APS

Palo Verde Nuclear Generating Station

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10 CFR 50.73

192-01068-WEI/REB
July 7, 2000

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Station P1-37
Washington, DC 20555-0001

Dear Sirs:

Subject: Palo Verde Nuclear Generating Station (PVNGS)
Units 1, 2, and 3
Docket No. STN 50-528/529/530
License No. NPF-41/51/74
Licensee Event Report 2000-003-00

Attached please find Licensee Event Report (LER) 50-528/2000-003-00 that has been prepared and submitted pursuant to 10 CFR 50.73. This LER reports a condition where a procedurally controlled inappropriate setting resulted in interference with a reactor protective system trip setpoint.

No commitments are made to the NRC in this submittal.

In accordance with 10 CFR 50.73(d), a copy of this LER is being forwarded to the Regional Administrator, NRC Region IV and to the Resident Inspector. If you have questions regarding this submittal, please contact Daniel G. Marks, Section Leader, Regulatory Affairs, at (623) 393-6492.

Sincerely,

FOR WE IDE

WEI/REB/mah
Attachment

cc: E. W. Merschoff (all with attachment)
J. H. Moorman
M. B. Fields
INPO Records Center

IE22

NRC FORM 366 (6-1998) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 06/30/2001

Estimated burden per response to comply with this mandatory information collection request: 50 hrs. Reported lessons learned are incorporated into the licensing process and fed back to industry. Forward comments regarding burden estimate to the Records Management Branch (T-6 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, and to the Paperwork Reduction Project (3150-0104), Office of Management and Budget, Washington, DC 20503. If 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.

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Palo Verde Nuclear Generating Station-Unit 1	05000528	1 OF 4

TITLE (4)

Inappropriate Procedure Setting in VOPT Channels Results in Condition Prohibited by TS

EVENT DATE (5)			LER NUMBER (6)			REPORT DATE (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
06	08	2000	2000	- 003	- 00	07	08	2000	PVNGS Unit 2	05000529
									FACILITY NAME	DOCKET NUMBER
									PVNGS Unit 3	05000530

OPERATING MODE (9)	1
POWER LEVEL (10)	100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

	20.2201(b)		20.2203(a)(2)(v)	X	50.73(a)(2)(i)		50.73(a)(2)(viii)
	20.2203(a)(1)		20.2203(a)(3)(i)		50.73(a)(2)(ii)		50.73(a)(2)(x)
	20.2203(a)(2)(i)		20.2203(a)(3)(ii)		50.73(a)(2)(iii)		73.71
	20.2203(a)(2)(ii)		20.2203(a)(4)		50.73(a)(2)(iv)		OTHER
	20.2203(a)(2)(iii)		50.36(c)(1)		50.73(a)(2)(v)	Specify in Abstract below or in NRC Form 366A	
	20.2203(a)(2)(iv)		50.36(c)(2)		50.73(a)(2)(vii)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Daniel G. Marks, Section Leader, Nuclear Regulatory Affairs	623-393-6492

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

SUPPLEMENTAL REPORT EXPECTED (14)			EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
	YES (If yes, complete EXPECTED SUBMISSION DATE).	X NO				

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On June 15, 2000 at approximately 1103 MST, with Units 1, 2, and 3 in Mode 1 (power operation) at approximately 100 percent power, Unit 1 control room personnel determined that the variable overpower trip (VOPT) channels (4) had an inappropriate setting. The VOPT is part of the reactor protective system and is required to be operable in Modes 1 and 2. The inappropriate setting only affected the VOPT channels at power levels less than 0.3 percent rated thermal power (RTP) and had the effect of increasing the VOPT trip setpoint slightly above the technical specification (TS) Allowable Value for Band. It was also determined that the setting had no effect on VOPT operation while operating at power levels greater than 0.3 percent RTP. The condition affected all VOPT channels in all three Units.

The cause of this condition is attributed a surveillance test procedure that contained an inappropriate value for the minimum setpoint trip. The minimum value setting has been reduced below the TS Allowable Value for Band on all VOPT channels. The safety analysis setpoint limit for the VOPT was not exceeded therefore no loss of safety function occurred.

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TEXT *(If more space is required, use additional copies of NRC Form 366A)* **(17)**

I. REPORTING REQUIREMENT(S):

This LER (50-528/2000-003-00) is being submitted pursuant to 10 CFR 50.73(a)(2)(i)(B) to report an event that resulted in a condition prohibited by the plant's Technical Specifications (TS).

Specifically, on June 15, 2000 at approximately 1103 MST Unit 1 control room personnel determined that the variable overpower trip (VOPT) channels had an inappropriate setting. This setting effectively increased the trip setpoint beyond the TS Allowable Value for Band at low thermal power levels (i.e. less than 0.3 percent Rated Thermal Power) and has existed since 1985.

II. DESCRIPTION OF STRUCTURE(S), SYSTEM(S) OR COMPONENT(S):

The VOPT (EIIS Code: JC) setpoint circuit is provided to trip the reactor when indicated neutron flux (EIIS Code: IG), as measured in units of percent rated thermal power (RTP), reaches a preset value. The flux signal used is the average of the three linear subchannel flux signals originating within each nuclear instrument safety channel. The VOPT setpoint tracks reactor power from a minimum value of 0.0 percent RTP to an upper range limit of 200 percent RTP. Under steady state conditions the trip setpoint will stay above the neutron power level signal by a preset value of </= to 9.9 percent RTP (TS Allowable Value for Band). When power increases or decreases the setpoint will track above power by a fixed amount defined by this Band function. The VOPT setpoint is designed with a maximum increasing tracking rate of less than or equal to 11 percent RTP per minute (TS Allowable Value for Increasing Rate). Should reactor power increase at too rapid a rate, it will catch up with the more slowly increasing setpoint and cause a trip. The setpoint will also track during power reductions with a rate of decrease of greater than 5 percent RTP per second (TS Allowable Value for Decreasing Rate). The VOPT circuit also includes a maximum trip setpoint that causes a trip if power reaches an allowable value of 111% RTP (TS Allowable Value for Ceiling). Similarly a minimum or floor setting is included in the circuit however, this function is not required by design or TS and the setting of this floor is the subject of this LER.

III. INITIAL PLANT CONDITIONS:

On June 15, 2000 at approximately 1103 MST Units 1, 2, and 3 were operating at approximately 100 percent power when it was determined the VOPT channels had an inappropriate setting.

There were no structures, systems, or components that were inoperable that contributed to this event.

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TEXT *(If more space is required, use additional copies of NRC Form 366A)* (17)

IV. EVENT DESCRIPTION:

On June 15, 2000 at approximately 1103 MST, control room personnel (utility: licensed operator) were notified that a problem had been identified related to a reactor protective system (EIIS Code: JC) trip function. The VOPT channels had a minimum (floor) trip setpoint setting that prevented each channel's setpoint from tracking neutron power within the TS Allowable Band Value of 9.9 percent RTP when power was less than 0.3 percent RTP. This minimum setting was specified by a surveillance test procedure (36ST-9SB02) to be set at 10.2 percent RTP. The control room personnel determined that the condition did not affect the ability of the VOPT channels to perform their safety function in Mode 1, Power Operation, or in Mode 2, Startup, with power equal to or greater than 0.3 percent RTP and therefore the channels remained operable. It was also determined that all three Unit VOPT channels were affected. A technical specification condition report was generated in each Unit and procedures were changed to ensure control room personnel were aware that operation in Mode 2 with power less than 0.3 percent RTP was not allowed.

The condition was identified on June 8, 2000 during a review of the surveillance test procedure. A review of the procedure history indicated the minimum setting had been in place since 1985 although it has not been determined why the value of 10.2 percent RTP was used.

V. SAFETY CONSEQUENCES:

The VOPT function provides protection against core damage during the following events:

Uncontrolled CEA Withdrawal from Low Power (anticipated operational occurrence)
Uncontrolled CEA Withdrawal at Power (anticipated operational occurrence)
CEA Ejection (accident).

The inappropriate setting of the minimum setpoint limit in the VOPT channels was not safety significant. Design calculation 13-JC-SE-0202 documents that the analytical limit for the VOPT Band is less than or equal to 11 percent RTP and that instrument uncertainties total –0.52 percent RTP with a resulting Band setpoint of 10.48 percent RTP. Even with the setpoint limited to a minimum of 10.2 percent RTP (at power levels less than 0.3 percent RTP) the safety analysis trip setpoint was not exceeded therefore, no actual or potential safety impact existed.

This event did not constitute a condition that would have prevented the fulfillment of a safety function as described by 10CFR50.73(a)(2)(IV) and is therefore not a safety system functional failure (SSFF).

VI. CAUSE OF THE EVENT:

An investigation of this event was commenced and is being completed in accordance with the station corrective action program. Although the investigation has not been completed, preliminary investigation results indicate the direct cause of the condition was a surveillance test procedure that contained an inappropriate value for the minimum setpoint trip. The procedure required the minimum trip setpoint to be set at 0.510 vdc, which equates to 10.2 percent RTP and exceeded the TS Allowable Value for Band at power levels less than 0.3 percent RTP. No information has been found indicating why this value was in the procedure.

The minimum setpoint setting is an option provided with the VOPT circuitry and is not included in the TS, UFSAR, or other design documents. This condition is considered an isolated occurrence and does not represent a programmatic problem.

Transportability will be assessed as part of the corrective action investigation.

A supplement to this LER will be submitted if substantial information is subsequently identified that would significantly change a reader's perception of the course or consequences of the event, or if there are substantial changes in the corrective actions described in this LER.

VII. CORRECTIVE ACTIONS:

All VOPT channels in each Unit have had the minimum power setting adjusted to less than 9.4 percent RTP. Design calculation 13-JC-SE-0202 has been revised to state that the VOPT minimum setting should be less than 9.4 percent RTP. The affected surveillance procedure has been revised to ensure the minimum setting is less than 9.4 percent RTP.

VIII. PREVIOUS SIMILAR EVENTS:

No previous similar events (involving inappropriate RPS settings) have been reported pursuant to 10CFR50.73 in the past three years.