WOLF CREEK
NUCLEAR OPERATING CORPORATION

A. J. Camp, Jr
Plant Manager

May 3, 2013

WO 13-0031

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

Subject: Docket No. 50-482: LER 2013-004-00, "Torque Requirement Human Performance Issue Caused Nonfunctional Class 1E Electrical Equipment Air Conditioning Unit and an Inoperable Control Room Air Conditioning Unit"

Gentlemen:

The enclosed Licensee Event Report (LER) is submitted in accordance with 10 CFR 50.73, "Licensee event report system," paragraph (a)(2)(i)(B) as a condition prohibited by Technical Specifications, paragraph (a)(2)(v) as a condition that could have prevented the fulfillment of a safety function, and paragraph (a)(2)(vii) as a common-cause inoperability of independent trains or channels.

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) 364-8831 ext. 4009.

Sincerely,

A. J. Camp, Jr

AJC/rlt

Enclosure

cc: A. T. Howell (NRC), w/e
C. F. Lyon (NRC), w/e
N. F. O'Keefe (NRC), w/e
Senior Resident Inspector (NRC), w/e

IE22
NRR

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

LICENSEE EVENT REPORT (LER)

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

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.

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4. TITLE Torque Requirement Human Performance Issue Caused Nonfunctional Class 1E Electrical Equipment Air Condition Unit and an Inoperable Control Room 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
										05000
03	08	2013	2013	004	00	05	03	2013	FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE

Defueled

10. POWER LEVEL

0

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

☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(i)(C)	☒ 50.73(a)(2)(vii)
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☒ 50.73(a)(2)(v)(C)	☐ OTHER
☐ 20.2203(a)(2)(vi)	☒ 50.73(a)(2)(i)(B)	☒ 50.73(a)(2)(v)(D)	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) 364-8831 ext 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 03/08/2013, Wolf Creek Generating Station was in Refueling Outage 19 with the core defueled and no movement of irradiated fuel assemblies. During replacement of the SGK05A Class 1E electrical equipment air conditioning compressor, it was discovered that the compressor terminal box mounting screws were over torqued to 50 inch pounds. A work history review determined that SGK05B and the SGK04B control room air conditioning compressor also had over torqued mounting screws. SGK04A was unaffected as no maintenance had been performed on the compressor terminal box that specified torque requirements for the mounting screws. As a result, it was determined that SGK05B had been nonfunctional and SGK04B had been inoperable during the previous cycle. This resulted in a condition prohibited by Technical Specification and a condition that could have prevented the fulfillment of a safety function.

The mounting screws were replaced with safety related screws and torqued to the proper value.

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PLANT CONDITIONS AT THE TIME OF THE EVENT

Defueled
0 percent power
Reactor Coolant System (RCS) pressure: the reactor vessel head was removed and RCS pressure was equivalent to the static head pressure of the refueling pool
RCS temperature: approximately 63 degrees Fahrenheit

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

BACKGROUND

On 03/08/2013, Wolf Creek Generating Station was in Refueling Outage 19 with the core defueled and no movement of irradiated fuel assemblies. The A train essential service water system [EIIS: BI] was out of service for maintenance. The B train Class 1E electrical equipment air conditioning unit (SGK05B) [EIIS: VI] and the B train control room air conditioning unit (SGK04B) [EIIS: VI] were in service. With the reactor defueled, Technical Specifications (TS) and the Technical Requirements Manual (TRM) do not require these units to be in service.

DESCRIPTION OF THE EVENT

On 03/08/2013, during replacement of the SGK05A Class 1E electrical equipment air conditioning compressor [EIIS: VI, ACU], technicians were re-installing the compressor terminal box and torquing the terminal box mounting screws to the compressor at 50 inch pounds per the maintenance work instructions. The first mounting screw snapped off at 40 inch pounds, leaving the threaded body of the screw inside the compressor. The mounting screw was successfully extracted.

Engineering recommended that the terminal box mounting screws for both SGK05A and SGK05B be removed and replaced with safety related mounting screws and tightened to a torque value of 20 inch pounds. Corrective work was completed for SGK05A on 03/10/2013.

An extent of condition review determined that the mounting screws on SGK04B and SGK05B compressors [EIIS: VI, ACU] were also over torqued. SGK04A [EIIS: VI, ACU] was unaffected as no maintenance had been performed on the compressor terminal box that specified torque requirements for the mounting screws.

SGK05B had maintenance performed on 05/30/2012 and the mounting screws were over torqued to 50 inch pounds. On 03/09/2013 at 1715 Central Standard Time (CST), SGK05B was declared nonfunctional.

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SGK04B had maintenance performed on 08/12/2011 and the mounting screws were over torqued to 50 inch pounds. Since the mounting screws had been over torqued, there was no way to ensure the mounting screws would keep the terminal box in place during a seismic event. Though not in the TS mode of applicability, the plant was defueled and there was no movement of irradiated fuel assemblies, on 03/10/2013 at 1208 CST, SGK04B was declared inoperable.

As the plant was in a refueling outage, the A train could not be restored because the A train essential service water was out of service for maintenance. Due to the protected status of the B train that did not allow the de-energization of SGK04B and SGK05B units to allow replacement of the mounting screws, a temporary modification to restrain the terminal boxes was installed on 03/14/2013. The temporary modification was removed after the A train was restored to operation.

The mounting screws on SGK05B were replaced and torqued to 20 inch pounds. SGK05B was returned to service on 03/22/2013 at 1816 Central Daylight Time (CDT). The mounting screws on SGK04B were replaced and torqued to 20 inch pounds on 03/23/2013. SGK04B was restored to operable status on 3/23/2013 at 1021 CDT.

A review of the Instruction Manual for Packaged Air Conditioning Units, Bolt Torque on Copeland Compressors, did not reveal any torque value or the need to torque the compressor termination box machine screws. Furthermore, the Instruction Manual did not specify the size of the machine screw used for the termination box. Interviews with the Maintenance Planner did not determine how or why a torque requirement was placed in the work instructions for the compressor terminal box mounting screws.

BASIS FOR REPORTABILITY

Technical Requirement (TR) 3.7.23, "Class 1E Electrical Equipment Air-Conditioning (A/C)," requires two Class 1E electrical equipment A/C trains be functional in Modes 1 through 4. SGK05B had maintenance performed on 05/30/2012 and the mounting screws were over torqued to 50 inch pounds. As a result, SGK05B was nonfunctional from 05/30/2012 through 2/5/2013. Because of the essential support function provided by the Class 1E electrical equipment A/C trains, the correct application of the TS, upon discovery of an 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. This resulted in a condition prohibited by TS.

Further review determined that SGK05A was nonfunctional from 6/4/2012 through 6/6/2012. As result, two Class 1E electrical equipment A/C trains were nonfunctional for a period of time. Because of the essential support function provided by the Class 1E electrical equipment A/C trains, both trains of Class 1E electrical equipment were considered to be inoperable during this time period. This resulted in a condition that would have prevented fulfillment of the safety function required of the Class 1E electrical equipment.

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The LCO for TS 3.7.11, "Control Room Air Conditioning System (CRACS)," requires two CRACS trains to be operable in Modes 1 through 6 and during movement of irradiated fuel assemblies. SGK04B had maintenance performed on 08/12/2011 and the mounting screws were over torqued to 50 inch pounds. As a result, one CRACS train was inoperable since 08/12/2011. Condition A of TS 3.7.11 requires restoring the inoperable CRACS train to operable status in 30 days. Since Condition A and Condition B were not met, this resulted in a condition prohibited by TS.

A review since 08/12/2011 revealed multiple instances when SGK04A was not operable. As a result, two CRACS trains were inoperable in multiple instances since 08/12/2011. This resulted in a condition that would have prevented fulfillment of the safety function required of the CRACS.

This event reports a single cause or condition, which caused independent trains to become inoperable. This resulted in a common-cause inoperability of independent trains or channels.

ROOT CAUSE

The apparent cause of this event was less than adequate usage of self-checking, planner peer review and questioning attitude. Maintenance planners did not validate the torque requirements for the terminal box mounting screws by using self-checks and/or planner peer review. In addition, maintenance failed to question why terminal box mounting screws were being torqued.

CORRECTIVE ACTIONS

The mounting screws were replaced and torqued to 20 inch pounds for SGK04A/B and SGK05A/B.

Procedure AI 16C-007, "Work Order Planning," was revised to require a reference source document for any work instruction that requires torquing data for an installed SSC.

SAFETY SIGNIFICANCE

The CRACS provides temperature control for the control room and consist of two independent and redundant trains, SGK04A/B, that provide cooling of recirculated control room air. A single unit will maintain a temperature of less than or equal to 84 degrees Fahrenheit for the control room during normal or emergency operations. The CRACS are designed to remove sensible and latent heat loads from the control room, which include consideration of equipment heat loads and personnel occupancy requirements, to ensure equipment operability. Control room temperatures remained below the area temperature limits.

The Class 1E electrical equipment air conditioning system operates in a continuous recirculation mode to maintain the engineered safety features (ESF) switchgear room [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 Fahrenheit during all modes of plant operation, including loss of preferred offsite power and post-accident operation. Room temperatures remained below the area temperature limits for qualification of electrical equipment.

The safety significance of this event is low since the units with the over torqued terminal box mounting screws were capable of operating. The units may not have functioned if a seismic event had occurred.

OPERATING EXPERIENCE/PREVIOUS EVENTS

Licensee Event Report (LER) 2012-005-00 reported a Class 1E electrical equipment A/C train was declared nonfunctional. Technical Requirement (TR) 3.7.23 allowed a train to be nonfunctional if compensatory measures are 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.