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Georgia Power

the southern electric system

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NED-84-020

January 9, 1984

Director of Nuclear Reactor Regulation
Attention: Mr. John F. Stolz, Chief
Operating Reactors Branch No. 4
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

NRC DOCKETS 50-321, 50-366
OPERATING LICENSES DPR-57, NPF-5
EDWIN I. HATCH NUCLEAR PLANT UNITS 1, 2
FAST COLD STARTS OF DIESEL GENERATORS

Gentlemen:

In response to your letter of December 16, 1983, Georgia Power Company submits the following information for Plant Hatch on diesel generator quick starts and our opinion of their effect on reliability. The record of cold starts of the Plant Hatch diesels for 1983 is summarized in the following table:

Diesel Generator MPL#	Starts From 12/1/82 to 12/1/83		
	Surveillance	Maintenance**	Actual Demand
R43-S001A	30	6	0
R43-S001B*	44	13	0
R43-S001C	32	5	0
2R43-S001A	23	10	0
2R43-S001C	25	16	0

* B diesel serves both Hatch units.

** Estimate based on maintenance requests from 1982. 1983 maintenance records are not yet available on the records management system.

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DISCUSSION:

Plant Hatch procedures require that the engine be pre-lubricated prior to starting for surveillance or maintenance. The diesels are being equipped with a continuous lubrication system to eliminate the requirement for pre-lubrication and to protect the engine from a dry start in the event of an actual emergency. The pre-lube system installation is expected to be completed in early 1984.

Georgia Power Company studied the effect of frequent starts on engine reliability as part of a task force investigation into repeated bearing failures experienced on the diesels. The engine manufacturer reviewed the Plant Hatch technical specifications and procedures for practices which may degrade engine reliability. Based on the manufacturer's opinion and operating experience, Georgia Power has concluded that frequent starts and subsequent rapid loading of the engine was degrading the reliability of the diesel generators. Accordingly, we have revised the Plant Hatch procedures to the extent allowed by the technical specifications and are pursuing technical specification changes with the goal of eliminating abusive or unnecessary testing of the diesels. An example of an abusive test is the technical specification requirement for annual testing of the air start system which requires that the engine be started and stopped five times in succession.

The manufacturer recommended that two weeks is an optimum test frequency to assure reliability of the engine. Testing frequency based on the individual engine's failure history is appropriate. However, the manufacturer took exception to the practice, required by technical specifications, of frequent testing (every 8 hours) of all operable diesels when a diesel or any ECCS component becomes inoperable. Testing frequency greater than once every two weeks will not improve the performance of a normally reliable generator and therefore is counterproductive.

During surveillance testing, the engine should be loaded gradually and run for at least one hour at greater than 50% load. This practice has several benefits: 1) all parts of the engine are brought to full operating temperature, thereby removing condensed moisture from the crankcase; 2) microscopic damage sustained by the bearings during the start is polished away and seating of other wear components is continued; and 3) the exhaust manifold is heated to a temperature which vaporizes any oil deposits near the manifold or in the insulation. If oil is allowed to accumulate, there is a fire hazard when the diesel is loaded and the manifold becomes hot enough to ignite the oil.

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Thank you for the opportunity to provide input into your diesel generator reliability program. Based on our experience, there is potential for reliability improvement along with a decrease in the burden for the plant operator. We hope these comments will be useful as you make licensing decisions. Please contact Mr. Paul Springer at (404) 526-7010 if you need additional information.

Yours very truly,

L. T. Gucwa

PLS/ps

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