



# THE CLEVELAND ELECTRIC ILLUMINATING COMPANY

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PERRY NUCLEAR POWER PLANT

Al Kaplan

VICE PRESIDENT  
NUCLEAR GROUP

July 7, 1989  
PY-CEI/NRR-1023 L

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

Perry Nuclear Power Plant  
Docket No. 50-440  
TDI Diesel Phase II Design  
Review/Quality Revalidation

Gentlemen:

This letter provides documentation of the completion/incorporation into PNPP programs of the TDI Owners Group Phase II recommendations on diesel engine component modifications and inspections.

The TDI Owners Group performed reviews of diesel engine components to ensure that the diesel generators would provide a reliable source of onsite power and to assure that the design and manufacturing quality is within the range normally assumed for diesel engines manufactured in accordance with 10 CFR 50 Appendix B. The Phase I effort consisted of reviews of components with known generic problems, while Phase II proceeded beyond known problem areas to systematically consider all components important to the operability and reliability of the engines. These Phase II reviews were documented by the TDI Owners Group in Design Review/Quality Revalidation (DR/QR) reports. The DR/QR reports for the Commanche Peak DSRV-16-4 engines constituted the lead engine review for PNPP. This lead engine review was generally applicable to similar components of the Division 1 and 2 TDI diesel generators at the Perry Plant and was extensively referenced in the PNPP DR/QR. The Phase II DR/QR reports contained results of the design review of each component, and any modifications, quality inspections and/or maintenance recommendations that resulted from the review.

The NRC and its contractor performed audit reviews of the comprehensive Owners Group Phase II DR/QR reports for the lead plants, and verified for the other plants such as PNPP that the quality of the Owner's Group effort was continued and that a high degree of overlap existed. The staff concluded that implementation of the recommendations in the Phase II reports will be effective in improving and ensuring the design adequacy and quality of the engine components and hence, the reliability and operability of the TDI engines at the various Owner's Group plants.

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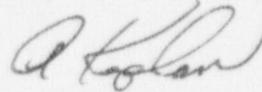
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Attachment 1 to this letter provides a summary which documents the completion of the Owners Group recommendations on component modifications and inspections in accordance with PNPP programs. Design changes such as additions or modifications of pipe and conduit supports or restraints have been completed on a number of diesel engine and support systems. Inspections have been performed, and if the inspections were of an ongoing nature, have been incorporated into the maintenance/surveillance program. Certain recommendations, such as for addition of selected pipe supports, have been analyzed following detailed inspections of the Perry-specific engine configuration to verify that the installed design is acceptable for reliable engine operation. Since the NRC had indicated approval (on a generic, audit-type basis) of the Owners Group recommendations, those recommendations which were addressed or implemented at PNPP in a manner sufficiently different from the Owners Group recommendations to require evaluation, have been subjected to a Safety Evaluation which has been reviewed and approved in accordance with 10 CFR 50.59 and plant Technical Specifications.

The attached summary is provided for the staff's information. If you have any questions, please feel free to call.

Very truly yours,



Al Kaplan  
Vice President  
Nuclear Group

Attachment

AK:njc

cc: T. Colburn  
Sr. Resident Inspector  
NRC Region III

SUMMARY RESOLUTION OF PHASE II MODIFICATIONS

<u>Component</u>	<u>Recommended Action</u>	<u>Method of Resolution</u>	<u>Status</u>
<u>TURBOCHARGER, INTAKE, INTERCOOLER AND EXHAUST</u>			
Intercooler F-068	Delaval Service Information Memorandum (SIM) 365 recommendations.	Modifications	Complete
Turbocharger MP-022/023	Modifications to ensure reliability and performance of turbocharger.	Modifications	Complete
Turbocharger Thrust Bearing Drip Lube System 02-CFR	Addition of supports/restraints.	Modifications	Complete
Intake Manifold and Piping 02-375	Inspection of U-bolts for proper installation and fit.	Inspection	Complete
Exhaust Manifold 02-380A	Modifications to slip joints.	Analysis	Complete
<u>LUBE OIL</u>			
Lube Oil Fittings Internal- Supports 02-307D	Modifications to U-bolts.	Analysis	Complete
Engine Driven Lube Oil Pump 02-420	Modifications to pump suction line.	Analysis	Complete
Lube Oil Lines External - Tubing, Fittings, Couplings 02-465A-LB	Replace 12-inch Dresser coupling gasket with Viton gasket if leakage occurs.	Maintenance Program	No leakage to date. Will replace if leakage develops.
Lube Oil Lines External - Tubing, Fittings, Couplings 02-465A-SB	Replace Style 65 Dresser couplings with Style 90 if leakage develops.	Not Applicable to PNPP	N/A
Lube Oil Lines External - Supports 02-465C-SB	Addition/modification of supports.	Modifications & Analysis	Complete



<u>Component</u>	<u>Recommended Action</u>	<u>Method of Resolution</u>	<u>Status</u>
LUBE OIL (continued)			
Turbocharger Lube Oil Fitting - Piping 02-457A-LB	Replace 2 1/2 inch Dresser couplings.	Analysis	Complete
Turbocharger Lube Oil Fitting - Pipe, Tubing, Fittings & Flexible Couplings 02-467A-SB 02-467B-SB	Addition/modification of supports.	Modifica- tions	Complete
Turbocharger - Lube Oil Fittings, Supports 02-467B-LB	Reinforcement of support members.	Analysis	Complete
Auxiliary Sub-Base Oil & Water Piping - Lube Oil: Piping & Fittings 02-717F-SB Supports and Mount- ing 02-7171-SB	Addition/modification of supports and two- directional restraints.	Modifica- cations & Analysis	Complete

ENGINE BASE AND BEARING CAPS

No modifications recommended

CRANKSHAFT AND BEARINGS

No modifications recommended

CYLINDER BLOCK, LINERS AND WATER MANIFOLD

No modifications recommended

<u>Component</u>	<u>Recommended Action</u>	<u>Method of Resolution</u>	<u>Status</u>
<u>AIRSTART AND BARRING DEVICE</u>			
Air Start Valves 02-359	Implementation of SIMS 329 and 360.	Maintenance Program	Complete
Starting Air Mani- fold: Piping, Tubing, Fittings & Supports 02-441A-LB 02-441C-LB	Modification of supports.	Modifica- tions, Analysis & Evaluation	Complete
Starting Air Mani- fold: Piping, Tubing, Fittings & Supports 02-441A-SB 02-441C-SB	Addition/modification of supports.	Modifica- tions & Analysis	Complete
Starting Air Mani- fold: Valves, Strainers and Filters. 02-441B	Addition of free-flowing drains to the air distributor filter.	Modifica- tions	Complete
<u>CONNECTING RODS</u>			
No modifications recommended			
<u>PISTONS</u>			
Piston: Pin Assembly 02-341C	Replace spiral ring retainers with Waldes snap-ring retainers when engine becomes accessible.	Maintenance Program & Evaluation	Will replace at next engine disassembly
<u>CAMSHAFT AND VALVE TRAIN</u>			
No modifications recommended			
<u>IDLER GEAR ASSEMBLY AND FRONT GEAR CASE</u>			
No modifications recommended			

FLYWHEEL

No modifications recommended

<u>Component</u>	<u>Recommended Action</u>	<u>Method of Resolution</u>	<u>Status</u>
<u>ENGINE INSTRUMENTATION AND WIRING</u>			
Engine & Auxiliary Module Wiring Material & Fittings: Pyrometer Conduit Assembly - Conduit, Fittings & Supports 02-630A,B,C 02-688A	Addition/modification of conduit supports.	Modifica- tions	Complete
<u>OVERSPEED TRIP AND GOVERNOR</u>			
Governor Linkage 02-413A	Maintenance related modifications.	Maintenance Program	Complete
<u>ENGINE SHUTDOWN AND EQUIPMENT</u>			
Engine Shutdown Equipment - Tubing, Fittings & Supports 02-695A	Addition of supports/ restraints	Modifica- tions, Analysis & Evaluation	Complete
<u>JACKET WATER</u>			
Jacket Water Manifold- Manifold Assembly with Hardware, Coupling & Gaskets 02-316A&B	Double-nut tie rod assembly. Replace with larger diameter tie rod. Stiffen support.	Inspection & Analysis	Complete
Jacket Water Inlet Manifold - Vent Line to Discharge Mani- fold 02-316C	Support modifications	Not appli- cable to PNPP	N/A



<u>Component</u>	<u>Recommended Action</u>	<u>Method of Resolution</u>	<u>Status</u>
Jacket Water Discharge Manifold/ Piping 02-317A&B 02-435A 02-437	Replace Style 65 Dresser couplings with Style 90 if leakage develops.	Maintenance Program	Will replace if leakage develops
Water Discharge Manifold - Supports 02-317C	Inspect welds on supports and shroud	Inspection and Modifi- cation	Complete
Jacket Water Fittings: Supports 02-435B-LB	Modify support on 8 X 8 tee.	Analysis	Complete
Jacket Water Stand- pipe: Supports 02-700C	Modify vent line restraints.	Modifica- tions	Complete

CYLINDER HEADS AND VALVES

No modifications recommended

FUEL OIL INJECTION

Fuel Oil Header: Piping/Tubing 02-450A	Addition/modification of supports.	Analysis	Complete
Fuel Oil Header: Fuel Oil Tubing Supports 02-450B	Addition/modification of supports.	Modifica- tions, Analysis & Evaluation	Complete
Auxiliary Sub-Base & Oil & Water Piping Fuel Oil: Piping, Fittings, Supports 02-717J 02-717M	Addition/modification of supports.	Modifica- tions & Evaluation	Complete

GENERATOR

Generator Controls 02-650B	Replace field flashing relay with an enclosed relay.	Evaluation	Complete
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<u>Component</u>	<u>Recommended Action</u>	<u>Method of Resolution</u>	<u>Status</u>
	<u>CONTROL PANEL ASSEMBLY</u>		
	No modifications recommended		
	<u>ENGINE &amp; AUXILIARY SUB-BASE &amp; FOUNDATION BOLTS</u>		
	No modifications recommended		