

Jersey Central Power & Light Company



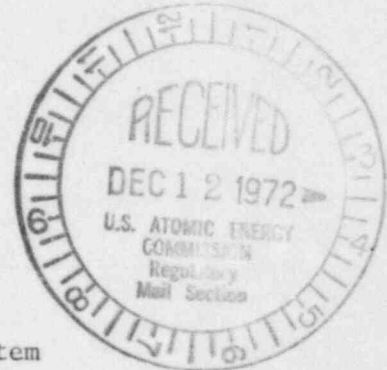
MADISON AVENUE AT PUNCH BOWL ROAD • MORRISTOWN, N. J. 07960 • 539-6111

December 7, 1972

Mr. A. Giambusso
Deputy Director for Reactor Projects
Directorate of Licensing
United States Atomic Energy Commission
Washington, D. C. 20545

Dear Mr. Giambusso:

Subject: Oyster Creek Station
Docket No. 50-219
Diesel Generator System



The purpose of this letter is to advise you of a failure of the No. 2 diesel generator to start and assume load.

On November 28, 1972, No. 1 diesel generator was taken out of standby in preparation for a maintenance check. In accordance with station operating instructions, an operability check on No. 2 diesel generator was conducted prior to releasing No. 1 diesel for maintenance.

The No. 2 diesel generator started; however, the "TROUBLE ALARM" was annunciated in the control room as a result of a "SEQUENCE FAULT" with the unit thereby initiating a normal shutdown of the unit.

Investigation of the "SEQUENCE FAULT" circuit revealed the malfunction to be a repeated failure of one of the two starter motor pinions to engage. Both starters must engage in order to make up the logic that will permit cranking power to be applied to the starter motors. Engagement is attempted on a timed cycle three times prior to initiating a "SEQUENCE FAULT" and locking out the unit. Subsequent observations showed that engagement failure did not occur each time an attempt was made to start the unit. A check of starter motor solenoid part numbers was made and revealed that both solenoids were of an older design, Delco Remy Part No. 1115512, than those installed on No. 1 diesel generator. General Motors indicated that the newer solenoids, Delco Remy Part No. 1115527, found on No. 1 diesel generator were designed for heavier duty applications.

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The "SEQUENCE FAULT" due to failure of starter motor pinion to engage was also investigated in view of the fact that the No. 2 diesel had started and then subsequently shut down. A check was made to see if the situation could be duplicated. The diesel was allowed to attempt two starts with the starter logic control wires removed, then, on the third attempt, the control logic for starting was made up just at the end of the timed cycle. The diesel started and the "SEQUENCE FAULT" was initiated. Thus, during the event under consideration it would appear that the pinion engagement criteria was made just as the third cycle was timing out, allowing cranking power to be applied to the starter and starting the engine even though the timed logic circuit sensed a failure to start.

As soon as it was determined that No. 2 diesel generator was not fully operable, No. 1 diesel generator was returned to standby service and a satisfactory operability check was performed. General Motors was contacted and an order was placed for four new replacement starter solenoids, two for No. 2 diesel generator and two for spares. While waiting for delivery of the new solenoids, both starter pinions were manually aligned with the ring gear on No. 2 diesel generator to insure that the pinion teeth would mesh with the ring gear if the unit was required to start. A satisfactory operability check was conducted on No. 2 diesel generator and the unit was also returned to standby service. Operability checks, as required by the Technical Specifications, were conducted on No. 1 diesel generator on a daily basis until the starter solenoids were replaced on No. 2 diesel generator and the unit returned to full operability. Upon replacing the starter solenoids, ten satisfactory pinion/ring gear engagements were made after purposely aligning the pinions to butt against the teeth on the ring gear. In addition, a duplication of the initial conditions was later made; i.e., No. 1 diesel generator breaker racked out and its mode switch in "STOP" and No. 2 diesel generator was started, ruling out the possibility that the two units are interconnected in some manner.

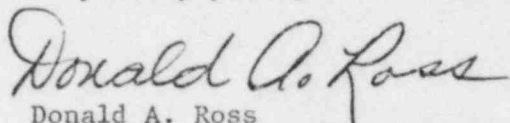
Appendix "L" to the FDSAR contains a probability analysis regarding the availability of standby cooling systems and includes an analysis of off-site power availability concurrent with a loss of coolant accident. The results indicated that the reliability of available power from off-site sources or from a self-contained unit (only one diesel generator was considered in the analysis) was quite high. Since the station is provided with two separate diesel generator units, having one unit out of service has no effect at all upon the results of the analysis. In addition, the effects of single bus operation during a loss of coolant accident was analyzed in Amendment 32 to the FDSAR and the unit loading under this condition was found to be within the normal KVA rating of the diesel generator. Thus, there is no additional safety significance associated with this event beyond that already analyzed.

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The installation of heavier duty starter solenoids on No. 2 diesel generator similar to those on No. 1 should prevent a recurrence of this event. In addition, we are investigating the possibility of installing unit counters in each diesel generator starting circuit to monitor the number of starting pinion engagement attempts made during the bi-weekly surveillance testing. Such a counter, if feasible, could be used as an indication of possible problems with the diesel starting system.

We are enclosing forty copies of this report.

Very truly yours,



Donald A. Ross
Manager, Nuclear Generating Stations

DAR/pk

Enclosures

cc: Mr. J. P. O'Reilly, Director
Directorate of Regulatory Operations, Region 1