WOLF CREEK
NUCLEAR OPERATING CORPORATION

A. J. Camp, Jr
Plant Manager

December 17, 2013
WO 13-0099

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

Subject: Docket No. 50-482: LER 2013-010-00, "Technical Specification Required Shutdown Due to a Nonfunctional Class 1E Electrical Equipment Air Conditioning Unit Caused By Foreign Material"

Gentlemen:

The enclosed Licensee Event Report (LER) is being submitted pursuant to 10 CFR 50.73(a)(2)(i)(A) as a completion of a plant shutdown required by the plant's Technical Specifications.

This letter contains no commitments. If you have any questions concerning this matter, please contact me at (620) 364-4110, or Mr. Michael J. Westman at (620) 364-4009.

Sincerely,

A. J. Camp, Jr

AJC/rlt

Enclosure

cc: M. L. Dapas (NRC), w/e
C. F. Lyon (NRC), w/e
N. F. O'Keefe (NRC), w/e
Senior Resident Inspector (NRC), w/e

JE22
NRR

NRC FORM 366 U.S. NUCLEAR REGULATORY COMMISSION
(10-2010)

APPROVED BY OMB: NO. 3150-0104 EXPIRES: 10/31/2013

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA/Privacy Service Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects.resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
WOLF CREEK GENERATING STATION	05000 482	1 OF 4

4. TITLE Technical Specification Required Shutdown Due to a Nonfunctional Class 1E Electrical Equipment Air Conditioning Unit Caused By Foreign Material

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
										05000
10	18	2013	2013	010	00	12	17	2013	FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE

1

10. POWER LEVEL

100

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§: *(Check all that apply)*

- ☐ 20.2201(b)
- ☐ 20.2201(d)
- ☐ 20.2203(a)(1)
- ☐ 20.2203(a)(2)(i)
- ☐ 20.2203(a)(2)(ii)
- ☐ 20.2203(a)(2)(iii)
- ☐ 20.2203(a)(2)(iv)
- ☐ 20.2203(a)(2)(v)
- ☐ 20.2203(a)(2)(vi)
- ☐ 20.2203(a)(3)(i)
- ☐ 20.2203(a)(3)(ii)
- ☐ 20.2203(a)(4)
- ☐ 50.36(c)(1)(i)(A)
- ☐ 50.36(c)(1)(ii)(A)
- ☐ 50.36(c)(2)
- ☐ 50.46(a)(3)(ii)
- ☒ 50.73(a)(2)(i)(A)
- ☐ 50.73(a)(2)(i)(B)
- ☐ 50.73(a)(2)(i)(C)
- ☐ 50.73(a)(2)(ii)(A)
- ☐ 50.73(a)(2)(ii)(B)
- ☐ 50.73(a)(2)(iii)
- ☐ 50.73(a)(2)(iv)(A)
- ☐ 50.73(a)(2)(v)(A)
- ☐ 50.73(a)(2)(v)(B)
- ☐ 50.73(a)(2)(v)(C)
- ☐ 50.73(a)(2)(v)(D)
- ☐ 50.73(a)(2)(vii)
- ☐ 50.73(a)(2)(viii)(A)
- ☐ 50.73(a)(2)(viii)(B)
- ☐ 50.73(a)(2)(ix)(A)
- ☐ 50.73(a)(2)(x)
- ☐ 73.71(a)(4)
- ☐ 73.71(a)(5)
- ☐ OTHER

Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME	TELEPHONE NUMBER (Include Area Code)
Michael Westman, Manager Regulatory Affairs	(620) 364-4009

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

14. SUPPLEMENTAL REPORT EXPECTED

☐ YES *(If yes, complete 15. EXPECTED SUBMISSION DATE)* ☒ NO

15. EXPECTED SUBMISSION DATE

MONTH	DAY	YEAR

ABSTRACT *(Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)*

On October 18, 2013 at 1141 Central Daylight Time (CDT), the Class 1E electrical equipment air conditioning unit, SGK05A, was declared nonfunctional due to low lube oil pressure on the SGK05A compressor. As a result, Technical Specification (TS) Limiting Condition for Operation (LCO) 3.0.3 was entered and a plant shutdown was commenced. Mode 3 was entered on October 18, 2013 at 1735 CDT.

The cause of the SGK05A failure was a loss of lube oil pressure sensing to the pressure switch of the SGK05A compressor. Contaminates in the system caused the loss of lube oil pressure sensing to the pressure switch. An inadequate flush and restoration of the system in May 2013 allowed contaminates to remain in the system.

SGK05A was returned to a functional status on October 21, 2013 at 1915 CDT. Wolf Creek Generating Station returned to Mode 1 on October 27, 2013 at 2007 CDT.

PLANT CONDITIONS AT THE TIME OF THE EVENT

100 %
Mode 1
There were no structures, components or systems (SSC) that were inoperable at the start of the event and contributed to the event.

DESCRIPTION OF THE EVENT

On October 18, 2013 at 1050 Central Daylight Time (CDT), the control room was notified that the 'A' train Class 1E electrical equipment air conditioning (A/C) unit [EIIS: VI, ACU] (SGK05A) had stopped running and the alarm light for 'lube oil failure' was illuminated. SGK05A was declared nonfunctional per Technical Requirement (TR) 3.7.23, "Class 1E Electrical Equipment Air-Conditioning (A/C)." Because of the essential support function provided by the Class 1E electrical equipment A/C trains, the correct application of the Technical Specification (TS), upon discovery of a nonfunctional Class 1E electrical equipment A/C train, is to immediately enter the applicable Conditions and Required Actions under TS 3.8.4, TS 3.8.7, TS 3.8.9, as well as Limiting Condition for Operation (LCO) 3.0.3.

After entry into LCO 3.0.3, the Oil Pressure Sensing System was reset inside of the SGK05A control cabinet. The unit was observed operating properly with all parameters within their normal band. At 1100 CDT, the control room exited TR 3.7.23, TS 3.8.4, TS 3.8.7, TS 3.8.9, and LCO 3.0.3. The control room stationed an operator at SGK05A to continuously monitor operation of the unit and to report any abnormal conditions. At 1141 CDT, SGK05A again tripped on low oil pressure. The control room re-entered the applicable Conditions and Required Actions under TR 3.7.23, TS 3.8.4, TS 3.8.7, TS 3.8.9, and LCO 3.0.3.

A plant shutdown was commenced on October 18, 2013 at 1211 CDT. Wolf Creek Generating Station (WCGS) entered Mode 3 on October 18, 2013 at 1735 CDT.

The cause of the low oil pressure trip of the SGK05A unit was a clogged screen on the pressure switch, which activates the low-pressure trip. The clogging of the screen was due to the existence of black debris, which prevented the pressure switch from sensing system pressure.

In May 2013, a filter-drier [EIIS: VI, FLT] failure on the SGK05A unit introduced contaminates into the system including the SGK05A compressor. The compressor was removed from the system and replaced with another compressor. The removed compressor was set aside and cleaned, but not cleaned to an adequate level. This compressor was then reinstalled in September 2013. The compressor in the SGK05A unit, at the time of the October 18, 2013 failure, was the same compressor that was removed from the SGK05A unit in May 2013, following the filter-drier failure.

Further review found that procedure AP 12-002, "Internal/External System Cleanliness," was applicable to the refrigerant side of the Class 1E electrical equipment air conditioning (A/C) system but was not used. Use of this procedure would have removed the contaminants from the Class 1E electrical equipment air conditioning (A/C) system and compressor.

Work on the 'A' train Class 1E electrical equipment A/C unit was completed and the unit returned to a functional status on October 21, 2013 at 1915 CDT. WCGS returned to Mode 1 on October 27, 2013 at 2007 CDT.

BASIS FOR REPORTABILITY

10 CFR 50.73(a)(2)(i)(A) requires reporting "the completion of any nuclear plant shutdown required by the plant's Technical Specifications." A shutdown of the plant was completed per LCO 3.0.3. Additionally, a 4-hour notification was made per 10 CFR 50.72(b)(2)(i) when the plant shutdown was initiated.

CAUSE OF THE EVENT

The direct cause of this condition is the loss of lube oil pressure sensing to the pressure switch of the SGK05A compressor. A filter-drier failure in May 2013 on the SGK05A unit introduced contaminates into the system causing the loss of lube oil pressure sensing to the pressure switch.

The root cause of this condition is attributed to the lack of station awareness in relation to how procedure AP 12-002, "Internal/External System Cleanliness," applied to the refrigerant side of the Class 1E electrical equipment air conditioning (A/C) system. In May 2013, an inadequate chemical flush and evacuation performed after a filter-drier failure allowed filter element material to enter the refrigerant stream. Failure of the filter-drier was reported in LER 2013-006-01.

CORRECTIVE ACTIONS

The compressor was removed from the system and a gravity flush of the crankcase was performed.

Core work instructions will be generated to provide specific guidance for the maintenance technicians performing flushing and restoration evolutions on air conditioning systems.

Procedure MPE GK-004, "GK Unit Preparation for Work," will be revised to include critical steps that are important for ensuring an effective flush and evacuation of the Class 1E electrical equipment A/C system.

SAFETY SIGNIFICANCE

The Class 1E electrical equipment A/C system operates in a continuous recirculation mode to maintain the engineered safety features (ESF) switchgear rooms [EIIS: EB, SWGR], battery rooms [EIIS: EJ, BTRY] and the DC switchgear rooms [EIIS: EJ, SWGR] at or below the design temperature of 90 degrees F during all modes of plant operation, including loss of preferred offsite power and post-accident operation. The safety significance of this event is low since only one train of Class 1E electrical equipment was potentially affected. The 'B' train Class 1E electrical equipment A/C unit, SGK05B, was not affected and remained functional, and its associated train of Class 1E electrical equipment was operable. Additionally, the 'A' train Class 1E electrical equipment room temperatures, cooled by SGK05A, remained below 90 degrees F.

OPERATING EXPERIENCE/PREVIOUS SIMILAR OCCURRENCES

LER 2012-005-00 reported a Class 1E electrical equipment A/C train was declared nonfunctional due to a calculation that concluded one train of air conditioning was not capable of supporting both trains of Class 1E equipment. Technical Requirement (TR) 3.7.23 allowed a train to be nonfunctional if compensatory measures were established for the affected unit. During the operability determination and functionality assessment process, it was determined that the operability of the associated train Class 1E electrical equipment could not be maintained without additional compensatory measures and for a limited period of time.

LER 2013-004-00 reported one train of Class 1E electrical equipment air conditioning had been nonfunctional and one train of control room air conditioning had been inoperable during the previous cycle. This was discovered during refueling outage 19 when the SGK05A compressor terminal box mounting screws were found over torqued. This resulted in a condition prohibited by Technical Specification and a condition that could have prevented the fulfillment of a safety function.

LER 2013-006-01 reported one train of Class 1E electrical equipment air conditioning had been nonfunctional due to a partial blockage of the thermostatic expansion valve [EIIS: VI, TCV] feeding the SGK05A evaporator coils. Failure of a filter-drier in the system created the contamination that led to the blockage. This resulted in a plant shutdown required by Technical Specifications.

LER 2013-007-01 reported one train of Class 1E electrical equipment air conditioning had been nonfunctional due to an analysis of an oil sample that showed elevated levels of aluminum. The NRC granted enforcement discretion that allowed the plant to remain at power while the train was restored to functional status.

LER 2013-008-00 reported one train of Class 1E electrical equipment air conditioning nonfunctional due to an inadequate flush of contaminates created by a filter-drier failure. This resulted in a plant shutdown required by Technical Specifications.