



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

Berlinger

JUN 24 1986

MEMORANDUM FOR: Hugh L. Thompson, Jr., Director
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Division of Safety Review and Oversight

FROM: Carl H. Berlinger, Chief
Reactor Systems Branch
Division of PWR Licensing-A

SUBJECT: SAFETY EVALUATION REPORT - OPERABILITY/RELIABILITY OF
EMERGENCY DIESEL GENERATORS MANUFACTURED BY
TRANSAMERICA DELAVAL, INC.

The NRC staff has completed its evaluation of the Owners Group program to validate and upgrade, as necessary, the design and manufacturing quality of the TDI diesel generators for nuclear standby service. The enclosed Safety Evaluation Report (SER) provides the staff's final conclusions and recommendations stemming from our evaluation of the Owners Group program. This SER is also intended, in part, to provide guidance to NRC project managers and technical reviewers on what must be done to technically resolve the "TDI issue" at each individual plant.

The enclosed SER will be published in NUREG form in July 1986. In the meantime, plant Project Managers of plants employing TDI diesel generators (see cc list) are requested to provide the enclosed SER to the subject licensees and applicants.

The staff has concluded that implementation of the Owners Group and PNL recommendations concerning quality revalidation inspections, component modifications and replacement, load restrictions, operating precautions, etc. will establish the adequacy of the TDI diesel generators for nuclear standby service as required by General Design Criterion (GDC) 17. The staff further concludes that these actions will ensure that the design and manufacturing quality of the TDI engines is within the range normally assumed for diesel engines designed and manufactured in accordance with 10 CFR 50, Appendix B. Continued reliability/operability of the TDI engines for the life of the facilities will be assured by implementation of the maintenance/surveillance program discussed in Section 2.3 of the enclosed SER.

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Accordingly, the staff has concluded that a technical resolution is available to address the so-called "TDI diesel generator issue", namely the concerns which were raised regarding the reliability of the TDI diesel generators following the crankshaft failure at Shoreham in August 1983. Technical resolution will involve implementation of an acceptable Phase I program as identified in Section 2.1 of the SER, an acceptable Phase II program as identified in Section 2.2 of the SER, and implementation of an acceptable maintenance and surveillance program as identified in Section 2.3 of the SER. These actions are supplemental to requirements which must normally be satisfied (e.g., Regulatory Guide 1.108) as a prerequisite for obtaining an operating license (Reference: NUREG-0800, "Standard Review Plan").

Generic Phase I issues, problem areas of a plant-specific nature, and maintenance and surveillance programs must be fully addressed as a condition for issuance of an operating license. Where other issues remain to be closed out (e.g., Phase II issues) in accordance with the SER, a license condition should be imposed requiring such closeout by the first refueling outage.

With regards to Phase I components, NRC staff has concluded that several of these components merit special emphasis in the areas of load restrictions and/or maintenance/surveillance. These components include the DSRV connecting rods, DSR-48 crankshafts, DSRV-20-4 crankshafts, cylinder blocks, cylinder heads, type AF piston skirts and turbochargers. Engine load restrictions must be addressed in the plant Technical Specifications, license conditions, engine operating procedures and operator training, as appropriate. The most critical periodic maintenance/surveillance actions for these components will be incorporated as license conditions.

As a point of clarification, the staff has previously issued "interim" SERs for Shoreham, Grand Gulf, Catawba Units 1 and 2, River Bend, Perry and San Onofre Unit 1 which concluded that the respective engines were adequate for nuclear service until the first or next refueling outage. Part of the "interim" basis for this finding was a set of license conditions pertaining to the TDI engines which were issued for each of these plants. Project managers for these plants should be aware that these license conditions will need to be modified at the first or next refueling to comply with the enclosed SER.

Carl H. Berlinger
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Enclosures:
As stated

cc: See next page

JUN 24 1986

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*See previous sheet for concurrence.

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