



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

May 30, 2019

Mr. John Dent, Jr.
Vice President-Nuclear and CNO
Nebraska Public Power District
Cooper Nuclear Station
72676 648A Avenue
P.O. Box 98
Brownville, NE 68321

SUBJECT: COOPER NUCLEAR STATION – TRIENNIAL FIRE PROTECTION
INSPECTION REPORT 05000298/2019010

Dear Mr. Dent, Jr.:

On May 2, 2019, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Cooper Nuclear Station and discussed the results of this inspection with you and other members of your staff. The results of this inspection are documented in the enclosed report.

The NRC inspectors did not identify any finding or violation of more than minor significance.

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 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

James F. Drake, Acting Branch Chief
Engineering Branch 2
Division of Reactor Safety

Docket No. 50-298
License No. DPR-46

Enclosure:
Inspection Report 05000298/2019010

cc w/ encl: Electronic Distribution for
Cooper Nuclear Station

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

Docket Number: 05000298

License Number: DPR-46

Report Number: 05000298/2019010

Enterprise Identifier: I-2019-010-0002

Licensee: Nebraska Public Power District

Facility: Cooper Nuclear Station

Location: Brownville, Nebraska

Inspection Dates: April 15, 2019, to May 02, 2019

Inspectors: S. Alferink, Reactor Inspector
B. Correll, Reactor Inspector
J. Mateychick, Senior Reactor Inspector
C. Stott, Reactor Inspector

Approved By: James F. Drake, Acting Branch Chief
Engineering Branch 2
Division of 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. Findings and violations being considered in the NRC's assessment are summarized in the table below.

List of Findings and Violations

No findings were identified.

Additional Tracking Items

None.

INSPECTION SCOPE

This inspection was conducted using the appropriate portions of the inspection procedure (IP) 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

71111.05XT - Fire Protection - NFPA 805 (Triennial)

B.5.b Inspection Activities (IP Section 02.03) (1 Sample)

The inspectors evaluated the following B.5.b Mitigating Strategy:

Fuel pool cooling using service water from the residual heat removal heat exchangers

Fire Protection Inspection Requirements (IP Section 02.01a) (5 Samples)

The inspectors evaluated fire protection program implementation in the following selected areas and/or fire zones, including analyzed electrical circuits:

- (1) CB-D - Control Room, Computer Room, Cable Spreading Room, Cable Expansion Room, Auxiliary Relay Room
- (2) RB-J - Switchgear Room 1F
- (3) RB-K - Switchgear Room 1G
- (4) RB-CF - Reactor Building 903' North Side
- (5) RB-DI - Reactor Building 903' South Side

INSPECTION RESULTS

No findings were identified.

EXIT MEETINGS AND DEBRIEFS

On May 2, 2019, the inspectors presented the triennial fire protection inspection results to Mr. J. Dent, Jr. and other members of the licensee staff. The inspectors verified no proprietary information was retained or documented in this report.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.05XT	Calculations	FPRR 2007-003	Fire Protection Program Regulatory Review	0
		GE-NE-T23-00742-01	Fire Analyses for Cooper Nuclear Station	March 1997
		GE-NE-T23-00786-00-13	Cooper Nuclear Station Containment Analysis Project	0
		MDE-37-0286	Safe Shutdown Appendix R Analyses for Cooper Nuclear Station	February 1986
		NEDC 05-008	Bulk Thermal-Hydraulic Analyses for the Cooper SFP with GE14 and GNF2 Fuel Assemblies	3
		NEDC 09-085	Task 7.14 Fire Risk Quantification	3
		NEDC 09-101	Detailed Fire Modeling Report – Fire Compartment RB	5
		NEDC 10-041	Recovery Action Feasibility Assessment Report Review EPM Report R1906-004-005	1
		NEDC 10-046	Detailed Fire Modeling Report – Fire Compartment RB-J	3
		NEDC 10-047	Detailed Fire Modeling Report – Fire Compartment RB-K	3
		NEDC 10-062	EPM Report R1906-003-001 Rev. 1, NFPA 805 Radioactive Release Review	1
		NEDC 10-080	NFPA 805 Chapter 3 Fundamental Fire Protection Program and Design Element Review	4
		NEDC 10-085	Task 8 Fire Risk Evaluation Area CB-D	1
		NEDC 10-090	Fire Risk Evaluation Area RB-DI	0
		NEDC 11-003	Non-Power Operation Modes Transition Review of EPM Report R1906-006-001	2
		NEDC 11-019	Nuclear Safety Capability	3

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			Assessment	
		NEDC 11-088	Fire Safety Analysis for Fire Area CB-D	4
		NEDC 11-094	Fire Safety Analysis for Fire Area RB-CF EPM Report R1906-008-RBCF	4
		NEDC 11-095	Fire Safety Analysis for Fire Area RB-DI EPM Report R1906-008-RBDI	4
		NEDC 11-098	Fire Safety Analysis for Fire Area RB-J EPM Report R1906-008-RBJ	4
		NEDC 11-099	Fire Safety Analysis for Fire Area RB-K EPM Report R1906-008-RBK	4
		NEDC 11-105	Fire Safety Analysis for Fire Area TB-A EPM Report R1906-007-TBA	4
		NEDC 11-107	Fire Safety Analysis for Fire Area YD	4
		NEDC 11-148	NFPA 805 Transition Radiological Assessments	2
		NEDC 14-043	Fire Safety Analysis for Entire Power Block, EPM Report R1906-008-GEN	1
		NEDC 14-045	Use of Fire Protection System for Non-Fire Conditions	0
		NEDC 86-105B	CNS Critical AC Bus Coordination Study	11
		NEDC 95-062	Fuel Pool Boil off Makeup Flow Rate Supplied by Fire Hose from RHR HX SW Drain	2
		NEDC 97-044C	NPSH Margins for the RHR and HPCI Pumps for an Appendix R Event	2
			Corrective Action Documents	
	Corrective Action		2019-02295 2019-02319 2019-02323 2019-02530	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Documents Resulting from Inspection		2019-02531 2019-02533 2019-02540 2019-02576	
	Drawings	2006 Sh. 1	Circulating and Screen Wash and Service Water Systems	90
		2006 Sh. 3	Circulating and Screen Wash and Service Water Systems	56
		2016 Sh. 1	Flow Diagram Fire Protection Turbine Generator Building	70
		2016 Sh. 1B	Flow Diagram Fire Protection Control, Radwaste and Augmented Radwaste Buildings	5
		2016 Sh. 1C	Flow Diagram Fire Protection Reactor Building	4
		2016 Sh. 2	Fire Protection System Flow Diagram for Pumphouse and Storage Tanks	37
		2016 Sh. 4	Halon and Cardox System Flow Diagram	7
		2016 Sh. 7	Fire Protection System Site Plan Flow Diagram	12
		2036 Sh. 1	Reactor Building Service Water System	A5
		2040 Sh. 1	Residual Heat Removal System	82
		2040 Sh. 2	Residual Heat Removal System Loop B	19
		2043	Reactor Core Isolation Coolant and Reactor Feedwater Systems	57
		2044	High Pressure Coolant Injection and Reactor Feedwater System	76
		2045	Core Spray System	58
		3002 Sh. 1	Auxiliary One Line Diagram MCC Z, Swgr Bus 1A, 1B, 1E, & Critical Swgr Bus 1F, 1G	56
3003 Sh. 2	Auxiliary One Line Diagram Motor Control Centers A, B, F,	55		

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			& G	
		3006 Sh. 5	Auxiliary One Line Diagram Starter Racks LZ and TZ MCC's K, L, LX, RA, RX, S, T, TX, X	90
		3007 Sh. 6	Auxiliary One Line Diagram Motor Control Centers E, Q, R, RB, & Y	84
		3058	DC One Line Diagram	68
		791E253 Sh. 2	Automatic Blowdown System	N28
		791E253 Sh. 3	Automatic Blowdown System	N12
		791E261 Sh. 19	Residual Heat Removal System	N28
		791E261 Sh. 20	Residual Heat Removal System	N16
		791E261 Sh. 21	Residual Heat Removal System	N17
		791E261 Sh. 24	Residual Heat Removal System	04
		791E261 Sh. 4	Residual Heat Removal System	25
		791E261 Sh. 5	Residual Heat Removal System	24
		791E264 Sh. 6	RCIC System	14
		791E266 Sh. 7	Primary Containment Isolation System	N30
		791E271 Sh. 7	HPCI System	26
		791E271 Sh. 8	HPCI System	N20
		E-501 Sh. 30D	RWCU-MOV-MO18 RWCU Supply Outboard Isolation Valve	N01
		E501 Sh. 15H	RHR-MOV-MO16A Integrated Control Circuit Diagram RHR Pump A/C Min Flow Valve	04

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		E501 Sh. 16D	RCIC-MOV-MO15	N03
		E501 Sh. 26A	SW-MOV-MO89A RHR Hx A Service Water Outlet	N03
		E501 Sh. 48A	SW-MOV-MO89B RHR Hx B Service Water Outlet	04
	Engineering Changes	CED 6024460	Add Auxiliary Relays to Condensate Pump and Condensate Booster Pump Breakers	08/24/2017
		CED 6033800	Replacement of Startup Station Service Transformer	10/05/2015
		CED 6036741	Add Reliable SFP Level Indication	01/28/2015
		CED 6037040	Control Room Level Indication	03/27/2015
		CED 6037042	Flexible Coping Strategies (FLEX) External Connections	04/10/2015
		EC 6040480	Addition of Constant Level Lubricators to SW Booster Pumps	08/10/2017
	Engineering Evaluations	04-046	Appendix R MOV Overthrust Evaluation	0
		EE 09-031	Evaluation of Critical Switchgear Rooms 1F and 1G Fire Barrier Separation	0
		EE 10-043	Evaluation of SSAR Changes to Ensure Containment Overpressure Availability	0
		EE 10-071	CNS Acceptance of EPM Report No: R1906-002-002, NFPA Code Conformance Review	1
		EE01-006	Dispositions of NFPA Code Compliance Deviations	5
		EE01-007	Fire Detector Location and Spacing	3
EE01-009		Review of NFPA 10, 14, & 24 Code Conformance for Power Block Buildings	3	
EE01-013		Disposition of NFPA Code Compliance Deviations	3	

Inspection Procedure	Type	Designation	Description or Title	Revision or Date	
		PSA-ES098	Evaluation of Cable Types Used at CNS for NFPA 805 Purposes	0	
	Fire Plans	CNS-FP-383	Generic Sea/Land Container, Elevation – Various	2	
	Miscellaneous			NFPA 805 Monitoring Program Periodic Assessment 2018	
		6871020P77-A	ASTRO 25 Integrated Voice and Data GTR 8000 Base Radio	November 2011	
		CO-161117PER	Nuclear Electric Insurance Limited Property Loss Control Comprehensive Evaluation Report	November 2016	
		CO-171130PER	Nuclear Electric Insurance Limited Property Loss Control Comprehensive Evaluation Report	November 2017	
		Engineering Report 2015-002	NFPA 805 Fire Protection Monitoring Program	3	
		LO 2018-0034	Fire Protection Program Self-Assessment	01/31/2019	
		TMN SKL0515159	Battery Explosion/Shutdown from Outside the Control Room	20	
		TRM T3.11	Technical Requirements Manual - Fire Protection Systems	10/17/2016	
		USAR Volume X, Section 9	Updated Safety Analysis Report - Fire Protection System	04/26/2018	
		USAR Volume XIII, Section 10.0	Fire Protection Program	09/14/2015	
	Procedures			NFPA 805 Portable Lighting Test	0
		0-Barrier-Reactor		Reactor Building	13
		0-CNS-OU-		Cooper Shutdown Safety	6

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		108	Management Program	
		0.23	CNS Fire Protection Plan	79
		0.50.5	Outage Shutdown Safety	40
		15.FP.307	Halon 1301 Computer Room Fire Suppression Surveillance Checks	10
		15.FP.307	Halon 1301 Computer Room Fire Suppression Surveillance Checks	9
		15.FP.650	Fire Locker and Hazardous Material Response Inventory	23
		15.FP.652	Critical Switchgear Room Duct Wrap Visual Examination	5
		2.2.4	Communication Systems	58
		2.4CSCS	Inadvertent CSCS Initiation	9
		2.4FPC	Fuel Pool Cooling Trouble	37
		3-CNS-DC-128	Fire Protection Program Change Review	2
		3-CNS-DC-179	Fire Protection Engineering Evaluations	0
		3-CNS-DC-357	NFPA 805 Monitoring Program	1
		3-EN-DC-115	Engineering Change Process	15C14
		3-EN-DC-186	Fuse Control	0C0
		3.49	Fire Protection Performance Based Surveillance Test Process	0
		3.6.3	Fire Barrier Control	21
		5.1Incident	Site Emergency Incident	39
		5.3Alt-Strategy	Alternate Core Cooling Mitigating Strategies	59
		5.3DC125	Loss of 125 VDC	43
		5.4Fire-S/D	Fire Induced Shutdown from Outside Control Room	75
		5.4Post-Fire-Control	Control Building Post-Fire Operational Control	5
		5.4Post-Fire-	Reactor Building Post-Fire	6

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		Reactor	Operational Information	
		5.7COMMUN	Communications	30
		6.1FP.302	Fire Detector System Examination (Division 1)	15
		6.ADS.202	ADS Manual Valve Circuit Continuity from ASD-ADS Panel	14
		6.ASDR.301	ASD Panel Instrument Checks	6
		6.FP.101	Fire Pump Operability Test	42 and 43
		6.FP.102	Annual Testing of Fire Pumps	33 and 36
		6.FP.103	Diesel Fire Pump Examination	22
		6.FP.201	Operations Cycling of Fire Main Valves	15
		6.FP.202	Hose Station Valve Operability	9
		6.FP.203	Fire Damper Assembly Examination (Fire Protection System 24 Month Examination)	11
		6.FP.204	Fire Door Examination	18
		6.FP.301	Operations Power Block Sprinkler System Testing	22
		6.FP.302	Automatic Deluge and Pre-Action Systems Testing	27
		6.FP.304	Fire Detection System Circuitry Operability	13
		6.FP.306	Fire Detection Systems Examination	21
		6.FP.314	Panel 9-32 and 9-33 Incipient Smoke Detector Testing	5
		6.FP.604	Fire Door Full Examination	29
		6.FP.606	Fire Barrier/Penetration Seal Visual Examination	25
		6.FP.608	License Required Firefighting Equipment Examination	28
		6.FP.610	Yard Hydrant Flow Check and Fire Protection System Flow Test	22, 27, and 29
		6.HPCI.102	HPCI Test Mode Surveillance	29

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
			Operation From ASD-HPCI Panel	
		6.RHR.201	RHR Motor Operated Valve Operability Test from ASD-RHR Panel	7
		7.2.78.2	Pipe Penetration Seal Installation Using Gasket Placement	1
		7.3.21.2	Fire Seal Installation - Internal Conduit Using 3M Calk	14
		7.3.21.7	3M Interam E-5A Fire Wrap Fire Resistive Assembly	13
		7.3.21.8	Promat-H Board Fire Barrier Installation and Repair	10
		TPP 201	CNS Licensed Personnel Requalification Program	73
		TPP 204	Non-Licensed Nuclear Plant Operator Training Program	64
		TTP 0206	Fire Brigade	26
		TTP 0207	Fire Brigade Drills and Evaluations	6
	Self-Assessments	2015-0031-31	NFPA 805 Monitoring Program Periodic Assessment 2018	12/20/2018
		QAD 2917-0006	QA Audit 17-02, "Fire Protection"	03/29/2017
	Work Orders		5028696 5028698 5057857 5058485 5070809 5077089 5085188 5102729 5118016 5118581 5125115 5125116 5128988 5138324 5150832 5164653 5172539 5173795 5176537 5177517 5180034 5195504 5208766 5210075 5234943 5252419 6166654	

COOPER NUCLEAR STATION – TRIENNIAL FIRE PROTECTION INSPECTION
 REPORT 05000298/2019010 – MAY 30, 2019

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