

ENCLOSURE 4

BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2
NRC DOCKET NOS. 50-325 & 50-324
OPERATING LICENSE NOS. DPR-71 & DPR-62
REQUEST FOR LICENSE AMENDMENT
CORE ALTERATIONS

PAGE CHANGE INSTRUCTIONS

UNIT 1

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3/4 9-5	3/4 9-5
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UNIT 2

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ENCLOSURE 5

BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2
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OPERATING LICENSE NOS. DPR-71 & DPR-62
REQUEST FOR LICENSE AMENDMENT
CORE ALTERATIONS

TECHNICAL SPECIFICATION PAGES - UNIT 1

In addition, control rod movement with other than the normal control rod drive is not considered a CORE ALTERATION provided there are no fuel assemblies in the associated core cell. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.

DEFINITIONS

CHANNEL FUNCTIONAL TEST (Continued)

- b. Bistable channels - the injection of a simulated signal into the channel sensor to verify OPERABILITY including alarm and/or trip functions.

CORE ALTERATION

*Components, or other components
affecting reactivity within*

CORE ALTERATION shall be the ~~addition, removal, relocation, or movement of any fuel, sources, ~~neutron instruments, or reactivity control~~ in the reactor ~~core~~ vessel~~ with the vessel head removed and fuel in the vessel. ~~Suspension of CORE ALTERATIONS shall not preclude completion of the movement of a component to a safe, conservative location position.~~

Movement of source range monitors, local power range monitors, intermediate range monitors, traversing in-core probe monitors, or special moveable detectors (including undervessel replacement) is not considered a CORE ALTERATION.

CORE OPERATING LIMITS REPORT

The CORE OPERATING LIMITS REPORT is the unit-specific document that provides core operating limits for the current reload cycle. These cycle-specific core operating limits shall be determined for each reload cycle in accordance with Specifications 6.9.3.1, 6.9.3.2, 6.9.3.3, and 6.9.3.4. Plant operation within these core operating limits is addressed in individual specifications.

CRITICAL POWER RATIO

The CRITICAL POWER RATIO (CPR) shall be the ratio of that power in an assembly which is calculated, by application of an NRC approved CPR correlation, to cause some point in the assembly to experience boiling transition, divided by the actual assembly operating power.

DOSE EQUIVALENT I-131

DOSE EQUIVALENT I-131 shall be concentration of I-131, $\mu\text{Ci}/\text{gram}$, which alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The following is defined equivalent to 1 μCi of I-131 as determined from Table III of TID-14844, "Calculation of Distance Factors for Power and Test Reactor Sites": I-132, 28 μCi ; I-133, 3.7 μCi ; I-134, 59 μCi ; I-135, 12 μCi .

\bar{E} - AVERAGE DISINTEGRATION ENERGY

\bar{E} shall be the average, weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling, of the sum of the average beta and gamma energies per disintegration (in MeV) for isotopes with half lives greater than 15 minutes making up at least 95% of the total non-iodine activity in the coolant.

REFUELING OPERATIONS

3/4.9.3 CONTROL ROD POSITION

LIMITING CONDITION FOR OPERATION

3.9.3 All control rods shall be fully inserted*.

APPLICABILITY: CONDITION 5, during ~~CORE ALTERATIONS**~~, loading of fuel assemblies into the core**.

ACTION:

With all control rods not fully inserted, immediately ~~deenergize the control rod scram solenoid valves~~. The provisions of Specification 3.0.3 are not applicable.

suspend loading of fuel assemblies into the core.

SURVEILLANCE REQUIREMENTS

4.9.3 Verify all control rods to be fully inserted within 2 hours prior to the start of and at least once per 12 hours during ~~CORE ALTERATIONS~~, loading of fuel assemblies into the core.

*Except control rods removed per Specification 3.9.10.1 or 3.9.10.2.

**See Special Test Exception 3.10.3.

3/4.9 REFUELING OPERATIONS

BASES

3/4.9.1 REACTOR MODE SWITCH

Locking the reactor mode switch in the refuel position ensures that the restrictions on rod withdrawal and refueling platform movement during the refueling operations are properly activated. These conditions reinforce the refueling procedures and reduce the probability of inadvertent criticality, damage to reactor internals, fuel assemblies and exposure of personnel to excessive radioactivity.

3/4.9.2 INSTRUMENTATION

The OPERABILITY of the source range monitors ensures that redundant monitoring capability is available to detect changes in the reactivity condition of the core.

During a SPIRAL UNLOAD, the count rate of the SRM will decrease below 3 cps before all of the fuel is unloaded. The count rate of 3 cps is not necessary since there will be no reactivity additions during the spiral unload. The SRMs will be required to be OPERABLE prior to the SPIRAL UNLOAD, and each SRM will be verified operational by raising the count rate to 3 cps prior to the SPIRAL RELOAD by inserting up to four fuel assemblies around each SRM. This will ensure that the SRMs can be relied upon to monitor core reactivity during the reload.

3/4.9.3 CONTROL ROD POSITION

*loading of fuel assemblies
into the core*

The requirement that all control rods be inserted during ~~CORE ALTERATIONS~~ ensures that fuel will not be loaded into a cell without a control rod and prevents two positive reactivity changes from occurring simultaneously.

3/4.9.4 DECAY TIME

The minimum requirement for reactor subcriticality prior to fuel movement ensures that sufficient time has elapsed to allow the radioactive decay of the short lived fission products. This decay time is consistent with the assumptions used in the accident analyses.

3/4.9.5 COMMUNICATIONS

The requirement for communications capability ensures that refueling station personnel can be promptly informed of significant changes in the facility status or core reactivity condition during movement of fuel within the reactor pressure vessel.

ENCLOSURE 6

BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2
NRC DOCKET NOS. 50-325 & 50-324
OPERATING LICENSE NOS. DPR-71 & DPR-62
REQUEST FOR LICENSE AMENDMENT
CORE ALTERATIONS

TECHNICAL SPECIFICATION PAGES - UNIT 2

DEFINITIONS

CHANNEL FUNCTIONAL TEST (Continued)

- b. Bistable channels - the injection of a simulated signal into the channel sensor to verify OPERABILITY including alarm and/or trip functions.

CORE ALTERATION

components, or other components affecting reactivity within
CORE ALTERATION shall be the ~~addition, removal, relocation, or movement of any~~ fuel, sources, ~~in-core instruments, or reactivity controls~~ in the reactor core vessel with the vessel head removed and fuel in the vessel. ~~Suspension of CORE ALTERATIONS shall not preclude completion of the movement of a component to a safe, conservative location position.~~

CORE OPERATING LIMITS REPORT

The CORE OPERATING LIMITS REPORT is the unit-specific document that provides core operating limits for the current reload cycle. These cycle-specific core operating limits shall be determined for each reload cycle in accordance with Specifications 6.9.3.1, 6.9.3.2, 6.9.3.3, and 6.9.3.4. Plant operation within these core operating limits is addressed in individual specifications.

CRITICAL POWER RATIO

The CRITICAL POWER RATIO (CPR) shall be the ratio of that power in an assembly which is calculated, by application of an NRC approved CPR correlation, to cause some point in the assembly to experience boiling transition, divided by the actual assembly operating power.

DOSE EQUIVALENT I-131

DOSE EQUIVALENT I-131 shall be concentration of I-131, $\mu\text{Ci}/\text{gram}$, which alone would produce the same thyroid dose as the quantity and isotopic mixture of I-131, I-132, I-133, I-134, and I-135 actually present. The following is defined equivalent to 1 μCi of I-131 as determined from Table III of TID-14844, "Calculation of Distance Factors for Power and Test Reactor Sites": I-132, 28 μCi ; I-133, 3.7 μCi ; I-134, 59 μCi ; I-135, 12 μCi .

\bar{E} - AVERAGE DISINTEGRATION ENERGY

\bar{E} shall be the average, weighted in proportion to the concentration of each radionuclide in the reactor coolant at the time of sampling, of the sum of the average beta and gamma energies per disintegration (in MeV) for isotopes with half lives greater than 15 minutes making up at least 95% of the total non-iodine activity in the coolant.

Movement of source range monitors, local power range monitors, intermediate range monitors, traversing in-core probe monitors, or special moveable detectors (including undervessel replacement) is not considered a CORE ALTERATION.

In addition, control rod movement with other than the normal control rod drive is not considered a CORE ALTERATION provided there are no fuel assemblies in the associated core cell. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.

REFUELING OPERATIONS

3/4.9.3 CONTROL ROD POSITION

LIMITING CONDITION FOR OPERATION

3.9.3 All control rods shall be fully inserted*.

APPLICABILITY: CONDITION 5, during ~~CORE ALTERATIONS**~~, loading of fuel assemblies into the core **.

ACTION:

With all control rods not fully inserted, immediately ~~deenergize the control rod scram solenoid valves~~. The provisions of Specification 3.0.3 are not applicable.

suspend loading of fuel assemblies into the core?

SURVEILLANCE REQUIREMENTS

4.9.3 Verify all control rods to be fully inserted within 2 hours prior to the start of and at least once per 12 hours during ~~CORE ALTERATIONS~~, loading of fuel assemblies into the core.

*Except control rods removed per Specification 3.9.10.1 or 3.9.1.2.

**See Special Test Exception 3.10.3.

3/4.9 REFUELING OPERATIONS

BASES

3/4.9.1 REACTOR MODE SWITCH

Locking the reactor mode switch in the refuel position ensures that the restrictions on rod withdrawal and refueling platform movement during the refueling operations are properly activated. These conditions reinforce the refueling procedures and reduce the probability of inadvertent criticality, damage to reactor internals, fuel assemblies and exposure of personnel to excessive radioactivity.

3/4.9.2 INSTRUMENTATION

The OPERABILITY of the source range monitors ensures that redundant monitoring capability is available to detect changes in the reactivity condition of the core.

During a SPIRAL UNLOAD, the count rate of the SRM will decrease below 3 cps before all of the fuel is unloaded. The count rate of 3 cps is not necessary since there will be no reactivity additions during the spiral unload. The SRMs will be required to be OPERABLE prior to the SPIRAL UNLOAD, and each SRM will be verified operational by raising the count rate to 3 cps prior to the SPIRAL RELOAD by inserting up to four fuel assemblies around each SRM. This will ensure that the SRMs can be relied upon to monitor core reactivity during the reload.

3/4.9.3 CONTROL ROD POSITION

The requirement that all control rods be inserted during ~~CORE ALTERATIONS~~ ensures that fuel will not be loaded into a cell without a control rod and prevents two positive reactivity changes from occurring simultaneously.

*loading of fuel assemblies
into the core*

3/4.9.4 DECAY TIME

The minimum requirement for reactor subcriticality prior to fuel movement ensures that sufficient time has elapsed to allow the radioactive decay of the short lived fission products. This decay time is consistent with the assumptions used in the accident analyses.

3/4.9.5 COMMUNICATIONS

The requirement for communications capability ensures that refueling station personnel can be promptly informed of significant changes in the facility status or core reactivity condition during movement of fuel within the reactor pressure vessel.

ENCLOSURE 7

BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2
NRC DOCKET NOS. 50-325 & 50-324
OPERATING LICENSE NOS. DPR-71 & DPR-62
REQUEST FOR LICENSE AMENDMENT
CORE ALTERATIONS

TYPED TECHNICAL SPECIFICATION PAGES - UNIT 1

DEFINITIONS

CHANNEL FUNCTIONAL TEST (Continued)

- b. Bistable channels - the injection of a simulated signal into the channel sensor to verify OPERABILITY including alarm and/or trip functions.

CORE ALTERATION

CORE ALTERATION shall be the movement of any fuel, sources, reactivity control components, or other components affecting reactivity within the reactor vessel with the vessel head removed and fuel in the vessel.

Movement of source range monitors, local power range monitors, intermediate range monitors, traversing in-core probes, or special moveable detectors (including undervessel replacement) is not considered a CORE ALTERATION.

In addition, control rod movement with other than the normal control rod drive is not considered a CORE ALTERATION provided there are no fuel assemblies in the associated core cell. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.

CORE OPERATING LIMITS REPORT

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REFUELING OPERATIONS

3/4.9.3 CONTROL ROD POSITION

LIMITING CONDITION FOR OPERATION

3.9.3 All control rods shall be fully inserted*.

APPLICABILITY: CONDITION 5, during loading of fuel assemblies into the core**.

ACTION:

With all control rods not fully inserted, immediately suspend loading of fuel assemblies into the core. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.9.3 Verify all control rods to be fully inserted within 2 hours prior to the start of and at least once per 12 hours during loading of fuel assemblies into the core.

*Except control rods removed per Specification 3.9.10.1 or 3.9.1.2.

**See Special Test Exception 3.10.3.

3/4.9 REFUELING OPERATIONS

BASES

3/4.9.1 REACTOR MODE SWITCH

Locking the reactor mode switch in the refuel position ensures that the restrictions on rod withdrawal and refueling platform movement during the refueling operations are properly activated. These conditions reinforce the refueling procedures and reduce the probability of inadvertent criticality, damage to reactor internals, fuel assemblies and exposure of personnel to excessive radioactivity.

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3/4.9.3 CONTROL ROD POSITION

The requirement that all control rods be inserted during loading of fuel assemblies into the core ensures that fuel will not be loaded into a cell without a control rod and prevents two positive reactivity changes from occurring simultaneously.

3/4.9.4 DECAY TIME

The minimum requirement for reactor subcriticality prior to fuel movement ensures that sufficient time has elapsed to allow the radioactive decay of the short lived fission products. This decay time is consistent with the assumptions used in the accident analyses.

3/4.9.5 COMMUNICATIONS

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ENCLOSURE 8

BRUNSWICK STEAM ELECTRIC PLANT, UNITS 1 AND 2
NRC DOCKET NOS. 50-325 & 50-324
OPERATING LICENSE NOS. DPR-71 & DPR-62
REQUEST FOR LICENSE AMENDMENT
CORE ALTERATIONS

TYPED TECHNICAL SPECIFICATION PAGES - UNIT 2

DEFINITIONS

CHANNEL FUNCTIONAL TEST (Continued)

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CORE ALTERATION

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REFUELING OPERATIONS

3/4.9.3 CONTROL ROD POSITION

LIMITING CONDITION FOR OPERATION

3.9.3 All control rods shall be fully inserted*.

APPLICABILITY: CONDITION 5, during loading of fuel assemblies into the core**.

ACTION:

With all control rods not fully inserted, immediately suspend loading of fuel assemblies into the core. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

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**See Special Test Exception 3.10.3.

3/4.9 REFUELING OPERATIONS

BASES

3/4.9.1 REACTOR MODE SWITCH

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3/4.9.3 CONTROL ROD POSITION

The requirement that all control rods be inserted during loading of fuel assemblies into the core ensures that fuel will not be loaded into a cell without a control rod and prevents two positive reactivity changes from occurring simultaneously.

3/4.9.4 DECAY TIME

The minimum requirement for reactor subcriticality prior to fuel movement ensures that sufficient time has elapsed to allow the radioactive decay of the short lived fission products. This decay time is consistent with the assumptions used in the accident analyses.

3/4.9.5 COMMUNICATIONS

The requirement for communications capability ensures that refueling station personnel can be promptly informed of significant changes in the facility status or core reactivity condition during movement of fuel within the reactor pressure vessel.