

ATTACHMENT B

ZION NUCLEAR GENERATING STATION

**MARKED UP ANNOTATED COPY OF TECHNICAL SPECIFICATIONS
FACILITY OPERATING LICENSES
DPR-39 AND DPR-48
APPENDIX A TECHNICAL SPECIFICATIONS**

RHR REQUIREMENTS DURING CORE ALTERATION OPERATIONS

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LIMITING CONDITION FOR OPERATION

3.13.1.A (Continued)

3. The movement of an irradiated fuel assembly in the reactor core shall not begin until the reactor has been subcritical for a period of at least 100 hours.
4. A least one RHR pump and heat exchanger shall be in operation during core alteration operations, *except as allowed by 3.13.9.B.6.*
5. Direct communication between the control room and containment shall be OPERABLE.
6. A licensed fuel handling foreman or licensed senior reactor operator shall be present at the reactor cavity during any movement of fuel within the containment.

SURVEILLANCE REQUIREMENTS

4.13.1.A (Continued)

3. Not applicable.
4. The operation of at least one RHR pump and heat exchanger shall be verified once a shift, *except as a 1. 40 by 3.13.9.B.6.*
5. Communication between the control room and the containment shall be verified before any alteration of the reactor core begins.
6. Not applicable.

LIMITING CONDITION FOR OPERATION	SURVEILLANCE REQUIREMENTS
<p>3.13.1.A (Continued)</p> <ol style="list-style-type: none"> 3. The movement of an irradiated fuel assembly in the reactor core shall not begin until the reactor has been subcritical for a period of at least 100 hours. 4. At least one RHR pump and heat exchanger shall be in operation during core alterations operations, except as allowed by 3.13.9.B.b. 5. Direct communication between the control room and containment shall be OPERABLE. 6. A licensed fuel handling foreman or licensed senior reactor operator shall be present at the reactor cavity during any movement of fuel within the containment. 	<p>4.13.1.A (Continued)</p> <ol style="list-style-type: none"> 3. Not applicable. 4. The operation of at least one RHR pump and heat exchanger shall be verified once a shift, except as allowed by 3.13.9.B.b. 5. Communication between the control room and the containment shall be verified before any alteration of the reactor core begins. 6. Not applicable.

LIMITING CONDITION FOR OPERATION

3.13.9.B

- b. The residual heat removal loop may be removed from operation for up to one hour per an eight-hour period during the performance of CORE ALTERATIONS.

10. Water Level - Reactor Vessel

- A. At least 22 feet of water shall be maintained over the top of the reactor pressure vessel flange.

Applicability:

During movement of fuel assemblies or control rods* within the reactor pressure vessel while in MODE 6.

Action:

With the requirements of the above specification not satisfied, suspend all operations involving movement of fuel assemblies or control rods within the pressure vessel.

*Except during control rod latching operations wherein the water level shall be 22 feet above the seated fuel assemblies in the reactor core.

SURVEILLANCE REQUIREMENT

4.13.9.B

10. Water Level - Reactor Vessel

- A. The water level shall be determined to be at or above the minimum required depth within two hours prior to the start of fuel movements. At least once every 24 hours throughout movement of fuel assemblies or control rods, the required water depth shall be determined to be at or above the minimum depth.

*No change to page.
For reference only!*

LIMITING CONDITION FOR OPERATION

SURVEILLANCE REQUIREMENT

3.13.9.A.

ACTION: a. With less than the required RHR loops OPERABLE, immediately initiate corrective action to return the required RHR loops to OPERABLE status as soon as possible.

b. With no residual heat removal loop in operation, suspend all operations that would cause a decrease in decay heat removal capabilities or a reduction in boron concentration of the Reactor Coolant System. Close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within four hours.

B. At least one residual heat removal (RHR) loop shall be OPERATING.

APPLICABILITY: Mode 6 when the water level above the top of the reactor pressure vessel flange is greater than 22 ft.

ACTION: a. With no residual heat removal loop in operation, except as provided in b. below, suspend all operations that would cause a decrease in decay heat removal capabilities or a reduction in boron concentration of the Reactor Coolant System. Close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within four hours.

If RHR has been out of operation for greater than 1 hour, suspend core alterations, and

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4.13.9.A.

B. At least one Residual Heat Removal loop shall be verified to be OPERATING and circulating reactor coolant at least once per shift.

LIMITING CONDITION FOR OPERATION	SURVEILLANCE REQUIREMENT
<p>3.13.9.A.</p> <p><u>ACTION:</u> a. With less than the required RHR loops OPERABLE, immediately initiate corrective action to return the required RHR loops to OPERABLE status as soon as possible.</p> <p>b. With no residual heat removal loop in operation, suspend all operations that would cause a decrease in decay heat removal capabilities or a reduction in boron concentration of the Reactor Coolant System. Close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within four hours.</p> <p>B. At least one residual heat removal (RHR) loop shall be OPERATING.</p> <p><u>APPLICABILITY:</u> Mode 6 when the water level above the top of the reactor pressure vessel flange is greater than 22 ft.</p> <p><u>ACTION:</u> a. With no residual heat removal loop in operation, except as provided in b. below, suspend all operations that would cause a decrease in decay heat removal capabilities or a reduction in boron concentration of the Reactor Coolant System. If RHR has been out of operation for greater than 1 hour, suspend core alterations, and close all containment penetrations providing direct access from the containment atmosphere to the outside atmosphere within four hours.</p>	<p>4.13.9.A.</p> <p>B. At least one Residual Heat Removal loop shall be verified to be OPERATING and circulating reactor coolant at least once per shift.</p>

The restriction on shutdown margin insures adequate core protection that no inadvertent return to criticality could occur through control rod removal. (1)

Two source range neutron monitors continuously measuring neutron flux during fuel movements provides the operators with immediate redundant indication of an unsafe condition. Whenever changes are not being made in the core geometry, one flux monitor is sufficient. This permits maintenance on the instrumentation.

The fuel handling accident assumes that the first fuel assembly is moved 100 hours after initial reactor shutdown. (2)

Direct communication between the control room and the containment allows for immediate notification of any impending unsafe condition.

The presence of a licensed fuel handling foreman or senior reactor operator at the refueling cavity provides qualified supervision on the refueling operation during changes in core geometry.

The charcoal filters in the ventilation train from the fuel building insure that site boundary doses will be below 10 CFR 100 limits assuming all rods on a dropped fuel assembly break during a postulated fuel assembly break during a postulated fuel drop accident. (3) The containment, fuel building, and radiation monitoring requirements insure the capability to isolate these areas from the environment in the event of an activity release from the fuel.

The verification of fuel handling system interlocks prior to refueling operation provides assurance that an unsafe operating condition will not be approved. (1).

The fuel inspection program is intended to provide information on anomalous conditions of the fuel resulting from power operation. The results of the visual examinations and the tests for failed fuel will be reviewed as a basis for determining the requirements for further off-site destructive fuel examinations. FSAR Section 3.2.3.5 provides further discussion of the fuel inspection program.

The requirement that at least one residual heat removal (RHR) loop be in operation ensures that (a) sufficient cooling capacity is available to remove decay heat and maintain the water in the reactor pressure vessel below 140°F as required during the REFUELING MODE, and (b) sufficient coolant circulation is maintained through the reactor core to minimize the effect of a boron dilution incident and prevent boron stratification. *The RHR loop may be taken out of operation for up to one hour in an eight hour period.* The requirement to have two RHR loops OPERABLE when there is less than 22 feet of water above the flange ensures that a single failure of the operating RHR loop will not result in a complete loss of residual heat removal capability. With the reactor vessel head removed and 22 feet of water above the flange a large heat sink is available for core cooling. Thus, in the event of a failure of the operating RHR loop, adequate time is provided to initiate emergency procedures to cool the core.

A minimum water level of 22 feet over irradiated assemblies ensures that sufficient water depth is available to remove 99% of the assumed 10% iodine gap activity released from the rupture of an irradiated fuel assembly. A 23 feet depth over fuel in the Spent Fuel Pool corresponds to 22 feet of water over the pressure vessel flange. The control rod latching operations are conducted with at least the minimum water level over seated assemblies.

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- (1) FSAR, Section 9.7.2
 - (2) FSAR, Section 14.2.1.2
 - (3) FSAR, Section 14.2.1.5

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Two source range neutron monitors continuously measuring neutron flux during fuel movements provides the operators with immediate redundant indication of an unsafe condition. Whenever changes are not being made in the core geometry, one flux monitor is sufficient. This permits maintenance on the instrumentation.

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The requirement that at least one residual heat removal (RHR) loop be in operation ensures that (a) sufficient cooling capacity is available to remove decay heat and maintain the water in the reactor pressure vessel below 140°F as required during the REFUELING MODE, and (b) sufficient coolant circulation is maintained through the reactor core to minimize the effect of a boron dilution incident and prevent boron stratification. The RHR loop may be taken out of operation for up to one hour in an eight hour period.

The requirement to have two RHR loops OPERABLE when there is less than 22 feet of water above the flange ensures that a single failure of the operating RHR loop will not result in a complete loss of residual heat removal capability. With the reactor vessel head removed and 22 feet of water above the flange a large heat sink is available for core cooling. Thus, in the event of a failure of the operating RHR loop, adequate time is provided to initiate emergency procedures to cool the core.

A minimum water level of 22 feet over irradiated assemblies ensures that sufficient water depth is available to remove 99% of the assumed 10% iodine gas activity released from the rupture of an irradiated fuel assembly. A 23 feet depth over fuel in the Spent Fuel Pool corresponds to 22 feet of water over the pressure vessel flange. The control rod latching operations are conducted with at least the minimum water level over seated assemblies.

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- (1) FSAR, Section 9.7.2
 - (2) FSAR, Section 14.2.1.2
 - (3) FSAR, Section 14.2.1.5

ATTACHMENT C

ZION NUCLEAR GENERATING STATION

**EVALUATION OF SIGNIFICANT HAZARD CONSIDERATIONS
FOR PROPOSED CHANGES TO
FACILITY OPERATING LICENSES
DPR-39 AND DPR-48**

APPENDIX A TECHNICAL SPECIFICATIONS

RHR REQUIREMENTS DURING CORE ALTERATION OPERATIONS

Commonwealth Edison has evaluated this proposed license amendment and determined that it involves no significant hazard considerations. According to 10 CFR 50.92(c), a proposed amendment to an operating license involves no significant hazard considerations if operation of the facility in accordance with the proposed amendment would not:

1. Involve a significant increase in the probability of occurrence or consequences of an accident previously evaluated;
2. Create the possibility of a new or different kind of accident from any previously analyzed; or,
3. Involve a significant reduction in the margin of safety.

This determination has been performed as indicated below:

1. The proposed changes do not involve a significant increase in the probability or consequences of occurrence of any accident previously evaluated.

The ability to remove an RHR loop from operation for up to one hour per eight-hour period is currently allowed by technical specification 3.13.9.B.b. By adding a reference to LCO 3.13.1.A.4. and adding the requirement to suspend CORE ALTERATIONS to Action 3.13.9.B.a. to be consistent with 3.13.9.B.b, no change in operating practices or plant configuration is made. By maintaining the requirement to have an RHR loop in operation during MODE 6, and by requiring CORE ALTERATIONS to be suspended if an RHR loop is not back in operation after one hour, adequate corrective actions are implemented until the RHR loop is restored to operating status. Therefore, operation of the system is consistent with current technical specifications and this change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. The proposed changes do not create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed changes do not require a physical alteration of the plant (no new or different equipment will be installed to implement this change). The Technical Specifications will continue to require an RHR loop to be in operation during MODE 6, and will only permit the loop to be not in operation for up to one hour in an eight-hour period. The Technical Specifications will continue to require compliance with these limitations and suspension of CORE ALTERATIONS if an RHR loop is not in operation for more than one hour. Thus, this change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. The proposed changes do not involve a significant reduction in a margin of safety.

The proposed changes do not result in a significant reduction in a margin of safety because it has no impact on any safety analysis assumptions. The requirement to have an RHR loop in operation during MODE 6 is maintained, along with the ability to remove RHR from operation for up to one hour per eight-hour period. If an RHR loop is not in service beyond 1 hour per TS 3.13.9.B, CORE ALTERATIONS will be suspended. Therefore, this change does not involve a significant reduction in a margin of safety.

ATTACHMENT D

ZION NUCLEAR GENERATING STATION

**ENVIRONMENTAL ASSESSMENT STATEMENT
FOR PROPOSED CHANGES TO FACILITY OPERATING LICENSES
DPR-39 AND DPR-48
APPENDIX A TECHNICAL SPECIFICATIONS**

RHR REQUIREMENTS DURING CORE ALTERATION OPERATIONS

The proposed changes of this license amendment request have been evaluated against the criteria for and identification of licensing and regulatory actions requiring environmental assessment in accordance with 10 CFR 51.21. It has been determined that the proposed changes meet the criteria for categorical exclusion as provided for under 10 CFR 51.22(c)(9). The following is a discussion of how the proposed changes meet the criteria for categorical exclusion.

10 CFR 51.22(c)(9): Although the proposed changes involve changes to requirements with respect to the installation or use of facility components or to an inspection or Surveillance Requirements:

- (i) The proposed changes involve no significant hazards considerations (refer to Attachment C of this license amendment request);
- (ii) There is no significant change in the types or a significant increase in the amounts of any effluent that may be released offsite, since the proposed changes do not affect the generation of any radioactive effluent nor do they affect any of the permitted release paths; and
- (iii) There is no significant increase in individual or cumulative occupational radiation exposure. The actions proposed in this request for an amendment do not significantly affect plant radiation levels, and therefore do not significantly affect dose rates and occupational exposure.

Accordingly, the proposed changes meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Based on the aforementioned and pursuant to 10 CFR 51.22(b), no environmental assessment or environmental impact statement need be prepared in connection with issuance of a license amendment incorporating the proposed change.