



LOUISIANA
POWER & LIGHT

142 DELARONDE STREET • P.O. BOX 8008
NEW ORLEANS, LOUISIANA 70174-8008 • (504) 386-2345

November 14, 1984

W3P84-3187
3-A1.01.04
A4.05

Director of Nuclear Reactor Regulation
Attention: Mr. G. W. Knighton, Chief
Licensing Branch No. 3
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Knighton:

Subject: Waterford 3 SES
Docket No. 50-382
QSPDS/PPS Circuit Interface

Reference: LP&L letter W3K84-1640 dated July 17, 1984,
subject: Final Report on SCD-109

This letter addresses the questions on the subject matter raised by the NRC Staff personnel during a telephone conference on November 8, 1984. It thereby provides for further understanding on the Waterford 3 design of the QSPDS/PPS circuit interface.

The reference letter (copy attached) provided the Final Report on Significant Construction Deficiency No. 109. The deficiency report described a condition whereby a design oversight in the QSPDS/PPS interface caused PPS measurement channels C and D for low pressurizer pressure to fail high upon termination. Design considerations were not incorporated to properly isolate the "floating ground" PPS from the signal common "grounded" QSPDS.

In the original design, non-isolated outputs for low pressurizer pressure PPS measurement channels A, B, C and D were provided for safety-related indication. When QSPDS 1 and 2 were incorporated to meet the requirements of NUREG 0737, Item 1.D.2, the above PPS measurement channel C and D outputs were chosen to provide input to QSPDS 1 and 2 respectively. PPS measurement channels A and B remained as-is. Isolation as described in IEEE-384, (1974) paragraph 4.6 was not considered since both the QSPDS and the PPS are Class 1E and the connection was within the same measurement channel.

The design and function of the QSPDS is consistent with the description given in the Waterford 3 Safety Evaluation Report Supplement 6 (SSER 6), Chapter 22 (page 22-4), Section II.F.2. Physical separation is maintained between PPS measurement channels C and D for low pressurizer pressure by virtue of the separate QSPDS 1 and 2 systems. The output from the QSPDS to the plant computer (SPDS) is through fiber optic interfaces.

8411160248 841114
PDR ADOCK 05000382
S PDR

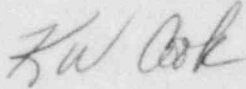
Boo1
11

W3PC4-3187

Page 2

If you have any further questions on the above matter or desire additional information, please contact G.E. Wuller at (504) 464-3499.

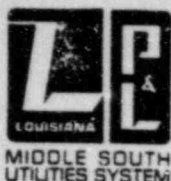
Very truly yours,



K.W. Cook
Nuclear Support & Licensing Manager

KWC:GEW:sms

cc: E.L. Blake, W.M. Stevenson, J.T. Collins, D.M. Crutchfield,
J.H. Wilson, G.L. Constable, T.A. Flipppo, G. Holahan, J.T. Beard,
R.W. Stevens, Jr.



LOUISIANA
POWER & LIGHT

142 DELARONDE STREET
P. O. BOX 6008 • NEW ORLEANS, LOUISIANA 70174 • (504) 366-2345

July 17, 1984

W3K84-1640
Q-3-A35.07.109

Mr. John T. Collins
Regional Administrator, Region IV
U. S. Nuclear Regulatory Commission
611 Ryan Plaza Drive, Suite 1000
Arlington, Texas 76012



REFERENCE: a) LP&L letter W3K84-1140 dated May 11, 1984
b) Telecon C. Hooper (LP&L) and Eric Johnson (NRC IV) on
May 25, 1984
c) Telecon C. Hooper (LP&L) and M. Murphy (NRC IV) on
June 6, 1984

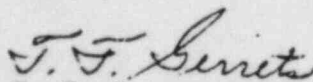
Dear Mr. Collins:

SUBJECT: Waterford SES Unit No. 3
Docket No. 50-382
Significant Construction Deficiency No. 109
"Inadequate Design of QSPDS/PPS Circuit Interface"
Final Report

In accordance with the requirements of 10CFR50.55(e), we are hereby providing two copies of the Final Report of Significant Construction Deficiency No. 109, "Inadequate Design of QSPDS/PPS Circuit Interface".

If you have any questions, please advise.

Very truly yours,


T. F. Gerrets
Corporate Quality Assurance Manager

TFG:CNH:VBR

Attachment

cc: Director
Office of Inspection & Enforcement
J. S. Nuclear Regulatory Commission
Washington, D.C. 20555
(15 copies)

~~8407310219~~

FINAL REPORT OF
SIGNIFICANT CONSTRUCTION DEFICIENCY NO. 109
"INADEQUATE DESIGN OF QSPDS/PPS CIRCUIT INTERFACE"

INTRODUCTION

This report is submitted pursuant to 10CFR50.55(e). It describes the electrical grounds on signal common for Channels "C" and "D" of PPS.

To the best of our knowledge, this deficiency has not been reported to the USNRC pursuant to 10CFR21.

DESCRIPTION

In the original design, Channels "C" and "D" of the low pressurizer pressure signals were connected from the Process Analog Control cabinets (PAC) CP27 and CP28 to the indicators in CP-7 without isolation. When the QSPDS inputs were incorporated into the existing design to meet the requirements of NUREG-0737, Item I.D.2, the signals for the QSPDS were paralleled with the CP-7 indicators, since both signals are in the same safety channels (SMC and SMD). The existing grounding arrangement in the QSPDS was overlooked.

This connection introduced an electrical ground on a signal common in Channels "C" and "D" of the PPS (which is designed to float) causing Channels "C" and "D" signals to fail high (indicating maximum pressure), thereby preventing initiation of a low pressurizer pressure PPS trip for Channels "C" and "D".

Channels "A" and "B" of the same parameter (Pressurizer Pressure) were unaffected and were operating correctly. The problem with the ground was noticed under the initial test program before the subject instruments were placed in service.

SAFETY IMPLICATIONS

If the above ground problem was left uncorrected, following an actual low pressurizer pressure event, Channels "C" and "D" would fail high and would not initiate a PPS trip.

CORRECTIVE ACTION TAKEN

Station Modification Package (SMP) 84-180 and CIWA L-7919 were issued to isolate the QSPDS signal common ground to the PPS by adding Westinghouse NLP-3 isolation cards inside PAC panels CP-27 and CP-28. All field work is complete and testing has proven that a PPS trip will be initiated upon receipt of a "Lo" pressurizer pressure signal from Channels "C" and "D".

Functional testing of the PPS has been completed and no additional grounding deficiencies similar to that described above have been identified. Therefore, this is considered an isolated case.

In order to prevent recurrence of deficiencies of this nature, PMP 302, Preparation of Station Modification Packages, has been revised to include grounding requirements for all changes which interface with the Plant Protection System. In addition the modification program requires that any future design changes be functionally tested prior to placing in service.

This report is submitted as the Final Report.