

UNITED STATES
NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION
WASHINGTON, D.C. 20555

May 30, 1989

NRC INFORMATION NOTICE NO. 89-50: INADEQUATE EMERGENCY DIESEL GENERATOR FUEL SUPPLY

Addressees:

All holders of operating licenses or construction permits for nuclear power reactors.

Purpose:

This information notice is being provided to alert addressees to the potential for existence of an inadequate emergency diesel generator (EDG) fuel supply. It is expected that recipients will review the information for applicability to their facilities and consider actions, as appropriate, to avoid similar problems. However, suggestions contained in this information notice do not constitute NRC requirements; therefore, no specific action or written response is required.

Description of Circumstances:

During a review of the design basis for the EDGs at Palisades, it was discovered that the fuel oil consumption calculations, performed in 1968, had not been updated to reflect changes in equipment loading and operating times in post-accident conditions. Subsequent calculations by the licensee indicated that 23,000 gallons of diesel fuel would be required to ensure that a seven day supply would be available to support EDG operation under the current load requirements. This value exceeds the minimum 16,000 gallon limit specified in the Technical Specifications (TS). The licensee's corrective actions included prescribing a higher administrative limit of 23,000 gallons of fuel and performing additional calculations to support a TS change request. This is discussed further in licensee event report (LER) 50-255/89-005.

A discrepancy between the Final Safety Analysis Report (FSAR) and the TS basis was identified at Robinson Unit 2. The TS basis specified that 25,000 gallons of fuel oil be maintained for operation of one EDG carrying "minimum safety features" load for seven days. The FSAR described the 25,000 gallons as sufficient for one EDG carrying "full load" for seven days. Calculations performed by the licensee indicate that 25,000 gallons is only marginally sufficient for one EDG carrying "minimum safety features" load for seven days since fuel consumption is highly dependent on selective load shedding. The licensee's

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calculations also indicate that one EDG carrying "full load" for seven days would require approximately 30,430 gallons. The licensee's corrective actions included redefining the basis for the seven day fuel supply to the more conservative value (operation of the EDG at its rated capacity) and revising the TS to reflect the increased minimum fuel inventory. This is discussed further in NRC Inspection Report No. 50-261/87-06 and in LER 50-261/88-006.

The McGuire FSAR indicates that the underground storage tank for each EDG is sized so that the corresponding EDG can carry the 4160 Volt Essential Auxiliary Power Systems load for seven days. The TS require that each underground storage tank contain a minimum volume of 28,000 gallons of fuel. Recently, it was discovered that 28,000 gallons is not sufficient to ensure seven days of EDG operation. The licensee has indicated that design calculations show that approximately 48,533 gallons of fuel are needed to ensure seven days of operation at rated load. This is discussed further in NRC Inspection Report No. 50-369/89-02.

Discussion:

Regulatory Guide 1.137, "Fuel Oil Systems for Standby Diesel Generators," contains guidance for calculation of EDG fuel oil storage requirements. Two methods are provided: 1) calculations based on the assumption that the EDG operates continuously for seven days at its rated capacity and 2) calculations based on the time-dependent loads of the EDG (which should include the capacity to power the engineered safety features).

No specific action or written response is required by this information notice. If you have any questions about this matter, please contact the technical contact listed below or the Regional Administrator of the appropriate regional office.

Charles E. Rossi, Director
Division of Operational Events Assessment
Office of Nuclear Reactor Regulation

Technical Contact: Jack Ramsey, NRR
(301) 492-1167

Attachment: List of Recently Issued NRC Information Notices

*SEE PREVIOUS CONCURRENCES

Changes to final notice were discussed with Jack Ramsey and C. Berlinger on 5/23/89
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05/23/89
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*OGCB:DOEA:NRR	*RII	*SAD/DEST:NRR	*RPB:ARM	*C/OGCB:DOEA:NRR
JERamsey	PKellogg	ATHadani	TechEd	CHBerlinger
05/10/89	05/09/89	05/15/89	05/08/89	05/22/89

licensee's calculations also indicate that one EDG carrying "full load" for seven days would require approximately 30,430 gallons. The licensee's corrective actions included redefining the basis for the seven day fuel supply to the more conservative value (operation of the EDG at its rated capacity), and revising the TS to reflect the increased minimum fuel inventory and the basis for the seven day fuel supply. This is discussed further in NRC Inspection Report No. 50-261/87-06 and in LER 50-261/88-006.

The McGuire FSAR indicates that the underground storage tank for each EDG is sized so that the corresponding EDG can carry the 4160 Volt Essential Auxiliary Power Systems loads for seven days. The TS require that each underground storage tank contain a minimum volume of 28,000 gallons of fuel. Recently, it was discovered that 28,000 gallons is not sufficient to ensure seven days of EDG operation. The licensee has indicated that design calculations show that approximately 48,533 gallons of fuel are needed to ensure seven days of operation at rated load. This is discussed further in NRC Inspection Report No. 50-369/89-02.

Discussion:

NRC regulations require that an onsite electric power system and an offsite electric power system be provided to permit functioning of structures, systems, and components important to safety. Methods acceptable to the NRC staff for complying with the NRC's regulations regarding EDG fuel oil systems are described in Regulatory Guide 1.137. Regulatory Guide 1.137 indicates that the two methods acceptable to the NRC staff for calculation of fuel oil storage requirements are 1) calculations based on the assumption that the EDG operates continuously for seven days at its rated capacity and 2) calculations based on the time-dependent loads of the EDG (which should include the capacity to power the engineered safety features). It is important for addressees to determine the existence of an adequate emergency diesel generator fuel supply.

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*OGCB:DOEA:NRR	*RII	*SAD/DEST:NRR	*RPB:ARM
JERamsey	PKellogg	ATHadani	TechEd
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D/DOEA:NRR
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	<i>Comments from B. Breslau & RII incorporated 5/9/89 JER</i>		<i>Comments from Tech Editor incorporated 5/8/89 JER</i>	