

# WOLF CREEK

NUCLEAR OPERATING CORPORATION

Neil S. "Buzz" Carns  
Chairman, President and  
Chief Executive Officer

March 29, 1995

WM 95-0057

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Mail Station P1-137  
Washington, D. C. 20555

Subject: Docket No. 50-482: Response to Follow-Up to the Request  
for Additional Information Regarding Generic Letter  
92-08

Gentlemen:

The NRC issued a letter dated December 29, 1994, "Follow-Up to the Request for Additional Information Regarding Generic Letter 92-08, Issued Pursuant to 10 CFR 50.54(f), Wolf Creek Generating Station (TAC NO. M85625)." This letter required a response to be submitted to the NRC within 90 days of receipt of the letter. In that letter, you indicated an increased level of concern with the reliability of information and data supplied by TSI that Wolf Creek Nuclear Operating Corporation (WCNOC) may have relied on to validate the acceptability of Thermo-Lag 330-1 as a fire barrier material at Wolf Creek Generating Station (WCGS). Consequently, your letter requested WCNOC to provide additional information regarding our Thermo-Lag 330-1 installations. Specifically, you requested we provide the information previously requested in Section II of your letter of December 22, 1993, "Request For Additional Information Regarding Generic Letter 92-08 (TAC No. M85625)," after verifying the information through the use of detailed examinations, such as destructive examinations. You also requested additional information concerning material chemical composition, test and analysis methods to be used, fire endurance/performance capabilities, and various mechanical properties associated with seismic capabilities.

WCNOC has been involved in an industry-wide effort to evaluate chemical composition of Thermo-Lag 330-1 as a means of addressing product consistency, thereby meeting the intent of the 50.54(f) letter. Nuclear Energy Institute (NEI) will provide to the NRC and the industry information on product consistency, based on the chemical composition testing. The chemical composition data will provide licensees with a basis to independently confirm applicability of generic industry test data with respect to fire endurance capability, combustibility, flame spread, heat release and ampacity (assuming resolution of current questions on ampacity test methodologies).

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P.O. Box 411 / Burlington, KS 66839 / Phone: (316) 364-8831

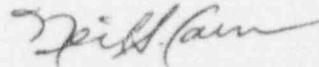
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The attachment provides WCNOC's response to the requested information. Some of the requested information cannot be determined until WCNOC can evaluate the pending results of the chemical composition testing. WCNOC will provide a final response to the NRC that meets the intent of the information requested in the December 29, 1994, 50.54(f) letter, no later than June 27, 1995. This will allow adequate time for WCNOC to receive and evaluate the results of the chemical composition testing with respect to Wolf Creek Generating Station Thermo-Lag 330-1 applications.

If you have any questions concerning this matter, please contact me at (316) 364-8831, extension 4000, or Mr. Richard D. Flannigan at extension 4500.

Very truly yours,



Neil S. Carns

NSC/jra

Attachment

cc: L. J. Callan (NRC), w/a  
D. F. Kirsch (NRC), w/a  
J. F. Ringwald (NRC), w/a  
J. C. Stone (NRC), w/a

STATE OF KANSAS       )  
                              )   SS  
COUNTY OF COFFEY    )

Neil S. Carns, of lawful age, being first duly sworn upon oath says that he is President and Chief Executive Officer of Wolf Creek Nuclear Operating Corporation; that he has read the foregoing document and knows the content thereof; that he has executed that same for and on behalf of said Corporation with full power and authority to do so; and that the facts therein stated are true and correct to the best of his knowledge, information and belief.



By Neil S. Carns  
Neil S. Carns  
President and  
Chief Executive Officer

SUBSCRIBED and sworn to before me this 29<sup>th</sup> day of March, 1995.

Linda M. Ohmie  
Notary Public

Expiration Date 8-31-1998

RESPONSE TO THE FOLLOW-UP TO THE REQUEST FOR  
ADDITIONAL INFORMATION REGARDING GENERIC LETTER 92-08,  
THERMO-LAG 330-1 FIRE BARRIERS PURSUANT TO 10 CFR 50.54(F)

1. Thermo-Lag Materials

Question 1a.

Describe the specific tests and analyses that will be performed to verify that the Thermo-Lag fire barrier materials that are currently installed at Wolf Creek Nuclear Generating Station, or that will be installed in the future, are representative of the materials that were used to address the technical issues associated with Thermo-Lag barriers and to construct the fire endurance and ampacity derating test specimens. The tests and analyses shall address the material properties and attributes that were determined or controlled by TSI during the manufacturing process and the quality assurance program. The tests and analyses shall also address the material properties and attributes that contribute to conclusions that the Thermo-Lag materials and barriers conform to NRC regulations. These include:

- (1) chemical composition
- (2) material thickness
- (3) material weight and density
- (4) the presence of voids, cracks, and delaminations
- (5) fire endurance capabilities
- (6) combustibility
- (7) flame spread rating
- (8) ampacity derating
- (9) mechanical properties such as tensile strength, compressive strength, shear strength, and flexural strength.

**Response**

With respect to Item 1.a.(1) above, WCNOG is participating in an industry-wide effort to evaluate chemical composition as a means of addressing product consistency on a generic basis. WCNOG has submitted five samples of Thermo-Lag 330-1 to NUCON International, Inc., for pyrolysis gas chromatography (PGC) testing in accordance with the guidance of ASTM D3452. This testing is pursuant to the industry-wide testing program requested by NEI in their letter to Licensee Administrative Points Of Contact dated February 3, 1995. The five samples were taken from a one-hour pre-formed conduit section and pre-formed panel, a three-hour pre-formed conduit section and pre-formed panel, and from installed trowel-grade material. WCNOG had also submitted 152 sections of pre-formed conduit sections to NEI as part of the NEI Phase I Generic Test Program.

NEI will provide to the NRC and the industry information on product consistency, based on the chemical composition testing. Based on communication with NEI, WCNOG anticipates that this testing will confirm reasonable assurance of Thermo-Lag material consistency at WCNOG and the industry. Therefore, WCNOG does not intend to perform any additional

chemical testing at this time, pending evaluation of the results of the industry-wide test program currently in progress.

With respect to Item 1.a.(2), WCNOG completed Quality Receiving Reports for original Thermo-Lag materials received on-site. These reports verify that the dimensions of the materials were inspected and found to be within the range specified by TSI.

With respect to Item 1.a.(3) and 1.a.(4), WCNOG has gathered the important barrier parameters (24 parameters specified in Reference 3) to ensure that installed Thermo-Lag is bounded by industry testing. No substantial voids, cracks, or delaminations were identified during walkdowns for the 24 important barrier parameters and inspections of disassembled boxed assemblies, that would adversely affect barrier performance. Provided that the chemical test results obtained through the generic industry-wide testing are consistent, chemical composition testing should provide the necessary information needed to confirm product consistency.

With respect to Items 1.a.(5), 1.a.(6), 1.a.(7), and 1.a.(8) above, WCNOG concurs with NEI's position as stated in Reference 1, that the data from chemical composition testing will provide the necessary information with respect to product consistency, and will provide WCNOG the basis to independently confirm applicability of generic industry test data with respect to fire endurance capability, combustibility, flame spread, heat release and ampacity derating (assuming resolution of current questions on ampacity test methodologies). This is based on the pending industry-wide chemical composition test results being consistent. Since WCNOG has not yet received the test results, final resolution of Items 1.a.(5), 1.a.(6), 1.a.(7) and 1.a.(8) cannot be determined at this time.

With respect to Item 1.a.(9), NEI discussed shaker-table testing of cable raceway barrier installations in their letter to Licensee Administrative Points of Contact dated January 17, 1995. In that letter NEI indicated that this testing was performed with acceptable results. WCNOG concurs with the NEI position that, if additional testing is required, it should be performed generically, and that Licensees can use the results of the industry-wide chemical composition testing program to determine a basis for comparison to generic test data. Since WCNOG has not yet received the test results, final resolution of Item 1.a.(9) cannot be determined at this time.

**Question 1b.**

Describe the methodology that will be used to determine the sample size and demonstrate that the sample size will be large enough to ensure that the information and data obtained will be sufficient to assess the total population of in-plant Thermo-Lag barriers and the materials that will be installed in the future. In determining the sample size, consider the time of installation and manufacture of the various in-plant materials and barrier installations. Give the number and types (e.g., panels, conduit preshapes, trowel-grade material, stress skin) of samples that will be tested or analyzed.



**Response**

As noted in response to Item 1.a.(1) above, WCNOC has submitted 5 samples of Thermo-Lag to Nucon International, Inc., as part of an industry-wide testing program sponsored by NEI. Samples submitted for test include one hour pre-formed conduit panels, three hour pre-formed conduit panels and a sample of installed trowel-grade material. Based on communication with NEI, WCNOC anticipates that this testing will confirm reasonable assurance of Thermo-Lag material consistency at WCNOC and the industry. Should WCNOC obtain new material for upgrade or replacement of existing Thermo-Lag WCNOC will consider chemical testing to ensure product consistency. Therefore, WCNOC does not intend to perform any additional chemical testing at this time.

**Question 1c.**

Submit the schedule for verifying the Thermo-Lag materials.

**Response**

WCNOC is participating in an industry-wide effort to evaluate chemical composition of Thermo-Lag 330-1 as a means of addressing product consistency. As noted in Reference 1, NEI will provide to the NRC and the industry information on product consistency, based on the results of the chemical composition testing. With the assumption that the chemical composition testing results are consistent, it is NEI's position that the chemical composition data will provide Licensees with the basis to independently confirm applicability of generic industry test data with respect to several attributes, including fire endurance capability, combustibility, flame spread, heat release and ampacity derating (assuming resolution of current questions on ampacity derating test methodologies). If the NRC agrees with the NEI position, then the schedule outlined in Reference 2 is still valid. If, however, the chemical test data is not consistent, or if the NRC does not agree with the NEI position, then WCNOC's schedule may need to be revised.

**Question 1d.**

After the analyses and tests have been completed, submit a written supplemental report that confirms that this effort has been completed and provide the results of the tests and analyses. Describe any changes to previously submitted plans or schedules that result from the tests or analyses.

**Response**

As indicated in Reference 1, NEI will submit a detailed report providing the results of the generic testing and analysis to the NRC and to the Licensees following completion of the testing program. If additional analyses and testing are required, or if the issues outlined above are not

resolved by industry testing, WCNOC will submit a revised schedule or plans deemed necessary to resolve Thermo-Lag issues. This report will be provided no later than June 27, 1995. This will allow adequate time for WCNOC to receive and evaluate the results of the chemical composition testing with respect to Wolf Creek Generating Station Thermo-Lag 330-1 applications.

## **2. Important Barrier Parameters**

### **Question 2a.**

Describe the examinations and inspections that will be performed to obtain the important barrier parameters given in Section II of the RAI of December 1993 for the Thermo-Lag fire barrier configurations installed at Wolf Creek Generating Station.

### **Response**

WCNOC has obtained and verified the 24 parameters listed in the Request for Additional Information (RAI) for WCGS BTP CMEB 9.5-1 applications (Reference 3). This information was obtained and/or verified through the use of general walkdowns, design drawing reviews, and review of Quality Assurance (QA) records of the applications. WCNOC has also performed NEI Application Guide evaluations, comparing as-installed configurations with the tested assembly configurations, and is currently reviewing the results.

### **Question 2b.**

Describe the methodology that will be applied to determine the number and type of representative in-plant fire barrier configurations that will be examined in detail and demonstrate that the sample size is adequate to ensure that the information and data that will be obtained are adequate to assess the total population of in-plant Thermo-Lag barriers. A large enough sample of the total population of configurations should be examined to provide reasonable assurance that the materials and important barrier parameters used to construct the in-plant barriers and any future barrier installations or modifications, are representative of the barriers used to construct the fire endurance test specimens.

### **Response**

WCNOC performed a detailed examination of the entire population of Thermo-Lag applications at WCGS required to comply with BTP CMEB 9.5-1. Therefore, the requested statistical analysis to determine the sample size is not required at WCGS.

**Question 2c.**

Submit the schedule for obtaining and verifying all of the important barrier parameters.

**Response**

Important barrier parameters have been obtained and NEI Application Guide evaluations are being verified in accordance with the schedule outlined in Reference 2. However, some additional issues may arise as a result of the industry effort to evaluate chemical composition as a means to address product consistency. As noted in Reference 1, NEI will provide to the NRC and the industry information on product consistency, based on the results of the chemical composition testing. With the assumption that the chemical composition testing results are consistent, and if the NRC agrees with the NEI position that the industry data can be used as a basis for using generic test data with respect to Items 1.a.(2) through 1.a.(9), then the schedule outlined in Reference 2 is still valid. If, however, the chemical test data is not consistent, or if the NRC does not agree with the NEI position, then our schedule may need to be revised.

**Question 2d.**

After the information has been obtained and verified, submit a written supplemental report that confirms that this effort has been completed and provides the results of the examinations and inspections. Verify that the parameters of the in-plant configurations are representative of the parameters of the fire endurance test specimens. Describe any changes to previously submitted plans or schedules that result from the examinations.

**Response**

WCNOC is currently reviewing the NEI Application Guide evaluation report. A report reflecting WCNOC's as-built configurations will be submitted, unless additional examinations and inspections are required, or if the issues outlined above are not resolved by industry testing. The schedule for resolution of the Thermo-Lag issue at Wolf Creek submitted in Reference 2 has not been changed at the present time. Should issues result from industry testing, or should additional examinations be required, WCNOC will submit a revised schedule.

**LIST OF REFERENCES**

- 1) NEI Letter dated February 21, 1995 to W. T. Russell, NRR, from W. H. Rasin, NEI
- 2) Letter CO 94-0013, dated July 15, 1994, from R. N. Johannes, WCNOC, to the NRC
- 3) Letter WO 94-0013, dated February 9, 1994, from O. L. Maynard, WCNOC, to the NRC