#### OMAHA PUBLIC POWER DISTRICT

#### DOCKET NO. 50-285

#### FORT CALHOUN STATION, UNIT 1

#### RENEWED FACILITY LICENSE NO. DPR-40

- 1. The U.S. Nuclear Regulatory Commission (the Commission) having previously made the findings set forth in License No. DPR-40 issued August 9, 1973, has now found that:
  - A. The application to renew License No. DPR-40 filed by Omaha Public Power District (the licensee) 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 1, and all required notifications to other agencies or bodies have been duly made;
  - B Actions have been identified and have been or will be taken with respect to (1) managing the effects of aging during the period of extended operation on the functionality of structures and components that have been identified to require review under 10 CFR 54.21(a)(1), and (2) time-limited aging analyses that have been identified to require review under 10 CFR 54.21(c), such that there is reasonable assurance that the activities authorized by this renewed license will continue to be conducted in accordance with the current licensing basis, as defined in 10 CFR 54.3, for Fort Calhoun Station, Unit No. 1, and that any changes made to the plant's current licensing basis in order to comply with 10 CFR 54.29(a) are in accord with the Act and the Commission's regulations;
  - C. The facility will be maintained in conformity with the application, as amended, the provisions of the Act, and the rules and regulations of the Commission;
  - D. There is reasonable assurance: (1) that the activities authorized by this renewed license can be conducted without endangering the health and safety of the public, and (2) that such activities will be conducted in compliance with the rules and regulations of the Commission;
  - E. Omaha Public Power District is technically qualified and financially qualified to engage in the activities authorized by this renewed license in accordance with the rules and regulations of the Commission;
  - F. Omaha Public Power District has satisfied the applicable provisions of 10 CFR Part 140, "Financial Protection Requirements and Indemnity Agreements," of the Commission's regulations;
  - G. The issuance of this renewed license will not be inimical to the common defense and security or to the health and safety of the public;

- H. After weighing the environmental, economic, technical, and other benefits of the facility against environmental costs and considering available alternatives, the Commission concludes that the issuance of Renewed License No. DPR-40 is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied; and
- I. The receipt, possession, and use of source, byproduct, and special nuclear material as authorized by the renewed license will be in accordance with the Commission's regulations in 10 CFR Parts 30, 40, and 70, including but not necessarily limited to 10 CFR Sections 30.33, 40.32, 70.23 and 70.31.
- 2. On the basis of the forgoing findings regarding this facility, Facility Operating License No. DPR-40, issued August 9, 1973, is superseded by Renewed Facility License No. DPR-40, which is hereby issued to the Omaha Public Power District, to read as follows:
  - A. This renewed license applies to the Fort Calhoun Station, Unit 1, a pressurized water nuclear reactor and associated equipment (the facility), which is owned by the Omaha Public Power District. The facility is located in Washington County, Nebraska, and is described in the Final Safety Analysis Report as supplemented, amended, and updated and the Environmental Report as supplemented and amended.
  - B. Subject to the conditions and requirements incorporated herein, the Commission hereby licenses Omaha Public Power District:
    - (1) Pursuant to Section 104b of the Act and 10 CFR Part 50, "Licensing of Production and Utilization Facilities," to possess and use the facility as required for fuel storage at the designated location in Washington County, Nebraska in accordance with the procedures and limitations set forth in this renewed license;
    - (2) Pursuant to the Act and 10 CFR Parts 40 and 70, to possess at any time special nuclear material that was used as reactor fuel, in accordance with the limitations for storage, as described in the Final Safety Analysis Report, as supplemented, amended, and updated;
    - (3) Pursuant to the Act and 10 CFR Parts 30, 40, and 70, to receive, possess, and use at any time any byproduct, source, or sealed sources for radiation monitoring equipment calibration; and to possess any byproduct, source and special nuclear material as sealed neutron sources previously used for reactor startup and reactor instrumentation; and fission detectors;

- (4) Pursuant to the Act and 10 CFR Parts 30, 40 and 70, to receive, possess, and use in amounts as required any byproduct, source, or special nuclear material without restriction to chemical or physical form for sample analysis or instrument calibration or when associated with radioactive apparatus or components;
- (5) Pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not separate, such byproduct and special nuclear materials as may be produced by operation of the facility.
- 3. This renewed license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations in 10 CFR Chapter 1: Part 20, Section 30.34 of Part 30, Section 40.41 of Part 40, Section 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70; and is subject to all applicable provisions of the Act and to the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified or incorporated below:

#### A. DELETED

#### B. <u>Technical Specifications</u>

The Technical Specifications contained in Appendix A, as revised through Amendment No. 298, are hereby replaced with the Permanently Defueled Technical Specifications (PDTS). Omaha Public Power District shall maintain the facility in accordance with the Permanently Defueled Technical Specifications.

C. <u>Security and Safeguards Contingency Plans</u>

The Omaha Public Power District shall fully implement and maintain in effect all provisions of the Commission-approved physical security, training and qualification, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822) and to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The plans, which contain Safeguards Information protected under 10 CFR 73.21, are entitled: "Fort Calhoun Station Security Plan, Training and Qualification Plan, Safeguards Contingency Plan," submitted by letter dated May 19, 2006.

- D. DELETED
- E. DELETED
- F. DELETED
- G. Mitigation Strategy License Condition

Develop and maintain strategies for addressing large fires and explosions and that include the following key areas:

- (a) Fire fighting response strategy with the following elements:
  - 1. Pre-defined coordinated fire response strategy and guidance
  - 2. Assessment of mutual aid fire fighting assets
  - 3. Designated staging areas for equipment and materials
  - 4. Command and control
  - 5. Training of response personnel
- (b) Operations to mitigate fuel damage considering the following:
  - 1. Protection and use of personnel assets
  - 2. Communications
  - 3. Minimizing fire spread
  - 4. Procedures for implementing integrated fire response strategy
  - 5. Identification of readily-available pre-staged equipment
  - 6. Training on integrated fire response strategy
  - 7. Spent fuel pool mitigation measures
- (c) Actions to minimize release to include consideration of:
  - 1. Water spray scrubbing
  - 2. Dose to onsite responders
- 4. This license is effective as of the date of issuance and authorizes ownership and possession of Fort Calhoun Station until the Commission notifies the licensee in writing that the license is terminated.

FOR THE NUCLEAR REGULATORY COMMISSION

Original Signed by: J.E. Dyer

J. E. Dyer, Director Office of Nuclear Reactor Regulation

Attachments: 1. Appendix A - Permanently Defueled Technical Specifications 2. Appendix B - Deleted

Date of Issuance: November 4, 2003

## APPENDIX A

# <u>T0</u>

## OPERATING LICENSING NO. DPR-40

#### PERMENENTLY DEFUELED TECHNICAL SPECIFICATIONS

## FOR THE

## FORT CALHOUN STATION UNIT NO. 1

#### OMAHA PUBLIC POWER DISCTRICT

#### DOCKET NO. 50-285

#### PERMANENTLY DEFUELED TECHNICAL SPECIFICATIONS

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## PERMANENTLY DEFUELED TECHNICAL SPECIFICATIONS

# **DEFINITIONS**

The following terms are defined for uniform interpretation of these Specifications.

# FUEL STORAGE AND HANDLING CONDITIONS

## Fuel Handling Operations

Any operation involving the shuffling, removal, or replacement of irradiated fuel. The suspension of any FUEL HANDLING OPERATIONS shall not preclude completion of movement of a component to a safe, conservative position.

# Certified Fuel Handler (CFH)

A CERTIFIED FUEL HANDLER is an individual who complies with provisions of the CERTIFIED FUEL HANDLER training program required by Technical Specification 5.4.2.

# Non-Certified Operator (NCO)

A NON-CERTIFIED OPERATOR is a non-licensed operator who complies with the applicable training requirements of Technical Specification 5.4.1, but is not a CERTIFIED FUEL HANDLER.

# **MISCELLANEOUS DEFINITIONS**

## <u>Actions</u>

ACTIONS shall be that part of a specification that prescribes required actions to be taken under designated conditions within specified completion times.

## <u> Operable – Operability</u>

A system, subsystem, train, component or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power sources, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, train, component or device to perform its specified safety functions(s) are also capable of performing their related support function(s).

Amendment No. 297

## DEFINITIONS MISCELLANEOUS DEFINITIONS (continued)

## Offsite Dose Calculation Manual (ODCM)

The document(s) that contain the methodology and parameters used in the calculations of offsite doses resulting from radioactive gaseous and liquid effluents, in the calculation of gaseous and liquid effluent radiation monitoring Warn/High (trip) Alarm setpoints, and in the conduct of the Environmental Radiological Monitoring Program. The ODCM shall also contain:

- 1) The Radiological Effluent Controls and the Radiological Environmental Monitoring Program required by Specification 5.16.
- 2) Descriptions of the information that should be included in the Annual Radiological Environmental Operating Reports and Annual Radioactive Effluent Release Reports required by Specifications 5.9.4.a and 5.9.4.b.

#### Unrestricted Area

Any area <u>at or beyond the site boundary</u> access to which is not controlled by the licensee for purposes of protection of individuals from exposure to radiation and radioactive materials.

## Sections 1.0 through 2.7 have been deleted in their entirety.

# 2.0 LIMITING CONDITIONS FOR OPERATION

- 2.8 <u>Fuel Handling</u>
- 2.8.1 DELETED
- 2.8.2 DELETED
- 2.8.3 Fuel Handling Operations Spent Fuel Pool
- 2.8.3(1) Spent Fuel Assembly Storage

## **Applicability**

Applies to storage of spent fuel assemblies whenever any irradiated fuel assembly is stored in Region 2 (including peripheral cells) of the spent fuel pool.

#### **Objective**

To minimize the possibility of an accident occurring during FUEL HANDLING OPERATIONS that could affect public health and safety.

## **Specification**

The combination of initial enrichment and burnup of each spent fuel assembly stored in Region 2 (including peripheral cells) of the spent fuel pool shall be within the acceptable burnup domain of Figure 2-10.

## **Required Actions**

(1) With the requirements of the LCO not met, initiate action to move the noncomplying fuel assembly immediately.







2. Peripheral cells are those adjacent to the Spent Fuel Pool wall or the cask laydown area.

#### 2.8 Fuel Handling

2.8.3 <u>Fuel Handling Operations - Spent Fuel Pool</u> (continued)

#### 2.8.3(2) Spent Fuel Pool Water Level

#### <u>Applicability</u>

Applies to the water level of the spent fuel pool during FUEL HANDLING OPERATIONS in the spent fuel pool.

#### **Objective**

To minimize the consequences of a fuel handling accident during FUEL HANDLING OPERATIONS in the spent fuel pool that could affect public health and safety.

#### **Specification**

The spent fuel pool water level shall be  $\geq 23$  ft. above the top of irradiated fuel assemblies seated in the storage racks.

#### Required Actions

(1) With the spent fuel pool water level not within limits, suspend FUEL HANDLING OPERATIONS in the spent fuel pool immediately.

#### 2.8.3(3) Spent Fuel Pool Boron Concentration

#### <u>Applicability</u>

Applies to the boron concentration of the spent fuel pool when fuel assemblies are stored in the spent fuel pool.

#### **Objective**

To minimize the possibility of an accident that could affect public health and safety from occurring when fuel assemblies are stored in the spent fuel pool.

#### **Specification**

The spent fuel pool boron concentration shall be  $\geq$  500 ppm.

#### **Required Actions**

- (1) With the spent fuel pool boron concentration < 500 ppm, suspend FUEL HANDLING OPERATIONS in the spent fuel pool immediately, and
- (2) Restore spent fuel pool boron concentration to  $\geq$  500 ppm immediately.

Amendment No. 297

- 2.8 Fuel Handling
- 2.8.3 <u>Fuel Handling Operations Spent Fuel Pool</u> (continued)
- 2.8.3(4) DELETED
- 2.8.3(5) DELETED
- 2.8.3(6) DELETED

#### 2.8 <u>Fuel Handling</u> <u>Basis</u>

#### 2.8.3(1) Spent Fuel Assembly Storage

The spent fuel pool is designed for noncriticality by use of neutron absorbing material. The restrictions on the placement of fuel assemblies within the spent fuel pool, according to Figure 2-10, and the accompanying LCO, ensures that the  $k_{eff}$  of the spent fuel pool always remains < 0.95 assuming the pool to be flooded with unborated water.

A spent fuel assembly may be transferred to the spent fuel pool Region 2 provided an independent verification of assembly burnups has been completed and the assembly burnup meets the acceptance criteria identified in Figure 2-10. When the configuration of fuel assemblies stored in Region 2 (including the peripheral cells) is not in accordance with Figure 2-10, immediate action must be taken to make the necessary fuel assembly movement(s) to bring the configuration into compliance with Figure 2-10. Acceptable fuel assembly burnup is not a prerequisite for Region 1 storage because Region 1 will maintain any type of fuel assembly that the plant is licensed for in a safe, coolable, subcritical geometry.

When "immediately" is used as a completion time, the required action should be pursued without delay and in a controlled manner.

#### 2.8.3(2) Spent Fuel Pool Water Level

The minimum water level in the spent fuel pool meets the assumption of iodine decontamination factors following a fuel handling accident. When the water level is lower than the required level, the movement of irradiated fuel assemblies in the spent fuel pool is immediately suspended. This effectively precludes a fuel handling accident from occurring in the spent fuel pool. Suspension of FUEL HANDLING OPERATIONS shall not preclude completion of movement of a component to a safe, conservative position. When "immediately" is used as a completion time, the required action should be pursued without delay and in a controlled manner.

#### 2.8.3(3) Spent Fuel Pool Boron Concentration

The basis for the 500 ppm boron concentration requirement with Boral poisoned storage racks is to maintain the  $k_{eff}$  below 0.95 in the event a misloaded unirradiated fuel assembly is located next to a spent fuel assembly. A misloaded unirradiated fuel assembly at maximum enrichment condition, in the absence of soluble poison, may result in exceeding the design effective multiplication factor. A misloaded irradiated fuel assembly is bounded by this requirement. Soluble boron in the spent fuel pool water, for which credit is permitted under these conditions, would assure that the effective multiplication factor is maintained substantially less than the design condition.

This LCO applies whenever fuel assemblies are stored in the spent fuel pool. The boron concentration is periodically sampled in accordance with Specification 3.2. Sampling is performed periodically when fuel is stored in the spent fuel pool.

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- 2.8 <u>Fuel Handling</u> <u>Bases</u> (continued)
- 2.8.3(3) Spent Fuel Pool Boron Concentration (continued)

When "immediately" is used as a completion time, the required action should be pursued without delay and in a controlled manner. Suspension of FUEL HANDLING OPERATIONS shall not preclude completion of movement of a component to a safe, conservative position.

## **References**

- (1) FSAR, as updated, Section 9.5
- (2) FSAR, as updated, Section 14.18

# Sections 2.9 through 2.23 have been deleted in their entirety.

# 3.0 SURVEILLANCE REQUIREMENTS

- 3.0.1 Each surveillance requirement shall be performed within the specified surveillance interval with a maximum allowable extension not to exceed 25 percent of the specified surveillance interval.
- 3.0.2 The surveillance intervals are stated in the individual Specifications.
- 3.0.3 The provisions of Specifications 3.0.1 and 3.0.2 are applicable to all codes and standards referenced within the Technical Specifications. The requirements of the Technical Specifications shall have precedence over the requirements of the codes and standards referenced within the Technical Specifications.
- 3.0.4 Surveillance Requirements shall be met during the specified conditions in the individual Limiting Conditions for Operation, unless otherwise stated in the Surveillance Requirement. Failure to meet a Surveillance, whether such failure is experienced during the performance of the Surveillance or between performances of the Surveillance, shall be failure to meet the OPERABILITY requirements for the corresponding Limiting Condition for Operation. Failure to perform a Surveillance Requirement within the allowed surveillance interval, defined by Specifications 3.0.1 and 3.0.2, shall constitute noncompliance with the OPERABILITY requirements for the corresponding Limiting Condition except as provided in Specification 3.0.5. The time limits of the ACTION requirements are applicable at the time it is identified that a Surveillance Requirement has not been performed. Surveillance Requirements do not have to be performed on inoperable equipment.
- 3.0.5 If it is discovered that a Surveillance was not performed within its specified surveillance interval, then compliance with the requirement to declare the OPERABILITY requirements for the Limiting Condition for Operation not met may be delayed, from the time of discovery, up to 24 hours or up to the limit of the specified surveillance interval, whichever is greater. This delay period is permitted to allow performance of the Surveillance. A risk evaluation shall be performed for any Surveillance delayed greater than 24 hours and the risk impact shall be managed.

If the Surveillance is not performed within the delay period, the OPERABILITY requirements for the Limiting Condition for Operation must immediately be declared not met, and the applicable ACTION(S) must be entered.

When the Surveillance is performed within the delay period and the Surveillance is not met, the OPERABILITY requirements for the Limiting Condition for Operation must immediately be declared not met, and the applicable ACTION(S) must be entered.

#### 3.0 SURVEILLANCE REQUIREMENTS Basis

Specifications 3.0.1 through 3.0.5 establish the general requirements applicable to Surveillance Requirements.

Specification 3.0.1 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 station conditions that may not be suitable for conducting the surveillance; e.g., transient conditions or other ongoing surveillance or maintenance activities. It is not intended that this provision be used repeatedly as a convenience to extend surveillance intervals beyond that specified. The limitation of Specification 3.0.1 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 interval.

The provisions of Specification 3.0.2 define the surveillance intervals for use in the Technical Specifications. This clarification is provided to ensure consistency in surveillance intervals throughout the Technical Specifications. A few surveillance requirements have uncommon intervals. In such a case the surveillance interval shall be performed as defined by the individual specifications.

Specification 3.0.3 extends the testing interval required by codes and standards referenced by the Technical Specifications. This clarification is provided to remove any ambiguities relative to the frequencies for performing the required testing activities. Under the terms of this specification, the more restrictive requirements of the Technical Specifications take precedence over the codes and standards referenced therein. The requirements of regulations take precedence over the TS. Therefore, test intervals governed by regulation cannot be extended by the TS.

Specification 3.0.4 establishes the requirement that Surveillances must be met during other specified conditions in the Specification for which the requirements of the Limiting Condition for Operation apply, unless otherwise specified in the individual Surveillances. This Specification is to ensure that Surveillances are performed to verify the OPERABILITY of systems and components, and that variables are within specified limits. Failure to meet a Surveillance within the specified surveillance interval, in accordance with Specifications 3.0.1 and 3.0.2, constitutes a failure to meet the OPERABILITY requirements for the corresponding Limiting Condition for Operation.

Systems and components are assumed to be OPERABLE when the associated Surveillances have been met. Nothing in this Specification, however, is to be construed as implying that systems or components are OPERABLE when either:

a. The systems or components are known to be inoperable, although still meeting the Surveillances or

### 3.0 <u>SURVEILLANCE REQUIREMENTS</u> <u>Basis</u> (continued)

b. The requirements of the Surveillance(s) are known to be not met between required Surveillance performances.

Surveillances do not have to be performed when the unit is in a specified condition for which the requirements of the associated Limiting Condition for Operation are not applicable unless otherwise specified. The Surveillances associated with a special test exception (STE) are only applicable when the STE is used as an allowable exception to the requirements of a Specification.

Unplanned events may satisfy the requirements (including applicable acceptance criteria) for a given Surveillance. In this case, the unplanned event may be credited as fulfilling the performance of the Surveillance. This allowance includes those Surveillances whose performance is normally precluded in a specified condition.

Surveillances, including Surveillances invoked by ACTIONS, do not have to be performed on inoperable equipment because the ACTIONS define the remedial measures that apply. Surveillances have to be met and performed in accordance with Specifications 3.0.1 and 3.0.2, prior to returning equipment to OPERABLE status.

Specification 3.0.5 establishes the flexibility to defer declaring affected equipment inoperable or an affected variable outside the specified limits when a Surveillance has not been completed within the specified surveillance interval. A delay period of up to 24 hours or up to the limit of the specified surveillance interval, whichever is greater, applies from the point in time that it is discovered that the Surveillance has not been performed in accordance with Specification 3.0.1, and not at the time that the specified surveillance interval was not met.

This delay period provides adequate time to complete Surveillances that have been missed. This delay period permits the completion of a Surveillance before complying with ACTIONS or other remedial measures that might preclude completion of the Surveillance.

The basis for this delay period includes consideration of unit conditions, adequate planning, availability of personnel, the time required to perform the Surveillance, the safety significance of the delay in completing the required Surveillance, and the recognition that the most probable result of any particular Surveillance being performed is the verification of conformance with the requirements.

When a Surveillance with a surveillance interval based not on time intervals, but upon specified situations, or requirements of regulations (e.g., as modified by approved exemptions, etc.) is discovered to not have been performed when specified, Specification 3.0.5 allows for the full delay period of up to the specified surveillance interval to perform the Surveillance.

#### 3.0 SURVEILLANCE REQUIREMENTS Basis (continued)

However, since there is not a time interval specified, the missed Surveillance should be performed at the first reasonable opportunity. Specification 3.0.5 provides a time limit for, and allowances for the performance of, Surveillances that become applicable as a consequence of changes imposed by ACTIONS.

Failure to comply with specified surveillance intervals for Surveillance Requirements is expected to be an infrequent occurrence. Use of the delay period established by Specification 3.0.5 is a flexibility which is not intended to be used as a convenience to extend surveillance intervals. While up to 24 hours or the limit of the specified surveillance interval is provided to perform the missed Surveillance, it is expected that the missed Surveillance will be performed at the first reasonable opportunity. The determination of the first reasonable opportunity should include consideration of the impact on plant risk (from delaying the Surveillance as well as any plant configuration changes required to perform the Surveillance) and impact on any analysis assumptions, in addition to station conditions, planning, availability of personnel, and the time required to perform the Surveillance. This risk impact should be managed through the program in place to implement 10 CFR 50.65(a)(4) and its implementation guidance. NRC Regulatory Guide 1.182, "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants." This Regulatory Guide addresses consideration of temporary and aggregate risk impacts, determination of risk management action thresholds, and risk management actions. The missed Surveillance should be treated as an emergent condition as discussed in the Regulatory Guide. The risk evaluation may use quantitative, qualitative, or blended methods. The degree of depth and rigor of the evaluation should be commensurate with the importance of the component. Missed Surveillances for important components should be analyzed. If the results of the risk evaluation determine the risk increase is significant, this evaluation should be used to determine the safest course of action. All missed Surveillances will be placed in the corrective action program.

If a Surveillance is not completed within the allowed delay period, then the equipment is considered inoperable or the variable is considered outside the specified limits and the allowable outage time limits of the ACTIONS for the applicable Limiting Condition for Operation begin immediately upon expiration of the delay period. If a Surveillance is failed within the delay period, then the equipment is inoperable, or the variable is outside the specified limits and the allowable outage time limits of the ACTIONS for the Surveillance is failed Limiting Condition for Operation begin immediately upon expiration of the delay period. If a Surveillance is failed within the delay period, then the equipment is inoperable, or the variable is outside the specified limits and the allowable outage time limits of the ACTIONS for the applicable Limiting Condition for Operation begin immediately upon the failure of the Surveillance.

Completion of the Surveillance within the delay period allowed by this Specification, or within the allowable outage time limits of the ACTIONS, restores compliance with Specification 3.0.4.

# 3.0 SURVEILLANCE REQUIREMENTS

## 3.1 DELETED

## 3.2 Equipment and Sampling Tests

#### Applicability

Applies to plant equipment and conditions related to safe storage and handling of nuclear fuel.

#### **Objective**

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

#### **Specifications**

Equipment and sampling tests shall be conducted as specified in Tables 3-4 and 3-5.

#### <u>Basis</u>

The equipment testing and system sampling frequencies specified in Tables 3-4 and 3-5 are considered adequate, based upon experience, to maintain the status of the equipment and systems so as to assure safe storage and handling of nuclear fuel. Thus, those systems where changes might occur relatively rapidly are sampled frequently and those static systems is not subject to changes are sampled less frequently.

## **TABLE 3-4**

## **MINIMUM FREQUENCIES FOR SAMPLING TESTS**

Type of Measurement and Analysis Sample and Analysis <u>Frequency</u>

- 1. Spent Fuel Pool
- Boron Concentration

See Footnote (1) below

(1) Weekly when fuel assemblies are stored in the spent fuel pool.

## **TABLE 3-5**

### MINIMUM FREQUENCIES FOR EQUIPMENT TESTS

#### <u>Test</u>

#### **Frequency**

| 1. | Spent Fuel Pool<br>Racks       | Test neutron poison samples for<br>dimensional change, weight, neutron<br>attenuation change and specific<br>gravity change.       | 1, 2, 4, 7, and 10 years after installation, and every 5 years thereafter.                       |
|----|--------------------------------|--|--|
| 2. | Spent Fuel Pool Level          | Verify spent fuel pool water level is $\geq 23$ ft.<br>above the top of irradiated fuel assemblies<br>seated in the storage racks. | Prior to commencing, and weekly<br>during FUEL HANDLING<br>OPERATIONS in the spent fuel<br>pool. |
| 3. | Spent Fuel Assembly<br>Storage | Verify by administrative means that initial<br>enrichment and burnup of the fuel assembly<br>is in accordance with Figure 2-10.    | Prior to storing the fuel assembly<br>in Region 2 (including peripheral<br>cells).               |

# 3.0 SURVEILLANCE REQUIREMENTS

Sections 3.3 through 3.17 have been deleted in their entirety.

## 4.0 **DESIGN FEATURES**

## 4.1 <u>Site</u>

The site for Fort Calhoun Station Unit No. 1 is in Washington County, Nebraska, on the west bank of the Missouri River and approximately nineteen miles north, northwest of the city of Omaha, Nebraska. The exclusion area description, as defined in 10 CFR Part 100, Section 100.3(a), is located in the Final Safety Analysis Report, as updated.

## 4.2 DELETED

- 4.3 Fuel Storage
  - 4.3.1 Criticality
    - 4.3.1.1 The spent fuel storage racks are designed and shall be maintained with:
      - a. Fuel assemblies having a maximum U-235 enrichment of 4.5 weight percent,
      - k<sub>eff</sub> ≤ 0.95 if fully flooded with unborated water, which includes an allowance for uncertainties as described in Section 9.5 of the FSAR, as updated,
      - c. A nominal 8.6 inch center to center distance between fuel assemblies placed in Region 2, the high density fuel storage racks,
      - d. A nominal 9.8 inches (East-West) by 10.3 inches (North South) center to center distances between fuel assemblies placed in Region 1, the low density fuel storage racks,
      - e. Partially spent fuel assemblies with a discharge burnup in the "acceptable domain" of Figure 2-10 for "Region 2 Unrestricted" may be allowed unrestricted storage in any of the Region 2 fuel storage racks in compliance with Reference (1).
      - f. Partially spent fuel assemblies with a discharge burnup between the "acceptable domain" and "Peripheral Cells" of Figure 2-10 may be allowed unrestricted storage in the peripheral cells of the Region 2 fuel storage racks in compliance with Reference (1).
      - g. Partially spent fuel assemblies with a discharge burnup in the "unacceptable domain" of Figure 2-10 will be stored in Region 1 in compliance with Reference (1).

Amendment No. 297

### 4.0 **DESIGN FEATURES**

## 4.3 <u>Fuel Storage</u>

4.3.1 <u>Criticality</u> (continued)

4.3.1.2 DELETED

4.3.1.3 DELETED

#### 4.3.2 Drainage

The spent fuel storage pool is designed and shall be maintained to prevent inadvertent draining of the pool below 23 ft. above the top of irradiated fuel assemblies seated in the storage racks.

#### 4.3.3 Capacity

The spent fuel storage pool is designed and shall be maintained with a storage capacity limited to no more than 1083 fuel assemblies.

#### References:

(1) Letter from R. Wharton (NRC) to T. Patterson (OPPD), Amendment 174 to Facility Operating License No. DPR-40, (TAC NO. M94789) Dated July 30, 1996, NRC-96-0126.

# 5.1 <u>Responsibility</u>

- 5.1.1 The plant manager shall be responsible for the overall facility, and the maintenance of fuel, shall delegate in writing the succession to this responsibility during his absence.
- 5.1.2 The Shift Manager shall be responsible for the shift command function.

# 5.2 Organization

- 5.2.1 Onsite and offsite organizations shall be established for the facility and corporate management, respectively. The onsite and offsite organizations shall include the positions for activities affecting the safety of the nuclear fuel.
  - a. Lines of authority, responsibility, and communication shall be established and defined for the highest management levels through intermediate levels to and including all organization positions. These relationships shall be documented and updated, as appropriate, in the form of organizational charts, functional descriptions of departmental responsibilities and relationships, and job descriptions for key personnel positions, or in equivalent forms of documentation. These requirements shall be documented in the FSAR, as updated.
  - b. The plant manager shall be responsible for the overall facility and shall have control over those onsite activities necessary for safe storage and maintenance of the nuclear fuel.
  - c. The corporate officer with responsibility for overall management of nuclear fuel shall take any measures needed to ensure acceptable performance of the staff in operating, maintaining, and providing technical support to the station to ensure safe management of nuclear fuel.
  - d. The individuals who train the CERTIFIED FUEL HANDLERs and NON-CERTIFIED OPERATORS, and those who carry out health physics and quality assurance functions may report to the appropriate onsite manager; however, they shall have sufficient organizational freedom to ensure their ability to perform their assigned functions.

# 5.2.2 Facility Staff

The facility staff organization shall be as described in the FSAR, as updated and shall function as follows:

a. The minimum number and type of personnel required onsite for each shift shall be as shown in Table 5.2-1.

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- 5.2 Organization
- 5.2.2 <u>Facility Staff</u> (continued)
  - b. An individual qualified in Radiation Protection Procedures shall be onsite during fuel handling operations or movement over storage racks containing fuel. The position may be vacant for not more than 2 hours, in order to provide for unexpected absence, provided immediate action is taken to fill the required position.
  - c. The Shift Manager shall be a CERTIFIED FUEL HANDLER.
  - d. Fire protection program responsibilities are assigned to those positions and/or groups designated by asterisks in the FSAR, as updated.
  - e. DELETED

# **TABLE 5.2-1**

### MINIMUM SHIFT CREW COMPOSITION (ii, iii)

| Staffing Category      | Minimum Staffing         |
|------------------------|--------------------------|
| CERTIFIED FUEL HANDLER | 1 <sup>(i)</sup>         |
| NON-CERTIFIED OPERATOR | <b>1</b> <sup>(iv)</sup> |

- (i) This includes the individual with CERTIFIED FUEL HANDLER qualification supervising FUEL HANDLING OPERATIONS.
- (ii) Shift crew composition may be less than the minimum requirements for a period of time not to exceed 2 hours in order to accommodate unexpected absence of on-duty shift crew members provided immediate action is taken to restore the shift crew composition to within the minimum requirements of Table 5.2-1 provided no fuel handling operations or movement over storage racks containing fuel is in progress. This provision does not permit any shift crew position to be unmanned upon shift change due to an oncoming shift crew member being late or absent.
- (iii) At least one of these individuals must be in the control room at all times when fuel is in the Spent Fuel Pool.
- (iv) The NON-CERTIFIED OPERATOR position may be filled by a CERTIFIED FUEL HANDLER.

# 5.3 Facility Staff Qualification

- 5.3.1 Each member of the facility staff shall meet or exceed the minimum qualifications of ANSI N18.1-1971 for comparable positions with the requirement exception for those individuals in lieu of holding a Senior Reactor Operator license will be qualified as a CERTIFIED FUEL HANDLER, and with the exception of the Manager Radiation Protection (MRP), who shall meet the requirements set forth in Regulatory Guide 1.8, Revision 3, dated May 2000, entitled "Qualification and Training of Personnel for Nuclear Power Plants."
- 5.4 <u>Training</u>
- 5.4.1 A retraining and replacement training program for the plant staff shall be maintained under the direction of the Plant Manager or designee and shall meet or exceed the requirements of Section 6 of ANSI/ANS 3.1-1993, as modified by Regulatory Guide 1.8, Revision 3, dated May 2000.
- 5.4.2 An NRC approved training and retraining program for the CERTIFIED FUEL HANDLER shall be maintained.
- 5.5 Not Used
- 5.6 Not Used
- 5.7 Not Used
- 5.8 <u>Procedures</u>
- 5.8.1 Written procedures and administrative policies shall be established, implemented and maintained covering the following activities:
  - a. The applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, 1978;
  - b. DELETED
  - c. Not Used
  - d. All applicable programs specified in Specifications 5.11, 5.16, and 5.20.

- 5.8 <u>Procedures</u> (continued)
- 5.8.2 Temporary changes to procedures of 5.8.1 above may be made provided:
  - a. The intent of the original procedure is not altered.
  - b. The change is approved by two members of the facility supervisory staff, at least one of whom is qualified as a CERTIFIED FUEL HANDLER.
  - c. The change is documented, reviewed by a qualified reviewer and approved by either the plant manager or the department head designated by Administrative Controls as the responsible department head for that procedure within 14 days of implementation.
- 5.8.3 Written procedures shall be implemented which govern the selection of fuel assemblies to be placed in Region 2 of the spent fuel racks (Technical Specification 2.8). These procedures shall require an independent verification of initial enrichment requirements and fuel burnup calculations for a fuel bundle to assure the "acceptance" criteria for placement in Region 2 are met. This independent verification shall be performed by individuals or groups other than those who performed the initial acceptance criteria assessment, but who may be from the same organization.

# 5.9 <u>Reporting Requirements</u>

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

- 5.9.1 Not Used
- 5.9.2 Not Used
- 5.9.3 DELETED

# 5.9.4 Unique Reporting Requirements

a. Annual Radioactive Effluent Release Report

The Annual Radioactive Effluent Release Report covering the station during the previous calendar year shall be submitted before May 1 of each year. The report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the unit. The material provided shall be 1) consistent with the objectives outlined in the ODCM and PCP, and 2) in conformance with 10 CFR 50.36a. and Section IV.B.1 of Appendix I to 10 CFR 50.

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- 5.9 <u>Reporting Requirements</u>
- 5.9.4 <u>Unique Reporting Requirements</u> (continued)
  - b. Annual Radiological Environmental Operating Report

The Annual Radiological Environmental Operating Report covering the station during the previous calendar year shall be submitted before May 1 of each year. The report shall include summaries, interpretations, and analysis of trends of the results of the Radiological Environmental Monitoring Program for the reporting period. The material provided shall be consistent with the objectives outlined in (1) the ODCM and (2) Section IV.B.2, IV.B.3, and IV.C of Appendix I to 10 CFR 50.

- c. Not Used
- 5.9.5 DELETED
- 5.9.6 DELETED
- 5.10 <u>Record Retention</u>
- 5.10.1 Records shall be retained as described in the Quality Assurance Program.
- 5.11 Radiation Protection Program

Procedures for personnel radiation protection shall be prepared consistent with the requirements of 10 CFR Part 20 and shall be approved, maintained and adhered to for all operations involving personnel radiation exposure.

- 5.11.1 In lieu of the "control device" required by paragraph 20.1601(a) of 10 CFR Part 20, and as an alternative method allowed under § 20.1601(c), each high radiation area (as defined in § 20.1601) in which the intensity of radiation is 1000 mrem/hr or less shall be barricaded and conspicuously posted as a high radiation area and entrance thereto shall be controlled by required issuance of a Radiation Work Permit.\* Any individual or group of individuals permitted to enter such areas shall be provided with or accompanied by one or more of the following:
  - a. A radiation monitoring device which continuously indicates the radiation dose rate in the area.
  - b. A radiation monitoring device which continuously integrates the radiation dose rate in the area and alarms when a preset integrated dose is received. Entry into such areas with this monitoring device may be made after the dose rate level in the area has been established and personnel have been made knowledgeable of them.

<sup>\*</sup>Radiation Protection personnel shall be exempt from the RWP issuance requirement during the performance of their assigned radiation protection duties, provided they comply with approved radiation protection procedures for entry into high radiation areas.

#### 5.11 Radiation Protection Program (continued)

- c. An individual qualified in radiation protection procedures who is equipped with a radiation dose rate monitoring device. This individual shall be responsible for providing positive control over the activities within the area and shall perform periodic radiation surveillance at the frequency specified by the Manager-Radiation Protection (MRP) in the Radiation Work Permit.
- 5.11.2 The requirements of 5.11.1, above, shall also apply to each high radiation area in which the intensity of radiation is greater than 1000 mrem/hr\*\* but less than 500 rads/hr\*\*\* (Locked High Radiation Area). In addition, locked doors shall be provided to prevent unauthorized entry into such areas and the keys shall be maintained under the administrative control of the Shift Manager on duty and/or the MRP (or designee) with the following exception:
  - a. In lieu of the above, for accessible localized Locked High Radiation Areas located in large areas such as containment, where no lockable enclosure exists in the immediate vicinity to control access to the Locked High Radiation Area and no such enclosure can be readily constructed, then the Locked High Radiation Area shall be:
    - i. roped off such that an individual at the rope boundary is exposed to 1000 mrem/hr or less,
    - ii conspicuously posted, and
    - iii a flashing light shall be activated as a warning device.

- 5.12 DELETED
- 5.13 DELETED
- 5.14 DELETED
- 5.15 DELETED

<sup>\*\*</sup>At 30 centimeters (12 inches) from the radiation source or from any surface penetrated by the radiation. \*\*\*At 1 meter from the radiation source or from any surface penetrated by the radiation.

#### 5.16 Radiological Effluents and Environmental Monitoring Programs

The following programs shall be established, implemented, and maintained.

#### 5.16.1 Radioactive Effluent Controls Program

A program shall be provided conforming with 10 CFR 50.36a for control of radioactive effluents and for maintaining the doses to individuals in UNRESTRICTED AREAs from radioactive effluents as low as reasonably achievable. The program (1) shall be contained in the ODCM, (2) shall be implemented by procedures, and (3) shall include remedial actions to be taken whenever the program limits are exceeded. The program shall include the following elements:

- a. Limitations on the functionality of radioactive liquid and gaseous radiation monitoring instrumentation including functionality tests and setpoint determination in accordance with the methodology in the ODCM.
- b. Limitations on the concentration of radioactive material, other than dissolved or entrained noble gases, released in liquid effluents to unrestricted areas conforming to ten times 10 CFR 20.1001-20.2401, Appendix B, Table 2, Column 2. For dissolved or entrained noble gases, the concentration shall be limited to 2.0 E-04 µCi/ml total activity.
- c. Monitoring, sampling, and analysis of radioactive liquid and gaseous effluents in accordance with 10 CFR 20.1302 and with the methodology and parameters in the ODCM.
- d. Limitations on the annual and quarterly doses or dose commitment to individuals in unrestricted areas from radioactive materials in liquid effluents released to unrestricted areas conforming to Appendix I to 10 CFR Part 50.
- e. Determination of cumulative doses from radioactive effluents for the current calendar quarter and current calendar year in accordance with the ODCM on a quarterly basis.
- f. Limitations on the functionality and use of the liquid and gaseous effluent treatment systems to ensure that the appropriate portions of these systems are used to reduce releases of radioactivity in plant effluents.
- g. Limitations on the concentration resulting from radioactive material, other than noble gases, released in gaseous effluents to unrestricted areas conforming to ten times 10 CFR 20.1001-20.2401, Appendix B, Table 2, Column 1. For noble gases. the concentration shall be limited to five times 10 CFR 20.1001-20.2401, Appendix B, Table 2, Column 1.

- 5.16 Radiological Effluents and Environmental Monitoring Programs
- 5.16.1 <u>Radioactive Effluent Controls Program</u> (continued)
  - h. Limitations on the annual and quarterly air doses resulting from noble gases released in gaseous effluents to unrestricted areas conforming to Appendix I to 10 CFR Part 50.
  - i. Limitations on the annual and quarterly doses to an individual beyond the site boundary from tritium, and all radionuclides in particulate form with half lives greater than 8 days in gaseous effluents released to unrestricted areas conforming to Appendix I to 10 CFR Part 50.
  - j. Limitations on the annual dose or dose commitment to an individual beyond the site boundary due to releases or radioactivity and to radiation from uranium fuel cycle sources conforming to 40 CFR Part 190.

#### 5.16.2 Radiological Environmental Monitoring Program

A program shall be provided to monitor the radiation and radionuclides in the environs of the plant. The program shall provide (1) representative measurements of radioactivity in the highest potential exposure pathways, and (2) verification of the accuracy of the effluent monitoring program and modeling of environmental exposure pathways. The program shall (1) be contained in the ODCM, (2) conform to the guidance of Appendix I to 10 CFR Part 50, and (3) include the following:

- a. Monitoring, sampling, analysis, and reporting of radiation and radionuclides in the environment in accordance with the methodology and parameters in the ODCM.
- b. A Land Use Census to ensure that changes in the use of areas at and beyond the site boundary are identified and that modifications to the monitoring program are made if required by the results of this census.
- c. Participation in an Interlaboratory Comparison Program to ensure that independent checks on the precision and accuracy of the measurements of radioactive materials in environmental sample matrices are performed as part of the quality assurance program for environmental monitoring.

#### 5.17 Offsite Dose Calculation Manual (ODCM)

Changes to the ODCM:

- a. Shall be documented and records of reviews performed shall be retained as required by the Quality Assurance Program. This documentation shall contain:
  - 1. Sufficient information to support the change together with the appropriate analyses or evaluations justifying the change(s) and
  - A determination that the change will maintain the level of radioactive effluent control required by 10 CFR 20.1302, 40 CFR Part 190, 10 CFR 50.36a, and Appendix I to 10 CFR Part 50 and not adversely impact the accuracy or reliability of effluent, dose, or setpoint calculations.
- b. Shall become effective after review and acceptance by the Plant Operations Review Committee and the approval of the plant manager.
- c. Temporary changes to the ODCM may be made in accordance with Technical Specification 5.8.2.
- d. Shall be submitted to the Nuclear Regulatory Commission in the form of a complete, legible copy of the entire ODCM as a part of or concurrent with the Annual Radioactive Effluent Release Report for the period of the report in which any change to the ODCM was made. Each change shall be identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed and shall indicate the date (e.g., month/year) the change was implemented.
- 5.18 DELETED
- 5.19 DELETED

#### 5.20 <u>Technical Specifications (TS) Bases Control Program</u>

This program provides a means for processing changes to the Bases of these Technical Specifications.

- a. Changes to the Bases of the TS shall be made under appropriate administrative controls and reviews.
- b. Licensees may make changes to Bases without prior NRC approval provided the changes do not require either of the following:
  - 1. A change in the TS incorporated in the license or
  - 2. A change to the FSAR, as updated or Bases that requires NRC approval pursuant to 10 CFR 50.59.
- c. The Bases Control Program shall contain provisions to ensure that the Bases are maintained consistent with the FSAR, as updated.
- d. Proposed changes that meet the criteria of 5.20.b above shall be reviewed and approved by the NRC prior to implementation. Changes to the Bases implemented without prior NRC approval shall be provided to the NRC on a frequency consistent with 10 CFR 50.71(e).
- 5.21 DELETED
- 5.22 DELETED
- 5.23 DELETED
- 5.24 DELETED
- 6.0 DELETED