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 AUTH. NAME: CURTIS, N.W. AUTHOR AFFILIATION: Pennsylvania Power & Light Co.
 RECIP. NAME: GRIER, B.H. RECIPIENT AFFILIATION: Region 1, Philadelphia, Office of the Director (81/03/01)

SUBJECT: Interim deficiency rept re lack of required special conduit separation for certain safety-related electrical circuits, initially reported on 810408. Safety-related electrical circuits will be correctly separated.

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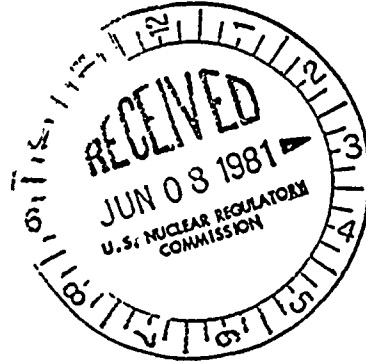
PP&L

TWO NORTH NINTH STREET, ALLENTOWN, PA. 18101 PHONE: (215) 770-5151

NORMAN W. CURTIS
Vice President-Engineering & Construction-Nuclear
770-5381

June 5, 1981

Mr. Boyce H. Grier
Director, Region I
U. S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, PA 19406



SUSQUEHANNA STEAM ELECTRIC STATION
FINAL REPORT OF A DEFICIENCY
RELATING TO ELECTRICAL SEPARATION
ER's 100450/100508 FILES 840-4/900-10
PLA-827

Dear Mr. Grier:

This letter serves to provide the Commission with an interim report of a deficiency involving the lack of required special conduit separation for certain safety-related electrical circuits. The deficiency was originally reported to the NRC in General Electric letter TRR-26-81/MPN-065-91, dated April 8, 1981 under the provisions of 10 CFR 21. Recognizing its responsibility to review the condition for reportability under 10 CFR 50.55(e), PP&L determined this deficiency to be potentially reportable. Consequently, Mr. C. I. McVicker of PP&L so advised NRC Region I Inspector Mr. L. Narrow by telephone on April 14, 1981.

The attachment to this letter contains a description of the deficiency, its cause, safety implications, and the corrective action taken and planned.

The information is submitted as a final report pursuant to the provisions of 10 CFR 50.55(e).

We trust the Commission will find the information forwarded by this letter to be satisfactory.

Very truly yours,

N. W. Curtis
Vice President-Engineering & Construction-Nuclear

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PENNSYLVANIA POWER & LIGHT COMPANY

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Mr. Boyce H. Grier

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June 5, 1981

cc: Mr. Victor Stello (15)
Director-Office of Inspection & Enforcement
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Mr. G. McDonald, Director (1)
Office of Management Information & Program Control
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Mr. Gary Rhoads
U. S. Nuclear Regulatory Commission
P. O. Box 52
Shickshinny, PA 18655

SUBJECT

Special electrical separation for the G.E. supplied Power Generation Control Complex involving the High Pressure Coolant Injection (HPCI), Reactor Core Isolation Cooling (RCIC), and Automatic Depressurization Systems (ADS) as identified in NRC I&E Information Notice 79-32.

DESCRIPTION OF DEFICIENCY

The deficiency involves the omission of conduit on electrical wiring to the HPCI inboard steam isolation valve E41-F002 and RCIC inboard steam isolation valve E51-F007. The installation of this conduit is required to meet a specific requirement of the General Electric specification for electrical separation, applicable to Susquehanna 1 & 2. This deficiency relates to both the GE scope of supply (i.e. the Power Generation Control Complex) and the Bechtel Corp. scope of supply (i.e. Balance of Plant) for these circuits.

Note: Although GE's Part 21 report (ref. TRR-26-81/MFN-065-81 dated 4/8/81) included ADS circuits in the scope of the reported deficiency, as did their generic response to NRC I&E Information Notice 79-32, ADS has not been included in the scope of this report because the Susquehanna ADS design, unlike earlier vintage plants, has two redundant power and logic trains and is capable of operation with a failure in either division.

CAUSE

The General Electric specification for electrical separation applicable to Susquehanna SES, requires that conduit be installed to provide special separation of the HPCI and RCIC inboard steam line isolation valve circuits from other circuits assigned to the same division (see attached diagram of Fig. 5 of G.E. Doc. 22A3052). The intent of this special separation requirement is to provide conduit separation of the "Division I-X" circuit from other Division I circuits and conduits separation of the "Division II-X" circuits from other Division II circuits thereby preventing a postulated single electrical failure from disabling both the HPCI and RCIC systems. GE and Bechtel Corp., for their respective scopes of supply, failed to incorporate this special electrical separation requirement into the design output documents they prepared and issued for the manufacture and construction of the Susquehanna HPCI and RCIC systems.

ANALYSIS OF SAFETY IMPLICATIONS

The intent of the GE requirement for special separation using conduit on the subject HPCI and RCIC circuits was to prevent a postulated single electrical failure from disabling both the HPCI and RCIC systems. There is a possibility that a fire could cause a hot-short circuit in the cable to the HPCI inboard isolation valve (Division I) resulting in the closure of this valve and at the same time, disabling the RCIC system which is essentially a Division I system. This scenario could result in a loss of capability in both the HPCI and RCIC

systems. The RCIC system is designed to provide Reactor Makeup Water during a loss of offsite power and to establish and maintain reactor water level during shutdown conditions. Although the ADS would still be available in the event of RCIC system failure, it is not the intended function of the ADS to be used as a backup to RCIC during a reactor shutdown. At Susquehanna, the ADS is provided with two redundant power and logic trains and would always be available for a loss of a single division. Therefore, no deficiency exists in the ADS design. This has been confirmed through discussions with GE in May, 1981. PP&L has determined, however, that the lack of installed conduit to provide separation for the electrical circuits to the HPCI and RCIC inboard isolation valves does represent a significant deficiency in final design as released for construction and is therefore reportable under 10 CFR 50.55(e).

CORRECTIVE ACTION

G.E. site personnel have written Field Deviation Disposition Requests (FDDR-522-12 and FDDR-KRI-542-9) to enclose the circuits for valve E41-F002 from panel H12P617 to the PGCC termination cabinet and the circuits for valve E51-F007 from panel H12P617 to the termination cabinet in flexible conduit.

Bechtel has issued Design Change Package (DCP) 308.1 to the field for the rework required to enclose the remainder of the HPCI and RCIC inboard valve control circuits in conduit.

The Bechtel and GE design documents identified above will provide the direction to install the conduit necessary to achieve compliance with the cited special separation requirement for the HPCI and RCIC systems.

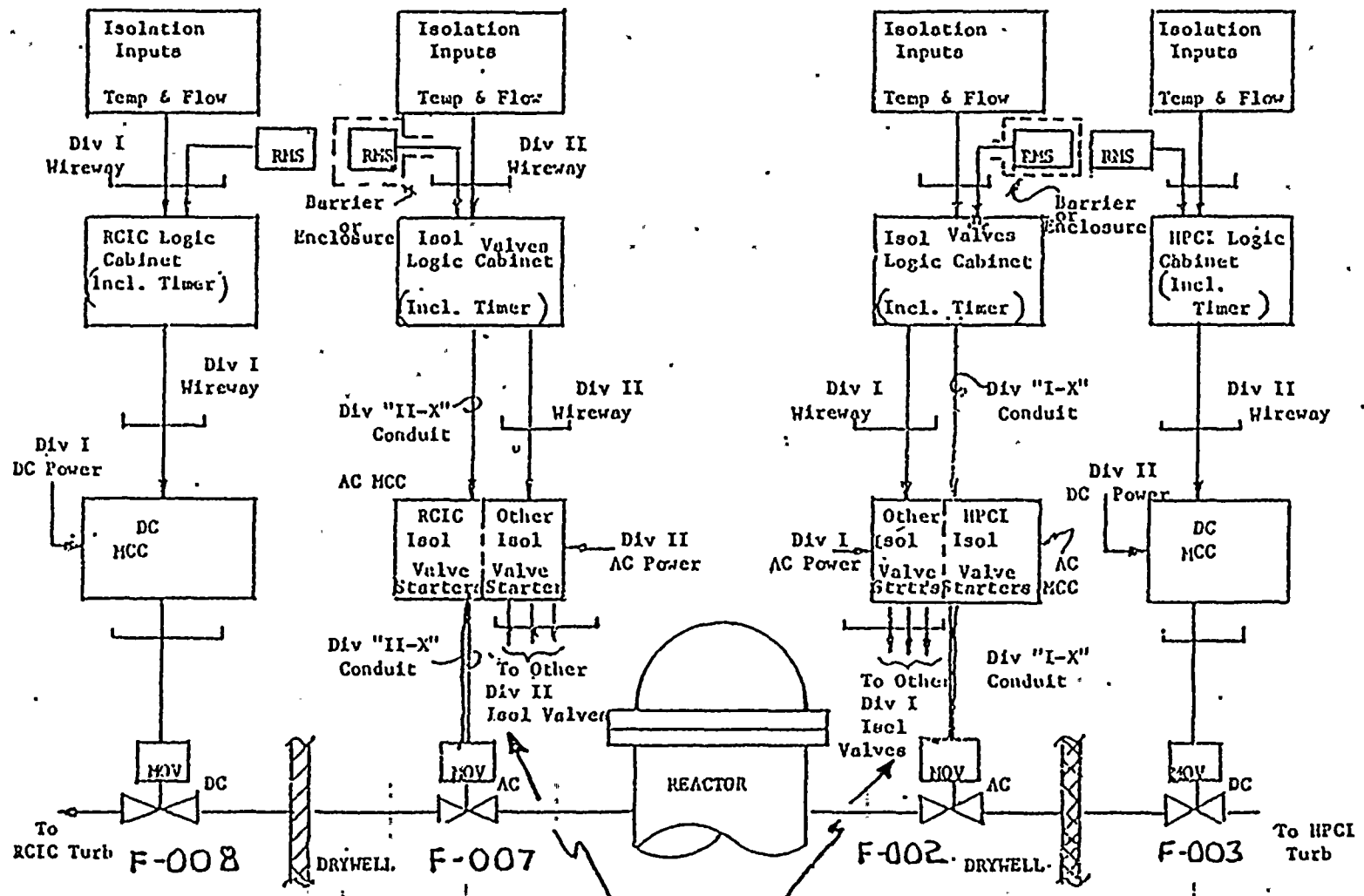


FIGURE 5 HPCI/RCIC SEPARATION SCHEME

SPECIAL SEPARATION REQUIREMENT.