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September 22, 1995  
C321-95-2277

U. S. Nuclear Regulatory Commission  
Att: Document Control Desk  
Washington, DC 20555

Dear Sir:

Subject: Oyster Creek Nuclear Generating Station (OCNGS)  
Docket No. 50-219  
Response to the Follow-Up to the Request for Additional Information  
Regarding Generic Letter (GL) 92-08

NRC letter dated August 22, 1995 requested additional detailed information regarding methodology, plan and schedule for verifying important barrier parameters based on previous NRC guidance that some of the important parameters can only be verified by detailed examination. At the GPU Nuclear/NRC meeting on this issue, held August 30, 1995, GPU Nuclear agreed to provide a more detailed description of the specific OCNGS QA Program requirements that support verification of important parameters, as well as to consider the performance of additional detailed examinations of a representative sample of in-plant configurations, where reasonable and appropriate. The attachment to this letter provides a detailed description of the methodology and schedule for verification of each of the twenty-four (24) identified important barrier parameters, based on the issues discussed at the GPU Nuclear/NRC meeting held on August 30, 1995.

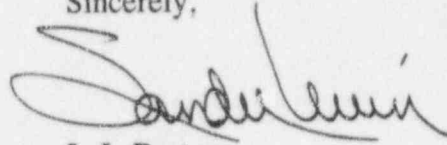
It should be noted that the NRC letter dated August 22, 1995 identified the stairwell enclosure as an installed Thermolag configuration at OCNGS. GPU Nuclear letter to NRC, dated September 16, 1994, provided the results of the Appendix R safe shutdown reanalysis for this area, which concluded that the stairwell enclosure installation was not required to be

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a one-hour barrier. The stairwell enclosure installation was removed from the scope of the Generic Letter (GL) 92-08 evaluation program, and is no longer considered as an installed Thermolag configuration requiring a fire endurance rating.

Sincerely,



for

J. J. Barton  
Vice President and Director,  
Oyster Creek

DJD/plp  
Attachments

c: Administrator, Region I  
Oyster Creek NRC Resident Inspector  
Oyster Creek NRC Project Manager  
A. Marion - NEI  
G. M. Holahan, Director, NRC Division of Systems Safety And Analysis

Attachment I

OCNGS THERMOLAG BARRIER PARAMETER VERIFICATION METHODOLOGY

The following provides a detailed description of the methodology to be utilized to verify each of the identified important Thermolag barrier parameters which are applicable to OCNGS. The additional detailed examinations of representative installed configurations described below will be performed by November 1, 1995. The results of the examinations will be reflected in the OCNGS Thermolag evaluation report to be submitted by December 31, 1995, as referenced in our previous submittals. The attached Table 1 provides a summary of parameter verification efforts as discussed in the August 30, 1995 meeting.

1. Raceway Orientation (horizontal, vertical, radial bends)

Method of Verification: This parameter has been verified by documented visual examination during walkdowns which identified the horizontal, vertical, or radial bend orientation.

2. Conduit

Method of Verification: This parameter has been verified by documented visual examination during walkdowns which identified that the barrier protected is conduit and the respective conduit size. Verification has also been performed through the review of design drawings. QA program records (OCNGS Quality Control Installation Inspection Checklist IN-044, Rev. 0, Items 11 and 15) also verified the type of raceway and size per drawings and annotations attached to the Plant Inspection Report.

3. Junction Boxes and Lateral Bends

Method of Verification: This parameter has been verified by documented visual examination during walkdowns which identified the location and support mechanisms for each junction box and lateral bend, and by review of design drawings. QA program records (OCNGS Quality Control Installation Inspection Checklist IN-044, Rev. 0, Items 11 and 15) also verified the type of raceway and size per drawings and annotations attached to the Plant Inspection Report.

4. Ladder-back Cable Tray with Single Layer Cable Fill

Method of Verification: None. This parameter is not applicable since OCNGS has not installed any Thermolag fire barriers on cable trays.

5. Cable Tray with T-Section

Method of Verification: None. This parameter is not applicable since OCNGS has not installed any Thermolag fire barriers on cable trays.

6. Raceway Material (Aluminum, steel)

Method of Verification: This parameter has been verified by review of raceway design and installation records which confirms that OCNGS installed steel raceway material.

7. Support Protection, Thermal Shorts (Penetrating elements)

Method of Verification: This parameter has been verified by documented visual examination during walkdowns which identified that installed supports, attachments, and other penetrating elements are protected, and by review of design drawings.

8. Air Drops

Method of Verification: This parameter is verified by documented visual examination during walkdowns which identified the existence of air drop configurations, and by review of design drawings. QA program records (OCNGS Quality Control Installation Inspection Checklist IN-044, Rev. 0, Item 15) also verified the installation details. Two (2) installed air drop configurations located in fire

zone TB-FZ-11D will be disassembled during installation of upgrades since no test data is currently available to support establishment of a fire endurance rating. Inspection during disassembly will further support the validity of QA program installation requirements for air drops.

9. Baseline Fire Barrier Panel Thickness

Method of Verification: This parameter has been verified by review of QA program records for source inspections, material receipt inspections, and installation inspections performed. Individual Source Inspection Reports, Receipt Inspection Checklists (Document No. R-6133-5076.1, Items 1 through 8) verified material thickness for preformed conduit and panel sections. OCNGS Quality Control Installation Inspection Checklist IN-044, Rev. 0, Item 5 verified proper rating material minimum thicknesses installed.

Destructive examination performed on a 3-hour, 1-1/2 inch conduit barrier envelope has verified adequate material thickness for the preformed conduit sections and for the preformed panel sections which form a box around supports.

Additional detailed examinations of representative installed configurations will be performed to verify this parameter, per Attachment II.

10. Preformed Conduit Panels

Method of Verification: This parameter has been verified by documented visual examination during walkdowns which identified the existence of preformed conduit panels versus non-preformed material.

11. Panel Rib Orientation (Parallel or Perpendicular to the Raceway)

Method of Verification: This parameter only applies to configurations using board material. Detailed examinations of representative installed configurations will be performed to verify this parameter, per Attachment II.

12. Unsupported Spans

Method of Verification: This parameter has been verified for conduit installations by visual examination which identified raceway support span distances. QA record review also supports the verification of the parameter on the basis of GPU Nuclear Installation Procedure SP-9000-41-005, Rev. 4, Para. 8.1 requirements for maximum support spacing for conduits.

OCNGS Quality Control Installation Inspection Checklist IN-044, Rev. 0, Item 8 verified banding supports and distances. Support spans for conduit sections is not a concern as proper band spacing and the conduit itself provide adequate support for preformed conduit barriers. Verification of unsupported Thermolag barrier spans for configurations using board material applies to box enclosures. Detailed examination of the ductwork fire barrier will be performed as described in Attachment II to verify this parameter.

As discussed in our meeting of August 30, 1995, we have been unable to bound existing box enclosures such as penetration boxes to existing NEI tested configurations. Additional NEI testing is planned for box enclosures. The need for detailed examination on these configurations will be determined once the details of construction for this testing are identified and pending results of the test.

13. Stress Skin Orientation (Inside or Outside)

Method of Verification: This parameter has been verified by review of QA records of results of material and installation inspections performed (OCNGS Quality Control Installation Inspection Checklist IN-044, Rev. 0, Item 11).

Destructive examination performed on a 3-hour, 1-1/2 inch conduit barrier envelope has verified the existence of stress skin on the inside and outside of preformed conduit sections and for preformed panel sections which form a box around supports.

Additional detailed examinations of representative installed configurations will be performed to verify this parameter, per Attachment II.

14. Stress Skin Over Joints or No Stress Skin Over Joints

Method of Verification: This parameter has been verified by review of design records which document that OCNGS did not install stress skin over joints. Since OCNGS did not use this design feature, and since comparisons are made to test configurations without this feature, no additional verification of this parameter is required.

15. Stress Skin Ties or No Stress Skin Ties

Method of Verification: This parameter has been verified by review of design records which document that OCNGS did not install stress skin ties. Since OCNGS did not use this design feature and since comparisons are made to test configurations without this feature, no additional verification of this parameter is required.

16. Dry-Fit, Post-Buttered Joints or Pre-buttered Joints

Method of Verification: This parameter has been verified by review of QA program installation inspection (OCNGS Quality Control Installation Inspection Checklist IN-044, Rev. 0, Item 7 for pre-buttered joints, and Item 8 for post-fill and alignment verifications).

Destructive examination performed on a 3-hour, 1-1/2 inch conduit barrier envelope has verified acceptable pre-buttering and post-buttering of joints of preformed conduit sections and for preformed panel sections which form a box around supports. Seven (7) joints were examined.

Additional detailed examinations of representative installed configurations will be performed to verify this parameter, per Attachment II.

17. Joint Gap Width

Method of Verification: This parameter was not an original design requirement and therefore was not verified by the QA program. However, OCNGS installation requirements specified that preformed sections are to be butted together and Installation Inspection checks for misalignment prior to pre-buttering would have minimized joint gap widths.

Detailed examinations of representative installed configurations will be performed to verify this parameter, per Attachment II.



18. Butt Joints or Grooved and Scored Joints

Method of Verification: This parameter has been verified by documented visual examination during walkdowns which identified the existence of butt joints or grooved and scored joints. Grooved and scored joints applies to prefabricated panels and preformed conduit sections on radial bends. Grooving and scoring joints does not apply to straight sections of preformed conduit.

Detailed examinations of representative installed configurations will be performed to verify this parameter, per Attachment II.

19. Steel Bands or Tie Wires

Method of Verification: This parameter has been verified by documented visual examination during walkdowns, which identified the installation of steel bands or tie wires. OCNGS Quality Control Installation Inspection Checklist IN-044, Rev. 0, Item 8 verified the installation of steel bands or wires.

20. Band/Wire Spacing

Method of Verification: This parameter has been verified by documented visual examination during walkdowns. Verification is also provided by review of OCNGS Quality Control Installation Inspection Checklist IN-044, Rev. 0, Item 8, which verified the allowable band/wire spacing.

Destructive examination performed on a 3-hour, 1-1/2 inch conduit barrier envelope has verified 5 inch average band/wire spacing on preformed conduit sections and preformed panel sections which form a box around supports.

21. Band/Wire Distance to Joints

Method of Verification: This parameter is currently applicable to OCNGS and can be verified by visual examination. The reason it is applicable is because NEI tested configurations incorporated installation requirements to locate bands or tie wires within 2 inches of each joint. This was not a requirement for original installation of Thermolag barriers at OCNGS. Additional NEI testing will seek to demonstrate that the 2 inch requirement is unnecessary. If this testing is unsuccessful it will be necessary to install additional bands at OCNGS to meet the 2 inch requirement as part of corrective action to restore operability of raceway fire barriers at OCNGS.

22. No Internal Bands in Trays

Method of Verification: None. This parameter is not applicable since OCNGS has not installed any Thermolag protected cable trays.

23. No Additional Trowel Material Over Sections and Joints or Additional Trowel Material Applied

Method of Verification: This parameter has been verified by review of design and installation records which confirms that, except for approved repair activities, the installation of additional trowel material over sections and joints was not a design requirement for OCNGS. Since OCNGS did not use this as a design feature and since comparisons are made to test configurations without this feature, no additional verification of this parameter is required.

24. No Edge Guards or Edge Guards

Method of Verification: This parameter has been verified by documented visual examination during walkdowns which identified the installation of edge guards or no edge guards.

TABLE 1  
OCNGS  
SUMMARY OF VERIFICATION FOR IMPORTANT BARRIER PARAMETERS

<u>PARAMETER</u>	<u>VERIFICATION REQUIRED</u>	<u>VERIFIED BY ADDITIONAL DETAILED EXAMINATION</u>
1. Raceway Orientation (Horizontal, Vertical, Radial Bends)	Yes - Verified by visual examination.	No
2. Conduit	Yes - Verified by visual examination, review of design records, and QA records.	No
3. Junction Boxes and Lateral Bends	Yes - Verified by visual examination, review of design records, and QA records.	No
4. Ladder-back Cable Tray with Single Layer Cable Fill	No - No trays protected by fire barriers.	N/A
5. Cable Tray with T-Section	No - No trays protected by fire barriers.	N/A
6. Raceway Material (Aluminum/Steel)	Yes - Verified by review of design and installation records. All raceway constructed of steel.	No
7. Support Protection, Thermal Shorts (Penetrating Elements)	Yes - Verified by visual examination and by review of design drawings.	No
8. Air Drops	Yes - Verified by visual examination, review of design drawings, and by QA records. Expect to upgrade the only two minor installed configurations at Oyster Creek. Will involve dismantling for upgrade.	Yes - when disassembled
9. Baseline Fire Barrier Panel Thickness	Yes - Verified by review of QA program records.	Yes
10. Preformed Conduit Panels	Yes - Verified by visual examination.	No

TABLE 1  
OCNGS  
SUMMARY OF VERIFICATION FOR IMPORTANT BARRIER PARAMETERS

<u>PARAMETER</u>	<u>VERIFICATION REQUIRED</u>	<u>VERIFIED BY ADDITIONAL DETAILED EXAMINATION</u>
11. Panel Rib Orientation	Yes - To be established by detailed examination.	Yes
12. Unsupported Spans	Yes - Verified by visual examination and QA program record review for raceway supports. Detailed examination to verify unsupported Thermolag panel span on ductwork fire barriers will be performed. For other box enclosures, need for detailed examination to be determined based upon future NEI testing.	Yes
13. Stress Skin Orientation	Yes - Verified by review of QA program records review.	Yes
14. Stress Skin Over Joints or No Stress Skin Over Joints	Yes - Verified by review of design records. Oyster Creek did not apply this detail to original installation.	No
15. Stress Skin Ties or No Stress Skin Ties	Yes - Verified by review of design records. Oyster Creek did not apply this detail to original installation.	No
16. Dry Fit, Post-buttered or Pre-buttered Joints	Yes - Verified by review of QA program records.	Yes
17. Joint Gap Width	Yes - OCNGS did not apply this detail to original installation. To be established by detailed examination.	Yes
18. Butt Joints or Grooved and Scored Joints	Yes - Verified by visual examination.	Yes

TABLE 1  
OCNGS  
SUMMARY OF VERIFICATION FOR IMPORTANT BARRIER PARAMETERS

<u>PARAMETER</u>	<u>VERIFICATION REQUIRED</u>	<u>VERIFIED BY ADDITIONAL DETAILED EXAMINATION</u>
19. Steel Bands or Tie Wires	Yes - Verified by visual examination and QA program records review.	No
20. Band/Wire Spacing	Yes - Verified by visual examination and QA program records review.	No
21. Band Wire Distance to Joints	Yes - Verified by visual examination.	No
22. No Internal Bands on Tray	No - No trays protected by fire barriers.	N/A
23. No Additional Trowel Material Over Sections and Joints or Additional Trowel Material Applied	Yes - Verified by review of design and installation records. Oyster Creek did not apply this detail to original installation.	No
24. No Edge Guards or Edge Guards	Yes - Verified by visual examination.	No

Attachment II  
OCNGS THERMOLAG DETAILED EXAMINATION PLAN

Introduction

A sample detailed examination program representative of the identified configurations will be performed to verify important parameters as detailed in Attachment I. The examination program demonstrates the accuracy of quality verification records for those parameters which can not be verified by visual examination.

Where verification is required and available by visual examination, GPU Nuclear has identified these parameters for each installed configuration. Demonstrating the accuracy of Quality Control records and investigating parameters which are important but not part of original installation records will further support reliance on records and examination results to complete the list of data required to compare installed configurations with tested configurations using data from the NEI application guide. The number of configurations included in the detailed examination program constitutes a representative sample of installed Thermolag fire barriers at OCNGS.

Plan

<u>CONFIGURATION</u>	<u>SAMPLE POPULATION</u>	<u>SAMPLE POINTS</u>	<u>PARAMETERS TO BE VERIFIED</u>
A. Boxes (laterals & LBDs, 1-hour barriers only installed)	1 corner of 1 box (3 panels)	1-3 way corner: 2 thickness measurements on each of 3 panels, 2 thickness measurements on the 2 joints & measurement of joint gap widths, panel rib orientation check	Baseline Fire Barrier Panel Thickness  Panel Rib Orientation  Unsupported Spans  Stress Skin Orientation  Dry-Fit, Post-Buttered Joints or Pre-Buttered Joints  Joint Gap Width  Butt Joints or Grooved & Scored Joints

<u>CONFIGURATION</u>	<u>SAMPLE POPULATION</u>	<u>SAMPLE POINTS</u>	<u>PARAMETERS TO BE VERIFIED</u>
B. 1-Hour Conduit & Radial Bends	1 single conduit butt joint of 4 preformed conduit half sections	1-4 way intersection: 2 thickness measurements on each of 4 preformed conduits, 2 thickness measurements on each of the 4 joints, 2 circumference readings each side of joint.	Baseline Fire Barrier Panel Thickness  Stress Skin Orientation  Dry-Fit, Post-Buttered Joints or Pre-Buttered Joints  Joint Gap Width  Butt Joints or Grooved & Scored Joints
C. 3-Hour Conduit & Radial Bends	1 single conduit butt joint of 4 preformed conduit half sections	1-4 way intersection: 2 thickness measurements on each of 4 preformed conduits, 2 thickness measurements on each of the 4 joints, 2 circumference readings on each side of end joint, stress skin check	Baseline Fire Barrier Panel Thickness  Stress Skin Orientation  Dry-Fit Post-Buttered Joints or Pre-Buttered Joints  Joint Gap Width  Butt Joints or Grooved & Scored Joints
D. HVAC Duct	1 representative location on each of the 3 accessible sides	2 side panel measurements, 1 examination of a bottom panel: 2 thickness measurements on each of side panels, 2 thickness measurements on panel bottom, & 2 joint gap width measurements, Panel rib orientation check	Baseline Fire Barrier Panel Thickness  Panel Rib Orientation  Unsupported Spans  Stress Skin Orientation  Dry-Fit Post-Buttered Joints or Pre-Buttered Joints  Joint Gap Width  Butt Joints or Grooved & Scored Joints