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

ENTERGY OPERATIONS INC.

DOCKET NO. 50-313

ARKANSAS NUCLEAR ONE, UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 161
License No. DPR-51

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

A. The application for amendment by Entergy Operations, Inc. (the licensee) dated June 27, 1991, as supplemented December 20, 1991, 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. 161 , 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.

FOR THE NUCLEAR REGULATORY COMMISSION

Paul W Johnson

for John T. Larkins, Director
Project Directorate IV-1
Division of Reactor Projects - III/IV/V
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: July 7, 1992

ATTACHMENT TO LICENSE AMENDMENT NO. 161

FACILITY OPERATING LICENSE NO. DPR-51

DOCKET NO. 50-313

Revise the following pages of the Appendix "A" Technical Specifications with the attached pages. The revised pages are identified by Amendment number and contain vertical lines indicating the area of change.

REMOVE PAGES	INSERT PAGES
15a	15a
15b	15b
15c	15c
--	15d
--	15e
18	18
18a	18a
45g	45g
51	51
53d	53d
53f	53f
53i	53i
57	57
59	59
59a	59a
66b	66b
66g	66g
66n	66n
66o	66o
66p	66p
66q	66q
66r	66r
66u	66u
66v	66v
66w	66w
66x	66x
66y	66y
66z	66z
66aa	66aa
66bb	66bb
66cc	66cc
66dd	66dd
66ee	66ee
66ff	66ff
67	67
67a	67a
--	67b
--	67c

REMOVE PAGES	INSERT PAGES
--	67d
--	67e
72	72
110tt	110tt
110z'	110zz
110bbb	110bbb

3. LIMITING CONDITIONS FOR OPERATION

3.0 LIMITING CONDITION FOR OPERATION (GENERAL)

3.0.1 The Limiting Conditions for Operation requirements shall be applicable during the REACTOR OPERATING CONDITIONS or other conditions specified for each specification.

3.0.2 Adherence to the requirements of the Limiting Condition for Operation within the specified time interval shall constitute compliance with the specification. In the event the Limiting Condition for Operation is restored prior to expiration of the specified time interval, no further actions need be taken.

3.0.3 When a Limiting Condition for Operation is not met, except as provided in the associated Action requirements, within one hour action shall be initiated to place the unit in an OPERATING CONDITION in which the Specification does not apply by placing it, as applicable, in:

1. At least HOT STANDBY within the next 6 hours,

2. At least HOT SHUTDOWN within the following 6 hours, and

3. At least COLD SHUTDOWN within the subsequent 24 hours.

Where corrective measures are completed that permit operation under the Action requirements, the Action may be taken in accordance with the specified time limits as measured from the time of failure to meet the Limiting Condition for Operation. Exceptions to these requirements are stated in the individual Specifications.

3.0.4 Entry into a REACTOR OPERATING CONDITION or other specified condition shall not be made when the conditions of the Limiting Conditions for Operation are not met and the associated action requires a shutdown if they are not met within a specified time interval. Entry into a REACTOR OPERATING CONDITION or other specified condition may be made in accordance with Action requirements when conformance to them permits continued operation of the facility for an unlimited period of time. This provision shall not prevent passage through or to REACTOR OPERATING CONDITIONS as required to comply with Action requirements. Exceptions to these requirements are stated in the individual specification.

LIMITING CONDITION FOR OPERATION (continued)

3.0.3 When a system, subsystem, train, component or device is determined to be inoperable solely because its emergency power source is inoperable, or solely because its normal power source is inoperable, it may be considered OPERABLE for the purpose of satisfying the requirements of its applicable Limiting Condition for Operation, provided: (1) its corresponding normal or emergency power source is OPERABLE and (2) all of its redundant systems(s), subsystem(s), train(s), component(s) and device(s) are OPERABLE; or likewise satisfy the requirements of this specification. Unless both conditions (1) and (2) are satisfied, within 2 hours action shall be initiated to place the unit in an OPERATING CONDITION in which the applicable Limiting Condition for Operation does not apply by placing it, as applicable, in :

1. At least HOT STANDBY within the next 6 hours.

2. At least HOT SHUTDOWN within the following 6 hours, and

3. At least COLD SHUTDOWN within the subsequent 24 hours.

This Specification is not applicable in Cold Shutdown or Refueling Shutdown.

BASES

3.0.1 through 3.0.4 Establish the general requirements applicable to Limiting Conditions for Operation. These requirements are based on the requirements for Limiting Conditions for Operation stated in the Code of Federal Regulations, 10 CFR 50.36(c)(2):

"Limiting conditions for operation are the lowest functional capability or performance levels of equipment required for safe operation of the facility. When a limiting condition for operation of a nuclear reactor is not met, the licensee shall shutdown the reactor or follow any remedial Action permitted by the Technical Specification until the condition can be met."

3.0.1 Establishes the Applicability statement within each individual Specification as the requirement for when (i.e., in which operational modes or other specified conditions) conformance to the Limiting Conditions for Operation is required for safe operation of the facility. The Action requirements establish those remedial measures that must be taken within specified time limits when the requirements of a Limiting Condition for Operation are not met.

There are two basic types of Action requirements. The first specifies the remedial measures that permit continued operation of the facility which is not further restricted by the time limits of the Action requirements. In this case, conformance to the Action requirements provides an acceptable level of safety for unlimited continued operation as long as the Action requirements continue to be met. The second type of Action requirement specifies a time limit in which conformance to the conditions of the Limiting Condition for Operation must be met. This time limit is the allowable outage time to

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 system 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

BASES (continued)

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 3.05 permit the time limits for continued operation 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 Specification 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 and pressure to less than 200F and 500 psia, respectively, 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 Specification 4.2.7. 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 280°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.

23. With the number of operable Electronic (SCR) Trip relays one less than the total number of Electronic (SCR) Trip relays in a channel, restore the inoperable Electronic (SCR) Trip relay to operable status in 48 hours or place the SCRs associated with the inoperable Electronic (SCR) Trip relay in trip in the next hour. With two or more Electronic (SCR) Trip relays inoperable, place all Electronic (SCR) Trip relays associated with that channel in trip in the next hour. This requirement does not apply to the Electronic Trip channels associated with Group 8 Regulating Power Supply.

24. With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

    a. Within 1 hour:

        1. Place the inoperable channel in the tripped condition, or

        2. Remove power supplied to the control rod trip device associated with the inoperable channel.

    b. One additional channel may be bypassed for up to 4 hours for surveillance testing and the operable channel above may be bypassed for up to 30 minutes in any 24-hour period when necessary to test the trip breaker associated with the logic of the channel being tested. The inoperable channel above shall not be bypassed to test the logic of a channel of the trip system associated with the inoperable channel.

25. With one of the Control Rod Drive Trip Breaker diverse trip features (undervoltage or shunt trip attachment) inoperable, restore it to OPERABLE status in 48 hours or place the breaker in trip in the next hour.

26. Interrupts motor power to the Safety Groups of control rods only.

27. With one or more seismic monitoring instruments inoperable for more than 30 days, prepare and submit a Special Report to the Commission pursuant to Specification 6.12.2 within the next 10 days outlining the cause of the malfunction and the plans for restoring the instrument(s) to OPERABLE status. The provisions of Specification 3.0.3 are not applicable.

3.5.4 Incore Instrumentation

Applicability

Applies to the operability of the incore instrumentation system.

Objective

To specify the functional and operational requirements of the incore instrumentation system.

Specification

Above 80 percent of operating power determined by the reactor coolant pump combination (Table 2.3-1) at least 23 individual incore detectors shall be operable to check gross core power distribution and to assist in the periodic calibration of the out-of-core detectors in regard to the core imbalance trip limits. The detectors shall be arranged as follows and may be a part of both basic arrangements.

3.5.4.1 Axial Imbalance

A. Three detectors, one in each of three strings shall lie in the same axial plane with one plane in each axial core half.

B. The axial planes in each core half shall be symmetrical about the core mid-plane.

C. The detector shall not have radial symmetry.

3.5.4.2 Radial Tilt

A. Two sets of four detectors shall lie in each core half. Each set of four shall lie in the same axial plane. The two sets in the same core half may lie in the same axial plane.

B. Detectors in the same plane shall have quarter core radial symmetry.

With the incore detector system inoperable, do not use the system for the above applicable monitoring function. The provisions of Specification 3.0.3 are not applicable.

Bases

A system of 52 incore flux detector assemblies with 7 detectors per assembly has been provided primarily for fuel management purposes. The system includes data display and record functions and is also used for out-of-core nuclear instrumentation calibration and for core power distribution verification.

A. The out-of-core nuclear instrumentation calibration includes:

1. Calibration of the split detectors at initial reactor startup, during the power escalation program, and periodically thereafter.

3.5.5 Fire Detection Instrumentation

Applicability

This specification applies to fire detection instrumentation utilized within fire areas containing safety related equipment or circuitry for the purposes of protecting that safety related equipment or circuitry.

Objective

To provide immediate notification of fires in areas where there exists a potential for a fire to disable safety related systems.

Specification

3.5.5.1 A minimum of 50% of the heat/smoke detectors in the locations specified in Table 3.5-5 shall be operable.

3.5.5.2 If less than 50% of the fire detectors in any of the locations designated in Table 3.5-5 are operable, within one hour establish a fire watch patrol to inspect the zone(s) with the inoperable instrument(s) at least once per hour and restore the equipment to operable status within 14 days, or prepare and submit a Special Report to the Commission pursuant to Specification 6.12.5 within the next 30 days outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the instrument(s) to operable status. The provisions of Specification 3.0.3 are not applicable.

Bases

The various detectors provide alarms that notify the operators of the existence of a fire in its early stages thus providing early initiation of fire protection. The detectors in the main and auxiliary control rooms also provide automatic fire protection initiation.

The detectors required to be operable in the various areas represent one half of those installed.

Operability of the fire detection instrumentation ensures that operable warning capability is available for the prompt detection of fires. This capability is required in order to detect and locate fires in their early stages. Prompt detection of fires will reduce the potential for damage to safety related equipment.

In the event that a portion of the fire detection instrumentation is inoperable, the establishment of frequent fire patrols in the affected areas(s) is required to provide detection capability until the inoperable instrumentation is restored to operability.

3.5.6 Radioactive Liquid Effluent Instrumentation

Applicability: During releases via this pathway.

Objective: To provide instrumentation for radioactive liquid releases.

Specification:

3.5.6.1 The radioactive liquid effluent monitoring instrumentation shown in Table 3.5.6-1 shall be operable with their alarm/trip setpoints set to ensure that the limits of specification 3.25.1.1 are not exceeded.

3.5.6.2 With alarm/trip setpoints less conservative than required by the above specification, immediately suspend the release of radioactive liquid effluents monitored by the affected channel, until the setpoint is changed to an acceptably conservative value.

3.5.6.3 With less than the minimum number of channels operable, take the action shown in Table 3.5.6-1. Return the instruments to operable status within 30 days or, in lieu of any other report, explain in the next Semiannual Radioactive Effluent Release Report why the inoperability was not corrected.

3.5.6.4 The provisions of Specification 3.0.3 are not applicable.

Bases:

The radioactive liquid effluent instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in liquid effluents during actual or potential releases. The alarm/trip setpoints for these instruments shall be calculated in accordance with the methods in the ODCM to ensure that the alarm/trip will occur prior to exceeding the limits of 10 CFR Part 20.

3.5.7 Radioactive Gaseous Effluent Instrumentation

Applicability: As shown in Table 3.5.7-1.

Objective: To provide instrumentation for radioactive gaseous releases.

Specification:

3.5.7.1 The radioactive gaseous effluent monitoring instrumentation shown in Table 3.5.7-1 shall be operable with their alarm/trip setpoints set to ensure that the limits of Specification 3.25.2.1 are not exceeded.

3.5.7.2 With a channel alarm/trip setpoint less conservative than required, declare the channel inoperable.

3.5.7.3 With less than the minimum number of channels operable, take the action shown in Table 3.5.7-1. Return the instruments to operable status within 30 days or, in lieu of any other report, explain in the next Semiannual Radioactive Effluent Release Report why the inoperability was not corrected.

3.5.7.4 The provisions of Specification 3.0.3 are not applicable.

Bases:

The radioactive gaseous effluent instrumentation is provided to monitor and control, as applicable, the releases of radioactive materials in gaseous effluents during actual or potential releases. The alarm/trip setpoints for these instruments shall be calculated in accordance with methods in the ODCM to ensure that the alarm/trip will occur prior to exceeding the limits of 10 CFR Part 20.105.

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 if the availability of the diesel generators is immediately verified.

C. Either one of the two diesel generators may be inoperable for up to 7 days in any month provided that during such 7 days the operability of the remaining diesel generator is demonstrated immediately and daily thereafter, 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.

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. Two station battery chargers may be inoperable for 8 hours, after which Specification 3.7.2.A shall apply.

F. One of the two station batteries and the associated distribution system may be inoperable for 8 hours provided that there are no inoperable safety related components associated with the remaining station battery which are redundant to the inoperable station battery and the operability of the diesel generator is verified immediately. If the battery is not returned to service at the end of the 8 hour period, Specification 3.7.2.A shall apply.

G. Two control power sources from the plant to the switchyard and the attendant distribution system may be inoperable for 8 hours, after which Specification 3.7.2.A shall apply.

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.

3.8.6 During the handling of irradiated fuel in the reactor building, at least one door on the personnel and emergency hatches shall be closed. The equipment hatch cover shall be in place with a minimum of four bolts securing the cover to the sealing surfaces.

3.8.7 Isolation valves in lines containing automatic containment isolation valves shall be operable, or at least one shall be closed.

3.8.8 When two irradiated fuel assemblies are being moved simultaneously by the bridges within the fuel transfer canal, a minimum of 10 feet separation shall be maintained between the assemblies at all times.

3.8.9 If any of the above specified limiting conditions for fuel loading and refueling are not met, movement of fuel into the reactor core shall cease; Action shall be initiated to correct the conditions so that the specified limits are met, and no operations which may increase the reactivity of the core shall be made. The provisions of Specification 3.0.3 are not applicable.

3.8.10 The reactor building purge isolation system, including the radiation monitors shall be tested and verified to be operable within 7 days prior to refueling operations. The provisions of Specification 3.0.3 are not applicable.

3.8.11 Irradiated fuel shall not be removed from the reactor until the unit has been subcritical for at least 72 hours. In the event of a complete core offload, a full core to be discharged shall be subcritical a minimum of 175 hours prior to discharge of more than 70 assemblies to the spent fuel pool. The provisions of Specification 3.0.3 are not applicable.

3.8.12 All fuel handling in the Auxiliary Building shall cease upon notification of the issuance of a tornado watch for Pope, Yell, Johnson, or Logan counties in Arkansas. Fuel handling operations in progress will be completed to the extent necessary to place the fuel handling bridge and crane in their normal parked and locked position. The provisions of Specification 3.0.3 are not applicable.

3.8.13 No loaded spent fuel shipping cask shall be carried above or into the Auxiliary Building equipment shaft unless atmospheric dispersion conditions are equal to or better than those produced by Pasquill Type D stability accompanied by a wind velocity of 2 m/sec. In addition, the railroad spur door of the Turbine Building shall be closed and the fuel handling area ventilation system shall be in operation. The provisions of Specification 3.0.3 are not applicable.

3.8.14 Loads in excess of 2000 pounds shall be prohibited from travel over fuel assemblies in the storage pool. The provisions of Specification 3.0.3 are not applicable.

3.8.15* The spent fuel shipping cask shall not be carried 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: *A one time exception to 3.8.15 is granted for the period of July 13, 1987 through August 12, 1987.

3.12 MISCELLANEOUS RADIOACTIVE MATERIALS SOURCES

Applicability

Applies to byproduct, source, and special nuclear radioactive material sources.

Objective

To assure that leakage from byproduct, source and special nuclear radioactive material sources does not exceed allowable limits.

Specification

3.12.1 The source leakage test performed pursuant to Specification 4.14 shall be capable of detecting the presence of 0.005 μCi of radioactive material on the test sample. If the test reveals the presence of 0.005 μCi or more of removable contamination, it shall immediately be withdrawn from use, decontaminated and repaired, or be disposed of in accordance with Commission regulations. Sealed sources are exempt from such leak tests when the source contains 100 μCi or less of beta and/or gamma emitting material or 5 μCi or less of alpha emitting material. The provisions of Specification 3.0.3 are not applicable.

3.12.2 A Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.12.5 within 90 days if source leakage tests reveal the presence of ≥0.005 microcuries of removable contamination.

3.12.3 A complete inventory of licensed radioactive materials in possession shall be maintained current at all times.

3.15 FUEL HANDLING AREA VENTILATION SYSTEM

Applicability

Applies to the operability of the fuel handling area ventilation system.

Objective

To ensure that the fuel handling area ventilation system will perform within acceptable levels of efficiency and reliability.

Specification

3.15.1 The fuel handling area ventilation system shall be in operation whenever irradiated fuel handling operations are in progress in the fuel handling area of the auxiliary building and shall have the following performance capabilities:

a. The results of the in-place cold DOP and halogenated hydrocarbon tests at design flows (±10%) on HEPA filters and charcoal adsorber banks shall show ≥ 99% DOP removal and ≥ 99% halogenated hydrocarbon removal.

b. The results of laboratory carbon sample analysis shall show ≥ 90% radioactive methyl iodide removal at a velocity within ±20% of system design, 0.05 to 0.15 mg/m^3 inlet methyl iodide concentration, ≥ 70% R.H. and ≥ 125F.

c. Fans shall be shown to operate within ±10% design flow.

d. The pressure drop across the combined HEPA filters and charcoal adsorber banks shall be less than 6 inches of water at system design flow rate (±10%).

e. Air distribution shall be uniform within ±20% across HEPA filters and charcoal adsorbers when tested initially and after any maintenance or testing that could affect the air distribution within the fuel handling area ventilation system.

3.15.2 If the requirements of Specification 3.15.1 cannot be met, irradiated fuel movement shall not be started (any irradiated fuel assembly movement in progress may be completed). The provisions of Specification 3.0.3 are not applicable.

Bases

The fuel handling area ventilation system is designed to filter the auxiliary building atmosphere during fuel handling operations to limit the release of activity should a fuel handling accident occur. The system consists of one circuit containing two exhaust fans and a filter train. The fans are redundant and only one is required to be operating. The filter train consists of a prefilter, a HEPA filter and a charcoal adsorber in series.

3.18 FIRE SUPPRESSION SPRINKLER SYSTEM

Applicability

This specification applies to the following fire suppression sprinkler systems protecting safety related areas:

a. Each of the four reactor building cable penetration areas.

b. Each of the four cable penetration rooms.

c. Each of the two emergency diesel generator rooms.

d. Cable spreading room.

e. Each of the two diesel generator fuel vaults.

f. Hallway El 372 (Zone 98-J).

g. Condensate demineralizer area.*

Objective

To assure that fire suppression is available to safety related equipment located in the above-listed areas.

Specification

3.18.1 The above-listed sprinkler systems shall be operable at all times.

3.18.2 With one or more of the above-listed sprinkler systems inoperable, establish a continuous fire watch (or operable smoke and/or heat detection equipment with control room alarm) with backup fire suppression equipment for the applicable area(s) within one hour. Restore the system(s) to operable status within 14 days, or prepare and submit a Special Report to the Commission pursuant to Specification 6.12.5 within the next 30 days outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system(s) to operable status. The provisions of Specification 3.0.3 are not applicable.

Bases

Safety related equipment located in various areas is protected by sprinkler systems. The operability of these systems ensures that adequate fire suppression capability is available to confine and extinguish a fire occurring in the applicable areas. In the event a system is inoperable, alternate backup fire fighting equipment or operable detection equipment is required to be made available until the inoperable equipment is restored to service.

*To be implemented no later than July 30, 1979.

3.19 CONTROL ROOM AND AUXILIARY CONTROL ROOM HALON SYSTEMS

Applicability

This specification applies to the Halon systems utilized as the fire suppression system for the control room and auxiliary control room.

Objective

To assure that fire suppression is available to the safety related equipment in the control room and auxiliary control room.

Specification

3.19.1 The three control room and auxiliary control room Halon systems shall be operable at all times with the storage tanks having at least 95% of full charge weight and 90% of full charge pressure.

3.19.2 With any of the control room and auxiliary control room Halon systems inoperable, establish backup fire suppression equipment for the affected area within one hour. Restore the system(s) to operable status within 14 days, or prepare and submit a Special Report to the Commission pursuant to Specification 6.12.5 within 30 days outlining the actions taken, the cause of the inoperability, and the plans and schedule for restoring the system to operable status. The provisions of Specification 3.0.3 are not applicable.

Bases

Safety related circuitry located in portions of the control room and auxiliary control room is protected by the Halon systems. The operability of these systems ensures that adequate fire suppression capability is available to confine and extinguish a fire occurring in the control room or the auxiliary control room.

In the event that the system(s) is inoperable, alternate backup fire fighting equipment is required to be made available in the affected area until the inoperable equipment is restored to service.

3.20 FIRE HOSE STATIONS

Applicability

This specification applies to fire hose stations protecting areas containing safety related equipment.

Objective

To assure that manual fire suppression capability is available to all safety related equipment.

Specification

3.20.1 All fire hose stations protecting areas containing safety related equipment shall be operable whenever the equipment in these areas is required to be operable.

3.20.2 With one or more of the fire hose stations of 3.20.1 inoperable, route an additional equivalent capacity fire hose to the unprotected area(s) from an operable hose station within one hour. The provisions of Specification 3.0.3 are not applicable.

Bases

The operability of the fire hose stations adds additional assurance that adequate fire suppression capability is available to confine and extinguish fires occurring in any portion of the facility where safety related equipment is located.

In the event that portions of this system are inoperable, backup fire hose equipment is required to be made available in the affected area(s) until the inoperable equipment is restored to service.

3.21 FIRE BARRIERS

Applicability

This specification applies to fire barriers separating safety related fire areas or redundant safe shutdown systems required in the event of a fire.

Objective

To assure that fire barriers separating safety related fire areas or redundant safe shutdown systems perform their separation function.

Specification

3.21.1 All fire barriers separating safety related fire areas or redundant safe shutdown systems shall be operable at all times.

3.21.2 With one or more of the required fire barriers inoperable, within 1 hour, either:

a. Establish a continuous fire watch on at least one side of the affected fire barrier or,

b. Verify the operability of smoke and/or heat detection equipment with control room alarm on at least one side of the affected barrier and establish an hourly fire watch patrol.

3.21.3 The provisions of Specification 3.0.3 are not applicable.

Bases

The operability of the fire barriers, including fire-rated walls; floors/ceilings; fire doors; fire dampers and penetration seals, ensures that fires will be confined or adequately retarded from spreading to adjacent fire areas or to portions of redundant safe shutdown systems required in the event of a fire within the fire area. This design feature minimizes the possibility of a single fire rapidly involving several areas of the facility prior to detection and extinguishment. The fire barriers are a passive element in the facility fire protection program and are subject to periodic inspections. Safety related fire areas are the Control Room, the Switchgear Rooms, the Battery Rooms, and the Diesel Generator Rooms. Fire barriers also separate lubricating oil storage areas from other areas of the plant. Fire barriers separating redundant safe shutdown systems have been defined by analysis.

During periods of time when the barriers are inoperable, a continuous fire watch or operable detection equipment with an hourly fire watch patrol is required to be maintained in the vicinity of the affected barrier until the barrier is restored to operable status.

3.22 REACTOR BUILDING PURGE FILTRATION SYSTEM

Applicability

This specification applies to the operability of the reactor building purge filtration system.

Objective

To assure that the reactor building purge filtration system will perform within acceptable levels of efficiency and reliability.

Specification

3.22.1 The reactor building purge filtration system shall be operable whenever irradiated fuel handling operations are in progress in the reactor building and shall have the following performance capabilities:

a. The results of the in-place cold DOP and halogenated hydrocarbon tests at design flows (±10%) on HEPA filters and charcoal adsorber banks shall show ≥99% DOP removal and ≥99% halogenated hydrocarbon removal.

b. The results of laboratory carbon sample analysis shall show ≥90% radioactive methyl iodide removal at a velocity within ±20% of system design, 0.5 to 0.15 mg/m^3 inlet methyl iodide concentration, ≥70% R. H. and ≥125F.

c. Fans shall be shown to operate within ±10% design flow.

d. The pressure drop across the combined HEPA filters and charcoal adsorber banks shall be less than 6 inches of water at system design flow rate (±10%).

e. Air distribution shall be uniform within ±20% across HEPA filters and charcoal adsorbers when tested initially and after any maintenance or testing that could affect the air distribution within the reactor building purge filtration system.

3.22.2 If the requirements of Specification 3.22.1 cannot be met, either:

a. Irradiated fuel movement shall not be started (any irradiated fuel assembly movement in progress may be completed); or,

b. Isolate the reactor building purge system.

3.22.3 The provisions of Specification 3.0.3 are not applicable.

Bases

The reactor building purge filtration system is designed to filter the reactor building atmosphere during normal operations for ease of personnel entry into the reactor building. This specification is intended to require the system operable during fuel handling operations, if the system

3.24 EXPLOSIVE GAS MIXTURE

Applicability

Applies to the Waste Gas System hydrogen/oxygen analyzers.

Objective

To prevent accumulation of explosive mixture in the waste gas system.

Specification

3.24.1 The concentration of hydrogen/oxygen shall be limited in the waste gas decay tanks to Region "A" of Figure 3.24-1.

3.24.2 When the hydrogen/oxygen concentration in any of the decay tanks enters Region "B" of Figure 3.24-1, corrective action shall be taken to return the concentration values to Region "A" within 24 hours.

3.24.3 The provisions of Specification 3.0.3 are not applicable.

Bases

These hydrogen/oxygen limits provide reasonable assurance that no hydrogen/oxygen explosion could occur to allow rupture of the waste gas decay tanks. The hydrogen and oxygen limits are based on information in NUREG/CR-2726 "Light Water Reactor Hydrogen Manual".

3.25 RADIOACTIVE EFFLUENTS

3.25.1 Radioactive Liquid Effluents

3.25.1.1 Concentration

Applicability: At all times

Objective: To ensure that the limits of 10 CFR 2[illegible] are met.

Specifications:

3 25.1.1 A. The concentration of radioactive material released to the discharge canal shall be limited to the concentration specified in 10 CFR Part 20, Appendix B, Table II, Column 2 for radionuclides other than dissolved or entrained noble gases. For dissolved or entrained noble gases, the total concentration released shall be limited to 2×10^{-4} μCi/ml.

B. With the concentration of radioactive material released exceeding the above limits, immediately initiate action to restore concentration to within limits and provide notification [illegible] Commission within 24 hours. In lieu of any other report, prepare and submit a Special Report within 30 days pursuant to Specification 6.12.5

C. The provisions of Specification 3.0.3 are not applicable.

Bases:

This specification is provided to ensure that the concentration of radioactive materials released in liquid waste effluents from the site to unrestricted areas will be less than the concentration levels specified in 10 CFR Part 20, Appendix B, Table II. This limitation provides additional assurance that the levels of radioactive materials in bodies of water outside the site will not result in exposures greater than the Section II A design objectives of Appendix I, 10 CFR Part 50, to a member of the public. The concentration limit for noble gases is based upon the assumption that Xe-133 is the controlling radioisotope and its MPC in air (submersion) was converted to an equivalent concentration in water using the methods described in International Commission on Radiological Protection (ICRP) Publication 2.

Radioactive Liquid Effluents

3.25.1.2 Dose

Applicability: At all times

Objective: To ensure that the dose limits of 10 CFR 50, Appendix I, Section IV A, are met.

Specifications:

3.25.1.2 A The dose commitment to a member of the public from radioactive material in liquid effluents released from ANO-1 to the discharge canal shall be:

1) During any calendar quarter less than or equal to 1.5 mrem to the total body and less than or equal to 5 mrem to any organ, and

2) During any calendar year less than or equal to 3 mrem to the total body and less than or equal to 10 mrem to any organ.

B. With the calculated dose from the release of radioactive materials in liquid effluents exceeding any of the above limits, in lieu of any other report, prepare and submit a Special Report to the Commission within 30 days, pursuant to Specification 6.12.5.

C. The provisions of Specification 3.0.3 are not applicable.

Bases:

Specification 3.25.1.2 provides assurance that releases of liquid effluents will result in concentrations far below the limits of 10CFR20. The specification provides the required operating flexibility and at the same time assures that the release of radioactive material in liquid effluents will be kept "as low as reasonably achievable".

Radioactive Liquid Effluents

3.25.1.3 Waste Treatment

Applicability: At all times

Objective: To assure that the amount of radioactive material in liquid effluents will be "as low as reasonably achievable."

Specifications.

3.25.1.3 A. The appropriate parts of the liquid radwaste treatment system shall be used to reduce the radioactive materials in liquid waste prior to their discharge when it is projected that the cumulative dose during a calendar quarter due to liquid effluent releases would exceed 0.18 mrem to the total body or 0.625 mrem to any organ.

B. The provisions of this specification do not apply to the laundry tanks due to their incompatibility with the radwaste system.

C. With radioactive liquid waste being discharged without treatment and in excess of the above limits, in lieu of any other report, prepare and submit a Special Report to the Commission within 30 days per Specification 6.12.5.

D. The provisions of Specification 3.0.3 are not applicable.

Bases:

The requirements that the appropriate portions of this system be used when specified provides assurance that the releases of radioactive materials in liquid effluents will be kept "as low as is reasonably achievable." The specified limits governing the use of appropriate portions of the liquid radwaste treatment system were specified as a suitable fraction of the guide set forth in Section II A of Appendix I, 10 CFR Part 50, for liquid effluents. The values of 0.18 mrem and 0.625 mrem are approximately 25% of the yearly design objectives on a quarterly basis. The yearly design objectives are given in 10 CFR 50, Appendix I, Section II.

Radioactive Liquid Effluents

3.25.1.4 Liquid Holdup Tanks

Applicability: At all times.

Objective: To ensure that the limits of 10 CFR 20 are not exceeded.

Specifications:

3.25.1.4 A. The quantity of radioactive material contained in each unprotected* outside temporary radioactive liquid storage tank shall be limited to less than or equal to 10 curies, excluding tritium and dissolved or entrained noble gases.

B. With the quantity of radioactive material exceeding the above limit, immediately suspend all additions of radioactive material to the effected tank and within 48 hours reduce the tank contents to within the limit.

C. The provisions of Specification 3.0.3 are not applicable.

Bases:

This specification is provided to ensure that in the event of an uncontrolled release of the contents of the tank* the resulting concentrations would be less than the limits of 10 CFR Part 20, Appendix B, Table II, Column 2, at the nearest potable water supply and the nearest surface water supply in the unrestricted area.

*Tanks included in this specification are those outdoor temporary tanks that 1) are not surrounded by liners, dikes, or walls capable of holding the tank contents, and 2) do not have overflows and surrounding area drains connected to the liquid radwaste treatment system.

3.25.2 Radioactive Gaseous Effluents

3.25.2.1 Dose Rate

Applicability: At all times

Objective: To ensure that the dose rate in unrestricted areas from gaseous effluents will be within the limits of 10 CFR 20.

Specifications:

3.25.2.1 A. The dose rate in unrestricted areas (see Figure 5.1-1) due to radioactive materials released in gaseous effluents from the site shall be:

1) For noble gases: Less than or equal to 500 mrem/yr to the total body and less than or equal to 3000 mrem/yr to the skin.

2) For iodine-131, for tritium and for all radionuclides in particulate form with half lives greater than 8 days: Less than or equal to 1500 mrem/yr to any organ.

During periods of reactor building purging the dose rate may be averaged over a one hour interval.

B. With the dose rate(s) exceeding the above limits, without delay restore the release rate to within the above limit(s)

C. The provisions of Specification 3.0.3 are not applicable.

Bases:

This specification is provided to ensure that, at any time, the dose rate due to gaseous effluents from all units on the site will be within the limits of 10 CFR 20 for unrestricted areas.

This specification applies to the release of gaseous effluents from all reactors at the site.

Radioactive Gaseous Effluents

3.25.2.2 Dose - Noble Gases

Applicability: At all times

Objective: To ensure that the design objective doses of 10 CFR 50, Appendix I, Section IV A, are not exceeded.

Specifications:

3.25.2.2. A. The dose due to noble gases released in gaseous effluents from ANO-1 to unrestricted areas (see Figure 5.1-1) shall be:

1) During any calendar quarter, less than or equal to 5 mrads for gamma radiation and less than or equal to 10 mrads for beta radiation, and

2) During any calendar year, less than or equal to 10 mrads for gamma radiation and less than or equal to 20 mrads for beta radiation.

B. With the calculated dose from radioactive noble gases in gaseous effluents exceeding any of the above limits, in lieu of any other report, prepare and submit a Special Report to the Commission within 30 days, pursuant to Specification 6.12.5.

C. The provisions of Specification 3.0.3 are not applicable.

Bases:

Specification 3.25.2.2 implements the design guides specified in 10 CFR 50, Appendix I, Section II, and the limiting condition for operation as set forth in Section IV A of Appendix I.

The specifications provide the required operating flexibility and at the same time implement the guides set forth in Section IV A, Appendix I, to assure that the releases of radioactive material in gaseous effluents will be kept "as low as is reasonably achievable."

These limits provide reasonable assurance that radioactive material discharged in gaseous effluents will not result in the exposure of an individual in an unrestricted area, to annual average concentrations exceeding the limits specified in Appendix B, Table II of 10 CFR Part 20 [10 CFR Part 20.106(b)]. For individuals who may at times be within the exclusion area boundary, the occupancy of the individual will be sufficiently low to compensate for any increase in the atmospheric diffusion factor above that for the exclusion area boundary.

Radioactive Gaseous Effluents

3.25.2.3 Dose - Iodine-131, Tritium, and Radionuclides in Particulate Form

Applicability: At all times

Objective: To ensure that the dose limits of 10 CFR 50, Appendix I, Section IV A, are met.

Specifications:

3.25.2.3 A. The dose to a member of the public from iodine-131, from tritium, and from all radionuclides in particulate form with half-lives greater than 8 days in gaseous effluents released from ANO-1 to unrestricted areas (see Figure 5.1-1) shall be:

1) During any calendar quarter, less than or equal to 7.5 mrems to any organ, and

2) During any calendar year, less than or equal to 15 mrems to any organ.

B. With the calculated dose from the release of iodine-131, tritium and radionuclides in particulate form with half-lives greater than 8 days, in gaseous effluents exceeding any of the above limits, in lieu of any other report, prepare and submit a Special Report to the Commission within 30 days, pursuant to Specification 6.12.5.

C. The provisions of Specification 3.0.3 are not applicable. I

Bases:

Specification 3.25.2.3 implements the design guides set forth in 10 CFR 50, Appendix I, Section II C, and the limiting conditions for operation as set forth in Appendix I, Section IV A.

The specifications provide the required operating flexibility and at the same time implement the guides set forth in Section IV A of Appendix I to assure that the releases of radioactive materials in gaseous effluents will be kept "as low as reasonably achievable".

3.25.2.4 Gaseous Radwaste Treatment

Applicability: At all times

Objective: To assure that the amount of radioactive material in gaseous effluents is "as low as reasonably achievable."

Specifications:

3.25.2.4 A. Ventilation exhaust treatment systems shall be used to reduce radioactive materials in gaseous waste prior to discharge when the projected doses due to gaseous effluent releases from ANO-1 to unrestricted areas (see Figure 5.1-1) would exceed 0.625 mrad for gamma radiation and 1.25 mrad for beta radiation over a calendar quarter; or when the projected doses due to iodine-131, tritium, and radionuclides in particulate form with half-lives greater than 8 days would exceed 1.0 mrem to any organ over a calendar quarter.

B. When degasifying the reactor coolant system, the gaseous radwaste treatment system shall be utilized to process the degassing effluent to reduce the concentration of radioactive materials prior to discharge when the projected doses due to gaseous effluent releases from ANO-1 to unrestricted areas (see Figure 5.1-1) would exceed 0.625 mrad for gamma radiation and 1.25 mrad for beta radiation over a calendar quarter.

C. With gaseous waste being discharged without treatment and in excess of the above limits, in lieu of any other report, prepare and submit to the Commission within 30 days a Special Report, per Specification 6.12.5.

D. The provisions of Specification 3.0.3 are not applicable.

Bases:

The requirement that the appropriate portions of these systems be used when specified provides reasonable assurance that the releases of radioactive materials in gaseous effluents will be kept "as low as reasonably achievable." The specified limits governing the use of appropriate portions of the systems were specified as a suitable fraction of the guide set forth in Sections II B and II C of Appendix I, 10 CFR Part 50, for gaseous effluents. The values 0.625 mrad, 1.25 mrad, and 1.0 mrem are approximately 25% of the yearly design objectives on a quarterly basis. The yearly design objectives are given in Specifications 3.25.2.2 and 3.25.2.3.

Radioactive Gaseous Effluents

3.25 2.5 Gas Storage Tanks

Applicability: At all times

Objective: To restrict the amount of activity in a radioactive gas holdup tank.

Specifications:

3.25.2.5 A. The quantity of radioactivity contained in each gas storage tank shall be limited to 300,000 curies noble gases (Xe-133 equivalent).

B. With the quantity of radioactive material in any gas storage tank exceeding the above limit, immediately suspend all additions of radioactive material to the tank and within 48 hours reduce the tank contents to within the limit.

C. The provisions of Specification 3.0.3 are not applicable.

Bases:

The value of 300,000 curies is a suitable fraction of the quantity of radioactive material which if released over a 2-hour period, would result in a total body exposure to a member of the public at the exclusion area boundary of 500 mrem. This is consistent with Branch Technical Position ETSB 11-5 in NUREG-0800, July 1981.

3.25.3 Total Dose

Applicability: At all times

Objective: To ensure that the limits of 40 CFR 190 are not exceeded.

Specifications:

3.25.3.1 The calculated doses from the release of radioactive materials in liquid or gaseous effluents shall not exceed twice the limits of Specification 3.25.1.2, 3.25.2.2, or 3.25.2.3.

3.25.3.2 With the calculated doses exceeding the above limits, prepare and submit a Special Report pursuant to 10CFR Part 20.405C.

3.25.3.3 If the limits of 40CFR190 have been exceeded, obtain a variance from the Commission to permit further releases in excess of 40CFR190 limits. A variance is granted until staff action on the request is completed.

3.25.3.4 The provisions of Specification 3.0.3 are not applicable.

Bases:

This specification is provided to meet the dose limitations of 40 CFR 190 that have now been incorporated into 10 CFR Part 20. The specification requires the preparation and submittal of a Special Report whenever the calculated doses from plant radioactive effluents exceed twice the design objective doses of Appendix I. For sites containing up to 4 reactors, it is highly unlikely that the resultant dose to a member of the public will exceed the dose limits of 40 CFR 190 if the individual reactors remain within the reporting requirement level. The Special Report will describe a course of action that should result in the limitation of the annual dose to a member of the public to within the 40 CFR 190 limits. For the purposes of the Special Report, it may be assumed that the dose commitment to the member of the public from other uranium fuel cycle sources is negligible, with the exception that dose contributions from other nuclear fuel cycle facilities within a radius of 8 km must be considered. If the dose to any member of the public is estimated to exceed the requirements of 40 CFR 190, the Special Report with a request for a variance (provided the release conditions resulting in violation of 40 CFR 190 have not already been corrected), in accordance with the provisions of 40 CFR 190.11 and 10 CFR 20.405c, is considered to be a timely request and fulfills the requirements of 40 CFR 190 until NRC staff action is completed. The variance only relates to the limits of 40 CFR 190, and does not apply in any way to the other requirements for dose limitation of 10 CFR 20, as addressed in Specifications 3.25.1 and 3.25.2. An individual is not considered to be a member of the public during any period in which he/she is engaged in carrying out any operation that is part of the nuclear fuel cycle.

3.25.4 Solid Radioactive Waste

Applicability: At all times

Objective: To ensure solid radwaste is processed in accordance with the Process Control Program to meet shipping and burial ground requirements.

Specifications:

3.25.4.1 With the provisions of the Process Control Program not satisfied, suspend shipments of defectively processed or defectively packaged solid radioactive waste from the site.

3.25 4.2 The provisions of Specification 3.0.3 are not applicable.

Bases: This specification implements the requirements of 10CFR50.36a and General Design Criterion 60 of Appendix A to 10CFR50.

SURVEILLANCE REQUIREMENTS

4.0.1 Surveillance Requirements shall be met during the operational modes or other conditions specified for individual Limiting Conditions for Operation unless otherwise stated in an individual Surveillanre Requirement.

4.0.2 Each Surveillance Requirement shall be performed within the specified time interval with a maximum allowable extension not to exceed 25% of the surveillance interval.

4.0.3 Failure to perform a Surveillance Requirement within the allowed surveillance interval defined by Specification 4.0.2, shall constitute noncompliance with the OPERABILITY requirements for a Limiting Condition for Operation. The time limits of the Action requirements are applicable at the time it is identified that a Surveillance Requirement has not been performed. The time at which the Action is taken may be delayed for up to 24 hours to permit the completion of the surveillance when the allowable outage time limits of the Action requirements are less than 24 hours. Surveillance Requirements do not have to be performed on inoperable equipment.

4.0.4 Entry into an operational mode or other specified condition shall not be made unless the Surveillance Requirement(s) associated with the Limiting Condition for Operation has been performed within the stated surveillance interval or as otherwise specified. This provision shall not prevent passage through or to operational modes as required to comply with Action requirements.

4.0.5 Surveillance Requirements for inservice inspection and testing of ASME Code Class 1,2, and 3 components shall be applicable as follows:

a. Inservice inspection of ASME Code Class 1,2, and 3 components and inservice testing of ASME Code Class 1,2, and 3 pumps and valves shall be performed in accordance with Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50, Section 50.55a(g), except where specific written relief has been granted by the Commission pursuant to 10 CFR 50, Section 50.55a(g)(6)(i),

4.0.5 (Continued)

b. Surveillance intervals specified in Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda for the inservice inspection and testing activities required by the ASME Boiler and Pressure Vessel Code and applicable Addenda shall be applicable as follows in these Technical Specifications:

ASME Boiler and Pressure Vessel Code and applicable Addenda terminology for inservice inspection and testing activities	Required frequencies for performing inservice inspection and testing activities
Weekly	At least once per 7 days
Monthly	At least once per 31 days
Quarterly or every 3 months	At least once per 92 days
Semiannually or every 6 months	At least once per 184 days
Yearly or annually	At least once per 366 days

c. The provisions of Specification 4.0.2 are applicable to the above required frequencies for performing inservice inspection and testing activities.

d. Performance of the above inservice inspection and testing activities shall be in addition to other specified Surveillance Requirements.

e. Nothing in the ASME Boiler and Pressure Vessel Code shall be construed to supersede the requirements of any Technical Specification.

4.1 OPERATIONAL SAFETY ITEMS

Applicability

Applies to items directly related to safety limits and limiting conditions for operation.

Objective

To specify the minimum frequency and type of surveillance to be applied to unit equipment and conditions.

Specification

a. The minimum frequency and type of surveillance required for reactor protective system and engineered safeguards system instrumentation when the reactor is critical shall be as stated in Table 4.1-1.

4.1 (Continued)

b. Equipment and sampling test shall be performed as detailed in Table 4.1-2 and 4.1-3.

c. Discrepancies noted during surveillance testing will be corrected and recorded.

d. A power distribution map shall be made to verify the expected power distribution at periodic intervals at least every 10 effective full power days using the incore instrumentation detector system.

BASES

4.0.1 through 4.0.5 Establish the general requirements applicable to Surveillance Requirements. These requirements are based on the Surveillance Requirements stated in the Code of Federal Regulations, 10CFR 50.36(c)(3):

"Surveillance Requirements are requirements relating to test, calibration, or inspection to ensure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions of operation will be met."

4.0.1 Establishes the requirement that surveillances must be performed during the operational modes or other conditions for which the requirements of the Limiting Conditions for Operation apply unless otherwise stated in an individual Surveillance Requirement. The purpose of this specification is to ensure that surveillances are performed to verify the operational status of systems and components and that parameters are within specified limits to ensure safe operation of the facility when the plant is in a mode or other specified condition for which the associated Limiting Conditions for Operation are applicable. Surveillance Requirements do not have to be performed when the facility is in an operational mode for which the requirements of the associated Limiting Condition for Operation do not apply unless otherwise specified.

BASES (continued)

4.0.2 Establishes the limit for which the specified time interval for Surveillance Requirements may be extended. It permits an allowable extension of the normal surveillance interval to facilitate surveillance scheduling and consideration of plant operating conditions that may not be suitable for conducting the surveillance; e.g., transient conditions or other ongoing surveillance or maintenance activities. It also provides flexibility to accommodate the length of a fuel cycle for surveillances that are performed at each refueling outage and are specified with an 18-month surveillance interval. It is not intended that this provision be used repeatedly as a convenience to extend surveillance intervals beyond that specified for surveillances that are not performed during refueling outages. The limitation of Specification 4.0.2 is based on engineering judgement and the recognition that the most probable result of any particular surveillance being performed is the verification of conformance with the Surveillance Requirements. This provision is sufficient to ensure that the reliability ensured through surveillance activities is not significantly degraded beyond that obtained from the specified surveillance intervals.

4.0.3 Establishes the failure to perform a Surveillance Requirement within the allowed surveillance interval, defined by the provisions of Specification 4.0.2, as a condition that constitutes a failure to meet the OPERABILITY requirements for a Limiting Condition for Operation. Under the provisions of this specification, systems and components are assumed to be OPERABLE when Surveillance Requirements have been satisfactorily performed within the specified time interval. However, nothing in this provision is to be construed as implying that systems or components are OPERABLE when they are found or known to be inoperable although still meeting the Surveillance Requirements. This specification also clarifies that the Action requirements are applicable when Surveillance Requirements have not been completed within the allowed surveillance interval and that the time limits of the Action requirements apply from the point in time it is identified that a surveillance has not been performed and not at the time that the allowed surveillance interval was exceeded. Completion of the Surveillance Requirement within the allowable outage time limits of the Action requirements restores compliance with the requirements of Specification 4.0.3. However, this does not negate the fact that the failure to have performed the surveillance within the allowed surveillance interval, defined by the provisions of Specification 4.0.2 was a violation of the OPERABILITY requirements of a Limiting Condition for Operation that is subject to enforcement action. Further, the failure to perform a surveillance within the provisions of Specification 4.0.2 is a violation of a Technical Specification requirement and is, therefore, a reportable event under the requirements of 10CFR 50.73(a)(2)(i)(B) because it is a condition prohibited by the plant's Technical Specifications.

If the allowable outage time limits of the Action requirements are less than 24 hours or a shutdown is required to comply with Action requirements, e.g., Specification 3.0.3, a 24-hour allowance is provided to permit a delay in implementing the Action requirements. This provides an adequate time limit to complete Surveillance Requirements that have not been performed. The purpose of this allowance is to permit the completion of a surveillance before a shutdown is required to comply with Action requirements or before other remedial measures would be required that may preclude completion of a surveillance. The basis for this allowance

includes consideration for plant conditions, adequate planning, availability of personnel, the time required to perform the surveillance, and the safety significance of the delay in completing the required surveillance. This provision also provides a time limit for the completion of Surveillance Requirements that become applicable as a consequence of mode changes imposed by Action requirements and for completing Surveillance Requirements that are applicable when an exception to the requirements of Specification 4.0.4 is allowed. If a surveillance is not completed within the 24-hour allowance, the time limits of the Action requirements are applicable at that time. When a surveillance is performed within the 24-hour allowance and the Surveillance Requirements are not met, the time limits of the Action requirements are applicable at the time that the surveillance is terminated. If the Action requirements are greater than 24 hours, sufficient time exists to complete the surveillance.

Surveillance Requirements do not have to be performed on inoperable equipment because the Action requirements define the remedial measures that apply. However, the Surveillance Requirements have to be met to demonstrate that inoperable equipment has been restored to OPERABLE status.

4.0.4 Establishes the requirement that all applicable surveillances must be met before entry into an operational mode or other condition of operation specified in the Specification. The purpose of this Specification is to ensure that system and component OPERABILITY requirements or parameter limits are met before entry into a mode or condition for which these systems and components ensure safe operation of the facility. This provision applies to changes in operational modes or other specified conditions associated with plant shutdown as well as startup.

Under the provisions of this specification, the applicable Surveillance Requirements must be performed within the specified surveillance interval to ensure that the Limiting Conditions for Operation are met during initial plant startup or following a plant outage.

When a shutdown is required to comply with Action requirements, the provision of Specification 4.0.4 do not apply because this would delay placing the facility in a lower mode of operation.

4.0.5 Establishes the requirement that inservice inspection of ASME Code Class 1,2, and 3 components and inservice testing of ASME Code Class 1,2, and 3 pumps and valves shall be performed in accordance with a periodically updated version of Section XI of the ASME Boiler and Pressure Vessel Code and Addenda as required by 10 CFR 50.55a. These requirements apply except when relief has been provided in writing by the Commission.

This specification includes a clarification of the frequencies for performing the inservice inspection and testing activities required by Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda. This clarification is provided to ensure consistency in surveillance intervals throughout Technical Specifications and to remove any ambiguities relative to the frequencies for performing the required inservice inspection and testing activities.

BASES (continued)

Under the terms of this specification, the more restrictive requirements of the Technical Specifications take precedence over the ASME Boiler and Pressure Vessel Code and applicable Addenda. The requirements of Specification 4.0.4 to perform surveillance activities before entry into an operational mode or other specified condition takes precedence over the ASME Boiler and Pressure Vessel Code provision which allows pumps and valves to be tested up to one week after return to normal operation. The Technical Specification definition of OPERABLE does not allow a grace period before a component, that is not capable of performing its specified function, is declared inoperable and takes precedence over the ASME Boiler and Pressure Vessel Code provision which allows a valve to be incapable of performing its specified function for up to 24 hours before being declared inoperable.

Check

Failures such as blown instrument fuses defective indicators, faulted amplifiers which result in "upscale" or "downscale" indication can be easily recognized by simple observation of the functioning of an instrument or system. Furthermore, such failures are, in many cases, revealed by alarm or annunciator Action. Comparison of output and/or state of independent channels measuring the same variable supplements this type of built-in surveillance. Based on experience in operation of both conventional and nuclear plant systems, when the plant is in operation, the minimum checking frequency stated is deemed adequate for reactor system instrumentation.

Calibration

Calibration shall be performed to assure the presentation and acquisition of accurate information. The nuclear flux (power range) channels shall be calibrated at least twice weekly (during steady state operating conditions) against a heat balance standard to compensate for instrumentation drift. During non-steady state operation, the nuclear flux channels shall be calibrated daily to compensate for instrumentation drift and changing rod patterns and core physics parameters.

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) Shall also be tested during refueling shutdown prior to repressurization at a pressure greater than 300 but less than 420 psig.
31. Turbine overspeed trip mechanism	NA	R	NA	(1) The provisions of Specification 4.7.4 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	

year limits of Specifications 3.25.1.2 and 3.25.2.2. This Special Report is not required if the measured level of radioactivity was not the result of plant effluents, however, in such an event, the condition shall be reported and described in the Annual Radiological Environmental Report.

c. With milk or fresh leafy vegetable samples unavailable from any of the sample locations required by Table 4.29-1, identify locations for obtaining replacement samples and add them to the radiological environmental monitoring program within 30 days. The specific locations from which samples were unavailable may then be deleted from the monitoring program. Identify the causes of the unavailability of samples and identify the new location(s) for obtaining replacement samples in the next Semiannual Radioactive Effluent Release Report and also include in the report a revised table for the ODCM reflecting the new location(s).

d. The provisions of Specification 3.0.3 are not applicable.

4.30.1.3 The results of analyses performed on the radiological environmental monitoring samples shall be summarized in the Annual Radiological Environmental Report.

Bases:

The radiological monitoring program required by this specification provides measurements of radiation and of radioactive materials in those exposure pathways and for those radionuclides which lead to the highest potential radiation exposures of individuals resulting from the station operation. This monitoring program thereby supplements the radiological effluents monitoring program by verifying that the measurable concentrations of radioactive materials and levels of radiation are not higher than expected on the basis of the effluent measurements and modeling of the environmental exposure pathways. The initially specified monitoring program will be effective for at least the first three years of commercial operation. Following this period, program changes may be initiated based on operational experience.

The detection capabilities required by Table 4.30-2 are state-of-the-art for routine environmental measurements in industrial laboratories. The LLD's for drinking water meet the requirements of 40 CFR 141.

4.30.2 Land Use Census

Applicability: Applies at all times

Objectives: This specification will identify changes in use of the unrestricted areas.

Specifications:

4.30.2.1 A land use census shall be conducted and shall identify the location of the nearest milk animal, the nearest residence, and the nearest garden* of greater than 500 square feet producing fresh leafy vegetables in each of the 16 meteorological sectors within a distance of five miles from the ANO-1 reactor building.

4.30.2.2 The land use census shall be conducted at least once per 12 months between the dates of June 1 and October 1, by door-to-door survey, aerial survey, or by consulting local agricultural authorities.

4.30.2.3 a. With a land use census identifying a location(s) which yields a calculated dose commitment due to I-131, tritium, and radionuclides in particulate form greater than the values currently being calculated in Unit 1 Specification 4.29.3 and Unit 2 Specification 4.11.2.3 submit location description in the Semiannual Radioactive Effluent Release Report per Specification 6.12.2.6.

b. With a land use census identifying a location(s) which yields a calculated dose commitment (via the same exposure pathway) greater than at a location from which samples are currently being obtained in accordance with Specification 4.30.1.1, identify the new location in the Semiannual Radioactive Effluent Release Report per Specification 6.12.2.6. The new location shall be added to the radiological environmental monitoring program within 30 days, if possible. The sampling location having the lowest calculated dose commitment (via the same exposure pathway) may be deleted from this monitoring program after October 31 of the year in which this land use census was conducted.

4.30.2.4 The results of the land use census shall be included in the Annual Radiological Environmental Report.

4.30.2.5 The provisions of Specification 3.0.3 are not applicable.

*Broad leaf vegetation sampling may be performed at the site boundary in the direction sector with the highest D/Q in lieu of the garden census.

4.30.3 Interlaboratory Comparison Program

Applicability: Applies to the off-site radiochemistry laboratory.

Objective: To provide independent checks on the accuracy of the measurements of radioactive material in environmental samples.

Specifications:

4.30.3.1 Analyses shall be performed on radioactive materials supplied as part of Interlaboratory Comparison Program which has been approved by NRC.

4.30.3.2 With analyses not being performed as required above, report the corrective actions taken to prevent a recurrence to the Commission in the Annual Radiological Environmental Report.

4.30.3.3 The results of analyses performed as part of the above required Interlaboratory Comparison Program shall be included in the Annual Radiological Environmental Report pursuant to Specification 6.12.2.5.

4.30.3.4 The provisions of Specification 3.0.3 are not applicable.

Bases:

The requirement for participation in an Interlaboratory Comparison Program is provided to ensure that independent checks on the precision and accuracy of the measurements of radioactive material in environmental sample matrices are performed as part of a quality assurance program for environmental monitoring in order to demonstrate that the results are reasonably valid.