



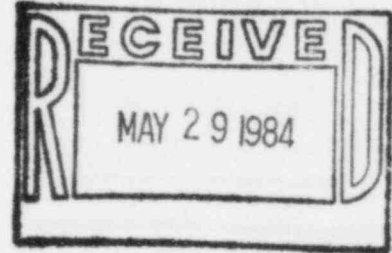
LOUISIANA
POWER & LIGHT

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

MIDDLE SOUTH
UTILITIES SYSTEM

May 23, 1984

W3K84-1234
Q-3-A35.07.103



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

REFERENCE: LP&L letter W3K84-0980 dated April 27, 1984 and
Telecon C. N. Hooper (LP&L) and Mr. J. Jaudon (NRC Region IV)
on May 16, 1984

Dear Mr. Collins:

SUBJECT: Waterford SES Unit No. 3
Docket No. 50-382
Significant Construction Deficiency No. 103
"Radflex Wall Penetrations"
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. 103 "Radflex Wall Penetrations".

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
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555
(15 copies)

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Mr. John T. Collins

May 23, 1984

W3K84-1234

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cc: Director
Office of Management
Information and Program Control
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Mr. E. L. Blake
Shaw, Pittman, Potts & Trowbridge
1800 M Street, N.W.
Washington, D.C. 20036

Mr. W. M. Stevenson
Monroe & Lemann
1424 Whitney Building
New Orleans, Louisiana 70130

Records Center
Institute of Nuclear Power Operations
1100 Circle 75 Parkway, Suite 1500
Atlanta, Georgia 30339

Mr. W. A. Cross
7910 Woodmont Avenue
Suite 1200
Bethesda, Maryland 20814

FINAL REPORT OF
SIGNIFICANT CONSTRUCTION DEFICIENCY NO. 103
"RADFLEX WALL PENETRATIONS"

INTRODUCTION

This report is submitted pursuant to 10CFR50.55(e). It describes RADFLEX* sealant material installed in wall penetrations at Waterford Unit #3 by B&B Insulation, Inc.

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

DESCRIPTION

On January 20, 1984, B&B Insulation, Inc. issued Technical bulletin TB-101-1030 which stated:

During the installation of RADFLEX* under certain conditions of temperature during the fill, or where heat was used on the material during installation, a slight shrinkage of the fill may occur. Most notable, when temperature of material at the time of installation is greater than 20°F from ambient temperature after cure, a small space, varying from less than .125 inches on small penetrations (4" or less) to as much as .75 inches on very large penetrations (greater than 30"), may occur. On February 9, 1984, B&B Insulation, Inc., issued a Quality Assurance Directive (B&B NCR No. QA582/01 dated 2/6/84) which delineated the changes in inspection criteria for acceptance or rejection of those penetrations listed in NCR-W3-7259.

SAFETY IMPLICATIONS

RADFLEX* penetration sealant has been utilized throughout the plant to accommodate thermal expansion of system piping during all modes of operation and test, and provides radiation shielding for penetrations between areas with varying dose rate levels. Also, RADFLEX* is provided in penetrations to prevent the transmission of heat and smoke to adjoining areas in the event of fire. Shrinkage of the RADFLEX* fill (as much as .75" for penetrations greater than 30") could result in activity levels in certain areas higher than originally anticipated, and the inability to maintain the fire resistive integrity of the barrier penetrated.

CORRECTIVE ACTION

Nonconformance Report W3-7259 was initiated to track and document this deficiency.

Inspection of the RADFLEX* seals has been accomplished without damage to the flexible boots.

Wall Seals

Inspection Form QA582.01 was utilized for each distinct separate work area in which seals were located. When possible, this was done to coincide with the listing on the initial QC-3.

The band clamp on the sleeve end of the flexible boot seal was loosened sufficiently to enable the boot to be slipped away from the top part of the sleeve. All seals were inspected from both sides to adequately determine seal integrity.

Visual examination of the exposed portion of the installed RADFLEX* material was performed to determine if a void existed.

When this visual inspection determined that the seal was acceptable, the (ACC) column was checked and the only further action required was to perform the re-installation of the flexible boot seal.

When a void was found, the QC Inspector measured the depth of the void and determined if the void penetrated through the penetration. The determination of a breach of seal (penetrating throughout) was performed by shining a flashlight through from one side to the other. If light could be seen, a breach of seal did exist. This condition was documented in the COMMENTS section of Form QA582.01 by using an asterisk (*) in addition to documenting the depth of the void.

When the visual inspection determined that the installed RADFLEX showed signs of material separation, the questionable material was removed and replaced. This was documented in this COMMENTS section of Form QA582.01 and the new installation was also documented on a Form QC-3 referenced in the REWORK section of Form QA582.01.

The in-place installation dates from the QA582.01 of any material deemed REJECT for reason of separation was utilized to develop a trend analysis illustrating differences of installation technique, environmental conditions, material difficulties or other reasons for the separation. The retained density samples from this in-place installation re-examined for comparative purpose with the REJECTED in-place product. The trend analysis and comparison of samples with product were not to be considered a part of the corrective action for this NCR, but are for the purpose of determining possible causes for the separation. This enabled B&E to take immediate action to prevent occurrences of this type in the future.

Rework

Placement of additional RADFLEX material into void(s) at top of penetration.

- a) A mechanical or pneumatic bulk loading type caulking gun was used to dispense additional RADFLEX (previously mixed into a single component) into any void in the penetration.
- b) When the void existed through the penetration, a boot seal on one side was re-installed prior to installation of additional material to contain the liquid material filling the void. A sufficient length of tygon or similar tubing was attached to the caulking gun to reach to the far side of the penetration. Dispensing of an additional amount of RADFLEX into the void was performed and slowly withdrawn until a 100% fill was ascertained.

The boot seal on the dispensing side was replaced sufficiently to retain the liquid material while filling.

NOTE: The material temperature at the time of dispensing was not allowed to be more than 10°F above ambient temperature.

Following the inspection to verify a 100% fill, the flexible boot seal was re-installed as noted below.

Refer to B&B QCP4201 for documentation of RADFLEX installation.

Replacement of RADFLEX material with signs of separation of material.

Boot seals from both sides of the penetration were removed as well as removal of all suspect RADFLEX material. The penetration was cleaned out by wiping with rags only. NO SOLVENT was used.

After reinstallation of the boot seals, one side only, RADFLEX was dispensed per B&B Procedures.

The penetration was inspected for 100% fill after complete cure of material.

Refer to B&B QCP4201 for documentation of RADFLEX installation.

RE-INSTALLATION of Flexible Boot Seals

Any excess cured adhesive sealant was removed from sleeve surface prior to boot placement.

Re-Installation of Flexible Boot Seals (Continued)

Flexible boot seals previously removed were reinstalled into sleeve by pulling onto sleeve surface to the approximate previous position.

Band clamp was replaced in the approximate original location.

Floor Seals

Floor seals were not subject to this inspection since normal practice for installation includes the filling of top extended sleeves and any shrinkage that might have occurred would not have reduced the amount of fill to create a void within the substrate area.

* B&B Trademark

This report is submitted as the Final Report.