

# WOLF CREEK

NUCLEAR OPERATING CORPORATION

August 14, 2013

A. J. Camp, Jr  
Plant Manager

WO 13-0059

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

Reference: Letter WO 13-0051, dated July 8, 2013, from A. J. Camp, Jr. WCNO, to USNRC

Subject: Docket No. 50-482: Licensee Event Report 2013-006-01, "Technical Specification Required Shutdown Due to a Nonfunctional Class 1E Electrical Equipment Air Conditioning Unit"

Gentlemen:

The Reference submitted Licensee Event Report (LER) 2013-006-00, "Technical Specification Required Shutdown Due to a Nonfunctional Class 1E Electrical Equipment Air Conditioning Unit." This supplement revises the cause and corrective actions of the Class 1E electrical equipment air conditioning unit.

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/rit

Enclosure

cc: C. F. Lyon (NRC), w/e  
N. F. O'Keefe (NRC), w/e  
S. A. Reynolds (NRC), w/e  
Senior Resident Inspector (NRC), w/e

IE22  
NRR

(10-2010)

**LICENSEE EVENT REPORT (LER)**

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

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](mailto: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.

<b>1. FACILITY NAME</b> WOLF CREEK GENERATING STATION	<b>2. DOCKET NUMBER</b> 05000 482	<b>3. PAGE</b> 1 OF 4
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**4. TITLE** Technical Specification Required Shutdown Due to a Nonfunctional Class 1E Electrical Equipment Air Conditioning Unit

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
05	07	2013	2013	006	01	08	14	2013	FACILITY NAME	DOCKET NUMBER 05000
									FACILITY NAME	DOCKET NUMBER 05000

<b>9. OPERATING MODE</b>  1	<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§:</b> (Check all that apply)
<b>10. POWER LEVEL</b>  100	<input type="checkbox"/> 20.2201(b) <input type="checkbox"/> 20.2203(a)(3)(i) <input type="checkbox"/> 50.73(a)(2)(i)(C) <input type="checkbox"/> 50.73(a)(2)(vii) <input type="checkbox"/> 20.2201(d) <input type="checkbox"/> 20.2203(a)(3)(ii) <input type="checkbox"/> 50.73(a)(2)(ii)(A) <input type="checkbox"/> 50.73(a)(2)(viii)(A) <input type="checkbox"/> 20.2203(a)(1) <input type="checkbox"/> 20.2203(a)(4) <input type="checkbox"/> 50.73(a)(2)(ii)(B) <input type="checkbox"/> 50.73(a)(2)(viii)(B) <input type="checkbox"/> 20.2203(a)(2)(i) <input type="checkbox"/> 50.36(c)(1)(i)(A) <input type="checkbox"/> 50.73(a)(2)(iii) <input type="checkbox"/> 50.73(a)(2)(ix)(A) <input type="checkbox"/> 20.2203(a)(2)(ii) <input type="checkbox"/> 50.36(c)(1)(ii)(A) <input type="checkbox"/> 50.73(a)(2)(iv)(A) <input type="checkbox"/> 50.73(a)(2)(x) <input type="checkbox"/> 20.2203(a)(2)(iii) <input type="checkbox"/> 50.36(c)(2) <input type="checkbox"/> 50.73(a)(2)(v)(A) <input type="checkbox"/> 73.71(a)(4) <input type="checkbox"/> 20.2203(a)(2)(iv) <input type="checkbox"/> 50.46(a)(3)(ii) <input type="checkbox"/> 50.73(a)(2)(v)(B) <input type="checkbox"/> 73.71(a)(5) <input type="checkbox"/> 20.2203(a)(2)(v) <input checked="" type="checkbox"/> 50.73(a)(2)(i)(A) <input type="checkbox"/> 50.73(a)(2)(v)(C) <input type="checkbox"/> OTHER <input type="checkbox"/> 20.2203(a)(2)(vi) <input checked="" type="checkbox"/> 50.73(a)(2)(i)(B) <input type="checkbox"/> 50.73(a)(2)(v)(D) <input type="checkbox"/> OTHER <div style="text-align: right; font-size: small;">Specify in Abstract below or in NRC Form 366A</div>

**12. LICENSEE CONTACT FOR THIS LER**

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

<b>14. SUPPLEMENTAL REPORT EXPECTED</b> <input type="checkbox"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	<b>15. EXPECTED SUBMISSION DATE</b> MONTH:                      DAY:                      YEAR:
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**ABSTRACT** (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

On May 6, 2013 at 1733 Central Daylight Time (CDT), the Class 1E electrical equipment air conditioning unit, SGK05A, was declared nonfunctional due to an increasing temperature trend in the 'A' train safety related electrical equipment room. As a result, Technical Specification Limiting Condition for Operation 3.0.3 was entered and a plant shutdown was commenced. Wolf Creek Generating Station (WCGS) entered Mode 3 on May 7, 2013 at 0009 CDT.

Damage to the liquid line filter drier assembly was caused by over tightening of the wing screw that holds the assembly together. This caused the partial blockage of the thermostatic expansion valves feeding the SGK05A evaporator coils resulting in the temperature increase in the 'A' train safety related electrical equipment room.

The thermostatic expansion valves and filter drier assembly were replaced and WCGS returned to Mode 1 on 5/13/2013 at 0832 CDT.

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PLANT CONDITIONS AT THE TIME OF THE EVENT

Mode - 1

100 percent power

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 May 5, 2013, Operators identified an increasing temperature trend for the 'A' train safety related electrical equipment room. The trend began one month earlier with a gradual increase of approximately 11 degrees Fahrenheit (F). On May 6, 2013 at 1733 Central Daylight Time (CDT), the Class 1E electrical equipment air conditioning (A/C) unit [EIS: VI, ACU], SGK05A, which cools the 'A' train safety related electrical equipment rooms was declared nonfunctional per Technical Requirement (TR) 3.7.23, "Class 1E Electrical Equipment Air-Conditioning (A/C)." TR 3.7.23 requires two Class 1E electrical equipment A/C trains be functional in Modes 1 through 4. 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.

A plant shutdown was commenced on 5/6/2013 at 1801 CDT. Wolf Creek Generating Station (WCGS) entered Mode 3 on 5/7/2013 at 0009 CDT.

Troubleshooting determined that the SGK05A evaporator coils [EIS: VI, EVP, CL] were being starved of refrigerant, which was consistent with blockage of the thermostatic expansion valves [EIS: VI, TCV]. Further examination identified a foreign material on the inlet thermostatic expansion valve screens. The foreign material was determined to be filter drier assembly [EIS: VI, FLT] core material that had broken down and entered the system. The thermostatic expansion valves are Sporlan Model Number SVE-8-CP100. The filter drier assembly is a Sporlan Model C-1449. Examination of the liquid line filter drier assembly internals identified damage to one of the three filter cores and the outlet plate and filter tube assembly. The filter tube and outlet plate are designed to prevent any carryover of the filter drier core material into the refrigerant stream. The damage to the core material appears consistent with erosion caused by liquid refrigerant flowing across the edge of the core element created by the failure of the connection between the filter tube and the outlet plate.

The system was flushed and the thermostatic expansion valves and filter drier assembly were replaced. It was confirmed that this issue did not exist with the 'B' train Class 1E electrical equipment A/C unit, SGK05B. The operating history of similar A/C units was reviewed and no similar problems were found at WCGS.

Work on 'A' train Class 1E electrical equipment A/C unit was completed and the unit returned to a functional status on May 11, 2013 at 0451 CDT. WCGS returned to Mode 1 on May 13, 2013 at 0832 CDT.

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**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.

**ROOT CAUSE**

Over tightening of the wing screw, that holds the filter drier assembly together, resulted in damage of the outlet plate assembly. As a result, the joint between the filter tube and the outlet plate in the liquid line filter for SGK05A failed. This failure allowed filter element material to enter the liquid refrigerant stream leading to blockages of the thermostatic expansion valves, gradually reducing the cooling capacity of SGK05A.

**CORRECTIVE ACTIONS**

The system was flushed and the thermostatic expansion valves and filter drier assembly were replaced. It was confirmed that this issue did not exist with the 'B' train Class 1E electrical equipment A/C unit, SGK05B. The operating history of similar A/C units was reviewed and no similar problems were found at WCGS.

Procedure MPE GK-004, "GK Unit Preparation for Work," will incorporate the vendor guidance on replacement of the filter driers, including the direction to hand tighten the filter driers wing screw. It will require an inspection of the outlet plate assembly when a filter drier is removed and an inspection as the final assembly step.

**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 [EIS: EB, SWGR], battery rooms [EIS: EJ, BTRY] and the DC switchgear rooms [EIS: 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.

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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.