

October 2, 1995

U. S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, D. C. 20555



Subject: Dresden Nuclear Stations Unit 2 and Unit 3  
Transmittal of the Dresden Design Documents for the Core Shroud Repair  
NRC Docket Nos. 50-237/249

- References:
- (a) NRC Generic Letter 94-03, dated July 25, 1994
  - (b) U. S. NRC Letter, Mr. John Stang, to Mr D.L. Farrar - ComEd , Request for Additional information - Core Shroud Repair (TAC NOS M91301 and M91302), Dated July 26, 1995
  - (c) ComEd Letter, Peter L. Piet to the U.S. NRC, Core Spray Flaw Evaluations, dated September 25, 1995
  - (d) ComEd Letter, John L. Schrage to the U.S. NRC, Design Basis Discrepancy Related to Core Shroud Seismic Calculations, dated September 5, 1995
  - (e) ComEd Letter, Peter L. Piet to the U.S. NRC, Response to NRC Staff Request for Additional Information - Core Shroud Modification, dated August 14, 1995

The purpose of this letter is to provide ComEd responses to the remaining open items from the Reference (b) Request for Additional Information regarding the Dresden Station Units 2 and 3 Core Shroud Repair. Attachment 1 contains ComEd responses to the two remaining open questions and also provides two addended responses from Reference (e).

During our August 31, 1995 telephone conversation your staff requested information regarding the eigenvalue solutions for the original seismic analysis (incorrect mass) as well as the revised analysis (corrected mass). In our September 5, 1995 submittal (Reference (d)) we provided Tables 2.4 and 2.5 depicting a comparison of the modal frequencies from the rebaselined seismic analyses (with mass discrepancy) versus the revised analysis results (with the corrected mass). Attachment 3, is a revised version of these same tables incorporating an additional comparison of the modal participation factors. These tables illustrate that the effect of this localized mass discrepancy is minimal with respect to the overall seismic response.

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October 2, 1995

A detailed evaluation of the final revised seismic analysis results for the RPV internals with the core shroud repair hardware installed is provided in report GENE-523-A100-0995 (Attachment 2). This report, which incorporates the revised hydrodynamic mass, provides the analysis approach, methodology and results regarding the revised seismic analysis of the Dresden and Quad Cities plants with the core shroud repair hardware installed. The results of these new seismic analyses show that the loads previously used for the design of the core shroud repair hardware are larger and thus bound the new results. While all of the results for the core shroud repair hardware were bounded by the original analyses, the loads on some of the internals increased slightly. The affect of these load increases were evaluated and found to be within the existing design margin.

This submittal contains some proprietary information. Please refer to the attached affidavit.

To the best of my knowledge and belief, the statements contained in this response are true and correct. In some respects, these statements are not based on my personal knowledge, but obtained information furnished by other ComEd employees, contractor employees, and consultants. Such information has been reviewed in accordance with company practice, and I believe it to be reliable.

Please direct any questions you may have concerning this response to this office.

Sincerely,



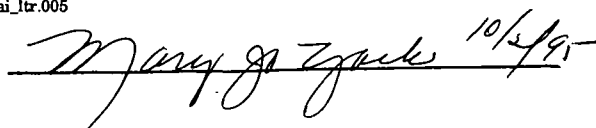
Peter L. Piest

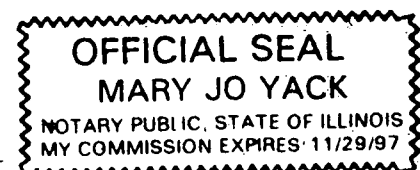
Nuclear Licensing Administrator

- Attachments:
1. Request for Additional Information Core Shroud Repair Dresden Units 2 and 3, Questions/Responses for 9, 12b, 17 and 18, dated September 29, 1995
  2. GENE-523-A100-0995, Revision 0, "Analysis of the Dresden and Quad Cities Shroud Repair Hardware Seismic Design with Improved Tie Rod and Shroud Weld Crack Equivalent Rotational Stiffness", (Proprietary Information)
  - 3/ Supplemental tables for Reference (d)
  4. General Electric Company Affidavit of Proprietary Information, By Michael A. Smith, dated September 29, 1995

cc: H. J. Miller, Regional Administrator - RIII  
C. L. Vanderniet, Senior Resident Inspector - Dresden  
J. F. Stang, Project Manager - NRR  
Office of Nuclear Facility Safety - IDNS

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**Attachment 1**

**Request for Additional Information Core Shroud Repair  
Dresden Units 2 and 3, Questions/Responses for 9, 12b, 17 and 18,  
dated September 29, 1995**

**CORE SHROUD REPAIR DRESDEN UNITS 2 AND 3****Question 17:**

In GENE-771-81-1194, "Shroud Repair Seismic Analysis" and GENE-523-A181-1294, "Primary Structure Seismic Models", show the weights which form the basis for the masses comprising the shroud.

**Response 17:**

The weights which form the basis for the masses comprising the shroud in GENE-771-81-1194, "Shroud Repair Seismic Analysis" and GENE-523-A181-1294, "Primary Structure Seismic Models" are given in the table below. The structural weights include the shroud head and separator assembly, the top guide, core plate and core spray lines. Also noted is the corresponding structural weight used in supplement A to evaluate the effects of tie rod preload.

**Dresden Core Shroud Seismic Analysis Summary of Structural Total Mass**

Node Number (Weld Number) GENE-771-81-1194, and GENE-523-A181-1294	Elevation (Feet)	Seismic Analysis Structural Weight (Kips)	Comments	Shroud Structural Weight (Kips)	Structural Weight (Kips) from Supplement A to GENE-771-81-1194
14	574.840	79		79	
15	573.423				
16	569.253				
17	565.673	55		55	
(H1)	564.853				145.9
18	563.253				
(H2)	562.033				30.7
19	561.923	105	Includes Fuel (-68 Kips)	37	
(H3)	561.823				4.0
20	559.003	49	Includes Guide Tubes (8.5 Kips)	49	
21	554.693				
(H4)	554.413				35.4
(H5)	548.143				30.0
22	547.983	118	Includes Fuel and Guide Tubes (68 Kips & 8.5 Kips)	41.5	
(H6)	547.803				39.1
23	546.173				
(H7)	543.173				24.3
24	542.923	29	Did not include shroud weight lumped on RPV (+2.3 Kips)	31.3	
Total Weight	--	435	--	292.8	309.4

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**CORE SHROUD REPAIR DRESDEN UNITS 2 AND 3****Question 18**

*Provide an evaluation of the Core Spray Piping for emergency and faulted loading combinations which include MSLB and RLB loads.*

**Response 18**

The effects of the core shroud repair hardware on the reactor internals core spray piping has been reviewed versus the existing generic General Electric Design basis. The effects of the core spray piping differential seismic anchor movements were evaluated and determined to be within the ASME code allowable for secondary stresses. The primary loads due to seismic inertia and dead weight did not change significantly due to the core shroud repair and thus were not affected. Based on this comparative analysis it was concluded that the effect of the core shroud repair on the core spray piping is minimal and that the existing design basis remains acceptable.

Subsequent to this comparative analysis ComEd performed a revised piping analysis for the critical portion of the reactor internals core spray piping at the Dresden Station. The results of this analysis and corresponding flaw evaluations were submitted to the NRC on September 25, 1995 (Reference c). This revised analysis incorporated all of the recent efforts to redefine the loads applied to the reactor internals including the revised seismic, MSLB and RLB induced loads. This analysis demonstrated that even with flaws in the core spray downcomer elbows and thermal sleeve collars, sufficient margin exists to operate for the next cycle. ComEd has committed to performing a reinspection of the core spray lines during the next refueling outage as part of a program to monitor and evaluate degraded welds of the core spray system. Any further degradation of the core spray system will be identified and addressed through analysis and/or repairs as part of this monitoring program.

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**CORE SHROUD REPAIR DRESDEN UNITS 2 AND 3**

The responses to Questions 9 and 12b have been added as indicated below:

**Question 9**

*Please provide details of your planned in-service inspection (location, extent, frequency, methodology and justification) of the installed core shroud repair components. Your planned inspection should consider the staff recommendation in item 7. If complete information for items 5 and 9 can not be provided at this time, identify the date when such information will be provided.*

**Response 9**

The detailed plans for inservice inspection of the installed core shroud repair components have not yet been finalized. The BWRVIP is currently working on a shroud reinspection guideline document that will provide criteria for reinspection of unrepaired shrouds, repaired shrouds, and shroud repair hardware. ComEd is actively participating in the working group responsible for development of this document and intends to implement the recommendations as provided in the final, approved version of the document. ComEd will submit these plans to the NRC staff no later than 90 days following final issuance of the BWRVIP reinspection guidelines or 90 days prior to the first refueling outage following the outage in which the shroud repair components are installed, whichever ever comes first.

**Question 12b:**

*It should be noted that the acceptable yield strength of XM-19 material is limited to 90 ksi. Is this upper limit of yield strength for XM-19 identified in your procurement specification?*

**Response 12b:**

The upper limit for the yield strength of XM-19 material is not identified in the procurement specification for the material. Although the upper limit for the yield strength is not specified, the values used in the analysis of the hardware are those of Section III of the ASME Boiler and Pressure Vessel Code which correspond to an Sm of 29.58 ksi. The material used for the tie rods is annealed ASTM A-479, Type XM-19, which must have a minimum yield strength of 55 ksi, in accordance with Table 2 of ASTM Specification A-479. The actual yield strength of the material, from the CMTR's varied between 60.409 and 64.903 ksi for the four coupons tested. All of the coupons meet the minimum yield strength of 55 ksi while still being well below the upper limit of 90 ksi for XM-19 material.

**General Electric Company**

**AFFIDAVIT**

**I, Michael A. Smith**, being duly sworn, depose and state as follows:

- (1) I am Manager, Safety Evaluations Project, General Electric Company ("GE") and have been delegated the function of reviewing the information described in paragraph (2) which is sought to be withheld, and have been authorized to apply for its withholding.
- (2) The information sought to be withheld is contained in GE proprietary report Number GE-NE-523-A100-0995, Rev. 0, "Analysis of the Dresden and Quad Cities Shroud Repair Hardware Seismic Design with Improved Tie Rod and Shroud Weld Crack Equivalent Rotational Stiffness", dated September 1995. The proprietary information is delineated by bars marked in the margin adjacent to the specific material.
- (3) In making this application for withholding of proprietary information of which it is the owner, GE relies upon the exemption from disclosure set forth in the Freedom of Information Act ("FOIA"), 5 USC Sec. 552(b)(4), and the Trade Secrets Act, 18 USC Sec. 1905, and NRC regulations 10 CFR 9.17(a)(4), 2.790(a)(4), and 2.790(d)(1) for "trade secrets and commercial or financial information obtained from a person and privileged or confidential" (Exemption 4). The material for which exemption from disclosure is here sought is all "confidential commercial information", and some portions also qualify under the narrower definition of "trade secret", within the meanings assigned to those terms for purposes of FOIA Exemption 4 in, respectively, Critical Mass Energy Project v. Nuclear Regulatory Commission, 975F2d871 (DC Cir. 1992), and Public Citizen Health Research Group v. FDA, 704F2d1280 (DC Cir. 1983).
- (4) Some examples of categories of information which fit into the definition of proprietary information are:
  - a. Information that discloses a process, method, or apparatus, including supporting data and analyses, where prevention of its use by General Electric's competitors without license from General Electric constitutes a competitive economic advantage over other companies;
  - b. Information which, if used by a competitor, would reduce his expenditure of resources or improve his competitive position in the design, manufacture, shipment, installation, assurance of quality, or licensing of a similar product;

To: NUDOCS Staff

Date: October 6, 1995

From: Joe Orth 

Subject: Build Out Status

As you can see, the build out has been progressing at a good rate. The schedule is still not firm, but it is beginning to take focus. It appears that the electrical work will be complete by next Wednesday. The carpet will be installed hopefully next Thursday and Friday. The carpet work is going to cause a fair amount of disruption due to the moving of furniture to allow them space to work. I will have professional movers to do the heavy work, but there may be some packing to be done by the encoders being moved around.

The following week, starting Monday, October 16th, the telephone and telecommunications work will begin. This is tentative and subject to change. This work is the last portion of the build out and should take two days.

While this is going on, we will be purchasing the necessary furniture to support the expansion. I hope to have it delivered as soon as the carpet is installed.

I am hopefully that we can complete the build out and local moves by Friday, October 20th. The White Flint people will be moved some time the following week. There are many variables which can disrupt the schedule over which we have no control. Your continued patience is needed. You have been great so far and the end is in sight.

Finally, I am happy to announce the end of the great FOIA backlog. I have been reminded that I promised to take the encoders to lunch if this event ever happen. This event will be celebrated on October 13th. The encoding staff is to be congratulated on this great accomplishment.



- c. Information which reveals cost or price information, production capacities, budget levels, or commercial strategies of General Electric, its customers, or its suppliers;
- d. Information which reveals aspects of past, present, or future General Electric customer-funded development plans and programs, of potential commercial value to General Electric;
- e. Information which discloses patentable subject matter for which it may be desirable to obtain patent protection.

The information sought to be withheld is considered to be proprietary for the reasons set forth in both paragraphs (4)a. and (4)b., above.

- (5) The information sought to be withheld is being submitted to NRC in confidence. The information is of a sort customarily held in confidence by GE, and is in fact so held. The information sought to be withheld has, to the best of my knowledge and belief, consistently been held in confidence by GE, no public disclosure has been made, and it is not available in public sources. All disclosures to third parties including any required transmittals to NRC, have been made, or must be made, pursuant to regulatory provisions or proprietary agreements which provide for maintenance of the information in confidence. Its initial designation as proprietary information, and the subsequent steps taken to prevent its unauthorized disclosure, are as set forth in paragraphs (6) and (7) following.
- (6) Initial approval of proprietary treatment of a document is made by the manager of the originating component, the person most likely to be acquainted with the value and sensitivity of the information in relation to industry knowledge. Access to such documents within GE is limited on a "need to know" basis.
- (7) The procedure for approval of external release of such a document typically requires review by the staff manager, project manager, principal scientist or other equivalent authority, by the manager of the cognizant marketing function (or his delegate), and by the Legal Operation, for technical content, competitive effect, and determination of the accuracy of the proprietary designation. Disclosures outside GE are limited to regulatory bodies, customers, and potential customers, and their agents, suppliers, and licensees, and others with a legitimate need for the information, and then only in accordance with appropriate regulatory provisions or proprietary agreements.
- (8) The information identified in paragraph (2), above, is classified as proprietary because it contains detailed results of analytical models, methods and processes, including computer codes, and it contains the supporting Design Record File (DRF) detailed calculations, results and bases for conclusions. These reports are part of the DRF supporting information to evaluate a hardware design modification (stabilizer

for the shroud horizontal welds) intended to be installed in a reactor to resolve the reactor pressure vessel core shroud weld cracking concern. This detailed level of information usually resides in GENE files, only for audit by customers and the NRC. This information shows in specific detail the processes, codes and methods employed to perform the evaluations summarized in the above identified document. The development and approval of this design modification utilized systems, components, and models and computer codes that were developed at a significant cost to GE, on the order of several hundred thousand dollars.

Development of the supporting processes, as shown in part in this DRF detailed information, was at a significant additional cost to GE, in excess of a million dollars, over and above the large cost of developing the underlying individual proprietary report information.

- (9) Public disclosure of the information sought to be withheld is likely to cause substantial harm to GE's competitive position and foreclose or reduce the availability of profit-making opportunities. The information is part of GE's comprehensive BWR safety and technology base, and its commercial value extends beyond the original development cost. The value of the technology base goes beyond the extensive physical database and analytical methodology and includes development of the expertise to determine and apply the appropriate evaluation process. In addition, the technology base includes the value derived from providing analyses done with NRC-approved methods.

The research, development, engineering, analytical and NRC review costs comprise a substantial investment of time and money by GE.

The precise value of the expertise to devise an evaluation process and apply the correct analytical methodology is difficult to quantify, but it clearly is substantial.

GE's competitive advantage will be lost if its competitors are able to use the results of the GE experience to normalize or verify their own process or if they are able to claim an equivalent understanding by demonstrating that they can arrive at the same or similar conclusions.

The value of this information to GE would be lost if the information were disclosed to the public. Making such information available to competitors without their having been required to undertake a similar expenditure of resources would unfairly provide competitors with a windfall, and deprive GE of the opportunity to exercise its competitive advantage to seek an adequate return on its large investment in developing these very valuable analytical tools.

STATE OF CALIFORNIA )

) ss:

COUNTY OF SANTA CLARA )

Michael A. Smith, being duly sworn, deposes and says:

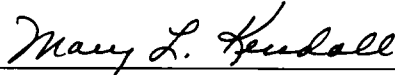
That he has read the foregoing affidavit and the matters stated therein are true and correct to the best of his knowledge, information, and belief.

Executed at San Jose, California, this 29<sup>th</sup> day of September 1995.



Michael A. Smith  
General Electric Company

Subscribed and sworn before me this 29<sup>th</sup> day of September 1995.



Notary Public, State of California



**Attachment 3**

**Supplemental tables for reference (d) -  
ComEd Letter, John L. Schrage to the US NRC Document Control Desk,  
Subject - Design Basis Discrepancy Related to Core Shroud Seismic  
Calculations, dated September 5, 1995**

**Table 2.4 Comparison of Modal Frequencies and Participation Factors- Dresden Units 2 and 3 E-W**

Mode	Rebaselined Model Frequency (Hz.) <sup>1</sup>	Modal Participation Factor <sup>1</sup>	Revised Model Frequency (Hz.) <sup>2</sup>	Modal Participation Factor <sup>2</sup>
1	2.64 - Turbine Bld.	-12.36	2.64 - Turbine Bld.	-12.36
2	2.73 - Reactor Bld.	-12.31	2.73 - Reactor Bld.	-12.32
3	4.12 - CRD Housing	-3.41	4.11 - CRD Housing	-8.65
4	4.36 - Fuel & G. Tubes	-7.50	4.14 - CRD Housing	-4.39
5	5.86 - RPV	-75.09	5.86 - RPV	-74.87
6	6.53 - RPV	21.93	5.95 - Shroud	-11.16
7	7.81 - Shroud	3.45	6.72 - RPV	19.75
8	8.51 - Reactor Bld.	5.93	8.51 - Reactor Bld.	5.89
9	11.58 - Turbine Bld.	-39.27	11.58 - Turbine Bld.	-39.27
10	13.92 - RPV	-10.54	13.90 - RPV	-10.42

Notes:

1. Reference GENE-523-A181-1294 Rev. 0, December 1994, Primary Structure Seismic Models Dresden Units 2&3, RUNID 4998V, model with mass discrepancy at the top guide.
2. Reference "Safety Assessment of the Discrepancy in the RPV Internals Seismic Analysis Dresden Unit 3 and Quad Cities Units 1 and 2", September 5, 1995, RUNID 5003V, model with corrected mass at top guide.

**Table 2.5 Comparison of Modal Frequencies and Participation Factors - Dresden Units 2 and 3 N-S**

Mode	Rebaselined Model Frequency (Hz.) <sup>1</sup>	Modal Participation Factor <sup>1</sup>	Revised Model Frequency (Hz.) <sup>2</sup>	Modal Participation Factor <sup>2</sup>
1	2.36 - Reactor Bld.	-12.08	2.36 - Reactor Bld.	-12.09
2	3.99 - Turbine Bld.	-18.34	3.99 - Turbine Bld.	-18.77
3	4.12 - CRD Housing	-2.96	4.11 - CRD Housing	-6.99
4	4.36 - Fuel & G. Tubes	-6.84	4.14 - CRD Housing	-3.79
5	4.98 - Turbine Bld.	-30.06	4.98 - Turbine Bld.	-30.07
6	6.10 - RPV	-68.88	5.94 - Shroud	4.58
7	6.53 - RPV	28.26	6.11 - RPV	-70.87
8	7.33 - Reactor Bld.	12.46	6.71 - RPV	22.06
9	7.81 - Shroud	-3.28	7.33 - Reactor Bld.	13.05
10	12.97 - RPV	-39.08	12.97 - RPV	39.05

Notes:

1. Reference GENE-523-A181-1294 Rev. 0, December 1994, Primary Structure Seismic Models Dresden Units 2&3, RUNID 5004V, model with mass discrepancy at the top guide.
2. Reference "Safety Assessment of the Discrepancy in the RPV Internals Seismic Analysis Dresden Unit 3 and Quad Cities Units 1 and 2", September 5, 1995, RUNID 5005V, model with corrected mass at top guide.

**Attachment 4**

**General Electric Company Affidavit of Proprietary Information,  
By Michael A. Smith, Dated September 29, 1995**