

REQUEST FOR ADDITIONAL INFORMATION

EQUIPMENT ENVIRONMENTAL QUALIFICATION (EEQ)
REVIEW OF LICENSEES' RESOLUTION OF OUTSTANDING ISSUES
FROM NRC EQUIPMENT ENVIRONMENTAL QUALIFICATION SAFETY
EVALUATION REPORTS (SER) AND TMI ACTION PLAN INSTALLED EQUIPMENT

Metropolitan Edison Company
Three Mile Island Nuclear Station Unit 1

NRC Docket No. 50-289

December 31, 1981

NRC TAC No. 42513

Rev. 1, January 7, 1982

Rev. 2, February 3, 1982

Rev. 3, April 14, 1982



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BACKGROUND

Franklin Research Center (FRC) of Philadelphia, Pa. is providing assistance to the U.S. Nuclear Regulatory Commission (NRC) for the equipment environmental qualification (EEQ) review of operating reactors. FRC will perform an EEQ review of the Licensee's 90-day response to outstanding issues from the NRC Equipment Environmental Qualification Safety Evaluation Report (SER) and the installed TMI Action Plan equipment. The review will be limited to safety-related equipment potentially exposed to a harsh environment. The results will be presented in the form of a technical evaluation report for each plant.

This request for additional information (RAI) is the result of an evaluation of the information provided by letters dated July 2, 1981 [1] and October 31, 1980 [2].* FRC previously requested TMI Action Plan information by telephone memoranda dated July 15, 1981 [3] and July 17, 1981 [4].

In response, Metropolitan Edison Company transmitted the following information on July 22, 1981 and July 29, 1981:

1. Component Work Sheets for EF-V-8A/B/C and PS-480 A/B/C
2. Limitorque letter to EDS dated January 7, 1981
3. Limitorque Motor Insulation Class
4. Index of Vendor correspondence received since January 1, 1981.
Requests for individual documents on this list should be specified.
5. Met Ed letter to NRC dated July 2, 1981 (LIL202)

On January 5, 1982, GPU Nuclear transmitted detailed information on environmental qualification [8, 8.1, 8.2, 8.3, 8.4, 8.5].^{(1)**}

In a letter dated January 25, 1982 [9], GPU Nuclear transmitted a document entitled "Criteria for Class 1E Radiation Qualification for Harsh Environment at TMI-1."⁽²⁾

*Numbers in brackets refer to citations in the list of references.

**Throughout the text, superscript numbers in parentheses indicate the revision in which the underlined material preceding the superscript was added.

On March 5, 1982, GPU Nuclear submitted most of the information requested by FRC. The following items remain to be addressed: A.2.b.7, A.3, B.1, B.2, and B.3. For item A.2.b.7, FRC notes that only the test report summaries of these documents were submitted. ⁽³⁾

In a letter dated March 24, 1982, GPU Nuclear transmitted its response to the six items addressed on page 298 of the Partial Initial Decision for Environmental Qualification (para. 1163) [1]. ⁽³⁾

A. FRC REVIEW OF THE LICENSEE'S 90-DAY RESPONSE TO THE NRC EEQ SER

INFORMATION REQUESTED

DATE RECEIVED BY FRC***

1. In reference to the Licensee's 90-day response [1] to the NRC SER [5], a legible single copy of each of the following qualification documents is requested in order that the FRC evaluation may proceed:

- | | |
|--|-----------------------------------|
| a. EDS Nuclear Calculation 0370-025-004, Rev. 1, dated 6/22/81 | <u>3/5/82 [10]</u> ⁽³⁾ |
| b. Square D Company letter EDS dated 9/23/80 | <u>3/5/82 [10]</u> ⁽³⁾ |
| c. EDS Nuclear Calculation 0370-025-046, Rev. 0, dated 6/3/81 | <u>3/5/82 [10]</u> ⁽³⁾ |
| d. Limitorque letter to EDS dated 12-10-80 | <u>3/5/82 [10]</u> ⁽³⁾ |
| e. B&W letter to F. J. Levandowski from I. McBee, Subject: Environmental Qualification Subcommittee, dated 2/11/80 | <u>3/5/82 [10]</u> ⁽³⁾ |
| f. Record of conversation, EDS and B&W, dated 7/30/80. | <u>3/5/82 [10]</u> ⁽³⁾ |

2. In Reference 1, the Licensee indicated that revised SCEW sheets and supplementary information would be transmitted to the NRC by separate correspondence. FRC understands that the supplementary information was transmitted on August 28, 1981. FRC requests the following information so that the review may proceed:

***This column will be completed by FRC as the requested information is received.

DATE RECEIVED BY FRC***

- a. a copy of the supplementary information transmitted from GPU Nuclear to the NRC, dated August 1981 1-5-82 [8.2]
- b. a legible single copy of qualification documents referenced in the August 1981 submittal consisting of the following: (1)
1. Elevated Temperature Test on Microswitch Model MT4R, W.O. 04-4692-081, Performed by GAI Lab Service (1) 3/5/82 [10] (3)
 2. Foxboro Test Reports T4-6040, T2-1075 (1) 3/5/82 [10] (3)
 3. GPUN Calculation 1101X-5350-011 (1) 3/5/82 [10] (3)
 4. Rockwell Manufacturing Co. Report No. 2792-03-02, Rev. 1, dated December 1, 1970 (1) 3/5/82 [10] (3)
 5. Letter GE Fort Wayne to EDS dated 9/15/80 (1) 3/5/82 [10] (3)
 6. Westinghouse Document No. MM9112, Qualification Document, Class IE Medium AC Motors (Outside Containment), Rev. 3, January 18, 1980 (Page 3) (1) 3/5/82 [10] (3)
 7. Qualification Tests for Rosemount Transmitter Model 1152, Report No. QR-4201-1152 GPJ, Rev. A, Rosemount Inc., 2/14/77 (1) 3/5/82 [10] (Summary only) (3)
 8. SOR Letter to EDS dated August 4, 1980 (1) 3/5/82 [10] (3)
 9. Letter Square D to EDS dated 9/23/80 (1) 3/5/82 [10] (3)
 10. Report No. X-375, Environmental Test of Fan for Reactor Containment Building Ventilation and Cooling System, Joy Manufacturing Co. June 24, 1970 (1) 3/5/82 [10] (3)

DATE RECEIVED BY FRC***

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|---|-----------------------------------|
| 11. <u>Terminal Block LOCA Test for
Electrical Penetration Assemblies by
R. M. Shuster, 11/6/73⁽¹⁾</u> | <u>3/5/82 [10]</u> ⁽³⁾ |
| 12. <u>States Company Letter to Yankee
Atomic Electric Co. dated 1/27/78⁽¹⁾</u> | <u>3/5/82 [10]</u> ⁽³⁾ |
| 13. <u>Southern Company Service Letter to
EDS dated 9/18/80⁽¹⁾</u> | <u>3/5/82 [10]</u> ⁽³⁾ |
| 14. <u>Record of Telephone Conversations,
P. Bouchek to B. Ames, Dated 7/23/81
on Duke Test Report TR-028, Rev. 2,
dated May 21, 1981⁽¹⁾</u> | <u>3/5/82 [10]</u> ⁽³⁾ |

3. Based on the review of the qualification
documents submitted by GPU Nuclear in
response to Section A.1 of the RAI, FRC
requests a legible single copy of the
following qualification documents: ⁽³⁾

- a. The following documents were referenced in
Item A.1.e: ⁽³⁾

1. B&W Document 58-0089-01 ⁽³⁾
2. B&W Document 58-1017404-01 ⁽³⁾
3. B&W Document 58-0528-00 ⁽³⁾
4. B&W Document 58-0081-00 ⁽³⁾
5. B&W Document 58-0079-00 ⁽³⁾
6. B&W Document 58-0372-00 ⁽³⁾
7. B&W Document 58-0261-00 ⁽³⁾
8. B&W Document 58-0220-00 ⁽³⁾
9. B&W Document 58-0088-00 ⁽³⁾

Received under
under Task 481 ⁽³⁾

Received under
under Task 481 ⁽³⁾

Received under
under Task 481 ⁽³⁾

- b. The following document was referenced in
Item A.1.a: ⁽³⁾

1. "1000 Hr Heat Aging Study" by
L. Small and E. Sheer (Unpublished
B. F. Goodrich Co. Report) (3)

B. FRC REVIEW OF INSTALLED TMI ACTION PLAN ITEMS

INFORMATION REQUESTED

DATE RECEIVED BY FRC***

1. References 1 and 6 do not provide adequate detail with respect to identification of TMI Action Plan equipment installed as of 1/1/81.

- a. Identification of all TMI Action Plan equipment installed since 1/1/81 is requested.
- b. Identification of TMI Action Plan equipment installed with implementation dates after 1/1/81 is requested.
- c. The correlation of these equipment items with the specific sections of NUREG-0737 [7] presented below (as applicable) is requested.

IIIE1.2, IIIE4.2, IIIE3.1, IIG1, IIF2,
IID3, IIK2.10(B&W), IIB3, IIIE4.1.

[The correlation is needed to ensure that all items are included in the review, e.g., if a transmitter is identified as a TMI Action Plan item, are the cable and terminal blocks associated with the device also identified?]

- d. For all installed TMI Action Plan equipment identified, a System Component Evaluation Worksheet (SCEW) (in accordance with 79-01B format) is requested.
- e. The approximate installation date for the TMI Action Plan equipment items is requested so that the appropriate qualification criteria (NUREG-0588 or DOR Guidelines) can be used in the EEQ evaluation.

DATE RECEIVED BY FRC***

2. The qualification documents, e.g., the actual test reports and associated correspondence cited as evidence of qualification listed on the SCEW sheets, for all identified TMI Action Plan equipment are requested. [The identification of those reports considered to be proprietary is requested so that proper control of documents can be maintained.]
3. Where the Licensee has a standard Owners' Group position with respect to a NUREG-0737 technical area or has requested extensions of implementation dates, this information is requested in order to incorporate it into the review.

C. INSTRUCTIONS FOR TRANSMITTING INFORMATION REQUESTED

1. The schedule for completion of the FRC assignment requires that the Licensee provide the requested information within 3 weeks of the date of the RAI.
2. The Licensee may transmit the requested information as follows:
 - o complete package directly to the NRC project manager
 - or
 - o copy of cover letter to NRC project manager and complete package to FRC.

FRC mailing address is as follows:

Mr. Cyril J. Crane
Franklin Research Center
The Parkway at Twentieth Street
Philadelphia, PA 19103

Telephone No. 215/448-1353
Telecopy No. 215/448-1296
Telecopy Confirmation No. 215/448-1215

REFERENCES

1. H. D. Hukill
Letter to J. F. Stolz, NRC. Subject: Three Mile Island Nuclear Station, Unit 1, Environmental Qualification of Electrical Equipment (Response to NRC Staff SER). Metropolitan Edison Company, 02-July-81
2. H. D. Hukill
Letter to B. H. Grier, NRC. Subject: Updated Report in Response to IE Bulletin 79-01B
Metropolitan Edison Co., 31-Oct-80
3. Telephone Memorandum dated 7/15/81
C. J. Crane, J. A. Murphy (FRC) conversation with R. Harding, G. Maus (GPU). Subject: Request for Information TMI Unit 1, TMI-Action Plan EEQ Review
4. Telephone Memorandum dated 7/17/81
J. A. Murphy (FRC) conversation with R. Harding, J. Maus (GPU)
Subject: Response and Proposed Schedule to AI of 7/15/81
5. Office of Nuclear Reactor Regulation
Safety Evaluation Report for Three Mile Island Unit 1
Environmental Qualification of Safety-Related
Electrical Equipment
NRC, 24-Mar-81
6. H. D. Hukill
Letter to B. H. Grier, NRC. Subject: Response to
IE Bulletin 79-01B, Supplement 3.
Metropolitan Edison Co., 30-Jan-81
7. NUREG-0737, "Clarification of TMI Action Plan Requirements"
NRC, November 1980
8. L. W. Harding
Letter to C. J. Crane, FRC. Subject: Three Mile Island Nuclear
Station, Unit 1; Environmental Qualification Updated Information
GPU Nuclear, 28-Dec-81
E&L 3844 (1)
- 8.1 H. D. Hukill
Letter to B. H. Grier, NRC. Subject: Three Mile Island Nuclear
Station, Unit 1; Delay of Submittal of Equipment Qualification
Information Until August 31, 1981
Metropolitan Edison Co., 12-Aug-81
LL 225 (1)

8.2 H. D. Hukill

Letter to J. F. Stolz, NRC. Subject: Three Mile Island Unit 1;
Environmental Qualification of Electrical Equipment (Response to
NRC Staff SER) (Vols. I, IA, and VI Attached)
Metropolitan Edison Co., 28-Aug-81
LLL 238⁽¹⁾

8.3 H. D. Hukill

Letter to J. F. Stolz, NRC. Subject: Three Mile Island Nuclear
Station, Unit 1; Reactor Building Spray System
Metropolitan Edison Co., 03-Sep-81
LLL 149⁽¹⁾

8.4 H. D. Hukill

Letter to J. F. Stolz, NRC. Subject: Three Mile Island Nuclear
Station, Unit 1; Reactor Building Spray System
Metropolitan Edison Co., 23-Nov-81
LLL 334⁽¹⁾

8.5 H. D. Hukill

Letter to J. F. Stolz, NRC. Subject: Three Mile Island Nuclear
Station, Unit 1; Technical Specification Change
Request No. 107
Metropolitan Edison Co., 23-Nov-81
LLL 333⁽¹⁾

9. H. D. Hukill

Letter to J. F. Stolz, NRC. Subject: Three Mile Island
Nuclear Station, Unit 1; Environmental Qualification of
Safety-Related Electrical Equipment
GPU Nuclear, 25-Jan-82
82-020⁽²⁾

10. H. D. Hukill

Letter to C. J. Crane, FRC. Subject: Three Mile Island
Nuclear Station Unit 1; Request for Information-Environmental
Qualification
GPU Nuclear, 02-Mar-82
82-052⁽³⁾

11. H. D. Hukill

Letter to J. F. Stolz, NRC. Subject: Three Mile Island Nuclear
Station, Unit 1, (TMI-1) Environmental Qualification Information
GPU Nuclear, 24-Mar-82
5211-82-067⁽³⁾