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SUBJECT: Responds to Generic Ltr 84-15 "Proposed Shaft Actions to Improve & Maintain Diesel Generator Reliability." No action required to reduce number of cold fast start & surveillance tests.Tech Spec changes not required.

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ROGER W. KOBER
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September 28, 1984

Director of Nuclear Reactor Regulations
ATT: Mr. Walter A. Paulson, Acting Chief
Operating Reactor Branch No. 5
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Proposed Staff Actions to Improve and Maintain Diesel Generator Reliability (Generic Letter 84-15)
R. E. Ginna Nuclear Power Plant
Docket No. 50-244

Dear Sir:

In accordance with Generic Letter 84-15 the following response is hereby submitted.

Item 1 <u>Reduction in number of cold fast start surveillance tests for diesel generators</u>

These emergency standby engine generator sets are equipped with necessary controls to automatically start the engine on failure of the normal power source and bring the engine to generator operating speed, ready to assume load. The engine is equipped with jacket water and lube oil heating devices to maintain oil and water temperatures at level to permit immediate assumption of load. A motor-driven lube oil circulating pump runs continuously until the engine is started, so that engine bearings are always lubricated and ready for operation.

Thus, the Alco Diesel Generator units at R.E. Ginna Nuclear Power Plant do not undergo cold fast starts. As such, no action is required to reduce the number of cold fast starts and no Technical Specification changes are required.

Additionally, Ginna's Technical Specifications do not require testing diesel generators while emergency core cooling equipment is inoperable. Thus, no Technical Specification changes are required to address this item.

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Item 2 Diesel Generator Reliability Data

2a) Diesel Generator 1A

1) Last 20 starts:

a. No Diesel Engine/Generator failure

2) Last 100 starts:

a. 4-3-82 - During Periodic Test at end of Annual Diesel Generator maintenance, (performed during annual Maintenance and Refueling Outage) one cylinder exhibited high exhaust temperature. The cause was a weeping injector nozzle, which was then replaced.

b. 1-18-80 - LER 80-001 - Governor at wrong setting

2b) Diesel Generator 1B

1) Last 20 starts:

a. 5-7-83 - after completion of test, the diesel engine failed to shutdown due to the governor solenoid valve coil falling off armature due to the coil nut vibrating loose. The coil and nut were reinstalled, Locktited, and nut was prick-punched to stud. The Diesel Generator however, did operate satisfactorily during the test.

2) Last 100 starts:

a. 1-5-81 - Cooling water line leak. Bushing was replaced.

b. 6-17-81 - Could not load unit to required KW. Problem was governor adjustment.

c. 9-10-80 - Bus 16 breaker failed to close. Cause was a binding control relay guide pin. Relay was replaced.

d. 9-13-79 - Bus 16 breaker failed to close, cause was apparently a bad connection on lockout relay.

e. 8-16-78 - Bus 16 breaker failed to trip. Problem was bad connection at control power fuse block stabs.

f. 9-14-77 - Bus 16 breaker failed to close. Problem was a bent "finger" on a secondary contact.

Ginna does not maintain a record which itemizes the demands and failures experienced by each diesel generator unit in the manner outlined in Regulatory Guide 1.108 position C.3.a. A yearly data report is not maintained for each diesel generator's reliability.

Item 3 <u>Diesel Generator Reliability</u>

3a) Ginna Station has a regular preventative maintenance schedule for its diesel generators, including an inspection of each unit, annually, utilizing the services of the diesel engine manufacturer.

These two Diesel Generator units are specifically designed for use in emergency standby generator service. The total running hours from initial start in 1969 to 8/14/84 is 782 for the A D/G and 891 for the B D/G. As such, the diesel generators are one of the most frequently maintained pieces of equipment relative to total operating time at Ginna.

The proper valve/breaker alignment of the diesel generator units is verified twice each month, once, prior to the monthly Periodic Test and then 15 days later. In addition to the monthly periodic test the Diesel Generators are loaded in accordance with safeguard system testing on a refueling interval.

Standby diesel generator units have a particular problem in that a comparably large fuel supply is required, but little is used during the exercising of the engines.

All fuel oil tends to degrade during extended storage. The degradation, in general, is of two types. The first is oxidation and polymerization resulting in the formation of soluble and insoluble gums. The second is bacteria growth and the interface of the fuel and water in the storage tank. This bacterial growth will result in fuel filter plugging, and has been known to cause fuel injection sticking.

The most satisfactory method for insuring good fuel, at all times, is to replace the fuel periodically. Ginna Station pumps out all the old fuel, cleans the storage tanks and refills with fresh fuel on a annual basis.

3b) In accordance with the Enclosure 3, RG&E has reviewed the recommendations of NUREG/CR-0660 "Enhancement of On-Site Emergency Diesel Generator Reliability."

1) Ginna Station has followed the manufacturer's recommendations as they apply to the Alco Diesel Generator units, with one exception. Ginna Station performs Surveillance Testing on a monthly basis (rather than bi-weekly) and during this testing, the Diesel Generators are operated for a minimum of one hour at the continuous full load rating of 1950 KW (rather than 25-50% load). Ginna Station operation of the Diesel Generators at the continuous full load rating exceeds the manufacturer's recommendations noted on Page III-16 of NUREG/CR-0660.

2) Recommendation (b), page V-6, in NUREG/CR-0660 suggests "dust-tight steel cabinets having fully gasketed doors and other openings". Ginna Station does not have dust-tight cabinets having fully gasketed doors, however, Ginna Station has not had the problems associated with this recommendation.

3c) An analysis of the performance specification (attachment to enclosure 3) with the existing Ginna Station surveillance testing program shows that Ginna Station's existing programs are adequate when compared with the proposed program.

1) However, some comments are necessary relevant to Item 3, Surveillance Test Frequencies. It is suggested that all references in 3.b, which refer to "two failures in 20", be modified to read "two identical failures in 20". Two identical failures in 20 would be a better indication of reliability degradation.

2) Ginna Station's Technical Specifications are more stringent than Items 6 and 7. This is clarified in the following excerpts from the Ginna Technical Specifications, Sections 3.7.1 and 3.7.2:

3.7.1 The reactor shall not be maintained critical without:

a. The 34.5 KV-4160 Volt station service transformer in service.

b. 480-volt buses 14, 16, 17 and 18 energized.

c. 4160-volt buses 12A and 12B energized.

d. Two diesel generators operable with onsite supply of 10,000 gallons of fuel available.

3.7.2 During reactor operation the requirements of 3.7.1 may be modified as follows:

a. Power operation may continue with the station service transformer out of service provided (a) the failure shall be reported to NRC within 24 hours with an outline of the plans for prompt restoration of offsite power and the additional precautions to be taken while the transformer is out of service and (b) both diesel generators are operable. Under conditions of fulfillment of (b) and nonfulfillment of (a), continued power operation shall not extend beyond 24 hours. Non-fulfillment of, (b) shall be deemed sufficient cause for immediate reactor shutdown.

b. Power operation may continue if one diesel generator is out of service provided (a) the remaining diesel generator is run continuously, and (b) the station service transformer is in service and (c) such operation is not in excess of 7 days (total for both diesels) during any month.

3) Comparison of Appendix A, Typical Technical Specifications with Ginna Station's Technical Specifications reveals that Ginna Station's present Technical Specifications in general, are equal to and/or more restrictive than those proposed.

An example of this is : Action (a) allows "72 hours" to restore diesel generators to an operable status, whereas, Ginna Tech. Specs. only allow "24 hours". Also, Action (a) allows "6 hours" to go to "Hot Standby", whereas, Ginna Tech. Specs. require an immediate reactor shutdown.

Ginna Station Technical Specifications address the loss of the station service transformer, rather than the loss of a single off-site power supply, as addressed in the Typical Technical Specifications.

It should be noted at 4.8.1.1.2, that generator voltage of Ginna Station's Diesel Generators is 480 volts, not 4160 volts.

Roger W. Kober

Roger W. Kober

Subscribed and sworn to me
this 28th day of September 1984

Lynn I. Hauck

LYNN I. HAUCK
NOTARY PUBLIC, State of N.Y., Monroe County
My Commission Expires March 30, 1984