DOCKET FILE

Docket No. 50-313

July 30, 1992

Mr. Neil S. Carns
Vice President, Operations ANO
Entergy Operations, Inc.
Route 3 Box 137G
Russellville, Arkansas 72801

Dear Mr. Carns:

SUBJECT: CORRECTION TO AMENDMENT NO. 161 TO FACILITY OPERATING LICENSE DPR-51 - ARKANSAS NUCLEAR ONE, UNIT NO. 1 (TAC NO. M81017)

On July 7, 1992, the Commission issued Amendment No. 161 to Facility Operating License No. DPR-51 to Arkansas Nuclear One, Unit No. 1 (ANO-1). The amendment revised the ANO-1 Technical Specifications (TS) based on the recommendations provided by the staff in Generic Letter 87-09 related to the applicability of limiting conditions for operation and the surveillance requirements of TS 3.0 and 4.0.

Correction is being made to renumber TS pages 15c, 15d, and 15e to make them consistent with the current numbering system of the TS. The new page numbers are 15b-1, 15b-2, and 15b-3 respectively. Several typographical errors where made to TS page 15b-3 which are also being corrected at this time. In addition, TS page 15c is being reissued to replace page 15c that was issued incorrectly with Amendment No. 161. This is being done to maintain document completeness.

Correction is also being made to pages 18, 18a, 53d, 59a, 66n, 66o, 66p, 66q, and 72 by incorporating previous TS changes made in Amendment Nos. 152, 153, 154 and 158 that where inadvertently omitted when Amendment No. 161 was issued. Please accept our apology for any inconvenience these errors may have caused you.

Sincerely,
ORIGINAL SIGNED BY
Thomas W. Alexion, Project Manager
Project Directorate IV-1
Division of Reactor Projects - III/IV/V
Office of Nuclear Reactor Regulation

Enclosures:
As stated

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

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restore an inoperable system or component to OPERABLE status or for restoring parameters within specified limits. If these Actions are not completed within the allowable outage time limits, a shutdown is required to place the facility in a mode or condition in which the Specification no longer applies. It is not intended that the shutdown Action requirements be used as an operational convenience which permits (routine) voluntary removal of a system(s) or component(s) from service in lieu of other alternatives that would not result in redundant systems or components being inoperable.

The specified time limits of the Action requirements are applicable from the point in time it is identified that a Limiting Condition for Operation is not met. The time limits of the Action requirements are also applicable when a system or component is removed from service for surveillance testing or investigation of operational problems. Individual Specifications may include a specified time limit for the completion of a Surveillance Requirement when equipment is removed from service. In this case, the allowable outage time limits of the Action requirements are applicable when this limit expires if the surveillance has not been completed. When a shutdown is required to comply with Action requirements, the plant may have entered a mode in which a new specification becomes applicable. In this case, the time limits of the Action requirements would apply from the point in time that the new specification becomes applicable if the requirements of the Limiting Condition for Operation are not met.

3.0.2 Establishes that noncompliance with a Specification exists when the requirements of the Limiting Condition for Operation are not met and the associated Action requirements have not been implemented within the specified time interval. The purpose of this specification is to clarify that (1) implementation of the Action requirements within the specified time interval constitutes compliance with a Specification and (2) completion of the remedial measures of the Action requirements is not required when compliance with a Limiting Condition for Operation is restored within the time interval specified in the associated Action requirements.

3.0.3 Establishes the shutdown Action requirements that must be implemented when a Limiting Condition for Operation is not met and the condition is not specifically addressed by the associated Action requirements. The purpose of this specification is to delineate the time limits for placing the unit in a safe shutdown mode when plant operation cannot be maintained within the limits for safe operation defined by the Limiting Conditions for Operation and its Action requirements. It is not intended to be used as an operational convenience which permits (routine) voluntary removal of redundant systems or components from service in lieu of other alternatives that would not result in redundant systems or components being inoperable. One hour is allowed to prepare for an orderly shutdown before initiating a change in plant operation. This time permits the operator to coordinate the reduction in electrical generation with the load dispatcher to ensure the stability and availability of the electrical grid. The time limits specified to reach lower modes of operation permit the shutdown to proceed in a controlled and orderly

manner that is well within the specified maximum cooldown rate and within the cooldown capabilities of the facility assuming only the minimum required equipment is OPERABLE. This reduces thermal stresses on components of the primary coolant systems and the potential for a plant upset that could challenge safety systems under conditions for which this specification applies.

If remedial measures permitting limited continued operation of the facility under the provisions of the Action requirements are completed, the shutdown may be terminated. The time limits of the Action requirements are applicable from the point in time there was a failure to meet a Limiting Condition for Operation. Therefore, the shutdown may be terminated if the Action requirements have been met or the time limits of the Action requirements have not expired, thus providing an allowance for the completion of the required Actions.

The time limits of Specification 3.0.3 allow 37 hours for the plant to be in the COLD SHUTDOWN condition when a shutdown is required during the POWER mode of operation. If the plant is in a lower mode of operation when a shutdown is required, the time limit for reaching the next lower mode of operation applies. However, if a lower mode of operation is reached in less time than allowed, the total allowable time to reach COLD SHUTDOWN, or other applicable mode, is not reduced. For example, if HOT STANDBY is reached in 2 hours, the time allowed to reach HOT SHUTDOWN is the next 11 hours because the total time to reach HOT SHUTDOWN is not reduced from the allowable limit of 13 hours. Therefore, if remedial measures are completed that would permit a return to POWER operation, a penalty is not incurred by having to reach a lower mode of operation in less than the total time allowed.

The same principle applies with regard to the allowable outage time limits of the Action requirements, if compliance with the Action requirements for one specification results in entry into a mode or condition of operation for another specification in which the requirements of the Limiting Condition for Operation are not met. If the new specification becomes applicable in less time than specified, the difference may be added to the allowable outage time limits of the second specification. However, the allowable outage time limits of Action requirements for a higher mode of operation may not be used to extend the allowable outage time that is applicable when a Limiting Condition for Operation is not met in a lower mode of operation.

The shutdown requirements of Specification 3.0.3 do not apply in COLD SHUTDOWN and REFUELING SHUTDOWN, because the Action requirements of individual specifications define the remedial measures to be taken.

3.0.4 Establishes limitations on mode changes when a Limiting Condition for Operation is not met. It precludes placing the facility in a higher mode of operation when the requirements for a Limiting Condition for Operation are not met and continued noncompliance to these conditions would result in a shutdown to comply with the Action requirements if a change in modes were permitted. The purpose of this specification is to ensure that facility operation is not

initiated or that higher modes of operation are not entered when corrective action is being taken to obtain compliance with a Specification by restoring equipment to OPERABLE status or parameters to specified limits. Compliance with Action requirements that permit continued operation of the facility for an unlimited period of time provides an acceptable level of safety for continued operation without regard to the status of the plant before or after a mode change. Therefore, in this case, if the requirements for continued operation have been met in accordance with the requirements of the specification, then entry into that mode of operation is permissible. The provisions of this specification should not, however, be interpreted as endorsing the failure to exercise good practice in restoring systems or components to OPERABLE status before plant startup.

When a shutdown is required to comply with Action requirements, the provisions of Specification 3.0.4 do not apply because they would delay placing the facility in a lower mode of operation. For the purpose of compliance with this specification the term 'shutdown' is defined as a required reduction in the REACTOR OPERATING CONDITION.

3.0.5 Delineates what additional conditions must be satisfied to permit operation to continue when a normal or emergency power source is not OPERABLE. It specifically prohibits operation when one division is inoperable because its normal or emergency power source is inoperable and a system, subsystem, train, component or device in another division is inoperable for another reason.

The provisions of this specification permit the Limiting Condition for Operation statements associated with individual systems, subsystems, trains, components or devices to be consistent with the Limiting Condition for Operation statements of the associated electrical power source. It allows operation to be governed by the time limits of the Limiting Condition for Operation for the normal or emergency power source, not the individual Limiting Condition for Operation statements 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 3.7.2.C provides for a 2 day out-of-service time when one emergency diesel generator is not OPERABLE. If the definition of OPERABLE were applied without consideration of Specification 3.0.5, all systems, subsystems, trains, components and devices supplied by the inoperable emergency power source would also be inoperable. This would dictate invoking the applicable Action statements for each of the applicable Limiting Conditions for Operation. However, the provisions of Specification 3.0.5 permit the time limits for continued operation to

be consistent with the Limiting Condition for Operation statement 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 3.0.5 (i.e., be capable of performing their design function and have at least one normal or one emergency power source OPERABLE). If they are not satisfied, shutdown is required in accordance with this specification.

As a further example, Specification 3.7.1.A requires in part that two physically independent circuits between the offsite transmission network and the onsite Class IE distribution system be OPERABLE. Specification 3.7.2.B provides a 24 hour out-of-service time when both required offsite circuits are not OPERABLE. If the definition of OPERABLE were applied without consideration of Specification 3.0.5, all systems, subsystems, trains, components and devices supplied by the inoperable normal power sources, both of the offsite circuits would also be inoperable. This would dictate invoking the applicable Limiting Condition for Operation statements for each of the applicable LCOs. However, the provisions of Specification 3.0.5 permit the time limits for continued operation to be consistent with the Limiting Condition for Operation statement for the inoperable normal power sources instead, provided the other specified conditions are satisfied. In this case, this would mean that for one division the emergency power source must be OPERABLE (as must be the components supplied by the emergency power source) and all redundant systems, subsystems, trains, components and devices in the other division must be OPERABLE, or likewise satisfy Specification 3.0.5 (i.e., be capable of performing their design functions and have an emergency power source OPERABLE). In other words, both emergency power sources must be OPERABLE and all redundant systems, subsystems, trains, components and devices in both divisions must also be OPERABLE. If these conditions are not satisfied, shutdown is required in accordance with this specification.

During Cold Shutdown and Refueling Shutdown, Specification 3.0.5 is not applicable and thus the individual Action statements for each applicable Limiting Condition for Operation in these MODES must be adhered to.

3.1.2 Pressurization, Heatup, and Cooldown Limitations

Specification

3.1.2.1 Hydro Tests

For thermal steady state system hydro tests, the system may be pressurized to the limits set forth in Specification 2.2 when there are fuel assemblies in the core, under the provisions of 3.1.2.3, and to ASME Code limits when no fuel assemblies are present provided the reactor coolant system limits are to the right of and below the limit line in Figure 3.1.2-1. The provisions of Specifications 3.0.3 are not applicable.

3.1.2.2 Leak Tests

Leak tests required by Specification 4.3 shall be conducted under the provision of 3.1.2.3. The provisions of Specification 3.0.3 are not applicable.

3.1.2.3 The reactor coolant pressure and the system heatup and cooldown rates (with the exception of the pressurizer) shall be limited in accordance with Figure 3.1.2-2 and Figure 3.1.2-3, and are as follows:

Heatup:

Allowable combinations of pressure and temperature shall be to the right of and below the limit line in Figure 3.1.2-2. The heatup rates shall not exceed those shown in Figure 3.1.2-2.

Cooldown:

Allowable combinations of pressure and temperature for a specific cooldown shall be to the right of and below the limit line in Figure 3.1.2-3. Cooldown rates shall not exceed those shown in Figure 3.1.2-3.

3.1.2.4 The secondary side of the steam generator shall not be pressurized above 200 psig if the temperature of the steam generator shell is below 100F.

3.1.2.5 The pressurizer heatup and cooldown rates shall not exceed 100F/hr. The spray shall not be used if the temperature difference between the pressurizer and the spray fluid is greater than 430F.

3.1.2.6 With the limits of Specifications 3.1.2.3 or 3.1.2.4 or 3.1.2.5 exceeded, restore the temperature and/or pressure to within the limit within 30 minutes; perform an engineering evaluation to determine the effects of the out-of-limit condition on the fracture toughness properties of the Reactor Coolant System; determine that the Reactor Coolant System remains acceptable for continued operations or be in at least HOT STANDBY within the next 6 hours and reduce the RCS Tavg to less than 200F, while maintaining RCS temperature and pressure below the curve, within the following 30 hours.

3.1.2.7 Prior to reaching fifteen effective full power years of operation, Figures 3.1.2-1, 3.1.2-2 and 3.1.2-3 shall be updated for the next service period in accordance with 10CFR50, Appendix G, Section V.B. The service period shall be of sufficient duration to permit the scheduled evaluation of a portion of the surveillance data scheduled in accordance with the latest revision of Topical Report BAW-1543(5). The highest predicted adjusted reference temperature of all the beltline region materials shall be used to determine the adjusted reference temperature at the end of the service period. The basis for this prediction shall be submitted for NRC staff review in accordance with Specification 3.1.2.8. The provisions of Specification 3.0.3 are not applicable.

3.1.2.8 The updated proposed technical specifications referred to in 3.1.2.7 shall be submitted for NRC review at least 90 days prior to the end of the service period. Appropriate additional NRC review time shall be allowed for proposed technical specifications submitted in accordance with 10 CFR Part 50, Appendix G. Section V.C.

3.1.2.9 With the exception of ASME Section XI testing and when the core flood tank is depressurized, during a plant cooldown the core flood tank discharge valves shall be closed and the circuit breakers for the motor operators opened before depressurizing the reactor coolant system below 600 psig.

3.1.2.10 With the exception of ASME Section XI testing, fill and vent of the reactor coolant system, emergency RCS makeup and to allow maintenance of the valves, when the reactor coolant temperature is less than 300°F, the High Pressure Injection motor operated valves shall be closed with their opening control circuits for the motor operators disabled.

3.1.2.11 The plant shall not be operated in a water solid condition when the RCS pressure boundary is intact except as allowed by Emergency Operating Procedures and during System Hydrotest.

3.5.5 Fire Detection Instrumentation

DELETED

3.8.15* The spent fu shipping cask shall not be car i by the Auxiliary Building crane pending the evaluation of the spent fuel cask drop accident and the crane design by AP&L and NRC review and approval. The provisions of Specification 3.0.3 are not applicable.

3.8.16 Storage in the spent fuel pool shall be restricted to fuel assemblies having initial enrichment less than or equal to 4.1 w/o U-235. The provisions of Specification 3.0.3 are not applicable.

3.8.17 Storage in Region 2 (as shown on Figure 3.8.1) of the spent fuel pool shall be further restricted by burnup and enrichment limits specified in Figure 3.8.2. In the event a checkerboard storage configuration is deemed necessary for a portion of Region 2, vacant spaces adjacent to the faces of any fuel assembly which does not meet the Region 2 burnup criteria (non-restricted) shall be physically blocked before any such fuel assembly may be placed in Region 2. This will prevent inadvertent fuel assembly insertion into two adjacent storage locations. The provisions of Specification 3.0.3 are not applicable.

3.8.18 The boron concentration in the spent fuel pool shall be maintained (at all times) at greater than 1600 parts per million.

Bases

Detailed written procedures will be available for use by refueling personnel. These procedures, the above specifications, and the design of the fuel handling equipment as described in Section 9.6 of the FSAR incorporating built-in interlocks and safety features, provide assurance that no incident could occur during the refueling operations that would result in a hazard to public health and safety. If no change is being made in core geometry, one flux monitor is sufficient. This permits maintenance on the instrumentation. Continuous monitoring of radiation levels and neutron flux provides immediate indication of an unsafe condition.

The requirement that at least one decay heat removal loop be in operation ensures that (1) sufficient cooling capacity is available to remove decay heat and maintain the water in the reactor pressure vessel at the refueling temperature (normally 140°F), and (2) sufficient coolant circulation is maintained through the reactor core to minimize the effects of a boron dilution incident and prevent boron stratification.([1])

The requirement to have two decay heat removal loops operable when there is less than 23 feet of water above the core, ensures that a single failure of the operating decay heat removal loop will not result in a complete loss of decay heat removal capability. With the reactor vessel head removed and 23 feet of water above the core, a large heat sink is available for core cooling, thus in the event of a failure of the operating decay heat removal loop, adequate time is provided to initiate emergency procedures to cool the core.

The shutdown margin indicated in Specification 3.8.4 will keep the core subcritical, even with all control rods withdrawn from the core.([2]) Although the refueling boron concentration is sufficient to maintain the core $k_{eff} \leq 0.99$ if all the control rods were removed from the core, only a few control rods will be removed at any one time during fuel shuffling and

Note: *An exception to 3.8.15 is granted for the period of October 15, 1991, through January 31, 1992, for the movement of two spent fuel rods utilizing a 17 ton shipping cask.

3.18 FIRE SUPPRESSION SPRINKLER SYSTEM

DELETED

3.19 CONTROL ROOM AND AUXILIARY CONTROL ROOM HALON SYSTEMS

DELETED

3.20 FIRE HOSE STATIONS

DELETED

3.21 FIRE BARRIERS

DELETED

Table 4.1-1 (Cont.)

Channel Description	Check	Test	Calibrate	Remarks
30. Decay heat removal system isolation valve automatic closure and interlock system	S(1)(2)	M(1)(3)	R	(1) Includes RCS Pressure Analog Channel (2) Includes CFT Isolation Valve Position (3) At least once every refueling shutdown, with Reactor Coolant System Pressure greater than or equal to 200 psig, but less than 300 psig, verify automatic isolation of the decay heat removal system from the Reactor Coolant System on high Reactor Coolant System pressure.
31. Turbine overspeedtrip mechanism	NA	R	NA	(1) The provisions of Specification 4.0.4 are not applicable.
32. Diesel generator protective relaying starting interlocks and circuitry	M	Q	NA	
33. Off-site power undervoltage and protective relaying interlocks and circuitry	W	R(1)	R(1)	(1) Shall be tested during refueling shutdown to demonstrate selective load shedding interlocks function during manual or automatic transfer of Unit 1 auxiliary load to Startup Transformer No. 2.
34. Borated water storage tank level indicator	W	NA	R	
35. Reactor trip upon loss of main feedwater circuitry	M	PC	R	