



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

January 6, 2020

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 RE: REVISION TO TECHNICAL SPECIFICATION 3.6.3,
"CONTAINMENT ISOLATION VALVES," AND SURVEILLANCE
REQUIREMENT 3.6.3.1 TO REMOVE USE OF A BLIND FLANGE
(EPID L-2019-LLA-0036)

Dear Mr. Reasoner:

The U.S. Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment No. 223 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 February 25, 2019.

The amendment would revise TS 3.6.3, "Containment Isolation Valves," to remove the use of a blind flange to meet Limiting Condition for Operation (LCO) 3.6.3, Condition D, Required Action D.1. Also, it revises Surveillance Requirement 3.6.3.1 to remove the use of blind flange while performing the surveillance consistent with the requirements of the LCO.

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

Sincerely,

/RA/

Balwant K. Singal, Senior Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-482

Enclosures:

1. Amendment No. 223 to NPF-42
2. Safety Evaluation

cc: Listserv



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WASHINGTON, D.C. 20555-0001

WOLF CREEK NUCLEAR OPERATING CORPORATION

WOLF CREEK GENERATING STATION, UNIT 1

DOCKET NO. 50-482

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 223
Renewed 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 February 25, 2019, 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 license 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. 223, 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 90 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

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: January 6, 2020

ATTACHMENT TO LICENSE AMENDMENT NO. 223 TO
RENEWED FACILITY OPERATING LICENSE NO. NPF-42

WOLF CREEK GENERATING STATION, UNIT 1

DOCKET NO. 50-482

Replace the following pages of the Renewed Facility Operating License No. NPF-42 and 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

INSERT

4

4

Technical Specifications

REMOVE

INSERT

3.6-10

3.6-10

3.6-11

3.6-11

- (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. 223, 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) Antitrust Conditions
Kansas Gas & Electric Company and Kansas City Power & Light Company 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.

*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.

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. One or more penetration flow paths with one or more containment purge valves not within leakage limits.	D.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve or closed manual valve.	24 hours
	<p><u>AND</u></p> <p>D.2 -----NOTES-----</p> <ol style="list-style-type: none"> 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by administrative means. <p>Verify the affected penetration flow path is isolated.</p> <p><u>AND</u></p>	<p>Once per 31 days for isolation devices outside containment</p> <p><u>AND</u></p> <p>Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment</p> <p>(continued)</p>

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. (continued)	D.3 Perform SR 3.6.3.6 or SR 3.6.3.7 for the resilient seal purge valves closed to comply with Required Action D.1.	Once per 92 days
E. Required Action and associated Completion Time not met.	E.1 Be in MODE 3. <u>AND</u> E.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.6.3.1 Verify each containment shutdown purge valve is sealed closed except for one purge valve in a penetration flow path while in Condition D of this LCO.	Once per 31 days for isolation devices outside containment <u>AND</u> Prior to entering MODE 4 from MODE 5 if not performed within the previous 92 days for isolation devices inside containment

(continued)



UNITED STATES
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WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 223 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 February 25, 2019 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML19064A591), Wolf Creek Nuclear Operating Corporation (WCNOC, the licensee) requested changes to the Technical Specifications (TSs) for Wolf Creek Generating Station, Unit 1 (Wolf Creek).

The proposed change would revise TS 3.6.3, "Containment Isolation Valves," to remove the use of a blind flange to meet Limiting Condition for Operation (LCO) 3.6.3, Condition D, Required Action D.1. Also, it revises Surveillance Requirement (SR) 3.6.3.1 to remove the use of blind flange while performing the surveillance consistent with the requirements of the LCO.

2.0 REGULATORY EVALUATION

2.1 System Description

The containment shutdown purge¹ and the mini-purge systems are part of the containment heating, ventilation, and air conditioning (HVAC) systems. The containment shutdown purge system operates to supply outside air into the containment for ventilation and cooling or heating needed for prolonged containment access following a shutdown and during refueling (MODE 6 and defueled). The system may also be used to reduce the concentration of noble gases within containment prior to and during personnel access while the reactor is in the cold shutdown mode (MODE 5).

The containment mini-purge system may be used during reactor power operations to reduce the concentration of noble gases within the containment prior to and during personnel access or to equalize internal and external pressures. The containment mini-purge system may also be used in MODES 5 and 6 (cold shutdown and refueling and defueled). The mini-purge must not be run in parallel with the containment shutdown purge system to prevent damage to fans and

¹ Referred to as containment purge and exhaust in WCNOC letter dated February 25, 2019.

ductwork. During reactor coolant system drain-down activities, hydrogen from the pressurizer can be directed to the containment shutdown purge system or the containment mini-purge system via temporary hoses.

The containment shutdown purge and mini-purge systems are not safety-related, except for associated containment penetrations. The supply and exhaust containment penetrations each contain two isolation valves. The containment penetration and associated isolation valves form part of the containment boundary. The containment isolation valves' safety function is related to minimizing the release of radiological material outside containment during a design-basis accident (DBA). The containment isolation valves in the system are selected, tested, and located in accordance with the requirements of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix A, "General Design Criteria [GDC] for Nuclear Power Plants," GDC 54, "Piping systems penetrating containment," GDC 56, "Primary containment isolation," and 10 CFR Part 50, Appendix J, "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors," Type C testing. The containment shutdown purge system containment isolation valves are capable of rapid closure, following their respective DBA (fuel handling accident for the shutdown purge valves and loss-of-cooling accident (LOCA) for the mini-purge valves), to limit the escape of fission products from the containment. The supply and exhaust isolation valves are air-operated butterfly valves.

2.2 Description of Proposed TS Changes

Wolf Creek TS 3.6.3 establishes LCOs which are the lowest functional capability or performance levels of equipment, in this case containment isolation valves, required for safe operation of the facility. LCO 3.6.3 requires that while the plant is in MODES 1, 2, 3, and 4, each containment isolation valve shall be OPERABLE. When leakage for one or more containment penetration flow paths with one or more containment purge isolation valves is not within allowable limits, Condition D is entered. Required Action D.1 isolates the affected penetration flow path by use of at least one closed and deactivated automatic valve, closed manual valve, or blind flange. Required Action D.1 has a Completion Time of 24 hours.

Because of their large size, the 36-inch containment purge supply and exhaust valves are not qualified for automatic closure from their open position under DBA conditions. The safety analyses assume that the 36-inch shutdown purge valves are closed at event initiation. Therefore, the 36-inch containment purge supply and exhaust isolation valves are normally sealed closed in MODES 1, 2, 3, and 4 to ensure the containment boundary is maintained. Sealed closed means the valves are closed and deactivated.

The design of the containment purge and exhaust system includes spectacle blind flanges installed on both supply and exhaust lines penetrating containment. However, these are installed beyond the seismic Category I class break on these lines and are nonsafety-related. They are normally used for valve leakage testing during refueling outages. Because they are not safety-related, they cannot be credited for isolating the containment penetrations associated with the containment purge and exhaust system.

The licensee proposes to revise TS 3.6.3 to remove the option to use a blind flange to meet LCO 3.6.3, Condition D, Required Action D.1. Also, the licensee proposes to revise SR 3.6.3.1 to remove the use of blind flange while performing the surveillance consistent with the requirements of the LCO.

LCO 3.6.3, Condition D, Required Action D.1 currently states:

Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.

LCO 3.6.3, Condition D, Required Action D.1's proposed change would state:

Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve or closed manual valve.

SR 3.6.3.1 currently states:

Verify each containment shutdown purge valve is sealed closed or closed and blind flange installed except for one purge valve in a penetration flow path while in Condition D of this LCO.

SR 3.6.3.1's proposed change would state:

Verify each containment shutdown purge valve is sealed closed except for one purge valve in a penetration flow path while in Condition D of this LCO.

2.3 Regulatory Requirements

Under 10 CFR 50.92(a), determinations on whether to grant a license amendment request are guided by the considerations that govern the issuance of initial licenses or construction permits to the extent applicable and appropriate. Both the common standards for licenses and construction permits in 10 CFR 50.40(a), and those specifically for issuance of operating licenses in 10 CFR 50.57(a)(3), provide that there must be reasonable assurance that the activities at issue will not endanger the health and safety of the public.

In 10 CFR 50.36, "Technical specifications," the U.S. Nuclear Regulatory Commission (NRC, the Commission) established its regulatory requirements related to the content of TSs. Pursuant to 10 CFR 50.36(c), TS are required to include items in among other things, the following categories related to station operation: (1) safety limits, limiting safety system settings, and limiting control settings; (2) LCOs; (3) SRs; (4) design features; and (5) administrative controls.

Per 10 CFR 50.36(c)(2)(i):

Limiting conditions for operation are the lowest functional capability or performance levels of equipment required for safe operation of the facility. When 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 NRC staff's review of the revised action is to verify that the revised action will continue to provide reasonable assurance of public health and safety during the time the LCO is not met.

Per 10 CFR 50.36(c)(3), "Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for

operation will be met." The NRC staff's review of the revised surveillance requirements is to assure that they state the appropriate requirements.

Appendix A to 10 CFR Part 50 establishes minimum requirements for the principal design criteria for water-cooled nuclear power plants similar in design and location to plants for which construction permits have been issued by the NRC. The GDC applicable to this license amendment request are GDC 54 and GDC 56. Based on discussions in Updated Safety Analysis Report (USAR)², Chapters 3.1, "Conformance with NRC General Design Criteria," (ADAMS Accession No. ML19092A069) and 6.2.4, "Containment Isolation System," (ADAMS Accession No. ML19092A075), Wolf Creek is designed to meet the requirements of GDC 54 and GDC 56.

GDC 54 states:

Piping systems penetrating primary reactor containment shall be provided with leak detection, isolation, and containment capabilities having redundancy, reliability, and performance capabilities which reflect the importance to safety of isolating these piping systems. Such piping systems shall be designed with a capability to test periodically the operability of the isolation valves and associated apparatus and to determine if valve leakage is within acceptable limits.

GDC 56 states:

Each line that connects directly to the containment atmosphere and penetrates primary reactor containment shall be provided with containment isolation valves as follows, unless it can be demonstrated that the containment isolation provisions for a specific class of lines, such as instrument lines, are acceptable on some other defined basis:

- (1) One locked closed isolation valve inside and one locked closed isolation valve outside containment; or
- (2) One automatic isolation valve inside and one locked closed isolation valve outside containment; or
- (3) One locked closed isolation valve inside and one automatic isolation valve outside containment. A simple check valve may not be used as the automatic isolation valve outside containment; or
- (4) One automatic isolation valve inside and one automatic isolation valve outside containment. A simple check valve may not be used as the automatic isolation valve outside containment.

Isolation valves outside containment shall be located as close to the containment as practical and upon loss of actuating power, automatic isolation valves shall be designed to take the position that provides greater safety.

²WOLF CREEK USAR, Revision 32 (ADAMS Accession Package No. ML19092A099).

3.0 TECHNICAL EVALUATION

The NRC staff's review is based on the information provided by the licensee in its application dated February 25, 2019, and the following documents for Wolf Creek:

- USAR Chapter 6, Section 6.2.4, "Containment Isolation System," including Figure 6.2.4-1, "Containment Penetrations" (ADAMS Accession No. ML19092A075)
- USAR Chapter 9, Section 9.4.6, "Containment HVAC" (ADAMS Accession No. ML19092A083), including Figure 9.4-6-04, "Piping and Instrumentation Diagram Containment Purge Systems HVAC" (ADAMS Accession No. ML19092A072)

As described in Section 2.1 of this safety evaluation, the containment shutdown purge system supplies outside air for ventilation and cooling or heating of the containment during containment access following a plant shutdown and during refueling. The system is also used to control the concentration of noble gases within the containment during personnel access. Due to the large size, the containment isolation valves for the system are not qualified for automatic closure following a DBA. Based on the assumption in the safety analyses, these valves are normally closed and deactivated in MODES 1, 2, 3, and 4.

LCO 3.6.3 requires that while the plant is in MODES 1, 2, 3, and 4, each containment isolation valve shall be OPERABLE. When one or more containment penetration flow paths contain one or more containment purge isolation valves whose leakage is not within allowable limits, Condition D is entered. Required Action D.1 is to isolate the affected penetration flow path by use of at least one closed and deactivated valve, closed manual valve, or blind flange. Required Action D.1 has a Completion Time of 24 hours.

The licensee has proposed to revise TS 3.6.3 to remove the use of a blind flange for Required Action D.1 for Condition D, "One or more penetration flow paths with one or more containment purge valves not within leakage limits." The existing Required Action D.1 for Condition D requires that the affected flow path be isolated by use of at least one closed and deactivated automatic valve, a closed manual valve, or installation of a blind flange. Because the blind flanges are in a non-seismic pipe, the blind flanges are not considered safety-related and cannot be credited for containment isolation. The proposed change removes the option of the use of a blind flange for containment isolation for the containment shutdown purge system and the mini-purge system. SR 3.6.3.1 is also being revised to remove the use of blind flange while performing the surveillance consistent with the change to Required Action D.1.

Based on the discussion above, the NRC staff concludes that the proposed change for Wolf Creek is consistent with the requirements of GDC 54 of Appendix A to 10 CFR Part 50. There is a reasonable assurance that the containment purge penetrations will continue to provide leak detection, isolation and containment capabilities having redundancy, reliability, and performance capabilities consistent with the design and licensing basis requirements. The penetrations will continue to have the capability to periodically test the operability of the isolation valves and associated apparatus and to determine if valve leakage is within acceptable limits.

Also, the NRC staff concludes that the proposed change for Wolf Creek is consistent with the requirements of GDC 56 of Appendix A to 10 CFR Part 50. De-activating one of the containment purge valves is similar to a locked closed valve. Hence, the valve will not be susceptible to inadvertent actuation. The configuration of the containment purge containment penetration is consistent with configuration 2 or 3 of GDC 56 with one automatic isolation valve

and a "locked" closed isolation valve inside containment or outside containment (based on which automatic valve is deactivated).

Based on the discussion above, the NRC staff has determined the revised action to Required Action D.1 for Condition D would continue to provide reasonable assurance to justify continued operation of the plant in the event that LCO 3.6.3 is no longer met because the option to use one closed and deactivated automatic valve or a closed manual valve to isolate containment penetration flow paths with containment purge valves not within leakage limits remain as containment options.

In addition, the removal of the blind flange from SR 3.6.3.1 is consistent with the proposed change to LCO 3.6.3, Condition D. The amended SR verifies the modified configuration of the containment shutdown purge line to ensure that the facility operation will be within safety limits and that the requirements of LCO 3.6.3 will be met. Therefore, the NRC staff concludes that the proposed changes to TS 3.6.3 are 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 November 6, 2019. 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 and changes surveillance requirements. 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, published in the *Federal Register* on May 7, 2019 (84 FR 19974), and there has been no public comment on such finding. 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: B. Heida, NRR

Date: January 6, 2020

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***via email dated 12/6/19**

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