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September 28, 1984

Docket Nos. 50-348
50-364

Director, Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Attention: Mr. S. A. Varga

Joseph M. Farley Nuclear Plant - Units 1 and 2
Response to Generic Letter 84-15

Gentlemen:

Alabama Power Company has completed a review of Generic Letter 84-15, "Proposed Staff Actions to Improve and Maintain Diesel Generator Reliability." In accordance with Generic Letter 84-15, Alabama Power Company provides the attached information.

If there are any questions, please advise.

Yours truly,

R. P. McDonald

RPM/CJS:grs-Tech Spec II
Attachment

cc: Mr. L. B. Long
Mr. J. P. O'Reilly
Mr. E. A. Reeves
Mr. W. H. Bradford

SWORN TO AND SUBSCRIBED BEFORE ME

THIS 28th DAY OF September 1984

Notary Public

My Commission Expires: 10/27/85

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Attachment

Requested Information to Address Proposed Staff Actions to Improve and Maintain Diesel Generator Reliability

NRC Request

1. Reduction in Number of Cold Fast Start Surveillance Tests for Diesel Generators

This item is directed towards reducing the number of cold fast start surveillance tests for diesel generators which the staff has determined results in premature diesel engine degradation. The details relating to this subject are provided in Enclosure 1 (of Generic Letter 84-15). Licensees are requested to describe their current programs to avoid cold fast start surveillance testing or their intended actions to reduce cold fast start surveillance testing for diesel generators.

APCo Response

Alabama Power Company has been actively pursuing efforts necessary to improve onsite diesel generator reliability for some time. The NRC has acknowledged this effort in previous evaluations of technical specification change requests associated with the standby diesel generator system. This interest is exemplified by the formation of a special Alabama Power Company Diesel Generator Task Force in 1981 to identify problem areas and to recommend corrective actions that enhance diesel generators reliability. The Task Force expressed a concern that Technical Specifications required frequent testing of the remaining diesel generators if one diesel generator became inoperable. The Task Force recommended that the Technical Specification be optimized so as to eliminate excessive testing requirements. The Task Force report, which also discusses diesel operation including starts, maintenance and design changes was transmitted to the NRC by letter dated October 14, 1981. The concern that particular types of testing and excessive testing of equipment required by the Technical Specifications may be adverse to safety was also identified as a concern by the NRC Task Group on Technical Specifications in their report, NUREG-1024, dated November, 1983.

In Generic Letter 84-15, the NRC staff emphasized that excessive testing of the diesel generators, which entail cold fast starts, has a negative impact on their overall reliability. Alabama Power Company was aware in 1981 that frequent cold fast starts subject the diesel engine to undue wear and stress. In the interest of improving and maintaining the reliability of the standby diesel generators, Alabama Power Company has worked closely with Colt Industries, the diesel manufacturer, and the NRC in an effort to eliminate excessive testing and schedule requirements from the Farley Technical Specifications.

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Previously the Farley Technical Specifications contained a periodic testing schedule which specified test intervals which varied in frequency from once every three (3) days to once every 31 days in four steps. The appropriate test frequency was then determined by the number of diesel generator start failures experienced, on a per plant basis. Alabama Power Company proposed, in accordance with the diesel generator manufacturers recommendations, a periodic test schedule of two steps with test intervals of once every seven days and once every fourteen days. The test frequency was dependent on the number of test failures experienced, on a per diesel generator basis. Alabama Power Company also proposed a reduction in the number of diesel generator starts which were required by the Action Statements of other Technical Specifications.

The above testing optimization objectives were realized when the NRC issued Amendments 26 and 13 to the Unit 1 and Unit 2 Operating Licenses on March 1 and May 5, 1982 respectively.

Alabama Power Company has followed Colt Industry's recommendation to prelubricate the diesel generator prior to test starts for some time prior to the issuance of Generic Letter 84-15, with the sole exception being the 18 month SI/LOSP tests. As expressed by the NRC in the Generic Letter, routinely starting the diesel generator without prelubricating the engine does constitute an improper and potentially detrimental test of the equipment.

The above actions were undertaken as a result of Alabama Power Company's concern for diesel generator reliability. It is believed that the actions taken to date are consistent with the intent of the Generic Letter and thus, no further actions are necessary.

NRC Request:

2. Diesel Generator Reliability Data

This item requests licensees to furnish the current reliability of each diesel generator at their plant(s), based on surveillance test data. Licensees are requested to provide the information requested in Enclosure 2 (of Generic Letter 84-15).

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APCo Response

The reliability of the diesel generators at the Farley Nuclear Plant has been determined in accordance with Regulatory Guide 1.108 position C.2.e as requested in Enclosure 2 of Generic Letter 84-15 and is provided below. This reliability is based upon the number of failures in the last 100 valid demands as requested in Enclosure 2 of Generic Letter 84-15.

The number of failures in the last 20 and 100 valid demands, including the time history of the failures is tabulated below:

	<u>Diesel Generator</u>				
	<u>4075 KW</u>			<u>2850 KW</u>	
	<u>1-2A</u>	<u>1B</u>	<u>2B</u>	<u>1C</u>	<u>2C</u>
Number of failures in the last 20 valid starts	1	0	0	1	0
(Failure dates in parenthesis)	(07-30-84)			(06-26-84)	
Reliability value	95%	100%	100%	95%	100%
Number of failures in the last 100 valid starts	1	2	2	2	0
(Failure dates in parenthesis)	(07-30-84)	(12-21-82)	(08-10-83)	(12-04-82)	
		(04-12-83)	(09-22-83)	(06-26-84)	
Reliability value	99%	98%	98%	98%	100%

(This table includes data up to September 7, 1984.)

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APCo Response (continued)

Alabama Power Company does maintain a record of diesel generator demands and failures. A record of diesel generator starts and failures has been kept at Farley Nuclear Plant since 1981. Data associated with diesel generator starts and failures is collected to support surveillance scheduling. Although this data does not include all the provisions of Regulatory Guide 1.108 position C.3.a, it is the opinion of Alabama Power Company that the data collected is sufficient to adequately monitor the diesel's reliability. This position was accepted by NRC Staff as a result of approval of the aforementioned technical specification changes. Information quite similar to the Regulatory Guide C.3.a provisions for the Farley Nuclear Plant diesels was submitted to the NRC by letter dated December 7, 1981 for the years 1977 through 1980.

Relative to the NRC question concerning a yearly diesel data report, there currently is not a formal requirement to compress the yearly test, maintenance and operating data for each diesel generator into an annual reliability report. By letter dated September 14, 1984, Alabama Power Company proposed that the "Reportable Occurrence" requirement for each diesel generator failure (Technical Specification 4.8.1.1.3) be replaced with a requirement that an annual diesel generator reliability report for each diesel generator be submitted to the NRC (proposed Technical Specification 6.9.1.12). When this proposed technical specification change is approved by the NRC Staff, an annual report will be compiled and submitted to the NRC.

It is noted that, based on the diesel generator reliability data submitted to the NRC by letter dated December 7, 1981, and the data presented herein, the diesel generators at the Farley Nuclear Plant are more reliable under the current technical specification testing requirements than was experienced under the previous provisions which required significantly more testing. It is also recognized that a major contributor to the increased reliability of the diesel generators has been implementation of other Diesel Generator Task Force recommendations.

NRC Request

3. Licensees are requested to describe their program, if any, for obtaining and maintaining a reliability goal. An example of a performance Technical Specification to support a desired diesel generator reliability goal has been provided by the staff in Enclosure 3 (of Generic Letter 84-15). Licensees are requested to comment on, and compare, their existing program or any proposed program with the example performance specification.

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APCo Response

Alabama Power Company has completed several activities in an effort to improve and maintain the overall reliability of the diesel generators. In 1981, the Diesel Generator Task Force addressed all corrective action recommendation items in NUREG/CR-0660, "Enhancement of On-Site Emergency Diesel Generator Reliability" as just recently requested in Enclosure 3 of Generic Letter 84-15. In a letter to the Director of Nuclear Reactor Regulation dated October 14, 1981, Task Force Report was transmitted to the NRC. This report itemized each action item and the actions taken or planned to enhance the reliability of the Farley diesels. As a result of the Task Force actions, twenty-five design changes and nine operational changes were recommended to enhance diesel generator reliability.

In addition to these activities, Alabama Power Company conducted an extended review of the Farley Technical Specifications. Particular attention was given to the diesel generator surveillance testing requirements. As a result of this review, changes to the Farley Technical Specifications were proposed to enhance diesel generator reliability. The NRC's Standard Technical Specifications, at that time, recommended the testing schedule provided in Regulatory Guide 1.108 for routine periodic surveillance testing. This testing schedule relates the frequency of testing to the number of test failures experienced by all the diesel generators at the facility. The suggested test intervals varied from a frequency of once every three days to once every thirty-one days in four steps.

Alabama Power Company and Colt Industries, the diesel manufacturer, proposed a different test schedule with intervals of fourteen and seven days. The basis for the change in test frequency was that a test frequency of thirty-one days was too infrequent to provide reasonable assurance of the diesel generator's reliability; however, a testing frequency of three days on a routine basis would have an adverse effect on the over-all reliability of the diesel generator to start and provide emergency power to the safety-related loads. Alabama Power Company also proposed that the test schedule should not be such that failures experienced on a particular diesel generator would have an adverse impact on the other diesel units due to increased testing. It should be noted that the NRC Task Group on Technical Specifications, in NUREG-1024, dated November, 1983, concluded that increased testing of equipment on a redundant train when a failure is experienced on the other train does not represent an improvement in overall plant safety. In fact, the increased surveillance testing has the potential for damaging the redundant system and placing the system or plant in a more vulnerable mode. Such surveillance strategies can degrade the needed system and increase public risk.

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The requested technical specification change was approved by Amendments 26 and 13 to the Unit 1 and Unit 2 Operating Licenses dated March 1 and May 5, 1982 respectively. The NRC commented in their evaluation of the requested Technical Specification changes that the staff had long been interested in the optimization of the periodic testing schedule for diesel generators. The NRC viewed the requested changes to the periodic testing schedule as a more refined optimization than the schedule then available in Regulatory Guide 1.108. The NRC also agreed that there were no safety or reliability advantages achieved by testing other diesel generators based on the failures experienced by a particular diesel generator unit.

The current schedule for periodic surveillance testing of the diesel generators in the Farley Technical Specifications is based upon relating the test frequency to the failure experienced on the particular diesel generator. The testing schedule varies from a seven-day to a fourteen-day test interval and the number of failures experienced on the specific diesel generator must be less than or equal to two in the last 100 valid starts to maintain the 14 day test interval.

The Generic Letter also includes suggested operational changes and changes to the Technical Specifications for the purpose of enhancing diesel generator reliability. The proposed changes are modifications to the NRC's existing Standard Technical Specifications (STS). The NRC's STS are primarily structured for a single unit facility with two standby diesel generators. When one diesel generator becomes inoperable, it is implied that one of the two redundant safety-related trains, necessary for safe shutdown and LOCA loads, becomes unavailable. Under these circumstances, increased surveillance to verify the operability of the redundant diesel generator may be desirable.

At the Joseph M. Farley Nuclear Plant, a two-unit facility, the onsite emergency ac power supply consists of five diesel generators which supply standby power for 4160-V emergency service buses F, G, H, J, K and L of each unit. These buses provide power to the emergency loads. The five diesel generators are of two different sizes, as follows: three 4075-kW diesel generators 1-2A, 1B and 2B, and two 2850-kW diesel generators 1C and 2C. Diesel generators 1-2A and 1C are assigned to the redundant load group Train A, while diesel generators 1B, 2B, and 2C are assigned to the redundant load group Train B. Diesel generator 1B is uniquely assigned to Unit 1, while diesel generator 2B is uniquely assigned to Unit 2. Diesel generators 1-2A 1C, and 2C are shared between the two units, but only diesel generator 2C can be connected to both units at the same time.

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Due to the unique five diesel generator design of the plant, Farley emergency ac power system and its flexibility, it has been determined that the implementation of the staff's example Technical Specifications in the form which they appear would not be consistent with changes previously granted to the unit Technical Specifications by the NRC. Furthermore, it has been concluded, following a review of the example Technical Specifications, that the suggested changes proposed in the Generic Letter have supported the efforts already taken to modify the Farley Technical Specifications.

As a result of the change already made in the Farley Nuclear Plant - Units 1 and 2 Technical Specifications, Alabama Power Company maintains that no further alterations to the plant Technical Specifications are necessary.

CJS/grs:Tech Spec II