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

December 21, 2012

Mr. Matthew W. Sunseri
President and Chief Executive Officer
Wolf Creek Nuclear Operating Corporation
Post Office Box 411
Burlington, KS 66839

SUBJECT: WOLF CREEK GENERATING STATION - ISSUANCE OF AMENDMENT RE: REQUEST TO REVISE TECHNICAL SPECIFICATION 3.6.6, "CONTAINMENT SPRAY AND COOLING SYSTEMS" (TAC NO. ME8676)

Dear Mr. Sunseri:

The U.S. Nuclear Regulatory Commission (the Commission) has issued the enclosed Amendment No. 203 to Renewed Facility Operating License No. NPF-42 for the Wolf Creek Generating Station. The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated May 2, 2012, as supplemented by letter dated October 15, 2012.

The amendment revises TS 3.6.6, "Containment Spray and Cooling Systems," to replace the current 10-year surveillance frequency for testing the containment spray nozzles, as specified in TS Surveillance Requirement 3.6.6.8, with an event-based frequency.

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

Sincerely,

CFLyon

Carl F. Lyon, Project Manager
Plant Licensing Branch IV
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket No. 50-482

Enclosures:
1. Amendment No. 203 to NPF-42
2. Safety Evaluation

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

WOLF CREEK NUCLEAR OPERATING CORPORATION

WOLF CREEK GENERATING STATION

DOCKET NO. 50-482

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 203
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 (the facility) Renewed Facility Operating License No. NPF-42 filed by the Wolf Creek Nuclear Operating Corporation (the Corporation), dated May 2, 2012, as supplemented by letter dated October 15, 2012, 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. 203, 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

Michael T. Markley, 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: December 21, 2012

ATTACHMENT TO LICENSE AMENDMENT NO. 203

RENEWED FACILITY OPERATING LICENSE NO. NPF-42

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
3.6-18	3.6-18

(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. 203, 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.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.6.3	Not Used.	
SR 3.6.6.4	Verify each containment spray pump's developed head at the flow test point is greater than or equal to the required developed head.	In accordance with the Inservice Testing Program
SR 3.6.6.5	Verify each automatic containment spray valve in the flow path that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.	18 months
SR 3.6.6.6	Verify each containment spray pump starts automatically on an actual or simulated actuation signal.	18 months
SR 3.6.6.7	Verify each containment cooling train starts automatically and minimum cooling water flow rate is established on an actual or simulated actuation signal.	18 months
SR 3.6.6.8	Verify each spray nozzle is unobstructed.	Following maintenance which could result in nozzle blockage

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SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 203 TO

RENEWED FACILITY OPERATING LICENSE NO. NPF-42

WOLF CREEK NUCLEAR OPERATING CORPORATION

WOLF CREEK GENERATING STATION

DOCKET NO. 50-482

1.0 INTRODUCTION

By letter dated May 2, 2012, as supplemented by letter dated October 15, 2012 (Agencywide Documents Access and Management System (ADAMS) Accession Nos. ML12132A050 and ML12324A253, respectively), Wolf Creek Nuclear Operating Corporation (WCNOC, the licensee) proposed changes to the Technical Specifications (TSs) for Wolf Creek Generating Station (WCGS) to revise TS 3.6.6, "Containment Spray and Cooling Systems." The proposed change would replace the current 10-year surveillance frequency for verifying the containment spray nozzles are unobstructed with an event-based frequency. Specifically, the licensee proposed changing each spray nozzle obstruction surveillance frequency specified in Surveillance Requirement (SR) 3.6.6.8 "Verify each spray nozzle is unobstructed" from a fixed "10 years" to "Following maintenance which could result in nozzle blockage."

The supplemental letter dated October 15, 2012, provided additional information that clarified the application, did not expand the scope of the application as originally noticed, and did not change the U.S. Nuclear Regulatory Commission (NRC or the Commission) staff's original proposed no significant hazards consideration determination as published in the *Federal Register* on September 4, 2012 (77 FR 53931).

2.0 REGULATORY EVALUATION

The NRC's regulatory requirements related to the content of the TSs are contained in Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.36, "Technical specifications." The regulations in 10 CFR 50.36(c)(3), "Surveillance requirements," state, that

> 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 acceptance criteria for the requested TS changes are based on the following General Design Criteria (GDC) of 10 CFR Part 50, Appendix A, "General Design Criteria for Nuclear Power Plants":

Criterion 38, "Containment heat removal," states, in part, that

> A system to remove heat from the reactor containment shall be provided. The system safety function shall be to reduce rapidly, consistent with the functioning of other associated systems, the containment pressure and temperature following any loss-of-coolant accident and maintain them at acceptably low levels.

Criterion 39, "Inspection of containment heat removal system," states, that

> The containment heat removal system shall be designed to permit appropriate periodic inspection of important components, such as the torus, sumps, spray nozzles, and piping to assure the integrity and capability of the system.

Criterion 40, "Testing of containment heat removal system," states, that

> The containment heat removal system shall be designed to permit appropriate periodic pressure and functional testing to assure (1) the structural and leaktight integrity of its components, (2) the operability and performance of the active components of the system, and (3) the operability of the system as a whole, and under conditions as close to the design as practical the performance of the full operational sequence that brings the system into operation, including operation of applicable portions of the protection system, the transfer between normal and emergency power sources, and the operation of the associated cooling water system.

The containment spray system (CSS) is a containment heat removal system. NUREG-1431, Revision 4, "Standard Technical Specifications Westinghouse Plants," April 2012 (ADAMS Accession No. ML12100A222), specifies in SR 3.6.6A.8 a testing frequency of 10 years for the nozzle blockage test. While this is not a requirement, it had been the NRC's and industry's judgment of an acceptable frequency for this test. The current TS requires the licensee to test the containment spray nozzles for obstruction at a fixed frequency of 10 years. The NRC staff needs to, (1) ensure that changes which result in relaxation (less restrictive condition) of current TS requirements have detailed justification and, (2) make a determination that the proposed changes maintain adequate protection to public health and safety.

3.0 TECHNICAL EVALUATION

3.1 Background

The CSS is an engineered safety feature used to perform containment atmosphere cooling in response to a postulated loss-of-coolant accident or main steam line break accident. The system has three major functions: (a) maintain containment temperature and pressure within

design limits during post accident conditions, (b) remove airborne iodine from the containment atmosphere, and (c) establish the sump pH to help retain elemental iodine. The system performs these functions by spraying chemically treated water into the containment through spray headers which are located under the domed roof of the containment building.

Historically, the frequency of the SR 3.6.6.8 has gone from once every 5 years to once every 10 years. During the past several years, the NRC staff has approved a number of license amendment requests to change the frequency of this SR from once every 10 years to a condition or event-based performance after any maintenance/modification or event evaluated as having a real possibility to introduce foreign material or debris capable of obstructing a nozzle where the air flow test could reveal the obstruction. Examples of similar license amendment approvals can be found for Donald C. Cook Nuclear Plant, Units 1 and 2 (ADAMS Accession No. ML11112A123) and for Catawba Nuclear Station, Units 1 and 2, McGuire Nuclear Station, Units 1 and 2, and Oconee Nuclear Station, Units 1 and 2 (ADAMS Accession No. ML100690007).

3.2 Proposed TS Change

The current TS SR 3.6.6.8 frequency states:

10 years

The licensee proposes to revise the TS SR 3.6.6.8 frequency to state:

Following maintenance which could result in nozzle blockage

3.3 NRC Staff Evaluation

In its license amendment request dated May 2, 2012, the licensee discussed two potential nozzle blockage mechanisms: corrosion and foreign material resulting from construction errors. The licensee stated that the CSS piping, header, and nozzles are highly resistant to corrosion because they are fabricated from stainless steel and conditions affecting corrosion of stainless steel (i.e., stress, temperature, and chlorides), are not present. The system header and nozzles are not normally exposed to fluids or debris; however standing water is present in system piping up to the normally closed containment isolation valves. NRC staff previously reviewed industry experience regarding issues identified during spray nozzle testing and found that the problems in pressurized water reactor CSS involved construction errors. This was used in developing NUREG-1366, "Improvements to Technical Specification Surveillance Requirements," December 1992. The licensee stated that the CSS nozzles have been tested satisfactorily three times since completion of construction, demonstrating that the construction problems identified in NUREG-1366 do not exist. These tests included the preoperational test of the CSS in March 1985 which verified that the spray nozzles in the containment spray header are clear of obstructions. This was demonstrated using test connections to pass air through the header. The periodic in-service air flow tests conducted in April 1990 and April 2002 were conducted initially at a 5-year interval and are currently performed at a 10-year interval. The licensee stated that the results of each test demonstrated unobstructed flow through each nozzle.

The licensee stated that due to the location of the spray headers, introduction of foreign material is highly unlikely. In a request for additional information (RAI) dated September 17, 2012 (ADAMS Accession No. ML12254B064), the NRC staff requested that the licensee explain why it is unlikely that the location of the containment spray header would not cause introduction of foreign material into the CSS. In its RAI response dated October 15, 2012, the licensee stated that the containment spray ring headers and nozzles are located under the domed roof of the containment building at a minimum of 40 feet above the polar crane rails and 115 feet above the top of the refueling cavity. The nozzles are located above all equipment in containment except for the polar crane maintenance truss and containment lighting. The licensee stated that it is unlikely for any foreign material to travel upward from a work area to enter into the nozzle thus, entering into the spray system. In addition, the licensee stated that the maintenance and modification history of the CSS indicated that there has not been any maintenance or modification to the system that would have potentially impacted the spray nozzles.

The most likely cause of spray header and nozzle blockage is the introduction of foreign material following maintenance, involving opening portions of the system downstream of the containment isolation valves. The licensee uses Foreign Material Exclusion (FME) and cleanliness control practices, including post-work inspections that minimize the intrusion of foreign material into the CSS headers and nozzles. The NRC staff's RAI dated September 17, 2012, requested the licensee to confirm that the FME procedure requires performing an inspection when closing a system, structure, or component, following maintenance or modification, in order to ensure that all foreign material is removed. In its RAI response dated October 15, 2012, the licensee stated that its internal procedure, AP 12-003, Revision 10, "Foreign Material Exclusion," provides the requirements for FME pre-closure inspection and verification that there is no foreign material present in the system or component during final system closure. The procedure also provides additional requirements in regard to post-inspection of tools, removal of internal devices if used, and quality control verification that no foreign material is in the system and components immediately prior to final closure.

The NRC staff's RAI dated September 17, 2012, also requested the licensee to describe the training and/or pre-job briefs received by personnel in order to be qualified to work on open systems, structures, and components such as the CSS. In its RAI response dated October 15, 2012, the licensee stated that the requirements of 10 CFR 50 Appendix B, for training of personnel performing quality related work are implemented through an Institute of Nuclear Power Operation accredited training program. The licensee referred to its internal procedure AP 30A-005, Revision 13, "Training and Qualification," which establishes the requirements for training and qualification of personnel to perform activities affecting plant operation and maintenance. The licensee stated that the objectives of the FME training includes responsibilities for establishing FME controls, levels of FME controls, conditions that constitute loss of FME integrity, and actions to be taken upon loss of FME integrity. The licensee stated that its internal procedure, AP 12-003, Revision 10, "Foreign Material Exclusion," requires that personnel performing operating, maintenance or inspection activities on open systems or within an FME area shall be trained to implement the requirements of procedure AP 12-003 or continuously be under supervision of someone trained to implement the requirements of this procedure. Regarding pre-job briefs, the licensee's internal procedure AP 22-001, Revision 13, "Conduct of Pre-job and Post-Job Briefs," provides guidance for pre-job and post-job briefs to help ensure activities are safely performed. Specifically, the licensee stated that FME pre-job

briefs require discussion and understanding of the FME controls and requirements prior to performance of the work activity.

3.4 Conclusion

The NRC staff has reviewed the licensee's analysis provided in the submittal dated May 2, 2012, as supplemented October 15, 2012, and determined that the formation of corrosion products in the CSS header and nozzles is unlikely, the nozzles would not be obstructed due to construction-related problems identified in NUREG-1366, and introduction of foreign material into the spray headers is highly unlikely. Furthermore, the NRC staff determined that the licensee's training program of personnel performing quality-related work on the CSS is acceptable. Thus, the design of the WCGS CSS along with the licensee's FME control program provides reasonable assurance that the potential for nozzle obstruction is acceptably low. In addition, the NRC staff's review of industry-wide experience indicated that the licensee's proposed change has been implemented without issue at other sites. Based on these findings, the NRC staff concludes that the licensee has provided adequate justification for the proposed change to perform the CSS nozzle obstruction test specified in SR 3.6.6.8 from a fixed 10-year frequency to an event-based frequency. The proposed change meets the requirements of 10 CFR 50.36(c)(3) and 10 CFR 50, Appendix A, General Design Criterion 38, 39, and 40. Therefore, the NRC staff concludes that the proposed change is 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. 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 a surveillance requirement. 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 September 4, 2012 (77 FR 53931). 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: Ahsan Sallman, NRR/DSS/SCVB

Date: December 21, 2012

December 21, 2012

Mr. Matthew W. Sunseri
President and Chief Executive Officer
Wolf Creek Nuclear Operating Corporation
Post Office Box 411
Burlington, KS 66839

SUBJECT: WOLF CREEK GENERATING STATION - ISSUANCE OF AMENDMENT RE: REQUEST TO REVISE TECHNICAL SPECIFICATION 3.6.6, "CONTAINMENT SPRAY AND COOLING SYSTEMS" (TAC NO. ME8676)

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

Sincerely,

/RA/

Carl F. Lyon, Project Manager
Plant Licensing Branch IV
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ADAMS Accession No.: ML12334A312 ***memo dated**

OFFICE	NRR/DORL/LPL4/PM	NRR/DORL/LPL4/PM	NRR/DORL/LPL4/LA	NRR/DSS/STSB/BC
NAME	JRankin	FLyon	JBurkhardt	REIliott
DATE	12/14/12	12/17/12	12/10/12	12/17/12
OFFICE	NRR/DSS/SCVB/BC	OGC NLO	NRR/DORL/LPL4/BC	NRR/DORL/LPL4/PM
NAME	RDenning *	BHarris	MMarkley	FLyon
DATE	11/26/12	12/20/12	12/21/12	12/21/12

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