Exhibit B

Prairie Island Nuclear Generating Plant

License Amendment Request Dated July 13, 1992

Proposed Changes Marked Up
On Existing Technical Specification Pages

Exhibit B consists of existing and new Technical Specification pages with the proposed changes highlighted on those pages. The existing pages affected by this License Amendment Request are listed below:

TS.3.8-1
TS.3.8-2
TS.3.8-3
Table TS.4.1-2A
B.3.8-1
B.3.8-2
B.3.8-3

3.8 REFUELING AND FUEL HANDLING

Applicability

Applies to operating limitations associated with fuel-handling operations, CORE ALTERATIONS, and crane operations in the spent fuel pool enclosure.

Objectives

To ensure that no incident could occur during fuel handling, CORE ALTERATIONS and crane operations that would affect public health and safety.

Specification

A. Core Alterations

1. During CORE ALTERATIONS the following conditions shall be satisfied (except as specified in 3.8.A.2 and 3 below):

a. ~~The equipment hatch and at least one door in each personnel air lock shall be closed. In addition, at least one isolation valve shall be OPERABLE or locked closed in each line which penetrates the containment and provides a direct path from containment atmosphere to the outside.~~

The containment building penetrations shall be in the following status:

1. The equipment hatch closed and held in place by a minimum of four bolts,

2. A minimum of one door in each airlock is closed, and

3. Each penetration providing direct access from the containment atmosphere to the outside atmosphere shall be either:

a) Closed by an isolation valve, blind flange or manual valve, or

b) Be capable of being closed by an OPERABLE automatic containment purge or inservice purge isolation valve.

4. If the Auxiliary Building Special Ventilation System is inoperable, each penetration providing direct access from the containment atmosphere to the Auxiliary Building Special Ventilation Zone shall be closed by an isolation valve, blind flange or manual valve.

5. If the Shield Building Ventilation System is inoperable, each penetration providing direct access from the containment atmosphere to the shield building annulus shall be closed by an isolation valve, blind flange or manual valve.

b. Radiation levels in the fuel h[illegible]ing areas of the containment shall be monitored continuously.

c. The core subcritical neutron flux shall be continuously monitored by at least two neutron monitors, each with continuous visual indication in the control room and one with audible indication in the containment, which are in service whenever core geometry is being changed. When core geometry is not being changed, at least one neutron flux monitor shall be in service.

d. The plant shall be in the REFUELING condition.

3.8.A.1.e. During movement of fuel assemblies or control rods out of the reactor vessel, at least 23 feet of water shall be maintained above the reactor vessel flange. The required water level shall be verified prior to moving fuel assemblies or control rods and at least once every day while the cavity is flooded.

~~3.8.A.1.~~f. At least one residual heat removal pump shall be OPERABLE and running. The pump may be shut down for up to one hour to facilitate movement of fuel or core components.

g. If the water level above the top of the reactor vessel flange is less than 20 feet, except for control rod unlatching/latching operations or upper internals removal/replacement, both residual heat removal loops shall be OPERABLE.

h. Direct communication between the control room and the operating floor of the containment shall be available whenever CORE ALTERATIONS are taking place.

i. No movement of irradiated fuel in the reactor shall be made until the reactor has been subcritical for at least 100 hours.

j. The radiation monitors which initiate isolation of the Containment Purge System shall be tested and verified to be OPERABLE prior to CORE ALTERATIONS.

k. The manipulator crane shall be OPERABLE for the movement of fuel assemblies.

2. If any of the above conditions are not met, CORE ALTERATIONS shall cease. Work shall be initiated to correct the violated conditions so that the specifications are met, and no operations which may increase the reactivity of the core shall be performed.

3. If Specification 3.8.A.1.f or 3.8.A.1.g cannot be satisfied, all fuel handling operations in containment shall be suspended, the requirements of Specification 3.8.A.1.a shall be satisfied, and no reduction in reactor coolant boron concentration shall be made.

3.8.B. <u>Fuel Handling Operations</u>

1. During fuel handling operations in spent fuel pool area the following conditions shall be satisfied:

   a. Radiation levels in the spent fuel storage pool area shall be monitored continuously during fuel handling operations.

   b. ~~Prior to fuel handling operations, fuel handling cranes shall be load-tested for OPERABILITY of limit switches, interlocks and alarms.~~ The spent fuel pool fuel handling crane shall be OPERABLE for the movement of fuel assemblies.

   c. A minimum boron concentration of 1800 ppm shall be maintained in the spent fuel pool whenever a spent fuel cask containing fuel is located in the spent fuel pool.

2. If any of the conditions in 3.8.B.1, above, cannot be met, suspend all fuel handling operations in the spent fuel pool area and initiate the actions necessary to re-establish compliance with the requirements of 3.8.B.1.

MINIMUM FREQUENCIES FOR EQUIPMENT TESTS

		Test	Frequency
1.	Control Rod Assemblies	Rod drop times of full length rods	All rods during each refueling shutdown or following each removal of the reactor vessel head; affected rods following maintenance on or modification to the control rod drive system which could affect performance of those specific rods
2.	Control Rod Assemblies	Partial movement of all rods	Every 2 weeks
3.	Pressurizer Safety Valves	Set point	Per ASME Code, Section XI Inservice Testing Program
4.	Main Steam Safety Valves	Set point	Per ASME Code, Section XI Inservice Testing Program
5.	Reactor Cavity	Water level	Prior to moving fuel assemblies or control rods and at least once every day while the cavity is flooded.
6.	Pressurizer PORV Block Valves	Functional	Quarterly
7.	Pressurizer PORVs	Functional	Every 18 months
8.	Deleted		
9.	Primary System Leakage	Evaluate	Daily
10.	Deleted		
11.	Turbine stop valves, governor valves, and intercept valves. (Part of turbine overspeed protection.)	Functional	See (1)
~~12.~~	~~Deleted~~		

(1) Turbine stop valves, governor valves and intercept valves are to be tested at a frequency consistent with the methodology presented in WCAP-11525 "Probabilistic Evaluation of Reduction in Turbine Valve test Frequency", and in accordance with the established NRC acceptance criteria for the probability of a turbine missile ejection incident of 1.0×10^{-5} per year. In no case shall the turbine valve test interval exceed one year.

MINIMUM FREQUENCIES FOR EQUIPMENT TESTS

	Test	Frequency
12. Manipulator Crane	Load test for OPERABILITY of limit switches, interlocks and alarms	Once during each refueling outage prior to the start of CORE ALTERATIONS.
13. Spent Fuel Pool Fuel Handling Crane	Load test for OPERABILITY of limit switches, interlocks and alarms	Prior to fuel handling operations if not tested in the previous 3 months.

3.8 REFUELING AND FUEL HANDLING

Bases

The equipment and general procedures to be utilized during refueling are discussed in the FUSAR. Detailed instructions, the precautions specified above, and the design of the fuel handling equipment incorporating built-in interlocks and safety features, provide assurance that no incident could occur during CORE ALTERATIONS that would result in a hazard to public health and safety (Reference 1).

The requirements for containment penetration closure ensure that a release of fission-product radioactivity within containment due to a fuel-handling accident will be restricted from escaping directly to the environment. Closure restrictions are only required for containment penetrations that provide direct unfiltered access from containment atmosphere to outside atmosphere.

There are no closure restrictions during CORE ALTERATIONS on containment penetrations that provide access from the containment atmosphere into areas protected by OPERABLE automatic safeguards ventilation systems which actuate on high radiation and filter all releases to the environment through particulate-absolute-charcoal filters. No closure restrictions are necessary for those penetrations because any radiological releases to those areas following a fuel handling accident in containment would be released to the environment via a particulate-absolute-charcoal filtration system. The particulate-absolute-charcoal filtration of the fission-product radioactivity released during a design basis fuel handling accident in containment would maintain off-site radiation exposures well within the requirements of 10 CFR Part 100.

For penetrations to be open into the Shield Building Annulus during CORE ALTERATIONS, the Shield Building Ventilation System shall be OPERABLE and for penetrations to be open into the Auxiliary Building Special Ventilation Zone during CORE ALTERATIONS, the Auxiliary Building Special Ventilation System shall be OPERABLE.

Whenever changes are not being made in core geometry, one flux monitor is sufficient. This permits maintenance of the instrumentation. Continuous monitoring of radiation levels and neutron flux provides immediate indication of an unsafe condition. The residual heat removal pump is used to maintain a uniform boron concentration.

Under rodded and unrodded conditions, the K_{eff} of the reactor must be less than or equal to 0.95 and the boron concentration must be greater than or equal to 2000 ppm. Periodic checks of refueling water boron concentration insure that proper shutdown margin is maintained. 3.8.A.1.h allows the control room operator to inform the manipulator operator of any impending unsafe condition detected from the main control board indicators during fuel movement.

No movement of fuel in the reactor is permitted until the reactor has been subcritical for at least 100 hours to permit decay of the fission products in the fuel. The delay time is consistent with the fuel handling accident analysis (Reference 2).

3.8 <u>REFUELING AND FUEL HANDLING</u>

<u>Bases</u> continued

Fuel will not be inserted into a spent fuel cask unless a minimum boron concentration of 1800 ppm is present. The 1800 ppm will ensure that k_{eff} for the spent fuel cask, including statistical uncertainties, will be less than or equal to 0.95 for all postulated arrangements of fuel within the cask.

The number of recently discharged assemblies in Pool No. 1 has been limited to 45 to provide assurance that in the event of loss of pool cooling capability, at least eight hours are available under worst case conditions to make repairs until the onset of boiling.

The Spent Fuel Pool Special Ventilation System (Reference 3) is a safeguards system which maintains a negative pressure in the spent fuel enclosure upon detection of high area radiation. The Spent Fuel Pool Normal Ventilation System is automatically isolated and exhaust air is drawn through filter modules containing a roughing filter, particulate filter, and a charcoal filter before discharge to the environment via one of the Shield Building exhaust stacks. Two completely redundant trains are provided. The exhaust fan and filter of each train are shared with the corresponding train of the Containment In-service Purge System. High efficiency particulate absolute (HEPA) filters are installed before the charcoal adsorbers to prevent clogging of the iodine adsorbers in each SFPSVS filter train. The charcoal adsorbers are installed to reduce the potential release of radioiodine to the environment.

During movement of irradiated fuel assemblies or control rods, a water level of 23 feet is maintained to provide sufficient shielding.

The water level may be lowered to the top of the RCCA drive shafts for latching and unlatching. The water level may also be lowered below 20 feet for upper internals removal/replacement. The basis for these allowance(s) are (1) the refueling cavity pool has sufficient level to allow time to initiate repairs or emergency procedures to cool the core, (2) during latching/unlatching and upper internals removal/replacement the level is closely monitored because the activity uses this level as a reference point, (3) the time spent at this level is minimal.

The requirements for the storage of low burnup fuel in the spent fuel pool ensure that the spent fuel pool will remain subcritical during fuel storage. Fuel stored in the spent fuel pool will be limited to a maximum enrichment of 4.25 weight percent U-235. It has been shown by criticality analysis that the use of the three out of four storage configuration will assure that the K_{eff} will remain less than 0.95, including uncertainties, when fuel with a maximum enrichment of 4.25 weight percent U-235 and average assembly burnup of less than 5,000 MWD/MTU is stored in the spent fuel pool.

3.8 REFUELING AND FUEL HANDLING

Bases continued

The requirement for maintaining the spent fuel pool boron concentration greater than 500 ppm whenever fuel with average assembly burnup of less than 5,000 MWD/MTU is stored in the spent fuel pool ensures that K_{eff} for the spent fuel pool will remain less than 0.95, including uncertainties, even if a fuel assembly is inadvertently inserted in the empty cell of the three out of four storage configuration.

References

1. USAR, Section 10.2.1.2
2. USAR, Section 14.5.1
3. USAR, Section 10.3.7

Exhibit C

Prairie Island Nuclear Generating Plant

License Amendment Request Dated July 13, 1992

Revised Technical Specification Pages

Exhibit C consists of revised and new pages for the Prairie Island Nuclear Generating Plant Technical Specification with the proposed changes incorporated. The revised and new pages are listed below:

TS.3.8-1
TS.3.8-2
TS.3.8-3
Table TS.4.1-2A (Page 1 of 2)
Table TS.4.1-2A (Page 2 of 2)
B.3.8-1
B.3.8-2
B.3.8-3

3.8 REFUELING AND FUEL HANDLING

Applicability

Applies to operating limitations associated with fuel-handling operations, CORE ALTERATIONS, and crane operations in the spent fuel pool enclosure.

Objectives

To ensure that no incident could occur during fuel handling, CORE ALTERATIONS and crane operations that would affect public health and safety.

Specification

A. Core Alterations

1. During CORE ALTERATIONS the following conditions shall be satisfied (except as specified in 3.8.A.2 and 3 below):

    a. The containment building penetrations shall be in the following status:

        1. The equipment hatch closed and held in place by a minimum of four bolts,

        2. A minimum of one door in each airlock is closed, and

        3. Each penetration providing direct access from the containment atmosphere to the outside atmosphere shall be either:

            a) Closed by an isolation valve, blind flange or manual valve, or

            b) Be capable of being closed by an OPERABLE automatic containment purge or inservice purge isolation valve.

        4. If the Auxiliary Building Special Ventilation System is inoperable, each penetration providing direct access from the containment atmosphere to the Auxiliary Building Special Ventilation Zone shall be closed by an isolation valve, blind flange or manual valve.

        5. If the Shield Building Ventilation System is inoperable, each penetration providing direct access from the containment atmosphere to the shield building annulus shall be closed by an isolation valve, blind flange or manual valve.

    b. Radiation levels in the fuel handling areas of the containment shall be monitored continuously.

    c. The core subcritical neutron flux shall be continuously monitored by at least two neutron monitors, each with continuous visual indication in the control room and one with audible indication in the containment, which are in service whenever core geometry is being changed. When core geometry is not being changed, at least one neutron flux monitor shall be in service.

    d. The plant shall be in the REFUELING condition.

3.8.A.1.e. During movement of fuel assemblies or control rods out of the reactor vessel, at least 23 feet of water shall be maintained above the reactor vessel flange. The required water level shall be verified prior to moving fuel assemblies or control rods and at least once every day while the cavity is flooded.

f. At least one residual heat removal pump shall be OPERABLE and running. The pump may be shut down for up to one hour to facilitate movement of fuel or core components.

g. If the water level above the top of the reactor vessel flange is less than 20 feet, except for control rod unlatching/latching operations or upper internals removal/replacement, both residual heat removal loops shall be OPERABLE.

h. Direct communication between the control room and the operating floor of the containment shall be available whenever CORE ALTERATIONS are taking place.

i. No movement of irradiated fuel in the reactor shall be made until the reactor has been subcritical for at least 100 hours.

j. The radiation monitors which initiate isolation of the Containment Purge System shall be tested and verified to be OPERABLE prior to CORE ALTERATIONS.

k. The manipulator crane shall be OPERABLE for the movement of fuel assemblies.

2. If any of the above conditions are not met, CORE ALTERATIONS shall cease. Work shall be initiated to correct the violated conditions so that the specifications are met, and no operations which may increase the reactivity of the core shall be performed.

3. If Specification 3.8.A.1.f or 3.8.A.1.g cannot be satisfied, all fuel handling operations in containment shall be suspended, the requirements of Specification 3.8.A.1.a shall be satisfied, and no reduction in reactor coolant boron concentration shall be made.

3.8.B. <u>Fuel Handling Operations</u>

1. During fuel handling operations in spent fuel pool area the following conditions shall be satisfied.

   a. Radiation levels in the spent fuel storage pool area shall be monitored continuously during fuel handling operations.

   b. The spent fuel pool fuel handling crane shall be OPERABLE for the movement of fuel assemblies.

   c. A minimum boron concentration of 1800 ppm shall be maintained in the spent fuel pool whenever a spent fuel cask containing fuel is located in the spent fuel pool.

2. If any of the conditions in 3.8.B.1, above, cannot be met, suspend all fuel handling operations in the spent fuel pool area and initiate the actions necessary to re-establish compliance with the requirements of 3.8.B.1.

MINIMUM FREQUENCIES FOR EQUIPMENT TESTS

		Test	Frequency
..	Control Rod Assemblies	Rod drop times of full length rods	All rods during each refueling shutdown or following each removal of the reactor vessel head; affected rods following maintenance on or modification to the control rod drive system which could affect performance of those specific rods
2.	Control Rod Assemblies	Partial movement of all rods	Every 2 weeks
3.	Pressurizer Safety Valves	Set point	Per ASME Code, Section XI Inservice Testing Program
4.	Main Steam Safety Valves	Set point	Per ASME Code, Section XI Inservice Testing Program
5.	Reactor Cavity	Water level	Prior to moving fuel assemblies or control rods and at least once every day while the cavity is flooded.
6.	Pressurizer PORV Block Valves	Functional	Quarterly
7.	Pressurizer PORVs	Functional	Every 18 months
8.	Deleted		
9.	Primary System Leakage	Evaluate	Daily
10.	Deleted		
11.	Turbine stop valves, governor valves, and intercept valves. (Part of turbine overspeed protection.)	Functional	See (1)

(1) Turbine stop valves. governor valves and intercept valves are to be tested at a frequency consistent with the methodology presented in WCAP-11525 "Probabilistic Evaluation of Reduction in Turbine Valve test Frequency", and in accordance with the established NRC acceptance criteria for the probability of a turbine missile ejection incident of 1.0×10^{-5} per year. In no case shall the turbine valve test interval exceed one year.

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13. Spent Fuel Pool Fuel Handling Crane	Load test for OPERABILITY of limit switches, interlocks and alarms	Prior to fuel handling operations if not tested in the previous 3 months.

3.8 REFUELING AND FUEL HANDLING

Bases

The equipment and general procedures to be utilized during refueling are discussed in the USAR. Detailed instructions, the precautions specified above, and the design of the fuel handling equipment incorporating built-in interlocks and safety features, provide assurance that no incident could occur during CORE ALTERATIONS that would result in a hazard to public health and safety (Reference 1).

The requirements for containment penetration closure ensure that a release of fission-product radioactivity within containment due to a fuel-handling accident will be restricted from escaping directly to the environment. Closure restrictions are only required for containment penetrations that provide direct unfiltered access from containment atmosphere to outside atmosphere.

There are no closure restrictions during CORE ALTERATIONS on containment penetrations that provide access from the containment atmosphere into areas protected by OPERABLE automatic safeguards ventilation systems which actuate on high radiation and filter all releases to the environment through particulate-absolute-charcoal filters. No closure restrictions are necessary for those penetrations because any radiological releases to those areas following a fuel handling accident in containment would be released to the environment via a particulate-absolute-charcoal filtration system. The particulate-absolute-charcoal filtration of the fission-product radioactivity released during a design basis fuel handling accident in containment would maintain off-site radiation exposures well within the requirements of 10 CFR Part 100.

For penetrations to be open into the Shield Building Annulus during CORE ALTERATIONS, the Shield Building Ventilation System shall be OPERABLE and for penetrations to be open into the Auxiliary Building Special Ventilation Zone during CORE ALTERATIONS, the Auxiliary Building Special Ventilation System shall be OPERABLE.

Whenever changes are not being made in core geometry, one flux monitor is sufficient. This permits maintenance of the instrumentation. Continuous monitoring of radiation levels and neutron flux provides immediate indication of an unsafe condition. The residual heat removal pump is used to maintain a uniform boron concentration.

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No movement of fuel in the reactor is permitted until the reactor has been subcritical for at least 100 hours to permit decay of the fission products in the fuel. The delay time is consistent with the fuel handling accident analysis (Reference 2).

3.8 REFUELING AND FUEL HANDLING

Bases continued

Fuel will not be inserted into a spent fuel cask unless a minimum boron concentration of 1800 ppm is present. The 1800 ppm will ensure that k_{eff} for the spent fuel cask, including statistical uncertainties, will be less than or equal to 0.95 for all postulated arrangements of fuel within the cask.

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The requirements for the storage of low burnup fuel in the spent fuel pool ensure that the spent fuel pool will remain subcritical during fuel storage. Fuel stored in the spent fuel pool will be limited to a maximum enrichment of 4.25 weight percent U-235. It has been shown by criticality analysis that the use of the three out of four storage configuration will assure that the K_{eff} will remain less than 0.95, including uncertainties, when fuel with a maximum enrichment of 4.25 weight percent U-235 and average assembly burnup of less than 5,000 MWD/MTU is stored in the spent fuel pool.

3.8 REFUELING AND FUEL HANDLING

Bases continued

The requirement for maintaining the spent fuel pool boron concentration greater than 500 ppm whenever fuel with average assembly burnup of less than 5,000 MWD/MTU is stored in the spent fuel pool ensures that K_{eff} for the spent fuel pool will remain less than 0.95, including uncertainties, even if a fuel assembly is inadvertently inserted in the empty cell of the three out of four storage configuration.

References

1. USAR, Section 10.2.1.2
2. USAR, Section 14.5.1
3. USAR, Section 10.3.7