Callaway Plant Post Office Box 620 Fulton, Missouri 65251



U. S. Nuclear Regulatory Commission Attn: Document Control Desk Mail Stop P1-137 Washington, DC 20555-0001

ULNRC-3656

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Gentlemen:

REQUEST FOR INFORMATION PERTAINING TO ROOM TEMPERATURE EFFECTS ON EMERGENCY DIESEL GENERATOR OPERATION **INSPECTION RL: ORT NO. 50-483/97005** CALLAWAY PLANT Ref: EA 97-168 dated September 9, 1997 ULNRC-3649 dated September 15, 1997

This responds to information requested in telephone calls with NRC personnel on September 25 and September 30, 1997, pertaining to operation of the Emergency Diesel Generator with the room ventilation fan secured.

The material included in the response as Attachment 4 is considered proprietary by Union Electric and should be with l.eld from public disclosure.

If you have any questions regarding this response, or if additional information is required, please let me know. IEPI

Changes the prop Very truly yours,

C/D. Naslund Manager, Nuclear Engineering

CDN/MAR/tmw

Attachments: 1) Response to Request for Information

Drawing in Central Files.

- 2) UE Calculation KJ-08, Rev. 0 (6 pages)
- 3) UE Drawing E21005(Q), Rev. 18, List of Loads Supplied By Emergency **Diesel** Generator
- 4) Vendor Environmental Qualification Reports

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A. Request for Information

What is the effect of the diesel generator room temperature on rated generator output during an event?

Response

A telecon was held with the Systems Engineering Supervisor of Coltec Engineering on September 26, 1997. He stated for each 10°F increase in room air temperature over the design room air temperature of 122°F, the engine output would have to be derated by 0.7% to establish a new continuous rating.

Since our expected temperature rise was approximately 20°F, the resultant derating would have been 1.4% of the nameplate continuous rating of 6201 KW, yielding a new continuous output rating of 6114 KW. This exceeds the greatest total safety related and non-safety related connected loads of 6030.5 KW¹

B. Request for Information

What is the effect of the increased room temperature on the environmental qualification of the emergency diesel generator?

Response

As noted in our previous response², Celt's Environmental Qualification Report, M-018-00821-01 rated the emergency diesel generator for 10,512 hours of operation at 137°F (122°F + 15°F margin) and 42 hours for a temperature of 157°F (142°F + 15°F margin). Subsequently, UE calculation KJ-08, Rev. 0 was performed to determine the effect on qualified life of components assuming a temperature of 139°F.³ The data contained within the vendor qualification report has been reviewed and the expected running time of 10,512 hours was recalculated to account for the $1.2°C^4$ (2°F) temperature difference between 137°F and 139°F. As stated in calculation KJ-08 Attachment 2, for all Class 1E devices that had a calculated life of less than 40 years, the recalculated running time for conditions at 139°F ranged from

¹ E21005(Q), Rev. 18 - included as Attachment 3

² ULNRC-3649, September 15, 1997

³ UE Calculation GM-03, Rev. 0 calculated 139°F would be the steady state temperature reached with the emergency diesel generator operating with the ventilation fans secured.

⁴ Environmental Qualification Calculations are performed in °C

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8989.1 to 9675.4 hours. This running time exceeds the required mission time of 720 hours (30 days) by an order of magnitude.

Based on the above, operation of the ventilation supply fan is not required to ensure the emergency diesel generator will supply its required output at 139°F. As stated in our previous response, Callaway does not intend to change the current design basis for operation of the diesel generator ventilation supply fan and will maintain room temperature limits as specified by Technical Specification 16.7.4.

Copies of UE calculation KJ-08, Rev. 0 and Vendor Environmental Qualification Reports are attached for your information. The Vendor Environmental Qualification Reports were sent only to the Licensing Project Manager due to their size and proprietary nature.