



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

January 18, 2023

Cleve Reasoner
Chief Executive Officer
and Chief Nuclear Officer
Wolf Creek Nuclear Operating Corporation
P.O. Box 411
Burlington, KS 66839

**SUBJECT: WOLF CREEK GENERATING STATION – EMERGENCY PREPAREDNESS
BIENNIAL EXERCISE INSPECTION URI CLOSURE REPORT 05000482/2022501**

Dear Cleve Reasoner:

On December 20, 2022, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Wolf Creek Generating 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.

One finding of very low safety significance (Green) is documented in this report. This finding involved a violation of NRC requirements. We are treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2 of the Enforcement Policy.

If you contest the violation or the significance or severity of the violation documented in this inspection report, 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, Region IV; the Director, Office of Enforcement; and the NRC Resident Inspector at Wolf Creek Generating Station.

If you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region IV; and the NRC Resident Inspector at Wolf Creek Generating Station.

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."

C. Reasoner

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Sincerely,



Signed by Haire, Mark
on 01/18/23

Mark S. Haire, Chief
Response Coordination Branch
Division of Radiological Safety & Security

Docket No. 05000482
License No. NPF-42

Enclosure:
As stated

cc w/ encl: Distribution via LISTSERV

WOLF CREEK GENERATING STATION – EMERGENCY PREPAREDNESS BIENNIAL
EXERCISE INSPECTION URI CLOSURE REPORT 05000482/2022501 DATED JANUARY 18,
2023.

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DOCUMENT NAME: WOLF CREEK GENERATING STATION – EMERGENCY PREPAREDNESS BIENNIAL
EXERCISE INSPECTION URI CLOSURE REPORT 05000482/2022501

Non-Public Designation Category: MD 3.4 Non-Public (A.3 - A.7 or B.1)

ADAMS ACCESSION NUMBER: **ML23017A209**

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U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Number: 05000482

License Number: NPF-42

Report Number: 05000482/2022501

Enterprise Identifier: I-2022-501-0017

Licensee: Wolf Creek Nuclear Operating Corporation

Facility: Wolf Creek Generating Station

Location: Burlington, KS

Inspection Dates: October 13, 2022, to December 20, 2022

Inspectors: R. Alexander, Regional State Liaison Officer
H. Strittmatter, Emergency Preparedness Inspector

Approved By: Mark S. Haire, Chief
Response Coordination Branch
Division of Radiological Safety & Security

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting an emergency preparedness biennial exercise inspection URI closure at Wolf Creek Generating 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

Protective Action Recommendation Process Provides for Unnecessary Initial or Subsequent Protective Action Recommendations			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Emergency Preparedness	Green NCV 05000482/2022501-01 Open/Closed	[H.11] - Challenge the Unknown	71114.01
The inspectors identified a finding of very low safety significance (Green) with an associated non-cited violation of 10 CFR 50.54(q)(2) for the licensee's failure to maintain an emergency plan that follows the requirements of 10 CFR 50.47(b)(10). Specifically, as revealed during the biennial emergency preparedness exercise, the licensee's Protective Action Recommendation (PAR) Process provided for an initial or subsequent PAR that recommends members of the public be evacuated unnecessarily from areas where the Environmental Protection Agency (EPA) Protective Action Guidelines (PAGs) are not predicted to be exceeded during a subset of accident conditions.			

Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
URI	05000482/2022003-03	Protective Action Recommendation Developed During an Exercise May Not Have Been Warranted	71114.01	Closed

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

71114.01 - Exercise Evaluation

Inspection Review (IP Section 02.01-02.11) (1 Partial)

(1) (Partial)

This inspection reviewed training documents, simulator radiological data, revision history of the licensee's protective action recommendations procedure, and corrective action documents related to the Unresolved Item (URI) opened in the 3rd quarter integrated inspection report. This report closes URI 05000482/2022003-03 to a Green NCV.

INSPECTION RESULTS

Protective Action Recommendation Process Provides for Unnecessary Initial or Subsequent Protective Action Recommendations			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Emergency Preparedness	Green NCV 05000482/2022501-01 Open/Closed	[H.11] - Challenge the Unknown	71114.01
The inspectors identified a finding of very low safety significance (Green) with an associated non-cited violation of 10 CFR 50.54(q)(2) for the licensee's failure to maintain an emergency plan that follows the requirements of 10 CFR 50.47(b)(10). Specifically, as revealed during the biennial emergency preparedness exercise, the licensee's Protective Action Recommendation (PAR) Process provided for an initial or subsequent PAR that recommends members of the public be evacuated unnecessarily from areas where the Environmental Protection Agency (EPA) Protective Action Guidelines (PAGs) are not predicted to be exceeded during a subset of accident conditions.			
<u>Description:</u> On August 31, 2022, the inspectors observed the licensee perform a biennial full-scale emergency preparedness exercise. The exercise scenario began with the plant in Mode 5 (cold shutdown) and a simulated seismic event that caused damage to the switchyard, fuel building, and a loss of spent fuel pool (SFP) inventory. Another seismic event later in the exercise caused simulated damage to fuel assemblies in the spent fuel pool, and ultimately, a monitored gaseous release from the unit vent. The inspectors observed the licensee's Emergency Response Organization (ERO) develop a PAR at the General Emergency			

classification, using station procedure EPP 06-006, "Protective Action Recommendations," revision 10A, that recommended members of the public within 0-2 miles of the site and 2-10 miles downwind evacuate from those areas. This PAR development was based upon, in part, the ERO having evaluated that the simulated plant conditions constituted an actual or imminent loss of all three fission product barriers (a decision diamond in the flowchart of EPP 06-006), because there was a radiological release from damaged fuel in the SFP directly to the environment. The inspectors noted that the event took place during Mode 5 and that the simulated release was from damaged fuel in the spent fuel pool (SFP), not in the reactor vessel. Furthermore, the reactor coolant system and containment barriers were not lost nor in imminent danger of being lost per the scenario.

About 30 minutes after the General Emergency was declared and the initial PAR was developed, a dose assessment completed by the ERO indicated that a PAR to evacuate 0-2 miles and only 2-5 miles downwind was warranted. As the rising release rates were the only variable changing during the elapsed time, it was noted by the inspectors that the subzones 5-10 miles downwind were not predicted to exceed the PAGs, and therefore were previously unnecessarily recommended to be evacuated. Federal guidance contained in EPA-400-R-92-001, the Environmental Protection Agency's Manual of Protective Action Guides and Protective Actions for Nuclear Incidents (1992), Section 1.2 states, in part, that the risk to health from a protective action should not itself exceed the risk to health from the dose that would be avoided.

On September 8, 2022, the inspectors observed the emergency preparedness department's presentation to the site's management on the results of the exercise. The licensee evaluated that the interpretation of the release from damaged fuel in the SFP as an actual or imminent loss of all three fission product barriers to be accurate and consistent with licensee procedures. Subsequently, the licensee's exercise critique process did not identify the development of the PAR as a weakness in ERO performance nor a failure to comply with an emergency plan requirement. The inspectors questioned the licensee's interpretation of the decision diamond in EPP 06-006 that led to the developed PAR and whether the appropriate PAR should instead have been either to: (1) evacuate 0-2 miles based on plant conditions, or (2) evacuate 0-2 miles and 2-5 miles downwind based on a dose assessment.

After a review of licensee's training records, basis for their PAR procedure, and simulated radiological data during the exercise, the inspectors determined that the licensee's PAR process, specifically ERO training, incorrectly interprets the release from damaged fuel in the SFP as an actual or imminent loss of all three fission product barriers. In particular, the inspectors determined that the licensee's PAR procedure has included a decision diamond to assess for "an actual or imminent loss of all three fission product barriers," since a revision implemented in August 1987. However, in that and all future revisions to the PAR procedure to date, the inspectors did not identify any guidance in the procedure which clarified that damaged fuel in the SFP could be considered a condition which met the criteria as "an actual or imminent loss of all three fission product barriers." However, the inspectors reviewed a training scenario provided to station emergency managers in June 2020 that included significant damage to fuel in the SFP which considered those conditions to be consistent with answering "yes" to the "an actual or imminent loss of all three fission product barriers" decision diamond as an appropriate response by the ERO. Therefore, the inspectors determined that as recent as June 2020, the licensee's PAR training had incorrectly reinforced to the ERO that such conditions in the SFP constituted "an actual or imminent loss of all three fission product barriers." As such, the inspectors concluded that the performance issue related to the ERO developing the incorrect PAR at the GE level was not a failure of the

licensee's process to identify and correct a weakness during a drill or exercise.

Rather, the inspectors determined that licensee performance during the August 31, 2022, exercise revealed that the licensee's PAR process, in some instances, provides for an initial or subsequent PAR that recommends members of the public be evacuated unnecessarily from areas where the EPA PAGs are not predicted to be exceeded based upon the existing or projected plant conditions, meteorological conditions, or dose assessments.

Corrective Actions: The licensee has initiated a review of EPP 06-006 to determine the adequacy of the PAR flowchart and guidance in support of its implementation.

Corrective Action References: CR 10020339

Performance Assessment:

Performance Deficiency: The licensee's failure to maintain the effectiveness of their emergency plan was a performance deficiency. Specifically, the licensee's PAR process included training that prompted ERO decision makers to interpret releases from damaged fuel in the SFP as equivalent to an actual or imminent loss of all three fission product barriers when developing PARs. This interpretation was determined to be inconsistent with Federal Guidance on the development of PARs.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Procedure Quality attribute of the Emergency Preparedness cornerstone and adversely affected the cornerstone objective to ensure that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. Specifically, the ability to implement adequate protective action recommendations is adversely affected when PAR development procedures direct issuing PARs to evacuate public from areas that have no commensurate radiological exposure risks during a radiological emergency.

Significance: The inspectors assessed the significance of the finding using IMC 0609 Appendix B, "Emergency Preparedness SDP." Using Inspection Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," and Inspection Manual Chapter 0609, Appendix B, "Emergency Preparedness Significance Determination Process," table 5.10-1 and attachment 2; the performance deficiency was determined to have very low safety significance (Green) because the finding represented a failure to comply with the planning standard found in 10 CFR 50.47(b)(10), did not constitute a loss or degradation of a risk significant planning standard function and did not constitute a loss of a planning standard function.

Cross-Cutting Aspect: H.11 - Challenge the Unknown: Individuals stop when faced with uncertain conditions. Risks are evaluated and managed before proceeding. Individuals stop when faced with uncertain conditions. If a procedure or work document is unclear or cannot be performed as written, individuals stop work until the issue is resolved. The station used a procedure that is unclear or that could not be performed as written and continued using the procedure without the issue being resolved. Specifically, the station implemented training that required Emergency Managers to develop PARs in the absence of dose assessments, and therefore use plant conditions. However, the procedure being used (EPP 06-006) did not have clear guidance to develop PARs based on plant conditions for a subset of accidents involving damaged fuel in the SFP, and the lack of clarity in the procedure remained unchanged.

Enforcement:

Violation: Title 10 CFR 50.54(q)(2) requires, in part, that licensees shall follow and maintain the effectiveness of an emergency plan that meets the requirements of the planning standards of 10 CFR 50.47(b). The planning standard described by 10 CFR 50.47(b)(10) requires, in part, that guidelines for the choice of protective actions during an emergency, consistent with Federal guidance, are developed, and in place. Contrary to the above, from at least June 10, 2020, to present, the licensee failed to maintain the effectiveness of the emergency plan. Specifically, the licensee had guidelines developed and in place for the choice of protective actions during an emergency that were not consistent with Federal guidance in that they may have resulted in unnecessary PARs for areas where PAGs were not predicted to be exceeded during a subset of accident conditions.

Enforcement Action: This violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.

The disposition of this finding and associated violation closes URI: 05000482/2022003-03.

EXIT MEETINGS AND DEBRIEFS

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

- On December 20, 2022, the inspectors presented the emergency preparedness biennial exercise inspection URI closure results to Cleve Reasoner and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71114.01	Corrective Action Documents	CR	10020339, 10017318, 10017340, 10020076	
71114.01	Miscellaneous		Command and Control Training Scenario Performed on 06/10/2020	
71114.01	Miscellaneous		Excel Table Logging Simulator Data Points	
71114.01	Miscellaneous		White Paper for GE PAR URI EFI	11/18/2022
71114.01	Miscellaneous	GE1135629	Protective Action Recommendations Training	10/29/2015
71114.01	Miscellaneous	LO1733215	Emergency Classifications and Protective Action Recommendations (PAR), Initial Licensed Operator Training Lesson Plan	02/02/2021
71114.01	Miscellaneous	LR1007001	Emergency Action Levels and Protective Action Recommendations (EAL/PAR), Licensed Requalification Lesson Plan	01/04/2022
71114.01	Procedures	EP 01-10.1	Radiological Emergency Response Plan Implementing Procedure Protective Action Recommendations	10/24/1984
71114.01	Procedures	EPP 01-10.1	Radiological Emergency Response Plan Implementing Procedure Protective Action Recommendations	07/20/1984
71114.01	Procedures	EPP 01-10.1	Radiological Emergency Response Plan Implementing Procedure Protective Action Recommendations	10/07/1985
71114.01	Procedures	EPP 01-10.1	Radiological Emergency Response Plan Implementing Procedure Protective Action Recommendations	11/21/1986
71114.01	Procedures	EPP 01-10.1	Radiological Emergency Response Plan Implementing Procedure Protective Action Recommendations	08/10/1987
71114.01	Procedures	EPP 01-10.1	Radiological Emergency Response Plan Implementing Procedure Protective Action Recommendations	12/16/1997
71114.01	Procedures	EPP 06-006	Protective Action Recommendations	10A
71114.01	Procedures	EPP 06-006	Protective Action Recommendations	0