UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064

November 19, 2001

EA-01-295

David L. Wilson, Vice President of
Nuclear Energy
Nebraska Public Power District
P.O. Box 98
Brownville, Nebraska 68321

SUBJECT: COOPER NUCLEAR STATION - NRC INSPECTION REPORT 50-298/01-06

Dear Mr. Wilson:

On October 6, 2001, the NRC completed an inspection at your Cooper Nuclear Station. The enclosed report documents the inspection findings which were discussed with you and other members of your staff on July 12, July 13, August 23, and October 4, 2001.

This inspection examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection covered selected examination of procedures and representative records, observations of activities, and interviews with personnel.

Since September 11, 2001, Cooper Nuclear Station has assumed a heightened level of security based on a series of threat advisories issued by the NRC. Although the NRC is not aware of any specific threat against nuclear facilities, the heightened level of security was recommended for all nuclear power plants and is being maintained due to the uncertainty about the possibility of additional terrorist attacks. The steps recommended by the NRC include increased patrols, augmented security forces and capabilities, additional security posts, heightened coordination with local law enforcement and military authorities, and limited access of personnel and vehicles to the site.

The NRC continues to interact with the Intelligence Community and to communicate information to Nebraska Public Power District. In addition, the NRC has monitored maintenance and other activities which could relate to the site's security posture.

Based on the results of this inspection, the NRC has identified three findings of very low safety significance (Green). These findings were determined to involve violations of NRC requirements. Because the violations were of very low safety significance, and because they were entered into your corrective action program, the NRC is treating the findings as noncited violations, in accordance with Section VI.A of the NRC's Enforcement Policy. If you contest these violations, you should provide a response with the basis for your denial within 30 days of the date of this inspection report, to the U.S. Nuclear Regulatory Commission, ATTN:

Document Control Desk, Washington, DC 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Cooper Nuclear Station facility.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response will be made available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/NRC/ADAMS/index.html (the Public Electronic Reading Room).

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

/RA/

Kriss M. Kennedy, Chief
Project Branch C
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Docket: 50-298
License: DPR-46

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NRC Inspection Report
50-298/01-06

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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket:	50-298
License:	DPR 46
Report:	50-298/01-06
Licensee:	Nebraska Public Power District
Facility:	Cooper Nuclear Station
Location:	P.O. Box 98 Brownville, Nebraska
Dates:	July 8 through October 6, 2001
Inspectors:	J. Clark, Senior Resident Inspector M. Hay, Resident Inspector J. Kramer, Resident Inspector, San Onofre J. Nicholas, Senior Health Physicist L. Ricketson, Senior Health Physicist J. Dodson, Health Physicist
Approved by:	K. Kennedy, Chief, Project Branch C Division of Reactor Projects

SUMMARY OF FINDINGS

Cooper Nuclear Station
NRC Inspection Report 50-298/01-06

IR 05000298-01-06; 07/08/2001-10/06/2001; Nebraska Public Power District; Cooper Nuclear Station. Integrated Resident/Regional Report; Equipment Alignment, Maintenance Rule Implementation, Radioactive Material Processing and Transportation.

The inspection was conducted by resident inspectors and Regional specialists. The inspection identified three Green findings, all of which are noncited violations. The significance of the issues are indicated by their color (Green, White, Yellow, Red) and were determined by the Significance Determination Process in Inspection Manual Chapter 0609.

Cornerstone: Mitigating Systems

- Green. The licensee failed to demonstrate that performance of radwaste primary containment isolation valves was being effectively controlled through the performance of appropriate preventive maintenance in that repetitive failures of the valves occurred that were not prevented by preventive or corrective maintenance. This was determined to be a violation of 10 CFR 50.65 (a)(2). This violation is being treated as a noncited violation consistent with Section VI.A of the NRC Enforcement Policy. This issue has been entered into the licensee's corrective action program as Notification 10095968.

  This issue was determined to have a credible impact on safety because the failure of these valves to operate properly affected the ability to isolate primary containment. This noncited violation was characterized under the significance determination process as having very low safety significance because there was no occurrence in which the inboard and outboard primary containment isolation valves failed concurrently. Therefore, no actual open pathway affecting the physical integrity of the primary containment was present (Section 1R12.1).

Cornerstone: Initiating Event

- Green. The licensee's Technical Specification Bases Control program failed to contain provisions to ensure that the Technical Specification Bases were maintained consistent with the Updated Final Safety Analysis Report with respect to the offsite power sources supplying power to the essential switchgear. The licensee documented this issue in their corrective action process as Notification 10110178.

  This issue was considered to have an actual impact on safety, in that part of the safety functions of both off-site power sources was impacted. The issue was evaluated by the inspectors, through discussion with a senior reactor analyst, to be of very low risk significance. All events resulting in the abnormal electrical distribution configuration lasted less than 12 hours, and the critical busses remained energized without the need for emergency power (Section 1R04.1).

Cornerstone: Public Radiation Safety

- Green. On August 21, 2001, the inspector identified that the licensee had incorrect shipping manifests and had under reported isotopic and total shipment radioactivity. The licensee had utilized nonconservative 3-year average waste stream analysis scaling factors for each waste stream to classify all radioactive waste shipments. Various isotopic scaling factors were low by a factor of between 10 and 100. The failure to properly classify and manifest radioactive waste shipments in 1999, 2000, and 2001 was a violation of 10 CFR Part 20, Appendix G. This violation is being treated as a noncited violation consistent with Section VI.A.1 of the NRC Enforcement Policy. This violation is in the licensee's corrective action program as Notification 10106415.

  The safety significance of this violation was determined to be very low by the Public Radiation Safety Significance Determination Process because radiation limits were not exceeded, and there was no breach of package during transit, certificate of compliance problem, low level burial ground access problem, or failure to make notifications or provide emergency information. The violation was more than minor because there was a credible impact on safety due to incorrect shipping manifests and underreported isotopic and shipment activities, and the issue involved an occurrence in the licensee's radioactive material transportation program (Section 2PS2).

Report Details

The plant operated at 100 percent power from July 8 through August 2, 2001. On August 3, 2001, operators reduced power to approximately 75 percent for repairs to a valve located in the steam tunnel. On August 4, 2001, operators restored power to 100 percent. On August 6, 2001, operators reduced power to 75 percent to address high drywell temperature concerns. Operators restored power to 100 percent on August 8, 2001. On September 7, 2001, operators reduced power to approximately 67 percent power following a trip of a reactor recirculation pump. On September 8, 2001, operators returned the plant to 100 percent reactor power.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness

1R04 Equipment Alignments

.1 Equipment Alignment of the Offsite Power Distribution System

a. Inspection Scope

The inspectors performed a partial equipment alignment inspection of the offsite power distribution system supplying power to the 4160 volt essential switchgear. The ability of the offsite power sources to supply power to the essential buses was assessed by reviewing the design requirements contained in the Updated Safety Analysis Report, design drawings, system operating procedures, and surveillance tests.

b. Findings

The inspectors determined that the licensee failed to ensure that the Technical Specification Bases were maintained consistent with the Updated Final Safety Analysis Report with respect to offsite power supplying power to the critical 4160 volt buses. This item was discussed in NRC Inspection Report 50-298/00-15 and was characterized as the third example of an unresolved item pending further NRC review.

Technical Specification 3.8.1, “AC Sources,” states, in part, that, in Operating Modes 1, 2, and 3, two qualified circuits between the offsite transmission network and the onsite 1E electrical power distribution system shall be operable.

Cooper Nuclear Station Updated Safety Analysis Report Volume IV, Section 8, “Electrical Power Systems,” states, in part, that, “If the normal station service transformer (powered by the main generator) is lost, the startup station service transformer, which is normally energized, will automatically energize the 4160 volt buses 1A and 1B as well as their connected loads, including the critical buses. If the startup station service transformer fails to energize the critical buses, the emergency station service transformer, which is normally energized, will automatically energize both critical buses.”

Technical Specification Bases, Section B3.8.1, “AC Sources,” states in part, that “Each offsite circuit must be capable of maintaining rated frequency and voltage and accepting

required loads during an accident, while connected to a critical bus. Each offsite circuit consists of incoming disconnect to respective startup station service transformer or emergency station service transformer, respective transformers, and the respective circuit path, including feeder breakers to one of two 4160 volt critical buses. (One offsite circuit must be capable of providing power to one 4160 volt critical bus and the other offsite circuit must be capable of providing power to the other 4160 volt critical bus.)

The inspectors determined that the Technical Specification Bases were not consistent with the Updated Final Safety Analysis Report. The bases described an operable offsite circuit consisting of each offsite circuit supplying power to one critical bus, not both, as described in the Updated Final Safety Analysis Report. The inspectors noted that on multiple occasions the licensee had placed the plant in a configuration where one offsite circuit was only capable of supplying power to one critical bus. During these occasions, the licensee inappropriately determined that operability of the offsite power sources was not affected and, therefore, did not enter any Technical Specification Limiting Condition of Operation.

Technical Specification 5.5.10(c) states "The Bases Control Program shall contain provisions to ensure that the Bases are maintained consistent with the Updated Final Safety Analysis Report." The failure of the Bases Control Program to contain provisions to ensure that the Technical Specification Bases are maintained consistent with the Updated Final Safety Analysis Report is a violation of Technical Specification 5.5.10(c). This violation is being treated as a noncited violation (50-298/0106-01) consistent with Section VI.A of the NRC Enforcement Policy. The licensee documented this issue in their corrective action process as Notification 10110178.

This issue was considered to have an actual impact on safety, in that part of the safety functions of both off-site power sources was impacted. However, all events resulting in the abnormal electrical distribution configuration lasted less than 12 hours (less than the Technical Specification allowed outage time) and the critical busses remained energized without the need for emergency power.

.2 Equipment Alignment of Service Water and High Pressure Coolant Injection Systems

a. Inspection Scope

The inspectors performed partial equipment alignment inspections on the service water and high pressure coolant injection systems. The inspectors verified that the systems were properly aligned and capable of performing their design functions as described in the Updated Final Safety Analysis Report. They reviewed system operating procedures, surveillance procedures, and design documents to assess that these systems were properly operated and maintained.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

The inspectors reviewed the following areas throughout the inspection period to determine if the licensee had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant, effectively maintained fire detection and suppression capabilities, and maintained passive fire protection features in good material condition.

The following areas were inspected:

- High pressure coolant injection room
- Diesel generator rooms
- Reactor building refuel floor
- Main control room

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification

.1 Quarterly Simulator Training Reviews

a. Inspection Scope

On August 22, 2001, the inspectors observed licensed operator simulator training. The simulator training evaluated the operators' ability to recognize, diagnose, and respond to a containment spray pressure switch anomaly, rupture of variable leg 2A, and failure of the reactor to scram. The inspectors observed and evaluated the following areas:

- formality of communication
- prioritizing, interpreting, and verification of alarms
- procedure implementation
- control board operation and manipulation of controls
- oversight and direction provided by the shift supervisor
- the crew’s and evaluator’s critiques

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation

.1 Failure to Monitor the Performance of Maintenance Rule Components

a. Inspection Scope

As described in NRC Inspection Report 50-298/01-02, Section 1R12.1, the inspectors determined that a potential violation of 10 CFR 50.65(a)(2) occurred based on a failure of the licensee to adequately monitor the performance or condition of the radwaste primary containment isolation valves. This issue was characterized as an unresolved item (50-298/0102-03) pending the outcome of the licensee's maintenance rule expert panel review of these functional failures. The inspectors reviewed the minutes of the maintenance rule expert panel meeting conducted on September 25, 2001.

b. Findings

As previously described in NRC Inspection Report 50-298/01-02, the inspectors noted that, since 1999, five problem identification reports were written addressing failures of primary containment isolation Valves RW-AOV-AO82, -83, -94, and -95 to pass their surveillance tests. Specifically, the valves failed to operate properly during the tests due to the degradation of lubricant used in the solenoid-operated valves. These conditions were described in Problem Identification Reports 4-11514, 4-03815, 4-10252, 4-14120, and 4-11515. The inspectors found that the licensee had not evaluated the operability of these valves following the failed surveillance tests (NCV 50-298/0102-01) and that the failures were not captured in the licensee's Maintenance Rule database. The licensee agreed that these failures were not properly assessed by their maintenance rule program and entered the condition into the corrective action process as Notification 10095968. The failure of the licensee to assess the results of these surveillance tests in their maintenance rule program was determined to be an unresolved issue pending the review of these valve failures by the licensee's expert panel.

During the September 2001 expert panel meeting, the licensee determined that the isolation function of these valves was not being effectively controlled through the performance of appropriate preventive maintenance such that the valves were capable of performing their intended function. The licensee determined that these valve failures were both maintenance preventable and repeat failures. As a result, the licensee placed these valves under 10 CFR 50.65(a)(1) for establishing goals and monitoring against the goals.

10 CFR 50.65(a)(1) requires, in part, that holders of an operating license shall monitor the performance or condition of structures, systems, or components (SSCs) within the scope of the monitoring program as defined in 10 CFR 50.65(b) against licensee-established goals in a manner sufficient to provide reasonable assurance that such SSCs are capable of fulfilling their intended functions.

10 CFR 50.65 (a)(2) states, in part, that monitoring as specified in 10 CFR 50.65 (a)(1) is not required where it has been demonstrated that the performance or condition of an

SSC is being effectively controlled through the performance of appropriate preventive maintenance, such that the SSC remains capable of performing its intended function.

Contrary to the above, from January 9 through May 8, 2001, when the condition was identified by the inspectors, the licensee failed to demonstrate that performance of the radwaste primary containment isolation valves was being effectively controlled through the performance of appropriate preventive maintenance in that repetitive failures of the valves occurred that were not prevented by preventive or corrective maintenance. Following these failures, the licensee failed to consider placing the radwaste primary containment isolation valves under 10 CFR 50.65(a)(1) for establishing goals and monitoring against the goals. This violation is being treated as a noncited violation (50-298/0106-02) (EA-01-295) consistent with Section VI.A of the NRC Enforcement Policy. This issue has been entered into the licensee's corrective action program as Notification 10095968.

This issue was determined to have a credible impact on safety because the failure of these valves to operate properly affected the ability to isolate primary containment. This noncited violation was characterized under the significance determination process as having very low safety significance because there was no occurrence in which the inboard and outboard primary containment isolation valves failed concurrently. Therefore, no actual open pathway affecting the physical integrity of the primary containment was present.

.2 Periodic Evaluation of Maintenance Rule Implementation

a. Inspection Scope

During the inspection period, the inspectors reviewed licensee implementation of the maintenance rule. The inspectors verified SSC scoping, characterization, safety significance, performance criteria, and the appropriateness of goals and corrective actions. The inspectors assessed the licensee's implementation of the Maintenance Rule to the requirements outlined in 10 CFR 50.65, Administrative Procedure 0.27, "Maintenance Rule Program," Revision 11, and Regulatory Guide 1.160, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," Revision 2. The inspectors reviewed the following components and/or systems that displayed performance problems:

- Offsite power distribution system
- Reactor Core Isolation Cooling Valve RCIC-MO-MOV20
- Service Water Pump D
- Service Water Booster Pump D

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors reviewed the licensee's risk assessment for equipment outages as a result of planned and emergent activities. The inspectors compared the licensee's risk assessment and risk management activities to the requirements of 10 CFR 50.65(a)(4) and the recommendations of NUMARC 93-01, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," Revision 2. The inspectors also discussed the planned and emergent work activities with planning and maintenance personnel. The inspectors reviewed the following risk evaluations:

- July 25, 2001, high pressure coolant injection system declared inoperable following surveillance testing
- July 31, 2001, reactor coolant isolation cooling system declared inoperable following failure of Valve RCIC-MOV-MO20
- August 28, 2001, maintenance activities associated with Division 1, 4160 volt, essential breakers
- September 7, 2001, loss of station startup transformer
- September 11, 2001, Division 1 diesel generator declared inoperable due to loose bolts found on heat exchanger

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the technical adequacy of several operability evaluations to verify that they were sufficient to justify continued operation of a system or component. The inspectors verified that, although equipment was degraded, the operability evaluation provided adequate justification that the equipment could still meet its Technical Specification, Updated Final Safety Analysis Report, and design bases requirements and that any potential risk increase contributed by the degraded equipment was thoroughly evaluated. The following evaluations were evaluated:

- Operability evaluation for buffer block cracks in 4160 volt breakers (Notification 10102398)
- Operability evaluation for seal leak on Service Water Booster Pump C (Notification 10104987)

- Operability evaluation for plant electrical loads not accurately modeled on the station startup transformer (Notification 10099826)

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications

a. Inspection Scope

The inspectors reviewed the modification package associated with the replacement of solenoid operated control valves and accumulators for radwaste Valves RW-AOV-AO82, -83, -94, and -95. Since a like-for-like replacement could not be performed, the inspectors reviewed the licensee's evaluation to verify that the design requirements of the system were not impacted. The following documents were reviewed to perform this assessment:

- Change Evaluation Document 4163326
- Engineering Procedure 3.4, "Configuration Change Control," Revision 31
- Updated Final Safety Analysis Report

b. Findings

No findings of significance were identified.

1R19 Postmaintenance Testing

a. Inspection Scope

The inspectors verified that postmaintenance tests were adequate to verify system operability and functional capabilities. The inspectors verified that testing met design and licensing bases requirements, Technical Specifications, the Updated Final Safety Analysis Report, the inservice test program, and licensee administrative procedures. The inspectors reviewed the testing results for the following components:

- High Pressure Cooling Injection Flow Transmitter HPCI-FT-82, on July 24, 2001
- Service Water Booster Pump C repairs, Work Order 4160113
- 4160 volt essential Breakers 1AF and 1fA, Work Orders 4179406 and 4157811
- Reactor Core Isolation Cooling Valve RCIC-MO-MO21, Work Order 4190266

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors observed or reviewed the following surveillance tests to ensure the systems were capable of performing their safety function and to assess their operational readiness. Specifically, the inspectors verified that the following surveillance tests met Technical Specifications, the Updated Final Safety Analysis Report, and licensee procedural requirements:

- Surveillance Procedure 6.HPCI.314, "High Pressure Coolant Injection Pump Discharge Flow Indication Calibration," Revision 7
- Surveillance Procedure 6.MISC.501, "ECCS Leakage Walkdown," Revision 4, Attachments 3 and 4
- Surveillance Procedure 6.2RHR.101, "RHR Test Mode Surveillance Operation (IST) (DIV 2)," Revision 11

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed the temporary modification package associated with the installation of a voltage recorder to monitor the 125 volt dc supply voltage to the high pressure coolant injection 125 volt dc transfer switch. The inspectors reviewed the licensee's evaluation to verify that the design requirements of the system were not impacted. The following documents were reviewed to perform this assessment:

- Change Evaluation Document 2000-0128
- Administrative Procedure 0.8, "10 CFR 50.59 Reviews," Revision 6
- Engineering Procedure 3.4, "Configuration Change Control," Revision 31
- Engineering Procedure 3.4.8, "Design Verification," Revision 10
- Updated Final Safety Analysis Report

b. Findings

No findings of significance were identified.

1EP1 Exercise Evaluation

a. Inspection Scope

On September 11, 2001, the inspectors observed the licensee perform an emergency preparedness exercise. During the exercise the inspectors assessed the licensee's performance related to classification, notification, and protective action recommendations. Following the exercise, the inspectors reviewed the licensee's critique to determine if issues were appropriately identified and documented. The following documents were reviewed in this inspection:

- Emergency Plan for Cooper Nuclear Station
- Emergency Plan Implementing Procedures for Cooper Nuclear Station
- Cooper Nuclear Station emergency preparedness exercise scenario for September 11, 2001

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstones: Occupational Radiation Safety, Public Radiation Safety

2OS3 Radiation Monitoring Instrumentation (71121.03)

a. Inspection Scope

The inspectors interviewed cognizant licensee personnel and compared the following items to regulatory requirements:

- Calibration, operability, and alarm setpoint, when applicable, of selected portable radiation detection instrumentation, continuous air monitors, whole-body counting equipment, electronic alarming dosimeters, personnel contamination monitors, area radiation monitors, and control room emergency filtration system radiation monitor
- Calibration expiration and source response check currency on radiation detection instruments staged for use
- The status and surveillance records of self-contained breathing apparatuses staged and ready for use in the plant
- The licensee's capability for refilling and transporting self-contained breathing apparatus air bottles to and from the control room and operations support center during emergency conditions

- Control room operator and emergency response personnel training and qualifications for use of self-contained breathing apparatus
- Licensee audit (Audit Report 01-03, “Radiological Controls and Chemistry”)
- Selected corrective action documents (4-10298, 4-10299, 4-10300, 4-10658, 4-13187, 4-11438, and 4-14271) that involved radiation monitoring instrument deficiencies or self-contained breathing apparatuses since the last inspection in this area

b. Findings

No findings of significance were identified.

2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems (71122.01)

a. Inspection Scope

The inspectors interviewed cognizant personnel and walked down the major components of the gaseous and liquid release systems to observe ongoing activities, equipment material condition, and system configuration, as compared to the description in the Updated Final Safety Analysis Report. The following items were reviewed and compared with regulatory requirements to determine whether the licensee maintained adequate radioactive gaseous and liquid waste processing systems for the proper mitigation and monitoring of effluent releases.

- 1999 and 2000 Radiological Effluent Release Reports
- Anomalous results, if any, reported in the Radiological Effluent Release Reports
- Effluent radiological occurrence performance indicator incidents (none reported)
- Changes to the Offsite Dose Assessment Manual (dated April 22 and August 26, 1999, August 7, 2000, and February 22 and March 26, 2001)
- The 13 radioactive liquid effluent release permits and associated projected and cumulative doses to members of the public performed during the time period January 1 through March 31, 2000 (No batch radioactive waste liquid releases had been made since March 2000.)
- Sample collection and analysis of the elevated release point and the augmented radwaste building vent for continuous gaseous effluent release reporting
- Selected weekly radioactive continuous waste gas release data for the time period January 1, 2000, through June 30, 2001, from the elevated release point,

reactor building vent, augmented radwaste building vent, turbine building vent, and the multipurpose facility building vent and the associated projected and cumulative doses to members of the public

- Compensatory sampling and radiological analyses conducted when effluent radiation monitors were declared out of service

- Monthly, quarterly, and annual radioactive liquid and gaseous waste dose calculation results

- Engineered safety feature air cleaning system surveillance test results for the control room emergency filtration system and the standby gas treatment system for the time period January 1, 2000, through June 30, 2001 (6.HV.104, "Control Room Emergency Fan Charcoal and HEPA Filter Leak Test, Fan Capacity Test, and Charcoal Sampling," performed 6/20/00 and 7/20/99 and 6.1(2)SGT.601, "SGT A(B) Charcoal Filter Carbon Analysis-Methyl Iodide," performed 3/20/00 and 10/8/98)

- Records of channel calibrations, checks, and operational tests performed since the last inspection (November 1999) for the following discharge effluent radiation monitors and flow measurement devices (liquid radwaste effluent line, service water system effluent line, reactor building ventilation monitoring system, elevated release point monitoring system, and radwaste building ventilation monitoring system)

- Effluent radiation monitor alarm setpoint values

- Calibration and quality control records of counting room instrumentation associated with effluent monitoring and release activities (multichannel analyzer system, liquid scintillation system, and gross beta counting system)

- Self-Assessment SA-01027 of the radioactive effluent treatment and monitoring systems conducted June 25-28, 2001, and two vendor audits (NUPIC Joint Audit #16367 of Thermo Nutech conducted December 7-9, 1998, and NUPIC Joint Audit #17440 of NCS conducted November 28 through December 1, 2000) (No licensee audits of the radioactive waste effluent program were performed during the time period January 1, 2000, through June 30, 2001. An audit of the Offsite Dose Assessment Manual and radiological effluent and environmental monitoring programs is scheduled for September 2001.)

- Selected Problem Identification Reports and Notifications related to the radioactive waste effluent treatment and monitoring program (PIRs 4-14116, 4-13805, and 4-09350 and Notifications 0010075811, 0010078183, 0010081863, 0010087450, 10074341, and 10095254)

b. Findings

No findings of significance were identified.

2PS2 Radioactive Material Processing and Transportation (71122.02)

a. Inspection Scope

The inspectors interviewed licensee personnel, walked down liquid and solid radioactive waste processing systems, and reviewed program documentation to determine if the licensee is meeting the objective of this cornerstone which is to ensure adequate protection of public health and safety from exposure to radioactive material released into the public domain from routine operations. The following items were reviewed and compared with regulatory requirements:

- Radioactive material processing and shipping procedures
- The status of radioactive waste process equipment that was not operational and/or abandoned in place
- Changes made to the radioactive waste processing systems since the last inspection in August 1999
- Waste stream mixing and/or sampling procedures, methodology for waste concentration averaging, and waste classification procedures
- Radiochemical sample analysis results for each of the radioactive waste streams
- The use of scaling factors and calculations used to account for difficult to measure radionuclides
- Changes in waste stream composition due to changing operational parameters and analysis updates
- Shipment packaging, surveying, labeling, marking, placarding, vehicle checks, emergency instructions, disposal manifest, shipping papers provided to the driver, and licensee verification of shipments
- Transport cask certificates of compliance and cask loading and closure procedures
- Transferee's licenses and state/DOT permits
- Conduct of radioactive waste processing and radioactive material shipment preparation activities
- Training program for the conduct of radioactive waste/material processing, packaging, and shipping activities
- Ten nonaccepted package shipment records (99-8, 00-01, 00-02, 00-2J, 00-06, 00-08, 01-02, 01-04, 01-08, and 01-08C)

- Licensee event reports, special reports, audits (S412-0001), surveillances (SS-99-034), and self-assessments related to the radioactive material and transportation programs performed since the last inspection in August 1999

- Ten problem identification reports (4-11388, 4-11390, 4-11464, 4-11465, 4-11569, 4-11571, 4-11609, 4-11610, 4-11611 and 4-11681) written against the radioactive material and shipping programs since the previous inspection in August 1999

b. Findings

Waste Classification

A noncited violation with very low safety significance (Green) was identified for failure to properly classify and manifest radioactive waste shipments in 1999, 2000, and 2001. On August 21, 2001, the inspectors identified that the licensee had incorrect shipping manifests and had underreported isotopic and total shipment radioactivity. The licensee had utilized nonconservative 3-year average waste stream analysis scaling factors for each waste stream to classify all radioactive waste shipments. Various isotopic scaling factors were low by a factor of between 10 and 100. The licensee confirmed that all radioactive waste shipments made during the inspection period (August 1999 through August 21, 2001) were affected.

The safety significance of this violation was determined to be very low by the Public Radiation Safety Significance Determination Process because radiation limits were not exceeded, and there was no breach of package during transit, certificate of compliance problem, low level burial ground access problem, or failure to make notifications or provide emergency information. The violation was more than minor because there was a credible impact on safety due to incorrect shipping manifests and underreported isotopic and shipment radioactivity, and the issue involved an occurrence in the licensee's radioactive material transportation program.

10 CFR Part 20, Appendix G, III.A.1, requires that any licensee who transfers radioactive waste to a land disposal facility or a licensed waste collector shall prepare all wastes so that the waste is classified in accordance with 10 CFR 61.55. 10 CFR 61.55 (a)(8) requires that the concentration of a radionuclide may be determined by indirect methods such as use of scaling factors which relate the inferred concentration of one radionuclide to another that is measured, if there is reasonable assurance that the indirect methods can be correlated with actual measurements. Part 20 of 10 CFR, Appendix G, I.C.10, requires that the shipper of the radioactive waste provide the following information on the uniform manifest: the identities and activities of individual radionuclides in each container.

Because the licensee utilized 3-year rolling averages for scaling factors which were low by a factor of between 10 and 100 (year-to-year), reasonable assurance was not provided that the indirect method of identifying radionuclides in each waste stream was valid. Therefore, the use of nonconservative 3-year rolling average scaling factors in the waste classification and manifests for Radioactive Waste Shipments in 1999, 2000, and

2001 was a violation of 10 CFR Part 20, Appendix G. This violation is being treated as a noncited violation consistent with Section VI.A.1 of the NRC Enforcement Policy. This violation is in the licensee's corrective action program as Notification 10106415 (50-298/0106-03).

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification

Inspection Scope

The inspectors reviewed logs, notifications, and plant records to verify the accuracy of reported data for the following indicators:

- Unplanned power changes
- Reactor coolant specific activity
- Reactor coolant system leakage
- Unplanned scrams
- Scrams with loss of normal heat removal

b. Findings

No findings of significance were identified.

4OA6 Meetings

.1 Exit Meeting Summary

The inspectors presented the Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems inspection results to Mr. R. Gardner, Senior Manager, Quality Assurance, and other members of licensee management at the conclusion of the inspection on July 12, 2001. The licensee acknowledged the findings presented.

The inspectors presented the Radiation Monitoring Instrumentation inspection results to Mr. M. Boyce, Senior Manager, Technical Services, and other members of licensee management at the conclusion of the inspection on July 13, 2001. The licensee acknowledged the findings presented.

The inspectors presented the Radioactive Material Processing and Transportation inspection results to Mr. M. Boyce, Senior Manager, Technical Services, and other members of licensee management at an exit meeting on August 23, 2001. The licensee acknowledged the findings presented.

On October 4, 2001, the results of the inspection were discussed with Mr. Dave Wilson, Vice President-Nuclear. Cooper management acknowledged the findings presented. Additionally, the inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information is discussed in this inspection report.

4OA7 Licensee Identified Violations

The following findings of very low safety significance were identified by the licensee and are violations of NRC requirements and meet the criteria of Section VI.A of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as a noncited violation (NCV).

If you deny any of the noncited violations, you should provide a response with the basis for you denial, within 30 days of the date of this inspection report, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region IV; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Cooper Nuclear Station.

NCV Tracking Number	Requirement Licensee Failed to Meet
50-298/0106-04	Cooper Nuclear Station License DPR-46, Section 2.C.1, states "The licensee is authorized to operate the facility at steady state reactor core power levels not in excess of 2381 megawatts (thermal)." From 12 p.m. through 8:55 p.m., on August 25, 2001, the licensee averaged between 2381 and 2384 megawatts thermal, due to a mispositioned reactor water cleanup filter bypass valve. This is being treated as a noncited violation. The licensee entered the issue into the corrective actions process as Notification 10106705.
50-298/0106-05	Technical Specification 5.4.1(a) requires that the licensee establish, implement, and maintain written procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Appendix A recommends procedures for performing maintenance. On September 11, 2001, the licensee identified that 7 out of 12 bolts were loose on the Division 1 diesel generator jacket water heat exchanger. The licensee's root cause evaluation determined the failure to establish an adequate maintenance procedure resulted in the condition. This is being treated as a noncited violation. The licensee entered this issue into the corrective action process as Resolve Condition Report 2001-0868.
50-298/0106-06	49 CFR 173.28(c)(2) states, in part, that reconditioning of a nonbulk packaging is restoring the packaging by repair or replacement of components to a condition such that it conforms in

all respects with the requirements of this subchapter. On September 8, 2000, the licensee identified that radioactive waste and material shipping containers were defective and repaired by radiation protection without procedural, material, or quality guidance. This event is described in the licensee's corrective action program, reference Problem Identification Report 4-11390. This is being treated as a noncited violation.

The safety significance of this violation was determined to be very low by the Public Radiation Safety Significance Determination Process because radiation limits were not exceeded, and there was no breach of package during transit, certificate of compliance problem, low level burial ground access problem, or failure to make notifications or provide emergency information.

50-298/0106-07

10 CFR 71.12(c)(2) states, in part, that the general license applies to a licensee who complies with the terms and conditions of the license, certificate, or other approval as applicable. On September 21, 2000, the licensee identified that decay heat calculations were not being performed as required by the certificate of compliance for Type B packages. This event is described in the licensee's corrective action program, reference Problem Identification Report 4-11571. This is being treated as a noncited violation.

The safety significance of this violation was determined to be very low by the Public Radiation Safety Significance Determination Process because radiation limits were not exceeded, and there was no breach of package during transit, low level burial ground access problem, or failure to make notifications or provide emergency information.

50-298/0106-08

Technical Specification 5.4.1.a requires that procedures be established, implemented, and maintained for activities recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. On September 21, 2000, the licensee identified that the 10 CFR Part 61 annual waste stream sampling and analysis had not been completed in 1998 in accordance with radiation protection procedural requirements. This event is described in the licensee's corrective action program, reference Problem Identification Report 4-11611. This is being treated as a noncited violation.

The safety significance of this violation was determined to be very low by the Public Radiation Safety Significance Determination Process because radiation limits were not exceeded, and there

was no breach of package during transit, certificate of compliance problem, low level burial ground access problem, or failure to make notifications or provide emergency information.

ATTACHMENT

PARTIAL LIST OF PERSONS CONTACTED

Licensee

G. Armknecht, Senior Technician, Radiation Protection
M. Boyce, Senior Manager, Technical Services
G. Bray, Operations Supervisor, Radwaste
P. Caudill, General Manager of Engineering and Technical Services
T. Chard, Manager, Radiation Protection and Chemistry
M. Coyle, Assistant Vice President
J. Dixon, Supervisor, Radiation Protection
J. Flaherty, Regulatory Compliance
T. Francis, Supervisor, Radiation Protection
R. Gardner, Senior Manager, Quality Assurance
B. Houston, Quality Assurance Manager
D. Linnen, Training Manager
L. Lockard, Operations Supervisor, Chemistry
D. Madsen, Engineer, Licensing
C. Markert, Engineering Support Department Manager
E. McCutchen, Acting Licensing Manager
D. Meyers, Senior Manager of Site Support
J. Ranalli, Senior Manager of Engineering
J. Teten, Acting Plant Chemist
B. Toline, Manager, Quality Assurance Operations
D. VanDerKamp, Engineer, Licensing
R. Wachowiak, Risk Management Supervisor
C. Weers, Acting Chemistry Support Supervisor, Radiation Protection
L. Wetherell, Executive Assistant to Vice President-Nuclear
N. Wetherell, Plant Manager
J. White, Technician, Radiation Protection
D. Wilson, Vice President-Nuclear

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed During this Inspection

50-298/0106-01	Failure to maintain Technical Specification Bases consistent with the USAR
50-298/0106-02	Failure to monitor performance of Maintenance Rule components
50-298/0106-03	Failure to properly classify and manifest radioactive waste shipments
50-298/0106-04	Exceeded licensed thermal power
50-298/0106-05	Inadequate maintenance procedure

50-298/0106-06	Repair of radwaste shipping containers without packaging restoration requirements
50-298/0106-07	Failure to comply with certificate of compliance requirements for Type B packages
50-298/0106-08	Failure to obtain waste stream samples and analysis as required by procedures

Discussed

50-298/0015-01	Potential Unreviewed Safety Question Related to Offsite ac Sources Design Issue (third example was closed under 50-298/0106-01)

LIST OF ACRONYMS USED

CFR	Code of Federal Regulations
NCV	noncited violation
SSC	structures, systems, or components