192-01103-WEI/SAB/REB
March 13, 2002

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)**
             Unit 3
             Docket No. STN 50-530
             License No. 74
             Licensee Event Report 2002-001-00

Attached please find Licensee Event Report (LER) 50-530/2002-001 -00 that has been prepared and submitted pursuant to 10CFR50.73. This LER reports a condition where Unit 3 operated with non-conservative values for the Core Operating Limit Supervisory System power operating limit margin circuit.

In accordance with 10CFR50.73(d), a copy of this LER is being forwarded to the NRC Regional Office, NRC Region IV and the Senior Resident Inspector. If you have questions regarding this submittal, please contact Daniel G. Marks, Section Leader, Regulatory Affairs, at (623) 393-6492.

Arizona Public Service Company makes no commitments in this letter.

Sincerely,

WEI/SAB/REB/kg
Attachment

cc: E. W. Merschoff   (all with attachment)
        J. H. Moorman
        J. N. Donohew

NRC FORM 366
(7-2001)

U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

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

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Palo Verde Nuclear Generating Station Unit 3	05000530	1 OF 4

4. TITLE

TS Violation Due To Incorrect Constant Entered In Core Operating Limit Supervisory System

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
01	16	2002	2002 – 001 – 00			03	13	2002	FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE	1
10. POWER LEVEL	99

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)

20.2201(b)	20.2203(a)(3)(ii)	50.73(a)(2)(ii)(B)	50.73(a)(2)(ix)(A)
20.2201(d)	20.2203(a)(4)	50.73(a)(2)(iii)	50.73(a)(2)(x)
20.2203(a)(1)	50.36(c)(1)(i)(A)	50.73(a)(2)(iv)(A)	73.71(a)(4)
20.2203(a)(2)(i)	50.36(c)(1)(ii)(A)	50.73(a)(2)(v)(A)	73.71(a)(5)
20.2203(a)(2)(ii)	50.36(c)(2)	50.73(a)(2)(v)(B)	OTHER Specify in Abstract below or in NRC Form 366A
20.2203(a)(2)(iii)	50.46(a)(3)(ii)	50.73(a)(2)(v)(C)	
20.2203(a)(2)(iv)	50.73(a)(2)(i)(A)	50.73(a)(2)(v)(D)	
20.2203(a)(2)(v)	X 50.73(a)(2)(i)(B)	50.73(a)(2)(vii)	
20.2203(a)(2)(vi)	50.73(a)(2)(i)(C)	50.73(a)(2)(viii)(A)	
20.2203(a)(3)(i)	50.73(a)(2)(ii)(A)	50.73(a)(2)(viii)(B)	

12. LICENSEE CONTACT FOR THIS LER

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

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

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX		CAUSE	SYSTEM	COMPONENT	MANU FACTURER	REPORTABLE TO EPIX

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

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

On January 16, 2002 at 1316 Mountain Standard Time, with Unit 3 operating in Mode 1, Power Operations, at approximately 99 percent power, reactor engineering personnel notified control room personnel that the core operating limit supervisory system (COLSS) had constants installed that were non-conservative. This error resulted in the COLSS power-operating limit for the departure from nucleate boiling ratio (DNBR) being non-conservative.

The error was caused by engineering personnel applying an incorrect adjustment when performing a manual calculation to support cycle 10 operation following the unit's 9th refueling outage that was completed on November 5, 2001.

Corrective action was taken to restore the COLSS constants. In addition, Units 1 and 2 were verified to have the correct constants installed.

No previous similar events have been reported in the last three years.

NRC FORM 366 (7-2001)

NRC FORM 366A U.S. NUCLEAR REGULATORY COMMISSION
(7-2001)
   LICENSEE EVENT REPORT (LER)

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

1.   REPORTING REQUIREMENT(S):

This LER (50-530/2002-001-00) is being submitted pursuant to
10 CFR 50.73(a)(2)(i)(B), to report a condition that was prohibited by the plant's
Technical Specifications (TS).

Specifically, Technical Specification (TS) Limiting Condition for Operation (LCO) 3.2.4,
Departure From Nucleate Boiling Ratio (DNBR), requirements for operation without the
core operating limit supervisory system (COLSS) (EIIS:ID) inservice were not complied
with.

2.   DESCRIPTION OF STRUCTURE(S), SYSTEM(S) AND COMPONENT(S):

The core operating limit supervisory system is a digital computer-based on-line
monitoring program used to provide information to aid the operator in complying with the
technical specification operating limits on rated thermal power (total core power), linear
heat rate (LHR), departure from nucleate boiling ratio (DNBR), axial shape index (ASI),
and azimuthal power tilt. To do so, COLSS uses measurements of incore detector
(EIIS:IG) signals, control element assembly (EIIS:AA) positions and plant
thermal/hydraulic properties to determine the core power distribution and thermal
performance. The COLSS indicates continuously to the operator, via the power
operating limit (POL), how far the core is from the operating limits and provides an
audible alarm when an operating limit is exceeded. Such a condition signifies a
reduction in the capability of the plant to withstand an anticipated transient, but does not
necessarily imply an immediate violation of fuel design limits. No trip functions are
provided by this system.

The core protection calculators (CPC) (EIIS:JC) also are capable of verifying that the
LHR and DNBR do not exceed their limits. The CPCs perform this function by
continuously calculating an actual value of DNBR and local power density for
comparison with the respective trip setpoints. If power distribution or other parameters
are perturbed, the high local power density or low DNBR trips in the reactor protection
system (EIIS:JC) initiate a reactor trip consistent with the safety analyses and UFSAR.

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

3.   INITIAL PLANT CONDITIONS:

On January 16, 2002 Unit 3 was operating in Mode 1, Power Operation, at approximately 99 percent rated thermal power when a problem with the COLSS constants was identified to control room personnel. There were no structures, systems, or components that were inoperable that contributed to the condition.

4.   EVENT DESCRIPTION:

On January 16, 2002, during the development of Unit 2 cycle 11 reload products, reload analysis personnel determined that there was an non-conservative error in COLSS DNBR Power Operating Limit (POL) calculation. Calculation RA-03-C10-2001-020 rev 0, Unit 3 Cycle 10 Master Setpoint Overall Uncertainty Analysis, incorrectly established the value for COLSS constants: EPOL2 = 0.03 and EPOL4 = 0.03. This error had been in place since the unit completed its 9th refueling outage on November 5, 2001.

Upon discovery of the error, reactor engineering personnel were notified who in turn notified Unit 3 control room personnel. On January 16, 2002 at 1316 MST, control room personnel declared COLSS inoperable. At 1325 MST control room personnel determined that linear heat rate (LHR) and DNBR were not within specified limits for COLSS out of service and Condition B of LCO 3.2.1 and 3.2.4 was entered. The constants were subsequently updated in COLSS and LCO 3.2.1 and 3.2.4 Condition B was exited at 1352 MST.

5.   ASSESSMENT OF SAFETY CONSEQUENCES:

The error resulted in a COLSS DNBR calculated POL that was 4% higher (non-conservative) than it should have been. A review of the Unit 3 Cycle 10 core data determined that the minimum COLSS calculated POL was approximately 109 percent rated thermal power in early November of 2001. Reducing this value by 4% still yields an acceptable margin in COLSS. Therefore, no safety limits were exceeded. It should also be noted that this error did not impact the CPCs ability to generate a reactor trip signal when needed.

No automatically or manually initiated safety system actuations occurred and none were required. The condition would not have prevented the fulfillment of a safety function and the condition did not result in a safety system functional failure as defined by 10CFR50.73(a)(2)(v).

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

6.   CAUSE:

An investigation of this condition is being conducted in accordance with the corrective action program. The direct cause of the error in the EPOL2 and EPOL4 values was an error by the responsible engineer (utility, non-licensed) for the analysis in applying an incorrect correction adjustment in the hand calculation for these parameters in the U3C10 Master Setpoint Overall Uncertainty Analysis (RA-03-C10-2001-020, revision 0). This hand calculation was required because when the automated computer runs were performed the engineer used an incorrect COLSS database file. An experienced engineer applied corrections by hand rather than re-running the computer program, since the calculations to be done were simple. Our human performance error prevention tools failed to prevent an error in choosing an incorrect input constant in this case. The corrective action program has captured this error, and a thorough evaluation will be completed to identify where and why the error prevention barriers failed and to identify corrective actions needed to prevent recurrence.

7.   CORRECTIVE ACTIONS:

As a transportability action, Units 1 and 2 were verified to have the correct values installed in COLSS for the EPOL 2 and EPOL4 constants.

In addition, the calculation for Unit 3 Cycle 10 Master Setpoints Overall Uncertainty Analysis (RA-03-C10-2001-020) was revised to correct the values for the EPOL2 and EPOL4 constants.

Upon completion of the investigation, other corrective action(s) will be implemented.

8.   PREVIOUS SIMILAR EVENTS:

PVNGS has not reported any similar conditions in the last three years in which an incorrect value for a constant was installed in the COLSS or the CPCs that resulted in a TS violation.

9.   ADDITIONAL INFORMATION:
None