

Arizona Public Service Company

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ANPP-30903-TDS/TRB

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U. S. Nuclear Regulatory Commission  
Region V  
Creskide Oaks Office Park  
1450 Maria Lane - Suite 210  
Walnut Creek, California 94596-5368

Attention: Mr. T. W. Bishop, Director  
Division of Reactor Safety and Projects

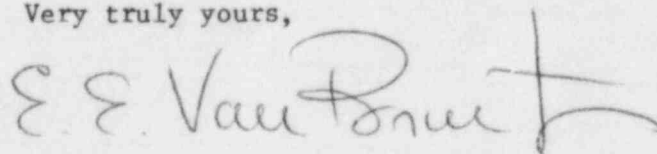
Subject: Final Report - DER 84-48  
A 50.55(e) Reportable Condition Relating To Improper Material  
For Pipe Plugs On MSIV.  
File: 84-019-026; D.4.33.2

Reference: A) Telephone Conversation between D. Hollenbach and T. Bradish  
on July 24, 1984  
B) ANPP-30308, dated August 23, 1984 (Interim Report)  
C) ANPP-30567, dated September 19, 1984 (Time Extension)

Dear Sir:

Attached is our final written report of the Reportable Deficiency under  
10CFR50.55(e), referenced above.

Very truly yours,



E. E. Van Brunt, Jr.  
APS Vice President  
Nuclear Production  
ANPP Project Director

EEVB/TRB/nj  
Attachment

cc: See Page Two

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Mr. T. W. Bishop

DER 84-48

Page Two

cc: Richard DeYoung, Director  
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U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

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FINAL REPORT - DER 84-48  
 DEFICIENCY EVALUATION 50.55(e)  
 ARIZONA PUBLIC SERVICE COMPANY (APS)  
 PVNGS UNITS 1, 2, 3

I. Description of Deficiency

The MSIVs and FWIVs are manufactured and supplied by Anchor/Darling Valve Company (A/DV). These valves (Reference Spec. No. 13-MM-234A) are identified by tag numbers as follows:

	<u>Unit 1</u>	<u>Unit 2</u>	<u>Unit 3</u>
MSIV	1-J-SGE-UV-170	2-J-SGE-UV-170	3-J-SGE-UV-170
	1-J-SGE-UV-180	2-J-SGE-UV-180	3-J-SGE-UV-180
	1-J-SGE-UV-171	2-J-SGE-UV-171	3-J-SGE-UV-171
	1-J-SGE-UV-181	2-J-SGE-UV-181	3-J-SGE-UV-181
FWIV	1-J-SGA-UV-174	2-J-SGA-UV-174	3-J-SGA-UV-174
	1-J-SGA-UV-177	2-J-SGA-UV-177	3-J-SGA-UV-177
	1-J-SGB-UV-132	2-J-SGB-UV-132	3-J-SGB-UV-132
	1-J-SGB-UV-137	2-J-SGB-UV-137	3-J-SGB-UV-137

The hydraulic actuators for all the above valves are provided with NAMCO EA 180 Series limit switches supplied by A/DV. The limit switches do not have discrete tag numbers. They are mounted on the valve actuator yoke and provide valve position indication in the control room. Additionally, these switches are wired in such a way that their operation affects the status of the 4-way hydraulic pilot valves which control the MSIV and FWIV open/close function.

Each MSIV actuator has 6 limit switches, 3 switches are for control of train "A" and 3 switches are for control of train "B". Each set of 3 switches indicate full-closed (ZSL), full-open (ZSHH), and 90% open (ZSH).

The problem with NAMCO EA180 limit switches was first documented in Nonconformance Report (NCR) SJ-4341. This NCR reports that several NAMCO EA180 Series limit switches on Unit 1 mainstream bypass and blowdown isolation valves were replaced because their actuating arms could not be tightened. On EA180 switches with certain specific date codes, the expansion plug which is used to hold the actuating arm in place may be faulty. The NCR lists all of the Unit 1 Q-Class valves which use this limit switch and need to be inspected for faulty expansion plugs. This DER was written to evaluate the deficiency of the limit switch expansion plug on the main steam isolation valves, which also use the EA180 limit switches.

### Evaluation

The switch actuating arm is mounted to the lever shaft by a splined fit. During installation and setup, this fit is tightened and secured by an expansion plug threaded into the end of the lever shaft. Improper plug installation can result in looseness at the splined fit. This looseness would permit angular displacement between the arm and the lever shaft with the possible result that the switch would not perform its safety function of indicating valve position in the control room and actuating the hydraulic pilot valves which control the MISVs and FWIVs.

The root cause of the deficiency is galling of the stainless steel expansion plug threads which can prevent proper installation.

NAMCO, the switch manufacturer, has determined that EA180 Series switches with date codes 1983, 2083, 2183, 2783, 2883, and 2983 (stamped on the conduit hub of the switch housing) might be susceptible to the above condition and has reported this condition to the NRC as a possible deviation under 10CFR Part 21.

Series EA180 limit switches with other date codes were manufactured with expansion plugs using a suitable coating to reduce installation friction and avoid galling.

This generic condition with these particular switches could also apply to EA180 Series switches furnished with A/DV valves on Specification 13-PM-221B, Control Components, Inc. (CCI) valves on Specification 13-J-601A, and C-E furnished valves under the NSSS contract. Prior to delivery of the 13-J-601A valves, CCI verified that the NAMCO limit switches furnished in their scope of supply were fitted with correct expansion plugs.

## II. Analysis of Safety Implications

Based on the above, this condition is evaluated as reportable under the requirements of 10CFR50.55(e); since, if this condition were to remain uncorrected, it would represent a significant safety condition.

This project also has evaluated this condition as reportable under 10CFR Part 21, and the supplier has filed a notification covering this deficiency.

III. Corrective Action

The expansion plugs in the susceptible switches will be replaced with new stainless steel plugs with silver-coated threads. The silver prevents galling and permits proper plug installation. Proper plug installation results in the required tight fit at the splined actuating arm to lever shaft connection.

NCR SJ-4341 identifies all Unit 1 Q-Class valves which have NAMCO EA180 limit switches. These valves will be inspected to identify and correct those which have limit switches with the suspect date codes that require replacement of the expansion plugs. The NCR will be fully dispositioned prior to fuel load.

Investigative Request (IR) numbers 2S-IR-036 and 3C-IR-036 have been issued to implement walkdowns on Units 2 and 3 to identify and correct all NAMCO EA180 Series limit switches with the suspect date codes installed on Q-Class valves which require replacement of the expansion plugs.