

INDEX

DESIGN FEATURES

<u>SECTION</u>	<u>PAGE</u>	
<u>5.1 Site Location</u>	5-1	
<u>5.2 Reactor Core</u>	5-1	
5.2.1 Fuel Assemblies.....	5-1	
5.2.2 Control Element Assemblies.....	5-1	
<u>5.3 Fuel Storage</u>	5-2	
5.3.1 Spent Fuel Storage Rack Criticality.....	5-2	
5.3.2 New Fuel Storage Rack Criticality.....	5-2	
5.3.3 Drainage.....	5-2	
5.3.4 Capacity.....	5-2	

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RADIOACTIVE EFFLUENTS

3/4.11.2 GASEOUS EFFLUENTS

DOSE RATE

LIMITING CONDITION FOR OPERATION

3.11.2.1 The dose rate due to radioactive materials released in gaseous effluents from the site to UNRESTRICTED AREAS (see ODCM Figure 4-2) shall be limited to the following:

- a. For noble gases: Less than or equal to the 500 mrem/yr to the total body and less than or equal to 3000 mrem/yr to the skin.
- b. For iodine-131, for tritium and for all radionuclides in particular form with half lives greater than 8 days: Less than or equal to 1500 mrem/yr to any organ.

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

APPLICABILITY: At all times.

ACTION:

- a. With the dose rate(s) exceeding the above limits, without delay restore the release rate to comply with the above limit(s).
- b. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.2.1.1 The dose rate due to noble gases in gaseous effluents shall be determined to be within the above limits in accordance with the methods and procedures of the ODCM.

4.11.2.1.2 The dose rate due to iodine-131, tritium, and all radionuclides in particulate form with half-lives greater than 8 days in gaseous effluents shall be determined to be within the above limits in accordance with the methods and procedures of the ODCM by obtaining representative samples and performing analyses in accordance with the sampling and analysis program specified in Table 4.11-2.

RADIOACTIVE EFFLUENTS

DOSE - NOBLE GASES

LIMITING CONDITION FOR OPERATION

3.11.2.2 The dose due to noble gases released in gaseous effluents from ANO-2 to UNRESTRICTED AREAS (see ODCM Figure 4-2) shall be:

- a During any calendar quarter, less than or equal to 5 mrad for gamma radiation and less than or equal to 10 mrad for beta radiation, and
- b. During any calendar year, less than or equal to 10 mrad for gamma radiation and less than or equal to 20 mrad for beta radiation.

APPLICABILITY: At all times.

ACTION:

- a. With the calculated dose from radioactive noble gases in gaseous effluents exceeding any of the above limits, in lieu of any other report, submit a Special Report pursuant to Specification 6.9.2.h within 30 days.
- b. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.2.2 Dose Calculations. Cumulative dose contributions for noble gases for the current calendar quarter and current calendar year shall be determined in accordance with the ODCM at least once per 31 days.

RADIOACTIVE EFFLUENTS

DOSE - IODINE-131, TRITIUM, AND RADIONUCLIDES IN PARTICULATE FORM

LIMITING CONDITION FOR OPERATION

3.11.2.3 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-2 to UNRESTRICTED AREAS (see ODCM Figure 4-2) shall be:

- a. During any calendar quarter, less than or equal to 7.5 mrem to any organ, and
- b. During any calendar year, less than or equal to 15 mrem to any organ.

APPLICABILITY: At all times.

ACTION:

- a. 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, submit a Special Report pursuant to Specification 6.9.2.h within 30 days.
- b. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.2.3 Dose Calculations. Cumulative dose contributions for the current calendar quarter and current calendar year for iodine-131, tritium, and radionuclides in particulate form with half-lives greater than 8 days shall be determined in accordance with the ODCM at least once per 31 days.

RADIOACTIVE EFFLUENTS

GASEOUS RADWASTE TREATMENT

LIMITING CONDITION FOR OPERATION

3.11.2.4 The VENTILATION EXHAUST TREATMENT SYSTEMS shall be used to reduce radioactive materials in gaseous waste prior to their discharge when the projected gaseous effluent doses from ANO-2 to UNRESTRICTED AREAS (see ODCM Figure 4-2) would exceed .625 mrad for gamma radiation and 1.25 mrad for beta radiation in any 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.

APPLICABILITY: At all times.

ACTION:

- a. With gaseous waste being discharged without treatment and in excess of the above limits, in lieu of any other report, submit a Special Report pursuant to Specification 6.9.2.h within 30 days.
- b. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.2.4.1 Doses due to gaseous releases from the site shall be projected at least once per 31 days in accordance with the ODCM.

RADIOACTIVE EFFLUENTS

GASEOUS RADWASTE TREATMENT

LIMITING CONDITION FOR OPERATION

3.11.2.5 When degasifying the reactor coolant system, the GASEOUS RADWASTE TREATMENT SYSTEM shall be used to reduce radioactive material in gaseous waste prior to their discharge when the projected gaseous effluent doses for ANO-2 to UNRESTRICTED AREAS (see ODCM Figure 4-2) would exceed .625 mrad for gamma radiation and 1.25 mrad for beta radiation in any calendar quarter.

APPLICABILITY: At all times.

ACTION:

- a. With gaseous waste being discharged without treatment and in excess of the above limits, in lieu of any other report, submit a Special Report pursuant to Specification 6.9.2.h within 30 days.
- b. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.2.5.1 Doses due to gaseous releases from the site shall be projected at least once per 31 days in accordance with the ODCM.

5.0 DESIGN FEATURES

5.1 Site Location

The site for Arkansas Nuclear One is located in Pope County, Arkansas on the north bank of the Dardanelle Reservoir (Arkansas River), approximately 6 miles west-northwest of Russellville, AR. The exclusion area boundary shall have a radius of 0.65 statute miles from the center of the reactor.

5.2 Reactor Core

5.2.1 Fuel Assemblies

The reactor shall contain 177 fuel assemblies. Each assembly shall consist of a matrix of zircaloy or ZIRLO clad fuel rods with an initial composition of natural or slightly enriched uranium dioxide (UO_2) as fuel material. Limited substitutions of zirconium alloy or stainless steel filler rods for fuel rods, in accordance with approved applications of fuel rod configurations, may be used. Fuel assemblies shall be limited to those fuel designs that have been analyzed with applicable NRC staff approved codes and methods and shown by tests or analyses to comply with all fuel safety design bases. A limited number of lead test assemblies that have not completed representative testing may be placed in non-limiting core regions. Other cladding material may be used with an approved exemption.

5.2.2 Control Element Assemblies

The reactor core shall contain 81 control element assemblies.

5.3 Fuel Storage

5.3.1 Spent Fuel Storage Rack Criticality

The spent fuel storage racks are designed and shall be maintained with:

- a. Fuel assemblies stored in the spent fuel pool in accordance with Specification 3.9.12;
- b. $k_{eff} \leq 0.95$ if fully flooded with unborated water, which includes an allowance for uncertainties as described in Section 9.1 of the SAR; and
- c. A nominal 9.8 inch center to center distance between fuel assemblies placed in the storage racks.

5.3.2 New Fuel Storage Rack Criticality

The new fuel storage racks are designed and shall be maintained with:

- a. Fuel assemblies having a maximum U-235 enrichment of 4.1 weight percent;
- b. $k_{eff} \leq 0.95$ if fully flooded with unborated water, which includes an allowance for uncertainties as described in Section 9.1 of the SAR;
- c. $k_{eff} \leq 0.98$ if moderated by aqueous foam, which includes an allowance for uncertainties as described in Section 9.1 of the SAR; and
- d. A nominal 25 inch center to center distance between fuel assemblies placed in the storage racks.

5.3.3 Drainage

The spent fuel storage pool is designed and shall be maintained to prevent inadvertent draining of the pool below elevation 399' 10½".

5.3.4 Capacity

The spent fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than 988 fuel assemblies.

ADMINISTRATIVE CONTROL

6.8.3 Changes to procedures of 6.8.1 above may be made and implemented prior to obtaining the review and approval required in 6.8.2 above provided:

- a. The intent of the original procedure is not altered.
- b. The change is approved by two members of the plant management staff, at least one of whom holds a Senior Reactor Operator's License on Unit 2.
- c. The change is documented, reviewed and approved as required by the QAMO, within 14 days of implementation.

6.8.4 The following program shall be established, implemented, and maintained:

- a. Component Cyclic or Transient Limit

This program provides controls to track the SAR Section 5.2.1.5 cyclic or transient occurrences to ensure that components are maintained within the design limits.

6.9 REPORTING REQUIREMENTS

ROUTINE REPORTS

6.9.1 In addition to the applicable reporting requirements of Title 10, Code of Federal Regulations, the following reports shall be submitted to the Administrator of the Regional Office unless otherwise noted.

STARTUP REPORT

6.9.1.1 A summary report of plant startup and power escalation testing shall be submitted following (1) receipt of an operating license, (2) amendment to the license involving a planned increase in power level, (3) installation of fuel that has a different design or has been manufactured by a different fuel supplier, and (4) modifications that may have significantly altered the nuclear, thermal, or hydraulic performance of the plant.

6.9.1.2 The startup report shall address each of the tests identified in the FSAR and shall include a description of the measured values of the operating conditions or characteristics obtained during the test program and a comparison of these values with design predictions and specifications. Any corrective actions that were required to obtain satisfactory operation shall also be described. Any additional specific details required in license conditions based on other commitments shall be included in this report.

6.9.1.3 Startup reports shall be submitted within (1) 90 days following completion of the startup test program, (2) 90 days following resumption or commencement of commercial power operation, or (3) 9 months following initial criticality, whichever is earliest. If the Startup Report does not cover all three events (i.e., initial criticality, completion of startup test program, and resumption or commencement of commercial power operation), supplementary reports shall be submitted at least every three months until all three events have been completed.

ADMINISTRATIVE CONTROLS

6.10 RECORD RETENTION

In addition to the applicable record retention requirements of Title 10, Code of Federal Regulations, the following records shall be retained for at least the minimum period indicated.

6.10.1 The following records shall be retained for at least five years:

- a. Records and logs of unit operation covering time interval at each power level.
- b. Records and logs of principal maintenance activities, inspections, repair and replacement of principal items of equipment related to nuclear safety.
- c. All REPORTABLE EVENTS.
- d. Records of surveillance activities, inspections and calibrations required by these Technical Specifications.
- e. Records of changes made to the procedures required by Specification 6.8.1.
- f. Records of radioactive shipments.
- g. Records of sealed source and fission detector leak tests and results.
- h. Records of annual physical inventory of all sealed source material of record.

6.10.2 The following records shall be retained for the duration of the Facility Operating License:

- a. Records and drawing changes reflecting unit design modifications made to systems and equipment described in the Final Safety Analysis Report.
- b. Records of new and irradiated fuel inventory, fuel transfer and assembly burnup histories.
- c. Records of radiation exposure for all individuals entering radiation control areas.
- d. Records of gaseous and liquid radioactive material released to the environs.
- e. Records of transient or operational cycles for those unit components in the Component Cyclic or Transient Limit program required by Specification 6.8.4.

MARKUP OF CURRENT ANO-2 TECHNICAL SPECIFICATIONS

(FOR INFO ONLY)

INDEX

DESIGN FEATURES

<u>SECTION</u>	<u>PAGE</u>
5.1 SITE Site Location.....	5-1
Exclusion Area.....	5-1
Low Population Zone.....	5-1
5.2 CONTAINMENT	
Configuration.....	5-1
Design Pressure and Temperature.....	5-4
5.32 REACTOR CORE Reactor Core.....	5-1
5.2.1 Fuel Assemblies.....	5-41
5.2.2 Control Element Assemblies.....	5-41
5.4 REACTOR COOLANT SYSTEM	
Design Pressure and Temperature.....	5-4
Volume.....	5-5
5.5 METEOROLOGICAL TOWER LOCATION.....	5-5
5.63 FUEL STORAGE Fuel Storage.....	5-2
5.3.1 Criticality Spent Fuel Storage Rack Criticality.....	5-52
5.3.2 Criticality New Fuel Storage Rack Criticality.....	5-52
5.3.3 Drainage.....	5-52
5.3.4 Capacity.....	5-52
5.7 COMPONENT CYCLIC OR TRANSIENT LIMITS.....	5-5

RADIOACTIVE EFFLUENTS

3/4.11.2 GASEOUS EFFLUENTS

DOSE RATE

LIMITING CONDITION FOR OPERATION

3.11.2.1 The dose rate due to radioactive materials released in gaseous effluents from the site to UNRESTRICTED AREAS (see ODCM Figure 4-25.1-3) shall be limited to the following:

- a. For noble gases: Less than or equal to the 500 mrem/yr to the total body and less than or equal to 3000 mrem/yr to the skin.
- b. For iodine-131, for tritium and for all radionuclides in particular form with half lives greater than 8 days: Less than or equal to 1500 mrem/yr to any organ.

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

APPLICABILITY: At all times.

ACTION:

- a. With the dose rate(s) exceeding the above limits, without delay restore the release rate to comply with the above limit(s).
- b. The provisions of Specifications 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.2.1.1 The dose rate due to noble gases in gaseous effluents shall be determined to be within the above limits in accordance with the methods and procedures of the ODCM.

4.11.2.1.2 The dose rate due to iodine-131, tritium, and all radionuclides in particulate form with half-lives greater than 8 days in gaseous effluents shall be determined to be within the above limits in accordance with the methods and procedures of the ODCM by obtaining representative samples and performing analyses in accordance with the sampling and analysis program specified in Table 4.11-2.

RADIOACTIVE EFFLUENTS

DOSE - NOBLE GASES

LIMITING CONDITION FOR OPERATION

3.11.2.2 The dose due to noble gases released in gaseous effluents from ANO-2 to UNRESTRICTED AREAS (see ODCM Figure ~~4-25.1-3~~) shall be:

- a During any calendar quarter, less than or equal to 5 mrad for gamma radiation and less than or equal to 10 mrad for beta radiation, and
- b. During any calendar year, less than or equal to 10 mrad for gamma radiation and less than or equal to 20 mrad for beta radiation.

APPLICABILITY: At all times.

ACTION:

- a. With the calculated dose from radioactive noble gases in gaseous effluents exceeding any of the above limits, in lieu of any other report, submit a Special Report pursuant to Specification 6.9.2.h within 30 days.
- b. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.2.2 Dose Calculations. Cumulative dose contributions for noble gases for the current calendar quarter and current calendar year shall be determined in accordance with the ODCM at least once per 31 days.

RADIOACTIVE EFFLUENTS

DOSE - IODINE-131, TRITIUM, AND RADIONUCLIDES IN PARTICULATE FORM

LIMITING CONDITION FOR OPERATION

3.11.2.3 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-2 to UNRESTRICTED AREAS (see ODCM Figure 4-25.1-3) shall be:

- a. During any calendar quarter, less than or equal to 7.5 mrems to any organ, and
- b. During any calendar year, less than or equal to 15 mrems to any organ.

APPLICABILITY: At all times.

ACTION:

- a. 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, submit a Special Report pursuant to Specification 6.9.2.h within 30 days.
- b. The provisions of Specifications 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.2.3 Dose Calculations. Cumulative dose contributions for the current calendar quarter and current calendar year for iodine-131, tritium, and radionuclides in particulate form with half-lives greater than 8 days shall be determined in accordance with the ODCM at least once per 31 days.

RADIOACTIVE EFFLUENTS

GASEOUS RADWASTE TREATMENT

LIMITING CONDITION FOR OPERATION

3.11.2.4 The VENTILATION EXHAUST TREATMENT SYSTEMS shall be used to reduce radioactive materials in gaseous waste prior to their discharge when the projected gaseous effluent doses from ANO-2 to UNRESTRICTED AREAS (see ODCM Figure 4-25-i-3) would exceed .625 mrad for gamma radiation and 1.25 mrad for beta radiation in any 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.

APPLICABILITY: At all times.

ACTION:

- a. With gaseous waste being discharged without treatment and in excess of the above limits, in lieu of any other report, submit a Special Report pursuant to Specification 6.9.2.h within 30 days.
- b. The provisions of Specifications 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.2.4.1 Doses due to gaseous releases from the site shall be projected at least once per 31 days in accordance with the ODCM.

RADIOACTIVE EFFLUENTS

GASEOUS RADWASTE TREATMENT

LIMITING CONDITION FOR OPERATION

3.11.2.5 When degasifying the reactor coolant system, the GASEOUS RADWASTE TREATMENT SYSTEM shall be used to reduce radioactive material in gaseous waste prior to their discharge when the projected gaseous effluent doses for ANO-2 to UNRESTRICTED AREAS (see ODCM Figure 4-25-1-3) would exceed .625 mrad for gamma radiation and 1.25 mrad for beta radiation in any calendar quarter.

APPLICABILITY: At all times.

ACTION:

- a. With gaseous waste being discharged without treatment and in excess of the above limits, in lieu of any other report, submit a Special Report pursuant to Specification 6.9.2.h within 30 days.
- b. The provisions of Specifications 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.11.2.5.1 Doses due to gaseous releases from the site shall be projected at least once per 31 days in accordance with the ODCM.

5.0 DESIGN FEATURES

5.1 ~~SITE~~Site Location

The site for Arkansas Nuclear One is located in Pope County, Arkansas on the north bank of the Dardanelle Reservoir (Arkansas River), approximately 6 miles west-northwest of Russellville, AR. The exclusion area boundary shall have a radius of 0.65 statute miles from the center of the reactor.

EXCLUSION AREA

~~5.1.1 The exclusion area shall be as shown in Figure 5.1-1.~~

LOW POPULATION ZONE

~~5.1.2 The low population zone shall be as shown in Figure 5.1-2.~~

5.2 ~~CONTAINMENT~~Reactor Core

5.2.1 Fuel Assemblies

The reactor shall contain 177 fuel assemblies. Each assembly shall consist of a matrix of zircaloy or ZIRLO clad fuel rods with an initial composition of natural or slightly enriched uranium dioxide (UO₂) as fuel material. Limited substitutions of zirconium alloy or stainless steel filler rods for fuel rods, in accordance with approved applications of fuel rod configurations, may be used. Fuel assemblies shall be limited to those fuel designs that have been analyzed with applicable NRC staff approved codes and methods and shown by tests or analyses to comply with all fuel safety design bases. A limited number of lead test assemblies that have not completed representative testing may be placed in non-limiting core regions. Other cladding material may be used with an approved exemption.

5.2.2 Control Element Assemblies

The reactor core shall contain 81 control element assemblies.

CONFIGURATION

~~5.2.1 The reactor containment building is a steel-lined, reinforced concrete building of cylindrical shape, with a dome roof and having the following design features:~~

- ~~—— a. Nominal inside diameter = 116 feet.~~
- ~~—— b. Nominal inside height = 208.5 feet.~~
- ~~—— c. Minimum thickness of concrete walls = 3.75 feet.~~
- ~~—— d. Minimum thickness of concrete roof = 3.25 feet.~~
- ~~—— e. Minimum thickness of concrete floor pad = 9 feet, except at the sump where the minimum thickness is 5 feet.~~
- ~~—— f. Nominal thickness of steel liner = 0.25 inches.~~
- ~~g. Net free volume = 1.78×10^6 cubic feet.~~

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~~EXCLUSION AREA BOUNDARY~~
~~(0.65 Mile Radius)~~

~~Figure 5.1-1~~

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5.3 Fuel Storage

5.3.1 Spent Fuel Storage Rack Criticality

The spent fuel storage racks are designed and shall be maintained with:

- a. Fuel assemblies stored in the spent fuel pool in accordance with Specification 3.9.12.
- b. $k_{eff} \leq 0.95$ if fully flooded with unborated water, which includes an allowance for uncertainties as described in Section 9.1 of the SAR; and
- c. A nominal 9.8 inch center to center distance between fuel assemblies placed in the storage racks.

5.3.2 New Fuel Storage Rack Criticality

The new fuel storage racks are designed and shall be maintained with:

- a. Fuel assemblies having a maximum U-235 enrichment of 4.1 weight percent;
- b. $k_{eff} \leq 0.95$ if fully flooded with unborated water, which includes an allowance for uncertainties as described in Section 9.1 of the SAR;
- c. $k_{eff} \leq 0.98$ if moderated by aqueous foam, which includes an allowance for uncertainties as described in Section 9.1 of the SAR; and
- d. A nominal 25 inch center to center distance between fuel assemblies placed in the storage racks.

5.3.3 Drainage

The spent fuel storage pool is designed and shall be maintained to prevent inadvertent draining of the pool below elevation 399' 10 $\frac{1}{2}$ ".

5.3.4 Capacity

The spent fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than 988 fuel assemblies.

This is a detailed topographic map of the Dardanelle, Arkansas area. The map shows the Mississippi River flowing through the region, with several islands and points of land. Key features include the Dardanelle State Park, the Dardanelle State Fairgrounds, and the Dardanelle State Prison. The map also shows the locations of Dardanelle, Russellville, and London. The map is overlaid with a grid and includes various labels for roads, rivers, and other geographical features.

~~LOW POPULATION ZONE~~
~~(2.6 MILE RADIUS)~~

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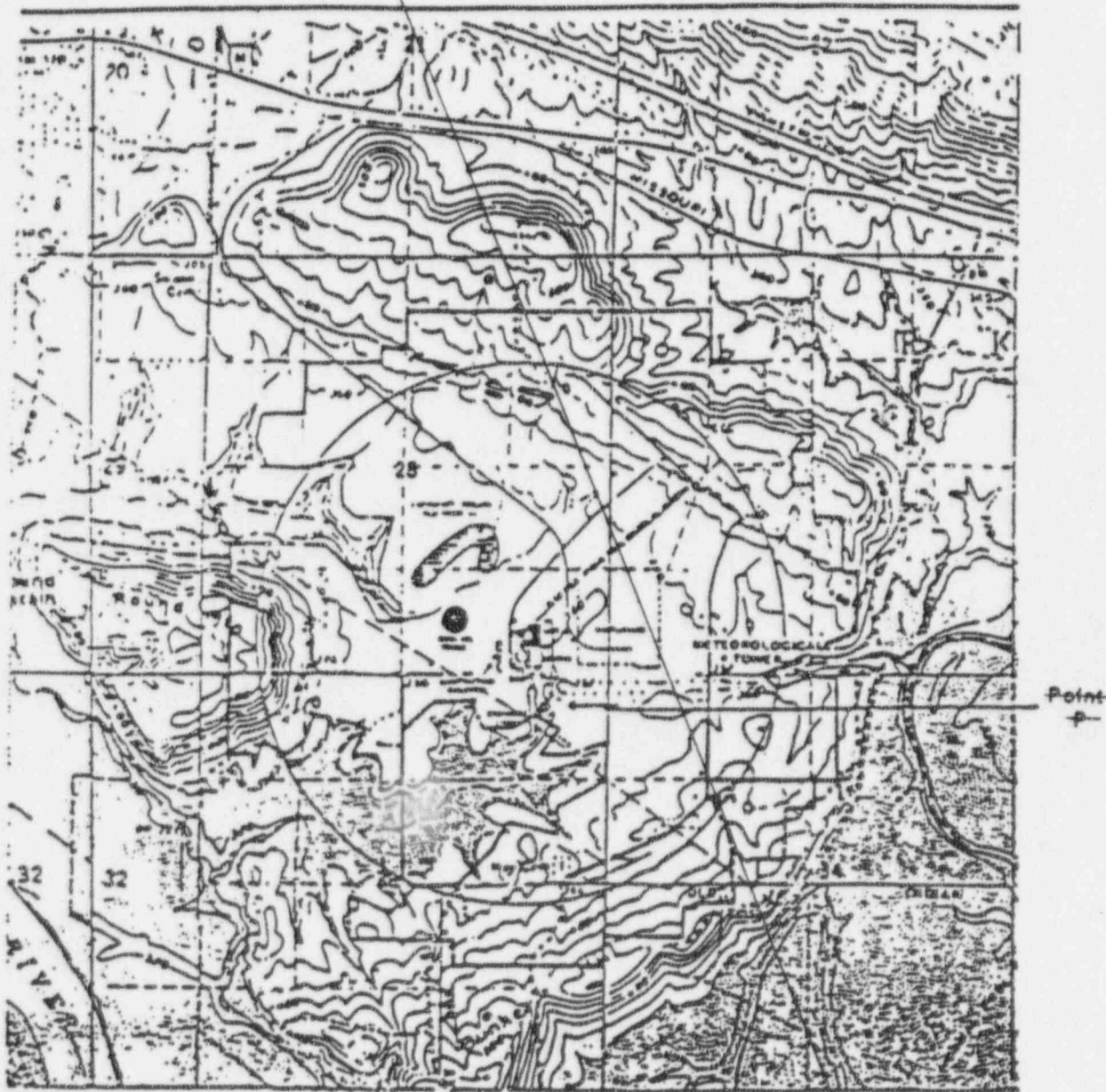


FIGURE 5.1-3

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MAXIMUM AREA BOUNDARY FOR RADIOACTIVE RELEASE CALCULATION
(EXCLUSION AREAS)

1046 METER RADIUS FOR GASES

AT END OF DISCHARGE CANAL CANAL FOR LIQUIDS (POINT P)

DESIGN FEATURES

DESIGN PRESSURE AND TEMPERATURE

~~5.2.2 The reactor containment building is designed and shall be maintained for a maximum internal pressure of 54 psig and a temperature of 300°F.~~

5.3 REACTOR CORE

FUEL ASSEMBLIES

~~5.3.1 The reactor core shall contain 177 fuel assemblies with each fuel assembly containing a maximum of 236 fuel rods clad with Zircaloy-4. Each fuel rod shall have a nominal active fuel length of 150 inches and contain a maximum total weight of 2114 grams uranium. The initial core loading shall have a maximum enrichment of 2.99 weight percent U-235. Reload fuel shall be of low enrichment and similar in physical design to the initial core loading.~~

CONTROL ELEMENT ASSEMBLIES

~~5.3.2 The reactor core shall contain 81 control element assemblies.~~

5.4 REACTOR COOLANT SYSTEM

DESIGN PRESSURE AND TEMPERATURE

~~5.4.1 The reactor coolant system is designed and shall be maintained:~~

- ~~a. In accordance with the code requirements specified in Section 5.2 of the FSAR with allowance for normal degradation pursuant of the applicable Surveillance Requirements,~~
- ~~b. For a pressure of 2500 psia, and~~
- ~~c. For a temperature of 650°F, except for the pressurizer which is 700°F,~~

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DESIGN FEATURES

VOLUME

~~5.4.2 The total water and steam volume of the reactor coolant system is 10,295 ± 400 cubic feet at a nominal T_{avg} of 545°F.~~

5.5 METEOROLOGICAL TOWER LOCATION

~~5.5.1 The meteorological tower shall be located as shown on Figure 5.1-1.~~

5.6 FUEL STORAGE

CRITICALITY - SPENT FUEL

~~5.6.1.1 The spent fuel racks are designed and shall be maintained so that the calculated effective multiplication factor is no greater than 0.95 (including all known uncertainties) when the pool is flooded with unborated water.~~

CRITICALITY - NEW FUEL

~~5.6.1.2 The new fuel storage racks are designed and shall be maintained with a nominal 25.0 inch center-to-center distance between new fuel assemblies such that K_{eff} will not exceed 0.98 when fuel having a maximum enrichment of 4.1 weight percent U-235 is in place and aqueous foam moderation is assumed and K_{eff} will not exceed 0.95 when the storage area is flooded with unborated water. The calculated K_{eff} includes a conservative allowance of 2.1% $\Delta k/k$ for uncertainties.~~

DRAINAGE

~~5.6.2 The spent fuel storage pool is designed and shall be maintained to prevent inadvertent draining of the pool below elevation 399' 10 1/2".~~

CAPACITY

~~5.6.3 The spent fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than 988 fuel assemblies.~~

5.7 COMPONENT CYCLIC OR TRANSIENT LIMITS

~~5.7.1 The components identified in Table 5.7-1 are designed and shall be maintained within the cyclic or transient limits of Table 5.7-1.~~

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TABLE 5.7-1

COMPONENT CYCLIC OR TRANSIENT LIMITS

COMPONENT	CYCLIC OR TRANSIENT LIMIT	DESIGN CYCLE OR TRANSIENT
Reactor Coolant System	500 system heatup and cooldown cycles at rates $\leq 100^\circ\text{F/hr}$.	Heatup cycle - T_{avg} from $\leq 200^\circ\text{F}$ to $\geq 545^\circ\text{F}$; cooldown cycle - T_{avg} from $\geq 545^\circ\text{F}$ to $\leq 200^\circ\text{F}$.
	500 pressurizer heatup and cooldown cycles at rates $\leq 200^\circ\text{F/hr}$.	Heatup cycle - Pressurizer temperature from $\leq 200^\circ\text{F}$ to $\geq 653^\circ\text{F}$; cooldown cycle - Pressurizer temperature from $\geq 653^\circ\text{F}$ to $\leq 200^\circ\text{F}$.
	10 hydrostatic testing cycles.	RCS pressurized to 3110 psig with RCS temperature $\geq 60^\circ\text{F}$ above the most limiting components' NDTT value.
	200 leak testing cycles.	RCS pressurized to 2250 psia with RCS temperature greater than minimum for hydrostatic testing, but less than minimum RCS temperature for criticality.
	400 reactor trip cycles.	Trip from 100% of RATED THERMAL POWER.
	40 turbine trip cycles with delayed reactor trip.	Turbine trip (total load rejection) from 100% of RATED THERMAL POWER followed by resulting reactor trip.
	200 seismic stress cycles.	Subjection to a seismic event equal to one half the design basis earthquake (DBE).

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TABLE 5.7-1 (Continued)

COMPONENT CYCLIC OR TRANSIENT LIMITS

COMPONENT	CYCLIC OR TRANSIENT LIMIT	DESIGN CYCLE OR TRANSIENT
Reactor Coolant System	40 complete loss of reactor coolant flow cycles.	Simultaneous loss of all Reactor Coolant Pumps at 100% of RATED THERMAL POWER.
	5 complete loss of secondary pressure cycles.	Loss of secondary pressure from either steam generator while in MODES 1, 2 or 3.
	100 pressurizer spray cycles per year with pressurizer/spray water $\Delta T > 200^{\circ}\text{F}$ or as otherwise calculated by the following method:	Spray operation consisting of opening and closing either the main or auxiliary spray valve(s) spray water/pressurizer $\Delta T > 200^{\circ}\text{F}$.

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TABLE 5.7-1 Continued

COMPONENT CYCLIC OR TRANSIENT LIMITS

COMPONENT	CYCLIC OR TRANSIENT LIMIT	DESIGN CYCLE OR TRANSIENT
-----------	------------------------------	------------------------------

Reactor Coolant System

Method for Calculating Pressurizer Spray Nozzle Cumulative Usage Factor

ΔT	N_A	N	N/N_A
201-300	1,000		
301-400	5,000		
401-500	3,000		
501-600	1,500		
		$\Sigma N/N_A$	

Where:

ΔT = Temperature difference between pressurizer water and spray in $^{\circ}\text{F}$.

N_A = Allowable number of spray cycles.

N = Number of cycles in ΔT range indicated.

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TABLE 5.7-1 (Continued)

COMPONENT CYCLIC OR TRANSIENT LIMITS

COMPONENT	CYCLIC OR TRANSIENT LIMIT	DESIGN CYCLE OR TRANSIENT
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Reactor Coolant System

Calculational Method†

1. At 12 month intervals the cumulative spray cycles shall be totaled. If the total is equal to or less than 1000, no further action is required.

2. If the cumulative total exceeds 1000, the spray nozzle usage factor shall be calculated as follows:

A. Fill in Column "N" above.

B. Calculate N/N_A (Divide N and N_A).

C. Add Column N/N_A to find $\Sigma N/N_A$.

$\Sigma N/N_A$ is the cumulative spray nozzle usage factor. If the calculated usage factor is equal to or less than 0.75, no further action is required.

3. If the calculated usage factor exceeds 0.75, subsequent pressurizer spray operation shall be restricted so that the difference between the pressurizer water temperature and the spray water temperature shall be limited to $\leq 200^\circ\text{F}$ when spray is operated. An engineering evaluation of nozzle fatigue shall be performed and shall determine that the nozzle remains acceptable for additional service prior to removing this restriction.

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ADMINISTRATIVE CONTROL

6.8.3 Changes to procedures of 6.8.1 above may be made and implemented prior to obtaining the review and approval required in 6.8.2 above provided:

- a. The intent of the original procedure is not altered.
- b. The change is approved by two members of the plant management staff, at least one of whom holds a Senior Reactor Operator's License on Unit 2.
- c. The change is documented, reviewed and approved as required by the QAMO, within 14 days of implementation.

6.8.4 The following program shall be established, implemented, and maintained:

a. Component Cyclic or Transient Limit

This program provides controls to track the SAR Section 5.2.1.5 cyclic or transient occurrences to ensure that components are maintained within the design limits.

6.9 REPORTING REQUIREMENTS

ROUTINE REPORTS

6.9.1 In addition to the applicable reporting requirements of Title 10, Code of Federal Regulations, the following reports shall be submitted to the Administrator of the Regional Office unless otherwise noted.

STARTUP REPORT

6.9.1.1 A summary report of plant startup and power escalation testing shall be submitted following (1) receipt of an operating license, (2) amendment to the license involving a planned increase in power level, (3) installation of fuel that has a different design or has been manufactured by a different fuel supplier, and (4) modifications that may have significantly altered the nuclear, thermal, or hydraulic performance of the plant.

6.9.1.2 The startup report shall address each of the tests identified in the FSAR and shall include a description of the measured values of the operating conditions or characteristics obtained during the test program and a comparison of these values with design predictions and specifications. Any corrective actions that were required to obtain satisfactory operation shall also be described. Any additional specific details required in license conditions based on other commitments shall be included in this report.

6.9.1.3 Startup reports shall be submitted within (1) 90 days following completion of the startup test program, (2) 90 days following resumption or commencement of commercial power operation, or (3) 9 months following initial criticality, whichever is earliest. If the Startup Report does not cover all three events (i.e., initial criticality, completion of startup test program, and resumption or commencement of commercial power operation), supplementary reports shall be submitted at least every three months until all three events have been completed.

ADMINISTRATIVE CONTROLS

6.10 RECORD RETENTION

In addition to the applicable record retention requirements of Title 10, Code of Federal Regulations, the following records shall be retained for at least the minimum period indicated.

6.10.1 The following records shall be retained for at least five years:

- a. Records and logs of unit operation covering time interval at each power level.
- b. Records and logs of principal maintenance activities, inspections, repair and replacement of principal items of equipment related to nuclear safety.
- c. All REPORTABLE EVENTS.
- d. Records of surveillance activities, inspections and calibrations required by these Technical Specifications.
- e. Records of changes made to the procedures required by Specification 6.8.1.
- f. Records of radioactive shipments.
- g. Records of sealed source and fission detector leak tests and results.
- h. Records of annual physical inventory of all sealed source material of record.

6.10.2 The following records shall be retained for the duration of the Facility Operating License:

- a. Records and drawing changes reflecting unit design modifications made to systems and equipment described in the Final Safety Analysis Report.
- b. Records of new and irradiated fuel inventory, fuel transfer and assembly burnup histories.
- c. Records of radiation exposure for all individuals entering radiation control areas.
- d. Records of gaseous and liquid radioactive material released to the environs.
- e. Records of transient or operational cycles for those unit components in the Component Cyclic or Transient Limit program required by Specification 6.8.4 identified in Table 5.7.1.