



Arizona Nuclear Power Project

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Subject: Palo Verde Nuclear Generating Station (PVNGS)
Unit 1
Docket No. STN 50-528, License No. NPF-41
Report of Notification of Unusual Event - Reactor Trip
File: 85-056-026; G.1.01.10

Gentlemen:

Attached please find a report describing a Notification of Unusual Event (1-SR-85-025) at the Palo Verde Nuclear Generating Station on October 24, 1985. This report addresses a reactor trip resulting from a low steam generator level signal following a turbine trip.

This report is prepared and submitted pursuant to Table 5.3-1 of the PVNGS Emergency Plan. By copy of this letter we are also forwarding a copy of the report to the Regional Administrator of the Region V Office and other offsite authorities.

If you have any questions or concerns, please contact me.

Very truly yours,

E. E. Van Brunt, Jr.
Executive Vice President
Project Director

EEVB/GEC/tb
Attachment

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PALO VERDE NUCLEAR GENERATING STATION UNIT 1

NOTIFICATION OF UNUSUAL EVENT OF OCTOBER 24, 1985

Docket No. 528

License No. NPF-41

At 1036 MST on October 24, 1985, the NRC Operations Center was notified via the Emergency Notification System, of the declaration of a NOTIFICATION OF UNUSUAL EVENT for Unit 1 of the Palo Verde Nuclear Generating Station. The NOTIFICATION OF UNUSUAL EVENT was declared pursuant to Emergency Plan Implementing Procedure - 02, which requires the reporting of a reactor trip which is complicated by concurrent or subsequent events or conditions.

Prior to the events which initiated the reactor trip, the unit was in Mode 1, generator output was 1019 MWe, all control element assemblies were fully withdrawn in the automatic mode, and house loads were being powered from the startup transformers. At 1010 the Generator Differential Relay (MAN-187-10) was manually actuated to initiate a turbine trip as a part of scheduled activities within the startup test for 80 percent load rejection. An unanticipated reactor trip was initiated immediately following the turbine trip due to low steam generator level in number two steam generator. The cause of the low steam generator level indication has been determined to be the result of a high pressure pulse which was initiated by the rapid closure of the turbine throttle valves. Reactor trip signals were received on all four plant protection system level channels for each steam generator.

The Steam Bypass Control System generated a quick-open demand signal due to a rapidly decreasing steam flow rate. All eight steam bypass valves quick-opened as a result of this signal. The valves received a second, unexpected quick-open signal after they began to modulate closed. Again, this was due to a rapidly decreasing steam flow rate. The second signal resulted in all eight valves returning to the full open position. The second full opening of the steam bypass valves caused a rapid reactor coolant system depressurization and a resultant actuation of Safety Injection, Containment Isolation, and Main Steam Isolation approximately 30 seconds following the reactor trip. The cause of the second opening of the steam bypass valves is being investigated.

The plant was stabilized and the Safety Injection Actuation Signal and Containment Isolation Actuation Signal were reset approximately 36 minutes after initiation of the reactor trip. The Main Steam Isolation Actuation Signal was reset approximately one hour after initiation of the reactor trip.

All safety systems performed as designed for the duration of the event including the actuation of the Reactor Protection System, the Safety Injection Signal, the Containment Isolation Signal, and the Main Steam Isolation Signal.

At 1020 the shift supervisor declared a Notification of Unusual Event and subsequently made the appropriate notifications. The Notification of Unusual Event was terminated at 1111.

During the transient, heat removal was accomplished by use of the atmospheric dump valves. One valve was used for each steam generator. Two reactor coolant pumps were tripped, as per procedure, following receipt of the Safety Injection Actuation Signal. Steam generator blowdown was lost due to the Containment Isolation Actuation Signal. Blowdown was restored approximately 20 minutes after the reactor trip was initiated. Steam generator levels were maintained by the motor driven essential auxiliary feedwater pump.

The transient did not result in any challenges to fission product barriers, or result in the release of radioactive materials.

This event continues to be evaluated. A Licensee Event Report will be submitted within 30 days to further describe this occurrence. Also, a Special Report will be submitted describing the initiation of safety injection during this event.

