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OPPD
Omaha Public Power District

444 South 16th Street Mall
Omaha NE 68102-2247

LIC-08-0074
July 31, 2008

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

References:
1. Docket No. 50-285
2. Letter from OPPD (W. G. Gates) to NRC (Document Control Desk), "Application of Amendment of Operating License," dated November 11, 1991 (LIC-91-305R)
3. Letter from NRC (S. D. Bloom) to OPPD (W. G. Gates), "Fort Calhoun Station, Unit No. 1 - Amendment No. 147 to Facility Operating License No. DPR-40 (TAC No. M80878)," dated August 3, 1992 (NRC-92-311)

SUBJECT: Fort Calhoun Station Unit No. 1, License Amendment Request (LAR) 08-03, Clarify Technical Specification 2.7(2) Regarding Preferred Offsite Power Source, Transformer Allowed Outage Time (AOT)

Pursuant to 10 CFR 50.90, the Omaha Public Power District (OPPD) hereby requests changes to the Fort Calhoun Station (FCS), Unit No. 1 Renewed Operating License No. DPR-40 to modify the transformer allowed outage time (AOT) in FCS Technical Specifications (TS) Sections 2.7(2)a., 2.7(2)b., and 2.7(2)c. and delete the associated 2.7(2) special reporting requirements in TS 5.9.3j.

The proposed changes would revise TS 2.7(2)a. to allow both auxiliary power transformers, T1A-1 and T1A-2, to be inoperable for a period of 72 hours, consistent with NUREG 1432, *Standard Technical Specifications* [STS] *for Combustion Engineering Plants*; and would revise TS 2.7(2)b. and c. to impose a limit of 7 days for plant operation in the event that house service transformers T1A-3 and/or T1A-4 become inoperable. Currently, there is no specified limit to the amount of time that the house service transformers may be inoperable, provided a special report is submitted to the NRC. In addition to providing the imposed limit, the proposed change would remove the special report requirement as well as the existing requirement to verify operability of the diesel generators when offsite power sources are degraded or inoperable. (See References 2 and 3.)

The associated requirement delineated in TS 5.9.3j. for submitting a special report to the NRC per TS 2.7(2) is also being deleted. In addition, an editorial change is being made to add a period at the end of the text in TS 5.9.3i. to be consistent with TS 5.9.3.

In addition, the associated TS Basis for TS 2.0.1 is being modified to reflect the proposed AOT, remove the verbiage related to diesel generator operability, and correct a typographical error. This TS Basis Change (TSBC) is included for information and will be processed in accordance with TS 5.20.

OPPD has determined that this license amendment request (LAR) does not involve a significant hazard consideration as determined per 10 CFR 50.92. Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment needs to be prepared in connection with the issuance of this amendment.

The enclosure contains a description of the proposed changes, the supporting technical analyses, and the significant hazards consideration determination. Attachment 1 provides the existing TS pages marked-up to show the proposed changes. Attachment 2 provides the retyped (clean) TS pages. Attachments 3 and 4 provide the "information only" markups and retyped (clean) TS Basis page for TS 2.0.1, respectively.

There are no regulatory commitments associated with this proposed change.

OPPD requests approval of the proposed amendment by July 31, 2009. Once approved, the amendment shall be implemented within 120 days.

In accordance with 10 CFR 50.91, a copy of this application, with attachments, is being provided to the designated State of Nebraska official.

If you should have any questions regarding this submittal or require additional information, please contact Mr. Bill Hansher at 402-533-6894.

I declare under penalty of perjury that the foregoing is true and correct. Executed on July 31, 2008.

David J. Bannister
Vice President
Chief Nuclear Officer

DJB/DLL/dll

Enclosure: OPPD's Evaluation of the Proposed Change(s)

c: Director of Consumer Health Services, Department of Regulation and Licensure, Nebraska Health and Human Services, State of Nebraska

OPPD's Evaluation of the Proposed Change

Subject: Technical Specification Section 2.7(2), *Electrical Systems, Modification of Minimum Requirements*, Regarding Preferred Offsite Power Source, Transformer Allowed Outage Time (AOT)

ATTACHMENTS:

1. Technical Specifications Pages - Markups
2. Technical Specifications Pages - Retyped ("Clean")
3. Technical Specification Basis Page – Markups (For Information Only)
4. Technical Specification Basis Page – Retyped ("Clean") (For Information Only)

1.0 SUMMARY DESCRIPTION

This letter is a request to amend the Renewed Operating License No. DPR-40 for Fort Calhoun Station (FCS), Unit No. 1.

The proposed changes would revise the Technical Specifications (TS) Sections 2.7(2)a., b., and c., to allow both auxiliary power transformers, T1A-1 and T1A-2, to be inoperable for a period of 72 hours, consistent with NUREG-1432, *Standard Technical Specifications for Combustion Engineering Plants*, and would impose a limit of 7 days for plant operation in the event that house service transformers T1A-3 and/or T1A-4 become inoperable. Currently, there is no specified limit to the amount of time that the house service transformers may be inoperable, provided a special report is submitted to the NRC. This special report provision is being deleted. The proposed change would also remove the existing requirement to verify operability of the emergency diesel generators when offsite power sources are degraded or inoperable.

Since the special reporting requirements are being removed from TS 2.7(2)b. and c., the associated TS 5.9.3j. requirement for submitting a special report to the NRC per TS 2.7(2) is also being deleted.

These changes are being proposed to address recent NRC regional inspection staff concerns that the current wording in TS 2.7(2)b. and c. contains no limit on the allowed outage time (AOT) for an inoperable or degraded offsite power supply.

In addition, an administrative change is proposed to TS 2.7(2)a. to add "T1A" to the equipment notation for the second auxiliary power transformer, T1A-2, for consistency. An administrative change to TS 2.7(2)c. is also being proposed to clarify the existing verbiage regarding the telephone notification to the NRC Operations Center being made within 4 hours after inoperability "of both transformers" versus "transformer" inoperability. An editorial change is also being made to TS 5.9.3i. to add a period at the end of the text for consistency.

The associated TS Basis for TS 2.0.1 is also being modified to reflect the proposed AOT, remove the verbiage related to diesel generator operability, and correct a typographical error. This TS Basis Change (TSBC) is included for information and will be processed in accordance with TS 5.20.

2.0 DETAILED DESCRIPTION

Fort Calhoun Station (FCS) is designed to permit either of two semi-independent offsite power sources to be used to supply power to station loads, both safety-related and non-safety-related. (Refer to Updated Safety Analysis Report (USAR) Figure 8.1-1, which provides the layout of these power sources and their relationship to plant busses.) The offsite sources consist of power from the 345 kilovolt (KV) substation or the 161 KV substation, both of which are located in a common switchyard adjacent to the plant. Either of the offsite sources can supply power to the plant's four 4160 volt (V) busses. The 161 KV source normally provides power to the safety-related busses and the 345 KV source normally provides power to the non-safety-related busses.

During normal operation, the 345 KV transmission system is connected to auxiliary power transformers T1A-1 and T1A-2 through a 22 KV bus which is also connected to the output of the main generator. (Note that the 345 KV voltage is reduced through main generator step-up transformer T1.) This configuration allows a portion of the main generator output to be fed to transformers T1A-1 and T1A-2 to supply power to some plant loads. However, this arrangement results in a loss of power from the 345/22 KV system to the plant busses when the plant is shutdown until such time that the operators are able to open the main generator disconnect switch and subsequently re-establish the 345 KV supply through a back feed arrangement. The 161 KV source, on the other hand, is continuously available to provide plant power, through house service transformers T1A-3 and T1A-4, before, during and after a plant trip.

Technical Specification (TS) 2.7(2)b. addresses a condition in which the 161 KV offsite power is partially degraded in that it is not able to deliver power to plant safety-related busses through one of the house service transformers T1A-3 or T1A-4.

TS 2.7(2)c. addresses a further degradation in which both house service transformers are unable to perform their function most likely due to the loss of the 161 KV power supply. TS 2.7(2)b. allows an individual transformer to be inoperable for 7 days whereas TS 2.7(2)c. allows both transformers to be inoperable for 72 hours. Both TS sections allow continued operation beyond the established time limit provided a special report is submitted to the NRC outlining plans for restoration of operability. Once the report is submitted, there is no explicitly stated time limit for inoperability.

The current wording in TS 2.7(2)b. and c. was established by the incorporation of Amendment No. 147 which was implemented in August, 1992. The Safety Evaluation Report (SER) associated with that amendment (Reference 6.4) explained that the primary purpose of the proposed wording was to address a previously existing concern (i.e., prior to 1992) that TS 2.7 permitted an unlimited inoperability time for the 161 KV power supply. The revised TS 2.7(2) proposed by OPPD in the original license amendment request (LIC-91-173A) dated June 21, 1991 (Reference 6.1) and subsequently supplemented in November 1991 (Reference 6.2), included a provision for NRC concurrence for continued plant operation as part of the special reporting requirements. However, this provision was deleted in a later revision of the license amendment request (LAR) dated June 1992 (Reference 6.3) that superseded the original LAR. Although the revised amendment request TS was ultimately approved in Amendment No. 147, the NRC's SER for that amendment still mentioned the NRC concurrence provision of the original LAR.

Recently, NRC regional inspection staff noted that (1) the current TS allow unlimited outage times for the 161 KV power source once the special reporting requirements have been met, and (2) there is no specific method for the NRC to provide the concurrence noted in the Amendment No. 147 SER. Therefore, the current proposal for TS 2.7 will add an explicit allowed outage time (AOT) for the single failure of one

of the house service transformers as well as for the total loss of the 161 KV power supply impacting both of the house service transformers. If the AOT for either of these scenarios is reached, a plant shutdown will be required.

The proposed TS changes are as follows:

- TS 2.7(2)a. - Change the allowed outage time for auxiliary power transformers T1A-1 and T1A-2 from 24 to 72 hours to be consistent with NUREG 1432, *Standard Technical Specifications* [STS] *for Combustion Engineering Plants*. In addition, add "T1A" to the equipment component name for the auxiliary power transformer "T1A-2" to be consistent with the equipment terminology in TS 2.7(2). This administrative change is being made for consistency.

- TS 2.7(2)b. - Remove the requirement to submit a special report to the NRC for restoration plans to allow continued operation beyond the allowed outage time. Remove the requirement to verify diesel generator operability when entering this action statement since diesel generator operability is addressed elsewhere in TS 2.7.

- TS 2.7(2)c. - Remove the requirement to submit a special report to the NRC for restoration plans to allow continued operation beyond the allowed outage time. Revise the allowed outage time for both inoperable house service transformers T1A-3 and T1A-4 from 72 hours to 7 days to allow time for repairs in the event of grid damage scenarios. Remove the requirement to verify diesel generator operability when entering this action statement since diesel generator operability is addressed elsewhere in TS 2.7. Administratively change existing verbiage to clarify that the NRC Operations Center shall be notified by telephone within 4 hours after inoperability "of both transformers" instead of "transformer" inoperability.

- TS 5.9.3i. – Add a period at the end of the sentence to be consistent with TS 5.9.3. This is an administrative change only.

- TS 5.9.3j. – Replace the verbiage, "Electrical systems, reference 2.7(2)." with the word "DELETED" to be consistent with TS 5.9.3. The special reporting requirements for 2.7(2), which are currently delineated in TS 2.7(2)b. and c., will no longer be required pending NRC approval of this LAR. This is an administrative change.

- TS Basis for TS 2.0.1 is being modified to change the "72-hour" out-of-service time to "7-day" out-of-service time; delete the verbiage "provided the operability of both Diesel Generators is immediately verified;" and correct the typographical error by replacing the acronym "LCO's" with "LCOs" as this is a plural acronym and is not a possessive form. This TS Basis Change (TSBC) is included for information and will be processed in accordance with TS 5.20.

3.0 TECHNICAL EVALUATION

Normal plant loads and accident mitigation equipment are distributed among the four 4160 V busses. Two of the 4160 V busses, busses 1A3 and 1A4, provide power to engineered safeguards loads and to many non-safety-related loads which are required for normal plant operation. Busses 1A1 and 1A2 only power non-safety-related loads. Busses 1A3 and 1A4 can be powered from either of the two offsite power sources, the 345 KV supply or the 161 KV supply. The 161 KV source is the preferred source of power to busses 1A3 and 1A4 since, of the two offsite sources, it is the one that is continuously maintained in service immediately after a plant trip. The 345 KV source to plant busses, via the 22 KV bus, is interrupted during a plant trip by the opening of the main generator output breakers. The 345 KV source can be manually reinstated as a source of plant power after operators have opened the main generator disconnect to the 345 KV system.

If the 161 KV power supply is not available during normal plant operation, the 345 KV source may be used to power busses 1A3 and 1A4. However, due to the fact that the 345 KV supply is temporarily lost if a plant shutdown occurs, all offsite power will be lost should the plant trip or otherwise be forced to shut down in this configuration. Busses 1A3 and 1A4 are each provided with standby emergency diesel generators (EDGs) which will be capable of maintaining the plant in a safe shutdown condition. Nevertheless, the EDGs are not sized to operate certain loads that would contribute to optimal shutdown control if they had power available. For example, in this scenario, power would be lost to the reactor coolant pumps (RCPs) and to the main condenser circulating water pumps.

Consequently, operators would be forced to remove decay heat by means of natural circulation in the reactor coolant system without the use of the main condensers for dumping steam. Loss of the main condenser forces initial reliance on the main steam safety valves and on the atmospheric dump valve which is capable of removing decay heat but has less capacity than the normal steam dump system which makes use of the main condenser. It can be seen that a plant shutdown without the 161 KV system providing power to plant busses results in challenges to equipment related to several safety functions. Once the 345 KV backfeed is established after opening the main generator disconnect, condenser operations can be re-established and the RCPs restarted.

The proposed specification recognizes the impact of shutting down the plant without the 161 KV supply in service. As stated in References 6.2, 6.3, and 6.4 (the SER for Amendment No. 147), if both house service transformers are inoperable, "Continued operation is a preferred course of action rather than shutdown since a turbine generator trip concurrent with inoperable house service transformers results in emergency and non-emergency buses losing electrical power. This electrical power loss challenges systems such as the diesel generators and auxiliary feedwater systems..." By permitting an AOT of 7 days for T1A-3 and T1A-4 inoperability, it is likely that most transmission line equipment failures that would result in an extended 161 KV system outage could be remedied prior to exceeding the specified time, thus

avoiding the need to shut down the plant under less than optimal conditions. In extreme cases in which extensive damage has occurred to the 161 KV system, possibly due to tornado, ice storm or other weather related phenomenon, the 7-day AOT would permit consideration of appropriate action which could include preparations for managing the risk associated with shutting the plant down under such unusual circumstances or initiation of appropriate licensing actions.

The proposal to permit either T1A-3 or T1A-4 to be inoperable for 7 days is based on the fact that inoperability of one house service transformer does not totally eliminate the use of the 161 KV power supply to the plant but does result in degraded capability of the preferred offsite power source. The 7-day AOT is consistent with the specified AOT for a single diesel generator which is reasonable since only one train of accident mitigating equipment is impacted.

The proposal to eliminate the requirement to verify EDG operability is based on the fact that the TS already have controls over EDG operability and contain AOTs consistent with the times proposed for a degraded 161 KV supply. The SER for Amendment No. 147 stated that the intent of the EDG operability verification was to ensure that recent surveillances were completed successfully (i.e., re-verification of the last monthly surveillance test). The SER specifically states that "[o]perability verification is defined as performing actions to confirm that the last monthly surveillance test results for the appropriate diesel generator were satisfactory. This provides additional assurance that the plant can safely shutdown." The SER later states that "demonstrating diesel generator operability by performing surveillance testing concurrent with both house transformers inoperable is not desirable since this testing requires that the diesels be taken out of the automatic mode." Therefore, there was no intent to require that a surveillance test be performed to verify operability since the performance of the surveillance would require removal of EDG automatic mode of operation. Since EDG operability is always based, in part, on the successful completion of periodic surveillance, there is no need to require an additional verification in TS 2.7(2)b. and c. Further, the STS contain no separate requirement for verification of EDG operability in the event of offsite power source inoperability.

The proposed change eliminates the requirement to submit a special report outlining plans for restoration. This is no longer considered necessary since the proposed TS would prohibit operation beyond the AOT. The primary reason for requiring the special report was to provide a mechanism for NRC concurrence with repair plans in the event that the AOT was exceeded. The requirement to verbally notify the NRC Operations Center within four hours of complete (after inoperability of both transformers) or partial inoperability of the 161 KV offsite power source will remain as part of the proposed specification.

The proposed change has no impact on the updated safety analysis report.

4.0 REGULATORY EVALUATION

4.1 Applicable Regulatory Requirements/Criteria

4.1.1 Regulations

Fort Calhoun Station (FCS) was licensed for construction prior to May 21, 1971, and at that time committed to the draft General Design Criteria (GDC). The draft GDC are contained in Appendix G of the FCS Updated Safety Analysis Report (USAR) and are similar to 10 CFR 50 Appendix A, General Design Criteria for Nuclear Power Plants. The draft GDC that govern emergency power are Criterion 24 and Criterion 39 from USAR Appendix G.

Criterion 24 – Emergency Power for Protection Systems states:

In the event of loss of all offsite power, sufficient alternate sources of power shall be provided to permit the required functioning of the protection systems.

This criterion is met. Emergency power is available from two completely independent Diesel generator [DG] *sets and from the two completely independent 125v dc systems for essential dc loads.*

The independent diesel generator supply systems are located in the plant and are connected to separate buses. Both generator sets are independently automatic starting upon loss of auxiliary power and will be ready to accept load within 10 seconds of loss of normal supply power. Starting power is self-contained within each unit. Each unit has sufficient capacity to start sequentially the loads that must be supplied for the engineered safeguards equipment for the hypothetical accident concurrent with loss of outside power. This capacity is adequate to provide a safe and orderly plant shutdown and maintain the plant in a safe condition.

Each of the two 125v dc batteries is capable of supplying essential station dc load for 8 hours and may be charged by the generator power supply.

Facilities are included to permit periodic starting and running the Diesel generator sets without interrupting plant operation. Diesel units are synchronized to the bus and loaded periodically to ensure readiness for emergency services.

Criterion 39 – Emergency Power for Engineered Safety Features states:

Alternate power systems shall be provided and designed with adequate independency, redundancy, capacity and testability to permit the functioning required of the engineered safety features. As a minimum, the onsite power system and the offsite power system shall each, independently, provide this capacity assuming a failure of a single active component in each power system.

This criterion is met. Offsite power to the plant is available via the 161 kV line from Blair, and after the unit is tripped, via backfeed from the 345 kV system through the main and unit auxiliary transformers.

When the unit is tripped and the 161 kV supply is not available, the motor-operated disconnect switch in the generator main leads is opened and the supply to the unit auxiliary transformers is re-established. Switch operation is accomplished by a motor operator supplied from the station battery.

Onsite power is provided by two diesel generator sets. Each independent diesel generator set is adequate for supplying the minimum engineered safeguards equipment for the hypothetical accident concurrent with loss of outside power.

Station batteries provide onsite power for instrument and control systems. These batteries will be subject to rigorous inspection and maintenance. The charger voltage will periodically be manually lowered to test batteries capability to assume load at the appropriate bus voltage.

The diesel generator facilities permit periodic starting and running during normal plant operations.

4.1.2 Design Basis (USAR)

Although the proposed change has no impact on the updated safety analysis report, USAR Section 8.2.2, *Station Service Power Supply*, is applicable to this LAR.

USAR Section 8.2.2, Station Service Power Supply, states:

Power for the 4.16-kV station auxiliary system is available from two separate systems, either of which has sufficient capacity for plant auxiliaries. One source is the generator 22-kV bus, tapped between the generator disconnect switch, DS-T1, and the 22-345 kV generator transformer; the other source is the 161 kV system.

Three 161 kV transmission lines connect the on-site 161-kV switchyard using a breaker and a half scheme to OPPD's 161-kV system via Substation 1297, OPPD Substation 1226 and OPPD Substation 1298. The 161-kV system is also connected to the 345-kV system via two 345-kV to 161-kV autotransformers located in the FCS switchyard.

Backup auxiliary power is provided by backfeeding from the 345 kV system via the main transformer and the 22-4.16 kV auxiliary transformers following a generator trip and manual opening of generator disconnect switch DS-T1. DS-T1 current interrupting capacity limitations require that interlocks be provided to allow main generator terminal voltage to decay to prevent conditions w[h]ere high current flows are possible.

The disconnect switch DS-T1 has a Kirk Key interlock and is actuated in one of three ways: electrically from the Control Room, electrically from local controls, or manually with a removable hand crank.

The adequacy of the switch design was demonstrated by magnetizing current interruption, voltage impulse, current impulse, and heat run factory tests.

Should loss of offsite power occur during a DBA, bus degraded voltage relays or undervoltage relays together with auxiliary relays will operate to:

a. Trip Engineered Safeguards and trip other, nonessential loads.

b. Bring the Diesels to Full Speed and Voltage.

c. Reset the four Engineered Safeguards Sequencers.

Diesel Generator Breaker closure on buses 1A3 or 1A4 will cause the associated timers on the Sequencers to time out and restart the safeguards loads.

Protective relays will operate through lockout relays to disconnect buses 1A3 and 1A4 from a fault on circuit 1587 or the associated 161-kV to 4.16-kV transformers. With no voltage on buses 1A3 and 1A4, completion of 4.16-kV load shed, and proper voltage at the diesels, the diesel breakers will close automatically to restore power to the buses.

Under emergency start conditions only, normal protective trip devices for the diesel engine and generator are bypassed except for the overspeed trip.

A 13.8 kV emergency power system is available from the 13.8 kV Distribution system to allow for plant to be maintained in a hot shutdown condition in the event that the normal plant power supply is lost (following a plant trip due to failure of the 345-kV line 3423 where it crosses the 161-kV line 1587, causing the loss of both the 345-kV and 161-kV supplies to the plant) and the loss of both emergency diesel generators. This emergency power is transformed from 13.8 kV to 480 V through stepdown transformer T1B-3C-1 to power minimum loads via Bus 1B3C to maintain the plant in a hot shutdown condition.

4.1.3 Approved Methodologies

Regulatory Guide (RG) 1.93, *Availability of Electric Power Sources*, was reviewed for applicability. This RG states, "Nuclear power plants wherein only one of the two required offsite power circuits can be made available within a few seconds following a loss-of-coolant accident (LOCA) are outside the scope of this guide." Since FCS is designed to have only one offsite circuit available within a few seconds, RG 1.93 is determined to not be applicable. Generally, however, the requirements of this RG are followed.

One notable exception taken to RG 1.93 is the requirement to restore an inoperable offsite circuit to operability within 72 hours. If this action can not be completed, then the RG requires the plant to be placed in cold shutdown within 36 hours. As stated above, the proposed change to TS 2.7(2)c. would permit an allowed outage time of 7 days. The justification for the proposed 7 days of inoperability for the 161 KV system is provided in Section 3.0.

4.2 Precedent

Technical Specification Amendment No. 147, dated August 3, 1992, revised TS 2.7 to permit continued operation of the plant with a degraded offsite power source referencing an allowed outage time of 7 days or 72 hours for either one or two house service transformers inoperable, respectively. The amendment also permitted continued operation of the plant beyond the allowed outage times if a special report was submitted to the NRC outlining plans for restoration and additional precautions to be taken while in the degraded condition. The Safety Evaluation Report supporting the approval of this amendment stated that operation beyond the allowed outage time would require NRC approval although the actual wording in the relevant TS sections does not specifically require NRC approval for continued operation.

The proposed change would remedy this inconsistency by removing the allowance for continued operation beyond the specifically stated limited condition for operation (LCO). The proposal to increase the allowed outage time for inoperability of both house service transformers from 72 hours to 7 days is based on the concern that offsite power circuit damage scenarios requiring several days, or more, for repair are likely to result in a grid condition less stable than normal, a condition which is likely to be aggravated by a mandatory shutdown of the plant. A further concern is that a required shutdown without the availability of the 161 KV power source will result in a loss of offsite power to the plant. Under a best case scenario, this loss of offsite power would last from approximately 10 to 30 minutes but could go on considerably longer depending on the impact of the plant shutdown on the remaining portions of the transmission line system. Permitting an AOT of 7 days for a loss of the 161 KV circuits would permit the proper considerations to be made and to initiate appropriate licensing actions if it were determined that it would be in the best interest of plant and public safety to follow that course of action.

4.3 Significant Hazards Consideration

The Omaha Public Power District (OPPD) has evaluated whether or not a significant hazards consideration is involved with the proposed amendment(s) by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

1. **Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?**

Response: No.

The proposed change to remove the allowance for unlimited plant operation in the event of a degraded or inoperable 161 kilovolt (KV) source does not adversely impact the probability of an accident previously evaluated. Because the change imposes a more restrictive allowed outage time (AOT) than that which currently exists, there would be a reduced probability that the plant would operate in the future for an extended period without the 161 KV circuit operable. Further, analyses for abnormal operational occurrences (AOOs) and design basis accidents (DBAs) assume that all offsite power circuits are lost when it is conservative to make such an assumption. The successful mitigation of those accident scenarios is based on the assumption that diesel generators are the only source of alternating current (AC) power supplying safeguards loads. The proposed change does not affect the operability requirements for the emergency diesel generators (EDGs) and therefore does not impact the consequences of an analyzed accident.

The proposed change to remove the requirement to verify diesel generator operability by ensuring that relevant surveillances have been performed in the event of a degraded or inoperable 161 KV source has no impact on the probability of an accident since diesel generators are not initiators for any analyzed event. The consequences of an accident are not impacted because diesel generator operability is controlled by other portions of Technical Specification (TS) 2.7, which ensures that required surveillances are performed. Appropriate limiting conditions for operation (LCOs) are entered in the event that EDG surveillance criteria are not met.

The proposed change to the allowed outage time for inoperability of auxiliary transformers (powered from the 345 KV offsite source) from 24 to 72 hours does not significantly increase the probability of an accident since the only impact of not having auxiliary transformers is that there would be no offsite source to backup power to plant buses in the event that the preferred source of offsite power is lost (i.e., the 161 KV source). Historical experience with the reliability of the 161 KV has shown the power supply has been highly reliable. The likelihood of losing 161 KV power is not significantly different over a 72-hour period from the likelihood over a 24-hour period. The consequences of an analyzed event does not change allowing the 345 KV source to be inoperable for 72 hours as opposed to 24 hours since the 345 KV source is not credited as a mitigating power source.

The administrative changes to add "T1A" to the house service transformer T1A-2 equipment number in TS 2.7(2)a. and add a period to the text in TS 5.9.3i. are being made for consistency and clarification. The special reporting requirement is deleted from TS 2.7(2)b., 2.7(2)c., and 5.9.3j., as there is no method for the NRC to provide the concurrence required via the special reporting requirements in the current TS. The administrative change to TS 2.7(2)c. clarifies that the telephone notification will be made to the NRC Operations Center within 4 hours after inoperability of both transformers.

Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. **Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?**

Response: No.

The proposed change to remove the allowance for unlimited plant operation in the event of a degraded or inoperable 161 KV source does not create the possibility of a new or different kind of accident since the design function of the affected equipment is not changed. No new interactions between systems or components are created. No new failure mechanisms of associated systems will exist. The consequence of losing offsite power sources during plant operation is precisely the same with the proposed change as it was previously. In fact, the proposed change is more restrictive in terms of operating with degraded power sources than is the current requirement.

The proposed change to remove the requirement to verify diesel generator operability by ensuring that relevant surveillances have been performed in the event of a degraded or inoperable 161 KV source will not create a possibility for a new or different type of accident since the operability requirements for EDGs will be maintained in accordance with surveillance and operability requirements which exist elsewhere in TS 2.7. The allowed outage times proposed for degraded or inoperable 161 KV circuits are the same as those that currently exist for EDG inoperability. If an EDG were inoperable coincident with a loss of the 161 KV offsite source, the remaining EDG would still be operable for providing power to safeguards loads in the event of an accident, consistent with current analytical assumptions. No new failure mechanisms would be created.

The proposed change to the AOT for inoperability of auxiliary transformers (powered from the 345 KV offsite source) from 24 to 72 hours does not create the possibility of a new or different kind of accident since no new design function is established for the power

supply already assumed to be unavailable. The 345 KV source of power is not credited in any design basis event. No new failure mechanism is created by increasing the allowed outage time from 24 to 72 hours.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any previously evaluated.

3. **Does the proposed amendment involve a significant reduction in a margin of safety?**

Response: No.

The proposed change to remove the allowance for unlimited plant operation in the event of a degraded or inoperable 161 KV source does not adversely impact any margins of safety since no design basis function of the affected systems are changed. In the future, the length of time that the preferred source of offsite power is inoperable could be reduced which would potentially enhance plant safety margins by increasing the likelihood that diverse sources of power are available during a design basis event. Furthermore, sources of power credited for design basis events are not affected by this change.

The proposed change to remove the requirement to verify diesel generator operability by ensuring that relevant surveillances have been performed in the event of a degraded or inoperable 161 KV source will not adversely impact margins of safety since the requirement to verify EDG operability exists in TS 3.7. Further, the proposed change does not change the design function of any equipment assumed to operate in the event of an accident.

The proposed change to the AOT time for inoperability of auxiliary transformers (powered from the 345 KV offsite source) from 24 to 72 hours does not adversely impact any margins of safety since the offsite power source associated with the 345 KV system is not credited in any design basis event. In any case, no design functions of plant equipment will be modified by this proposed change.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, OPPD concludes that the proposed amendment presents no significant hazards consideration under the standards set forth in 10 CFR 50.92(c), and, accordingly, a finding of "no significant hazards consideration" is justified.

4.4 Conclusions

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

5.0 ENVIRONMENTAL CONSIDERATION

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure.

Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

6.0 REFERENCES

6.1 Letter from OPPD (W. G. Gates) to NRC (Document Control Desk), "Application of Amendment of Operating License," dated June 21, 1991 (LIC-91-173A)

6.2 Letter from OPPD (W. G. Gates) to NRC (Document Control Desk), "Application for Amendment of Operating License," dated November 11, 1991 (LIC-91-305R)

6.3 Letter from OPPD (W. G. Gates) to NRC (Document Control Desk), "Supplement to Application for Amendment of Operating License dated November 11, 1991," dated June 25, 1992 (LIC-92-189R)

6.4 Letter from NRC (S. D. Bloom) to OPPD (W. G. Gates), "Fort Calhoun Station, Unit No. 1 - Amendment No. 147 to Facility Operating License No. DPR-40 (TAC No. M80878)," dated August 3, 1992 (NRC-92-311)

Technical Specifications Pages

Markups

2.0 LIMITING CONDITIONS FOR OPERATION

2.7 Electrical Systems (Continued)

(2) Modification of Minimum Requirements

The minimum requirements may be modified to the extent that one of the following conditions will be allowed after the reactor coolant has been heated above 300°F. However, the reactor shall not be made critical unless all minimum requirements are met. If any of the provisions of these exceptions are violated, the reactor shall be placed in a hot shutdown condition within the following 12 hours. If the violation is not corrected within an additional 12 hours, the reactor shall be placed in a cold shutdown condition within an additional 24 hours.

a. Both unit auxiliary power transformers T1A-1 and T1A-2 (4.16 kV) may be inoperable for up to ~~24~~ 72 hours ~~provided the operability of both diesel generators is demonstrated immediately~~.

b. Either house service transformer T1A-3 or T1A-4 (4.16kV) may be inoperable for up to 7 days ~~provided the operability of the diesel generator associated with the inoperable transformer is immediately verified~~. The NRC Operations Center shall be notified by telephone within 4 hours after transformer inoperability. ~~Continued operation beyond 7 days is permissible, provided a special report is submitted to the NRC within 48 hours after transformer inoperability pursuant to Section 5.9.3 of the Technical Specifications. The special report will outline the plans for restoration of transformer operability and the additional precautions to be taken while the transformer is out of service.~~

c. Both house service transformers T1A-3 and T1A-4 (4.16kV) may be inoperable for up to ~~72 hours~~ 7 days ~~provided the operability of both diesel generators is immediately verified~~. The loss of the 161kV incoming line renders both transformers inoperable. The NRC Operations Center shall be notified by telephone within 4 hours after ~~transformer~~ inoperability of both transformers. ~~Continued operation beyond 72 hours is permissible, provided a special report is submitted to the NRC within 48 hours after both transformers' inoperability pursuant to Section 5.9.3 of the Technical Specifications. The special report will outline the plans for restoration of the transformers' operability and the additional precautions to be taken while the transformers are out of service.~~

5.0 ADMINISTRATIVE CONTROLS

5.9 Reporting Requirements (Continued)

5.9.2 Not Used

5.9.3 Special Reports

Special reports shall be submitted to the appropriate NRC Regional Office within the time period specified for each report. These reports shall be submitted covering the activities identified below pursuant to the requirements of the applicable reference specification where appropriate:

a. In-service inspection report, reference 3.3.
b. Tendon surveillance, reference 5.21.
c. DELETED
d. DELETED
e. DELETED
f. DELETED
g. Materials radiation surveillance specimens reports, reference 3.3.
h. DELETED
i. Post-accident monitoring instrumentation, reference 2.21.
j. ~~Electrical systems, reference 2.7(2).~~ DELETED

Amendment No. ~~9,24,35,38,46,75,86,89,99,~~
~~110,113,119,133,147,152,157,~~
~~160,164,185,202,216,219, 228,231, 237~~

Technical Specification Pages

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2.0 LIMITING CONDITIONS FOR OPERATION

2.7 Electrical Systems (Continued)

(2) Modification of Minimum Requirements

The minimum requirements may be modified to the extent that one of the following conditions will be allowed after the reactor coolant has been heated above 300°F. However, the reactor shall not be made critical unless all minimum requirements are met. If any of the provisions of these exceptions are violated, the reactor shall be placed in a hot shutdown condition within the following 12 hours. If the violation is not corrected within an additional 12 hours, the reactor shall be placed in a cold shutdown condition within an additional 24 hours.

a. Both unit auxiliary power transformers T1A-1 and T1A-2 (4.16 kV) may be inoperable for up to 72 hours.

b. Either house service transformer T1A-3 or T1A-4 (4.16kV) may be inoperable for up to 7 days. The NRC Operations Center shall be notified by telephone within 4 hours after transformer inoperability.

c. Both house service transformers T1A-3 and T1A-4 (4.16kV) may be inoperable for up to 7 days. The loss of the 161kV incoming line renders both transformers inoperable. The NRC Operations Center shall be notified by telephone within 4 hours after inoperability of both transformers.

5.0 ADMINISTRATIVE CONTROLS

5.9 Reporting Requirements (Continued)

5.9.2 Not Used

5.9.3 Special Reports

Special reports shall be submitted to the appropriate NRC Regional Office within the time period specified for each report. These reports shall be submitted covering the activities identified below pursuant to the requirements of the applicable reference specification where appropriate:

a. In-service inspection report, reference 3.3.
b. Tendon surveillance, reference 5.21.
c. DELETED
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g. Materials radiation surveillance specimens reports, reference 3.3.
h. DELETED
i. Post-accident monitoring instrumentation, reference 2.21.
j. DELETED

Amendment No. ~~9,24,35,38,46,75,86,89,99,~~
~~110,113,119,133,147,152,157,~~
~~160,164,185,202,216,219, 228,231, 237~~

Technical Specifications Basis Page

Markups

(FOR INFORMATION ONLY)

2.0 LIMITING CONDITIONS FOR OPERATION

2.0.1 General Requirements (Continued)

The provisions of this specification permit the requirements associated with individual systems, subsystems, trains, components, or devices to be consistent with the specification of the associated electrical power source. It allows operation to be governed by the time limits of the requirements associated with the Limiting Condition for Operation for the normal or emergency power source, not the individual requirements for each system, subsystem, train, component, or device that is determined to be inoperable solely because of the inoperability of its normal or emergency power source.

For example, Specification 2.7 requires in part that two emergency diesel generators be OPERABLE. The specification provides for 7 days per month out-of-service time when one emergency diesel generator is not OPERABLE. If the definition of OPERABLE were applied without consideration of Specification 2.0.1(2), all systems, subsystems, trains, components, and devices supplied by the inoperable emergency power source would also be inoperable. This would dictate invoking the applicable corrective measures for each of the applicable Limiting Conditions for Operation. However, the provisions of Specification 2.0.1(2) permit the time limits for continued operation to be consistent with the requirements for the inoperable emergency diesel generator instead, provided the other specified conditions are satisfied. In this case, this would mean that the corresponding normal power source must be OPERABLE, and all redundant systems, subsystems, trains, components, and devices must be OPERABLE, or otherwise satisfy Specification 2.0.1(2) (i.e., be capable of performing their design function and have at least one normal and one emergency power source OPERABLE). If they are not satisfied, shutdown is required in accordance with this specification.

As a further example, Specification 2.7(1)b requires that both House Service Transformers T1A-3 and T1A-4 be OPERABLE. Specification 2.7(2)c provides a ~~72-hour~~ 7-day out-of- service time when both required House Service Transformers T1A-3 and T1A-4 are not OPERABLE ~~provided the operability of both Diesel Generators is immediately verified~~. If the definition of OPERABLE were applied without consideration of Specification 2.0.1(2), all systems, subsystems, trains, components, and devices supplied by the inoperable, House Service Transformers T1A-3 and T1A-4 would also be inoperable. This would dictate invoking the applicable measures for each of the applicable ~~LCO's~~ LCOs. However, the provisions of Specification 2.0.1(2) permit the time limits for continued operation to be consistent with the corrective measures for the inoperable normal power sources instead, provided the other specified conditions are satisfied. In other words, both emergency power sources must be OPERABLE and all redundant systems, subsystems, trains, components, and devices in both divisions must be also be OPERABLE. If these conditions are not satisfied, shutdown is required in accordance with this specification.

Technical Specifications Basis Page

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(FOR INFORMATION ONLY)

2.0 LIMITING CONDITIONS FOR OPERATION

2.0.1 General Requirements (Continued)

The provisions of this specification permit the requirements associated with individual systems, subsystems, trains, components, or devices to be consistent with the specification of the associated electrical power source. It allows operation to be governed by the time limits of the requirements associated with the Limiting Condition for Operation for the normal or emergency power source, not the individual requirements for each system, subsystem, train, component, or device that is determined to be inoperable solely because of the inoperability of its normal or emergency power source.

For example, Specification 2.7 requires in part that two emergency diesel generators be OPERABLE. The specification provides for 7 days per month out-of-service time when one emergency diesel generator is not OPERABLE. If the definition of OPERABLE were applied without consideration of Specification 2.0.1(2), all systems, subsystems, trains, components, and devices supplied by the inoperable emergency power source would also be inoperable. This would dictate invoking the applicable corrective measures for each of the applicable Limiting Conditions for Operation. However, the provisions of Specification 2.0.1(2) permit the time limits for continued operation to be consistent with the requirements for the inoperable emergency diesel generator instead, provided the other specified conditions are satisfied. In this case, this would mean that the corresponding normal power source must be OPERABLE, and all redundant systems, subsystems, trains, components, and devices must be OPERABLE, or otherwise satisfy Specification 2.0.1(2) (i.e., be capable of performing their design function and have at least one normal and one emergency power source OPERABLE). If they are not satisfied, shutdown is required in accordance with this specification.

As a further example, Specification 2.7(1)b requires that both House Service Transformers T1A-3 and T1A-4 be OPERABLE. Specification 2.7(2)c provides a 7-day out-of-service time when both required House Service Transformers T1A-3 and T1A-4 are not OPERABLE. If the definition of OPERABLE were applied without consideration of Specification 2.0.1(2), all systems, subsystems, trains, components, and devices supplied by the inoperable, House Service Transformers T1A-3 and T1A-4 would also be inoperable. This would dictate invoking the applicable measures for each of the applicable LCOs. However, the provisions of Specification 2.0.1(2) permit the time limits for continued operation to be consistent with the corrective measures for the inoperable normal power sources instead, provided the other specified conditions are satisfied. In other words, both emergency power sources must be OPERABLE and all redundant systems, subsystems, trains, components, and devices in both divisions must be also be OPERABLE. If these conditions are not satisfied, shutdown is required in accordance with this specification.