



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

**REGION IV  
1600 EAST LAMAR BOULEVARD  
ARLINGTON, TEXAS 76011-4511**

September 23, 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 – NRC TEMPORARY INSTRUCTION 2515/193,  
IMPLEMENTATION OF RELIABLE HARDENED CONTAINMENT VENTS  
INSPECTION REPORT 05000298/2019012**

Dear Mr. Dent:

On August 29, 2019, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Cooper Nuclear Station and discussed the results of this inspection with Mr. K. Dia, Director of Engineering, 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/**

Christopher W. Newport, Acting Chief  
Reactor Projects Branch C  
Division of Reactor Projects

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

Enclosure:  
As stated

cc w/ encl: Distribution via LISTSERV®

COOPER NUCLEAR STATION – NRC TEMPORARY INSTRUCTION 2515/193,  
 IMPLEMENTATION OF RELIABLE HARDENED CONTAINMENT VENTS INSPECTION  
 REPORT 05000298/2019012 DATED SEPTEMBER 23, 2019

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

Docket Number: 50-298

License Number: DPR-46

Report Number: 05000298/2019012

Enterprise Identifier: I-2019-012-0004

Licensee: Nebraska Public Power District

Facility: Cooper Nuclear Station

Location: Brownville, NE

Inspection Dates: August 26, 2019 to August 29, 2019

Inspectors: R. Alexander, Senior Project Engineer  
K. Roche, Reactor Systems Engineer (NRR)

Approved By: Christopher W. Newport, Acting Chief  
Reactor Projects Branch C  
Division of Reactor Projects

Enclosure

## **SUMMARY**

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting an NRC Temporary Instruction 2515/193, Implementation of Reliable Hardened Containment Vents 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.

## OTHER ACTIVITIES – TEMPORARY INSTRUCTIONS, INFREQUENT AND ABNORMAL

### 2515/193 - Inspection of the Implementation of EA-13-109: Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation under Severe Accident Conditions (1 Sample)

- (1) Based on samples selected for review, the inspectors verified that the licensee satisfactorily implemented appropriate elements of the reliable hardened containment wetwell vent system (HCVS) as described in the plant specific submittals and the associated safety evaluation (ADAMS Accession No. ML19079A070) and determined that the licensee was in compliance with NRC Order EA-13-109, Phase 1, "Reliable, Severe Accident Capable Wetwell Venting System," (ADAMS Accession No. ML13143A321).

The inspectors verified that the licensee satisfactorily:

- Installed the HCVS to meet the performance objectives outlined in Section A.1.1 of Attachment 2 to the Order EA-13-109;
- Installed the HCVS with the design features specified in Section A.1.2 of Attachment 2 to the Order EA-13-109;
- Designed the HCVS to meet the quality standards described in Section A.2 of Attachment 2 to the Order EA-13-109;
- Developed and implemented adequate maintenance and testing of HCVS equipment to ensure their availability and capability;
- Developed and issued procedures to safely operate the HCVS using normal power supplies, during Extended Loss of All AC Power (ELAP), and a postulated severe accident scenario, and integrated the procedures into existing plant procedures; and
- Trained their staff to assure personnel can proficiently operate the HCVS.

Based on samples selected for review, the inspectors verified that the licensee satisfactorily implemented appropriate elements of the reliable wetwell venting system strategy as described in the plant specific submittals and the associated safety evaluation (ADAMS Accession No. ML19079A070) and determined that the licensee

was in compliance with NRC Order EA-13-109, Phase 2, "Reliable, Severe Accident Capable Drywell (or alternative strategy) Venting System," (ADAMS Accession No. ML13143A321).

The inspectors verified that the licensee satisfactorily developed a strategy making it unlikely that the licensee would need to vent from the containment drywell, that includes the following:

- Implemented the Severe Accident Water Addition (SAWA)/Severe Accident Water Management (SAWM) systems as defined and fulfilled functional requirements for installed and portable equipment;
- Installed and/or identified the previously-installed instrumentation necessary to implement SAWM;
- Developed and implemented adequate maintenance and testing of SAWA/SAWM equipment to ensure availability and capability;
- Developed and issued procedures to safely operate the SAWA/SAWM during an ELAP and during a postulated severe accident scenario, and integrated their procedures into their existing plant procedures such that entry into and exiting from the procedures are clear when using existing plant procedures; and
- Trained their staff to assure personnel can proficiently operate the HCVS during ELAP and accident scenarios.

The inspectors verified that any noncompliance with requirements, and standards identified during the inspection were entered into the licensee's corrective action program.

## **INSPECTION RESULTS**

No findings were identified.

## **EXIT MEETINGS AND DEBRIEFS**

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

- On August 29, 2019, the inspectors presented the NRC Temporary Instruction 2515/193, Implementation of Reliable Hardened Containment Vents inspection results to Mr. K. Dia, Director of Engineering, and other members of the licensee staff.

**DOCUMENTS REVIEWED**

Inspection Procedure	Type	Designation	Description or Title	Revision or Date	
2515/193	Calculations	NEDC 15-024	Owner Acceptance of TetraTech Calculation CNS001-194-4933-005 "Radiological Conditions Resulting from the Operation of the HCVS"	2	
		NEDC 15-025	Mechanical ROS Civil/Structural Design for the Hardened Containment Vent System Project	2	
	Calibration Records	13.NBI.301	Reactor Pressure Channel Calibration	07/11/2017	
		14.19.1	Instrument Calibration Sheet for IA-PS-4 and IA-PS-3	04/04/2019	
	Corrective Action Documents	CR-CNS-	2018-04121, 2018-04213, 2018-05552, 2018-06195, 2018-07208, 2018-07337, 2018-08183, 2019-03862		
	Corrective Action Documents Resulting from Inspection	CR-CNS-	2019-04608		
	Drawings	2022, Sheet 1	Flow Diagram - Primary Containment Cooling & Nitrogen Inerting System	10/22/2018	
	Miscellaneous			Site Specific Task List for Reactor Operators (Training Plan)	39 & 40
				Site Specific Task List for Non-Licensed Operators (Training Plan)	32
				FLEX and HCVS Program Document	3
				FLEX Validation Report (Revision 1)	05/21/2019
				Factory Test for HCVS UPS	07/27/2016
				FLEX Validation Report	05/21/2019
				Factory Test for MV 233 UPS	07/26/2016
			INT034-01-14	Lesson Plan - FLEX Strategy	2
			INT035-01-07	Lesson Plan - Severe Accident Guidelines SAG 1, SAG 2, SAG 3	8
		INT035-01-12	Lesson Plan - SAG Refresher	3	
		INT035-01-13	Lesson Plan - FLEX Modifications	3	
	MEC 500-01-01/CT#46752	Lesson Plan - MEC OSC Emergency Response Overview	2		
	Notification 11147598	Create new maintenance plan 8-51177 to examine and rebuild PC-AOV-AO32			



Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		Notification 11147998	Create new maintenance plan 8-51571 to calibrate pressure transmitter PC-PT-520	
		Notification 11405981	Create new maintenance plan 8-51842 to examine transformer and disconnect EE-DC-HCVS	
		SKL051-51-376	Learning Activity – Implementation of FLEX During Extended Loss of AC Power (ELAP) and Beyond Design Basis (BDB) Event	00
	Procedures	0-CNS-LI-102	Corrective Action Process	9
		0.22	Emergency Operating Procedure, Severe Accident Management, and FLEX Program Control and Maintenance	34
		15.HCVS.304	Hardened Containment Vent System UPS Functional Test	11/05/2018
		15.PC.302	HCVS PC-AOV-237AV & PC-AOV-AO32 Operability from MRO Test	11/09/2018
		15.PC.502	HCVS Boundary Valve Leak Tests	11/01/2016
		15.PRM.311	Hardened Containment Vent System Radiation Monitor Functional Test	0
		5.10FLEX.18	Alternate Reactor Building Ventilation FLEX Operations	1
		5.10FLEX.30	Hardened Containment Vent System FLEX Operations	7
		5.3SBO	Station Blackout	46
		5.7.12	Maintaining Emergency Preparedness – Emergency Exercises, Drills, Tests, and Evaluations	60
		5.8.18	Primary Containment Venting for PCPL, PSP, Primary Containment Flooding, or Early Containment Venting	21
		5.8EOP	EOP 1A – RPV Control	22
		5.8EOP	EOP 2B – RPV Flooding	21
		5.8EOP	EOP 7A – RPV Level (Failure-to-Scram)	21
		5.8EOP	EOP 7B – RPV Flooding (Failure-to-Scram)	22
		5.9SAMG	Severe Accident Management Guidance	15
		5.9SAMG	SAG 1 – RPV, Containment, and Radioactivity Release Control	11
		5.9SAMG	SAG 2 – Strategy B (Core debris has breached the RPV)	8
5.9SAMG	SAG 2 – Strategy E (Core debris will not be retained in RPV)	9		
6.PC.522	Standby Nitrogen Injection and PC Purge and Local Leak Rate Tests	10/08/2018		

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
		7.0.2	Preventative Maintenance SAP Implementation	61
	Self-Assessments	LO 2018-0187-004	2019 CNS Reliable Hardened Containment Vents TI-2515/193 (EA-13-109) NRC Inspection Self-Assessment	02/27/2019
	Work Orders		5065111, 5065113, 5222056, 5231965, 5271973	