July 14, 2000

Mr. Otto L. Maynard
President and Chief Executive Officer
Wolf Creek Nuclear Operating Corporation
Post Office Box 411
Burlington, KA 66839

SUBJECT: WOLF CREEK GENERATING STATION - ISSUANCE OF AMENDMENT RE: ULTIMATE HEAT SINK (TAC NO. MA8573)

Dear Mr. Maynard:

The Commission has issued the enclosed Amendment No. 134 to 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 March 31, 2000 (ET 00-0018), as supplemented by the letter of July 7, 2000 (WO 00-0030).

The amendment modifies the actions for Limiting Condition for Operation (LCO) 3.7.9, "Ultimate Heat Sink (UHS)," of the TSs. The new Action A for the LCO allows the plant to operate with the plant inlet water temperature of the UHS above 90°F, if the required cooling capacity is verified within 4 hours and once per 12 hours thereafter, but would require that the plant be shut down if the water temperature exceeded 94°F. The amendment replaces the requirement to shut down the plant if the UHS water temperature exceeds 90°F.

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/

Jack Donohew, Senior Project Manager, Section 2
Project Directorate IV & Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-482

Enclosures: 1. Amendment No. 134 to NPF-42
2. Safety Evaluation

cc w/encls: See next page

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

WOLF CREEK NUCLEAR OPERATING CORPORATION

WOLF CREEK GENERATING STATION

DOCKET NO. 50-482

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 134
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) Facility Operating License No. NPF-42 filed by the Wolf Creek Nuclear Operating Corporation (the Corporation), dated March 31, 2000, as supplemented by the letter of July 7, 2000, 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 Facility Operating License No. NPF-42 is hereby amended to read as follows:

   2. Technical Specifications

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 134, 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 30 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Stephen Dembek, Chief, Section 2
Project Directorate IV & Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: July 14, 2000

ATTACHMENT TO LICENSE AMENDMENT NO. 134

FACILITY OPERATING LICENSE NO. NPF-42

DOCKET NO. 50-482

Replace the following pages of the Appendix A Technical Specifications with the attached pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change. The corresponding overleaf pages are also provided to maintain document completeness.

REMOVE	INSERT
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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 5.	6 hours 36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.8.1	----------NOTE---------- Isolation of ESW System flow to individual components does not render the ESW System inoperable. ---------- Verify each ESW manual, power operated, and automatic valve in the flow path servicing safety related equipment, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.7.8.2	Verify each ESW automatic 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 3.7.8.3	Verify each ESW pump starts automatically on an actual or simulated actuation signal.	18 months

3.7 PLANT SYSTEMS

3.7.9 Ultimate Heat Sink (UHS)

LCO 3.7.9 The UHS shall be OPERABLE.

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

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Plant inlet water temperature of UHS not within limit.	A.1	Verify water level of main cooling lake ≥ 1075 ft. mean sea level.	1 hour AND Once per 12 hours thereafter
	AND		
	A.2	Verify plant inlet water temperature of UHS is ≤ 94°F.	Once per hour
B. Required Action and associated Completion Time not met. OR UHS inoperable for reasons other than Condition A.	B.1	Be in MODE 3.	6 hours
	AND		
	B.2	Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.9.1	Verify water level of UHS is ≥ 1070 ft mean sea level.	24 hours
SR 3.7.9.2	Verify plant inlet water temperature of UHS is ≤ 90°F.	24 hours

3.7 PLANT SYSTEMS

3.7.10 Control Room Emergency Ventilation System (CREVS)

LCO 3.7.10 Two CREVS trains shall be OPERABLE.

----------NOTE----------
The control room boundary may be opened intermittently under administrative controls.

APPLICABILITY: MODES 1, 2, 3, 4, 5, and 6,
During movement of irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One CREVS train inoperable.	A.1	Restore CREVS train to OPERABLE status.	7 days
B. Two CREVS trains inoperable due to inoperable control room boundary in MODES 1, 2, 3, and 4.	B.1	Restore control room boundary to OPERABLE status.	24 hours
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4.	C.1	Be in MODE 3.	6 hours
	AND		
	C.2	Be in MODE 5.	36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Required Action and associated Completion Time of Condition A not met in MODE 5 or 6, or during movement of irradiated fuel assemblies.	D.1.1 Place OPERABLE CREVS train in CRVIS mode.	Immediately
	AND	
	D.1.2 Verify OPERABLE CREVS train is capable of being powered by an emergency power source.	Immediately
	OR	
	D.2.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	D.2.2 Suspend movement of irradiated fuel assemblies.	Immediately
E. Two CREVS trains inoperable in MODE 5 or 6, or during movement of irradiated fuel assemblies.	E.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	E.2 Suspend movement of irradiated fuel assemblies.	Immediately
F. Two CREVS trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Condition B.	F.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.10.1	Operate each CREVS train pressurization filter unit for ≥ 10 continuous hours with the heaters operating and each CREVS train filtration filter unit for ≥ 15 minutes.	31 days
SR 3.7.10.2	Perform required CREVS filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with VFTP
SR 3.7.10.3	Verify each CREVS train actuates on an actual or simulated actuation signal.	18 months
SR 3.7.10.4	Verify one CREVS train can maintain a positive pressure of ≥ 0.25 inches water gauge, relative to the outside atmosphere during the CRVIS mode of operation.	18 months on a STAGGERED TEST BASIS

3.7 PLANT SYSTEMS

3.7.11 Control Room Air Conditioning System (CRACS)

LCO 3.7.11 Two CRACS trains shall be OPERABLE.

APPLICABILITY: MODES 1, 2, 3, 4, 5, and 6,
During movement of irradiated fuel assemblies.

ACTIONS

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One CRACS train inoperable.	A.1	Restore CRACS train to OPERABLE status.	30 days
B. Required Action and associated Completion Time of Condition A not met in MODE 1, 2, 3, or 4.	B.1	Be in MODE 3.	6 hours
	AND		
	B.2	Be in MODE 5.	36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. Required Action and associated Completion Time of Condition A not met in MODE 5 or 6, or during movement of irradiated fuel assemblies .	C.1.1 Place OPERABLE CRACS train in operation.	Immediately
	AND	
	C.1.2 Verify OPERABLE CRACS train is capable of being powered by an emergency power source.	Immediately
	OR	
	C.2.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	C.2.2 Suspend movement of irradiated fuel assemblies.	Immediately
D. Two CRACS trains inoperable in MODE 5 or 6, or during movement of irradiated fuel assemblies.	D.1 Suspend CORE ALTERATIONS.	Immediately
	AND	
	D.2 Suspend movement of irradiated fuel assemblies.	Immediately
E. Two CRACS trains inoperable in MODE 1, 2, 3, or 4.	E.1 Enter LCO 3.0.3.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.11.1	Verify each CRACS train has the capability to remove the assumed heat load.	18 months

3.7.12 Emergency Core Cooling System (ECCS) Pump Room Exhaust Air Cleanup System (PREACS)

NOT USED

3.7 PLANT SYSTEMS

3.7.13 Emergency Exhaust System (EES)

LCO 3.7.13 Two EES trains shall be OPERABLE.

----------NOTE----------
The auxiliary building or fuel building boundary may be opened intermittently under administrative controls.

APPLICABILITY: MODES 1, 2, 3, and 4,
During movement of irradiated fuel assemblies in the fuel building.

----------NOTE----------
The SIS mode of operation is required only in MODES 1, 2, 3, and 4. The FBVIS mode of operation is required only during movement of irradiated fuel assemblies in the fuel building.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One EES train inoperable in MODE 1, 2, 3, or 4.	A.1 Restore EES train to OPERABLE status.	7 days
B. Two EES trains inoperable due to inoperable auxiliary building boundary in MODE 1, 2, 3, or 4.	B.1 Restore auxiliary building boundary to OPERABLE status.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, 3, or 4. OR Two EES trains inoperable in MODE 1, 2, 3, or 4 for reasons other than Condition B.	C.1	Be in MODE 3.	6 hours
	AND		
	C.2	Be in MODE 5.	36 hours
D. One EES train inoperable during movement of irradiated fuel assemblies in the fuel building.	D.1	Place OPERABLE EES train in operation in FBVIS mode.	Immediately
	OR		
	D.2	Suspend movement of irradiated fuel assemblies in the fuel building.	Immediately
E. Two EES trains inoperable due to inoperable fuel building boundary during movement of irradiated fuel assemblies in the fuel building.	E.1	Restore fuel building boundary to OPERABLE status.	24 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
F. Required Action and associated Completion Time of Condition E not met. OR Two EES trains inoperable during movement of irradiated fuel assemblies in the fuel building for reasons other than Condition E.	F.1 Suspend movement of irradiated fuel assemblies in the fuel building.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.13.1	Operate each EES train for ≥ 10 continuous hours with the heaters operating.	31 days
SR 3.7.13.2	Perform required EES filter testing in accordance with the Ventilation Filter Testing Program (VFTP).	In accordance with the VFTP
SR 3.7.13.3	Verify each EES train actuates on an actual or simulated actuation signal.	18 months

(continued)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.7.13.4	Verify one EES train can maintain a negative pressure ≥ 0.25 inches water gauge with respect to atmospheric pressure in the auxiliary building during the SIS mode of operation.	18 months on a STAGGERED TEST BASIS
SR 3.7.13.5	Verify one EES train can maintain a negative pressure ≥ 0.25 inches water gauge with respect to atmospheric pressure in the fuel building during the FBVIS mode of operation.	18 months on a STAGGERED TEST BASIS

3.7.14 Penetration Room Exhaust Air Cleanup System (PREACS)

NOT USED

3.7 PLANT SYSTEMS

3.7.15 Fuel Storage Pool Water Level

LCO 3.7.15 The fuel storage pool water level shall be ≥ 23 ft over the top of irradiated fuel assemblies seated in the storage racks.

APPLICABILITY: During movement of irradiated fuel assemblies in the fuel storage pool.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Fuel storage pool water level not within limit.	A.1 ----------NOTE---------- LCO 3.0.3 is not applicable. ---------- Suspend movement of irradiated fuel assemblies in the fuel storage pool.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.15.1	Verify the fuel storage pool water level is ≥ 23 ft above the top of the irradiated fuel assemblies seated in the storage racks.	7 days

3.7 PLANT SYSTEMS

3.7.16 Fuel Storage Pool Boron Concentration

LCO 3.7.16 The fuel storage pool boron concentration shall be ≥ 2165 ppm.

APPLICABILITY: When fuel assemblies are stored in the fuel storage pool and a fuel storage pool verification has not been performed since the last movement of fuel assemblies in the fuel storage pool.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Fuel storage pool boron concentration not within limit.	----------NOTE---------- LCO 3.0.3 is not applicable. ----------	
	A.1 Suspend movement of fuel assemblies in the fuel storage pool.	Immediately
	AND	
	A.2.1 Initiate action to restore fuel storage pool boron concentration to within limit.	Immediately
	OR	
	A.2.2 Verify by administrative means that a non-Region 1 fuel storage pool verification has been performed since the last movement of fuel assemblies in the fuel storage pool.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.16.1	Verify the fuel storage pool boron concentration is within limit.	7 days

3.7 PLANT SYSTEMS

3.7.17 Spent Fuel Assembly Storage

LCO 3.7.17 The combination of initial enrichment and burnup of each spent fuel assembly stored in Region 2 or 3 shall be within the Acceptable Domain of Figure 3.7.17-1 or in accordance with Specification 4.3.1.1.

APPLICABILITY: Whenever any fuel assembly is stored in Region 2 or 3 of the fuel storage pool.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of the LCO not met.	A.1 ----------NOTE---------- LCO 3.0.3 is not applicable. ---------- Initiate action to move the noncomplying fuel assembly to Region 1.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.17.1	Verify by administrative means the initial enrichment and burnup of the fuel assembly is in accordance with Figure 3.7.17-1 or Specification 4.3.1.1.	Prior to storing the fuel assembly in Region 2 or 3

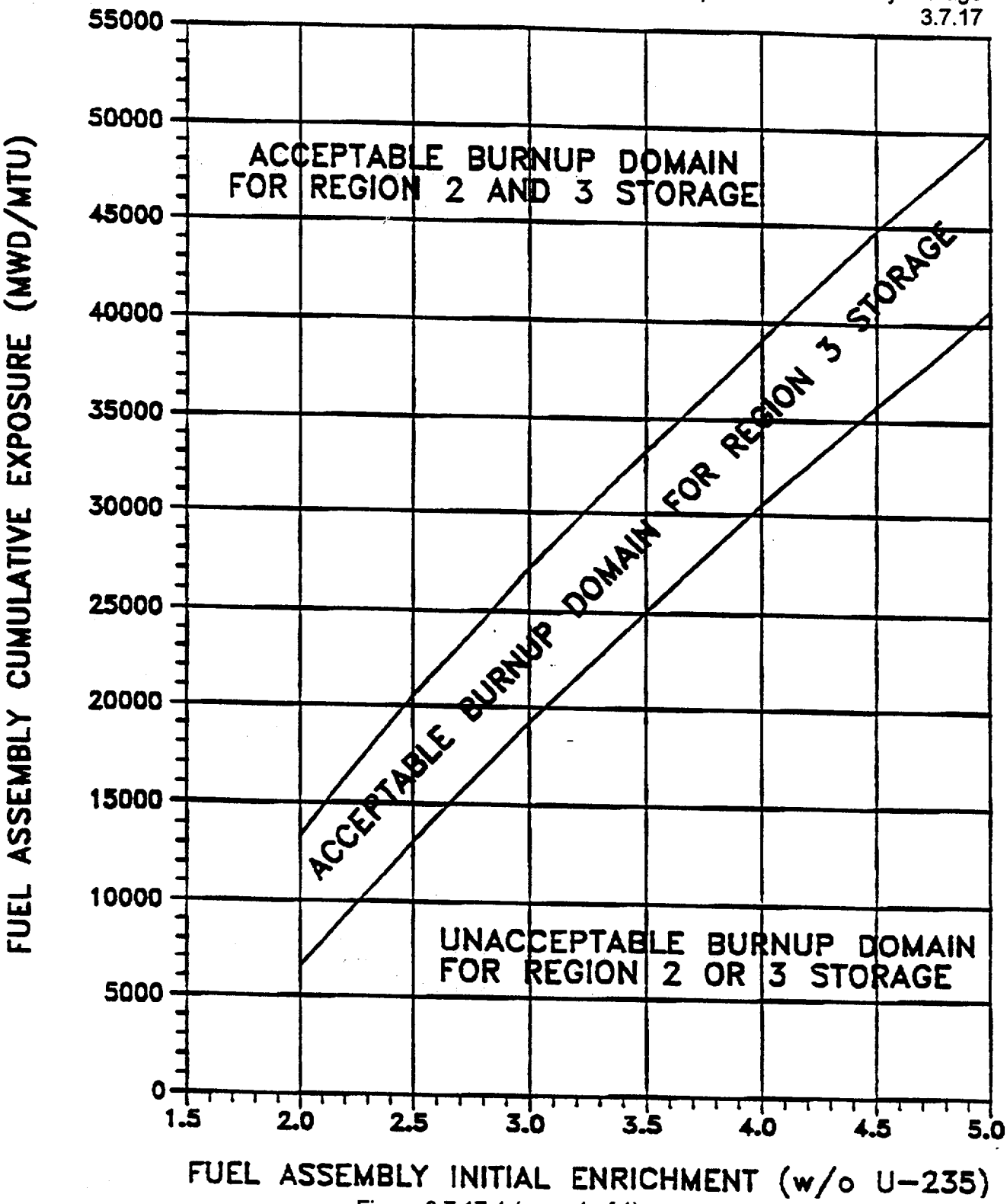

Figure 3.7.17-1 (page 1 of 1)
Minimum Required Fuel Assembly Burnup as a Function
of Initial Enrichment to Permit Storage in Regions 2 and 3

3.7 PLANT SYSTEMS

3.7.18 Secondary Specific Activity

LCO 3.7.18 The specific activity of the secondary coolant shall be ≤ 0.10 μCi/gm DOSE EQUIVALENT I-131.

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

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Specific activity not within limit.	A.1 Be in MODE 3.	6 hours
	AND	
	A.2 Be in MODE 5.	36 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.18.1	Verify the specific activity of the secondary coolant is ≤ 0.10 μCi/gm DOSE EQUIVALENT I-131.	31 days

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 134 TO FACILITY OPERATING LICENSE NO. NPF-42

WOLF CREEK NUCLEAR OPERATING CORPORATION

WOLF CREEK GENERATING STATION

DOCKET NO. 50-482

1.0 INTRODUCTION

By application dated March 31, 2000, Wolf Creek Nuclear Operating Corporation (the licensee) requested changes to the Technical Specifications (TSs, Appendix A to Facility Operating License No. NPF-42) for the Wolf Creek Generating Station (WCGS). The proposed changes would modify the actions for Limiting Condition for Operation (LCO) 3.7.9, "Ultimate Heat Sink (UHS)," of the TSs.

The proposed new Action A would allow the plant to operate with the plant inlet UHS water temperature of the UHS above 90°F, provided that the water level above the submerged UHS dam was maintained at the 1075 foot level or higher, but would require that the plant be shut down if the UHS water temperature exceeded 94°F. This would replace the current requirement to shut down the plant if the temperature exceeded 90°F. The time to shut down the plant is not being changed in the amendment request.

The licensee's application was supplemented by the letter of July 7, 2000. The changes submitted by the licensee were either minor clarifications or more restrictive compared to the application. Conference calls were held with the licensee on May 3, June 1, and June 28, 2000. The changes in the supplementary letter were (1) replacing the "verification of required cooling capacity maintained" by the actual method of verification and (2) reduced the completion time from 4 hours to 1 hour. The minor clarification and increased requirements are within the scope of the initial notice and do not alter the no significant hazards consideration determination published in the Federal Register (65 FR 11094) for the application.

2.0 BACKGROUND

In its application, the licensee stated that the environmental conditions during the 1998 and 1999 summer months resulted in periods of elevated plant inlet UHS temperatures near the maximum allowed UHS temperature of 90°F in LCO 3.7.9. The inlet UHS temperature slightly exceeded 89°F in 1998 and reached 88.4°F in 1999. The current TSs would require the plant to shut down if the UHS temperatures goes above 90°F.

Although the 90°F limit has never been exceeded, the licensee stated that the 88.4°F and 89°F are higher than the peak UHS water temperature of 87.7°F that was predicted for the design

basis weather period (July-August 1951) in USAR Section 2.3. An outside contractor to the licensee concluded that the unusual weather conditions on one day in July of 1998 and one day in July of 1999 were more effective at suppressing normal heat dissipation by the lake, thus raising the water temperature above the 87.7°F expected from the design basis weather conditions. Therefore, the licensee expects that the UHS water temperatures may go above the 90°F limit and has proposed a new action statement for LCO 3.7.9 to allow the UHS temperature to be 4°F above the current 90°F limit without requiring the plant to shut down provided certain conditions are met.

In 1998 and 1999, as a precautionary measure to avoid a required shutdown of WCGS due to elevated UHS temperatures, the licensee requested temporary changes to the TS 3.7.9 to allow continued plant operation if the UHS temperature should exceed the 90°F limit. The staff granted these amendments in Amendment Nos. 118 and 125 issued July 18, 1998, and July 8, 1999, respectively. Both of these temporary amendments allowed continued plant operation provided the elevated UHS water temperature dropped below the 90°F limit within a 12-hour period (i.e., overnight); however, the amendments expired approximately two months after issuance. The proposed amendment request was submitted to establish a permanent resolution of the elevated UHS temperature condition.

3.0 LICENSEE'S PROPOSAL

The licensee's proposed change to the actions for LCO 3.7.9 is to add the following:

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. Plant inlet water temperature of UHS not within limit.	A.1	Verify water level of main cooling lake ≥ 1075 ft. mean sea level.	1 hour AND Once per 12 hours thereafter
	AND		
	A.2	Verify plant inlet water temperature of UHS is ≤ 94°F	Once per hour

The limit referred to in Condition A above is the existing 90°F limit, given in Surveillance Requirement (SR) 3.7.9.2. The current Condition A and Required Actions A.1 and A.2 would be relabeled Condition B and Required Actions B.1 and B.2, respectively, and the new Condition B would be revised to state "Required Action and associated Completion Time not met OR UHS inoperable for reasons other than Condition A" to follow the format of the TS for LCO actions with more than one condition. The wording for Required Actions B.1 and B.2 would remain unchanged.

4.0 EVALUATION

The UHS for WCGS is addressed in Sections 2.5.6 and 9.2.5 of the Updated Safety Analysis Report (USAR). It is the volume of cooling water behind a normally submerged Seismic Category I dam built in one finger of the WCGS lake formed by the main dam, also addressed in USAR Section 2.5.6, and is about one percent of the volume of the entire lake. The main dam impounds water to form a 5090-acre cooling water lake for WCGS and the UHS has a volume of 455 acre-feet. The level of the UHS is 1070 feet mean sea level (msl), which is submerged below the normal lake level of 1087 feet msl. The main dam is formed by 5 earthen saddle dams along with the natural topography of the ground forming the perimeter of the lake.

The two principal functions of the UHS are the dissipation of residual reactor core heat (1) after a reactor shutdown and (2) after an accident or anticipated operational occurrence. The UHS water temperature starts from an initial value that rises during the removal of heat from the plant to a design maximum value for the normal operation shutdown or accident heat load. The basic performance requirements for the UHS are that a 30-day supply of water be available for decay heat removal, and that the design-basis temperatures of safety-related equipment not be exceeded.

4.1 UHS Analyses

The UHS is the heat sink credited in accident analyses for dissipating the heat removed from the reactor core in which the unit is cooled down and placed on residual heat removal (RHR) operation. Its maximum post-accident heat load occurs after a design basis loss-of-coolant-accident (LOCA) when the unit switches from injection to recirculation and the containment cooling system and RHR are required to remove the core decay heat. USAR Section 9.2.5 provides the details of the assumptions used in the heat transfer analysis for the worst-case LOCA, which include worst expected meteorological conditions, conservative uncertainties when calculating decay heat, and worst-case single failure. In the worse-case analysis, it was assumed that all of the water in the UHS was at 90°F at the start of the event and the analysis predicted 95°F as the highest plant inlet water temperature occurring during the maximum temperature period following the loss of the main dam, with the average water temperature generally being below 94°F. Therefore, as a conservative measure, the accident analyses used 95°F as the UHS cooling water supply temperature.

The licensee's amendment request maintains 90°F as the limiting design-basis temperature for the UHS, but allows the UHS temperature to exceed this value provided that the level of the main cooling lake is ≥1075 feet msl (i.e., the main cooling lake dam is intact), and the UHS temperature does not exceed 94°F. The licensee's analysis credits the additional volume of water directly above the UHS up to the 1075 foot level for being available during a LOCA, whereas the previous analysis only credited the volume of water in the Seismic Category I area of the main cooling lake (1070 foot level) for LOCA mitigation. The revised analysis assumes that the non-seismic Category I dam and water control structures for the main lake will remain intact during a LOCA, and that this additional volume of water will therefore be available. The licensee established 94°F as an upper limit to assure that accident analysis temperature assumptions and equipment limitations will not be exceeded.

The licensee provided the following justification for this approach:

- The volume of water contained in the UHS and the additional water volume directly above the UHS up to the 1075 foot level is sufficient to provide cooling for 30 days without relying on makeup water for normal and accident conditions.

- The main cooling lake level is normally around the 1087 foot elevation, and it is checked every 8 hours to confirm that the level is above the 1075 foot elevation. Typically, when the lake level approaches the 1086 foot elevation, action is initiated to raise the lake level.

- Maintaining plant inlet water temperature ≤94°F with the main cooling lake intact (i.e., the lake level ≥1075 foot elevation) ensures that the cooling water temperature will not exceed the design temperature of safety-related equipment.

- Various plant conditions, including full power operation, shutdown from normal operating conditions, and LOCA response, were evaluated at the higher cooling water temperature of 94°F, assuming that the dam and main cooling lake are intact. The following results were noted:

  - During normal plant operation, a slight load reduction may be necessary to maintain acceptable turbine back pressure.

  - The time to achieve cold shutdown will increase. After the reactor has been shut down, the time to reach cold shutdown with only a single train of RHR available will increase from about 32 hours to about 46 hours. Therefore, special consideration by the plant operators is needed whenever a single train of RHR becomes inoperable during power operation with elevated UHS temperatures to assure that the cooldown times specified by the TS action requirement will be met.

  - Post-LOCA heat loads cause the intake cooling water temperature to increase from 94°F to about 94.4°F, which is less than the temperature of 95 °F that was assumed in the accident analysis.

- Plant response following a seismic event was evaluated using the higher cooling water temperature of 94°F, without the lake intact (i.e., the lake water elevation is at the elevation of the UHS dam, 1070 feet). The following results were noted:

  - Conservative projections of previous studies indicate that the cooling water temperature could reach 96°F for a few hours. This peak temperature is expected to occur on the third and sixth days after the event. However, the average cooling water temperature over the course of the event is expected to be about 90°F, with the temperature being less than 94°F for 95% of the time.

  - The water available in the UHS is adequate to maintain the plant shutdown for at least 30 days.

- Administrative tube plugging limits have been established for the emergency diesel generator (EDG) heat exchangers that are based on an intake cooling water temperature of 96°F. Consequently, there is no adverse affect of the higher intake cooling water temperature on EDG operation. Also, component cooling water (CCW) heat exchanger outlet temperature is maintained ≤ 120°F by throttling residual heat removal (RHR) system flow rate through the CCW heat exchanger. While the time required to cool down the plant following a seismic event could be lengthened due to the higher intake cooling water temperatures, components cooled by CCW would not be adversely affected by this. No other equipment limitations were noted.

As shown in USAR Figures 2.5-108 through 2.5-110, the UHS is configured in the shape of the letter "V" with the intake channel at the upper left-hand corner and the outlet pipe in the upper right-hand corner. The lower notch of the "V" is between the intake channel and outlet pipe to prevent incomplete mixing in the UHS volume. There is the straight distance of about 2000 feet between the intake channel and the outlet pipe, and about 3600 feet going along the lower part of the "V" basin. With the ESWS pump capacity at 15,000 gpm (i.e., 2000 ft^3/min) and the UHS volume at 455 acre-feet, or 1.98 million ft^3, the turnover rate of the UHS is about once every 16 hours. With the difference in the water temperature between the inlet channel water and the outlet pipe water, the warmer water at the outlet pipe will rise into the water volume above the UHS in the time frame for turnover of the UHS volume. Therefore, during the large break LOCA when the ESWS is used and draws from the UHS, it is reasonable to expect that there will be an interchange between the UHS water and the water volume above the UHS. and that the heat capacity of the UHS and the water volume above the UHS will be available for cooling the plant during a LOCA.

The licensee's evaluation of the cooling capability of the main lake with the dam intact appeared to be thorough and conservative. The licensee has determined that plant operation in the proposed manner will not compromise accident analysis temperature assumptions, and the limitations of safety-related equipment will not be exceeded. Also, the licensee recognizes that special consideration by the plant operators is needed whenever a single train of RHR becomes inoperable during power operation with elevated lake temperatures to assure that the cooldown times specified by the TS action requirements will be met. Based on our review of the information that was provided, the staff agrees with the licensee's evaluation of plant operation in the proposed manner. Accordingly, the staff considers operation in the proposed manner to be acceptable.

4.2 Main Dam

In justifying that the main dam can be relied upon to provide the cooling capability needed when the UHS water temperature is greater than 90°F, the licensee addressed the reliability of the dam. In its application, the licensee stated that the main dam is designed such that its slopes are stable under all reservoir operating conditions including an earthquake force equivalent to the site operating basis earthquake (OBE). The frequency of this earthquake is about the same as the frequency of a large break LOCA.

The licensee has indicated that a dam surveillance program is in place to monitor the behavior of the main lake and associated water control structures. As explained in USAR Appendix 3A

and Section 2.5, the program satisfies the recommendations of Regulatory Guide (RG) 1.127, Revision 1, "Inspection of Water-Control Structures Associated with Nuclear Power Plants." The licensee stated that the eighth periodic inspection of the main dam, which was performed in 1999, showed no signs of defects that would affect the immediate function or operation of the dam; however, there were several items noted in the inspection. These items included the need to repair rip rap along the splash zone of the main dam, continued quarterly monitoring of wet areas behind the dam, further evaluation of one piezometer providing water levels, and additional monument surveys. The licensee explained that these items have been evaluated by the Engineer of Record (Sargent and Lundy) for the dam, and the independent evaluation concluded that these items do not compromise the stability and integrity of the dam.

The licensee's evaluation of the integrity and reliability of the main cooling lake dam provides sufficient justification for crediting the additional lake volume that is available above the 1070 foot elevation of the seismic Category I UHS structure for LOCA mitigation. Because the licensee has a RG 1.127 dam monitoring program in place to monitor the stability and integrity of the main dam over time, the probability of dam failure is considered to be very low, and the probability of dam failure concurrent with a LOCA is even lower. Also, by adding the reference to the dam monitoring program in the Basis for TS 3.7.9, the licensee recognizes the importance of the dam monitoring program and its continued implementation over time. Therefore, given these considerations, the staff agrees that the main cooling lake dam may be relied upon for LOCA mitigation.

However, since the main cooling lake dam is not seismic Category I, it cannot be relied upon for mitigating the effects of a severe earthquake. This is recognized in the amendment application, and the licensee's evaluation (discussed in Section 4.1, above) only credits the water volume contained in the seismic Category I UHS for mitigating a seismic event. This is the existing plant licensing basis and is acceptable to the staff.

4.3 Conclusions

Based on a review of the information that was provided, the staff finds that the licensee has adequately justified use of the main cooling lake water volume that is available above the seismic Category I UHS structure for LOCA mitigation. Also, the proposed limits for lake temperature and level are consistent with the values that were used in the licensee's evaluation, and are acceptable. The one-hour completion time to verify that lake level is greater than or equal to 1075 feet msl (thus confirming dam integrity) and for periodically verifying that plant inlet water temperature has not exceeded 94°F, when plant inlet water temperature is above 90°F, is commensurate with the relatively short period of time that plant inlet water temperature is expected to be elevated during a particular occurrence. The 12-hour completion time to periodically verify that lake level is greater than or equal to 1075 feet msl is appropriate for providing continued assurance of dam integrity on those rare occasions when lake temperature remains elevated for a prolonged period of time. Entry into the proposed action requirement also serves as a reminder to plant operators that special consideration may be needed to assure that the cooldown times specified by TS action requirements will be met if one RHR train is inoperable when the plant inlet water temperature is elevated. Given these considerations, the staff concludes that plant operation in the manner proposed by the licensee is acceptable, and the proposed change to add the new Condition A to TS 3.7.9 is acceptable.

The proposed relabeling of current Condition A and Required Actions A.1 and A.2 to Condition B and Required Actions B.1 and B.2 is necessary because a new Condition A, and associated required actions, are being added to the actions for LCO 3.7.9, as discussed in the previous paragraph. The new Condition B is written to account for the fact that the UHS could be inoperable for reasons other than the new Condition A. Because the proposed Condition B is consistent with the format of the TSs for LCO actions having more than one condition and does not change any TS requirement for the reasons of UHS inoperability other than new Condition A, and new Condition A was accepted in the previous paragraph, the staff concludes that the proposed Condition B is acceptable.

Because the proposed changes to TS 3.7.9 will add an additional page to the TSs, the proposed changes to the TSs also include page number changes to page iii of the Table of Contents for the TSs. The page number changes result from the additional page added to TS 3.7.9 as a result of the new Condition A that is being added. The page number for TS 3.7.10 through 3.7.18 are increased by 1. Because the new page numbers for TS 3.7.10 through 3.7.18 will be added to the Table of Contents, the staff concludes that page number changes are acceptable. New TS pages are being issued for TS 3.7.10 through 3.7.18.

Therefore, based on the above, the staff concludes that the proposed amendment is acceptable.

5.0 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 stated that the State agreed with the amendment.

6.0 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 (65 FR 21040). 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.

7.0 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) 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.

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