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May 12, 1992

2CAN059201

U. S. Nuclear Regulatory Commission  
Document Control Desk  
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Subject: Arkansas Nuclear One - Unit 2  
Docket No. 50-368  
License No. NFP-6  
Response to Request for Additional  
Information and Revision to Technical  
Specification Change Request for  
Electrical Power Systems - Diesel Generator

Gentlemen:

By letter dated October 9, 1990 (2CAN109006), Entergy Operations requested a change to the ANO-2 Technical Specifications for the Electrical Power Systems - Diesel Generator to incorporate the recommendations of Generic Letter 84-15. In subsequent conversations with Ms. Sheri Peterson and other members of your Staff, additional information and consideration of a revision to our submittal was requested. Attached are responses to the Staff questions and comments regarding our change request and revised pages of the original Technical Specification change request. The no significant hazards evaluation of our original submittal remains valid.

Should you or your staff have questions regarding this revision, please do not hesitate to call.

Very truly yours,

NSC/sjf  
Attachments

cc: Mr. Robert Martin  
U. S. Nuclear Regulatory Commission  
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Arlington, TX 76011-8064

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STATE OF ARKANSAS        )  
                                  )  
COUNTY OF LOGAN        )        SS

Affidavit

I, J. W. Yelverton, being duly sworn, subscribe to and say that I am General Manager, Plant Operations for Entergy Operations, that I have full authority to execute this affidavit; that I have read the document numbered 2CAN059201 and know the contents thereof; and that to the best of my knowledge, information and belief the statements in it are true.

J. W. Yelverton  
J. W. Yelverton

SUBSCRIBED AND SWORN TO before me, a Notary Public in and for the County and State above named, this 12th day of May, 1992.

Sandy Liebenmerger  
Notary Public

My Commission Expires:

May 11, 2000

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION  
AND STAFF COMMENTS ON PROPOSED TECHNICAL  
SPECIFICATION CHANGE REQUEST FOR ELECTRICAL  
POWER SYSTEMS - DIESEL GENERATORS

1. Question/Comment: During discussions with the Staff on December 3, 1990 and February 4, 1991, the Staff requested clarification of the term "ambient" as used in the emergency diesel generator (EDG) surveillance requirements (SRs) and recommended defining this term in the Bases section of the TS.

Response:

Each ANO-2 diesel generator is equipped with an engine lube oil (LO) sump and jacket coolant keep warm system to maintain the diesel engine in a condition of readiness for starting. These systems, consisting of circulating pumps, thermostats and heaters, are currently set to control sump LO temperature at approximately 130°F to 140°F and jacket coolant temperature at approximately 100°F to 110°F as recommended by the diesel manufacturer.

Energy Operations has re-evaluated the proposed TS changes that are related to the above comment, and the SRs which contain the term "ambient". Based on this, it was concluded that this term could be misleading since the EDG jacket cooling water and sump LO are maintained at temperatures above the surrounding area environmental temperature (i.e. room ambient). Therefore, to provide a more appropriate description of the required EDG status at the start of testing, the term "ambient" has been replaced with "standby condition" in the SRs. "Standby condition" has been defined in the Bases section as the approximate temperature ranges for jacket coolant and sump LO normally maintained by the keep warm system. The specific values of temperatures required for EDG testing and operability are provided in appropriate plant procedures.

The ANO-2 EDGs are also equipped with a manually operated prelubrication system which is operated for a few minutes prior to planned engine starts to provide oil to the diesel lower and upper crank shaft bearings. Prelubrication is known to extend diesel life and is allowed on all planned test starts. Therefore, the term "standby condition" includes the allowance to perform engine prelubrication prior to all test starts.

2. Question/Comment: During discussions with the Staff on December 3, 1990, additional information was requested to justify the adequacy of the generator load ranges specified for the routine monthly EDG tests and the 18-month endurance test. During further discussions on February 5, 1991, the Staff indicated that for the monthly tests, a load range of 90 to 100% of the diesel's continuous duty rating (CDR) was acceptable. Regarding the 18-month endurance test, the Staff indicated the 2-hour portion of the test should be performed at 105-110% of the CDR with the remaining 22 hours at 90-100% of the CDR.

Response:

The CDR for the ANO-2 EDGs is 2850 KW. As part of our original TS change request, Energy Operations proposed a load range of 2600 to 2850 KW for the routine monthly tests. This range is within 90-100% of the FDG CDR and would produce a target test value of approximately 2725 KW, therefore no changes to our original submittal are proposed.

The proposed load ranges for the 18-month test in our original submittal were: (1) 2900 to 3135 KW for the first 2 hours and (2) 2600-2850 KW for the remaining 22 hours of the test. Using the criteria discussed above (105% to 110% CDR), the specified range for the 2 hour portion of the test would be approximately 2992-3135 KW. The EDG load meters which the operator uses to monitor load during test are divided into 100 KW increments. To provide a specified load range consistent with the instrumentation capability and the criteria above, the load range during the first 2 hour portion of the 18-month test is proposed to be 3000-3200 KW. The load range for the remaining 22 hours of the test remains unchanged from our original proposed 2600-2850 KW.

3. Question/Comment: During discussions with the Staff on December 3, 1990, additional information was requested regarding the proposed changes in format of the Action requirements for TS 3.8.1.1 and a statement that a verification had been performed to ensure no requirements were inadvertently omitted.

Response:

The action requirements of the TS 3.8.1.1 were reformatted into 5 actions to make the requirements more explicit. This consisted of dividing the current action "a" into, the new "a" and "b" actions, separating the requirements for conditions involving the inoperability of a single offsite power source and the inoperability of a single diesel generator. This is considered to be a human factors improvement. An independent verification has been performed to verify that no actions have been omitted.

4. Question/Comment: During discussions with the Staff on February 5, 1991 and September 16, 1991, the NRC expressed concern regarding the proposed action requirements for conditions of one offsite AC power circuit which is inoperable due to preplanned maintenance. The Staff stated their position that if an offsite circuit is inoperable for any reason, then the EDGs must be tested to demonstrate their operability. The Staff requested revision of the proposed action "a" to reflect this position.

Response:

Action "a" of the original TS change request has been revised to require testing of the EDGs if an offsite power circuit becomes inoperable.

5. Question/Comment: During discussions with the Staff on December 3, 1990, it was requested that the term "planned" maintenance as used in the actions requirements of TS 3.8.1.1 be changed to "preplanned preventive" maintenance to avoid a potential misinterpretation of this requirement.

Response: The proposed action "b" addressing conditions of one inoperable EDG has been revised appropriately to incorporate this comment. The term "planned" has been changed to "preplanned preventive".

6. Question/Comment: The original TS change request retained the existing TS requirement that the diesel start and accelerate to at least 900 RPM in  $\leq 15$  seconds, i.e., fast start, during monthly testing. During conversations with the staff on December 3, 1990, it was recommended that SR 4.8.1.1.2.a.4 be revised to require fast starts only once every 184 days.

Response:

This recommendation was based on the Staff's current position that fast EDG starts may have an adverse affect on EDG reliability in the long term. However, testing of this nature on some frequency is necessary to demonstrate that the EDG continues to be able to perform as originally designed and as assumed in the plant's accident analysis. Generic Letter 84-15 included as a proposed new requirement, that fast starts be conducted once every 6 months rather than during every monthly test. Some plants have modified the EDG control circuits or operating procedures to allow idle starting and gradual acceleration of the EDG to rated speed over a period of a few minutes. Although the design of the ANO-2 EDGs has not been modified and the current testing method results in rapid acceleration of the engine to rated speed, the flexibility to implement necessary changes to allow idle starting and gradual engine acceleration in the future, without the need for a TS change would be beneficial. Therefore, SR 4.8.1.1.2.a.4 has been modified by the addition of a footnote indicating that a fast start test is required at least every 184 days and that all other starts for this surveillance may be in accordance with vendor recommendations.

7. Question/Comment: The existing ANO-2 SR 4.8.1.1.2.c.9 requires a hot restart test of the EDG within 5 minutes of completion of the 24-hour endurance test. The proposed wording of our original change request would allow this test to be performed within 5 minutes following any 2-hour run of the diesel to stabilize temperatures. On February 5, 1991, the Staff recommended that the option of performing the hot restart test following a 2-hour EDG run be allowed only for a retest if the test following the 24-hour run is not completed satisfactorily. Additionally, on September 16, 1991, it was noted that the proposed wording of the original change request did not specify the method used to initiate the EDG start (i.e., manual, ESF or loss of offsite power start signal) for the hot restart test. The Staff's position is that for the hot restart test, EDG operation should be initiated by simulating a loss of offsite power.

Response:

Entergy Operations has evaluated these comments and revised our proposed change request appropriately. A footnote has been added to SR 4.8.1.1.2.c.9 indicating that performance of a hot restart test after a 2-hour EDG run is allowed only if the test is not satisfactorily completed following the 24-hour EDG run.

SR 4.8.1.1.2.c.9 has been reworded to require EDG operation be initiated by simulating a loss of offsite power when performing the hot restart test. This was accomplished by retaining the existing TS wording for this SR which requires performance of SR 4.8.1.1.2.c.5.

8. Question/Comment: During discussions with the Staff on December 3, 1990, it was recommended that Note 2 on page 3/4 8-2a of our original change request be repeated on page 3/4 8-4 where the note is referenced again.

Response:

Entergy Operations concurs with this recommendation and has revised the page appropriately. Additionally, this note has been renumbered to Note 3 and split into Notes 3 and 4 for clarity.

9. Question/Comment: During discussions with the Staff on February 5, 1991, changes were recommended to the footnote applicable to TS Table 4.8-1, Diesel Generator Test Schedule. The Staff recommended changing the reference from Generic Letter 84-15 to Regulatory Guide 1.108 and deleting the last two sentences of the note, as they are only of historical value.

Response:

Entergy Operations concurs with these changes and has revised the footnote appropriately.

10. Question/Comment: During conversation with the Staff on February 5, 1991, a concern was discussed regarding a proposed statement in the Bases section that indicated the load ranges specified in the SRs were meant as "guidance". The Staff considers these ranges as requirements and recommended deleting this wording from the Bases.

Response:

Entergy Operations has evaluated this comment and revised the statement in the Bases to be consistent with the wording of the Notes on pages 3/4 8-2a and 3/4 8-4 which discuss the specified load ranges during testing.