



LOUISIANA
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April 1, 1982

G. D. McLendon
Senior Vice President

W3K-82-0193
Q-3-A35.07.37

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

SUBJECT: Waterford SES Unit No. 3
Docket No. 50-382
Interim Status Report of Significant Construction Deficiency No. 37
"Temperature Detectors (RTD's) Failure"

Reference: LP&L Letter W3K-81-0420 to USNRC dated November 20, 1981

Dear Mr. Collins:

In accordance with the requirements of 10CFR50.55(e), we are hereby providing two copies of the Interim Status Report of Significant Construction Deficiency No. 37, "Temperature Detectors (RTD's) Failure."

If you have any questions, please advise.

Very truly yours,

G. D. McLendon



GDMcL/LLB/grf

Attachment

- cc: 1) Director
Office of Inspection & Enforcement
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555
(with 15 copies of report)
- 2) Director
Office of Management
Information and Program Control
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555
(with 1 copy of report)

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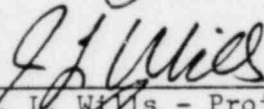
LOUISIANA POWER & LIGHT COMPANY

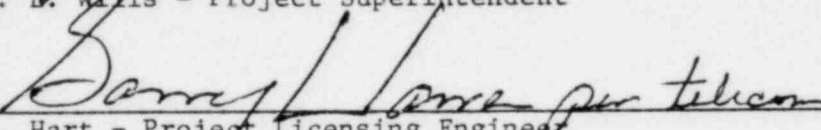
WATERFORD SES UNIT NO. 3


Interim Status Report of
Significant Construction Deficiency No. 37


"TEMPERATURE DETECTORS (RTD'S) FAILURE"

Reviewed by  3/31/82
R. J. Minner - Site Manager Date

Reviewed by  3/31/82
J. L. Willis - Project Superintendent Date

Reviewed by  per telecom 3/31/82
J. Hart - Project Licensing Engineer Date

Reviewed by  3/31/82
J. DeBruin - ESSE Project Engineer Date

Reviewed by  for 3/31/82
J. Gutierrez - Q. A. Site Supervisor Date

March 31, 1982

INTERIM STATUS REPORT OF
SIGNIFICANT CONSTRUCTION DEFICIENCY NO. 37
TEMPERATURE DETECTORS (RTD'S) FAILURE

INTRODUCTION

This report is submitted pursuant to 10CFR50.55(e). It describes a deficiency regarding unreliable temperature signals from Rosemount, Inc., resistance temperature detectors (RTD's). The RTD's supply reactor coolant system (RCS) cold leg temperature signals to the reactor protection system. This problem is considered reportable under the requirements of 10CFR50.55(e). This problem was identified to the Nuclear Regulatory Commission on July 10, 1981, by a utility owner of a C-E NSSS.

DESCRIPTION OF PROBLEM

On July 27, 1981, C-E Power Systems notified Ebasco Services, Incorporated, that errors in the RCS T-cold signal could result in a non-conservative thermal margin/low pressure (TM/LP) trip setpoint and could permit possible operation in excess of departure from nucleate boiling (DNB) limits. C-E does not believe that such operation is likely to occur because the RTD drift is easily detectable by cross channel comparison and simultaneous multiple failures are not deemed credible. The utility has determined that the cause of the erroneous RTD signals was due to resistance changes in the RTD circuitry as a result of corrosion degradation of the RTD leads at the terminal block connection in the head of the RTD assembly. The corrosion was believed to be caused by a galvanic reaction between the dissimilar metals in the RTD leads and the terminal blocks.

The utility placed the plant in hot standby for approximately twenty-four hours while all accessible safety and non-safety related Rosemount RTD's were refurbished. This refurbishment consisted of replacing all components in the head of the RTD assemblies including the crimp type terminals on the RTD field leads and the terminal block. A gasket was also added to each of the RTD assembly heads to limit ingress of water vapor into the RTD head assembly, and surveillance of the inaccessible safety related RTD's was increased. The utility is planning to replace all Rosemount RTD's with comparable equipment from an alternate vendor during the next unit refueling outage.

SAFETY IMPLICATIONS

The documents referenced together with NY I&C's evaluation recognize that the failure of subject RTD's is significant and could compromise the safe operation of NSSS.

The subject RTD's are used predominantly in safety-related systems. Sixteen are installed in steam generator's hot and cold leg and provide input to Plant Protection System; four of these will be used for subcooled margin calculator. Six additional are used for display.

The galvanic corrosion in RTD's head introduces parasitic resistance into the instrumentation loop. This results in unreliable signals which would essentially indicate lower than actual temperature and adversely affect protective system response. Thus, the safety of the plant could be compromised if left uncorrected.

CORRECTIVE ACTION

New York Instrument & Controls (I&C) has issued a Design Change Notice (DCN-NYC-IC-654) to implement the corrective action. The procedure will be to:

- 1) Leave extra cable slack in sensor termination head for future maintenance.
- 2) Provide silver soldered splice connections.
- 3) Insulate splice with Raychem heat shrinkable tubing.
- 4) Equip RTD sensors with cable termination seal assemblies.

An unrelated Nonconformance Report (NCR W3-3413) which was holding work on this corrective action has been closed. Corrective action will be accomplished by May 28, 1982; and a Final Report will be submitted to the USNRC on or before June 15, 1982.