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NOTE TO: E. L. Jordan, Director
Division of Engineering and Quality Assurance

FROM: Darl Hood, Project Manager
Licensing Branch No. 4
Division of Licensing

SUBJECT: POTENTIAL PART 21 ISSUE REGARDING INTERNAL DIESEL
GENERATOR MUFFLER FAILURES

A potential Part 21 issue was identified during a hearing session on the Midland Plant, July 29, 1983. The issue is whether or not non-seismic mufflers and exhaust systems for diesel generators can fail in a manner which would restrict the exhaust flow path and thereby, adversely impact starting or subsequent operation of the emergency diesel generators following a seismic event. Enclosed hearing transcript pages 19535-19537 and James W. Cook's letter of July 12, 1983, describe this concern.

The issue is not restricted to the Midland Plant. Non-seismic mufflers and exhaust systems provided by Transamerica Delavel, Inc. (TDI), to other nuclear plants have not been designed to safety-related requirements. Because the design is being corrected to be Category I on the Midland Plant, no seismic analyses of exhaust blockage potential has been provided to the NRC during its Midland review. I also do not know whether the problem applies to plants with diesel generator vendors other than TDI.

15/

Darl Hood, Project Manager
Licensing Branch No. 4
Division of Licensing

Enclosure:
As stated

cc: See next page

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Docket File 50-329/330

1 JUDGE BECHHOEFER: Yes, there has been. The other
2 way around.

3 MS. BERNABEI: I think it has been that Category
4 1 is always Q.

5 JUDGE BECHHOEFER: Everything that is Seismic
6 Category 1 is Q.

7 MS. BERNABEI: The assumption of this is that Q
8 can be broken down to Category 1 and non-Q.

9 MS. LAUER: If I can ask a preliminary question.

10 BY MS. LAUER:

11 Q Back of the whole system is Q. Does that mean
12 every component in the system is necessarily Q?

13 A First off, I do not know if it says that the whole
14 system is Q, to be honest with you. I cannot answer that
15 question without having an opportunity to go back and review
16 the words in the FSAR. The thing was, in our prose, we
17 indicated that -- if I remember right -- that these particular
18 portions, pertaining to the muffler system, that that was
19 required to be safety related, as defined by the FSAR.

20 MS. LAUER: No further questions.

21 BOARD EXAMINATION

22 BY JUDGE HARBOUR:

23 Q Referring to Consumers Power Exhibit 51, which
24 is the letter to Mr. Keppler from Mr. Cook --

25 A The July letter, July 12th letter?

By Ron Cook, RII Resident Engineer

1b2

1 Q That's right. Correct. Section C-2 -- starts
2 on the second page of C-2. The first sentence, starting with
3 TDI, which stands for TransAmerica DeLaval. Do you see that
4 sentence there?

5 A Yes. I see several starting with TDI. At the
6 top you mean?

7 Q The top of the page.

8 A Okay. Yes, sir.

9 Q Are silencers on diesel generators always Siesmic
10 Category 1?

11 A I feel that they should be. I cannot say whether
12 they always are. The reason I feel that way is because it
13 is imperative that the diesel generator be able to function
14 during the earthquake events. So if any damage could be
15 sustained by either the intake or the exhaust, it would cripple
16 the engine since it would either not put out its required
17 amount of power or would not run at all, depending.

18 Q In other words, you believe the diesel generator --
19 diesel engine on the generator would not run if the muffler was
20 disconnected?

21 A It would run if the muffler was disconnected. My
22 concern would be that the muffler would close off the exhaust
23 or that a portion of the piping would become choked or such
24 that it would reduce the flow of exhaust gases from the engine.
25 The same concern would also apply to the intake side of the

1 engine.

2 Q Do you know whether TransAmerica DeLaval has
3 furnished diesel generators to be used at sites in California,
4 or a site?

5 A Yes, they have and I'm trying to think what site
6 it was. I want to say Rancho Seco, if I recall right. When
7 they issue a Part 21 notice, they put the listing of the
8 affected plants and if I remember right on one of those
9 listings there was a California plant listed. I think it
10 was Rancho Seco, but I do not want to say for sure without
11 checking.

12 Q To you knowledge, do all sites for nuclear power
13 plants in California have larger safe shutdown earthquakes
14 than Michigan?

15 A Yes, to my knowledge.

16 Q Do you have any comment, then, on the statement
17 that TransAmerica DeLaval has stated that they have not
18 previously provided safety related exhaust silencers to others?

19 A I personally feel that TransAmerica DeLaval should
20 issue a Part 21 if that is truly the case.

21 Q You were asked about the root cause. From your
22 description it seemed to me that the fact that the drawing
23 did not indicate that the muffler should be Seismic Category
24 1 were limiting to all of the other problems. No matter what
25 anybody did, if they referred back to the basic drawing and it

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 AUTH. NAME: COOK, J.W. AUTHOR AFFILIATION: Consumers Power Co.
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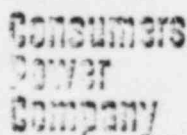
SUBJECT: Forwards amended response to JG Keppler 850523 ltr re notice of violation, item B concerning failure to establish measures for 9 mats associated w/diesel generator exhaust muffler, supplementing 850624 ltr.

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James W. Cook
Vice President - Projects, Engineering
and Construction

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MIDLAND ENERGY CENTER
DOCKET NO 50-329 AND 50-330 - AMENDED MIDLAND PROJECT RESPONSE
TO NRC, REGION III LETTER DATED MAY 23, 1983
File: 0485.16 UFI: 42*05*22*04 Serial: CSC-6781
0.4.2 70*01

We appreciate your consideration in extending the due date for this response in order that our personnel could properly examine the vendor information available and hopefully provide a thorough and accurate response. This was discussed with your Mr. R. Cook.

James W. Cook

cc: RFWarnick, NRC Region III /
JJHarrison, NRC Region III
RNGardner, NRC Region III
RJCook, NRC Senior Resident Inspector, Midland Site
RBLandsman, NRC Region III
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CONSUMERS POWER COMPANY
Midland Units 1 and 2
Docket No 50-329/50-330

Letter Serial CSC-6781 Dated July 12, 1983

At the request of the Commission and pursuant to the Atomic Energy Act of 1954, and the Energy Reorganization Act of 1974, as amended and the Commission's Rules and Regulations thereunder, Consumers Power Company submits the amended response to J G Keppler letter to J W Cook dated May 23, 1983.

CONSUMERS POWER COMPANY

By J W Cook
J W Cook, Vice President
Projects, Engineering and Construction

Sworn and subscribed before me this 14th day of July 1983.

Patricia A. Puffer
Notary Public

My Commission Expires 3-4-86

PATRICIA A. PUFFER
Notary Public, Bay County, MI
My Commission Expires Mar. 4, 1986

Attachment 1

Amended Response to J G Keppler letter to J W Cook dated May 23, 1983

The amended response to J G Keppler letter to J W Cook dated May 23, 1983 is submitted in the following format:

NOV Item B Identification Number

- A. Statement of Original Violation (from J G Keppler letter to J D Selby dated February 8, 1983: Notice of Violation EA 83-3.)
- B. Request For Additional Information (from J G Keppler letter to J W Cook dated May 23, 1983.)
- C. Statement of Additional Information
 - 1. Admission or denial of the alleged violation
 - 2. The reasons for the violation, if admitted
 - 3. The corrective steps which have been taken and the results achieved
 - 4. The corrective steps which will be taken to avoid further violations
 - 5. The date when full compliance will be achieved

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A. Statement of Original Violation

"Measures were not established for the selection and review for suitability of application of "Q" materials associated with the diesel generator exhaust muffler in that design drawings and specifications did not indicate the material identity of the installed muffler saddle supports and plates."

B. Request For Additional Information

"Regarding Item B.2.a, we reiterate our position that the lack of design documentation which specified the material requirements for the diesel generator exhaust mufflers constituted an item of noncompliance. Please provide any additional information supplied by the vendor regarding the traceability of the exhaust muffler materials, and as appropriate, your corrective actions and the results achieved, corrective actions taken to avoid further noncompliance, and the date when full compliance will be achieved."

C. Statement of Additional Information

1. The violation is admitted.
2. The violation occurred because the design intent was not implemented in the design, fabrication and inspection of the exhaust silencers by the diesel generator prime supplier, Transamerica Delavel, Inc., (TDI). This was not recognized or corrected by the design organization responsible for the procurement. The design intent was that the diesel generator exhaust silencers be subject to the appropriate elements of 10CFR50, Appendix B, and ANSI N45.2-1971.

The Bechtel procurement documents for the diesel generators specify the functional performance requirements of the diesel generators. It is not the intent to specify all details of design and construction. The expertise for the detailed design and construction of the diesel generator and accessories rests with TDI.

The procurement documents (Specification 7220-M-18, Paragraph 12.2) specified; "Quality assurance requirements are applicable to all components and assemblies which affect the reliability and ability of the equipment furnished by the Seller to perform its design function." Additionally, the specification provides a check of this requirement by requiring the vendor to submit a list of all items which he intends to supply as "Q" for review by Bechtel. When properly implemented, these requirements in Specification 7220-M-18 provide adequate direction to the vendor and control by Bechtel. Bechtel did not take action to correct the failure of TDI to fully comply with the requirements of Specification 7220-M-18, Paragraph 12.3 to submit a "list of all items to be furnished to quality control standards."

TDI has stated that they had not previously provided safety-related exhaust silencers to others, and did not consider the silencers to perform an active safety-related function. Specification requirements were not understood by TDI to apply to the exhaust silencers. As a result, the exhaust silencers were not included as an item to be safety-related. TDI procured the exhaust silencers from a sub-supplier, American Air Filter (AAF), with essentially commercial quality standards. TDI did specify to AAF that material certification, weld procedures, and weld procedure qualifications be provided. AAF did not fully comply with the purchase order requirements of TDI. TDI did provide a seismic analysis of the exhaust silencers to verify the capability to withstand a safe shutdown earthquake.

The procurement documents leave the selection of materials for construction of the exhaust silencers to TDI and AAF. The materials of construction were selected by AAF and specified in the fabrication drawing based on its experience. Common grades of steel (e.g., A-36 and A-569) are typically used.

TDI provided a certificate of conformance to the purchase requirements for the exhaust silencers and the saddle support modification plates as required by the procurement documents. That information is on site. If the exhaust silencers and saddle support modification plates had been identified by TDI as having a safety-related function, they would have been included under the TDI quality assurance program. That program would have required actions to be taken to assure appropriate material identification and control. Specific material traceability (i.e., certified material test reports) is not applicable because of the design and function of these items.

3. The following corrective action for the exhaust silencers has been taken: We have met with TDI and visited AAF, and sub-suppliers at their facilities, and reviewed all available purchasing and quality documentation. TDI will provide a Material Certificate of Compliance to confirm that the materials used were consistent with the seismic analysis. TDI has been directed to provide a fabrication inspection procedure to verify that construction of the exhaust silencer satisfies the design and seismic analysis. This inspection will be performed on site under the direction of MPQAD. If any deficiencies are found during the inspection, the silencers will be reworked to conform to the requirements.

In accordance with the partial disposition of NCRs 4693 and 4994, muffler saddle support end and center support plate extensions are to be replaced because the dimensions of the slots/holes do not conform to the design drawings. Replacement plates will have material certificates of compliance.

Project Engineering and TDI have reviewed the technical specifications to determine if other items have been considered to be non-safety related contrary to the design intent. To date, the intake air

filters, intake air silencers, intake air flexible connectors, and exhaust expansion joints have been identified as not being considered safety related by TDI, and consequently not provided as safety related. An action plan to upgrade these items to safety-related-status by verifying that the construction of these items satisfies the design and seismic analysis is underway. NCRs M-01-9-3-158 and 4955 have been written to document the indeterminant status of these components.

Further investigation to ascertain if there are any additional suspect items in the package provided by TDI is in progress and is expected to be complete by August 15, 1983.

4. The general approach to ensure that purchased material/equipment is fabricated in accordance with the specification requirements is as follows: The Project Engineering review and acceptance of vendor submitted documents required by the specification such as drawings, procedures, and quality assurance manual; the Procurement Supplier Quality Department's performance of audits on adequacy of vendor quality program implementation and source surveillance inspections at the vendor's facility as required by the purchase order; the QC performance of receipt inspection to verify supplier submittal of the required documentation on "Q" items that are received on site; the Supplier Quality Review of the required documentation for adequacy; and MPQAD/QA performance of a quality overview inspection on selected items on site.

In view of the experiences on this procurement, we will conduct a review of functional/performance oriented procurements which contain "Q" and non-"Q" items to verify that safety-related items were designated by the vendors in accordance with project design requirements. A review program and schedule will be developed by September 10, 1983.

5. Full compliance will be achieved when:
 - a) Receipt of the exhaust silencer Material Certificate of Compliance and completion of the fabrication inspection is expected by October 15, 1983. A schedule for any subsequent rework as a result of the inspection will be established at that time.
 - b) The exhaust silencer saddle support and center support plate extensions are replaced and NCRs 4693 and 4994 are dispositioned.
 - c) NCRs M-01-9-3-158 and 4955 will be resolved by October 15, 1983. A schedule for any subsequent rework resulting from this resolution will be established then.
 - d) Further investigation to ascertain if there are any additional suspect items in the package provided by TDI is expected to be complete by August 15, 1983.

- e) The review program and schedule described in part 4 and the subsequent review is completed and any findings are addressed.

OC0783-0004A-CN01

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