



March 31, 2011

ULNRC-05760

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555-0001

10 CFR 50.73(a)(2)(i)(B)

Ladies and Gentlemen:

**DOCKET NUMBER 50-483  
CALLAWAY PLANT UNIT 1  
UNION ELECTRIC CO.  
FACILITY OPERATING LICENSE NPF-30  
LICENSEE EVENT REPORT 2010-010-00  
VIOLATION OF TECHNICAL SPECIFICATION 3.0.3  
DUE TO 'B' CLASS 1E ELECTRICAL EQUIPMENT A/C UNIT INOPERABILITY**

The enclosed licensee event report is submitted in accordance with 10CFR50.73(a)(2)(i)(B) to report a violation of Technical Specification 3.0.3 due to 'B' Class 1E Electrical Equipment A/C Unit Inoperability.

This letter does not contain new commitments.

Sincerely,

Fadi M Diya  
Vice President Nuclear Operations

EMF

Enclosure

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**Index and send hardcopy to QA File A160.0761**

**Hardcopy:**

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(Certrec receives ALL attachments as long as they are non-safeguards and may be publicly disclosed.)

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**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 Section (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@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**  
Violation of Technical Specification 3.0.3 Due To 'B' Class 1E Electrical Equipment A/C Unit Inoperability

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
12	01	2010	2010	010	00	03	31	2011	FACILITY NAME	DOCKET NUMBER

<b>9. OPERATING MODE</b>  MODE 1	<b>11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR§:</b> (Check all that apply)									
	<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)						
<b>10. POWER LEVEL</b>  100%	<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 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)	Specify in Abstract below or in NRC Form 366A							

**12. LICENSEE CONTACT FOR THIS LER**

FACILITY NAME T.B. Elwood, Supervising Engineer, Regulatory Affairs and Licensing	TELEPHONE NUMBER (Include Area Code) 314-225-1905
--	--

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	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 9/21/2010 Callaway Plant questioned the existing practice, per FSAR Sec.16.7.13, of allowing the affected Engineered Safety Feature switchgear, vital AC buses, and safety-related batteries/chargers to be considered OPERABLE for up to 7 days when either of the two Class 1E electrical equipment A/C units is inoperable, provided certain compensatory actions are met. Re-evaluation of the provisions of FSAR Sec. 16.7.13 under the corrective action program determined that the existing practice was not a correct application of the plant Technical Specifications (TS). It has been determined that the correct application of the TS, upon discovery of an inoperable A/C unit, is to immediately declare the affected electrical equipment inoperable and enter the applicable Conditions and Required Actions of TS 3.8.4, 3.8.7, 3.8.9, and 3.0.3.

With a correct understanding of the applicable TS for the A/C units and the equipment they support, a review of events involving inoperability of the trains in the past 3 years was conducted to determine whether a reportable condition had existed. Based on a question from the NRC Resident Inspector on 12/1/2010, further review was conducted, from which one event in 2008 involving inoperability of the 'B' unit was identified and has now been determined to be reportable as a condition prohibited by the TS. Corrective actions include developing a Technical Specification for the Class 1E electrical equipment A/C trains.

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**1. DESCRIPTION OF STRUCTURE(S), SYSTEM(S) AND COMPONENT(S):**

The Class 1E electrical equipment air-conditioning (A/C) system [EISS system: VI] provides a suitable environment for the Class 1E electrical equipment. In particular, completely redundant Class 1E electrical equipment air-conditioning subsystems (trains) provide a suitable atmosphere for the Class 1E electrical switchgear [EISS systems: EB and EJ, component: SWGR] and Battery [EISS system: EJ, component: BTRY] areas during all modes of plant operation, including loss of preferred power and post-accident operation. The air conditioning subsystems are powered from independent Class 1E power sources with cooling provided by independent Essential Service Water (ESW) system trains [EISS system: BI]. Each Class 1E electrical equipment air-conditioning subsystem is operated in a continuous recirculation mode to maintain its associated engineered safety feature (ESF) switchgear rooms, battery rooms, and the DC switchgear rooms at or below a temperature of 90 degrees F. The amount of cooling provided by the self-contained refrigeration system is self-regulating and therefore automatically compensates itself for changes in the room heat loads. Detection of a loss of offsite power, a loss of coolant accident (LOCA), or a control room ventilation isolation signal (CRVIS) will automatically initiate the Class 1E electrical equipment air-conditioning subsystems if they are not in operation.

Each Class 1E electrical equipment A/C unit [EISS system: VI, component: ACU] is a compressor-driven cooling unit that provides cooling for the associated safety-related switchgear rooms. Essential service water is provided to cool the refrigerant as it flows through the condenser [EISS system: VI, component: COND], and as the air conditioning unit load increases, the ESW outlet flow control valve [EISS system: VI, component: FCV] opens to provide more cooling when the valve controller [EISS system: VI, component: DCC] is in AUTOMATIC. When compressor discharge pressure increases, the digital controller signal causes the valve to open. When compressor discharge pressure stabilizes, the valve will close slightly to control the discharge pressure based on the load on the unit. The digital controller is equipped with a manual override which, when selected, defeats the automatic repositioning of the valve. The controller is occasionally placed in MANUAL to support maintenance activities and system flow balances.

If the valve controller is in MANUAL and the Class 1E electrical equipment A/C unit is loaded, the ESW outlet flow control valve will not modulate to increase condenser cooling and there will not be adequate cooling flow to maintain the compressor within its normal operating parameters. The valve controller is in AUTOMATIC if the manual button is backlit green, and is in MANUAL if the manual button is backlit red.

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**2. INITIAL PLANT CONDITIONS:**

This LER addresses a violation of Technical Specification (TS) 3.0.3 due to an after-the-fact discovery of inoperability for the 'B' Class 1E electrical equipment A/C unit, which exceeded eight hours. This was discovered while the plant was in MODE 1 at 100% power.

No structures, systems, or components were inoperable at the start of the event which contributed to the event.

**3. EVENT DESCRIPTION:**

On September 21, 2010 Callaway Plant questioned the existing practice, per a technical requirement contained in FSAR Section 16.7.13, of allowing the ESF (Class 1E) switchgear, vital AC buses [EISS system: ED, component: BU], and safety-related batteries/chargers to be considered OPERABLE for up to seven days when one Class 1E electrical equipment A/C unit (SGK05A or SGK05B) is inoperable, provided certain compensatory actions are met. Per FSAR Section 16.7.13, these compensatory actions include opening doors between the rooms separately containing the Class 1E electrical equipment trains, thus allowing the remaining, OPERABLE Class 1E electrical equipment A/C unit to cool and maintain both (or either of the two) trains of Class 1E electrical equipment OPERABLE. If the inoperable Class 1E electrical equipment A/C unit cannot be restored within the seven days, FSAR Section 16.7.13 then requires declaring the affected Class 1E electrical equipment inoperable and entering the Conditions and Required Actions of Technical Specifications 3.8.4, "DC Sources – Operating," 3.8.7, "Inverters – Operating," and 3.8.9, "Distribution Systems - Operating." Additionally, FSAR Section 16.7.13 requires the plant be placed in HOT STANDBY within seven hours if both trains of Class 1E electrical equipment A/C are inoperable.

Re-evaluation of the provisions of FSAR Section 16.7.13 under the corrective action program determined that the existing practice was not a correct application of the plant Technical Specifications. Because of the essential support function provided by the Class 1E electrical equipment A/C subsystems for the associated Class 1E electrical trains, it has been determined that the correct application of the Technical Specifications, upon discovery of an inoperable Class 1E electrical equipment A/C unit, is to immediately enter the applicable Conditions and Required Actions under Technical Specifications 3.8.4, 3.8.7, 3.8.9, as well as Limiting Condition for Operation (LCO) 3.0.3. (LCO 3.0.3 is required to be entered because the Conditions and Required Actions of LCO 3.8.7 address having only a single inverter inoperable. Declaring a Class 1E electrical equipment A/C train inoperable would require declaring the whole train of affected electrical equipment inoperable. Since a train contains more than one inverter, LCO 3.0.3 would be required to be entered.) Upon entering these Technical Specifications,

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and based on a 2002 letter from the NRC to the Perry Plant providing guidance on how to address inoperable non-TS ventilation support systems, the compensatory actions per FSAR Section 16.7.13 can then be taken to allow an exit from the Conditions and Required Actions of the Technical Specifications, in light of the fact that the remaining OPERABLE Class 1E electrical equipment A/C unit can serve both trains of electrical equipment.

With a correct understanding of the applicable Technical Specifications related to the Class 1E electrical equipment A/C units and the equipment they support, a review of events involving inoperability of the Class 1E electrical equipment A/C trains in the past three years was conducted to determine whether a reportable condition had existed. Initially, no reportable conditions were found; however, based on a question from the NRC Resident Inspector on December 1, 2010, further review was conducted. This additional review identified one event that occurred in 2008 in which operability of the 'B' Class 1E electrical equipment A/C unit was retrospectively questioned.

Specifically, at 1441 on January 25, 2008 a slave relay test was performed per plant surveillance procedure OSP-SA-0017B which trips the 'B' Class 1E electrical equipment A/C unit, SGK05B. Following the surveillance, the Secondary Equipment Operator (EO) entered the room for SGK05B and observed normal unit operation with condenser pressure fluctuating as expected. The operator did not notice if the ESW outlet flow control valve controller for SGK05B was in MANUAL; however, the pressure fluctuations observed would indicate the unit was in the automatic mode of operation (i.e., in AUTOMATIC).

At 1343 on January 26, 2008 the Secondary EO inspected SGK05B and noted that the unit appeared to be operating normally. The operator did not think the ESW outlet flow control valve controller for SGK05B was in MANUAL. Later, however, at 0040 on January 27, 2008 the Secondary EO noted the 125V DC battery room temperature was higher than expected. Investigation found that SGK05B was tripped. Shortly thereafter, SGK05B was observed to develop high discharge pressure and the unit tripped again. Upon first arriving in the room, the EO noted a red light lit on the controller and believed the controller was in MANUAL. At 0105 on January 27, 2008 the 'B' Class 1E electrical equipment A/C unit was declared inoperable and secured.

At 0252 on January 27, 2008 the Secondary EO performed a flush of SGK05B. The flush activity takes the controller to MANUAL, fully opens the ESW outlet flow control valve, and then places the controller back in AUTOMATIC. Following the flush, the unit restarted and ran properly without any further incidents. It was subsequently declared OPERABLE at 04.14.

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Although it could not be determined exactly when the 'B' Class 1E electrical equipment A/C unit became inoperable, it was conservatively assumed that its controller was in MANUAL from the time when the slave relay test was completed on January 25, 2008. It was thus concluded at the time that the 'B' Class 1E electrical equipment A/C unit had been inoperable for a period of approximately 34 hours before it was actually declared inoperable. In total, therefore, the 'B' Class 1E electrical equipment A/C unit was determined to be inoperable for 37 hours and 33 minutes.

This condition was not reported at the time because the period of inoperability was within the time limit allowed per FSAR Section 16.7.13 such that the TS LCOs for the potentially affected electrical equipment were not "required" to be entered.

As noted previously, however, a more accurate understanding of the applicable TS requirements has since been developed. With this understanding established and documented in Callaway's Corrective Action Program, and in response to the noted question from the NRC Resident Inspector in December 2010, the 2008 event was identified as a potentially reportable condition. The 2008 event was thus re-evaluated for reportability. This evaluation was conducted in late 2010 / early 2011.

From initial re-evaluation of the 2008 event, it appeared that the condition identified for the SGK05B unit was reportable due to the apparent inoperability of the unit and the length of time it was inoperable relative to the provisions of the applicable Technical Specifications (as interpreted now). A Licensee Event Report (LER) was therefore drafted and prepared for submittal in February. However, the LER was withheld because it appeared from further evaluation that a determination of "past operability" could be made for the SGK05B unit with respect to the 2008 event.

The "past operability" determination was based on the capability of plant operators to restore the SGK05B unit to automatic operation using procedural guidance that was in place in 2008, the capability to recognize the need for such recovery based on receipt of room temperature alarms or by detection of increased temperatures in the affected rooms during operator rounds, and the capability to accomplish these activities before room temperatures would reach unacceptable levels, even under applicable accident conditions.

This position was discussed with the NRC Resident Inspectors in the February-March timeframe, and after extensive discussion, it was agreed that there was not sufficient pre-established procedural guidance and controls in place to ensure that SGK05B would perform its required function under accident conditions. That is, it was agreed that it was not acceptable to credit operator action in order to justify "past operability" in this case. The final position that was reached, therefore, is that the condition identified for the SGK05 unit in 2008 is required to be reported pursuant to 10 CFR 50.73(a)(2)(i)(B) since the period of SGK05B inoperability exceeded the allowed outage time permitted by the plant Technical Specifications (as explained further in Section 5 of this LER).



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This final position was reached well after the 60-day due date that should have been established upon identification of the issue in December. The late submittal of this LER is being addressed in the plant's corrective action program.

**4. ASSESSMENT OF SAFETY CONSEQUENCES:**

The event addressed by this LER is not safety significant. For the inoperability that occurred in January 2008, only one train of Class 1E electrical equipment was potentially affected by the inoperability of the 'B' Class 1E electrical equipment A/C unit. The 'A' Class 1E electrical equipment A/C unit and its associated train of Class 1E electrical equipment remained fully OPERABLE.

In addition, and as previously explained, one A/C unit is capable of cooling either train or both trains of equipment if the doors between the rooms are opened. The OPERABLE 'A' Class 1E electrical equipment A/C unit was available for use in this capacity.

The 'B' unit was inoperable for an extended period of time in January 2008 because its controller was not known to be in the manual mode. However, the unit would have been fully available in the event of a loss of offsite power or a LOCA because of a design feature of each of the SGK05 units whereby the unit's controller is automatically reset to the automatic mode following an interruption of power to the controller. [An interruption (i.e. disruption and restoration) of power would occur either as a result of a loss of offsite power and the subsequent re-energization and loading of the safety buses by the emergency diesel generators and associated load sequencers, or by action of the LOCA sequencers as they shed certain loads and reload the safety buses in response to a Safety Injection (SI) signal generated in response to a LOCA.] In addition, the unit remained available for providing cooling in the event of a non-SI event to the extent that operator action could be successful for resetting the controller.

**5. REPORTING REQUIREMENTS:**

This LER is submitted pursuant to 10 CFR 50.73(a)(2)(i)(B) to report a condition prohibited by Technical Specifications. The 'B' Class 1E electrical equipment A/C unit was determined to be inoperable for 37 hours and 33 minutes, resulting in a violation of Technical Specification 3.0.3 due to the period of inoperability exceeding 8 hours while the plant remained in MODE 1. (TS 3.0.3 requires that, when an LCO is not met and the associated ACTIONS are not met or an associated ACTION is not provided,

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or if directed by the associated ACTIONS, the unit shall be placed in a MODE or other specified condition in which the LCO is not applicable. Specifically, action shall be initiated within 1 hour to place the unit, as applicable, in MODE 3 within 7 hours; MODE 4 within 13 hours; and MODE 5 within 37 hours.)

With regard to other potentially applicable reportability criteria, the 'A' Class 1E electrical equipment A/C unit and its associated train of Class 1E electrical equipment were not affected and remained OPERABLE such that the condition identified with the 'B' Class 1E electrical equipment A/C unit did not constitute a condition that would have prevented fulfillment of the safety functions required of the Class 1E electrical equipment. While the 'A' unit remained fully capable of supplying cooling for equipment, it could also be used to provide cooling to the 'B' train (i.e., both trains) of electrical equipment, if needed, if action was taken to open the doors between the rooms as previously described. Further, and as also explained previously, the 'B' Class 1E electrical equipment A/C unit remained fully available for automatic operation in the event of an accident concurrent with a loss of offsite power or for an accident involving the generation of an SI signal. In the event of a non-SI accident, the 'B' unit remained available with its flow control valve controller in MANUAL to the extent that operator action could be taken to restore the unit to fully automatic operation as described. Therefore, this condition did not constitute an event or condition that could have prevented fulfillment of a safety function and is not reportable per 10 CFR 50.73(a)(2)(v). Likewise, this condition did not constitute an unanalyzed condition that significantly degraded plant safety, and is not reportable per 10 CFR 50.73(a)(2)(ii).

**6. CAUSE OF THE EVENT:**

Two causes were identified for the long-term practice of allowing the ESF switchgear and vital batteries/chargers to be considered OPERABLE for up to seven days with a Class 1E electrical equipment A/C unit (SGK05A or SGK05B) inoperable (provided certain compensatory actions specified in FSAR Section 16.7.13 were met): (1) The FSAR 16.7.13 requirements for addressing an inoperable Class 1E electrical equipment A/C train were viewed to be appropriate for addressing the unique configuration in which one train of a non-TS two-train support system can be conditionally used to serve both supported trains of equipment. (2) Because of a history of the Class 1E electrical equipment A/C trains not being included in the scope of the Technical Specifications (i.e., in neither the original Technical Specifications nor the subsequent Improved TS), a complacency existed such that it was not questioned whether requirements for the Class 1E electrical equipment A/C trains should be incorporated into the Technical Specifications to establish valid and NRC-approved Conditions and Required Actions, including appropriate Completion Times.

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The direct cause of the 'B' Class 1E electrical equipment A/C unit inoperability in 2008 was that the unit's ESW outlet flow control valve controller was in MANUAL. With the valve controller in MANUAL, the ESW outlet flow control valve would not modulate open as the 'B' Class 1E electrical equipment A/C unit load increased. Ultimately, the 'B' Class 1E electrical equipment A/C unit would stop on high compressor discharge pressure. With the unit stopped it would cool down, depressurize, automatically reset, and restart. This sequence would repeat and eventually result in an increased discharge temperature from the ventilation unit, thereby allowing the associated room temperature to increase.

The following two apparent causes for why the controller was found in MANUAL were investigated in 2008, but neither cause was conclusive.

- (1) SGK05B ESW outlet flow valve controller degradation resulted in the controller shifting to manual.

The ESW outlet flow valve controller for SGK05B was removed and provided to Engineering for testing. This testing did not identify any controller problems that would result in the controller shifting to MANUAL. Discussions with the vendor determined that voltage spikes in the Class 1E electrical equipment A/C unit power supply would not cause the controller to switch to MANUAL. Testing by Engineering identified that if the controller internal battery supply had failed, then on a loss of power to Class 1E electrical equipment A/C unit, it is possible that on restoration of power the controller could restore in MANUAL. Engineering performed testing of the controller internal battery for SGK05B and found the remaining battery life to be satisfactory with no cases of the controller shifting.

- (2) The controller was inadvertently placed in MANUAL by operator action.

Operator interviews did not specifically identify any operator actions that would have placed the valve controller in MANUAL.

**7. CORRECTIVE ACTIONS:**

Corrective actions for the practice of allowing the ESF switchgear, vital AC buses, and batteries/chargers to be considered OPERABLE for up to seven days when the associated Class 1E electrical equipment A/C unit (SGK05A or SGK05B) is inoperable, (provided the compensatory actions in FSAR Section 16.7.13 were met) are as follows:

- Upon determining the unacceptability of the FSAR Section 16.7.13 practice of

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allowing the affected Engineered Safety Feature switchgear, vital AC buses, and safety-related batteries/chargers to be considered OPERABLE for up to 7 days when either of the two Class 1E electrical equipment A/C units is inoperable, a Standing Order was issued to ensure compliance with the Technical Specifications going forward. The Standing Order requires declaring the affected Class 1E electrical equipment inoperable upon declaring a Class 1E electrical equipment A/C unit inoperable, thereby ensuring that the applicable Conditions and Required Actions of TS 3.8.4, 3.8.7, and 3.8.9 are immediately entered, as well as LCO 3.0.3. Per the Standing Order, the applicable Conditions and Required Actions (as well as LCO 3.0.3) may then be exited once the required actions of Action "a" in FSAR Section 16.7.13 are completed (which includes opening the doors to the affected areas).

- An amendment to the Callaway Operating License will be prepared and processed to incorporate a new Technical Specification for the Class 1E electrical equipment A/C trains. This will establish appropriate Conditions and Required Actions (including appropriate restoration Completion Times) for an inoperable Class 1E electrical equipment A/C train(s). The above noted Standing Order will no longer be needed upon receipt of this License Amendment. This corrective action is in progress.

The following corrective actions were completed in response to the 'B' Class 1E electrical equipment A/C unit inoperability in 2008:

- The SGK05B ESW outlet flow valve controller was replaced.
- The Operator Logs were modified to check that the ESW outlet flow valve controllers for SGK05A/B are in AUTO each shift. This action was also taken for the A/C units (SGK04A/B) associated with the Control Room Emergency Ventilation System.
- A sign was placed near the controller for SGK05A/B and SGK04A/B that clarifies how to verify the unit is in AUTO or manual.

**8. PREVIOUS SIMILAR EVENTS:**

No previous similar events have been identified.