

March 6, 2006

MEMORANDUM TO: Mary Jane Ross-Lee, Chief
Operating Experience Branch
Division of Inspection and Regional Support
Office of Nuclear Reactor Regulation

FROM: Eric J. Benner, Team Leader */RA/*
Clearinghouse Team
Operating Experience Branch
Division of Inspection and Regional Support
Office of Nuclear Reactor Regulation

SUBJECT: CLOSURE MEMORANDUM: ISSUE FOR RESOLUTION 2005-027:
"EVALUATION: PAL VERDE-1 TECHNICAL SPECIFICATIONS
REQUIRED SHUTDOWN DUE TO LOSS OF NORMAL AND
ALTERNATE POWER TO SAFETY BUS"

The staff from Operating Experience Branch (IOEB) and Electrical Engineering Branch (EEEE) of Office of Nuclear Reactor Regulation (NRR) have completed their evaluation of the Issue for Resolution (IFR) 2005-027: "Evaluation: Palo Verde-1 Technical Specifications Required Shutdown Due to Loss of Normal and Alternate Power to Safety Bus." Based on staff's review of the information provided by the licensee in EN 41389, and two licensee event reports (LERs) (ADAMS accession numbers ML051050342 and ML060240357), the staff concludes that the plant response to the electrical fault was according to the design and that the licensee's corrective actions are adequate. No further review is recommended at this time.

Additionally, this operating experience has been captured in the Reactor Operating Experience database for future tracking and trending purposes.

Based on the staff's evaluation, the Operating Experience Branch has closed IFR 2005-027, and associated TAC MC6196, in accordance with NRR Office Instruction LIC-401.

Enclosure:

Staff Evaluation of Issue for Resolution 2005-027: "Evaluation: Palo Verde-1 Technical Specifications Required Shutdown Due to Loss of Normal and Alternate Power to Safety Bus"

CONTACTS: Omid Tabatabai, NRR/DIRS/IOEB
301-415-6616

Thomas Koshy, NRR/DE/EEEE
301-415-1176

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Technical Contact			

ADAMS ACCESSION NUMBER: **ML060730274**

OFFICE	IOEB:DIRS	EEEB:DE	BC:EEEB:DE	TL:IOEB:DIRS
NAME	OTabatabai	TKoshy	EABrown	EJBenner
DATE	3/1/06	3/2/06	3/2/06	3/6/06

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**Staff Evaluation of the Issue for Resolution (IFR) 2005-027,
“Palo Verde-1 TS Required Shutdown Due to Loss of Normal and Alternate Power to
Safety Bus”**

Purpose of Evaluation

The purpose of this evaluation is to document the evaluation of Palo Verde-1 Technical Specifications Required Shutdown Due to Loss of Normal and Alternate Power to Safety Bus, as well as to make recommendations for applying the lessons learned.

Description of the Issue

On February 9, 2005, Palo Verde Nuclear Generating Station (PVNGS) Unit 1 commenced a reactor shutdown required by Technical Specification 3.8.1. Limiting Condition for Operability (LCO) 3.8.1 requires two independent AC sources be available. On February 6, 2005, a valid actuation of the PVNGS Unit 1 Train “B” Emergency Diesel Generator (EDG) occurred as a result of under-voltage on its respective safety bus (PBB-S04). EDG “B” started and loaded as designed to energize PBB-S04. (Reference EN #41379 reported on 02/06/2005).

The loss of power to the safety bus was the result of a fault associated with 13.8KV breaker NAN-S06J which caused breakers NAN-S06H (normal power supply), NAN-S06K (alternate power supply), and NAN-S06J (Emergency Operation Facility & Technical Support Center buildings power supply) to all trip open on over-current. This action resulted in the de-energization of NAN-S06, NAN-S04, and PBB-S04. The event did not adversely affect the safe operation of the plant or health and safety of the public.

Significance Evaluation

There were no adverse safety consequences or implications as a result of this event and the event did not adversely affect the safe operation of the plant or health and safety of the public. The condition would not have prevented the fulfillment of any safety function and did not result in a safety system functional failure.

Operating Experience History

Switchyard and extra high voltage (EHV) grid events that have affected PVNGS have been reported in LERs 5282004006, 5292004003, and 5302003004. However, these previous events or conditions did not involve the same underlying concern or reason as this event, such as the same root cause, failure, or sequence of events. There have been no previous similar events in the past three years that had a similar failure mechanism or that should have prevented this event from previously implemented corrective actions.

Staff Conclusion and Recommendation

After reviewing this event and two associated LERs submitted by the licensee, staff concludes that the plant response to the electrical fault was according to the design. The licensee's corrective actions are adequate. No further action is recommended at this time.

Enclosure

Additionally, this operating experience has been captured in the Reactor Operating Experience database for future tracking and trending purposes.

Based on the staff's evaluation, the Operating Experience Branch has closed IFR 2005-027, and associated TAC MC6196, in accordance with NRR Office Instruction LIC-401.