Docket

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555
June 5, 1987

MEMORANDUM FOR: Sholly Coordinator

FROM: Jose A. Calvo, Director
Project Directorate - IV
Division of Reactor Projects - III,
IV, V and Special Projects

SUBJECT: REQUEST FOR PUBLICATION IN BI-WEEKLY FR NOTICE - NOTICE OF CONSIDERATION OF ISSUANCE OF AMENDMENT TO FACILITY OPERATING LICENSE AND PROPOSED NO SIGNIFICANT HAZARDS CONSIDERATION DETERMINATION AND OPPORTUNITY FOR HEARING

Louisiana Power and Light Company, Docket No. 50-382, Waterford Steam Electric Station, Unit 3, St. Charles Parish, Louisiana

Date of amendment request: March 26, 1987, as supplemented by letter dated May 15, 1987.

Description of amendment request: The proposed change will revise the action statements and surveillance requirements of Technical Specification 3.8.1.1, "Electrical Power Systems, A.C. Sources - Operating." The reason for this change is to implement a more performance-based technical specification that will improve the overall reliability and availability of the emergency diesel generators of Waterford 3. The proposed change consists of the following:

1) ACTION statement "a" currently specifies the action to be taken if either an offsite A.C. power source or an Emergency Diesel Generator (EDG) becomes inoperable. The proposed change will place the offsite circuit and the diesel generator into separate action statements; that is, the proposed ACTION statement "a" would specify only those actions that are required when one offsite A.C. circuit becomes inoperable while the proposed ACTION statement "b" would specify only those actions that are required when one EDG becomes inoperable. This will provide the operators with specific instructions for each case, thereby

reducing the potential for operator error. This change is administrative and does not affect the manner in which the plant is operated.

2) When one required offsite A.C. circuit is inoperable, ACTION statement "a" currently requires all remaining A.C. power sources (including both EDGs) to be demonstrated operable within 1 hour and every 8 hours thereafter. The proposed change would not affect the requirement to verify the operability of the remaining offsite A.C. circuit but would change the requirement for testing the diesel generators. The diesel generator testing requirements would be changed from "within 1 hour and at least every 8 hours thereafter" to "within 24 hours (unless it is already operating)." The proposed change would reduce the number of diesel generator starts and is consistent with NRC Generic Letter 84-15, "Proposed Staff Actions to Improve and Maintain Diesel Generator Reliability," and other EDG technical specification changes previously approved on other plants.

3) When one required diesel generator is inoperable, ACTION statement "a" currently requires all remaining A.C. power sources to be demonstrated operable within 1 hour and at least every 8 hours thereafter. The proposed change would not affect the requirement to verify the operability of the offsite A.C. circuits but would re-letter this action statement as ACTION statement "b" and modify the diesel generator testing requirements. The new ACTION statement "b" would require testing of the remaining operable EDG within 24 hours (same as (2) above) but only "if the diesel generator became inoperable due to any cause other than

preplanned preventive maintenance or testing." This reduced testing requirement is consistent with other EDG technical specification changes previously approved on other plants.

4) With one offsite A.C. circuit and one diesel generator inoperable, ACTION statement "b" currently requires the remaining A.C. power sources to be demonstrated operable within 1 hour and at least every 8 hours thereafter. The proposed change would retain the same requirements for verifying the operability of the remaining offsite A.C. circuit, but would not require an operability test on the remaining operable EDG if it was already running or if the inoperable EDG became inoperable due to preplanned preventive maintenance or testing. The requirement to restore at least one of the inoperable power sources to operable status within 12 hours will be retained; however, the requirement to restore both offsite A.C. circuits and both EDGs to operable status will be reworded to clarify what credit may be taken and what time requirements are involved when one of the inoperable A.C. power sources has been returned to operable status. The proposed changes are consistent with NRC Generic Letter 84-15 and should assist the operators in properly interpreting the action statements. This action statement has been re-lettered as ACTION statement "c."

5) When one diesel generator is inoperable, ACTION statement "c" currently requires action to be taken which is in addition to ACTION statement "a or b". The proposed change would re-letter this action statement (to ACTION statement "d") and change the reference from ACTION statement

"a or b" to ACTION statement "b or c". This is an administrative change to maintain consistency throughout the technical specifications.

6) When both of the required offsite A.C. circuits are inoperable, ACTION statement "d" currently requires both diesel generators to be demonstrated operable within 1 hour and at least once per 8 hours thereafter (unless they are already operating). The proposed change would delete the 1-hour requirement and specify that both EDGs must be demonstrated operable within 8 hours. The requirement to restore at least 1 offsite A.C. circuit to operable status within 24 hours will be retained; however, the requirement to restore both offsite A.C. circuits to operable status will be reworded to clarify what credit may be taken and what time requirements are involved when one of the inoperable offsite A.C. circuits has been returned to operable status. The proposed changes are consistent with NRC Generic Letter 84-15 and should assist the operator in properly interpreting the action statements. This action statement has been re-lettered as ACTION statement "e."

7) When both of the required diesel generators are inoperable, ACTION statement "e" currently requires both offsite A.C. circuits to be demonstrated operable within 1 hour and at least once per 8 hours thereafter. In addition, it requires that one EDG be restored to operable status within 2 hours or the reactor must be shutdown. No change has been proposed to these requirements. The proposed change to this action statement is to reword the requirement to restore both EDGs to operable status in order to clarify the time requirements that

are involved when an inoperable EDG is returned to operable status. This is an administrative change to assist the operators in interpreting the action statements. This action statement has been re-lettered as ACTION statement "f."

8) Surveillance Requirement 4.8.1.1.2a.5 of the technical specifications currently requires that, on a staggered test basis, each diesel generator by synchronized and loaded to greater than or equal to 4400 kW in less than or equal to 176 seconds and operate at this load for at least an additional 60 minutes. The proposed change would replace "greater than or equal to 4400 kW" with "an indicated 4200-4400 kW." The reason for this change is to allow routine monthly testing below the continuous diesel generator rating of 4400 kW. The intent of monthly testing is not to show that the EDG can exceed its continuous duty rating on a frequent basis but, rather, to exercise the EDG, confirm its operability and detect any performance degradation prior to a failure. The ability of the EDG to meet the design basis accident loads (4619 kW) and the maximum continuous design load (4383 kW) is currently verified every 18 months by performing surveillance requirement 4.8.1.1.2d.6 of the technical specifications. Since the exact value of generator load is not critical and it has been shown that frequent overloading is a potential cause of EDG failures, the reduction in EDG loading for routine tests should result in an overall increase in the reliability and availability of the diesel generators.

9) Surveillance requirement 4.8.1.1.2c.3 of the technical specifications currently requires that, in order to maintain an operable EDG, the diesel generator fuel oil supply must be maintained with properties consistent with Table 1 of ASTM-D975-1977 and Regulatory Guide 1.137 (Position 2a). The proposed change to this surveillance requirement would add a statement that would allow the EDG to retain operable status even when these properties are outside of the prescribed limits as long as corrective action is initiated within 72 hours to return the fuel oil supply to within acceptable limits. The two parameters called out in Regulatory Guide 1.137 (Position 2a) as being critical to EDG operability (i.e., viscosity and water/sediment) are specifically covered in surveillance requirements 4.8.1.1.2c.1 and 4.8.1.1.2c.2. These parameters must be within acceptable limits or the EDG is declared inoperable.

10) Surveillance requirement 4.8.1.1.2d.6 of the technical specifications currently requires, in part, that every 18 months each EDG be run continuously for 24 hours; the first 2 hours at a load greater than or equal to 4840 kW and the last 22 hours at a load greater than or equal to 4400 kW. The basis for this requirement is to ensure that each EDG can maintain the peak accident design load (4619 kW) if required and the maximum continuous design load (4383 kW) if required. The proposed change would revise the maximum EDG loading for the first 2 hours "greater than or equal to 4840 kW" to "between 4700 and 4900 kW." The licensee has stated that this will verify that the EDG is capable of maintaining the peak accident design load without overloading it. The

requirement for maintaining greater than or equal to 4400 kW for the remaining 22 hours would be unchanged. The proposed change would also correct a typographical error in the last line of this surveillance requirement. This line should read, "Within 5 minutes after completing this 24-hour test, perform Surveillance Requirement 4.8.1.1.2d.3b" (vice 4.8.1.1.2d.4b).

11) Table 4.8-1, which specifies the diesel generator test schedule, is based on Regulatory Guide 1.108 "Periodic Testing of Diesel Generators Units Used as Onsite Electrical Power Systems at Nuclear Power Plants," and currently requires a test frequency varying from once every three days to once every 31 days, depending on the number of failures in the last 100 valid tests. The proposed change would add a 20-test criterion for determining test frequency, change the 100-test criterion to reflect a reduced testing frequency, and change the test criteria from a "per nuclear unit" basis to a "per diesel generator" basis. In addition, a note would be added to this table which would provide a direct incentive for major corrective action when a diesel generator has been experiencing repeated failures. That is, once the EDG has been completelay overhauled to "like-new" conditions and its reliability demonstrated, the diesel generator failure count would be reduced to zero and the EDG would re-enter the test schedule at the monthly test frequency. In order to demonstrate EDG reliability, the diesel generator would be successfully started 14 consecutive times. These changes are consistent with NRC Generic Letter 84-15 and other EDG technical specification changes previously approved on other plants.

12) A new Table 4.8-2 has been added to require, consistent with Generic Letter 84-15, additional actions should the number of diesel generator failures exceed 2 in the last 20 tests or 5 in the last 100. These new actions include implementation of a reliability improvement program and; if the failures exceed 4 in the last 20 tests or 10 in the last 100, would require performance of a requalification test program.

Basis for proposed No Significant Hazards Considerations Determination: The NRC staff proposes that the proposed changes do not involve a significant hazards consideration because, as required by the criteria of 10 CFR 50.92 (c), operation of the facility in accordance with the proposed amendment would not: (1) Involve a significant increase in the probability or consequences of any accident previously evaluated; (2) Create the possibility of new or different kind of accident from any accident previously evaluated; or (3) Involve a significant reduction in the margin of safety. The basis for this proposed finding is given below.

(1) Emergency onsite power sources (i.e., diesel generators) are credited in all FSAR Chapter 15 accident analyses that assume a loss of offsite power. The analyses include virtually every type of accident; from reactivity initiated accidents (e.g., Control Element Assembly (CEA) Drop and CEA Ejection) to primary and secondary system pipe breaks (e.g., Steam Line Break and Loss of Coolant Accident). When evaluating these accidents, it is typical to assume that one emergency diesel generator (EDG) fails to start and/or load, hence each EDG must be capable of powering the Engineered Safety Features (ESF) that are necessary to mitigate the consequences of the accident. In the case

of Waterford 3, the licensee has calculated that the initial peak accident load (i.e., the power that must be available for the first two hours of the design basis accident) is approximately 4619 kW while the long-term accident loads (i.e., the power that must be available for several weeks post-accident) is approximately 4383 kW. The Waterford 3 EDGs therefore, have design ratings of 4840 and 4400 kW for the peak and long-term accident loads, respectively. In order to ensure that these EDGs can indeed perform as they were designed, it is important that they be tested on a routine basis; however, when the testing becomes excessive (as much as 3 times a day for some ACTION statements), the tests themselves can lead to EDG degradation and subsequently, reduce their reliability and availability. The proposed changes to this technical specification provide for an overall reduction in diesel generator testing that is consistent with the guidelines provided by NRC Generic Letter 84-15 and other EDG technical specification changes that have been previously approved by the NRC. Since the proposed changes will improve the overall reliability and availability of the diesel generators and each EDG (by itself) can satisfy the power requirements for the peak and long-term accident loads, the proposed changes will not significantly increase the probability or consequences of any accident previously evaluated.

(2) The emergency diesel generators provide backup electrical power to vital plant systems in the event that primary offsite power is lost. They provide no direct support for plant systems during normal plant operation. The proposed changes, which will implement reduced of

excessive testing requirements, are intended to increase the overall reliability of the EDGs thereby increasing their availability. Since the diesel generators will still be capable of performing their design function (with potentially increased availability), the proposed changes will not create the possibility of a new or different kind of accident from any accident previously evaluated.

(3) The intent of this specification is to ensure that there is sufficient power available to supply the safety-related equipment required for safe shutdown of the plant and mitigation and control of accident conditions. The redundancy of the power sources required (2 onsite sources and 2 offsite sources) ensure that, even during an accident with a coincident loss of offsite power and a single failure of one onsite power source, there is still sufficient power to supply all required safety systems. Since the proposed changes have no effect on the Limiting Condition for Operation (LCO), these requirements are unaffected. The action statements to the LCO restrict operation of the plant in a manner commensurate with the level of degradation. For example, when one emergency diesel generator is inoperable, the action statements require verification that all other A.C. power sources are operable and that all required systems, subsystems, trains and components that depend on the remaining EDG are also operable. This provides assurance that a loss of offsite power will not result in a complete loss of safety function of critical systems during the time one EDG is inoperable. The proposed changes to the action statements are either administrative (such as dividing the current ACTION statement "a" into

separate ACTION statements "a" and "b") or they implement the reduced testing requirements recommended by NRC Generic Letter 84-15. These changes should result in increased reliability and availability of the EDGs. The surveillance requirements are intended to demonstrate the operability of the A.C. sources. No changes are proposed to the surveillance requirements affecting the operability of the offsite A.C. sources. The proposed changes to the EDG surveillance requirements are intended to reduce the frequency and potential for overloading the EDGs in order to reduce the overall wear on the engine. This should result in an increased reliability of the EDGs. Therefore, due to the increased reliability of the EDGs, the proposed changes do not involve a significant reduction in the margin of safety.

The staff has reviewed the licensee's no significant hazards consideration analysis. Based on the review and above discussions, the staff proposes to determine that the proposed changes do not involve a significant hazards consideration.

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/s/

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