UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005

July 18, 2003

Clay C. Warren, Vice President of
Nuclear Energy
Nebraska Public Power District
P.O. Box 98
Brownville, Nebraska 68321

SUBJECT: COOPER NUCLEAR STATION - NRC RADIATION SAFETY TEAM INSPECTION REPORT 05000298/2003-12

Dear Mr. Warren:

On June 13, 2003, the NRC completed an inspection at your Cooper Nuclear Station. The enclosed report documents the inspection findings which were discussed with you and members of your staff, as described in Section 4OA6.

The inspection examined activities conducted under your licenses as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your licenses. The team reviewed selected procedures and records, observed activities, and interviewed personnel. Specifically, the team evaluated the inspectable areas within the Radiation Protection Strategic Performance Area that are scheduled for review every two years. These areas are:

- Radiation Monitoring Instrumentation
- Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems
- Radioactive Material Processing and Transportation
- Radiological Environmental Monitoring Program and Radioactive Material Control Program

A licensee-identified violation is listed in Section 4OA7. Because of its very low safety significance and because it was entered into your corrective action program, the NRC is treating this finding as a noncited violation (NCV) consistent with Section V1.A of the NRC Enforcement Policy. If you contest the validity or significance of this NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, 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.

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/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

//RA//

M. P. Shannon, Team Leader
Plant Support Branch
Division of Reactor Safety

Docket: 50-298
License: DPR-46

Enclosure: Inspection Report 05000298/2003-12
w/Attachment: Supplemental Information

cc w/enclosure:
Thomas J. Palmisano
Site Vice President
Nebraska Public Power District
P.O. Box 98
Brownville, Nebraska 68321

John R. McPhail, General Counsel
Nebraska Public Power District
P.O. Box 499
Columbus, Nebraska 68602-0499

P. V. Fleming, Licensing Manager
Nebraska Public Power District
P.O. Box 98
Brownville, Nebraska 68321

Michael J. Linder, Director
Nebraska Department of
Environmental Quality
P.O. Box 98922
Lincoln, Nebraska 68509-8922

Chairman
Nemaha County Board of Commissioners
Nemaha County Courthouse
1824 N Street
Auburn, Nebraska 68305

Sue Semerena, Section Administrator
Nebraska Health and Human Services System
Division of Public Health Assurance
Consumer Services Section
301 Centennial Mall, South
P.O. Box 95007
Lincoln, Nebraska 68509-5007

Ronald A. Kucera, Deputy Director
for Public Policy
Department of Natural Resources
205 Jefferson Street
Jefferson City, Missouri 65101

Jerry Uhlmann, Director
State Emergency Management Agency
P.O. Box 116
Jefferson City, Missouri 65102-0116

Vick L. Cooper, Chief
Radiation Control Program, RCP
Kansas Department of Health
and Environment
Bureau of Air and Radiation
1000 SW Jackson, Suite 310
Topeka, Kansas 66612-1366

Daniel K. McGhee
Bureau of Radiological Health
Iowa Department of Public Health
401 SW 7th Street, Suite D
Des Moines, Iowa 50309

William J. Fehrman, President
and Chief Executive Officer
Nebraska Public Power District
1414 15th Street
Columbus, Nebraska 68601

Electronic distribution by RIV:
Acting Regional Administrator **(TPG)**
DRP Director **(ATH)**
Acting DRS Director **(ATG)**
Senior Resident Inspector **(SCS)**
Branch Chief, DRP/C **(KMK)**
Senior Project Engineer, DRP/C **(WCW)**
Staff Chief, DRP/TSS **(PHH)**
RITS Coordinator **(NBH)**
Jim Isom, Pilot Plant Program **(JAI)**
Mel Fields **(MBF1)**
CNS Site Secretary **(SLN)**
RidsNrrDipmLipb

ADAMS: ■ Yes ☐ No Initials: _____
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DOCUMENT: R:_CNS\CN2003-12RP TEAM-LTR.WPD

RIV:DRS/PSB	PSB	PSB	PSB	Team Ldr	C:DRP/C
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07/18 /03						

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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket.:	50-298
License:	DPR 46
Report No.:	05000298/2003-12
Licensee:	Nebraska Public Power District
Facility:	Cooper Nuclear Station
Location:	P.O. Box 98 Brownville, Nebraska
Dates:	June 9-13, 2003
Inspectors:	Larry T. Ricketson, PE, Senior Health Physicist - Team Leader J. Blair Nicholas, PhD, Senior Health Physicist Bernadette D. Baca, Health Physicist Dan R. Carter, Health Physicist
Approved By:	Michael P. Shannon, Team Leader, Plant Support Branch Division of Reactor Safety
Attachment:	Supplemental Information

SUMMARY OF FINDINGS

Cooper Nuclear Station
NRC Inspection Report 05000298/2003-12

IR 05000298/2003-012; Nebraska Public Power District; 6/9-13/2003; Cooper Nuclear Station; Radiation Safety Team Inspection

The inspection was conducted by a team of four region-based inspectors. One finding of very low safety significance (Green) was identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609, "Significance Determination Process," (SDP). Findings for which the SDP doses not apply may be "Green" or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. NRC-Identified and Self-Revealing Findings

No findings of significance were identified.

B. Licensee-Identified Violations

A violation of very low safety significance (Green) which was identified by the licensee was reviewed by the team. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. This violation and the corrective action tracking numbers are listed in Section 4OA7 of this report.

REPORT DETAILS

2. RADIATION SAFETY

Cornerstones: Occupational [OS] and Public Radiation Safety [PS]

2OS3 Radiation Monitoring Instrumentation (71121.03)

a. Inspection Scope

The team evaluated the adequacy of the programs to calibrate radiation monitoring instruments and to provide self-contained breathing apparatus equipment. The team interviewed cognizant licensee personnel, inspected radiation monitoring instrumentation in the field, and compared the following items to regulatory requirements:

- Operability, calibration, performance checks and alarm set points, when applicable, of selected radiation detection instrumentation (whole-body counters, PCM-2 personnel contamination monitors, PM-7 personnel portal monitors, RO-2 ion chambers, Extender Model 2000 gamma survey instrument, ASP-1 remball, and small gamma tool monitors)
- Calibration and alarm set points of selected area and process radiation monitoring instrumentation
- Calibration source traceability
- Calibration expiration and source response check currency of prestaged radiation detection instruments
- Status and associated surveillance and maintenance records of self-contained breathing apparatus equipment staged and ready for use in the plant
- Capability for refilling and transporting self-contained breathing apparatus air bottles during emergency conditions
- Training and qualifications of personnel who use self-contained breathing apparatus during an emergency (control room operators and operations support center personnel), perform maintenance on self-contained breathing apparatus equipment, and refill air bottles
- Program and procedure requirements that implement 10 CFR 20.1703(f) for standby rescue persons
- Periodic air cylinder hydrostatic testing records
- Quality assurance audit reports, surveillance reports, and self-assessments that evaluated the radiation monitoring instrumentation program and respiratory protection program including self-contained breathing apparatus equipment

- Summary of corrective action documents written since the previous inspection and selected examples involving radiation monitoring instruments and self-contained breathing apparatus equipment and repetitive or significant individual deficiencies

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

To ensure that the gaseous and liquid effluent processing systems were maintained so that radiological releases were properly mitigated, monitored, and evaluated with respect to public exposure, the team interviewed cognizant personnel, walked down the major components of the gaseous and liquid release systems, observed ongoing activities and equipment material condition, and compared the observed configuration to the description in the Final Safety Analysis Report. No liquid effluents had been released since the previous inspection. The following items were reviewed and compared with regulatory requirements:

- 2001 and 2002 Radiological Effluent Release Reports
- Changes to the Offsite Dose Calculation Manual and to the radioactive waste system design and operation
- Anomalous results and unplanned releases reported in the 2001 and 2002 Radiological Effluent Release Reports
- Effluent radiation monitor alarm setpoint values and calculation methodology
- Collection and analysis of particulate and iodine samples from the gaseous effluent system
- Compensatory sampling and radiological analyses conducted when effluent monitors were declared out-of-service
- Calculation of monthly, quarterly, and annual doses potentially resulting from radioactive effluents
- Engineered-safety-feature air cleaning system surveillance test results
- Surveillance test results for the stack and vent flow rates
- Records of instrument calibrations performed since the previous inspection for selected effluent radiation monitors and flow measurement devices

- Calibration and quality control records of counting room instrumentation associated with radiological effluent monitoring and release activities
- 2001 and 2002 counting room cross-check program results
- 2001 CNS Radioactive Effluent Treatment and Monitoring Systems Self Assessment (SA 01027) and Quality Assurance Surveillance Report (S302-0101)
- Summary of corrective action documents written since the previous inspection and selected examples related to the radioactive effluent treatment and monitoring systems program and the engineered-safety-feature air cleaning systems and repetitive or significant individual deficiencies

b. Findings

No findings of significance were identified.

2PS2 Radioactive Material Processing and Transportation (71122.02)

a. Inspection Scope

The team interviewed radiation workers and radiation protection personnel involved in material processing and transportation activities and walked down the liquid and solid radioactive waste processing systems to verify that the current system configuration and operation agreed with the descriptions contained in the Final Safety Analysis Report and in the Process Control Program. The team reviewed radioactive waste processing equipment that was not operational for material condition, potential unmonitored release pathways, and unnecessary personnel exposure. The team also observed a laundry shipment conducted during the inspection to verify that the licensee's transportation program complied with Department of Transportation regulations contained in 49 CFR Parts 170-189. In addition, to verify that the licensee's radioactive material processing and complete transportation program complied with the requirements of 10 CFR Parts 20, 61, and 71 and applicable Department of Transportation regulations, the following items were reviewed and compared with regulatory requirements:

- The adequacy of any changes made to the radioactive waste processing systems since the last inspection
- Waste stream determination and sampling procedures
- Radioactive waste transfer and sampling procedures and waste classification methodology
- Radio-chemical sample analysis results and changes to operational parameters affecting the results for each of the licensee's radioactive waste streams
- Scaling factors and calculations used to account for difficult-to-measure radionuclides

- Part 20, Appendix G, quality assurance program
- Selected transferee's licenses
- Applicable transport cask Certificates of Compliance
- Procedures for cask loading and closure
- Training of personnel responsible for the conduct of radioactive waste processing and radioactive material shipment preparation activities
- Documentation for five non-excepted package shipments which demonstrated shipment packaging, surveying, labeling, marking, placarding, vehicle checks, emergency instructions, disposal manifest, shipping papers provided to the driver, and licensee verification of shipment readiness (Shipments 01-10R, 02-01, 03-02, 03-02AA, and 03-05F)
- Licensee audits and self-assessments related to the radioactive material processing and transportation programs performed since the last inspection (NUPIC Audit 18102 and Quality Assurance Surveillance S412-0201)
- Summary of corrective action documents written since the previous inspection and selected examples related to the radioactive material and shipping programs and repetitive or significant individual deficiencies

b. Findings

No findings of significance were identified.

2PS3 Radiological Environmental Monitoring Program and Radioactive Material Control Program (71122.03)

a. Inspection Scope

The team reviewed the radiological environmental monitoring and meteorological monitoring programs to verify that the licensee implemented them consistent with the Technical Specifications and Offsite Dose Assessment Manual. The team interviewed members of the licensee's staff responsible for implementing the radiological environmental monitoring, meteorological monitoring, and radioactive material control programs. The team observed the following activities and equipment:

- Collection and preparation for shipment to the vendor environmental laboratory of airborne particulate and charcoal samples, milk samples, and broadleaf vegetation samples
- Calibration of an environmental air sampler located at Air Sampling Location #1

- Meteorological instrumentation at the primary and backup meteorological towers and meteorological data displays in the control room and technical support center

- Surveying techniques used to monitor and control the unconditional release of potentially contaminated materials from the radiologically controlled area

The following items were reviewed and compared with regulatory requirements to determine whether the licensee had an adequate program to verify the impact of radioactive effluent releases to the environment and to ensure that the licensee's surveys and controls were adequate to prevent the inadvertent release of licensed radioactive materials into the public domain:

- Implementing procedures for the radiological environmental monitoring program

- Environmental sample tracking and vendor environmental laboratory reporting of analytical results for 2001 and 2002

- Seven environmental air sampling locations (1, 3, 4, 5, 6, 7, and 10), seven thermoluminescent dosimetry (TLD) locations (1, 3, 4, 5, 20, 58, and 84), nearest milk sampling location (99), the downstream surface water and shoreline sediment sampling location (28), and the control broadleaf vegetation sampling location (101)

- Calibration and maintenance records for selected environmental air sampling equipment

- 2001 and 2002 land use census results and resulting evaluations of census data and changes to the radiological environmental monitoring program

- 2001 and 2002 Annual Radiological Environmental Operating Reports

- Vendor environmental laboratory's interlaboratory comparison program and the results for 2001 and 2002

- Implementing procedures for the meteorological monitoring program

- Meteorological instrument operability, reliability, and 2001 and 2002 meteorological data recovery

- Calibration records for meteorological monitoring instruments

- 2001 Meteorological Monitoring Report

- Procedures, methods, and instruments used to survey, control, and release potentially contaminated materials from the radiologically controlled area

- Detection sensitivities of radiation survey instruments used for the unconditional release of potentially contaminated materials from the radiologically controlled area

- Criteria used for the unconditional release of potentially contaminated material from the radiologically controlled area

- Quality assurance and vendor audits, and department self-assessments related to the radiological environmental monitoring, meteorological monitoring, and release of radioactive material programs

- Summary of corrective action documents written since the previous inspection and selected examples related to the radiological environmental monitoring, meteorological monitoring, and release of radioactive material programs and repetitive or significant individual deficiencies

b. Findings

No significant findings were identified.

4. OTHER ACTIVITIES

4OA2 Problem Identification and Resolution

a. Inspection Scope

The team reviewed a selection of condition reports written since the previous inspections of the areas reviewed to determine if the licensee was entering conditions adverse to quality into the corrective action program at an appropriate threshold, to determine if the condition reports were appropriately categorized and dispositioned in accordance with the licensee's procedures and, in the case of conditions significantly adverse to quality, to determine if the licensee's root cause determination and extent of condition evaluation were accurate and of sufficient depth to prevent recurrence of the condition.

b. Findings and Observations

No findings or observations of significance were identified.

4OA6 Meetings, including Exit

On June 13, 2003, the team presented the inspection results to Mr. T. Palmisano, Vice President - Plant Support, and other members of the staff who acknowledged the findings presented. The team asked the licensee whether or not any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

4OA7 Licensee Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meets the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as a noncited violation.

10 CFR 20.1501(a) requires, in part, that a licensee make surveys that are reasonable under the circumstances to evaluate the concentrations or quantities of radioactive material and potential radiological hazards. Contrary to this requirement, the licensee identified that on four occasions it failed to properly survey and evaluate items contaminated with licensed radioactive material and allowed the items to be inadvertently released from the radiologically controlled area. On one of these occasions, the licensee allowed licensed radioactive material to be released from the protected area. Specifically, on November 11, 2001, an individual was released from the radiologically controlled area (RCA) with a discrete radioactive particle measuring 48,000 net counts per minute on the top of his boot. On October 10, 2002, a crescent wrench reading 300 to 400 corrected counts per minute was found outside the RCA during a semiannual survey by radiation protection personnel. On February 14, 2003, a discrete particle of Cobalt-60 measuring 23.6 nanocuries was inadvertently released outside the protected area on an individual's coat. On March 5, 2003, a piece of local leak rate test equipment was released from the RCA with 110 nanocuries of internal contamination. These four events were entered into the licensee's corrective action program in Notifications 10122910, 10199831, 10226679, and 10230812, respectively. Using the Public Radiation Safety Significance Determination Process, the team determined that this finding is of very low safety significance and is being treated as a noncited violation because it was a radioactive material control issue, it was not a transportation issue, public exposure was not greater than 5 millirem from each event, and there were less than 5 occurrences in which licensed radioactive material was released outside the protected area.

ATTACHMENT

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

G. Armknecht, Radiological Specialist, Radiological Protection
G. Bray, Radwaste Operations Supervisor, Operations
T. Chard, Radiological Manager, Radiological Protection
J. Kuttler, Health Physicist, Radiological Protection
R. McDonald, Health Physicist, Radiological Protection
R. Remmers, ALARA Supervisor, Radiological Protection
E. Rotkvic, Staff Health Physicist, Radiological Protection
C. Stipp, Environmental Coordinator
K. Tanner, Radiological Shift Manager, Radiological Protection
B. Williams, Radiological Specialist, Radiological Protection

NRC Personnel

S. Schwind, Senior Resident Inspector
S. Cochrum, Resident Inspector

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

NONE

Opened and Closed During this Inspection

NONE

Previous Items Closed

NONE

LIST OF DOCUMENTS REVIEWED

Section 2OS3: Radiation Monitoring Instrumentation (71121.03)

Procedures:

Procedure 9.RESP.1	"Respiratory Protection Program," Revision 6
Procedure 9.RESP.2	"Self-Contained Breathing Apparatus," Revision 9
Procedure 9.RESP.4	"Bauer FS-9 Air Compressor Air Quality Checks," Revision 5
Procedure 9.INST.10	"Eberline Model PM-7 Portal Monitor," Revision 1
Procedure 9.INST.20	"Calibration of the Canberra Whole Body Counter," Revision 1
Procedure 9.INST.41	"SAIC Model PD-1 Electronic Dosimeter System," Revision 5
Procedure 9.INST.47	"Eberline Personnel Contamination Monitor Model PCM-2," Revision 2
Procedure 9.INST.52	"Extender Model 2000W GM Survey Instrument," Revision 1

Radiation Instrument and Self Contained Breathing Apparatus Equipment Notifications:

10127304, 10188331, 1019857, 10221873, 10236945, and 10239579

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

Procedures:

Procedure 8.1	"Chemistry Quality Control Program and General Laboratory Instructions," Revision 15
Procedure 8.2.1	"Chemistry Analysis and Instrument Calibration Schedule," Revision 38
Procedure 8.2.2	"Instrument Performance Monitoring," Revision 3
Procedure 8.8.8	"Particulate, Iodine, and Noble Gas Sample Collection for Effluent Monitors and Drywell Air Monitor," Revision 28
Procedure 8.11.2	"Effects Program," Revision 9

Radiological Effluent Monitoring Program Notifications:

10096966, 10127363, 10141542, 10144991, 10160795, 10167189, 10174080
10198614, 10208872, and 10234952

Section 2PS2: Radioactive Material Processing and Transportation (71122.02)

Procedures:

Procedure 9.RW.1	"Radioactive Shipments," Revision 6
Procedure 9.RW.2	"Condensate Waste, Spent, and RWCU Resins and Waste Sludge Classification and Listing," Revision 10
Procedure 9.RW.3	"Dry Radioactive Waste Classification/Listing and Radioactive Material Shipments," Revision 3
Procedure 9.RW.7	"Waste Stream Sampling," Revision 5

Radioactive Material Processing and Transportation Program Notifications:

10106415, 10134093, 10186397, 10186433, and 10186434

Section 2PS3: Radiological Environmental Monitoring and Meteorological Monitoring Programs (71122.03)

Procedures:

"CNS Radiological Environmental Monitoring Program Administration," July 2002

"Sampling Manual for the CNS Radiological Environmental Monitoring Program (REMP)," October 2002

"Annual CNS Land Use Census," July 2002

"Administering the CNS Meteorological Program (CNSMET)," May 2002

Procedure 9.RADOP.2, "Radiation Safety Standards and Limits," Revision 4, November 13, 2002

Procedure 9.RADOP.4, "Radiation and Contamination Surveys," Revision 9, June 6, 2003

Procedure 9.INST.31, "National Nuclear Corporation (NNC) Integrated Tool Monitor ITM-2H," Revision 2, October 11, 2002

Offsite Dose Assessment Manual, March 20, 2003

Quality Assurance Documents:

QA Supplier Audit Reports SA00-050, SA02-024, and SA02-056; QA Surveillance Reports S412-0101 and S412-0102; 2001 and 2002 Environmental Self-Assessments; 2001 Meteorological Monitoring Program Self-Assessment; and NUPIC Audits 17474 and 18668

Radiological Environmental Monitoring Program Notifications:

10112515, 10138029, 10177676, 10229584, 10247507, and 10247654

Meteorological Monitoring Program Notifications:

10102391, 10104518, 10120838, 10148180, 10154116, and 10232530

Release of Radioactive Material Notifications:

10122910, 10185823, 10199831, 10226679, and 10230812