

50.55(e) Report

Arizona Public Service Company

P.O. BOX 21666 • PHOENIX, ARIZONA 85036

1983 MAR 14 11:11 AM  
March 8, 1983  
ANPP-23199-GHD/BSK

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

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

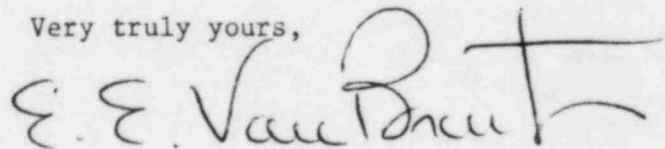
Subject: Final Report - DER 82-69  
A 50.55(e) Report Relating to  
Incorrectly Marked Fuses In Control Element Drive Mechanism  
Control System  
File: 83-019-025  
D.4.33.2

Reference: (A) Telephone Conversation between P. Narbut and  
G. Duckworth on November 24, 1982  
(B) ANPP-22588, dated December 23, 1982 (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, Jr.  
APS Vice President  
Nuclear Projects Management  
ANPP Project Director

EEVBJr/GHD:db

Enclosures

cc: See Attached Page 2

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U. S. Nuclear Regulatory Commission  
Attention: Mr. D. M. Sternberg, Chief  
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March 8, 1983  
ANPP-23199-GHD/BSK

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

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A. C. Gehr  
W. J. Stubblefield  
W. G. Bingham  
R. L. Patterson  
R. W. Welcher  
R. M. Grant  
D. R. Hawkinson  
L. E. Vorderbrueggen  
G. A. Fiorelli

FINAL REPORT - DER 82-69  
DEFICIENCY EVALUATION 50.55(e)  
ARIZONA PUBLIC SERVICE COMPANY (APS)  
PVNGS UNIT 1, 2 & 3

I. DESCRIPTION OF DEFICIENCY

Per Combustion Engineering (CE) Infobulletin 82-10, fuses used in the Digital Isolation Device Assembly (DIDA) should have a one (1) amp rating. CE has been notified by Rochester Instrument Systems (RIS) that fuses from their in-house inventory were discovered to have been labeled incorrectly. The fuses were manufactured by Federal Pacific Electric, Economy Fuse Division, Des Plaines, Illinois. The fuse part number is marked on the end caps and the fuse rating is marked on the fuse container body. Approximately one to two percent of these fuses at RIS had "EBS-7A" stamped on the metal end of the fuse, although the fuse body label incorrectly indicated a one (1) amp rating.

These fuses are used by CE in the Digital Isolation Device Assembly (DIDA) which is part of the Control Element Drive Mechanism Control System (CEDMCS) Auxiliary Cabinets. These cabinets provide isolation of Class 1E and non-Class 1E circuits in accordance with Regulatory Guide 1.75. In this application, fuses with a seven (7) amp rating rather than the intended one (1) amp rating would permit a fault current above that for which the DIDA has been analyzed or tested.

II. ANALYSIS OF SAFETY IMPLICATIONS

This condition is evaluated as not reportable. Based upon a review of the circuit design by CE, the circuit with the seven (7) ampere fuse is sufficient to prevent a credible fault from cascading through the DIDA. This judgement is based upon the inherent coil to contact isolation of the relay and upon the fact that sufficient energy would have to be provided to the input side of the relay to breach the isolation of the RSPT contact to the RSPT voltage divider. The inherent isolation provided by the following design features preclude the condition from constituting a safety significant condition:

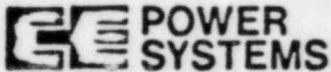
- o physical/electrical separation within the RSPT
- o physical/electrical separation provided by the DIDA relay
- o fault interruption capability of the seven (7) amp fuse
- o physical/electrical isolation of the CEDMCS input relays

III. CORRECTIVE ACTION

The corrective action, per CE letter V-CE-17696 (attached), consists of replacing existing seven (7) amp fuses in the DIDA with one (1) amp fuses. CE's FAR Nos. 14273-553 (Unit 1), 14373-288 (Unit 2) and 14473-82 (Unit 3) have been issued to direct the remedial activities.

C-E Power Systems  
Combustion Engineering Inc  
1000 Prospect Hill Road  
Windsor, Connecticut 06095

Tel 203/688-1911  
Telex 99297



January 12, 1983  
V-CE-17696

Mr. W. G. Bingham  
Bechtel Power Corporation  
12400 East Imperial Highway  
Norwalk, California 90650

Subject: Arizona Nuclear Power Project  
Rochester Instruments Digital  
Isolation Device Assembly  
Manufacturing Deficiency

Reference: B/CE-E-42634 dated November 23, 1982

Enclosure: Figure 1

Dear Mr. Bingham:

The purpose of this letter is to respond to the reference and assess the reported deficiency in the Rochester Instrument System Digital Isolation Device Assembly (DIDA). This assessment has two parts, an assessment of the recommended corrective action and an assessment of the reporting responsibilities.

The corrective action consists of replacing existing 7 amp fuses in the DIDA with 1 amp fuses.

The DIDA provides isolation between the "associated circuits" (RG 1.75 definition) of the Reed Switch Position Transmitters (RSPT) and the non-class 1E Control Element Drive Mechanism Control System. Figure (1) provides a simplified schematic overview of the systems involved and their interconnections.

The RSPT assembly provides two functions, a Class 1E input function that indicates CEA position to the Core Protection Calculators and a non-Class 1E function that provides control interlocks and position indication to the CEA control system. Because of the close physical proximity of the two sensing elements in the RSPT assembly and in the cable inside the containment, the control interlock circuits are "associated" by the definition of Regulatory Guide 1.75 and must be treated as Class 1E circuits until they are downgraded to non-Class 1E by means of a "qualified" isolator.

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JOB 10407  
FILE N. 4.01  
N. 7.01  
JAN 17 '83

R	✓	PLN BINGHAM	A
	✓	PE STIENS	
	✓	APL KEITH	
	✓	APL NAJIBAN	
		APL ALY	
		RE BLAIA	
		COOP 1	
		COOP 2	
		POE	
		PI	
		PE/WRN (SFO)	
		PA	DA
		ARCH	
		C/S	
		CONTROLS	
CC		ESTC	
CC		M/CO	
		NUCLEAR	
		PLANT DESIGN	
		STR & SUP	
		CLIENT	
		PRO FILE	
		WJS	
		WELNER	
		STEWART	

- JK

The Digital Isolation Device Assembly (DIDA) provides the "qualified" isolation necessary to downgrade the circuit classification to non-1E prior to being utilized in the non-class 1E control system.

The DIDA was designed to provide circuit and fault isolation by utilizing an amplifier driven relay whose contact outputs provide the isolated function. A fuse is provided to assure interruption of fault currents that might emanate from the CEDMCS or from the non-class 1E cable run.

The DIDA was designed and qualified with one ampere fuses as the fault interruption device. The vendor notified C-E that 7 ampere fuses may have been inadvertently utilized in place of the required 1 ampere fuses through a mis-labeling error by the fuse manufacturer. The DIDA manufacturer (RIS) states that approximately 1-2% of the fuses had been mislabeled.

The 7 ampere fuse would permit a fault current above that for which the DIDA has been analyzed or tested.

Based upon a review of the circuit design, the circuit with the 7 ampere fuse is sufficient to prevent a credible fault from cascading through the DIDA. This judgement is based upon the inherent coil to contact isolation of the relay and upon the fact that sufficient energy would have to be provided to the input side of the relay to breach the isolation of the RSPT contact to the RSPT voltage divider.

Prior to the issuance of R.G. 1.75 this circuit in fact did not contain a DIDA assembly. In ANO-2 class plants, the RSPT contact was cabled separately at the containment penetrations and routed directly to the CEDMCS. The design received a great deal of Regulatory scrutiny on ANO-2 and was deemed adequate.

The DIDA was added to address licensing and commercial issues revolving around the increased separation requirements mandated by Reg. Guide 1.75 and committed to by CESSAR for SYS80 class Plant.

The inherent isolation provided by the

- (1) physical/electrical separation within the RSPT
- (2) physical/electrical separation provided by the DIDA relay
- (3) fault interruption capability of the 7 amp fuse
- (4) physical/electrical isolation of the CEDMCS input relays

is sufficient such that the defect is not reportable.

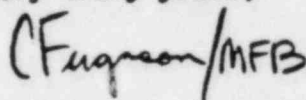
Mr. W. G. Bingham  
Page 3

January 12, 1983  
V-CE-17696

In C-E's opinion, this item is not reportable under the requirements of 10CFR50.55(e) or 10CFR Part 21. C-E's evaluation was performed in accordance with our Quality Assurance of Design Manual as indicated by FAR No. 14273-553 (Unit 1), FAR No. 14373-288 (Unit 2) and FAR No. 14473-82 (Unit 3). These documents are available for review at the C-E Windsor Office.

In you have any further questions, please do not hesitate to call.

Very truly yours,



C. Ferguson  
Project Manager

CF/mg  
Enclosure

cc: Messrs:

E. E. Van Brunt, Jr. - w/e  
G. C. Andognini - w/e  
J. Vorees - w/e  
W. H. Wilson  
R. H. Holm  
J. W. Dilk  
G. A. Butterworth  
S. N. Mager  
D. B. Amerine - w/e  
W. L. MacDonald  
J. R. Bynum

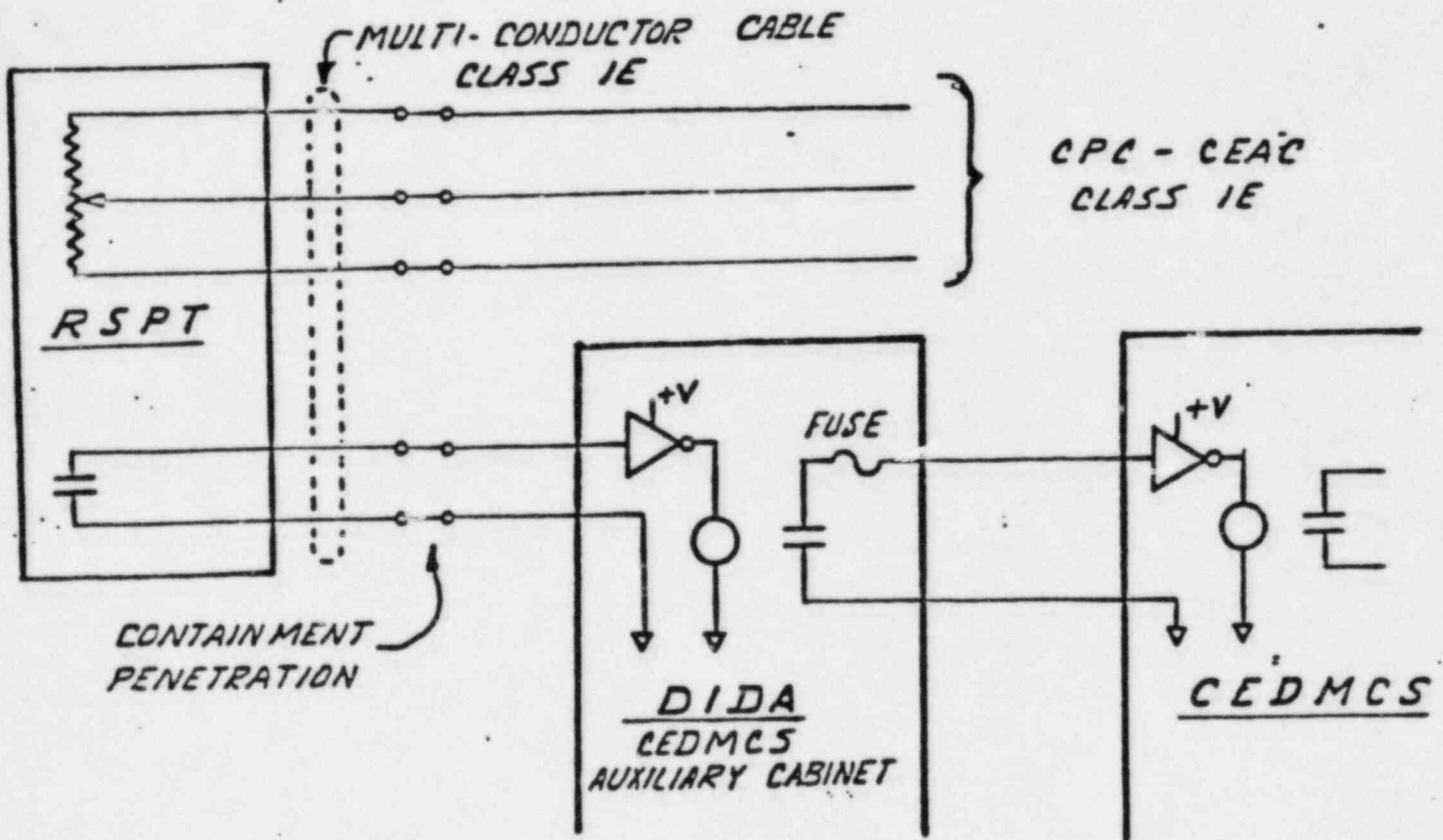


Figure 1