observed areas was very good. Meteorological data recovery in 1997 was 97 percent.
- Comprehensive quality assurance audits and surveillances of the radiological environmental monitoring program were performed by qualified personnel.

Report Details

IV. Plant Support

R1 Radiological Protection and Chemistry Controls

R1.1 Radiological Environmental Monitoring Program

a. Inspection Scope (84750)

The radiological environmental monitoring program was reviewed to verify that environmental media samples were collected, processed, and analyzed in accordance with the requirements in the Technical Specifications and Offsite Dose Calculation Manual. Selected sampling stations were inspected.

b. Observations and Findings

The inspector accompanied and observed personnel collect air and water samples. Air sampling was performed by replacing the sampler heads in the field minimizing the potential for cross contamination and preserving sample integrity. Housekeeping within all areas observed was very good. An additional control air and thermoluminescent dosimetry station was established in 1997 and placed in the least prevalent wind direction approximately 19.5 miles from the station's containment building. The addition of the control station increased the effectiveness of the radiological environmental monitoring program's ability to reliably determine the plant's effect on the environment. Water samples were performed by boat in the Missouri river. Reference points on the river bank were used to ensure representative samples were obtained at the locations described in the Offsite Dose Calculation Manual. A review of the sample collection logs, sample shipment forms, and sample analyses reports revealed that these documents were properly maintained.

The inspector determined that collection frequency, processing, and analyses of the radiological environmental samples were performed in accordance with the Offsite Dose Calculation Manual. A comprehensive radiological environmental monitoring report for 1997 was submitted in a timely manner. Review of 1997 environmental biota, river water, and groundwater sample results indicated that the operation of Fort Calhoun Station resulted in no detectable buildup of radioactivity in the environment, and thermoluminescent dosimeter results indicated that plant operations did not affect the ambient radiation levels in the environment.

c. Conclusions

Overall, an effective environmental monitoring program was implemented in accordance with the Technical Specifications and the Offsite Dose Calculation Manual. Collection frequency, processing, and analyses of the radiological environmental samples were performed in accordance with the Offsite Dose Calculation Manual. Housekeeping within all areas observed was very good. The addition of a control air and thermoluminescent dosimetry station in 1997 increased the effectiveness of the

radiological environmental monitoring program's ability to determine the plant's effect on the environment.

R1.2 Meteorological Monitoring Program

a. Inspection Scope (84750)

The meteorological monitoring program was reviewed to determine agreement with commitments in the Updated Final Safety Analysis Report and the recommendations in NRC Regulatory Guide 1.23. The inspector reviewed data collection and data displays at station facilities.

b. Observations and Findings

The inspector noted that the meteorological tower primary instrumentation and configuration agreed with the guidance in Regulatory Guide 1.23 and commitments in the Updated Final Safety Analysis Report description. The tower provided for meteorological instrument redundancy at the 10- and 60-meter levels. Two separate power sources directed through a manual bus transfer were utilized to supply power to the meteorological instrumentation. The meteorological data recovery rate during 1997 was 97.18 percent.

The inspector verified that appropriate meteorological data was transmitted and displayed in the appropriate facilities including the control room and emergency operations facility.

c. Conclusions

Overall, an effective meteorological monitoring program was implemented. The performance of the meteorological monitoring program agreed with the guidance contained in Regulatory Guide 1.23. Meteorological data recovery was greater than 97 percent during 1997. Housekeeping within all areas observed was very good.

R2 **Status of Radiological Protection and Chemistry Facilities and Equipment**

R2.1 Environmental Monitoring Equipment

a. Inspection Scope (84750)

Selected environmental sampling stations were inspected to verify that the stations were properly maintained and that all sampling equipment was operable and properly calibrated. The environmental monitoring program storage areas were inspected to verify sufficient supplies and equipment were available to perform the licensee's environmental sampling program. The licensee's maintenance and calibration program for the air sampling equipment was reviewed.

b. Observations and Findings

The inspector toured and inspected selected environmental media sampling locations for airborne, river water, and sediment. The inspector verified that the locations of the environmental media sampling stations met the requirements specified in the Offsite Dose Calculation Manual.

The inspector verified that all air samplers in the field were operational and properly calibrated. The inspector observed that housekeeping within the air sample stations was very good. Proper maintenance and calibration records were maintained for each environmental air sampler. The inspector noted that a very reliable air sampling program was being implemented.

The licensee maintained the necessary equipment and sufficient supplies to perform required sampling activities. All sampling equipment was properly stored in designated storage areas.

c. Conclusions

Sufficient equipment and supplies were available and properly maintained to implement the radiological environmental monitoring program. Environmental air sampling stations were maintained at a high standard of cleanliness and operability.

R2.2 Meteorological Monitoring Equipment

a. Inspection Scope (84750)

The meteorological tower instrumentation was inspected. Instrument calibration procedures and records were reviewed to ensure that the meteorological instrumentation was maintained in accordance with the Final Safety Analysis Report and the guidance contained in Regulatory Guide 1.23.

b. Observations and Findings

Through review of selected calibration records for the meteorological instrumentation, the inspector noted that calibrations were properly performed at the required frequencies. Record review indicated that calibration tolerances for the meteorological instrumentation were within the recommendations of Regulatory Guide 1.23. The inspector toured the meteorological tower. All areas observed were in good operational condition, and housekeeping within these areas was good.

c. Conclusions

Overall, the meteorological monitoring equipment was maintained in excellent operating condition. Calibrations were properly performed at the required frequencies.

R3 Procedures and Documentation

R3.1 Radiological Environmental Monitoring Program Implementing Procedures

a. Inspection Scope (84750)

The inspector reviewed the radiological environmental monitoring program implementing procedures.

b. Observations and Findings

The radiological environmental monitoring program implementing procedures properly described the responsibilities and requirements for the collection and shipment of environmental samples, tracking the shipment of samples, receipt of analyses results, reporting of analyses results, evaluation of analyses results, and performance and recording requirements of the land use census. The procedures contained sufficient detail for personnel to effectively implement the licensee's environmental monitoring program and report the analyses results of the environmental samples collected at the facility. The inspector determined that the requirements contained in the station Technical Specifications and Offsite Dose Calculation Manual were appropriately described in the station procedures.

c. Conclusions

Good environmental monitoring program implementing procedures were maintained.

R4 Staff Knowledge and Performance

a. Inspection Scope (84750)

Selected environmental monitoring program personnel were observed and interviewed to determine their knowledge of the radiological environmental monitoring program sampling and analyses requirements and implementing procedures.

b. Observations and Findings

The inspector observed that personnel collecting air samples used proper sampling and handling practices to ensure sample integrity. The inspector noted that samples collected in the field were properly labeled and documented for sample tracking and accountability purposes.

Through interviews with personnel involved with the collection of environmental media samples, the inspector determined that personnel were very familiar with the requirements of the radiological environmental monitoring program.

c. Conclusions

Proper sampling and handling practices were used for collecting environmental air samples. The knowledge and performance of the radiological environmental monitoring program personnel were very good.

R5 Staff Training and Qualification

a. Inspection Scope (84750)

The training and qualification programs for the personnel implementing the radiological environmental monitoring program were reviewed. A review of qualification cards and qualification standards were performed.

b. Observations and Findings

The inspector verified that the chemistry personnel implementing the radiological environmental monitoring program were properly trained, experienced, and met the qualification requirements for the work they performed. A comprehensive qualification program was established entailing formal course work, level of knowledge interviews, and practical factors.

c. Conclusions

A comprehensive qualification program was established entailing formal course work, level of knowledge interviews, and practical factors.

R6 Organization and Administration

a. Inspection Scope (84750)

The organization, staffing, and assignment of the radiological environmental monitoring program responsibilities were reviewed.

b. Observations and Findings

The organizational structure and staffing qualifications for the radiological environmental monitoring program met Technical Specification requirements. Personnel from the chemistry department were responsible for the collection, shipment, and documentation of radiological environmental samples with the exception of collecting air samples. Air samples were collected by the Instrumentation and Control Department, since they were responsible for calibration and repair of the equipment. Analyses of environmental samples were conducted by an offsite contract laboratory.

Since the last inspection, performed in July of 1997, a new individual assumed the position of Chemistry Manager and was responsible for the overall implementation of the radiological environmental monitoring program.

c. Conclusions

The organizational structure and staffing qualifications for the radiological environmental monitoring program met Technical Specification requirements.

R7.1 Radiological Environmental Monitoring Quality Assurance Program

a. Inspection Scope (84750)

Quality assurance audits and surveillances of the radiological environmental monitoring program were reviewed.

b. Observations and Findings

The inspector reviewed audits, surveillances, and a Chemistry Department self assessment. The inspector noted that all these evaluations were performed by qualified personnel. They were comprehensive and effectively evaluated both the radiological environmental monitoring program and the Chemistry Department. Surveillance findings were properly captured and corrected through use of the corrective action program.

An off-site contract laboratory performed radiological analyses of environmental media samples. The inspector reviewed Audit 97-002, issued in April 1997. The audit was conducted to verify the contract laboratory's ability to perform the radiological analyses of environmental media samples in accordance with the laboratory's quality assurance manual and the facility technical and quality requirements. The audit team determined that overall the contract laboratory adequately implemented the controls of its quality assurance program.

Quality assurance for environmental media analytical results was demonstrated by the contract laboratory participating in the Environmental Protection Agency Interlaboratory Comparison Program. A review of the interlaboratory comparison program results indicated that acceptable results were obtained.

c. Conclusions

Quality assurance audits and surveillances were performed by qualified personnel and were found to be comprehensive and effectively evaluated the radiological environmental monitoring program. Participation in the Environmental Protection Agency Interlaboratory Comparison Program verified the contract laboratory's ability to perform accurate analyses of environmental samples.

R7.2 Condition Reports

a. Inspection Scope (84750)

Selected condition reports were reviewed to evaluate the effectiveness of the licensee's controls in identifying, resolving, and preventing problems in the radiological environmental monitoring and meteorological monitoring programs.

b. Observations and Findings

Condition reports issued in 1997 and 1998 in the areas of radiological environmental monitoring and meteorological monitoring programs indicated that licensee personnel used this reporting system as needed and had a proper threshold for identifying problems. Condition reports were initiated for problems identified during quality assurance audits and the routine implementation of the radiological environmental and meteorological monitoring programs. The condition reporting system was effectively used to track and trend identified problems.

c. Conclusions

Overall, the condition reporting system was effectively used to track and trend identified problems. In general, good evaluations, assessments, and timely corrective actions were performed.

R8 Miscellaneous Radiological Protection and Chemistry Issues

(Closed) Violation 50-285/9816-01: Failure to follow procedural guidance related to waste stream sampling

The inspector verified that the corrective actions described in the licensee's response letter dated August 28, 1998, were implemented. No similar problems were identified.

V. Management Meetings

X1 Exit Meeting Summary

The inspector presented the inspection results to members of licensee management at an exit meeting conducted on September 18, 1998. The licensee acknowledged the findings presented. No proprietary information was identified.

ATTACHMENT

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

J. Chase, Division Manager, Nuclear Assessments
T. Dukarski, Supervisor, Chemistry
M. Frans, Manager, Nuclear Licensing
R. Hamilton, Manager, Chemistry
B. Hansher, Supervisor, Station Licensing
R. Short, Acting Plant Manager
D. Spires, Manager, Quality Assurance/Quality Control
J. Tills, Assistant Plant Manager

NRC

W. Walker, Senior Resident Inspector

INSPECTION PROCEDURE USED

IP 84750 Radioactive Waste Treatment and Effluent and Environmental Monitoring

LIST OF ITEMS OPENED AND CLOSED

Opened

None.

Closed

50-285/9816-01 VIO Failure to follow procedural guidance related to waste stream sampling

LIST OF DOCUMENTS REVIEWED

ORGANIZATION CHARTS

Chemistry Department - September 1998

QUALITY ASSURANCE AUDITS

Audit 97-002 "NUPIC Joint Audit of Teledyne Brown Engineering Environmental Services," April 21-24, 1997

Audit Report No. 63 "Radiological Effluent Program," February 6, 1997

QUALITY ASSURANCE SURVEILLANCES

Report No. B1-98-1 "Radiological Effluent Release Reports," June 26, 1998

Report No. B3-98-1 "Environmental Monitoring," July 8, 1998

PROCEDURES

RP-CP-02-0601 "Calibration of LV-1 or AVS-28A Air Sampler," Revision 2a

CH-ST-RV-0001 "Environmental Sample Collection - Water," Revision 2

CH-ST-RV-0002 "Environmental Sample Collection - Milk," Revision 3

CH-ST-RV-0003 "Environmental Sample Collection - Direct Radiation/Gamma Dose Quarterly Thermoluminescent Dosimeters," Revision 2

CH-ST-RV-0004 "Environmental Sample Collection - Sediment," Revision 1

CH-ST-RV-0005 "Environmental Sample Collection - Fish," Revision 1

CH-ST-RV-0006 "Environmental - Land Use Survey," Revision 3

CH-ST-RV-0007 "Environmental Sample Collection - Vegetables or Food Products," Revision 1

CH-ST-RV-0008 "Environmental Sample Collection - Air Monitoring," Revision 7

CH-ST-RV-0009 "Environmental Sample Collection - Direct Radiation/Gamma Dose During Site Area and General Emergencies or Annual Exchange Thermoluminescent Dosimeters," Revision 1

CH-ST-RV-0010 "Environmental Monthly Progress Report Receipt," Revision 1