Arizona Public Service Company
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May 16, 1983
ANPP-23757-RQT/BSK

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

Attention: Mr. D. M. Sternberg, Chief
Reactor Projects Branch 1

Subject: Final Report - DER 82-39
A 50.55(e) Reportable Condition Relating to
CE Valve Limit Switches (Class 1E) May Be Below Maximum LOCA
Flood Level In Containment
File: 83-019-026; D.4.33.2

Reference: A) Telephone Conversation between G. Hernandez and
G. Duckworth on July 30, 1982
B) ANPP-21722, dated August 30, 1982 (Interim Report)
C) ANPP-22138, dated October 28, 1982 (Time Extension)
D) ANPP-22824, dated January 26, 1983 (Time Extension)
E) ANPP-23273, dated March 17, 1983 (Interim Report)

Dear Sir:

Attached is our final written report of the deficiency referenced above, which has been determined to be Not Reportable under the requirements of 10CFR50.55(e).

Very truly yours,

E. E. Van Brunt

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

EEVB/RQT:db
Enclosure
cc: See Page 2

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11pp/pdr

cc: Richard DeYoung, Director
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FINAL REPORT - DER 82-39
DEFICIENCY EVALUATION 50.55(e)
ARIZONA PUBLIC SERVICE COMPANY (APS)
PVNGS UNIT 1

I. DESCRIPTION OF DEFICIENCY

The purpose of this Deficiency Evaluation Report is to review and verify accident mitigation for safety-related equipment in containment located below the maximum containment flood level (elevation 90' - 6"). A survey of equipment below flood level inside containment developed by APS and Combustion Engineering (CE) is provided in CE letter V-CE-18011, dated 3/4/83 (Attachment A). A Bechtel investigation has determined the survey to be complete. Of the identified equipment, the following are safety related:

Tag No.	1E Equipment	Associated Equipment
SIB-UV-322		Fisher P. O. Valve
SIB-UY-322	ASCO Solenoid Valve	
SIB-ZSH-322	NAMCO Limit Switch	
SIB-ZSL-322	NAMCO Limit Switch	
SIB-UV-322		Fisher P. O. Valve
SIB-UY-332	ASCO Solenoid Valve	
SIB-ZSH-332	NAMCO Limit Switch	
SIB-ZSL-332	NAMCO Limit Switch	
SIA-UV-651	Limitorque VMO	
SIA-UV-682		Fisher P. O. Valve
SIA-UY-682	ASCO Solenoid Valve	
SIA-ZSH-682	NAMCO Limit Switch	
SIA-ZSL-682	NAMCO Limit Switch	
CHA-UV-506		Fisher P. O. Valve
CHA-UY-506	ASCO Solenoid Valve	
CHA-ZSH-506	NAMCO Limit Switch	
CHA-ZSL-506	NAMCO Limit Switch	
CHA-HV-507		Fisher P. O. Valve
CHA-HY-507	ASCO Solenoid Valve	
CHA-ZSH-507	NAMCO Limit Switch	
CHA-ZSL-507	NAMCO Limit Switch	
CHA-UV-560		Fisher P. O. Valve
CHA-UV-560	ASCO Solenoid Valve	
CHA-ZSH-560	NAMCO Limit Switch	
CHA-ZSL-560	NAMCO Limit Switch	

Tag No.	1E Equipment	Associated Equipment
SGA-UV-220	VALCOR Solenoid Valve	
SGB-UV-226	VALCOR Solenoid Valve	
NCB-UV-403	Limitorque MOV	Pratt Valve
GRA-UV-001	ROTORK MOV	Dresser Valve
CHN-FT-244	Rosemount Flow Trans.	(NON-1E EQUIPMENT)
CHA-PT-268	Barton Pressure Trans.	
RCA-PDT-115A	Barton Diff, Pres. Trans.	
RCC-PDT-115C	Barton Diff. Pres. Trans.	
RCD-PDT-125D	Barton Diff. Pres. Trans.	
RCN-PT-181	Rosemount Pressure Trans.	(NON 1E EQUIPMENT)
RCN-PT-182	Rosemount Pressure Trans.	
RCN-PT-183	Rosemount Pressure Trans.	
RCA-PT-190A	Rosemount Pressure Trans.	
RCB-PT-190B	Rosemount Pressure Trans.	

The remaining identified equipment have been determined as either not being submerged or not required to operate post-LOCA.

As part of this review, isometric drawings, the instrument index (Drawing 13-J-ZZI-001), EE580 and the plant model were cross checked. A walkdown was also conducted.

II. ANALYSIS OF SAFETY IMPLICATIONS

This condition is evaluated as not reportable. The post flood operability requirements of each submerged piece of safety-related equipment identified in Condition Description are given in Attachment B. In all cases, it was determined that: 1) the item had no safety-related function as part of a design basis accident; or 2) it performed its function prior to submergence and subsequent submergency would not pose a health and safety hazard. Accordingly, none of the identified equipment requires qualification for submergence. Therefore this condition would not adversely affect the safety of operations of the facility and is consequently evaluated as not reportable under the requirements of 10CFR50.55(e).

III. CORRECTIVE ACTION

This Deficiency Evaluation Report documents the completion of Bechtel's review and verification of the accident mitigation capability of all safety-related equipment located below the Containment Building maximum flood level. The foregoing dispositions were reviewed and concurred with by APS and CE.

Enclosure #1

Post Flood Operability Requirements for Safety Related Equipment Located Below Flood Level

SIB-UV-322 SIB-UY-322 SIB-ZSH-322 SIB-ZSL-322	SIB-UV-322 isolates the RCS check valve leakage line from the safety injection system. UV-322 is normally closed, fail closed, and if open it will close upon SIAS, before the valve is submerged. Valve closure is assumed since SIAS is issued prior to containment spray (CSAS). SIAS is issued at 5 psig, CSAS at 10 psig. Equipment function will be complete within 5 seconds after the safety injection signal (SIAS) is generated. Assuming, conservatively, that the containment spray signal (CSAS) is cogenerated with SIAS (SIAS will always precede CSAS), sprays cannot deliver water for 80 seconds. Thus, there will always be at least 75 seconds between the accomplishment of safety function and the onset of sprays. The onset of sprays, by itself, does not mean that the equipment will be flooded. Rather, it provides an estimate of the absolute minimum time prior to to submergence. Furthermore, as recirculation will not begin for at least 20 minutes (See Cessar 6.3.3.5), the water level in the containment will slowly rise from 80'-0" to 90'-6" at the rate of about 6" per minute. The electrical portion of the valve is located at elevation 84'-3" and would not be expected to become submerged for 8 minutes. There is no mechanism that would allow the valve to spuriously reopen.
SIB-UV-332 SIB-UY-332 SIB-ZSH-332 SIB-ZSL-332	Same as UV-322, concurrent failure of SIB-UV-322 is not considered.

SIA-UV-682
SIA-UY-682
SIA-ZSH-682
SIA-ZSL-682

SIA-UV-682 is used during normal operation to control the level of the safety injection tanks. The safety function of UV-682 is to provide containment isolation. UV-682 is normally closed, fail closed, and if open it will close upon SIAS, before the valve is submerged. Valve closure is assumed since SIAS is issued prior to containment spray (CSAS). SIAS is issued at 5 psig, CSAS at 10 psig. Equipment function will be complete within 5 seconds after the safety injection signal (SIAS) is generated. Assuming, conservatively, that the containment spray signal (CSAS) is cogenerated with SIAS (SIAS will always precede CSAS), sprays cannot deliver water for 80 seconds. Thus, there will always be at least 75 seconds between the accomplishment of safety function and the onset of sprays. The onset of sprays, by itself, does not mean that the equipment will be flooded. Rather, it provides an estimate of the absolute minimum time prior to submergence. Furthermore, as recirculation will not begin for at least 20 minutes (See Cessar – 6.3.3.5), the water level in the containment will slowly rise from 80′-0" to 90′-6" at the rate of about 6" per minute. The electrical portion of the valve is located at elevation 90′-3" and would not be expected to become submerged for 20 minutes. There is no mechanism that would allow the valve to spuriously reopen.

CHA-UV-506
CHA-UY-506
CHA-ZSH-506
CHA-ZSL-506

CHA-UV-506 isolates the reactor coolant pump controlled bleedoff from the volume control tank. The safety function of UV-506 is to provide containment isolation. UV-506 is normally open, fail closed, and will close upon CIAS, before the valve is submerged. Valve closure is assumed since CIAS is issued prior to containment spray (CSAS). CIAS is issued at 5 psig, CSAS at 10 psig. Equipment function will be complete within 5 seconds after the containment isolation signal (CIAS) is generated. Assuming, conservatively, that the containment spray signal (CSAS) is cogenerated with CIAS (CIAS will always precede CSAS), sprays cannot deliver water for 80 seconds. Thus, there will always be at least 75 seconds between the accomplishment of safety function and the onset of sprays. The onset of sprays, by itself, does not mean that the equipment will be flooded. Rather, it provides an estimate of the absolute minimum time prior to submergence. Furthermore, as recirculation will not begin for at least 20 minutes (See Cessar 6.3.3.5), the water level in the containment will slowly rise from 80′-0" to 90′-6" at the rate of about 6" per minute. The electrical portion of the valve is located at elevation 90′-2" and would not be expected to become submerged for 20 minutes. There is no mechanism that would allow the valve to spuriously reopen.

CHA-HV-507
CHA-HY-507
CHA-ZSH-507
CHA-ZSL-507

CHA-HV-507 isolates the RCP controlled bleedoff header relief valve PSV-199. It serves no post-LOCA safety function as the reactor coolant pumps are not required post-LOCA. This valve is not submerged for other design basis events.

CHA-UV-560
CHA-UY-560
CHA-ZSH-560
CHA-ZSL-560

CHA-UV-560 isolates the reactor drain tank from the reactor drain pump. The safety function of UV-560 is to provide containment isolation. UV-560 is normally closed, fail closed, and if open it will close upon CIAS, before the valve is submerged. Valve closure is assumed since CIAS is issued prior to containment spray (CSAS). CIAS is issued at 5 psig, CSAS at 10 psig. Equipment function will be complete within 5 seconds after the containment isolation signal (CIAS) is generated. Assuming, conservatively, that the containment spray signal (CSAS) is cogenerated with CIAS (CIAS will always precede CSAS), sprays cannot deliver water for 80 seconds. Thus, there will always be at least 75 seconds between the accomplishment of safety function and the onset of sprays. The onset of sprays, by itself, does not mean that the equipment will be flooded. Rather, it provides an estimate of the absolute minimum time prior to submergence. There is no mechanism that would allow the valve to spuriously reopen.

SGA-UV-220

SGA-UV-220 is the downcomer blowdown isolation valve from the number one steam generator. The safety function of the valve is to provide containment isolation, and isolate the steam generator. UV-220 is normally open, fail closed, and will close upon SIAS, MSIS or AFAS, before the valve is submerged. Valve closure is assumed since SIAS is issued prior to containment spray (CSAS). SIAS is issued at 5 psig, CSAS at 10 psig. Equipment function will be complete within 1 second after the safety injection signal (SIAS) is generated. Assuming, conservatively, that the containment spray signal (CSAS) is cogenerated with SIAS (SIAS will always precede CSAS), sprays cannot deliver water for 80 seconds. Thus, there will always be at least 79 seconds between the accomplishment of safety function and the onset of sprays. The onset of sprays, by itself, does not mean that the equipment will be flooded. Rather, it provides an estimate of the absolute minimum time prior to submergence. Furthermore, as recirculation will not begin for at least 20 minutes (See Cessar 6.3.3.5), the water level in the containment will slowly rise from 80'-0" to 90'-6" at the rate of about 6" per minute. The electrical portion of the valve is located at elevation 89' and would not be expected to become submerged for 18 minutes. There is no mechanism that would allow the valve to spuriously reopen.

SGB-UV-226

SGB-UV-226 is the downcomer blowdown isolation valve from the number two steam generator. The safety function of the valve is to provide containment isolation, and isolate the steam generator. UV-226 is normally open, fail closed, and will close upon SIAS, MSIS or AFAS, before the valve is submerged. Valve closure is assumed since SIAS is issued prior to containment spray (CSAS). SIAS is issued at 5 psig, CSAS at 10 psig. Equipment function will be complete within 1 second after the safety injection signal (SIAS) is generated. Assuming, conservatively, that the containment spray signal (CSAS) is cogenerated with SIAS (SIAS will always precede CSAS), sprays cannot deliver water for 80 seconds. Thus, there will always be at least 79 seconds between the accomplishment of safety function and the onset of sprays. The onset of sprays, by itself, does not mean that the equipment will be flooded. Rather, it provides an estimate of the absolute minimum time prior to submergence. Furthermore, as recirculation will not begin for at least 20 minutes (See Cessar 6.3.3.5), the water level in the containment will slowly rise from 80'-0" to 90'-6" at the rate of about 6" per minute. The electrical portion of the valve is located at elevation 89' and would not be expected to become submerged for 18 minutes. There is no mechanism that would allow the valve to spuriously reopen.

NCB-UV-403

NCB-UV-403 isolates the nuclear cooling water system return line from the RCPs. The safety function of the valve is to provide containment isolation. UV-403 is normally open and will close upon CIAS, before the valve is submerged. Valve closure is assumed since CIAS is issued prior to containment spray (CSAS). CIAS is issued at 5 psig, CSAS at 10 psig. Equipment function will be complete within 10 seconds after the containment isolation signal (CIAS) is generated. Assuming, conservatively, that the containment spray signal (CSAS) is cogenerated with CIAS (CIAS will always precede CSAS), sprays cannot deliver water for 80 seconds. Thus, there will always be at least 70 seconds between the accomplishment of safety function and the onset of sprays. The onset of sprays, by itself, does not mean that the equipment will be flooded. Rather, it provides an estimate of the absolute minimum time prior to submergence. Furthermore, as recirculation will not begin for at least 20 minutes (See Cessar 6.3.3.5), the water level in the containment will slowly rise from 80'-0" to 90'-6" at the rate of about 6" per minute. The electrical portion of the valve is located at elevation 84'-0 and would not be expected to become submerged for 8 minutes. There is no mechanism that would allow the valve to spuriously reopen.

GRA-UV-001	GRA-UV-001 isolates the containment GRS header from the GRS gas surge header. The safety function of the valve is to provide containment isolation. UV-001 is normally open and will close upon CIAS, before the valve is submerged. Valve closure is assumed since CIAS is issued prior to containment spray (CSAS). CIAS is issued at 5 psig, CSAS at 10 psig. Equipment function will be complete within 12 seconds after the containment isolation signal (CIAS) is generated. Assuming, conservatively, that the containment spray signal (CSAS) is cogenerated with CIAS (CIAS will always precede CSAS), sprays cannot deliver water for 80 seconds. Thus, there will always be at least 68 seconds between the accomplishment of safety function and the onset of sprays. The onset of sprays, by itself, does not mean that the equipment will be flooded. Rather, it provides an estimate of the absolute minimum time prior to submergence. Furthermore, as recirculation will not begin for at least 20 minutes (See Cessar 6.3.3.5), the water level in the containment will slowly rise from 80'-0" to 90'-6" at the rate of about 6" per minute. The electrical portion of the valve is located at elevation 89'-6" and would not be expected to become submerged for 19 minutes. There is no mechanism that would allow the valve to spuriously reopen.
CHN-FT-244	CHN-FT-244 is the RCP 2B seal injection flow transmitter. It serves no post-LOCA safety function as the reactor coolant pumps are not required post-LOCA. This instrument is not submerged for other design basis events.
CHA-PT-268	CHA-PT-268 is the reactor drain tank pressure transmitter. It serves no post-LOCA safety function as reactor drain tank pressure indication is not required post-LOCA. This instrument is not submerged for other design basis events.
RCA-PDT-115A	RCA-PDT-115A is the steam generator number one differential pressure transmitter. This instrument is used to detect an RCP sheared shaft event and is not required to operate post-LOCA. This instrument is not submerged for other design basis events.
RCC-PDT-115C	Same as RCA-PDT-115A
RCD-PDT-125D	Same as RCA-PDT-115A, except it measures differential pressure on the number two steam generator.
RCN-PT-181	RCN-PT-181 is the RCP 2B seal injection pressure transmitter. It serves no post-LOCA safety function as the reactor coolant pumps are not required post-LOCA. This instrument is not submerged for other design basis events.
RCN-PT-182	Same as RCN-PT-181

RCN-PT-183 — RCN-PT-183 is the RCP 2B controlled bleedoff pressure transmitter. It serves no post-LOCA safety fnction as the reactor coolant pumps are not required post-LOCA. This instrument is not submerged for other design basis events.

RCA-PT-190A — RCA-PT-190A is the extended range RCS pressure transmitter, required by Regulatory Guide 1.97. This instrument is used for ATWS events. It serves no post-LOCA safety function, and is not submerged for other design basis events.

RCB-PT-190B — Same as RCA-PT-190A

The following equipment was found to be below the flood level but is not required to operate post-DBE, per V/CE-18011 dated March 4, 1983.

Tag No.	Equipment
CHE-FV-242	Fisher P.O. Valve
CHE-FY-242A	Fisher E/P Positioner
CHE-FY-242B	Asco Solenoid Valve
CHE-ZSH-242	Namco Limit Switch
CHE-ZSL-242	Namco Limit Switch
RCE-HV-403	Target Rock Solenoid Valve
SIE-HV-661	Fisher P.O. Valve
SIN-HY-661	Asco Solenoid Valve
SIN-ZSH-661	Namco Limit Switch
SIN-ZSL-661	Namco Limit Switch

The following item has been previously identified as being below the flood level per Reference (C), but is actually located above the flood level.

SSA-UV-203	Valcor Solenoid Valve

The following item has been previously identified as being below the flood level, per DCP 1SM-S1-053 the valve operator has been rotated 180° and the electrical portion of the valve is no longer below flood level.

SIA-UV-651	Limitorque VMO