

ENCLOSURE

**U.S. NUCLEAR REGULATORY COMMISSION
REGION IV**

Docket No.: 50-298
License No.: DPR 46
Report No.: 50-298/99-15
Licensee: Nebraska Public Power District
Facility: Cooper Nuclear Station
Location: P.O. Box 98
Brownville, Nebraska
Dates: November 15-18, 1999
Inspector: J. Blair Nicholas, Ph.D., Senior Radiation Specialist
Plant Support Branch
Approved By: Gail M. Good, Chief, Plant Support Branch
Division of Reactor Safety

SUMMARY OF FINDINGS

Cooper Nuclear Station
NRC Inspection Report No. 50-298/99-15

This inspection focused on the implementation of the licensee's liquid and gaseous radioactive waste effluents program.

Cornerstone: Public Radiation Safety

- No findings.

Report Details

2 RADIATION SAFETY

2PS1 Gaseous and Liquid Effluent Treatment Program

a. Inspection Scope

The inspector interviewed members of the licensee's chemistry staff responsible for implementing the liquid and gaseous radioactive waste effluent program and the system engineers responsible for maintaining the engineered-safety-related ventilation systems. Additionally, the configuration and material condition of the liquid and gaseous radioactive waste collection and processing equipment and the filter housings for the standby gas treatment system and control room emergency filtration system were inspected. The inspector observed the collection and analysis of airborne particulate and charcoal samples from the elevated release point, radwaste building ventilation, and turbine building ventilation systems. The inspector reviewed the following items:

- Implementing procedures for the liquid and gaseous radioactive waste effluent program as described in the Offsite Dose Assessment Manual
- Eight randomly selected batch radioactive liquid waste effluent release permits for discharges from the floor drain sample and waste sample tanks for the period April 1998 through October 1999
- Randomly selected gaseous waste effluent sample analyses of continuous release samples from the elevated release point, reactor building, augmented radwaste building, and turbine building ventilation systems for the period April 1998 through October 1999
- Compensatory sampling and analyses performed during effluent releases made while effluent radiation monitors were inoperable
- Off-site dose calculation methodologies and the dose results calculated from liquid and gaseous radioactive waste effluents released during the period January 1998 through September 1999
- Calibration and quality control procedures and records for the chemistry counting room gamma analysis instrumentation
- The chemistry laboratory's interlaboratory analysis comparison program performance during 1998 and 1999
- Procedures and records of liquid and gaseous effluent radiation monitor checks and calibrations performed during the period January 1998 through September 1999

- Calculation and installation of effluent radiation monitor alarm set points
- Revisions to the Offsite Dose Assessment Manual involving changes to the liquid and gaseous radioactive waste effluent program
- Records and results of the in-place filter testing of high efficiency particulate filters and charcoal adsorbers for the standby gas treatment system and control room emergency filtration system
- Records and results of the laboratory tests performed on the charcoal adsorber material sampled from the standby gas treatment system and control room emergency filtration system
- 1997 and 1998 Annual Radioactive Effluent Release Reports

b. Observations and Findings

There were no findings identified.

4 **OTHER ACTIVITIES**

4OA1 Identification and Resolution of Problems

a. Inspection Scope (71122.01)

The inspector reviewed the following items:

- Quality assurance audit and surveillance schedules for 1997, 1998, and 1999
- Quality assurance audit and surveillance reports of the liquid and gaseous radioactive waste effluent program activities performed during the period January 1, 1997 through November 15, 1999
- Audit scoping plans ASP-406, "Chemistry" and ASP-412, "Public Radiation Safety"
- Nuclear Procurement Issues Committee audits of the two contractor laboratories used to perform surveillance tests and sample analyses required by the radioactive waste effluent program and the engineered-safety-related ventilation filter systems testing program
- Problem identification reports involving the liquid and gaseous radioactive waste effluent program activities
- Special reports related to the liquid and gaseous radioactive waste effluent program required by the Offsite Dose Assessment Manual

b. Observations and Findings

There were no findings identified.

4OA5 Management Meetings

Exit Meeting Summary

The inspector presented the inspection results to members of licensee management at an exit meeting on November 18, 1999. The licensee acknowledged the findings presented. No proprietary information was identified.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

R. Beilke, Acting Manager, Licensing
D. Kimball, Assistant Manager, Radiation Protection
J. Geyer, Senior Health Physicist, Radiation Protection
G. Grotrian, Auditor, Quality Assurance
K. Fike, Plant Chemist, Chemistry
B. Houston, Manager, Quality Assurance Operations
L. Lockard, Chemistry Supervisor, Chemistry
J. Peters, Licensing
J. Teten, Chemistry Crew Leader, Chemistry
B. Toline, Audit Supervisor, Quality Assurance
J. Warren, Chemistry Specialist, Chemistry
C. Weers, Radiological Support Supervisor, Radiation Protection
R. Weller, Chemistry/Radiation Protection Technician, Chemistry

NRC

J. Clark, Senior Resident Inspector

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

None

Discussed

None

LIST OF DOCUMENTS REVIEWED

QUALITY ASSURANCE AUDITS

Quality Assurance Audit Report 97-11, "Chemistry," performed July 31 through August 14, 1997

Quality Assurance Audit Report 99-04, "Chemistry," performed March 2-16, 1999

QUALITY ASSURANCE SURVEILLANCE

Quality Assurance Surveillance Report S412-9901, "Effluent Treatment Systems," performed October 18-28, 1999

VENDOR AUDITS

NUPIC Audit Number NJ #16367, Thermo Nutech Richmond, California, December 7-9, 1998

NUPIC Audit Number NJ #16358, NCS Corporation, Columbus Ohio, December 8-10, 1998

CHEMISTRY PROCEDURES

- 8.2.1 "Chemistry Analysis and Instrument Calibration Schedule," Revision 23
- 8.2.2 "Instrument Performance Monitoring," Revision 1
- 8.2.4 "Blind and Spiked Sampling," Revision 16
- 8.3 "Control Parameters and Limits," Revision 25
- 8.5.2.1 "Canberra System Operation," Revision 8
- 8.8.8 "Particulate, Iodine, and Noble Gas Sample Collection for Effluent Monitors, Control Building Intake Monitor, and Drywell Air Monitor," Revision 22
- 8.8.11 "Liquid Radioactive Waste Discharge Authorization," Revision 20
- 8.11.1 "Effects Program," Revision 7

SURVEILLANCE PROCEDURES

- 6.HV.101 "Control Room Ventilation," Revision 4
- 6.HV.103 "Control Room Emergency Fan Filter Train Differential Pressure Test," Revision 3
- 6.HV.104 "Control Room Emergency Fan Charcoal and HEPA Filter Leak Test, Fan Capacity Test, and Charcoal Sampling," Revision 4
- 6.HV.301 "Turbine Building Ventilation Flow Monitor Channel Calibration," Revision 3
- 6.HV.302 "Reactor Building Ventilation Flow Monitor Channel Calibration," Revision 3
- 6.HV.304 "Radwaste Building Ventilation Flow Monitor Channel Calibration," Revision 3
- 6.HV.701 "Turbine Building Ventilation Flow Monitor Channel Functional Test," Revision 0
- 6.HV.702 "Reactor Building Ventilation Flow Monitor Channel Functional Test," Revision 0
- 6.HV.704 "Radwaste Building Ventilation Flow Monitor Channel Functional Test," Revision 0

6.OG.303	"Off-Gas Flow Monitor Calibration," Revision 1
6.PRM.301	"Off-Gas Radiation Monitor Source Check Test," Revision 3
6.PRM.302	"Off-Gas Radiation Monitor Linearity Test and Efficiency Determination," Revision 2
6.PRM.303	"SW Radiation Monitor Source Check," Revision 2
6.PRM.304	"SW Radiation Monitor Source Check and Functional Test," Revision 3
6.PRM.305	"SW Radiation Monitor Calibration Check and Instrument Channel Test," Revision 4
6.PRM.306	"Liquid Radwaste Effluent Flow Monitor Channel Calibration," Revision 2
6.PRM.307	"Liquid Radwaste Effluent System Channel Calibration and Channel Functional Test," Revision 3
6.PRM.308	"Liquid Radwaste Effluent System Channel Calibration," Revision 3
6.PRM.309	"ERP Kaman Monitor Channel Functional Test," Revision 3
6.PRM.310	"ERP Kaman Monitor Channel Calibration," Revision 9
6.PRM.312	"Reactor Building Kaman Monitor Channel Functional Test," Revision 3
6.PRM.313	"Reactor Building Kaman Monitor Channel Calibration," Revision 3
6.PRM.314	"Turbine Building Kaman Monitor Channel Functional Test," Revision 3
6.PRM.315	"Turbine Building Kaman Monitor Channel Calibration," Revision 6
6.PRM.319	"RW/ARW Kaman Monitor Channel Functional Test," Revision 3
6.PRM.320	"Radwaste Building Kaman Monitor Channel Calibration," Revision 6
6.PRM.706	"Liquid Radwaste Effluent Flow Monitor Channel Functional Test," Revision 2
6.1PRM.304	"Reactor Building Ventilation Radiation Monitor Channel Calibration and Functional Test/Source Check," Revision 5
6.1PRM.305	"Off-Gas Radiation Monitor Channel Calibration and Functional Test," Revision 2
6.1PRM.306	"Off-Gas Radiation Monitor Channel Functional Test," Revision 4
6.1PRM.311	"Reactor Building Ventilation Radiation Monitor Source Check," Revision 2
6.2PRM.304	"Reactor Building Ventilation Radiation Monitor Channel Calibration and Functional Test/Source Check," Revision 5
6.2PRM.305	"Off-Gas Radiation Monitor Channel Calibration and Functional Test," Revision 2

- 6.2PRM.306 "Off-Gas Radiation Monitor Channel Functional Test," Revision 5
- 6.2PRM.311 "Reactor Building Ventilation Radiation Monitor Source Check," Revision 2
- 6.1OG.301 "Augmented Off-Gas Hydrogen Monitor Channel Calibration and Functional Test," Revision 5
- 6.1SGT.101 "A SGT Filter Differential Pressure, Heater Output, and Fan Motor Running Current Test," Revision 2
- 6.1SGT.301 "SGT Operability Test/Off Gas Flow Monitor Channel Functional Test," Revision 5
- 6.1SGT.501 "In-Place Leak Tests of the SGT A Charcoal Adsorber, HEPA Filters, and Components," Revision 4
- 6.1SGT.601 "SGT-A Charcoal Filter Carbon Analysis - Methyl Iodide," Revision 3
- 6.1SJA.301 "Steam Jet Air Ejector Flow Monitor Channel Calibration and Channel Functional Test," Revision 4
- 6.2OG.301 "Augmented Off-Gas Hydrogen Monitor Channel Calibration and Functional Test," Revision 5
- 6.2SGT.101 "B SGT Filter Differential Pressure, Heater Output, and Fan Motor Running Current Test," Revision 2
- 6.2SGT.301 "SGT Operability Test/Off Gas Flow Monitor Channel Functional Test," Revision 5
- 6.2SGT.501 "In-Place Leak Tests of the SGT B Charcoal Adsorber, HEPA Filters, and Components," Revision 4
- 6.2SGT.601 "SGT-B Charcoal Filter Carbon Analysis - Methyl Iodide," Revision 3
- 6.2SJA.301 "Steam Jet Air Ejector Flow Monitor Channel Calibration and Channel Functional Test," Revision 4

ANNUAL REPORTS

Annual Radioactive Effluent Release Reports - 1997 and 1998

MISCELLANEOUS DOCUMENTS

Offsite Dose Assessment Manual, dated August 26, 1999

Selected Problem Identification Reports

Special Reports