

RECEIVED
MTC

Arizona Public Service Company

1984 OCT 26 AM 11: 23

REGIONVILLE

October 23, 1984
ANPP-30932-TDS/TRB

U. S. Nuclear Regulatory Commission
Region V
Creekside 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

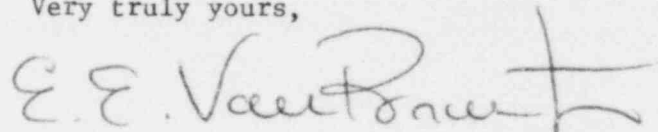
Subject: Final Report - DER 84-24
A 50.55(e) Reportable Condition Relating To Limitorque Valve
Operators Found Loose On Valve Bodies.
File: 84-019-026; D.4.33.2

Reference: A) Telephone Conversation between P. Narbut and T. Bradish on
May 1, 1984
B) ANPP-29609, dated May 29, 1984 (Interim Report)
C) ANPP-30258, dated August 16, 1984 (Interim Report)
D) ANPP-30537, dated September 17, 1984 (Time Extension)
E) ANPP-30856, dated October 15, 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

8411160500 841023
PDR ADOCK 05000528
S PDR

11
IE-27

Mr. T. W. Bishop
DER 84-24
Page Two

cc: Richard DeYoung, Director
Office of Inspection and Enforcement
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

T. G. Woods, Jr.
D. B. Karner
W. E. Ide
D. B. Fasnacht
A. C. Rogers
L. A. Souza
D. E. Fowler
T. D. Shriver
C. N. Russo
J. Vorees
J. R. Bynum
J. M. Allen
A. C. Gehr
W. J. Stubblefield
W. G. Bingham
R. L. Patterson
R. W. Welcher
H. D. Foster
D. R. Hawkinson
R. P. Zimmerman
L. Clyde
M. Woods
T. J. Bloom
D. N. Stover
J. D. Houchen
J. E. Kirby
D. Canady

Records Center
Institute of Nuclear Power Operations
1100 Circle 75 Parkway, Suite 1500
Atlanta, GA 30339

FINAL REPORT - DER 84-24
DEFICIENCY EVALUATION 50.55(e)
ARIZONA PUBLIC SERVICE COMPANY (APS)
PVNGS UNIT 1

I. Description of Deficiency

There have been several instances of Limitorque valve operators loosening from their Borg Warner valve bodies after the bolts securing them had been torqued and inspected. The following valves, which were supplied by Combustion Engineering (C-E), are documented on NCR SM-4407 as having loose bolts:

<u>ITEM</u>	<u>TAG NO.</u>	<u>FUNCTION</u>
1	LJSIAUV666	Containment Spray Pump A to RWT Isolation
2	LJSIBUV667	Containment Spray Pump B to RWT Isolation
3	LJSIBUV636	HPSI B Flow Control to RC Loop 1A
4	LJSIAUV637	HPSI A Flow Control to RC Loop 1A
5	LJSIBUV646	HPSI B Flow Control to RC Loop 1B
6	LJSIAUV647	HPSI A Flow Control to RC Loop 1B
7	LJSIAHV688	LPSI Pump A Isolation

Evaluation

During the preoperational testing of the Safety Injection (SI) system, actuator problems such as low phase current readings, torque switch settings, and installed motors due to locked rotors had been encountered with SI system valve motors. These instances are documented in NCR SE-3994 and NCR SE-3967.

Per the disposition of these NCRs, the original motors were replaced with new actuators supplied by C-E. The work was implemented by Startup Work Authorization (SWA) 19752 for Items 1 and 2 and by SWA 19554 for Items 3, 4, 5, and 6. Subsequent to the motor changeout, it was discovered that the valve operators were loose on Items 1 through 6.

Item 7 was not part of the operator changeouts documented in NCR SE-3994 and NCR SE-3967. SWA 20030 was issued to document and correct the loose bolts identified on Item 7 during normal startup testing.

The vendor instruction manual (Bechtel Log No. N001-11.04-263) for the 2-inch angle globe valves (Items 1 through 6) specifies that the valve be in the full open position when installing the Limitorque operator. The vendor instruction manual (Bechtel Log No. N001-11.04-266) for the 10-inch gate valve (Item 7) states that the handwheel be rotated in the open direction until the operator reaches the valve yoke before the hex bolts are tightened.

Failure to adhere to the instructions described above could cause the valve motor operator hex bolts to be tightened with the force transferred to the valve seat leaving the operator loose on the valve yoke. The probable cause of the loose Limitorque operators on Borg Warner valves is failure to properly follow the instruction manuals.

II. Analysis of Safety Implications

Bechtel Engineering has reviewed the deficiency and has determined that, if the valves were to operate with loose bolts, their ability to perform their required safety function would be uncertain.

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

This project also has evaluated this condition as not reportable under 10CFR Part 21 since the subject valves have not been turned over to operations.

III. Corrective Action

Remedial Action:

An interim disposition was given to NCR SM-4407 to perform the following on the seven valves listed in Part I:

1. De-energize electrical power to the motor operator.
2. Operate valve to the fully open position.
3. Loosen hex bolts securing motor operator to valve yoke.
4. Re-torque valves per vendor manuals.
5. Re-energize electrical power to the motor operator and stroke the valve five times.
6. Check the torque on the hex bolts and report the results to Engineering.

The evaluation was performed via APS Startup Work Authorization #23801 and Work Order 51634.

The final torque check after five strokes showed movement only on valve LJSIAUV666. The movement was reported as very slight and is considered to be insignificant. However, a second interim disposition was given to NCR SM-4407 to confirm this by stroking the valve (LJSIAUV666 only) five more times and checking the torque values. This check confirmed that the torque values are acceptable.

In addition to the 7 valves identified as having loose bolts, there are 56 additional Borg Warner valves with Limitorque operators on Unit 1. Although no problems have been identified with loose bolts on these valves, NCRs SM-4976, SM-4977, and SM-4978 have been initiated to ensure the 56 Unit 1 Limitorque operators not addressed in NCR SM-4407 are properly fastened to their Borg Warner valves. These NCRs have been dispositioned as follows:

1. Verify the system is depressurized.
2. Operate the valve to the mid position.
3. Set torque wrench to the low end of the range specified by the vendor.
4. Torque hex bolts per vendor manual.
5. Record bolt movement and submit to Engineering.

After reviewing these results, Engineering will determine if action is required for Units 2 and 3.

Action to Preclude Recurrence:

Supplier Document Change Notices (SDCN) S01104 and S01105 have been issued to manuals N001-11.04-259-3 and N001-11.04-260-4, respectively, to provide additional clarification regarding valve position when tightening the operator bolts.

Borg Warner instruction manuals N001-11.04-259-3 and N001-11.04-260-4 have similar instructions for installing Limitorque operators as those referenced above. SDCNs S01377 and S01376 have been issued to provide valve position clarification in these manuals.

To preclude recurrence of these deficiencies, the importance of attention to details and proper implementation of DCPs have been included in training sessions for craft and QC personnel. (Reference B/ANPP-M-113212, dated March 30, 1984.)

Final Report
DER 84-24
Page Four

At present, Preventive Maintenance Procedures for all valve motor operators contain a section to inspect for any loose bolting on the operator on the valve, and to submit a Corrective Maintenance Work Request (in accordance with 30AC-9ZZ01, Work Control) to correct identified deficiencies. 32MT-9ZZ47, Maintenance of Motor Operators, is presently being revised. This revision will include a section on inspection for loose parts, especially bolts. It is felt that these actions provide sufficient control to track and repair/rework loose parts deficiencies on a routine basis.