



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

August 7, 2023

Mr. Cleveland 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, UNIT 1 - ISSUANCE OF  
AMENDMENT NO. 236 RE: REVISION TO TECHNICAL SPECIFICATIONS TO  
ADOPT TSTF-554, "REVISE REACTOR COOLANT LEAKAGE  
REQUIREMENTS" (EPID L-2022-LLA-0191)

Dear Mr. Reasoner:

The U.S. Nuclear Regulatory Commission (NRC, the Commission) has issued the enclosed Amendment No. 236 to Renewed Facility Operating License No. NPF-42 for the Wolf Creek Generating Station, Unit 1. The amendment consists of changes to the technical specifications (TSs) in response to your application dated December 15, 2022.

The amendment revises the TSs related to reactor coolant system operational leakage and the definition of the term "LEAKAGE" based on Technical Specifications Task Force (TSTF) Traveler TSTF-554, Revision 1, "Revise Reactor Coolant Leakage Requirements," and the associated NRC staff safety evaluation.

A copy of the related Safety Evaluation is enclosed. Notice of Issuance will be included in the Commission's monthly *Federal Register* notice.

Sincerely,

/RA/

Samson S. Lee, Project Manager  
Plant Licensing Branch IV  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Docket No. 50-482

Enclosures:

1. Amendment No. 236 to NPF-42
2. Safety Evaluation

cc: Listserv



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
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WOLF CREEK NUCLEAR OPERATING CORPORATION

WOLF CREEK GENERATING STATION, UNIT 1

DOCKET NO. 50-482

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 236  
License No. NPF-42

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment to the Wolf Creek Generating Station, Unit 1 (the facility) Renewed Facility Operating License No. NPF-42 filed by the Wolf Creek Nuclear Operating Corporation (the Corporation), dated December 15, 2022, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, as amended, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Renewed Facility Operating License No. NPF-42 is hereby amended to read as follows:

- (2) Technical Specifications and Environmental Protection Plan

- The Technical Specifications contained in Appendix A, as revised through Amendment No. 236, and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, are hereby incorporated in the license. The Corporation shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. The license amendment is effective as of its date of issuance and shall be implemented within 60 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Jennifer L. Dixon-Herrity, Chief  
Plant Licensing Branch IV  
Division of Operating Reactor Licensing  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Renewed Facility  
Operating License and  
Technical Specifications

Date of Issuance: August 7, 2023

ATTACHMENT TO LICENSE AMENDMENT NO. 236 TO  
RENEWED FACILITY OPERATING LICENSE NO. NPF-42  
WOLF CREEK GENERATING STATION, UNIT 1  
DOCKET NO. 50-482

Replace the following pages of Renewed Facility Operating License No. NPF-42 and the Appendix A, Technical Specifications, with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Renewed Facility Operating License

REMOVE  
4

INSERT  
4

Technical Specifications

REMOVE  
1.1-3  
1.1-4  
3.4-32  
3.4-33

INSERT  
1.1-3  
1.1-4  
3.4-32  
3.4-33

- (5) The Operating Corporation, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use in amounts as required any byproduct, source or special nuclear material without restriction to chemical or physical form, for sample analysis or instrument calibration or associated with radioactive apparatus or components; and
- (6) The Operating Corporation, pursuant to the Act and 10 CFR Parts 30, 40 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by the operation of the facility.
- C. This renewed operating license shall be deemed to contain and is subject to the conditions specified in the Commission's regulations in 10 CFR Chapter I and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission, now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:
- (1) Maximum Power Level
- The Operating Corporation is authorized to operate the facility at reactor core power levels not in excess of 3565 megawatts thermal (100% power) in accordance with the conditions specified herein.
- (2) Technical Specifications and Environmental Protection Plan
- The Technical Specifications contained in Appendix A, as revised through Amendment No. 236, and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 229, both of which are attached hereto, are hereby incorporated in the license. The Corporation shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.
- (3) Antitrust Conditions
- Evergy Kansas South, Inc. and Evergy Metro, Inc. shall comply with the antitrust conditions delineated in Appendix C to this license.
- (4) Environmental Qualification (Section 3.11, SSER #4, Section 3.11, SSER #5)\*
- Deleted per Amendment No. 141.

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\*The parenthetical notation following the title of many license conditions denotes the section of the supporting Safety Evaluation Report and/or its supplements wherein the license condition is discussed.

1.1 Definitions (continued)

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DOSE EQUIVALENT XE-133

DOSE EQUIVALENT XE-133 shall be that concentration of Xe-133 (microcuries per gram) that alone would produce the same acute dose to the whole body as the combined activities of noble gas nuclides Kr-85m, Kr-87, Kr-88, Xe-133m, Xe-133, Xe-135m, Xe-135, and Xe-138 actually present. If a specific noble gas nuclide is not detected, it should be assumed to be present at the minimum detectable activity. The determination of DOSE EQUIVALENT XE-133 shall be performed using the effective dose conversion factors for air submersion listed in Table III.1 of EPA Federal Guidance Report No. 12, 1993, "External Exposure to Radionuclides in Air, Water, and Soil."

ENGINEERED SAFETY  
FEATURE (ESF) RESPONSE  
TIME

The ESF RESPONSE TIME shall be that time interval from when the monitored parameter exceeds its ESF actuation setpoint at the channel sensor until the ESF equipment is capable of performing its safety function (i.e., the valves travel to their required positions, pump discharge pressures reach their required values, etc.). Times shall include diesel generator starting and sequence loading delays, where applicable. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured. In lieu of measurement, response time may be verified for selected components provided that the components and the methodology for verification have been previously reviewed and approved by the NRC.

LEAKAGE

LEAKAGE shall be:

- a. Identified LEAKAGE
  - 1. LEAKAGE, such as that from pump seals or valve packing (except reactor coolant pump (RCP) seal water injection or leakoff); that is captured and conducted to collection systems or a sump or collecting tank;
  - 2. LEAKAGE into the containment atmosphere from sources that are both specifically located and known to not interfere with the operation of leakage detection systems; or
  - 3. Reactor Coolant System (RCS) LEAKAGE through a steam generator to the Secondary System (primary to secondary LEAKAGE);

(continued)

1.1 Definitions (continued)

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LEAKAGE (continued)	<p>b. <u>Unidentified LEAKAGE</u></p> <p>All LEAKAGE (except RCP seal water injection or leakoff) that is not identified LEAKAGE;</p> <p>c. <u>Pressure Boundary LEAKAGE</u></p> <p>LEAKAGE (except primary to secondary LEAKAGE) through a fault in an RCS component body, pipe wall, or vessel wall. LEAKAGE past seals, packing, and gaskets is not pressure boundary LEAKAGE.</p>
MASTER RELAY TEST	<p>A MASTER RELAY TEST shall consist of energizing all master relays in the channel required for channel OPERABILITY and verifying the OPERABILITY of each required master relay. The MASTER RELAY TEST shall include a continuity check of each associated required slave relay. The MASTER RELAY TEST may be performed by means of any series of sequential, overlapping, or total steps.</p>
MODE	<p>A MODE shall correspond to any one inclusive combination of core reactivity condition, power level, average reactor coolant temperature, and reactor vessel head closure bolt tensioning specified in Table 1.1-1 with fuel in the reactor vessel.</p>
OPERABLE--OPERABILITY	<p>A system, subsystem, train, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, train, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).</p>
PHYSICS TESTS	<p>PHYSICS TESTS shall be those tests performed to measure the fundamental nuclear characteristics of the reactor core and related instrumentation. These tests are:</p> <ul style="list-style-type: none"><li>a. Described in Chapter 14, of the USAR;</li><li>b. Authorized under the provisions of 10 CFR 50.59; or</li><li>c. Otherwise approved by the Nuclear Regulatory Commission.</li></ul>

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(continued)

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.13 RCS Operational LEAKAGE

LCO 3.4.13 RCS operational LEAKAGE shall be limited to:

- a. No pressure boundary LEAKAGE;
- b. 1 gpm unidentified LEAKAGE;
- c. 10 gpm identified LEAKAGE; and
- d. 150 gallons per day primary to secondary LEAKAGE through any one steam generator (SG).

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Pressure boundary LEAKAGE exists.	A.1 Isolate affected component, pipe, or vessel from the RCS by use of a closed manual valve, closed and de-activated automatic valve, blind flange, or check valve.	4 hours
B. RCS operational LEAKAGE not within limits for reasons other than pressure boundary LEAKAGE or primary to secondary LEAKAGE.	B.1 Reduce LEAKAGE to within limits.	4 hours

(continued)



ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>C. Required Action and associated Completion Time not met.</p> <p><u>OR</u></p> <p>Primary to secondary LEAKAGE not within limit.</p>	<p>C.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>C.2 Be in MODE 5.</p>	<p>6 hours</p> <p>36 hours</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.4.13.1 -----NOTES-----</p> <ol style="list-style-type: none"> <li>1. Not required to be performed until 12 hours after establishment of steady state operation.</li> <li>2. Not applicable to primary to secondary LEAKAGE.</li> </ol> <p>-----</p> <p>Verify RCS operational LEAKAGE is within limits by performance of RCS water inventory balance.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>
<p>SR 3.4.13.2 -----NOTE-----</p> <p>Not required to be performed until 12 hours after establishment of steady state operation.</p> <p>-----</p> <p>Verify primary to secondary LEAKAGE is <math>\leq</math> 150 gallons per day through any one SG.</p>	<p>In accordance with the Surveillance Frequency Control Program</p>



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 236 TO

RENEWED FACILITY OPERATING LICENSE NO. NPF-42

WOLF CREEK NUCLEAR OPERATING CORPORATION

WOLF CREEK GENERATING STATION, UNIT 1

DOCKET NO. 50-482

1.0 INTRODUCTION

By application dated December 15, 2022 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML22353A555), Wolf Creek Nuclear Operating Corporation (WCNOC, the licensee) submitted a license amendment request (LAR) for an amendment to the Technical Specifications (TSs) for the Wolf Creek Generating Station (Wolf Creek).

In its application, the licensee requested that the U.S. Nuclear Regulatory Commission (NRC, the Commission) process the proposed LAR under the Consolidated Line Item Improvement Process (CLIP).

The proposed changes would revise the TSs related to reactor coolant system (RCS) operational leakage and the definition of the term "LEAKAGE" based on Technical Specifications Task Force (TSTF) Traveler TSTF-554, Revision 1, "Revise Reactor Coolant Leakage Requirements" (ML20016A233), and the associated NRC staff safety evaluation (SE) of TSTF-554, dated December 18, 2020 (ML20322A024).

1.1 Reactor Coolant System Description

Components that contain or transport the coolant to or from the reactor core make up the RCS. Materials can degrade as a result of the complex interaction of the materials, the stresses they encounter, and through operational wear or mechanical deterioration during normal and upset operating environments. Such material degradation could lead to leakage of reactor coolant into containment buildings.

The RCS leakage falls under two main categories – identified leakage and unidentified leakage. Identifying the sources of leakage is necessary for prompt identification of potentially adverse conditions, assessment of safety significance of the leakage, and quick corrective action. A limited amount of leakage from the reactor coolant pressure boundary (RCPB) directly into the containment atmosphere is expected as the RCS and other connected systems cannot be made 100 percent leak tight. This leakage is detected, located, and isolated from the containment atmosphere so as to not interfere with measurement of unexpected RCS leakage detection.

The safety significance of RCS leakage varies widely depending on its source, rate, and duration. Therefore, detecting and monitoring RCS leakage into the containment area is necessary. Separation of identified leakage from unidentified leakage provides quantitative information to the operators, allowing them to take corrective action should leakage occur that is detrimental to the safety of the unit and the public.

## 1.2 Proposed TS Changes to Adopt TSTF-554

The licensee proposed changes consistent with NRC staff approved TSTF-554 that would revise the TSs related to RCS operational leakage and the definitions of leakage. Specifically, the licensee proposed the following changes be made to the Wolf Creek TSs in order to adopt TSTF-554:

- The TS 1.1 identified LEAKAGE definition a.2 would be revised to remove the exclusion of pressure boundary leakage from identified leakage by deleting “either” and the phrase “not to be pressure boundary LEAKAGE.”
- The TS 1.1 pressure boundary LEAKAGE definition c would be revised to delete the word “nonisolable.” The sentence, “LEAKAGE past seals, packing, and gaskets is not pressure boundary LEAKAGE,” would be relocated from the Standard Technical Specification (STS) Bases and added to the definition.
- Additionally, the LEAKAGE definition would be revised by other editorial and punctuation changes to reflect the deletion and listed definitions.
- The ACTIONS section of TS 3.4.13, “RCS Operational LEAKAGE,” would be revised to add a new Condition A to isolate the pressure boundary leakage within 4 hours.
- Existing Condition B would be revised to be applicable should any Action of LCO 3.4.13 not be met by deleting “of Condition A.”
- Existing Conditions A and B would be renumbered as Conditions B and C to reflect the new Condition A. The existing Condition B would be revised to delete the condition for when pressure boundary leakage exists because pressure boundary leakage would be addressed by the new Condition A. Finally, the Required Actions associated with existing Conditions A and B would be renumbered accordingly.

## 2.0 REGULATORY EVALUATION

The regulation at Title 10 of the *Code of Federal Regulations* (10 CFR) 50.36(c)(2) requires that TSs include limiting conditions for operation (LCOs). Per 10 CFR 50.36(c)(2)(i), LCOs “are the lowest functional capability or performance levels of equipment required for safe operation of the facility.” The regulation also requires that “[w]hen a limiting condition for operation of a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the technical specifications until the condition can be met.”

The regulation at 10 CFR 50.2, “Definitions,” defines RCPB as “all those pressure-containing components of boiling and pressurized water-cooled nuclear power reactors, such as pressure vessels, piping, pumps, and valves...”

Regulatory Guide (RG) 1.45, Revision 1, "Guidance on Monitoring and Responding to Reactor Coolant System Leakage," dated May 2008 (ML073200271), section B, Discussion "Leakage Separation," provides information related to separation between identified and unidentified leakage.

The NRC staff's guidance for the review of TSs is in chapter 16.0, "Technical Specifications," of NUREG-0800, Revision 3, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR [Light-Water Reactor] Edition" (SRP), dated March 2010 (ML100351425). As described therein, as part of the regulatory standardization effort, the NRC staff has prepared STSs for each of the LWR nuclear designs. Accordingly, the NRC staff's review includes consideration of whether the proposed changes are consistent with NUREG-1431,<sup>1</sup> which provides STSs for Westinghouse designs, as modified by NRC-approved travelers. Traveler TSTF-554 revised the STSs related to RCS operational leakage and the definition of the term "LEAKAGE." The NRC approved TSTF-554, under the CLIP on December 18, 2020.

### 3.0 TECHNICAL EVALUATION

#### 3.1 Proposed TS Changes to Adopt TSTF-554

The NRC staff compared the licensee's proposed TS changes in section 1.1 of this SE against the changes approved in TSTF-554. In accordance with the SRP chapter 16.0, the NRC staff determined that the STS changes approved in TSTF-554 are applicable to the Wolf Creek TSs because Wolf Creek is a Westinghouse pressurized-water reactor (PWR) and the NRC staff approved the TSTF-554 changes for PWR designs. The NRC staff finds that the licensee's proposed changes to the Wolf Creek TSs in section 1.1 of this SE are consistent with those found acceptable in TSTF-554.

In the SE of TSTF-554, the NRC staff concluded that TSTF-554 changes to the STS 1.1 definition of "LEAKAGE" and to STS 3.4.13, the LCO addressing conditions and required actions when RCS pressure boundary leakage exists, are acceptable. The NRC staff found that removing the term "nonisolable" provides a clearer definition of pressure boundary leakage, and that the source of the leakage is not relevant to this capability provided that separate, appropriate limits on pressure boundary leakage have been established. Therefore, the proposed change to the definition of identified leakage was acceptable as it did not conflict with the RCPB definition in 10 CFR 50.2 and was consistent with RG 1.45. The NRC staff further found that the proposed revision to Wolf Creek TS 3.4.13 Condition A regarding pressure boundary leakage, which is consistent with the proposed new STS 3.4.13, Condition A on pressure boundary leakage, including the new STS associated Required Action A.1 and Completion Time, is acceptable because the LCO revisions continue to specify the lowest functional capability of equipment, identify remedial actions and require shutdown of the reactor if the remedial actions cannot be met.

Based on the discussions above, the NRC staff finds that the proposed changes to Wolf Creek TSs 1.1.a.2 and 1.1.c, and to LCO 3.4.13 correctly specify the lowest functional capability or performance levels of equipment required for safe operation of the facility in accordance with

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<sup>1</sup> U. S. Nuclear Regulatory Commission, "Standard Technical Specifications, Westinghouse Plants," NUREG-1431, Volume 1, "Specifications," and Volume 2, "Bases," Revision 5, September 2021 (ML21259A155 and ML21259A159, respectively).

10 CFR 50.36(c)(2)(i). Also, the remedial actions to be taken until each LCO can be met provide protection to the health and safety of the public, thereby satisfying 10 CFR 50.36(c)(2)(i).

### 3.2 TS Change Consistency

The NRC staff reviewed the proposed TS changes for technical clarity and consistency with the existing guidance for customary terminology and formatting in chapter 16.0 of the SRP and NUREG-1431. The NRC staff finds that the proposed changes are consistent with these documents and are therefore acceptable.

### 4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Kansas State official was notified of the proposed issuance of the amendment on May 24, 2023. The State official had no comments.

### 5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding published in the *Federal Register* on February 21, 2023 (88 FR 10559). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

### 6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) there is reasonable assurance that such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: Ravi Grover, NRR

Date: August 7, 2023

SUBJECT: WOLF CREEK GENERATING STATION, UNIT 1 - ISSUANCE OF AMENDMENT NO. 236 RE: REVISION TO TECHNICAL SPECIFICATIONS TO ADOPT TSTF-554, "REVISE REACTOR COOLANT LEAKAGE REQUIREMENTS" (EPID L-2022-LLA-0191) DATED AUGUST 7, 2023

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**NRR-058**

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DATE	7/20/2023	7/24/2023	5/18/2023
OFFICE	OGC	NRR/DORL/LPL4/BC	NRR/DORL/LPL4/PM
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DATE	8/4/2023	8/7/2023	8/7/2023

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