

# WOLF CREEK

NUCLEAR OPERATING CORPORATION

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RA 17-0015

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555

Subject: Docket No. 50-482: Wolf Creek Generating Station Biennial 50.59  
Evaluation Report

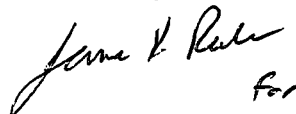
Gentlemen:

This letter transmits the Biennial 50.59 Evaluation Report for Wolf Creek Generating Station (WCGS), which is being submitted pursuant to 10 CFR 50.59(d)(2). The attachment provides the WCGS Biennial 50.59 Evaluation Report including a summary of the evaluation results.

This report covers the period from January 1, 2015, to December 31, 2016, and contains a summary of 50.59 evaluations implemented during this period that were approved by the WCGS onsite review committee.

This letter contains no commitments. If you have any questions concerning this matter, please contact me at (620) 364-4204.

Sincerely,



Cynthia R. Hafenstine

CRH/rlt

Attachment

cc: K. M. Kennedy (NRC), w/a  
B. K. Singal (NRC), w/a  
N. H. Taylor (NRC), w/a  
Senior Resident Inspector (NRC), w/a

IE47  
NRR

WOLF CREEK NUCLEAR OPERATING CORPORATION

Wolf Creek Generating Station

Docket No.: 50-482

Facility Operating License No.: NPF-42

BIENNIAL 50.59 EVALUATION REPORT

Report No.: 25

Reporting Period: January 1, 2015 through December 31, 2016

## SUMMARY

This report provides a brief description of changes, test, and experiments implemented at Wolf Creek Generating Station (WCGS) and evaluated pursuant to 10 CFR 50.59(c)(1). This report includes summaries of the associated 50.59 evaluations that were reviewed and found to be acceptable by the Plant Safety Review Committee (PSRC) for the period beginning January 1, 2015 and ending December 31, 2016. This report is submitted in accordance with the requirements of 10 CFR 50.59(d)(2).

On the basis of these evaluation of changes:

- There is less than a minimal increase in the frequency of occurrence of an accident previously evaluated in the Updated Final Safety Analysis Report (USAR).
- There is less than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component (SSC) important to safety previously evaluated in the USAR.
- There is less than a minimal increase in the consequences of an accident previously evaluated in the USAR.
- There is less than a minimal increase in the consequences of a malfunction of an SSC important to safety previously evaluated in the USAR.
- There is no possibility for an accident of a different type than any previously evaluated in the USAR being created.
- There is no possibility for a malfunction of an SSC important to safety with a different result than any previously evaluated in the USAR being created.
- There is no result in a design basis limit for a fission product barrier as described in the USAR being exceeded or altered.
- There is no result in a departure from a method of evaluation described in the USAR used in establishing the design bases or in the safety analyses.

Therefore, all items contained within this report have been determined not to require a license amendment.

**Evaluation Number: 59 2015-0001**

**Revision: 0**

**Title: Review of Proposed Waverly Wind Farm Connection on LaCygne 345kV Line**

**Activity Description:**

Westar Energy notified Wolf Creek Nuclear Operating Corporation (WCNOC) that the Southwest Power Pool has issued a directive to install a Wind Farm (approximately 200MW) that will be tied into the LaCygne 345kV Line approximately 5 miles from WCGS. The work will involve installation of the Waverly Switching Station that will split the LaCygne 345kV Line into two line segments, a WCGS to Waverly Switching Station 345kV Line and a Waverly Switching Station to LaCygne 345kV Line as well as add an approximate 5 miles of 345kV Transmission line from the Waverly Switching Station to the Waverly Collector Sub (tie in point for the Wind Farm). Additionally, instead of protection for a single line (Wolf Creek to LaCygne), the transmission line protection will now include separate protection for each of the two new line segments (WCGS to Waverly and Waverly to LaCygne). The configuration of the Waverly Switching Station will be a ring bus design. This evaluation does not include the impact of the additional 5 miles of 345kV Transmission line from the Waverly Switching Station to the Waverly Collector Sub or allowing the Wind Farm generation to be tied to the system because the design of the Wind Farm is still being developed and its impact will be reviewed on a separate 50.59 Evaluation. Until the separate 50.59 Evaluation is approved, Westar will keep the line switch located in the Waverly Switching Station for the 5 mile line to Waverly Collector Sub open so that it will be isolated and have no impact on the Westar power grid or to WCGS. This evaluation will cover the Waverly Switching Station installation between WCGS and LaCygne near Waverly.

**50.59 Evaluation:**

The accidents listed in Chapter 15 were reviewed and it was determined that seven (7) accidents "Loss of External Electrical Load", "Turbine Trip", "Loss of Nonemergency AC Power to the Station Auxiliaries", "Loss of Normal Feedwater Flow", "Partial Loss of Forced Reactor Coolant Flow", "Complete Loss of Forced Reactor Coolant Flow", and "Anticipated Transients without Scram" were accidents where the loss of offsite power, loss of external load, and electrical grid disturbances were identified as contributing to the accident. The changes made to the LaCygne 345kV line for the Waverly Wind Farm will not alter the impact of the identified events. The impact of the changes is still bounded by the loss of the LaCygne 345kV Line and electrical disturbances on the LaCygne 345kV Line. On Question 1, there will be a small increase in the frequency of occurrence of the identified events that can contribute to an accident previously evaluated in the USAR due to the installation of the Waverly Switching Station. Since the Waverly Switching Station is being built in compliance with the USAR 8.2.1.3 identified design requirements, the increase in the frequency of occurrence is less than minimal. Additionally on Question 2, there will be a small increase in the likelihood of occurrence of a malfunction of the LaCygne 345kV Line, which is important to safety. However, the likelihood of occurrence of a malfunction of an SSC important to safety previously evaluated in the USAR is less than minimal because the Waverly Switching Station design is in compliance with the USAR 8.2.1.3 identified design requirements. On Questions 3 thru 7, there was no discernable impact that could be identified by the changes. Also, no new types of malfunction are introduced by the changes, since the new equipment is being built per the same design standards and requirements as the existing design and is being built in compliance with the USAR 8.2.1.3 identified design requirements.

**Evaluation Number: 59 2015-0002**

**Revision: 0**

**Title: Review of Proposed Waverly Wind Farm Connection on LaCygne 345kV Line**

**Activity Description:**

Westar Energy notified WCNOG that the Southwest Power Pool (SPP) has issued a directive to install a Wind Farm (approximately 200MW) that will be tied into the LaCygne 345kV Line approximately 5 miles from WCGS. The work will involve installation of the Waverly Switching Station that will split the LaCygne 345kV Line into two line segments, a WCGS to Waverly Switching Station 345kV Line and a Waverly Switching Station to LaCygne 345kV Line as well as adds approximately 5 miles of 345kV Generator Tie line from the Waverly Switching Station to the Waverly Collector Substation which is the tie in point for the Waverly Wind Farm which is also being added. The impact to WCGS for installing the Waverly Switching Station and splitting the LaCygne Line into two segments was determined on 50.59 Evaluation No. 2015-0001. This evaluation is for the impact of the new 5 mile 345kV Generator Tie line from the Waverly Switching Station to the Waverly Wind Farm Collector Substation and allowing the Wind Farm generation to be tied to the electric transmission system.

**50.59 Evaluation:**

The accidents listed in Chapter 15 were reviewed and it was determined that seven (7) accidents "Loss of External Electrical Load", "Turbine Trip", "Loss of Nonemergency AC Power to the Station Auxiliaries", "Loss of Normal Feedwater Flow", "Partial Loss of Forced Reactor Coolant Flow", "Complete Loss of Forced Reactor Coolant Flow", and "Anticipated Transients without Scram" were accidents where the loss of offsite power (LOOP), loss of external load, and electrical grid disturbances were identified as contributing to the accident. The changes made for the Waverly Wind Farm and the 5 mile 345kV Generator Tie Line will not alter the impact of the identified events. The impact of these changes and electrical disturbances on the LaCygne 345kV Line are bounded by LOOP, External Load Loss, and Grid Disturbances. On Question 1, there will be a small increase in the frequency of occurrence of the identified events that can contribute to an accident previously evaluated in the USAR due to the installation of the Waverly Wind Farm and the 5 miles of 345kV Generator Tie line from the Waverly Switching Station to the Waverly Collector Substation. Since the Waverly Wind Farm and the associated 345kV Generator Tie Line are being built in compliance with the UFSAR 8.2.1.3 identified design requirements, the increase in the frequency of occurrence is less than minimal. Additionally on Question 2, there will be a small increase in the likelihood of occurrence of a malfunction of the LaCygne 345kV Line, which is important to safety. However, the likelihood of occurrence of a malfunction of an SSC important to safety previously evaluated in the USAR is less than minimal because the Waverly Wind Farm design along with the 5 mile 345kV Generator Tie Line are in compliance with the USAR 8.2.1.3 identified design requirements. On Questions 3 thru 7, there was no discernable impact that could be identified by the changes. Also, no new types of malfunction are introduced by the changes, since the results of any malfunctions would be bounded by the LOOP, Loss of External Load, and Grid Disturbances already evaluated.

**Evaluation Number: 59 2016-0001**

**Revision: 0**

**Title: Class 1E Equipment Room Temperature Increase**

**Activity Description:**

Engineering Configuration Change Package (CCP) 015011 was issued to evaluate an increase in the maximum allowable environmental temperatures in the Control Building Class 1E equipment rooms. The historical normal and accident environmental room conditions were a maximum of 90°F, and CCP 015011 increases this to 104°F, under specific conditions. This elevated room temperature will only occur if a single air conditioning unit (SGK05A/B) is nonfunctional concurrent with accident condition loss of coolant accident (LOCA) heat loads. All equipment in the Class 1E equipment rooms that is critical to achieve safe plant shutdown was specified to have a maximum design temperature of at least 104°F (some equipment was specified to 122°F) except for the 125V DC system (NK) batteries, which were procured for a normal environmental range of 60-90°F, without a maximum temperature specified.

**50.59 Evaluation:**

CCP 015011 provides a detailed evaluation of the impact to the Class 1E equipment due to the increase in the maximum allowable environmental temperatures to 104°F, under specific conditions. All equipment was inventoried and the design specification for each component of the Class 1E equipment was identified. The design specifications list a maximum ambient temperature environment for the equipment to be located in. With the exception of the NK batteries, all Class 1E equipment was specified to be located in a maximum temperature environment of 104°F or 122°F. The batteries were not specified with a maximum temperature environment, but a normal temperature range for operation. CCP 015011 evaluated the operation and impact to the batteries from this extended temperature environment and concluded that the effects on the batteries at 104°F is negligible for the limited time period the batteries could be exposed to the elevated temperature.

**Evaluation Number: 59 2016-0002**

**Revision: 0**

**Title: Dedicated Operator to Support Maintenance Activity on Damper GKD0081**

**Activity Description:**

The activity involves replacing an automatic function with a dedicated operator manual action to open GKD0081, "Control Room A/C Unit 4A Control Room Discharge Isolation Damper," in support of a maintenance activity. The purpose of this activity is to maintain operability of the A-train of the Control Room Emergency Ventilation System (CREVS) during the performance of the maintenance activity of repairing the limit switches. The 50.59 Screen determined that this change involves a change to a procedure that adversely affects how USAR described SSC design functions are performed or controlled, as it replaces an automatic function with a manual operator action.

In order to perform maintenance on damper GKD0081, the actuator will need to be disengaged from the damper. During this time frame, if a Control Room Ventilation Isolation Signal (CRVIS) were to occur, the associated actuator, GKHZ0029B, would not be able to open damper GKD0081. Damper GKD0081 will need to be opened in order for the A-train of CREVS to be able to perform its Safety Design Basis Functions, specifically Safety Design Basis Seven – "The control room air-conditioning system provides the control room with a conditioned atmosphere during all modes of plant operation, including post-accident operation (GDC-19)."

In order to ensure that the A-train of CREVS can perform its design basis functions, the proposed activity involves stationing a dedicated operator at damper GKD0081 in support of the maintenance activity. If a CRVIS is generated, then the dedicated operator would manually open damper GKD0081 to ensure that the A-train of CREVS could perform its specified safety functions.

**50.59 Evaluation:**

The change of using a dedicated operator to open GKD0081 in support of a maintenance activity affects the likelihood of occurrence of a malfunction of an SSC important to safety by replacing an automatic function with a manual action while performing maintenance on the damper.

The operator will position the damper within a time frame that is bounded by the time that the normal actuator, GKHZ0029B, would be able to position the damper. The dedicated operator will have 60 seconds to open damper GKD0081 from the time the control room filtration fan (CGK03A) starts, or 30 seconds from the time that the control room air conditioning unit (SGK04A) starts. Thus, there will be no impact on the ability of the A-train of CREVS to perform its specific safety functions.

It was concluded that the impact on the likelihood of occurrence of a malfunction of an SSC important to safety is not more than minimal as discussed in Question 2 of this evaluation.