

Power Reactor

Event # 46639

Site: PALO VERDE		Notification Date / Time: 02/24/2011 17:25 (EST)	
Unit: 1 2 3 Region: 4 State: AZ		Event Date / Time: 02/15/2011 16:22 (MST)	
Reactor Type: [1] CE,[2] CE,[3] CE		Last Modification: 02/24/2011	
Containment Type: DRY AMB DRY AMB DRY AMB			
NRC Notified by: DEIBERT ELKINTON		Notifications: VIVIAN CAMPBELL R4DO	
HQ Ops Officer: JOE O'HARA		PART 21 GRP EMAIL	
Emergency Class: NON EMERGENCY			
10 CFR Section:			
21.21	UNSPECIFIED PARAGRAPH		

Unit	Scram Code	RX Crit	Init Power	Initial RX Mode	Curr Power	Current RX Mode
1	N	Yes	100	Power Operation	100	Power Operation
2	N	Yes	100	Power Operation	100	Power Operation
3	N	Yes	100	Power Operation	100	Power Operation

PART 21 REPORT - MISALIGNED BELL ALARM SWITCH BRACKETS ON 480 VAC CLASS 1E CIRCUIT BREAKERS

"The following event description is based on information currently available. The condition is being reported under 10 CFR 21.21(d)(1).

"On February 15, 2011, Palo Verde Nuclear Generating Station (PVNGS) completed an evaluation of prior deviations related to the alignment of bell alarm switches that were installed by the manufacturer Asea Brown Boveri / ITE Imperial Company (ABB) on K-600S 480 VAC Class 1E circuit breakers. Had the breakers been placed into service as received, the misaligned bell alarm switch brackets could have prevented the automatic or remote closure of the breakers installed in safety-related applications. The station concluded the deviations were defects that are reportable per 10 CFR 21. The discussion below provides the technical details that were discovered for the bracket misalignments and the circumstances for the breakers in which this condition was identified.

"The ABB K-600S breakers contain a protective indication feature related to the overcurrent trip. An overcurrent trip actuates a reset indicator which moves an armature roller away from the bell alarm switch (ABB part number 706747-T07/BBC) to open the alarm switch contact. The alignment of the bell alarm switch bracket affects the range of contact between the bell alarm switch and the reset indicator armature. This alignment is critical because the vibration of breaker closure can cause the switch and the armature to lose contact momentarily to create an unintended 86 lockout and trip the breaker open during the closure sequence. The breaker will not be able to be reclosed until the 86 lockout and the bell alarm switch have been manually reset. This defeats the safety function of the breaker to provide power to the supported component.

"When the condition was identified, the station adjusted the bell alarm switch brackets (ABB part number

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709827A00) on the breakers to correct the condition. The breakers were inserted into the intended breaker enclosures after further testing. The breakers were not returned to ABB.

"The first condition that was known to have been documented in the corrective action program was discovered during pre-service testing that occurred on November 5, 2009 . The breaker had been refurbished by ABB and was accepted by PVNGS Quality Control Receiving on October 2, 2009. A similar condition occurred on October 21, 2010, on a new breaker that was accepted on June 3, 2010. The untimely evaluation and defect reporting have been entered into PVNGS's corrective action program.

"This condition has not resulted in any reportable failures of in-service safety-related breakers under 10 CFR 50.73. The extent of this condition has been evaluated under an operability assessment and corrective actions to inspect potentially affected in-service breakers are in progress .

"The manufacturer and refurbisher, ABB, has been notified and since has provided tolerance information and instructions for inspection and adjustment of the bracket alignment .

"The use of ABB / ITE K600S breakers is common throughout the industry in nuclear safety-related applications. The station is unaware of which other licensee's use the bell alarm switch to actuate an 86 lockout feature. The station has not provided any of these breakers from its own stock to any other licensee.

"The PVNGS reporting officer was notified on February 22, 2011."

The licensee notified the NRC Resident Inspector.
