



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION IV
1600 EAST LAMAR BOULEVARD
ARLINGTON, TEXAS 76011-4511

June 16, 2022

Mr. John Dent
Vice President and Chief Nuclear Officer
Nebraska Public Power District
72676 648A Avenue
P.O. Box 98
Brownville, NE 68321

SUBJECT: COOPER NUCLEAR STATION – TRIENNIAL FIRE PROTECTION
INSPECTION REPORT 05000298/2022010

Dear Mr. Dent:

On April 22, 2022, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Cooper Nuclear Station. On April 28, 2022, the NRC inspectors discussed the results of this inspection with Khalil Dia, General Manager of Plant Operations, and other members of your staff. The results of this inspection are documented in the enclosed report.

No findings or violations of more than minor significance were identified during this inspection.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with Title 10 of the *Code of Federal Regulations* 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

A handwritten signature in black ink, appearing to read "Nicholas H. Taylor".

Signed by Taylor, Nicholas
on 06/16/22

Nicholas H. Taylor, Chief
Engineering Branch 2
Division of Operating Reactor Safety

Docket No. 05000298
License No. DPR-46

Enclosure:
Inspection Report 05000298/2022010

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COOPER NUCLEAR STATION – TRIENNIAL FIRE PROTECTION INSPECTION REPORT
05000298/2022010 DATED – JUNE 16, 2022

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**U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report**

Docket Number: 05000298

License Number: DPR-46

Report Number: 05000298/2022010

Enterprise Identifier: I-2022-010-0008

Licensee: Nebraska Public Power District

Facility: Cooper Nuclear Station

Location: Brownville, NE

Inspection Dates: April 4 to 28, 2022

Inspectors: G. Pick, Senior Reactor Inspector, Team Lead
M. Chisolm, Reactor Inspector
N. Okonkwo, Reactor Inspector

Approved By: Nicholas H. Taylor, Chief
Engineering Branch 2
Division of Operating Reactor Safety

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting a triennial fire protection inspection at Cooper Nuclear Station, in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC's program for overseeing the safe operation of commercial nuclear power reactors. Refer to <https://www.nrc.gov/reactors/operating/oversight.html> for more information.

List of Findings and Violations

No findings or violations of more than minor significance were identified.

Additional Tracking Items

None.

INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at <http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html>. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

REACTOR SAFETY

71111.21N.05 - Fire Protection Team Inspection (FPTI)

Structures, Systems, and Components (SSCs) Credited for Fire Prevention, Detection, Suppression, or Post-Fire Safe Shutdown Review (IP Section 03.01) (4 Samples)

The inspectors verified that components and/or systems will function as required to support the credited functions stated for each sample. Additional inspection considerations are in the safe shutdown analysis.

- (1) Operator actions can be accomplished as assumed in the licensee's fire probabilistic risk assessment analysis and safe shutdown analysis for Fire Area CB-D for a control room evacuation.
- (2) Ensure that post maintenance tests and/or surveillance activities are performed as scheduled for the underground fire loop, fire pumps, and sprinkler system in the cable spreading room and halon gas system for the computer room.
- (3) Walked down the sprinkler system and fire pumps to identify equipment alignment discrepancies. Inspect for deficient conditions such as corrosion, missing fasteners, cracks, and degraded insulation.
- (4) Ensured that fire protection components are being managed for aging (e.g., loss of material, cracking, reduction of heat transfer) in accordance with appropriate aging management programs. Verify that the licensee's aging management program activities associated with fire protection equipment are being implemented.

Fire Protection Program Administrative Controls (IP Section 03.02) (2 Samples)

The inspectors verified that the selected control or process is implemented in accordance with the licensee's current licensing basis. If applicable, ensure that the licensee's fire protection program contains adequate procedures to implement the selected administrative control. Verify that the selected administrative control meets the requirements of all committed industry standards.

- (1) Hot work, fire impairment, and combustible control programs.
- (2) Fire probabilistic safety assessment monitoring for classic fire protection activities.

Fire Protection Program Changes/Modifications (IP Section 03.03) (1 Sample)

The inspectors verified the following, as applicable:

- a. Changes to the approved fire protection program do not constitute an adverse effect on the ability to safely shutdown.
- b. The adequacy of the design modification.
- c. Assumptions and performance capability stated in the safe shutdown analysis have not been degraded through changes or modifications.
- d. The fire protection program documents, such as the Updated Final Safety Analysis Report, fire protection report, fire hazards analysis, and safe shutdown analysis were updated consistent with the fire protection program for design change.
- e. Post-fire safe shutdown operating procedures, such as abnormal operating procedures, affected by the modification were updated.

The inspectors reviewed the following as one sample:

- Design Change 5229496, EOP PTM 97-100 Review - revises control logic for RHR MOVs 27A and spares
- Engineering Change 6039780, Emergency Station Service Transformer (ESST) Replacement
- Engineering Evaluation 10-055, Fire Protection Evaluation of Conduit Internal Seals, Revision 1
- Engineering Evaluation 01-009, Revise EE 01-009 to remove references to Kennedy FP, Revision 5
- Engineering Evaluation 20-012, Evaluation of ClearView Shielding as Temporary Shielding Material
- Engineering Evaluation 01-009, Revise EE 01-009 to replace Water Pressure and CO2 fire extinguishers with ABC fire extinguishers, Revision 6
- Design Change 5357188, Replace Heat Activated Devices for Fire Protection Systems 9, 10, 12, & 13
- Design Engineering Change 5246597, Relocates Hydrant #3 inside the protected area
- Design Engineering Change 5343757, Replaces Computer Room Halon control and peripherals

INSPECTION RESULTS

No findings were identified.

EXIT MEETINGS AND DEBRIEFS

The inspectors verified no proprietary information was retained or documented in this report.

- On April 28, 2022, the inspectors presented the triennial fire protection inspection results to Khalil Dia, General Manager of Plant Operations, and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.21N.05	Calculations	CNS-PSA-007	PRA Deterministic Calculation Notebook	4
		NEDC 11-088 (Calc-17-031)	Fire Safety Analysis for Fire Area CB-0	4
		NEDC 11-095	Fire Safety Analysis for Fire Area RB-DJ EPM Report RI-1906-008-RBD-1	4
		NEDC 14-056	Essential Control building Ventilation Desired Thermostat Setpoints and Hydrogen Concentration Calculation	2
		NEDC-10-081	Task 8, Fire Risk Evaluation Area CB-A	1
	Corrective Action Documents	CR-CNS-	2008-01460, 2008-01576, 2008-02027, 2014-06146, 2016-03315, 2016-06698, 2016-07185, 2016-09062, 2017-04000, 2018-03118, 2019-00745, 2019-02049, 2019-02295, 2019-03165, 2019-05491, 2019-05576, 2020-01859, 2020-04487, 2020-04670, 2020-05288, 2020-05701, 2021-01477, 2021-01583, 2021-01787, 2021-01858, 2021-02419, 2021-02467, 2021-03321, 2021-03791, 2021-03793, 2021-04960, 2021-05266, 2022-00362	
	Corrective Action Documents Resulting from Inspection	CR-CNS-	2022-01468, 2022-01470, 2022-01473, 2022-01474, 2022-01492, 2022-01494, 2022-01497, 2022-01515, 2022-01519, 2022-01770, 2022-01794	
	Drawings	2016, Sheet 1B	Flow Diagram, Fire Protection, Cont., RW, ARDW Bldg	5
		2016, Sheet 4	Halon and Cardox System Flow Diagram	7
		2018	Flow Diagram Turbine Generator Bldg. & Control Bldg. Heating & Ventilating	44
		2225	HVAC Control Bldg., Plan EI 877'-6" & EI. 903'-6" & Section	6
		3009 Sheet 1	Cooper Nuclear Station One Line Switching Diagram 12.5 kV Ring Bus System	64
		3009 Sheet 4	Cooper Nuclear Station Fire Protection Pump "E"/Panel DPTC1 Heat Trace Feeder Auxiliary One Line Diagram	7
		3036 Sheet 5	Control Elementary Diagrams	50

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		3101	Turbine Generator Bldg, Basement & Mezzanine Grounding Plans	4
		3257 Sheet 65	Cooper Nuclear Station Alternate Shutdown HPCI Panel Internal Connections	8
		3257 Sheet 66	Cooper Nuclear Station Alternate Shutdown HPCI Panel Internal Connections	9
		3257 Sheet 67	Cooper Nuclear Station Alternate Shutdown HPCI Panel External Connections	17
		452242808	Fire Protection Pre-Fire-Plan, Reactor Building Southwest Quadrant Elevation 881'-9" and 859'-9"	6
		452242809	Fire Protection Pre-Fire-Plan, Reactor Building First Floor Elevation 903'-6"	7
		452242819	Fire Protection Pre-Fire-Plan, Control Building Auxiliary Relay Room, Elevation 903'-6"	8
		452242823	Fire Protection Pre-Fire-Plan, Control Building Cable Spreading Room Elevation 918'-0"	6
		452242824	Fire Protection Pre-Fire-Plan, Con. Bldg Control Rm and Comp Rm Elevation 932'-6"	10
		452242828	Fire Protection Pre-Fire-Plan, Office Building Cable Expansion Room Elevation 918'-6"	4
		454003604	Flow Diagram, Fire Protection, Turbine Generator Building	72
		454250005	Main Power Transformer Fire Protection, Fire Alarm Control Panel Mechanical Outline	2
		454250006	Main Power Transformer Fire Protection, Fire Alarm Control Panel Interconnection Diagram	1
		454250007	Main Power Transformer Fire Protection, Fire Alarm & Detection System, Detection Layout & Valve Station Layout	B
		454250008	Main Power Transformer Fire Protection, Fire Alarm & Detection System, Wiring Detail	D
		64929D, Sheet 1	Fire Protection System Detection Layout Systems 9 & 10 Reactor Feed Pump 1A and 1B	C

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		64929M	Fire Protection System Mechanical Outline - ACI Model A888-M1638	B
		791E271, Sheet 1A	Cooper Nuclear Station Elem Diagram HPCI System	7
		CNS-FP-214	Fire Protection Pre-Fire Plan Reactor Building Southwest Quadrant Elevations 881'-9" and 859'-9"	6
		CNS-FP-215	Fire Protection Pre-Fire Plan Reactor Building First Floor Elevation 903'-6"	7
		CNS-FP-225	Fire Protection Pre-Fire Plan Control Building Auxiliary Relay Room Elevation 903'-6"	8
		CNS-FP-229	Fire Protection Pre-Fire Plan Control Building Cable Spreading Room Elevation 918'-6"	6
		CNS-FP-230	Fire Protection Pre-Fire Plan Control Building Control Room and Computer Room Elevation 932'-6"	10
		CNS-FP-234	Fire Protection Pre-Fire Plan Office Building Cable Expansion Room Elevation 918'-6"	4
		IN 08-1232	Equipment Layout Halon, 1301 System, NPPD Computer Room	
	Engineering Changes	DC5229496	EOP PTM 97-100 Switches	0
		DEC- 5343757	Computer Room Halon System Control Upgrade	0
		EC 6039780	Emergency Station Service Transformer Replacement	0
		EE-01-006	Disposition of NFPA Code Compliance Deviations (Systems in Fire Zones Requiring an IPEEE Phase 2 Screening)	6
		EE-01-009	Review of NFPA 10, 14, & 24 Code Conformance for Power Block Buildings	5
		EE-01-009	Review of NFPA 10, 14, & 24 Code Conformance for Power Block Buildings	6
		TCC 5396378	TCC repowers various electrical equipment that would normally be de-energized during a 4160V Bus G outage.	0
	Engineering Evaluations	EE 10-055	Fire Protection Evaluation of Conduit Internal Seals	1
		EE 20-12	Evaluation of ClearView Shielding as Temporary Shielding Material	0
		ER 2015-002	NFPA 805 Fire Protection Monitoring Program	6

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		NEDC 10-041	Recovery Action Feasibility Assessment Report Review EPM Report R1906-004-005	1
		NEDC 11-088	Fire Safety Analysis for Fire Area CB-D	4
		NEDC-10-085	Scientech Calculation 17712-018-04, Task 8 Fire Risk Evaluation Area CB-D	1
	Miscellaneous	2.3-FP-5	Fire Protection – Annunciator 5	20
		3002018285	Results of Accelerated Aging for Sprinklers Used in Nuclear Power Plants: Fire Sprinkler Head Testing	11/2020
		ANSI/ANS-58.8	Time Response Design Criteria for Safety-related Operator Action	1994
		ANSIANS-59.2	Safety criteria for HVAC systems located outside Primary Containment	1985
		CED 6017100	Battery Room Heating Evaluation	12/19/05
		CNS System Health	FP System Health Report 21-10	10/2021
		CNS System Health	FP System Health Report 21-07	7/2021
		Construction Standard U12S3C3 Dwg NC34572	12KV-SW-Duct-3PH-Pad-SWGR 09/10/11/12	4
		EE 01-006	Disposition of NFPA Code Compliance Deviations (Systems in Fire Zones Requiring an IPEEE Phase 2 Screening)	6
		FAQ (Frequently Asked Question) 07-0030	Establishing Recovery Actions	5
		FAQ 10-0059	NFPA (National Fire Protection Association) 805 Monitoring	6
		FP-PNL-XFMR	Digital Evaluation of Fire Protection Panel for Transformer Deluge Systems	12/04/2012
Information Notice 97-78	Crediting of Operator Actions in Place of Automatic Actions and Modifications of Operator Actions, Including Response Times	10/23/1997		

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		Instruction Sheet 662-505	Manual PMH Pad-Mounted Gear Outdoor Distribution (14.4kV AND 25kV)	3/9/2020
		NC33070	12 KV-SW-Duct-3PH-Pad, SWGR 03/04 Conn. Diag.	3/1/2020
		NEDC 09-085	Section 7.44 Incipient Detection Excerpt from NEDC 09-085 Rev. 4 Fire Risk Quantification	4
		NEDC 09-085, Sec.7.4.4	Incipient Detection Excerpt from Fire Risk Quantification	4
		NFPA 12A	Halon 1301 Fire Extinguishing Systems	12/1980
		NLS2012006	License Amendment Request to Revise the Fire Protection Licensing Basis to NFPA 805 Per 10 CFR 50.48(c)	4/24/2012
		Procedure 7.0.7 rev 12 screen	Scaffolding Construction and Control rev 12 screen	12
		Procedure 7.0.7 rev 16 screen	Scaffolding Construction and Control rev 16 screen	16
		Procedure 7.0.7 rev 25 screen	Scaffolding Construction and Control rev 25 screen	25
		Purchase Order 5404944	AFFF Foam Chemical Analysis Summary	2/14/2022
		RT 5368430	2020 Scaffold Inspection	10/25/2020
		TRM T3.11	Technical Requirements Manual - Fire Protection Systems	10/17/2016
		TSP 5209096	2018 Scaffold Inspection	4/30/2018
		U12S3C4B	S-Switch Underground	3/10/2020
	NDE Reports	Condensate Storage Tank - Wall & Floor		4/11/2011
	Procedures	0-CNS-LI-102	Corrective Action Process	15
		0.23	CNS Fire Protection Plan	88
		0.39	Hot Work	54
		0.39.1	Fire Watches and Fire Impairments	18
		0.39.1	Fire Watches and Fire Impairments	17
		0.39.2	Ignition Source Procedure	3
		0.7.1	Control of Combustibles	42

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		11.CS-Dedicated Media	Dedicated Use of Media	19
		15.FP.307	Halon 1301 Computer Room Fire Suppression Surveillance Checks	12
		15.FP.309	Fire Protection Manual Pull Station Functional Test.	14
		15.FP.647	Non-TRM Required Fire Fighting Equipment Examination	42
		15.FP.650	Fire Locker and Hazardous Material Response Inventory	24
		2.0.4	Relief Personnel and Shift Turnover	67
		2.2.18.3.DIV1	4160V DIV 1 Distribution Support	3
		2.2.38	System Operating Procedure, HVAC Control Building	49
		3-CNS-DC-357	NFPA 805 Monitoring Program	1
		3-EN-DC-115	Engineering Change Process	16
		5.3SBO	Station Blackout	48
		5.4FIRE-S/D	Fire Induced Shutdown From Outside Control Room	79
		5.4Post -Fire-Reactor	Reactor Building Post-Fire Operational Information	9
		5.4Post-Fire-Control	Control Building Post-Fire Operational Information	7
		5.4Post-Fire-Turbine	Turbine Building/Outside Areas Post-Fire Operational Information	7
		6.1FP.301	Diesel Generator C02 Operability Test (DIV 1)	17
		6.1FP.302	Fire Detection System Examination (DIV 1)	16
		6.FP.101	Fire Pump Operability Test	47
		6.FP.102	Station Fire Pump Surveillance Testing	38
		6.FP.102	Station Fire Pump Surveillance Testing	40
		6.FP.203	Fire Damper Assembly Examination (Fire Protection System 24 Months Examination)	12
		6.FP.204	Fire Door Examination	20
		6.FP.314	Panel 9-32 and 9-33 Incipient Smoke Detector Testing	5
		6.FP.601	Fire Protection System 31 Day Examination	21
		6.FP.606	Fire Barrier/Penetration Seal Visual Examination	25
		6.FP.610	Yard Hydrant Flow Check & Fire Protection System Flow Test	27

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		7.0.7	Scaffolding Construction and Control	38
		7.3.17.4	4160V Vacuum Bottle Breaker Maintenance	9
		IP-ENG-001	Standard Design Process	0
	Work Orders		4744842, 4880243, 5028698, 5067194, 5137136, 5181059, 5200420, 5201372, 5203385, 5205851, 5205859, 5209006, 5209740, 5210849, 5211381, 5211483, 5211484, 5211485, 5211486, 5303589, 5303593, 5303594, 5337669, 5344017, 5368430, 5395381, 5397980	