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SUBJECT: Application for amend to Licenses DPR-58 & DPR-74, changing Section 3/4.8.2 to improve & maintain diesel generator reliability as recommended by NRC in Generic Ltr 84-15. Fee paid.

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January 16, 1987
AEP:NRC:0896B

Donald C. Cook Nuclear Plant Unit Nos. 1 and 2
Docket Nos. 50-315 and 50-316
License Nos. DPR-58 and DPR-74
DIESEL GENERATOR RELIABILITY TECHNICAL SPECIFICATION
CHANGE REQUEST, GENERIC LETTER 84-15

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Mr. Denton:

In our letter AEP:NRC:0896 (dated September 28, 1984), responding to Generic Letter 84-15, we made a commitment to submit a proposed Technical Specification (T/S) change for the D. C. Cook Nuclear Plant Unit Nos. 1 and 2 diesel generators.

This letter and its attachments constitute an application for amendment to the diesel generator T/Ss for the D. C. Cook Nuclear Plant Unit Nos. 1 and 2, Section 3/4.8.1. In addition, we are proposing to change portions of Sections 3/4.8.2 and 3/4.8.3 for both units that are not directly related to the diesel generators. The reasons for the proposed changes to Section 3/4.8.1 are to improve and maintain diesel generator reliability as recommended by your staff in Generic Letter 84-15. The reasons for changing Section 3/4.8.2 and 3/4.8.3, the AC and DC distribution systems, are to provide standardization between Units 1 and 2, to clarify certain T/Ss, and to make editorial changes. Justification for plant-specific changes is contained in Attachment 1. The proposed revised Technical Specification pages are contained in Attachment 2.

We believe that the proposed changes will not result in (1) a significant change in the types of effluents or a significant increase in the amounts of any effluent that may be released offsite, or (2) a significant increase in individual or cumulative occupational radiation exposure.

These proposed changes have been reviewed by the Plant Nuclear Safety Review Committee (PNSRC) and will be reviewed by the Nuclear Safety and Design Review Committee (NSDRC) at their next regularly scheduled meeting.

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In compliance with the requirements of 10 CFR 50.91(b)(1), copies of this letter and its attachments have been transmitted to Mr. R. C. Callen of the Michigan Public Service Commission and Mr. G. Bruchmann of the Michigan Department of Public Health.

Pursuant to 10 CFR 170.12(c), we have enclosed an application fee of $150.00 for the proposed amendments.

This document has been prepared following Corporate procedures which incorporate a reasonable set of controls to insure its accuracy and completeness prior to signature by the undersigned.

Very truly yours,

M. P. Alexich
Vice President

1/16/87

cm
Attachments

cc: John E. Dolan
W. G. Smith, Jr. - Bridgman
R. C. Callen
G. Charnoff
G. Bruchmann
NRC Resident Inspector - Bridgman
J. G. Keppler

ATTACHMENT 1 TO AEP:NRC:0896B

REASONS FOR 10 CFR 50.92 ANALYSES FOR

CHANGES TO THE

DONALD C. COOK NUCLEAR PLANT UNIT NOS. 1 AND 2

TECHNICAL SPECIFICATIONS

The changes proposed to Section 3/4.8.1 are to make the D. C. Cook diesel generator Technical Specifications support an improved reliability goal. We concur with the NRC staff position that cold fast starting should be reduced as much as possible to preclude premature diesel engine degradation. A description of our diesel generator surveillance program follows.

Currently, the diesel generators in use at D. C. Cook are not started cold. The engine crankshaft and associated bearings are continuously lubricated with warm oil, the upper valve gear is lubricated intermittently, and the engine jacket water is heated to nearly operating temperature. The engine is thereby continuously prelubed and prewarmed. However, the T/Ss do require that our diesels be fast-started each month and also in response to action statements. The diesel engine manufacturer has stated that the preferred sequence for engine starting is to start the engine and operate it at approximately half speed for a period of approximately 5 minutes, then accelerate the engine to rated speed and apply load. The operating time at half speed affords the operator the opportunity to observe engine operation and to detect misoperation or noticeable operational defects. The slow starting will reduce the engine stress related to fast starting for surveillance testing. The periodic fast starts at intervals of no more than 184 days and at refueling outages will demonstrate the ability of the engine to fast-start at sufficiently frequent intervals to confirm the ability of the engine to perform its safety function.

D. C. Cook Plant has two load banks consisting of forced-air-cooled resistors which are used for surveillance testing. Each load bank will dissipate approximately 1750 kw at rated voltage. The load banks are connected to the diesel generators as a step change in load of approximately one-half the diesel generator nameplate rating. During monthly surveillance tests, the diesel generators are started, brought to rated speed and voltage, manually synchronized and loaded to approximately 750 kw to each of their respective auxiliary buses. The generator circuit breakers are then opened, since they have demonstrated their operability, and the circuit breaker to the load bank is closed to connect the load to the diesel. The diesel generator is then operated in this mode for the required time to demonstrate operability. On completion of the surveillance test, the circuit breaker to the load bank is opened and racked out and the diesel generator is shut down and restored to standby status.

One load bank is shared by the 1AB diesel generator of Unit 1 and the 2AB diesel generator of Unit 2. The other load bank is shared by the 1CD diesel generator of Unit 1 and the 2CD diesel generator of Unit 2. Cross-connecting of diesel generators of opposite units to the same load bank is prevented by the keyed interlock switches which prevent closing both load bank circuit breakers at the same time.

The advantage of this arrangement is that the diesel generator is kept separate from the auxiliary power system except for the brief interval during which the bus circuit breakers are closed to demonstrate their operability. The diesel generator is not exposed to the consequences of electric power system faults or other events which could occur and is maintained in a condition ready to perform its intended function following

loss of auxiliary power or initiation of a Safety Injection actuation even while it is being operated for surveillance purposes. In the event the load bank is not available, the diesel generator can be load-tested by connecting it to one of its two buses.

The load-testing of the diesel generators at approximately half load using the load bank is preferable to full-load-testing while connected to the auxiliary bus because of the benefits of an isolated test. Half load, applied as a step change, adequately exercises the speed governor and voltage regulator and loads the diesel engine sufficiently to raise engine temperatures to normal values.

The changes to T/S 3/4.8.1.1 are identical to those suggested in Generic Letter 84-15 except for certain parameters that had to be altered to accommodate the D. C. Cook-specific design. The following is a list of the differences between our submittal and the Generic Letter 84-15, including our justifications for these differences.

1. T/S 4.8.1.1.2.a.1. This reference to the engine-mounted tank was not included in our T/S because our diesels do not have engine-mounted tanks.

2. T/S 4.8.1.1.2.a.4. The references to generator voltage and frequency requirements were not included. We believe these requirements are unnecessarily restrictive. These requirements are beyond the design criteria of our diesel generators and cannot be supported by the diesel manufacturer. We believe the primary function of this test is demonstrated when a load is placed on the diesels. If a load can be successfully placed on the diesels, then the voltage and frequency output is within the range necessary for the diesels to perform their safety function. The output of the diesels does not need to be within the ranges given to be operable. Thus, a diesel perfectly capable of handling its emergency loads might fail the voltage and frequency requirements of this surveillance. Such failures could lead to increased diesel testing per Specification 4.8.1.1.2.a. Since the purpose of this T/S change is to decrease diesel testing, thereby increasing reliability, we believe this surveillance is counter-productive to this goal. Therefore these requirements were deleted throughout T/S 4.8.1.1.2.

   In addition, the footnote to this T/S allowing for slow starts has been modified to specifically include those starts required by the compensatory action statements. We believe that these starts were intended to be included in the reduction of fast starts and that this is merely an editorial change for clarity.

3. The phrase "if the diesel generator became inoperable due to any cause other than preplanned preventive maintenance or testing, demonstrate the OPERABILITY of the remaining OPERABLE diesel generator by performing" was added to T/S 3.8.1.1 Actions b and c. This phrase is similar to that in Virginia Electric's North Anna Unit 2 T/Ss Amendment 48, pages 3/4 8-1 and 8-2. We believe

this phrase still assures the capability to provide A.C. power and reduces wear on the diesel generators. This is consistent with the intent of Generic Letter 84-15.

4. T/S 4.8.1.1.2.a.5. In this specification the requirement for a fast start was deleted. The fast start capability is adequately demonstrated in T/S 4.8.1.1.2.a.4, and we believe that a fast-start requirement in this specification would be redundant. Also in this specification the generator load was changed from 1750 kw to 1700 kw. This change is requested because the resistance of the load bank used in this test varies with the ambient temperature. This change in resistance can lower the generator load slightly below 1750 kw, causing difficulty in performing this surveillance. We believe the value "1750 kw" was chosen arbitrarily and the intent of the test is to run the diesel generators at about half-load. The value "1700 kw" meets this intent and still assures the loading capability of the diesel generators.

5. T/S 4.8.1.1.2.b. The phrase "to below the fuel tank suction level" was added to this specification to more clearly state the lowest level to which water can be drained. Also, the requirement for testing of the diesel fuel after each operation of one hour or more was not included. Current monthly testing has been shown to adequately ensure that water does not accumulate in the diesel fuel oil. We believe the testing schedule in the Generic Letter is unnecessarily restrictive.

6. T/S 4.8.1.1.2.c. The reference to standard ASTM-D2274-70 and the impurity level test was not included. We believe the testing in accordance with ASTM-D270-1975 and ASTM-D975-77 is adequate to ensure the quality of the diesel fuel oil.

7. T/S 4.8.1.1.2.d.2 and T/S 4.8.1.1.2.d.3. These specifications were reworded to more accurately describe the method used in our load rejection test. We believe our load rejection test is equivalent to the testing described in Generic Letter 84-15 and is adequate to ensure load rejection capability.

8. T/S 4.8.1.1.2.d.4. The phrase "after energization" was changed to "after load sequencing." This change was made because the diesels are more stable after load sequencing and the surveillance can more effectively be performed at that time.

9. T/S 4.8.1.1.2.d.5 and 4.8.1.1.2.d.6. The term "ESF" was replaced by "Safety Injection." This change was made because the safety injection signal is the ESF signal which we use during these tests. Also in T/S 4.8.1.1.2.d.6.c, the words "concurrent with" were replaced by "and/or." This change was made because we verify that the automatic diesel generator trips, except engine overspeed and generator differential, are automatically bypassed on either a loss of voltage to the emergency bus or a safety injection signal or both. By operating the diesels in this manner, we reduce the probability that we would trip a diesel generator when it is most likely that the power will be needed.

10. T/S 4.8.1.1.2.d.7 and 4.8.1.1.2.d.8. Worthington, the manufacturer of our diesel generators, states that our diesels are rated at 3500 kw. They do not provide or support either a 2-hour rating or a 2000-hour rating. Therefore the references to these ratings have been omitted.

11. T/S 4.8.1.1.2.d.10. This T/S was reformatted to be consistent with the numbering used in other T/Ss, e.g., 4.8.1.1.2.d.9.

These differences are necessary to accommodate the D. C. Cook design. While these changes deviate from the exact wording of Generic Letter 84-15, we believe they reflect the intent of the letter. We believe the proposed T/Ss will extend the life of the diesel generators and increase their reliability. This increased reliability will enhance our ability to respond to a station blackout.

These changes are proposed to increase the reliability of the diesel generators. The changes are based on the Commission's recommendations made in Generic Letter 84-15, which states that:

> "The staff has determined that the risk from station blackout is such that early action to improve diesel generator reliability would have significant safety benefit. Tow this objective, we have developed the following approach to asses and enhance, where necessary, the reliability of diesel generators at all operating plants."

Per 10 CFR 50.92, a proposed amendment will not involve a significant hazards consideration if the proposed amendment does not:

(1) involve a significant increase in the probability or consequences of an accident previously evaluated,
(2) create the possibility of a new or different kind of accident from any accident previously analyzed or evaluated, or
(3) involve a significant reduction in a margin of safety.

Criterion 1

While these changes constitute a relaxation in the surveillance requirements for the diesel generators, the Commission has determined that the reduced testing of the diesels leads to increased reliability. Our evaluation concurs with the Commission's position on this issue. The increased reliability of the diesel generators enhances our capability to respond to a station blackout. Therefore we believe that this change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

Criterion 2

The changes proposed to the diesel generator T/Ss will not place the plant in a new or unanalyzed condition. Therefore this change will not create the possibility of a new or different kind of accident from any accident previously evaluated.

Criterion 3

Increasing the reliability of the diesels increases our ability to mitigate the consequences of a station blackout. Therefore, we believe that this change will not involve a significant reduction in a safety margin.

The Commission has provided guidance concerning the application of the standards for determining whether a significant hazards consideration exists by providing certain examples (48 FR 14870) of amendments that are considered not likely to involve significant hazards consideration. The sixth of these examples concerns changes that may either result in some increase in the probability or consequences of a previously analyzed accident or may reduce in some way a safety margin, but the results of which are clearly within all acceptable criteria with respect to the system or component specified in the Standard Review Plan: for example, a change resulting from the application of a small refinement of a previously used calculational model or design method. We believe that the changes discussed above are similar to this example and hence do not involve a significant hazards consideration as defined in 10 CFR 50.92.

In addition to the changes recommended in Generic Letter 84-15, we have requested a number of administrative changes:

1. Unit 1 page 3/4 8-1
   Unit 2 page 3/4 8-1

A footnote was added to T/S 3.8.1.1.b.2 to clarify that although the diesel fuel storage tanks are separate between diesels in the same unit, they may be shared between diesels in separate units.

2. Unit 1 page 3/4 8-2
   Unit 2 page 3/4 8-2

A footnote was added to clarify that the times specified in the Action Statements are not cumulative. For example, if two offsite A.C. circuits are inoperable (Action d) for five hours and then one is restored, when you return to conditions corresponding to Action a, the time clock is not reset and action should therefore be taken corresponding to one circuit having been inoperable for five hours.

3. Unit 2 page 3/4 8-10

The reference to the surveillance requirement was corrected to reflect the renumbering on page 3/4 8-3.

4. Unit 1 page 3/4 8-11
   Unit 2 page 3/4 8-11

Unit 1 T/S 3.8.2.1 was changed to be identical to T/S 3.8.2.1 currently approved for Unit 2. Also, in Unit 1 T/S 4.8.2.1, the phrase "other than the diesel generators" was deleted. In Unit 2 T/S 4.8.2.1 the phrase "and energized from A.C. sources" was added for clarity.

5. Unit 1 page 3/4 8-11 and 8-12
   Unit 2 page 3/4 8-11 and 8-12

A footnote was added to clarify that the 120-volt A.C. vital buses are energized from their associated inverter which is connected to a D.C. bus.

6. Unit 1 page 3/4 8-12
   Unit 2 page 3/4 8-12

Unit 1 T/S 3.8.2.2 was changed to be identical to T/S 3.8.2.2 currently approved for Unit 2. Also in Unit 1 the phrase "other than the diesel generators" was deleted. The words "and energized" were added to Unit 2 T/S 4.8.2.2 for clarity.

7. Unit 1 page 3/4 8-17
   Unit 2 page 3/4 8-17

The qualifier "No." was deleted before the letter "N". This qualifier serves no purpose since "N" is not a number, and is therefore being removed for clarity.

8. Unit 1 page 3/4 8-19
   Unit 2 page 3/4 8-19

The word "valve" is now written each time rather than being indicated by ditto marks.

9. Throughout Section 3/4.8, hyphens were added where appropriate; for example, "250-Volt D.C. bus."

10. Throughout Section 3/4.8 the words "greater (or less) than or equal to" were used to replace the mathematical symbols.

11. The page numbers and table numbers for T/S Section 3/4.8 were revised for both units due to the addition of a number of new pages to accommodate the changes contained in Generic Letter 84-15.

All of the changes described above are made as clarifications, editorial comments, or to make the Unit 1 T/Ss identical to the Unit 2 T/Ss.

Per 10 CFR 50.92, a proposed amendment will not involve a significant hazards consideration if the proposed amendment does not:

(1) involve a significant increase in the probability or consequences of an accident previously evaluated,
(2) create the possibility of a new or different kind of accident from any accident previously analyzed or evaluated, or
(3) involve a significant reduction in a margin of safety.

<u>Criterion 1</u>

Since these changes do not impact plant components or systems due to their administrative nature, we believe they do not involve a significant increase in the probability or consequences of a previously evaluated accident.

Criterion 2

These changes will not place the plant in a new or unanalyzed condition. Therefore this change will not create the possibility of a new or different kind of accident from any accident previously evaluated.

Criterion 3

The changes requested which are purely editorial or which clarify an existing specification do not impact any margin of safety. The changes which make Unit 1 identical to Unit 2 preserve the margin of safety previously approved for Unit 2.

The Commission has provided guidance concerning the application of the standards for determining whether a significant hazards consideration exists by providing certain examples (48 FR 14870) of amendments that are considered not likely to involve significant hazards consideration. Example (i) relates to a purely administrative change to Technical Specifications: for example, a change to achieve consistency throughout the Technical Specifications, correction of an error, or a change in nomenclature. The changes discussed here are similar to this example. Therefore we believe these changes do not involve a significant hazards consideration as defined by 10 CFR 50.92.

A change was made to Table 4.8-3 to add the footnote "** With actual or simulated connected loads added to the battery" to all references to AB and CD emergency battery loads. This addition would allow the flexibility to test the batteries with simulated loads using a load bank. This change was allowed for the static inverters in Amendments 86 for Unit 1 and 72 for Unit 2 and has proved to be valuable in the scheduling and performance of surveillances. We request that this change be allowed for the remaining battery emergency loads.

Per 10 CFR 50.92, a proposed amendment will not involve a significant hazards consideration if the proposed amendment does not:

(1) involve a significant increase in the probability or consequences of an accident previously evaluated,
(2) create the possibility of a new or different kind of accident from any accident previously analyzed or evaluated, or
(3) involve a significant reduction in a margin of safety.

Criterion 1

This change affects plant equipment when it is being tested, during which time it is not required to be operable. Testing of the batteries using a load bank will not impact the capability of the batteries to perform their safety function when they are required to be operable. Therefore we believe this change will not result in a significant increase in the probability or consequences of a previously analyzed accident.

Criterion 2

This change will not affect the operation of the battery when it is required to be operable. While the battery is attached to the load bank during testing, the battery cannot affect other systems or components which are required to be operable. Therefore we believe this change will not create the possibility of a new or different kind of accident than has previously been analyzed or evaluated.

Criterion 3

This change will not impact the batteries in Modes 1 through 4, when the batteries are required to be operable. Thus the change will not affect the ability of the batteries to perform their safety function. Therefore we believe this change will not involve a significant reduction of a margin of safety.

The Commission has provided guidance concerning the application of the standards for determining whether a significant hazards consideration exists by providing certain examples (48 FR 14870) of amendments that are considered not likely to involve a significant hazards consideration. Example vi refers to changes which may result in some increase to the probability or consequences of a previously analyzed accident or may reduce in some way a margin of safety, but where the results of the change are clearly within all acceptable criteria with respect to the system or component as specified in the safety analysis. The change discussed here is similar to this example. Therefore we believe this change does not involve a significant hazards consideration as defined by 10 CFR 50.92.

ATTACHMENT 2 TO AEP:NRC:0896B

PROPOSED CHANGES TO THE

DONALD C. COOK NUCLEAR PLANT UNIT NOS. 1 AND 2

TECHNICAL SPECIFICATIONS