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April 28, 2000

Mr. Craig G. Anderson
Vice President, Operations ANO
Entergy Operations, Inc.
1448 S. R. 333
Russellville, Akansas 72801

SUBJECT: ARKANSAS NUCLEAR ONE, UNITS 1 AND 2 - ISSUANCE OF AMENDMENTS RE: STARTUP TRANSFORMER NO. 2 ALLOWED OUTAGE TIME FOR PREVENTATIVE MAINTENANCE (TAC NOS. MA7184 AND MA7185)

Dear Mr. Anderson:

The Commission has issued the enclosed Amendment No. 206 to Facility Operating License No. DPR-51 and Amendment No. 215 to Facility Operating License No. NPF-6 for Arkansas Nuclear One, Units 1 and 2, respectively. The amendments consist of changes to the Technical Specifications (TSs) in response to your applications dated November 16, 1999 (0CAN119904).

The amendments provide a 30-day allowed outage time (AOT) for startup transformer No. 2 which is an offsite power source shared by both units. This 30-day AOT will be used infrequently for the purpose of performing preventative maintenance to increase the reliability of the transformer. In addition, changes were made to the requirements associated with demonstrating the operability of the emergency diesel generators in the event a required power source is inoperable to increase the reliability of the emergency diesel generators.

A copy of our related Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's next biweekly *Federal Register* notice.

Sincerely,
/RA/
M. Christopher Nolan, Project Manager, Section 1
Project Directorate IV & Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-313 and 50-368
Enclosures: 1. Amendment No. 206 to DPR-51
2. Amendment No. 215 to NPF-6
3. Safety Evaluation

cc w/encls: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

April 28, 2000

Mr. Craig G. Anderson
Vice President, Operations ANO
Entergy Operations, Inc.
1448 S. R. 333
Russellville, Akansas 72801

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The amendments provide a 30-day allowed outage time (AOT) for startup transformer No. 2 which is an offsite power source shared by both units. This 30-day AOT will be used infrequently for the purpose of performing preventative maintenance to increase the reliability of the transformer. In addition, changes were made to the requirements associated with demonstrating the operability of the emergency diesel generators in the event a required power source is inoperable to increase the reliability of the emergency diesel generators.

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M. Christopher Nolan, Project Manager, Section 1
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3. Safety Evaluation

cc w/encls: See next page

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

ENTERGY OPERATIONS, INC.

DOCKET NO. 50-313

ARKANSAS NUCLEAR ONE, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 206
License No. DPR-51

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Entergy Operations, Inc. (the licensee) dated November 16, 1999, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this license amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and Paragraph 2.C.(2) of Facility Operating License No. DPR-51 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 206 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. The license amendment is effective as of its date of issuance and shall be implemented within 30 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Robert A. Gramm

Robert A. Gramm, Chief, Section 1
Project Directorate IV & Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: April 28, 2000

ATTACHMENT TO LICENSE AMENDMENT NO. 206

FACILITY OPERATING LICENSE NO. DPR-51

DOCKET NO. 50-313

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove	Insert
57	57
57b	57b
57c	57c

3.7.2 A. The specifications in 3.7.1 may be modified to allow one of the following conditions to exist after the reactor has been heated above 200F. Except as indicated in the following conditions, if any of these conditions are not met, a hot shutdown shall be initiated within 12 hours. If the condition is not cleared within 24 hours, the reactor shall be brought to cold shutdown within an additional 24 hours.

B. In the event that one of the offsite power sources specified in 3.7.1.A (1 or 2) is inoperable, reactor operation may continue for up to 24 hours. Startup Transformer No. 2 may be removed from service for up to 30 days as part of a preplanned preventative maintenance schedule. The 30-day allowance may be applied not more than once in any 10-year period. The provisions of Specification 3.0.4 are not applicable to Startup Transformer No. 2 during the 30-day preventative maintenance period.

C. Either one of the two diesel generators may be inoperable for up to 7 days in any month provided that there are no inoperable ESF components associated with the operable diesel generator and provided that the two sources of off-site power specified in 3.7.1.A(1) or 3.7.1.A(2) are available. The operability of the remaining diesel generator shall be demonstrated within 24 hours unless it is determined that a common cause failure does not exist or, unless it is currently in operation or has been demonstrated operable within the previous 24 hours.

D. Any 4160V, 480V, or 120V switchgear, load center, motor control center, or distribution panel in one of the two ESF distribution systems may be inoperable for up to 8 hours, provided that the operability of the diesel generator associated with the operable ESF distribution system is demonstrated immediately and all of the components of the operable distribution system are operable. If the ESF distribution system is not returned to service at the end of the 8 hour period, Specification 3.7.2.A shall apply.

E. DELETED

F. DELETED

G. DELETED

H. If the requirements of Specification 3.7.1.G cannot be met, either:

(1) place all Startup Transformer No. 2 feeder breakers in "pull-to-lock" within 1 hour, restore the inoperable interlocks to operable status within 30 days, or submit within 30 days a Special Report pursuant to Specification 6.12.5 outlining the cause of the failure, proposed corrective action and schedule for implementation; or

(2) apply the action requirements of Table 3.5.1-1, Note 14.

In the event that the offsite power sources specified in 3.7.1.A (1 or 2) are inoperable, the required capacity of one emergency storage tank plus one day tank (20, 160 gallons) will be sufficient for not less than three and one-half days operation for one diesel generator loaded to full capacity. (ANO-1 FSAR 8.2.2.3) The underground emergency storage tanks are gravity fed from the bulk storage tank and are normally full, while the day tanks are fed from transfer pumps which are capable of being cross connected at their suction and discharges and automatically receive fuel oil when their inventory is less than 180 gallons. Thus, at least a seven day total diesel oil inventory is available onsite for emergency diesel generator operation during complete loss of electric power conditions.

Technical Specification 3.7.2 allows for the temporary modification of the specifications in 3.7.1 provided that backup system(s) are operable with safe reactor operation and combined availability of the engineered safety features ensured. The requirements for diesel generators are consistent with Generic Letter 84-15, "Proposed Staff Actions to Improve And Maintain Diesel Generator Reliability" and the Revised Standard Technical Specifications (NUREG 1430). The evaluation of a common cause failure (degradation that may affect the operability of the remaining diesel generator) should be completed within 24 hours from when the affected diesel generator is determined to be inoperable.

Technical Specifications 3.7.1.F and 3.7.1.G provide assurance that the Startup Transformer No. 2 loads will not contribute to a sustained degraded grid voltage situation. This will protect ESF equipment from damage caused by sustained undervoltage.

The 125 VDC electrical power system consists of two independent and redundant safety related class 1E DC electrical subsystems. Each subsystem consists of one 100% capacity 125 VDC battery, its associated battery charger, and its distribution network. Additionally, there is one spare battery charger per subsystem, which provides backup service in the event that the preferred battery charger is out of service.

If one of the required DC electrical power subsystems is inoperable (e.g., inoperable battery, no operable battery charger, or inoperable battery and no operable associated battery charger), the remaining DC electrical power subsystem has the capacity to support a safe shutdown and to mitigate an accident condition. Since a subsequent worst-case single failure would, however, result in the complete loss of the remaining 125 VDC electrical power subsystems with attendant loss of ES functions, continued power operation should not exceed 8 hours.

Battery cell parameters must remain within acceptable limits to ensure availability of the required DC power to shut down the reactor and maintain it in a safe condition after an anticipated operational event or a postulated design basis accident. Cell parameter limits are conservatively established, allowing continued DC electrical system function even with Table 4.6-1 Category A and B limits not met.

With one or more cells in one or more batteries not within limits (i.e., Table 4.6-1 Category A limits not met, or Category B limits not met, or Category A and B limits not met) but within the Table 4.6-1 Category C limits, the battery is degraded but has sufficient capacity to perform its intended function. Therefore, the battery is not required to be considered inoperable solely as a result of Category A or B limits not met, and continued operation is permitted for a limited period of time. The pilot cell electrolyte level and float voltage are required to be verified to meet the Table 4.6-1 Category C limits within 1 hour (TS 3.7.4.A.1). These checks will provide a quick representative status of the remainder of the battery cells. Verification that the Table 4.6-1 Category C limits are met (TS 3.7.4.A.2) provides assurance that

during the time needed to restore the parameters to within the Category A and B limits, the battery will still be capable of performing its intended function. This verification is repeated at 7 day intervals until the parameters are restored to within Category A and B limits. This periodic verification is consistent with the increased potential to exceed these battery parameter limits during these conditions.

With one or more batteries with one or more battery cell parameters outside the Table 4.6-1 Category C limit for any connected cell, sufficient capacity to supply the maximum expected load requirement is not assured. Therefore, the battery must be immediately declared inoperable and the corresponding DC electrical power subsystem must be declared inoperable.

Additionally, other potentially extreme conditions, such as electrolyte temperature of the pilot cell falling below 60°F, average electrolyte temperature of representative cells falling below 60°F or battery terminal voltage below the limit are also cause for immediately declaring the associated DC electrical power subsystem inoperable.

An allowance has been provided, extending the allowable outage time for Startup Transformer No. 2 only, for up to 30 days. The 30-day allowance is permitted not more than once in any 10-year period, which is considered sufficient for proper maintenance of the transformer. The 30-day window should permit extensive preplanned preventative maintenance without placing either unit in an action statement of short duration and would allow both units to be operating during such maintenance. Because this allowance assumes parts are prestaged, appropriate personnel are available, and proper contingencies have been established, it is not intended to be used for an unexpected loss of the transformer. Pre-established contingencies will consider the projected stability of the offsite electrical grid, the atmospheric stability projected for the maintenance window, the ability to adequately control other ongoing plant maintenance activities that coincide with the window, projected flood levels, and the availability of all other power sources. Since a station blackout is the most affected event that could occur when power sources are inoperable, the steam driven emergency feedwater pump will also be maintained available during the evolution.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

ENTERGY OPERATIONS, INC.

DOCKET NO. 50-368

ARKANSAS NUCLEAR ONE, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 215
License No. NPF-6

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Entergy Operations, Inc. (the licensee) dated November 16, 1999, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this license amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and Paragraph 2.C.(2) of Facility Operating License No. NPF-6 is hereby amended to read as follows:

   (2) Technical Specifications

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 215 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. The license amendment is effective as of its date of issuance and shall be implemented within 30 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Robert A Gramm

Robert A. Gramm, Chief, Section 1
Project Directorate IV & Decommissioning
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: April 28, 2000

ATTACHMENT TO LICENSE AMENDMENT NO. 215

FACILITY OPERATING LICENSE NO. NPF-6

DOCKET NO. 50-368

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove	Insert
3/4 8-1	3/4 8-1
B 3/4 8-1	B 3/4 8-1
B 3/4 8-2	B 3/4 8-2

3/4.8 ELECTRICAL POWER SYSTEMS

3/4.8.1 A.C. SOURCES

LIMITING CONDITION FOR OPERATION

3.8.1.1 As a minimum, the following A.C. electrical power sources shall be OPERABLE:

a. Two physically independent circuits between the offsite transmission network and the onsite Class 1E distribution system and

b. Two separate and independent diesel generators each with:

1. A day fuel tank containing a minimum volume of 280 gallons of fuel (equivalent to 50% of indicated tank volume),

2. A separate fuel storage system containing a minimum volume of 22,500 gallons of fuel (equivalent to 100% of indicated tank level), and

3. A separate fuel transfer pump.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

a. With one offsite A.C. circuit of the above required A.C. electrical power sources inoperable, demonstrate the OPERABILITY of the remaining offsite A.C. circuit by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter. Restore the offsite A.C. circuit to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Startup Transformer No. 2 may be removed from service for up to 30 days as part of a preplanned preventative maintenance schedule. The 30-day allowance may be applied not more than once in a 10-year period. The provisions of Specification 3.0.4 are not applicable to Startup Transformer No. 2 during the 30-day preventative maintenance period.

b. With one diesel generator of the above required A.C. electrical power source inoperable, demonstrate the OPERABILITY of both the offsite A.C. circuits by performing Surveillance Requirement 4.8.1.1.1.a within 1 hour and at least once per 8 hours thereafter. Demonstrate the OPERABILITY of the remaining OPERABLE diesel generator by performing Surveillance Requirement 4.8.1.1.2.a.4 within 24 hours unless it is determined that a common cause failure does not exist or, unless it is currently in operation or has been demonstrated OPERABLE within the previous 24 hours. Restore the diesel generator to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

BASES

The OPERABILITY of the A.C. and D.C. power sources and associated distribution systems during operation ensures that sufficient power will be available to supply the safety-related equipment required for 1) the safe shutdown of the facility and 2) the mitigation and control of accident conditions within the facility. The minimum specified independent and redundant A.C. and D.C. power sources and distribution systems satisfy the requirements of General Design Criteria 17 of Appendix "A" to 10 CFR 50.

The ACTION requirements specified for the levels of degradation of the power sources provide restriction upon continued facility operation commensurate with the level of degradation. The OPERABILITY of the power sources are consistent with the initial condition assumptions of the accident analyses and are based upon maintaining at least one redundant set of onsite A.C. and D.C. power sources and associated distribution systems OPERABLE during accident conditions coincident with an assumed loss of offsite power and single failure of the other onsite A.C. source. ACTION requirements are consistent with Generic Letter 84-15, "Proposed Staff Actions to Improve and Maintain Diesel Generator Reliability" and the Revised Standard Technical Specifications (NUREG 1432). The evaluation of a common cause failure (degradation that may affect the OPERABILITY of the remaining diesel generator) should be completed within 24 hours from when the affected diesel generator is determined to be inoperable.

The OPERABILITY of the minimum specified A.C. and D.C. power sources and associated distribution systems during shutdown and refueling ensures that 1) the facility can be maintained in the shutdown or refueling condition for extended time periods and 2) sufficient instrumentation and control capability is available for monitoring and maintaining the unit status.

The Surveillance Requirements for demonstrating the OPERABILITY of the diesel generators are in accordance with the recommendations of Regulatory Guides 1.9 "Selection of Diesel Generator Set Capacity for Standby Power Supplies", March 10, 1971, and 1.108 "Periodic Testing of Diesel Generator Units Used as Onsite Electric Power Systems at Nuclear Power Plants", Revision 1, August 1977 and Generic Letter 84-15. Load Ranges provided in surveillances are allowed to avoid routine overloading of diesel generators. Load in excess of these load ranges for special testing, momentary variation due to changing bus loads, or short term variations shall not invalidate surveillance tests. For the purpose of surveillance testing, the term "standby condition" is defined as the approximate temperature range of the jacket cooling water and engine lube oil sump normally maintained by the engine keep warm system. An exception to this definition is the engine conditions that exist when performing the hot restart test following the 24 hour EDG endurance run. When performing this test, the engine is near normal operating temperature when in a "standby condition". Additionally, this definition includes the allowance to perform engine prelubrication prior to all planned test starts.

The Diesel Generator Test Schedule, Table 4.8-1 has been developed for the purpose of determining testing requirements based on the number of failures and valid tests using the example provided in Generic Letter 84-15 using a per diesel generator unit basis. The criteria of R.G.1.108 position C.2.e is used for criterial determination.

TS 4.8.1.2.c.3 demonstrates the EDG load response characteristics and capability to reject the largest single load without exceeding predetermined voltage and frequency while maintaining a specified margin to the overspeed trip. For ANO-2, the single load for each EDG is the Service Water pump, rated at 800 HP (636.9 KW).

Containment electrical penetrations and penetration conductors are protected by either de-energizing circuits not required during reactor operation or by demonstrating the OPERABILITY of primary and backup overcurrent protection circuit breakers during periodic surveillance. The 480 volt air frame protective devices utilize electro-mechanical overcurrent elements which are mounted on the protective device and, in some instances, protective relays to trip the protective device. Actuation of the overcurrent element or relay will trip the protective device. The molded case protective devices utilize magnetic or thermal-magnetic overcurrent elements which are contained in the protective device. Actuation of each overcurrent element will trip the protective device.

TS 3.8.2.3 Action "b" requires the performance of SR 4.8.2.3.a.1 within one hour and at least once per 8 hours thereafter for a loss of one of the required full capacity chargers. If any Category A limit in Table 4.8-2 is not met while a charger is inoperable, the associated battery bank shall be declared inoperable and ACTION "a" entered. The Category A limits in Table 4.8-2 specify the normal limits for electrolyte level, float voltage and specific gravity for each designated pilot cell. When TS 3.8.2.3 ACTION "b" is entered without the associated battery bank being on float (i.e. charger not connected to the bus), pilot cell float voltage is determined by measuring pilot cell voltage. The term "full capacity charger" as used in TS 3.8.2.3 is defined as a charger that is capable of supplying an output of ≥ 300 amperes.

An allowance has been provided, extending the allowable outage time for Startup Transformer No. 2 only, for up to 30 days. The 30-day allowance is permitted not more than once in any 10-year period, which is considered sufficient for proper maintenance of the transformer. The 30-day window should permit extensive preplanned preventative maintenance without placing either unit in an action statement of short duration and would allow both units to be operating during such maintenance. Because this allowance assumes parts are prestaged, appropriate personnel are available, and proper contingencies have been established, it is not intended to be used for an unexpected loss of the transformer. Pre-established contingencies will consider the projected stability of the offsite electrical grid, the atmospheric stability projected for the maintenance window, the ability to adequately control other ongoing plant maintenance activities that coincide with the window, projected flood levels, and the availability of all other power sources. Since a station blackout is the most affected event that could occur when power sources are inoperable, the steam driven emergency feedwater pump will also be maintained available during the evolution.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 206 AND 215 TO

FACILITY OPERATING LICENSE NOS. DPR-51 AND NPF-6

ENTERGY OPERATIONS, INC.

ARKANSAS NUCLEAR ONE, UNIT NOS. 1 AND 2

DOCKET NOS. 50-313 AND 50-368

1.0 INTRODUCTION

By letter dated November 16, 1999 (0CAN119904), Entergy Operations, Inc. (the licensee) submitted a request for changes to the Arkansas Nuclear One, Units 1 and 2 (ANO-1, ANO-2), Technical Specifications (TSs). The requested changes would revise the Limiting Conditions for Operation and Bases associated with the allowed outage time (AOT) of startup transformer No. 2 (SU #2). SU #2 provides a second offsite power source that is shared by both units. The proposed change would provide a 30-day AOT for SU #2 to perform preventative maintenance to increase the reliability of the transformer which would be used no more than once in any 10-year period. Current TS constraints would require both units to be in cold shutdown in order to perform this maintenance. In addition, the licensee has proposed to revise the operability requirements for an emergency diesel generator (EDG) in the event a required power source is inoperable to enhance EDG reliability, as recommended in Generic Letter (GL) 84-15, "Proposed Staff Actions to Improve and Maintain Diesel Generator Reliability."

2.0 BACKGROUND

Startup transformer No. 1 (SU #1) provides power to ANO-1 and startup transformer No. 3 (SU #3) provides power to ANO-2. SU #2 provides a second offsite power source with delayed access for each unit. SU #2 is unique in that it is shared by ANO-1 and ANO-2 and, therefore, increases the complexities associated with scheduling preventative maintenance without resulting in the shutdown of either or both units. The time required to complete appropriate preventative maintenance on SU #2 would require both ANO-1 and ANO-2 to be shut down simultaneously due to TS AOT constraints. The AOT for ANO-1 allows 24 hours to restore the transformer to an operable status. The AOT for ANO-2 allows 72 hours to restore the transformer to an operable status. A plant shutdown to cold shutdown is required if the transformer is not restored to an operable status within the AOT limits. Limited outage durations, shutdown safety planning, resource limitations, and scheduling constraints are factors that limit the viability of a prolonged shutdown of both ANO units in order to perform a thorough preventive maintenance and inspection program for SU #2. Therefore, the licensee seeks additional allowance to perform preventative maintenance on the SU #2 with both units at power to improve the overall reliability of the offsite power supply. The proposed change would add an additional AOT for SU #2, allowing the transformer to be removed from service for up to

30 days, not more than once in any 10-year period, if removed as part of a preplanned preventive maintenance activity. In addition, the licensee has proposed to revise the current Action Requirement that results in excessive starting of an operable EDG during periods when another required power source is inoperable.

3.0 EVALUATION

General Design Criterion (GDC) 17, "Electric Power Systems," requires two physically independent offsite power circuits designed and located so as to minimize, to the extent practical, the likelihood of their simultaneous failure. SU #1 and SU #3 represent the dedicated offsite power source for ANO-1 and ANO-2, respectively. SU #2 is shared between ANO-1 and ANO-2 and represents the second independent offsite power source utilized to satisfy GDC 17 for both units. During the extended 30-day AOT for SU #2, the second offsite power source for ANO-1 and ANO-2 would be out of service. Therefore, the licensee has proposed to minimize the frequency of this outage to no greater than once every 10-years. In addition, the licensee has proposed compensatory actions to minimize the overall duration of the proposed SU #2 maintenance outage, maximize the availability of other power sources and support equipment, minimize the likelihood of a loss of another power source, and develop means to restore a second offsite power source as a delayed access circuit, if required.

The licensee's proposal would limit this 30-day AOT for preplanned preventative maintenance activities to be used no more than once per 10-year interval. This limitation is included in the TS and will limit the frequency during which the plant can be in this condition. The NRC staff reviewed this amendment based on the allowance of 30 days for the AOT. However, the licensee has proposed the following compensatory actions that will act to limit the duration of the individual preventative maintenance period. First, work will be preplanned and scheduled on a 24 hours-a-day and 7 days-a-week basis to minimize the duration of SU #2 inoperability. Necessary equipment will be prestaged and the availability of required personnel will be preassigned and verified prior to the start of the maintenance period to minimize the potential for delays. Finally, the work will be scheduled during a time of the year when the average temperature remains at approximately 50 °F or above. This prevents the need for hot oil bath drying, which would lengthen the time required for maintenance. Therefore, this maintenance will not be scheduled during the months of December through February. The NRC staff has reviewed the licensee's plan and finds it acceptable because this AOT would be entered only once in 10 years, and the time to perform the maintenance would be minimized.

The licensee has proposed actions to maximize the availability of alternate power sources during the time period that SU #2 would be out of service. The following list of equipment will be posted and protected such that it remains in service and no elective maintenance is performed while SU #2 is out of service.

1) ANO-1 and ANO-2 steam-driven emergency feedwater pumps;
2) SU #1 and SU #3;
3) ANO-1 emergency diesel generator No. 1 and No. 2;
4) ANO-2 emergency diesel generator No. 1 and No. 2; and
5) Alternate AC Diesel Generator (AACG).

In addition, any surveillance related to the above mentioned equipment that would be due during the planned maintenance interval, would be performed prior to taking SU #2 out of service. The steam-driven feedwater pump is included in this discussion since it is considered a mitigation to station blackout conditions when electric feedwater pumps would be unavailable.

In order to minimize the likelihood that offsite or backup power sources would be lost during the SU #2 maintenance outage, the licensee has decided to restrict all major elective maintenance in the ANO switchyard. In addition, the AACG, which is credited as a backup power supply for station blackout conditions, will not be used to supply power to the offsite grid during the SU #2 preventative maintenance period. The licensee also considered environmental factors. According to the National Weather Service, the most active season for tornado activity at ANO is during the months of March, April, and May. This limit, combined with low temperature concerns addressed earlier, precludes performing the SU #2 maintenance from December through May. Therefore, the maintenance for SU #2 will be performed during the months of June through November. The licensee also addressed other environmental factors such as flooding and severe weather that could affect related equipment or grid stability. ANO has an existing program that provides for weather and plant condition assessments whenever removing vital equipment from service. This program will apply to the SU #2 outage and is considered sufficient in identifying and assessing these types of concerns.

Should the loss of another required electrical power source occur during the SU #2 maintenance period, the appropriate current TS AOT would be initiated. Such an occurrence would require ANO-1 to either initiate a hot shutdown within 12 hours, or enter TS 3.0.3, depending on the inoperable component. ANO-2 would have 24 hours to restore one of the inoperable sources or be in hot standby in the following 6 hours, in addition to demonstrating the operability of both EDGs within 8 hours of a second power source being declared inoperable. If one of the inoperable power sources cannot be returned to service, the end result for both ANO units would be to place the units in cold shutdown conditions. The plant has a number of onsite backup power sources that are capable of maintaining ANO-1 and ANO-2 in a stable shutdown condition. Each unit has two fully redundant EDGs per unit that will furnish power to engineered safety feature (ESF) equipment. In addition, a 4.4 MW AACG is also available to provide power to ESF or non-ESF auxiliary loads of both ANO-1 and ANO-2. The AACG was sized to simultaneously provide power to one ESF bus of one unit under accident loading and one ESF bus of the other unit to support shutdown conditions.

A second offsite power supply, as required by GDC 17, could be provided through the reassembly of the SU #2 transformer. The licensee has stated that the maintenance plan will be structured such that, at all times during the AOT, the SU #2 transformer could be recovered within approximately 48 hours, if required. Also, an alternative to the second offsite power circuit can be provided by disconnecting the removable links at the main generator of either unit, allowing the unit auxiliary transformers to be powered directly from the switchyard via the main transformers. Such backfeed operations would require approximately 24 hours to establish.

Current ANO-1 TSs require the immediate cold start of an EDG when another required power source (EDG or offsite power source) becomes inoperable in order to demonstrate the operability of the remaining EDG(s). This operability verification is not required by ANO-2 TS if a single EDG is inoperable solely due to preplanned maintenance activities. The ANO-1 TS further requires that, in case of an inoperable EDG, the redundant operable EDG be

start-tested on a daily basis as long as the inoperable condition exists on the other EDG. These requirements do not act to enhance EDG operability or conform to the recommendations of GL 84-15, "Proposed Staff Actions to Improve and Maintain Diesel Generator Reliability." GL 84-15 recommends improvements to the TSs to reduce the number of cold fast starts, rapid loading, and excessive testing. Adoption of the recommendations of GL 84-15 would reduce severe mechanical stress and undue wear on engine parts. In addition, the current Improved Standard Technical Specifications (ISTS) do not require the demonstration of EDG operability due to loss of another required power source. The exception to this is during an event that causes one EDG to become inoperable under circumstances that may indicate the existence of a common cause failure (same degradation may affect operability of the remaining EDG). In such a case, the remaining EDG is required to be demonstrated operable by performing a cold start test within 24 hours of the initial inoperability determination. The licensee's proposal to eliminate unnecessary cold starts of the EDGs is in accordance with GL 84-15 and the current ISTS, and would be expected to improve EDG reliability.

The staff has reviewed the licensee's submittal and finds it acceptable for the following reasons. The proposal makes provisions for making a second offsite power source available by reassembling SU #2 and placing it back in service, or by removing the main generator links and powering the safety buses through the auxiliary transformer. The licensee has stated that the maintenance plan will be structured such that at all times during the AOT, the SU #2 could be recovered within approximately 48 hours. Alternatively, the licensee stated that by removing the links at the main generator and powering the safety buses through the auxiliary transformer, a second offsite power circuit could be provided within approximately 24 hours. In addition, the licensee has provided a list of other contingencies or conditions that will be applicable during the proposed SU #2 maintenance that would reduce the duration of the maintenance period or increase the reliability of other power sources and support equipment. Also, the AACG provides additional backup power capacity in that, as a minimum, it can simultaneously provide power to one ESF bus of one unit under accident conditions and one ESF bus of the other unit while under normal shutdown conditions. Finally, the elimination of excessive EDG operability demonstration (cold starts) during periods when another required power source is inoperable enhances overall EDG reliability and is consistent with guidance provided in GL 84-15 and the ISTS.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Arkansas State official was notified of the proposed issuance of the amendment. The State official had no comment.

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration and there has been no public comment on such finding (65 FR 4271, January 26, 2000). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to

10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that (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 amendments will not be inimical to the common defense and security or to the health and safety of the public.

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