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MARTIN,J.B. Region 5 (Post 820201)

SUBJECT: Forwards response to NRC 920427 request for info re circuit breaker testing at facilities.

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WILLIAM F. CONWAY
EXECUTIVE VICE PRESIDENT
NUCLEAR

102-02160-WFC/TRB/RKR
May 27, 1992

Mr. John B. Martin
Regional Administrator, Region V
U. S. Nuclear Regulatory Commission
1450 Maria Lane, Suite 210
Walnut Creek, CA 94596-5368

Reference: Letter dated April 28, 1992, from R. P. Zimmerman, Director, Division of Reactor Safety and Projects, NRC, to William F. Conway, Executive Vice President Nuclear, Arizona Public Service Company

Dear Mr. Martin:

**SUBJECT: PALO VERDE NUCLEAR GENERATING STATION (PVNGS)
UNITS 1, 2, AND 3
REPLY TO REQUEST FOR INFORMATION REGARDING CIRCUIT BREAKER TESTING
FILE: 92-070-026**

The referenced letter requested Arizona Public Service Company (APS) to respond to a concern that the NRC had received regarding circuit breaker testing activities at PVNGS. Enclosed is APS' response to this concern. APS has determined that the concern is not substantiated and NRC notification was not required.

Should you have any questions regarding this response, please contact Thomas R. Bradish at (602) 393-5421.

Sincerely,

WFC/TRB/RKR

Enclosure

cc: D. H. Coe
Document Control Desk

ENCLOSURE

REPLY TO REQUEST FOR INFORMATION

NRC INFORMATION

The NRC has received information that testing of control element drive mechanism (CEDM) circuit breakers was not performed in accordance with technical specifications (TS). Specifically, the TS surveillance testing only performed an overload test and not an instantaneous trip test of the circuit breaker. Condition report/disposition request (CRDR) 9-1-0279 was initiated to document and resolve this discrepancy. The CRDR acknowledged the error and initiated corrective action; however, no action was taken to notify the NRC of the apparent violation of TS requirements.

APS RESPONSE

CRDR 9-1-0279 did not acknowledge that the breaker testing did not meet TS surveillance requirements. The CRDR evaluation prepared by APS engineering states that "The Technical Specification requirements for testing the overcurrent and instantaneous tripping were met by the 300% [percent] testing performed in [surveillance procedure] 32ST-9SF02." CRDR 9-1-0279 was written to identify a condition where TS surveillance requirement (SR) 4.8.4.1.a.2 may not have been fully implemented for Control Element Assembly (CEA) molded case circuit breakers. This is a SR for TS 3.8.4.1, "Containment Penetration Conductor Overcurrent Protective Devices." SR 4.8.4.1.a.2 requires time delay trip element testing using current equal to 300 percent of the setpoint current of the long-time delay trip element and 150 percent for the short-time delay trip element. SR 4.8.4.1.a.2 requires that the instantaneous trip element be tested by injecting a current and verifying that the breaker trips with no apparent response time. SR 4.8.4.1.a.2 states that "Molded case circuit breaker testing shall also follow this procedure except that generally no more than two trip elements, time delay and instantaneous, will be involved."

The molded case circuit breakers used to provide containment penetration conductor overcurrent protection for the CEDMs are Heinemann Series AM hydraulic-magnetic circuit breakers. These circuit breakers have a single trip element. On overload, the device operates on the inverse time principal. Therefore, response time is quicker as the overload increases. The trip element uses a magnetic coil surrounding a spring loaded plunger which is restrained by a fluid. As the magnetic field increases due to increased currents, the plunger increases its speed to unlatch the mechanism and open or trip the breaker in a shorter time. For very heavy overloads (greater than ten times the breaker rating), such as a short circuit, the flux produced by the coil will trip the breaker instantly, regardless of plunger position. Therefore, with lower overload currents, the trip element acts as a time delay trip element. At higher overload currents, the trip element acts as an instantaneous trip element.

Procedure 32ST-9SF02, "CEDM Circuit Breaker Surveillance Test," implements SR 4.8.4.1.a.2 for the CEA molded case circuit breakers. The procedure performs a trip test (i.e., trip time acceptance criteria < 0.5 seconds) using approximately 300 percent of the setpoint current for the circuit breaker. Since the same trip element trips the

breaker over the full range of overloads, including short circuit, overcurrent tests that were performed at 300 percent of setpoint current are representative of both time delay and instantaneous tripping. The requirement for a trip time < 0.5 seconds, at 300 percent overload, also verifies that the circuit breaker will trip with no apparent time delay.

Based on the discussion above, APS concluded in CRDR 9-1-0279 that the testing performed in accordance with procedure 32ST-9SF02 meets the TS surveillance requirements (SR 4.8.4.1.a.2) for a single element molded case circuit breaker and is not an operation or condition prohibited by the plant's TS. Therefore, NRC notification was not required in accordance with 10CFR50.73.

Based on the above information, this concern is not substantiated.