



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

August 10, 2007

Stewart B. Minahan,
Vice President-Nuclear and CNO
Nebraska Public Power District
P.O. Box 98
Brownville, NE 68321

SUBJECT: COOPER NUCLEAR STATION - NRC RADIATION SAFETY TEAM
INSPECTION REPORT 05000298/2007009

Dear Mr. Minahan:

On July 3, 2007, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Cooper Nuclear Station facility. The enclosed report documents the inspection findings, which were discussed at the conclusion of the inspection with you and other members of your staff.

The 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. The team reviewed selected procedures and records, observed activities, and interviewed personnel. Specifically, the team evaluated the inspection 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

On the basis of the results of this inspection, no findings of significance were identified.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) 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/

Michael P. Shannon, Chief
Plant Support Branch
Division of Reactor Safety

Dockets: 50-298
Licenses: DPR-46

Enclosure:
NRC Inspection Report 05000298/2007009
w/attachment: Supplemental Information

Gene Mace
Nuclear Asset Manager
Nebraska Public Power District
P.O. Box 98
Brownville, NE 68321

John C. McClure, Vice President
and General Counsel
Nebraska Public Power District
P.O. Box 499
Columbus, NE 68602-0499

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

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

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

Julia Schmitt, Manager
Radiation Control Program
Nebraska Health & Human Services
Dept. of Regulation & Licensing
Division of Public Health Assurance
301 Centennial Mall, South
P.O. Box 95007
Lincoln, NE 68509-5007

H. Floyd Gilzow
Deputy Director for Policy
Missouri Department of Natural Resources
P. O. Box 176
Jefferson City, MO 65102-0176

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

Nebraska Public Power District

-3-

Chief, Radiation and Asbestos
Control Section
Kansas Department of Health
and Environment
Bureau of Air and Radiation
1000 SW Jackson, Suite 310
Topeka, KS 66612-1366

Technological Hazards Branch
National Preparedness Division
DHS/FEMA
9221 Ward Parkway
Suite 300
Kansas City, MO 64114-3372

Daniel K. McGhee, State Liaison Officer
Bureau of Radiological Health
Iowa Department of Public Health
Lucas State Office Building, 5th Floor
321 East 12th Street
Des Moines, IA 50319

Melanie Rasmussen, Radiation Control
Program Director
Bureau of Radiological Health
Iowa Department of Public Health
Lucas State Office Building, 5th Floor
321 East 12th Street
Des Moines, IA 50319

Ronald D. Asche, President
and Chief Executive Officer
Nebraska Public Power District
1414 15th Street
Columbus, NE 68601

Kevin V. Chambliss, Director of
Nuclear Safety Assurance
Nebraska Public Power District
P.O. Box 98
Brownville, NE 68321

John F. McCann, Director, Licensing
Entergy Nuclear Northeast
Entergy Nuclear Operations, Inc.
440 Hamilton Avenue
White Plains, NY 10601-1813

Keith G. Henke, Planner
Division of Community and Public Health
Office of Emergency Coordination
930 Wildwood, P.O. Box 570
Jefferson City, MO 65102

Ronald L. McCabe, Chief

Electronic distribution by RIV:

Regional Administrator (**BSM1**)DRP Director (**ATH**)DRS Director (**RJC1**)DRS Deputy Director (**WBJ**)Senior Resident Inspector (**NHT**)Branch Chief, DRP/C (**MCH2**)Senior Project Engineer, DRP/C (**WCW**)Team Leader, DRP/TSS (**CJP**)RITS Coordinator (**MSH3**)DRS STA (**DAP**)M. Kunowski, OEDO RIV Coordinator (**MAK3**)D. Pelton, OEDO, RIV Coordinator (**DLP1**)**ROPreports**CNS Site Secretary (**SEF1**)

SUNSI Review Completed: LTR ADAMS: ☒ Yes ☐ No Initials: LTR
☒ Publicly Available ☐ Non-Publicly Available ☐ Sensitive ☒ Non-Sensitive

RIV:PSB\SHP	PSB\HP	PSB\HP	PSB\SHP	C:PSB
LTRicketson/lar	BDBaca	GLGuerra	LCCarsonII	MPShannon
/RA/	/RA/	/RA/	/RA/	/RA/
08/07/07	08/09/07	08/07/07	08/09/07	08/10/07
DRP/C	C:PSB			
MCHay	MPShannon			
/RA/	/RA/			
08/10/07	08/10/07			

OFFICIAL RECORD COPY

T=Telephone

E=E-mail

F=Fax

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

Dockets: 50-298

Licenses: DPR-46

Report: 05000298/2007009

Licensee: Nebraska Public Power District

Facility: Cooper Nuclear Station

Location: P.O. Box 98
Brownville, Nebraska

Dates: May 14 through July 3, 2007

Inspectors: Larry Ricketson, P.E., Senior Health Physicist, Plant Support Branch
Louis C. Carson II, Senior Health Physicist, Plant Support Branch
Bernadette Baca, Health Physicist, Plant Support Branch
Gilbert L. Guerra, C.H.P., Health Physicist, Plant Support Branch

Approved By: Michael P. Shannon, Chief
Plant Support Branch
Division of Reactor Safety

SUMMARY OF FINDINGS

IR 05000298/2007009; 5/14/07 - 7/03/07; Cooper Nuclear Station ; Radiation Safety Team Inspection

The report covered a four-day period of inspection on site by a team of four region-based health physics inspectors. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC-Identified and Self-Revealing Findings

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

No Findings of significance were identified.

B. Licensee Identified Violations

None.

REPORT DETAILS

2. RADIATION SAFETY

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

2OS3 Radiation Monitoring Instrumentation and Protective Equipment (71121.03)

a. Inspection Scope

This area was inspected to determine the accuracy and operability of radiation monitoring instruments that are used for the protection of occupational workers and the adequacy of the program to provide self-contained breathing apparatus (SCBA) to workers. The team used the requirements in 10 CFR Part 20 and the licensee's procedures required by technical specifications as criteria for determining compliance. The team interviewed licensee personnel and reviewed:

- Calibration of area radiation monitors associated with transient high and very high radiation areas and post-accident monitors used for remote emergency assessment
- Calibration of portable radiation detection instrumentation, electronic alarming dosimetry, and continuous air monitors used for job coverage
- Calibration of whole body counting equipment and radiation detection instruments utilized for personnel and material release from the radiologically controlled area
- Self-assessments, audits, and Licensee Event Reports
- Corrective action program reports since the last inspection
- Licensee action in cases of repetitive deficiencies or significant individual deficiencies
- Calibration expiration and source response check currency on radiation detection instruments staged for use
- The licensee's capability for refilling and transporting SCBA air bottles to and from the control room and operations support center during emergency conditions, status of SCBA staged and ready for use in the plant and associated surveillance records, and personnel qualification and training
- Qualification documentation for onsite personnel designated to perform maintenance on the vendor-designated vital components, and the vital component maintenance records for SCBA units

The inspector completed nine of the required nine samples.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

This area was inspected to ensure that the gaseous and liquid effluent processing systems are maintained so that radiological releases are properly mitigated, monitored, and evaluated with respect to public exposure. The team used the requirements in 10 CFR Part 20, 10 CFR Part 50 Appendices A and I, the Offsite Dose Calculation Manual, and the licensee's procedures required by technical specifications as criteria for determining compliance. The team interviewed licensee personnel and reviewed:

- Radiological effluent release reports since the last inspection, changes to the Offsite Dose Calculation Manual, radiation monitor setpoint calculation methodology, anomalous sampling results, effluent radiological occurrence performance indicator incidents, program for identifying contaminated spills and leakage and the licensee's process for control and assessment, self-assessments, audits, and licensee event reports
- Gaseous and liquid release system component configurations
- Routine processing, sample collection, sample analysis, and release of radioactive gaseous effluent and review of release permits and dose projections to members of the public
- Abnormal releases
- The licensee's understanding of the location and construction of underground pipes and tanks and storage pools that contain radioactive contaminated liquids; the technical bases for onsite monitoring, the licensee's capabilities of detecting spills or leaks and identifying groundwater radiological contamination both on site and beyond the owner-controlled area
- Changes made by the licensee to the Offsite Dose Calculation Manual, the liquid or gaseous radioactive waste system design, procedures, or operation since the last inspection
- Monthly, quarterly, and annual dose calculations
- Surveillance test results involving air cleaning systems and stack or vent flow rates

- Instrument calibrations of discharge effluent radiation monitors and flow measurement devices, effluent monitoring system modifications, effluent radiation monitor alarm setpoint values, and counting room instrumentation calibration and quality control
- Interlaboratory comparison program results
- Licensee event reports, special reports, audits, self-assessments and corrective action reports performed since the last inspection

The inspector completed 11 of the required 11 samples.

b. Findings

No findings of significance were identified.

2PS2 Radioactive Material Processing and Transportation (71122.02)

a. Inspection Scope

This area was inspected to verify that the licensee's radioactive material processing and transportation program complies with the requirements of 10 CFR Parts 20, 61, and 71 and Department of Transportation regulations contained in 49 CFR Parts 171-180. The team interviewed licensee personnel and reviewed:

- The radioactive waste system description, recent radiological effluent release reports, and the scope of the licensee's audit program
- Liquid and solid radioactive waste processing systems configurations, the status and control of any radioactive waste process equipment that is not operational or is abandoned in place, changes made to the radioactive waste processing systems since the last inspection, and current processes for transferring radioactive waste resin and sludge discharges
- Radio-chemical sample analysis results for radioactive waste streams and use of scaling factors and calculations to account for difficult-to-measure radionuclides
- Shipment packaging, surveying, labeling, marking, placarding, vehicle checking, driver instructing, and disposal manifesting
- Shipping records for non-excepted package shipments
- Licensee event reports, special reports, audits, state agency reports, self-assessments and corrective action reports performed since the last inspection

The inspector completed six of the required six samples.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

This area was inspected to ensure that the REMP verifies the impact of radioactive effluent releases to the environment and sufficiently validates the integrity of the radioactive gaseous and liquid effluent release program; and that the licensee's surveys and controls are adequate to prevent the inadvertent release of licensed materials into the public domain. The team used the requirements in 10 CFR Part 20, Appendix I of 10 CFR Part 50, the Offsite Dose Calculation Manual, and the licensee's procedures required by technical specifications as criteria for determining compliance. The team interviewed licensee personnel and reviewed

- Annual environmental monitoring reports and licensee event reports
- Selected air sampling and thermoluminescence dosimeter monitoring stations
- Collection and preparation of environmental samples
- Operability, calibration, and maintenance of meteorological instruments
- Each event documented in the Annual Environmental Monitoring Report which involved a missed sample, inoperable sampler, lost thermoluminescence dosimeter, or anomalous measurement
- Significant changes made by the licensee to the Offsite Dose Calculation Manual as the result of changes to the land census or sampler station modifications since the last inspection
- Calibration and maintenance records for air samplers, composite water samplers, and environmental sample radiation measurement instrumentation, quality control program, interlaboratory comparison program results, and vendor audits
- Locations where the licensee monitors potentially contaminated material leaving the radiological controlled area and the methods used for control, survey, and release from these areas
- Type of radiation monitoring instrumentation used to monitor items released, survey and release criteria of potentially contaminated material, radiation detection sensitivities, procedural guidance, and material release records

- Licensee event reports, special reports, audits, self-assessments and corrective action reports performed since the last inspection

The inspector completed 10 of the required 10 samples.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA2 Problem Identification and Resolution

a. Inspection Scope

The team evaluated the effectiveness of the licensee's problem identification and resolution process with respect to the following inspection areas:

- Radiation Monitoring Instrumentation (Section 2OS3)
- Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems (Section 2PS1)
- Radioactive Material Processing and Transportation (Section 2PS2)
- Radiological Environmental Monitoring Program and Radioactive Material Control Program (Section 2PS3)

b. Findings and Observations

No findings of significance were identified.

4OA6 Management Meetings

Exit Meeting Summary

On July 3, 2007, the team presented the inspection results to Mr. Stewart B. Minahan, Vice President-Nuclear and Chief Nuclear Officer, and other members of the staff who acknowledged the findings. The team confirmed that proprietary information was not provided or examined during the inspection.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

G. Armknecht, Radiological Specialist
B. Duncan, Radiation Protection Technician, Environmental
K. Fike, Supervisor, Chemistry
S. Freling, Radiological Specialist
J. Kuttler, Staff Health Physicist, Radiation Protection Department
J. Larson, Supervisor, Quality Assurance
L. Maine, Technician, Chemistry
R. McDonald, Staff Health Physicist, Radiation Protection Department
D. Sabine, Radwaste Operations Specialist, Operations Department
C. Stipp, Environmental, Corporate
K. Tanner, Manager, Radiation Protection
J. Teten, Supervisor, Chemistry
D. Van Der Kamp, Supervisor, Licensing
J. White, Radiological Protection Technician, Radiation Protection Department
B. Williams, Radiation Protection Technician, Radiation Protection Department
R. Willis, Radwaste Operations Specialist, Operations Department

NRC

N. Taylor

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

NONE

LIST OF DOCUMENTS REVIEWED

Section 20S3: Radiation Monitoring Instrumentation and Protective Equipment

Procedures

9.ALARA.3	In-Vitro and In-Vivo Bioassays, Revision 1
9.ALARA.11	Operation of the PM-7 Passive Monitor, Revision 1
9.ALARA.13	Radiation Worker and Tour Group Dosimetry Management, Revision 6
9.INST.10	Eberline Model PM-7 Portal Monitor, Revision 2
9.INST.47	Eberline Personnel Contamination Monitor Model PCM-2, Revision 2
9.INST.48	Siemens Mk 2.X Electronic Dosimeter System, Revision 1
9.INST.55	Eberline Model ASP-1 With Model NRD Neutron Detector, Revision 1
9.INST.56	Portable Alpha Meter Ludlum Model 2, Revision 0
9.INST.61	Merlin Gerin AMP-100/AMP-200, Revision 2
9.RESP.2	Self-Contained Breathing Apparatus, Revision 13

Condition Reports

2005-05179 2005-008851 2005-08855 2006-00583 2006-02478 2006-02772
2006-09928 2007-000058 2007-00954 2007-03485 2007-03514 2007-03518

Audit and Self-Assessments

Cooper Nuclear Station Quality Assurance Surveillance Report QAD20070017, April 3,, 2007
NUPIC Audit/Survey: Thermo Electro Radiation Measurement and Protection Audit No. 19042, October 22, 2004,
NUPIC Audit/Survey of Thermo Electro Radiation Measurement and Protection Audit No. 19070, October 22, 2004,

Calibration Records

Identification Number 378, Eberline PCM-2, February, 2007
Identification Number 401, Eberline PCM-2, 28, 2006
Identification Number 483, Eberline PM-7, December 1, 2006
Identification Number 488, Eberline PM-7, May 4, 2007
Identification Number 490, Eberline PM-7, September 6, 2006
Identification Number 363-375, SAM-11 Tool Contamination Monitor, March 19, 2007
Identification Number 431-446, SAM-11 Tool Contamination Monitor, March 19, 2007
Identification Number 60375, Ludlum-2 Alpha Meter, May 17, 2007
Identification Number 20860, Ludlum-2 Alpha Meter, January 30, 2007
Identification Number 353, ASP-1 Neutron Detector, July 14, 2006
Identification Number 354, ASP-1 Neutron Detector, September 15, 2006
Identification Number 355, ASP-1 Neutron Detector, January 27, 2006
Identification Number 466, ASP-1 Neutron Detector, August 8, 2006

Surveillance Procedures

6 PRM.312 Reactor Building Kaman Monitor Channel Functional Test, Revision 7
6 PRM.315 Turbine Building Kaman Monitor Channel Functional Test, Revision 5
6.PRM.322 Containment High Range Area Monitor Channel Calibration and Setpoint Determination, Revision 10
6.PRM.331 SW Radiation Monitor - A Calibration Check and Instrument Channel Test Revision 6
6.PRM.332 SW Radiation Monitor - B Calibration Check and Instrument Channel Test Revision 5

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

Audits and Self-Assessments

S07-05 Quality Assurance Surveillance Report - Radiological Effluents

Condition Reports

2005-06611 2005-06868 2005-07627 2006-00992 2007-00047 2007-00058
2007-01308

Procedures

- 6.HV.104 Control Room Emergency Fan Charcoal and HEPA Filter Leak Test, Fan Capacity and Charcoal Sampling, Revision 12
- 6.HV.105 Control Room Envelope Pressurization Test, Revision 11
- 8.8.8 Particulate and Iodine Sample Collection for Effluent Monitors and Drywell Air Monitor, Revision 34
- 8.8.11 Liquid Radioactive Waste Discharge Authorization, Revision 27
- 8.8.15 Noble Gas Sample Collection for Effluent Monitors and Drywell Air Monitor, Revision 2
- 8.11.1 Effects Program, Revision 14

Miscellaneous

Action Plan for Tritium in Groundwater, July 31, 2006
Offsite Dose Calculation Manual

Section 2PS2: Radioactive Material Processing and Transportation

Audits and Surveillances

Quality Assurance Audit 06-08
Quality Assurance Reports S408-0501 and S07-05

Condition Reports

2005-04247 2005-06058 2005-06613 2005-06622 2005-06624 2005-06867
2006-05295 2006-05527

Procedures

- 0.PCP.1 Process Control Program (PCP), Revision 0
- 9.ENN-RP-106-1 Radiation and Contamination Surveys, Revision 3
- 9.RADOP.13 Survey Techniques and Radiological Hazards of Failed Fuel Situations, Revision 0
- 9.RW.1 Radioactive Shipments, Revision 19
- 9.RW.2 Condensate Waste Resins, Spent Resins, RWCU Resins, and Waste Sludge Classification and Listing, Revision 10
- 9.RW.3 Dry Radioactive Waste Classification/listing and Radioactive Material Shipments, Revision 3
- 9.RW.7 Waste Stream Sampling, Revision 9

Shipping Packages

05-13, 06-06R, 06-06T, 06-06WW, 07-05, 07-06

Miscellaneous

2005 and 2006 Scaling Factor Reports
Cooper Nuclear Station Radioactive Material Shipment Log for 2005 and 2006
User's Information Package for US DOT Specification 7A Type A 14-210L, 14-210H and 14-215 Transportation Casks; RSM-A : Technical 3002, Cask Handling Procedure

Section 2PS3: Radiological Environmental Monitoring Program (REMP) And Radioactive Material Control Program

Procedures

9.ENN-RP-106-1 Radiation and Contamination Surveys, Revision 3
0-QA-09 Supplier Evaluation Process, Revision 1
9.ENV.1 CNS Radiological Environmental Monitoring Program Administration, Revision 0
9.ENV.2 Sampling Manual for the CNS REMP, Revision 2
9.ENV.3 Action Levels for Environmental Samples, Revision 1
9.ENV.4 CNS Environmental Air Pump Calibration and Maintenance, Revision 2
9.ENV.5 Annual Review of Broadleaf Vegetation Sample Locations Procedure, Revision 0
9.ENV.6 Annual CNS Land Use Census, Revision 0
9.ENV.7 CNS Temporary LLRW Storage Facility Sampling Program, Revision 0
9.ENV.8 Administering the CNS Meteorological Program, Revision 0

Corrective Action Documents

2005-05359	2005-05399	2005-05431	2005-05659	2005-06511	2005-06518
2005-08345	2005-08973	2005-09178	2006-07831	2006-08332	2007-02336
2007-02337	2007-02498	2007-03512	2007-03513		

Audits and Assessments

Nupic Audit Report of Teledyne-Brown Engineering-Environmental Services

- 3/12/01, 3/25/03, 1/10/06

Quality Assurance Surveillance Reports

- S07-05, "Radiological Effluents," 4/3/07

Cooper Nuclear Station 2005 Environmental Assessment Report, Sept. 26-28, 2005

Cooper Nuclear Station 2006 Environmental Assessment Report, May 22-June 7, 2006

Cooper Nuclear Station 2007 Environmental Assessment Report, March 5-15, 2007

Calibrations

Environmental air pump maintenance document and log

14.MET.301, "Meteorological Maintenance Procedure for 10-Meter Tower"

- 4/3/07, 9/13/06, 4/7/06, 10/5/05, 4/6/05

14.MET.302, "Meteorological Maintenance Procedure for 100-Meter Tower - System A"

- 4/3/07, 9/12/06, 4/4/06, 12/13/05, 9/27/05, 8/4/05, 4/4/05

14.MET.303, "Meteorological Maintenance Procedure for 100-Meter Tower - System B"

- 4/3/07, 9/12/06, 4/5/06, 9/27/05, 4/6/05

Miscellaneous

Radiological Protection Position Paper (P)97-01 R2

TLD Location Upgrade (White Paper)

Annual Radiological Environmental Operating Report for 2005 and 2006

Radioactive Effluent Release Report for 2005 and 2006