



AUG 11 2011

L-PI-11-037  
10 CFR 50.90

U S Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-0001

Prairie Island Nuclear Generating Plant Units 1 and 2  
Dockets 50-282 and 50-306  
Renewed License Nos. DPR-42 and DPR-60

License Amendment Request (LAR) to Add Diesel Fuel Oil License Bases and Revise Technical Specifications (TS) 3.7.8, "Cooling Water (CL) System" and 3.8.3, "Diesel Fuel Oil"

Pursuant to 10 CFR 50.90, the Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy (hereafter "NSPM"), hereby requests review and approval of additional diesel fuel oil (DFO) license bases and amendments to TS 3.7.8, "Cooling Water (CL) System" and 3.8.3, "Diesel Fuel Oil". The proposed additions to the license bases address single failure criteria for the DFO supplies during a design basis accident with a loss of offsite power. The proposed TS changes revise current requirements to reflect the addition to the license bases, resolve non-conservative emergency diesel generator fuel oil supply volumes, incorporate portions of Technical Specification Task Force Traveler 501-A, "Relocate Stored Fuel Oil and Lube Oil Volume Values to Licensee Control" and provide administrative changes to the TS. NSPM evaluated the proposed changes in accordance with 10 CFR 50.92 and concluded that they involve no significant hazards consideration.

The enclosure to this letter, "Evaluation of the Proposed Changes" contains the licensee's evaluation of the proposed changes.

NSPM requests approval of this LAR within one calendar year of the submittal date. Upon NRC approval, NSPM requests 90 days to implement the associated changes. In accordance with 10 CFR 50.91, NSPM is notifying the State of Minnesota of this LAR by transmitting a copy of this letter and enclosure to the designated State Official.

If there are any questions or if additional information is needed, please contact Mr. Dale Vincent, P.E., at 651-388-1121.

Document Control Desk  
Page 2

Summary of Commitments

This letter contains no new commitments and no revisions to existing commitments.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on **AUG 11 2011**



Mark A. Schimmel  
Site Vice President, Prairie Island Nuclear Generating Plant  
Northern States Power Company - Minnesota

Enclosures (1)

cc: Administrator, Region III, USNRC  
Project Manager, PINGP, USNRC  
Resident Inspector, PINGP, USNRC  
State of Minnesota

## **ENCLOSURE**

### **Evaluation of the Proposed Changes**

#### **License Amendment Request (LAR) to Add DFO License Bases and Revise Technical Specifications (TS) 3.7.8, "Cooling Water (CL) System" and 3.8.3, "Diesel Fuel Oil"**

1. SUMMARY DESCRIPTION
2. DETAILED DESCRIPTION
  - 2.1 Proposed Changes
  - 2.2 Background
3. TECHNICAL EVALUATION
4. REGULATORY SAFETY ANALYSIS
  - 4.1 Applicable Regulatory Requirements/Criteria
  - 4.2 Precedent
  - 4.3 Significant Hazards Consideration
  - 4.4 Conclusions
5. ENVIRONMENTAL CONSIDERATION
6. REFERENCES

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#### **ATTACHMENTS:**

1. Technical Specification Pages (Markup)
2. Technical Specification Bases Pages (Markup)
3. Technical Specification Pages (Retyped)

## **1. SUMMARY DESCRIPTION**

This evaluation supports a request to amend Renewed Operating Licenses DPR-42 and DPR-60 for Prairie Island Nuclear Generating Plant (PINGP), Units 1 and 2.

Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy (hereafter "NSPM"), requests Nuclear Regulatory Commission (NRC) review and approval of additional diesel fuel oil (DFO) license bases and an amendments to associated Technical Specifications (TS) 3.7.8, "Cooling Water (CL) System" and 3.8.3, "Diesel Fuel Oil". The proposed addition to the license basis addresses active single failure criteria for the DFO system during a design basis accident (DBA) with a loss of offsite power (LOOP). TS 3.7.8 governs the fuel oil supply (FOS) for the diesel driven cooling water pumps (DDCLP) and TS 3.8.3 governs the FOS for the emergency diesel generators (EDG).

The proposed TS revisions reflect the additional license bases, resolve non-conservative EDG FOS volumes, incorporate portions of Technical Specification Task Force Traveler 501-A (TSTF-501) (Reference 1) and provide administrative changes of the TS. Single failure criteria for a DBA and FOS volume limits have been, and are currently, administratively controlled under the provisions of NRC Administrative Letter (AL) 98-10 (Reference 2), since the non-conservatisms were identified. NSPM evaluated the proposed changes in accordance with 10 CFR 50.92 and concluded that they involve no significant hazards consideration.

The terms diesel generator (DG) and emergency diesel generator (EDG) are used interchangeably in this enclosure due to the use of references with different abbreviations. Both terms refer to the Emergency Diesel Generators D1, D2, D5 and D6 which provide backup power to safeguards buses. PINGP's "Cooling Water" system is equivalent to other nuclear generating plant's Service Water system. The term "Service Water" is an industry standard that was not used by NSPM for the PINGP. The CL system provides cooling to the Unit 1 EDGs via the EDG heat exchangers. The DDCLPs are the safeguards pumps designed to maintain CL system pressure, therefore, revisions to TS 3.7.8 have been included in this LAR.

## **2. DETAILED DESCRIPTION**

### **2.1 Proposed Changes**

Brief descriptions of the proposed additions to the DFO license bases and revisions to TS 3.7.8 and 3.8.3 are provided on the following pages along with discussion of justification for the changes. The specific wording changes to the TS are provided in Attachments 1 and 3 to this enclosure.

## License Basis

The proposed additions to the license bases maintain the EDG and DDCLP safety functions in the event of a DBA and LOOP with a active single failure. The additional license bases requirements are for each unit to have two trains of EDG FOS and for CL system to have two trains of DDCLP FOS. Each train's FOS is sufficient to operate that train's associated emergency equipment, either one EDG or one DDCLP, while providing emergency loads needed to mitigate a DBA for seven days. These additional license bases requirements are reflected by the proposed changes to the TS.

### TS 3.7.8, "Cooling Water (CL) System"

Actions: Add a note for Separate Condition entry to allow each train's DDCLP FOS to enter Condition D and Condition E separately. This is consistent with the Separate Condition entry note used in NUREG-1431 (Reference 3) for DFO volumes and is consistent with the concept used for other TS that allow Separate Condition entry.

Add the preface "One or both" to Condition D to allow for Separate Condition entry. Replace the specific FOS gallon requirements " $< 19,500$  gal and  $\geq 17,000$  gal" with days supply requirements "(s)  $< 7$  days and  $\geq 6$  days" in Condition D. This condition is entered when the train's FOS is less than 7 day supply and greater than or equal to 6 day supply. Replace "within limits" with " $\geq$  to 7 days" in Required Action D.1. This specifies the FOS volume required to exit the condition. Replacing the specific gallon requirement with a days supply requirement is consistent with TSTF-501.

Add the preface "One or both" to Condition E to allow Separate Condition entry. Replace the specific FOS gallon requirements of " $< 17,000$  gal" with days supply requirements "(s)  $< 6$  days" in Condition E. This condition is entered when the train's FOS is less than 6 day supply. Replacing the specific gallon requirement with a days supply requirement is consistent with TSTF-501. Required Action E.1 added "associated" and removed the "s" from "pumps". This is consistent with NUREG-1431.

Surveillance Requirements (SR): Add "each" and remove the "s" in "pumps" in SR 3.7.8.3. This is consistent with NUREG-1431. Replace " $\geq 19,500$  gal" with "contains  $\geq 7$  day supply" in SR 3.7.8.3. This is consistent with TSTF-501.

### TS 3.8.3, "Diesel Fuel Oil"

Limiting Condition for Operation (LCO): Replace "The" with "Each" to entail the additional license basis requirement. Each unit at the PINGP has two trains of EDG FOS. This LCO statement signifies the requirement to have both or "Each" FOS "within limits".

Applicability: Replace “the” with “associated” and replace “DG(s)” with singular “DG” in the Applicability statement to align with the LCO statement. This is consistent with NUREG-1431.

Actions: Add a note for Separate Condition entry to allow each train’s stored diesel generator FOS to enter conditions separately. This is consistent with the Separate Condition entry note used in NUREG-1431 for DFO volumes.

Add the preface “One or both” to Condition A to allow for Separate Condition entry. Replace the specific FOS gallon requirements “Unit 1 < 42,000 gal and ≥ 36,000 gal;” and “Unit 2 < 75,000 gal and ≥ 65,000 gal” with days supply requirements “(s) < 7 days and ≥ 6 days” in Condition A. This condition is entered when the train’s stored diesel generator FOS is less than 7 day supply and greater than or equal to 6 day supply. Replace “within limits” with “≥ to 7 days” in Required Action A.1. This specifies the FOS volume required to exit the condition. Replacing the specific gallon requirement with a days supply requirement is consistent with TSTF-501.

Reword Condition B to clarify the condition’s subject is the stored diesel generator fuel oil properties. Remove the word “tank(s)” and add the “s” to “limits” in Required Action B.1. These administrative changes provide clarity and are consistent with NUREG-1431.

Remove “DG” in Required Action C.1 to clarify the action is to isolate the associated fuel oil tank(s).

Add the preface “One or both” to Condition D to allow Separate Condition entry. Replace the specific FOS gallon requirements of “Unit 1 < 36,000 gal;” and “Unit 2 < 65,000 gal” with days supply requirements “(s) < 6 days” in Condition D. This condition is entered when the train’s FOS is less than 6 day supply. Replacing the specific gallon requirement with a days supply requirement is consistent with TSTF-501. Required Action D.1 added “associated” and removed the “s” from “DGs” This is consistent with NUREG-1431.

Surveillance Requirements (SR): Add “each” to SR 3.8.3.1 to clarify both trains of stored diesel generator FOS are required to satisfy this SR. This change is consistent with NUREG-1431. Replace specified FOS gallon requirements “Unit 1 ≥ 42,000 gal; and Unit 2 ≥ 75,000 gal of fuel” with day requirements “ ≥ 7 day supply” in SR 3.8.3.1. This change is consistent with TSTF-501.

Although Bases changes are not a part of this LAR, Attachment 2 to this enclosure includes marked up Bases pages for information. The changes proposed in Attachment 2 are directly related to the changes proposed to TS 3.7.8 and 3.8.3.

In summary these changes are acceptable because the additional license bases and revised TS will require that the stored diesel generator and diesel driven CL pump FOS

will be within limits and ensure the EDGs and DDCLPs have proper fuel properties and volume to perform their safety functions.

## **2.2 Background**

February 2010, NSPM recognized that the DFO TS does not meet common industry guidelines, in that the current license basis and TS are not written to take into account an active single failure during a DBA. The following single failure vulnerabilities were identified between February 2010 and December 2010:

- Failure of Unit 1 "A" Train safeguards 480V bus 111 would eliminate the availability of the Unit 1 121 and 122 EDG FOSTs and 121 DDCLP FOST transfer pumps and subsequently the FOS in those tanks.
- Failure of Unit 1 "B" Train safeguards 480V bus 121 would eliminate availability of the Unit 1 123 and 124 EDG FOSTs and 122 DDCLP FOST transfer pumps and subsequently the FOS in those tanks.
- Failure of Unit 2 "A" Train safeguards 480V breaker 211K would eliminate the availability of the Unit 2 21 and 22 EDG FOSTs transfer pumps and subsequently the FOS in those tanks.
- Failure of Unit 2 "B" Train safeguards 480V breaker 221K would eliminate the availability of the Unit 2 23 and 24 EDG FOST transfer pumps and subsequently the FOS in those tanks.
- Failure of Unit 2 125 V DC Panel 27 Circuit 2 breaker 8/FTP/D5 would eliminate the availability of the Unit 2 21 and 22 EDG FOST transfer pumps and subsequently the FOS in those tanks.
- Failure of Unit 2 125 V DC Panel 28 Circuit 2 breaker 8/FTP/D6 would eliminate the availability of the Unit 2 23 and 24 EDG FOST transfer pumps and subsequently the FOS in those tanks.
- Flooding due to a failure of non-safety related circulating water pump discharge piping could result in submersion of the motor starters for the 121 and 122 DDCLP FOST transfer pumps. A modification has since moved the FO transfer pump starting motors and resolved this single failure vulnerability.

The current DFO license bases have not had significant changes since the original license of PINGP. The current DFO TS 3.8.3 was created during PINGP's Improved Standard Technical Specification (ISTS) upgrade project and implemented in October of 2002. The TS was written to reflect the license basis established by the USAR and to mitigate consequences of the maximum probable flood. NSPM is currently required to maintain a FOS sufficient to operate one EDG and one DDCLP for 14 days as discussed in the Bases for TS 3.7.8 and 3.8.3 and the Updated Safety Analysis Report

(USAR) section 10.3. This current FOS requirement does not require consideration for single failure. The time period of 14 days is longer than the time required to replenish FOS from outside sources during the maximum probable flood, which is 13 days.

During the 2007 Component Design Basis Inspection (CDBI) it was identified that if a Unit 1 EDG operates at its upper TS frequency the EDG load is increased and the DFO consumption rate is increased. The increased consumption rate requires a greater FOS volume than that specified in TS 3.8.3 Condition A and Condition D. To resolve this non-conservatism, NSPM has revised the Unit 1 FOS storage capacity calculation and proposes to incorporate portions of TSTF-501. The portions of TSTF-501 which are to be incorporated with this license amendment include the following: 1) relocate specific FOS volume in gallons from the TS to the TS Bases and controlling procedures and 2) perform FOS volume calculations in accordance with ANSI N195-1976 (Reference 4). In January 2010, NSPM submitted a LAR to address the non-conservative FOS volumes however that LAR was withdrawn later that year.

NSPM has administrative controls in place under Administrative Letter 98-10 to ensure both Unit 1 and Unit 2 Diesel Fuel Oil systems have sufficient FOS in each train to ensure the EDGs and DDCLPs have proper fuel oil volume and properties to perform their safety functions.

### **3. TECHNICAL EVALUATION**

PINGP is a two unit plant located on the right bank of the Mississippi River approximately 6 miles northwest of the city of Red Wing, Minnesota. The facility is owned and operated by NSPM. Each unit at PINGP employs a two-loop pressurized water reactor designed and supplied by Westinghouse Electric Corporation. The initial PINGP application for a Construction Permit and Operating License was submitted to the Atomic Energy Commission (AEC) in April 1967. The Final Safety Analysis Report (FSAR) was submitted for application of an Operating License in January 1971. Unit 1 began commercial operation in December 1973 and Unit 2 began commercial operation in December 1974.

PINGP was designed and constructed to comply with NSPM's understanding of the intent of the Atomic Energy Commission (AEC) General Design Criteria (GDC) for Nuclear Power Plant Construction Permits, as proposed on July 10, 1967. PINGP was not licensed to NUREG-0800 and was not part of the NRC Systematic Evaluation Program (SEP).

#### TS 3.7.8, "Cooling Water (CL) System"

TS 3.7.8 LCO Conditions D and E along with TS 3.8.3 credit the DDCLPs FOS.

Diesel Driven Cooling Water Pumps: The Cooling Water System has been designed to provide redundant cooling water supplies with isolation valves to auxiliary feedwater pumps, Unit 1 diesel generators, air compressors, component cooling water heat

exchangers, containment fan-coil units, and the Auxiliary Building unit coolers. The CL system provides cooling to the Unit 1 EDG via the EDG heat exchangers. Cooling water is supplied to D1 Diesel Generator from Loop A Cooling Water header, and D2 Diesel Generator is supplied from Loop B. The Unit 2 diesel generators have dedicated radiator cooling systems and are not dependant on the CL system for cooling.

The DDCLP and their associated equipment are located in the Class I portion of the cooling water greenhouse and separated by a concrete wall. The DDCLPs are provided common to both Units 1 and 2. Each diesel driven pump is provided with both local and control room manual controls. Each diesel engine provides 1000 hp continuous at 1200 rpm and 1200 hp intermittent at 1200 rpm. Fuel oil is supplied to the diesel engine from a 500 gallon day tank (one per diesel engine) by an engine driven gear-type fuel oil transfer pump which circulates the fuel oil through a filter to the engine cylinders with excess fuel oil returning to the day tank. The day tank fuel oil is normally supplied from external underground storage tanks (one 19,500 gal. tank per diesel engine) by a motor operated transfer pump.

### TS 3.8.3, "Diesel Fuel Oil" Systems

The following systems are credited by TS 3.8.3.

Unit 1 DFO System: The Unit 1 fuel oil system receives and stores diesel fuel oil and delivers it to the fuel oil systems of both safety and non-safety related components consisting of four generators, two diesel driven cooling water pumps (DDCLPs), one heating boiler, and a diesel driven fire pump. Since two of the generators, D1/D2, and the DDCLPs are safety related components, provisions are made in the design and installation to ensure that these components will operate in the event of an abnormal or emergency condition. The fuel oil system for Unit 1 provides fuel oil for the operation of all but two safety related emergency diesel generators (EDG), D5/D6; the fuel oil system for Unit 2 provides fuel oil solely for the operational needs of emergency diesel generators D5/D6.

Six Design Class I fuel oil storage tanks (19,500 nominal, 17,500 available gallons each) supply fuel oil to the two EDG D1/D2 and the two DDCLPs. Each tank is equipped with a transfer pump to pump fuel from the tank to the nominal capacity 500 gallon day tank of either EDG or either DDCLP. These six Design Class I tanks are interconnected such that any tank can be manually aligned to supply any diesel day tank. Therefore, any combination of the six tanks can be used to meet the 14 day storage capacity requirement for a probable maximum flood. The fuel oil tanks and fuel storage vaults, pipes and control cables are buried and are designed to resist hydrostatic forces as well as other effects associated with the probable maximum flood.

The system's six Design Class I fuel oil storage tanks can be separated mechanically and are separated electrically into two trains of FOS. Mechanical separation of the two trains can be achieved through the configuration and valve line up of the DFO tanks. Each train consists of three Class I safety related fuel oil storage tanks. Two tanks are

normally aligned to supply its associated train's EDG and the other tank is normally aligned to the associated trains DDCLP. These three tanks are interconnected with safety related quality valving and piping such that any tank can be aligned to supply either the EDG or DDCLP day tanks.

Electrical separation of the two Unit 1 FOS trains is achieved through powering each train's DFO tank transfer pumps from separate Unit 1 instrument buses, panels, transformers, 480V buses and 4kV buses. The two FO transfer pumps for the DDCLP FO tanks may also be connected to Unit 2 safety related power; providing power to those transfer pumps in the event of a loss of Unit 1 power. This Unit 2 power also has separate instrument buses, panels, transformers, 480V buses and 4kV buses.

The fuel oil storage tanks are normally filled from the fuel oil transfer house through a filter. They are filled either from the normal fill connection or from an emergency safeguards fill connection. An alternate fill connection is provided for each of the heating boiler oil storage tanks. The fuel oil storage tanks can also be refilled from either of the two non-Design Class I heating boiler fuel oil storage tanks (35,000 nominal gallons each).

Unit 2 DFO System: The Unit 2 fuel oil system receives and stores diesel fuel oil for the operational needs of EDGs D5/D6. The fuel oil system also provides a means of transferring fuel oil between fuel oil storage tanks and a means of filtering new and transferred oil.

The Unit 2 fuel oil system consists of a non-Design Class I fuel oil receiving tank, four Design Class I fuel oil storage tanks (32,800 nominal, 30,800 available gallons each), four fuel oil transfer pumps, two fuel oil day tanks, one fuel oil recirculating pump, four fuel oil transfer recirculation filters, a receiving tank recirculating filter, and associated piping, valving and instrumentation.

The fuel oil receiving tank supplies fuel oil to the fuel oil storage tanks and the fuel oil recirculation pump. The four fuel oil storage tanks supply fuel oil to the fuel oil day tanks via the fuel oil transfer pumps. The two fuel oil day tanks each have a nominal capacity of 600 gallons.

The fuel oil storage tanks of each diesel generator building are located in a Seismic Category I reinforced concrete fuel oil storage vault. The fuel oil storage vaults are located below ground level. The vaults provide the required three-hour rated fire protection barrier and are designed to withstand the effects of tornado generated missiles, site flood and buoyancy force considerations. The storage vaults are provided with leak detection sumps. If a sump fills with water and/or fuel oil, an alarm will activate on the main diesel generator local control panel.

The base of the fuel oil receiving tank is located below ground level and the tank is in a concrete lined retention basin. The basin is sized to contain the tank volumetric contents, should a leak occur.

The system can be separated mechanically and is separated electrically into two trains of FOS. Mechanical separation of the two trains can be achieved through the configuration and valve line up of the DFO tanks. Each train consists of two Class I safety related fuel oil storage tanks. These two tanks are interconnected with safety related valving and piping such that either tank can be aligned to supply its associated train's EDG. Any combination of inventory in the two tanks can be used to satisfy the 7 day fuel oil supply volume for a DBA mitigation requirement for that train. Electrical separation of the two Unit 2 FOS is achieved through powering each train's DFO tank transfer pumps from separate instrument buses, panels, transformers, 480V buses and 4kV buses.

The fuel oil receiving tank is filled from a truck fill connection. The fuel oil storage tanks are filled from the fuel oil receiving tank by gravity feed. Also, there is an emergency fuel oil storage tank fill connection located in the D5/D6 building. The emergency fill connection can be utilized in the event of flooding which could render the receiving tank fill connection inaccessible. The fuel oil day tanks can only be filled from the fuel oil storage tanks.

Piping is provided to permit the transfer of fuel oil from one storage tank to another storage tank or to the receiving tank by using the appropriate valve lineup. The transfer can be accomplished by performing a tank recirculation lineup through the fuel oil transfer recirculation filters and pumping the tank contents through the recirculation header to another tank.

The fuel oil day tank associated with one EDG can be filled directly from the fuel oil storage tanks of the other EDG by performing a valve lineup through the receiving tank return line. However, each fuel oil day tank is dedicated to its respective EDG and cannot supply fuel oil to the other EDG directly.

Unit 1 Emergency Diesel Generators D1/D2: The Unit 1 EDGs, D1 and D2, are Fairbanks-Morse opposed piston EDGs which provide onsite standby power sources for 4 kV safeguards buses 15 and 16, respectively. These EDGs are each rated at 2750 kW continuous (8760 hour basis), 0.8 power factor, 900 rpm, 4160 Volt, three phase, 60 Hertz, synchronous generators. The 1,000 hour rating of each EDG is 3000 kilowatts. The 30 minute rating of each unit is 3250 kW maximum. Ratings for the Unit 1 EDGs meet the intent of Safety Guide 9.

Unit 2 Emergency Diesel Generators D5/D6: The Unit 2 EDGs, D5 and D6, consist of two tandem-drive units (gensets) manufactured by Societe Alsacienne de Constructions Mecaniques de Mulhouse (SACM) which provide onsite standby power sources for 4 kV safeguards buses 25 and 26, respectively. These EDGs are each rated at 5400 kW continuous (8760 hour basis), 0.8 power factor, 1200 rpm, 4160V, 3-phase, 60 Hertz. Ratings for the Unit 2 EDGs satisfy the intent of Regulatory Guide 1.9, Revision 2.

### Current License Bases, TS Requirements Basis and Limitations

The current license basis for the EDG is to maintain a FOS sufficient to operate one EDG for 14 days as discussed in the Bases for TS 3.8.3 and the Updated Safety Analysis Report (USAR) sections 10.3. The current license basis for the DDCLP is to maintain a FOS sufficient to operate one DDCLP for 14 days as discussed in the Bases for TS 3.7.8 and USAR section 10.4, without consideration for an active single failure. A memorandum dated September 4, 2003 from the Director, Division of Licensing Project Management, Office of Nuclear Reactor Regulation to Director, Division of Reactor Projects, Region III states that, "neither the GDCs, the FSAR or the staffs September 28, 1972, safety evaluation, specify that the emergency AC power system is required to meet single failure criteria coincident with an external event" (Reference 5).

The 14 day FOS requirement was included in the original TS issued and thus has been the license basis for the FOS volume throughout the operation of the plant. The basis of the 14 day supply is derived from FSAR Section 2.7, "Hydrology", sub-section 2.7.3 which states: "It was estimated that the flood stage would remain above elevation 695 feet msl for approximately 13 days." The period of 14 days bounds the need to supply power for the 13 day duration of the maximum probable flood, after which the FOS can be replenished.

To establish a FOS volume equivalent to 14 days, the EDG and DDCLP consumption rates are calculated using the EDG loading as stated in USAR tables 8.4-1 and 8.4-2 and the DDCLP Full Load Test data as provided in the August 16, 1971 Quality Assurance Inspection Report (Reference 6).

Current TS 3.7.8 reflects the current license basis. The FOS volumes required by the TS are equivalent to a 14 day supply.

The TS Actions section does not have a note to allow Separate Condition entry which is not consistent with NUREG-1431. Condition D specifies Required Actions when the DDCLP FOS is less than 19,500 gallons and greater than 17,000 gallons. Condition E specifies Required Actions when the DDCLP FOS is less than 17,000 gallons.

TS SR 3.7.8.3 requires the stored DDCLP FOS to contain greater than or equal to 19,500 gallons.

Current TS 3.8.3 also reflects the current license basis. The FOS volumes required by the TS are equivalent to the 14 day supply required to operate one EDG for 14 days. The LCO statement requires that the FOS "shall be within limits". This is not consistent with NUREG-1431, in that it does not require a limit to be met "for each" EDG. The total FOS required is the same regardless of the requirement to have one or two EDGs operable. Additionally, the Applicability statement refers to "the DG(s)" as one system and does not separate each EDG with the adjective "associated". This is not consistent with NUREG-1431.

The TS Actions section does not have a note to allow Separate Condition entry which is not consistent with NUREG-1431.

Unit 1 TS 3.8.3 Condition A specifies Required Actions when the Unit 1 FOS is less than 42,000 gallons and greater than 36,000 gallons. Condition B specifies Required Actions when the FOS properties are not within limits specified by the Diesel Fuel Oil Testing Program. Condition C specifies Required Actions when Required Action or associated Completion Times of Condition B are not met. Condition D specifies Required Actions when the Unit 1 FOS is less than 36,000 gallons.

Unit 2 TS 3.8.3 Condition A specifies Required Actions when the Unit 2 FOS is less than 75,000 gallons and greater than 65,000 gallons. Condition B specifies Required Actions when the DFO properties are not within limits specified by the Diesel Fuel Oil Testing Program. Condition C specifies Required Actions when Required Action or associated Completion Times of Condition B are not met. Condition D specifies Required Actions when the Unit 2 FOS is less than 65,000 gallons. The specified volume, in gallons, is not consistent with TSTF-501.

TS SR 3.8.3.1 requires the stored EDG fuel oil supply contains greater than or equal to 42,000 gallons for Unit 1 and 75,000 gallons for Unit 2.

The limitations of the current license bases and TS include the following:

Per AEC General Design Criteria (GDC), Criterion 39, the current license basis is limited in that it does not have "adequate independency, redundancy, capacity" to maintain the EDG and DDCLP safety function with an active single failure during a loss of offsite power (LOOP) and DBA. This vulnerability allows the potential for a situation to occur where there could be only a FOS of 9,000 gallons for both the DDCLP and the Unit 1 EDG due to an active single failure. In this specific example, if maintenance was being performed on the 123 and 124 Diesel Generator Fuel Oil Storage Tank, NSPM could still meet current TS requirements using 121 and 122 Diesel Generator FOSTs and 121 and 122 Cooling Water Pump Diesel FOSTs by maintaining just over three and a half tanks full (61,500 gallons). However, since three of these tank's fuel oil transfer pumps (121 and 122 Diesel Generator Fuel Oil and 121 Cooling Water Pump Diesel FOSTs) are normally powered from a single 480 V safeguards bus, there is the potential to only have FOS of 9,000 gallons available for both the Unit 1 EDG and DDCLPs upon the failure of bus 111. NSPM has administrative controls in place to protect against this and the other active single failure vulnerabilities discussed in the background section of this LAR.

The current FOS volumes required by TS 3.8.3 are non-conservative based on updated DFO consumption calculations.

TS are a source of confusion due to their license basis and inconsistencies with 10CFR50.36. As discussed above, the basis for the TS is derived from the length of the maximum probable flood at the PINGP. Per 10CFR50.36(2)(ii)(C) TS 3.7.8 and 3.8.3

LCOs must be established for the DFO system because it is "part of the primary success path which functions or actuates to mitigate a design basis accident that either assumes the failure of or presents a challenge to the integrity of a fission product barrier." The maximum probable flood does not present a challenge to the integrity of a fission product barrier.

Volumes provided in PINGP TS 3.8.3 were calculated using the 14-day supply requirement combined with the EDG consumption rates and DFO energy content extant when the ITS conversion LAR was submitted. If the EDG DFO consumption rates or DFO energy content changes, then an LAR is required to change the TS required volumes.

### Proposed Changes

This LAR proposes additions to the DFO license basis to require an adequate FOS to maintain the EDG and DDCLP safety function with an active single failure. To establish this additional license basis, this LAR also proposes revisions to the associated TS 3.7.8 and 3.8.3 to require the Unit 1 DFO storage system to have two trains of FOS sufficient to operate one Unit 1 EDG and one DDCLP for seven days and for the Unit 2 DFO storage system to have two trains of FOS sufficient to operate one Unit 2 EDG for seven days. The seven day period is longer than the time required to replenish DFO supplies from outside sources during none flooding conditions and is consistent with Regulatory Guide 1.137 (Reference 7) and NUREG-0800, "Standard Review Plan (SRP)" (Reference 8). NSPM will maintain, in the USAR and procedures, PINGP's current license basis requirement for each unit to have sufficient DFO to operate one EDG for 14 days.

This LAR proposes the following revisions to TS 3.7.8 shown in Attachments 1 and 3:

Actions: In Condition D and Condition E add a note for Separate Condition entry to allow each train's DDCLP FOS to enter each Condition separately.

In Condition D add the preface "One or both" to Condition D to allow for Separate Condition entry and replace the specific FOS gallon requirements "< 19,500 gal and ≥ 17,000 gal" with days supply requirements "(s) < 7 days and ≥ 6 days".

In Condition E add the preface "One or both" to allow Separate Condition entry, replace the specific FOS gallon requirements of "< 17,000 gal" with days supply requirements "(s) < 6 days". In Required Action E.1 add "associated" and removed the "s" from "pumps".

Surveillance Requirements (SR): Add "each", remove the "s" in "pumps" and replace "≥ 19,500 gal" with "contains ≥ 7 day supply" in SR 3.7.8.3.

This LAR proposes the following revisions to TS 3.8.3 shown in Attachments 1 and 3:

Limiting Condition for Operation (LCO): Replace "The" with "Each" in the LCO statement.

Applicability: Replace "the" with "associated" and replace "DG(s)" with singular "DG" in the Applicability statement to align with the LCO statement.

Actions: Add a note for Separate Condition entry to allow each train's FOS to enter conditions separately.

In Condition A add the preface "One or both" to allow for Separate Condition entry and replace specified supply gallon requirements "Unit 1 < 42,000 gal and  $\geq$  36,000 gal;" and "Unit 2 < 75,000 gal and  $\geq$  65,000 gal" with "(s) < 7 days and  $\geq$  6 days". In Required Action A.1 replace "within limits" with " $\geq$  to 7 days".

In Condition B relocate "DG" in and add "properties". The rewording clarifies the Condition's subject is the stored diesel generator fuel oil properties. In Required Action B.1 remove "tank(s)" and add "s" to "limit(s)".

In Required Action C.1 remove "DG".

In Condition D add the preface "One or both" to allow for Separate Condition entry and replace specified supply gallon requirements of "Unit 1 < 36,000 gal;" and "Unit 2 < 65,000 gal" with "(s) < 6 days". In Required Action D.1 add "associated" and removed "s" from "DGs" in Required Action D.1.

Surveillance Requirements (SR): Add "each" to, and replace "Unit 1  $\geq$  42,000 gal; and Unit 2  $\geq$  75,000 gal of fuel" with " $\geq$  7 day supply" in SR 3.8.3.1.

### Technical Basis for Change

#### Addition of license basis:

The additional license bases do not remove or revise any current license basis requirements but add requirements for redundancy of the DFO systems. The current TS requirement to have sufficient FOS to operate one EDG for 14 days while providing emergency power loads is, and will continue to be, included in the USAR and enforced through procedural controls. Therefore, the additional license bases do not decrease the effectiveness of the DFO systems to perform their safety functions to ensure the EDGs and DDCLPs have proper fuel oil volume and properties. It creates safer and more robust DFO systems because the additions add requirements for redundancy and maintain the EDG and DDCLP safety functions in the event of an active single failure of their associated DFO system.

The proposed additional license basis will be incorporated using TS 3.8.3. The revision to the TS proposed in this LAR include replacing the current TS required gallon specific volumes, which are based on operation of one EDG longer than the probable maximum flood, with required redundant days supply volume based on industry guidance of seven days. The guidance of seven days is used in several NRC approved documents including NUREG 0800, NUREG 1431, Regulatory Guide 1.137, and TSTF-501. The FOS can be replenished within seven days.

The current TS FOS requirements are based on the maximum probable flood. The external event of a probable maximum flood is not to be considered when deriving a TS LCO. Additionally, the current TS is non-conservative in that it does not require redundant FOS trains which are mechanically and electrically separated to maintain the EDG and DDCLP safety functions in the event of an active single failure. Each unit at PINGP has two trains of DFO supply which are electrically separated and can be separated mechanically. Both trains are sufficient to operate an EDG and a DDCLP (Unit 1) for seven days while providing emergency power loads needed to mitigate a DBA.

The Unit 1 DFO system supplies DFO for the two Unit 1 EDGs and for the shared units two DDCLPs. The system can be separated mechanically and is separated electrically into two trains of FOS. Mechanical separation of the two trains can be achieved through the configuration and valve line up of the DFO tanks. NSPM proposes adding administrative controls to those already in place to ensure proper mechanical separation between the two FOS trains. Each train consists of three Class I safety related fuel oil storage tanks. Each tank has a nominal capacity of 19,500 gallons and an available capacity of 17,500 gallon. Two tanks are normally aligned to supply its associated train's EDG and can meet the calculated seven day EDG fuel oil supply storage requirement of 26,750 gallons. The other tank is normally aligned to the associated train's DDCLP and is credited toward meeting the calculated seven day DDCLP FOS storage requirement of 9,750 gallons. These three tanks are interconnected with safety related quality valving and piping such that any tank can be aligned to supply either the EDG or DDCLP day tanks. This allows flexibility in the volume required in each tank, therefore any combination of DFO in the three tanks can be used to meet the calculated seven day EDG and DDCLP FOS requirements.

Electrical separation of the two Unit 1 DFO trains is achieved through powering each train's DFO tank transfer pumps from separate instrument buses, panels, transformers, 480V buses and 4kV buses. Additionally, the two FO transfer pumps for the DDCLP FO tanks may be connected to Unit 2 safety related power providing power to those transfer pumps in the event of a loss of Unit 1 power. This Unit 2 power also has separate instrument buses, panels, transformers, 480V buses and 4kV buses.

The Unit 2 DFO system supplies DFO for the two Unit 2 EDGs. The system can be separated mechanically and is separated electrically into two trains of DFO supply. Mechanical separation of the two trains can be achieved through the configuration and valve line up of the DFO tanks. NSPM proposes adding administrative controls to those already in place to ensure proper mechanical separation between the two FOS trains. Each train consists of two Class I safety related fuel oil storage tanks. Each tank has a nominal capacity of 32,800 gallons and an available capacity of 30,800 gallon. These two tanks are interconnected with safety related valving and piping such that either tank can be aligned to supply its associated train's EDG. The combination of the two tanks can meet the calculated seven day EDG fuel oil supply requirement of 39,900 gallons.

Electrical separation of the two Unit 2 DFO trains is achieved through powering each train's DFO tank transfer pumps from separate instrument buses, panels, transformers, 480V buses and 4kV buses.

As discussed above, the basis for the TS is derived from the length of the maximum probable flood at the PINGP. Per 10CFR50.36(c)(2)(ii)(C), TS 3.8.3 LCO must be established for the DFO system because it is "part of the primary success path which functions or actuates to mitigate a design basis accident that either assumes the failure of or presents a challenge to the integrity of a fission product barrier." The maximum probable flood does not assume the failure of, or present a challenge to, the integrity of a fission product barrier. The current TS LCO is not derived from the length of time to mitigate a DBA; it is derived from the length of the maximum probable flood.

These additional license bases in combination with the USAR requirement ensure the EDGs have proper fuel volume and properties to mitigate a DBA with a LOOP and meet AEC GDC 21 "Single Failure Definition" and GDC 39 "Emergency Power for Engineered Safety Features".

Though PINGP is not a Standard Review Plan (SRP) plant, the proposed license basis additions are supported by item four under the Technical Rationale portion of section 9.5.4 of NUREG 0800 which states, "GDC 17 requires an onsite electric power system for the functioning of SSCs important to safety. GDC 17 requirements include sufficient independence and redundancy for the onsite electric power system to perform safety functions, assuming a single failure."

#### TS revisions:

The proposed TS revisions will reflect the additional license bases, resolve non-conservative DFO volumes, incorporate portions of TSTF-501 and provide editorial clarification of the TS. These revisions to the TS are consistent with several NRC approved documents including, NUREG 0800, NUREG 1431, Regulatory Guide 1.137, and portions of TSTF-501.

### TS 3.7.8, "Cooling Water (CL) System"

The revision to TS 3.7.8 provide two significant improvements. The first improvement provides a more robust Unit 1 Emergency AC Power system. The Unit 1 EDGs are cooled by the CL system. By requiring train separation and considering an active single failure of the DDCLP FOS, potential scenarios for inadequate FOS as discussed in the limitations section are eliminated. The second improvement provides a more robust CL System by maintaining its safety function with an active single failure of the DFO system.

TS Conditions 3.7.8 D and E are modified by a note for Separate Condition entry allowing each train of FOS to be entered into each Condition separately. This is consistent with NUREG-1431.

Condition D added the preface "One or both" to allow for Separate Condition entry and replaced the specific FOS gallon requirements "< 19,500 gal and ≥ 17,000 gal" with days supply requirements "(s) < 7 days and ≥ 6 days". Replacing the specific gallon requirement with a days supply requirement is consistent with the TSTF-501. Required Action D.1 replaces "within limits" with "≥ to 7 days". This specifies the FOS volume required to exit the condition.

Condition E added the preface "One or both" to allow Separate Condition entry. Replace the specific FOS gallon requirements of "< 17,000 gal" with days supply requirements "(s) < 6 days". Replacing the specific gallon requirement with a days supply requirement is consistent with the TSTF-501. Required Action E.1 added "associated" and removed the "s" from "pumps". These are consistent with NUREG-1431.

Surveillance Requirement added "each", removed the "s" in "pumps" and replaced "≥ 19,500 gal" with "contains ≥ 7 day supply" in SR 3.7.8.3. Adding "each" and removing "s" is consistent with NUREG-1431. Replacing the specific gallon requirement with a days supply requirement is consistent with the TSTF-501.

### TS 3.8.3, "Diesel Fuel Oil"

The LCO statement requires "Each" DG FOS to be within limits. This requirement is to ensure there is redundant FOS which are within required limits for the unit. The Applicability statement is clarified by using "associated" when referring to the EDG. This provides clarity in assigning each FOS with its associated EDG. The revision to the Applicability Statement is consistent with NUREG 1431.

The Actions table and the Surveillance Requirement sections have two significant revisions; 1) the addition of a Note for Separate Condition entry and 2) replacing the specified FOS gallon requirements with specified days of DG FOS.

The revisions also include minor administrative changes to clarify Condition B and incorporate the specified day volume requirement.

The note for Separate Condition entry allows each train of DG FOS to be entered separately and is consistent with NUREG 1431. This allows each train of FOS to enter a Condition without affecting the opposite train's TS availability. Each DFO train is separated electrically and can be separated mechanically.

The current TS was found to be non-conservative during the 2007 CDBI. It was identified that if a Unit 1 EDG operates at its upper TS frequency the EDG load is increased and the DFO consumption rate is increased. The increased consumption rate requires a greater DFO volume to supply the EDG than that specified in TS 3.8.3 Condition A and Condition D. Replacing the specified volume requirements with day supply volume requirements will resolve the non-conservatism. TSTF-501 provides a basis for replacing specified gallon requirements with day supply requirements and was noticed for availability by the NRC on Wednesday, May 26, 2010 and is available in the Agencywide Documents Access and Management System (ADAMS) under Accession Number ML090510686.

To adopt TSTF-501, NSPM adopted calculation methodology requirements of ANSI-N195-1976 (Reference 4) to calculate the specific gallon requirements which will be given in the TS Bases, USAR and controlling procedures.

When DFO is delivered to PINGP, samples are taken for testing in accordance with the site DFO program. The DFO program requires the following testing for the Unit 1 and Unit 2 FOS:

- 31 day samples of viscosity, water and sediment.
- Receipt and yearly samples of flashpoint, cloud point, water and sediment by volume, ash, Distillation 90% recovery, endpoint 100% recovery, saybolt viscosity, gravity (API), sulfur, centane index and biodiesel.
- Additional yearly samples of ramsbottom carbon residue and particulate contamination in middle distillate fuels.

The DFO program also requires the following quarterly samples of copper corrosion, flash point, cloud point, water and sediment, ash, distillation recovery, end point recovery, saybolt viscosity, gravity (API), sulfur, and centane index for the Unit 2 FOS.

The current TS requires a specific FOS which requires an LAR to change if an input parameter to the FOS consumption calculation changes. Although the TS state specific FOS volumes, the real basis for the storage volumes is the time

requirement to replenish the FOS during a DBA. The FOS required is determined by calculations based on the EDG operating conditions (e.g., generator output frequency), EDG loads, and the DFO energy content. If any of these input parameters change, as seen during the 2007 CDBI, the required volume of fuel may change requiring a TS change. Additionally, the EDG loads may change. For example, NSPM is currently in design phase for an Extended Power Update, changes to plant motors may change the loads on the EDGs and may increase their rate of fuel consumption.

Administrative changes include adding "properties" to and relocating "DG" in Condition B and removing "tank(s)" from Required Action B.1. These revisions clarify the condition is associated with the DFO properties.

### Conclusions

The changes proposed in this LAR establish an additional DFO system license basis requirement to maintain the safety function of the EDG and DDCLP in the event of an active single failure of the DFO system. The revisions to the associated TS 3.7.8 and 3.8.3 reflects the additional licensing basis. The addition to the license basis creates a safer and more robust DFO system because it adds the requirement for redundancy. The revisions to the TS also incorporate portions of TSTF-501, resolve non-conservatisms in TS 3.8.3, replace specified FOS volumes with day-supply volumes and provide editorial clarification. These TS changes align PINGP with the industry and provide for a safer plant.

## **4. REGULATORY SAFETY ANALYSIS**

### **4.1 Applicable Regulatory Requirements/Criteria**

Title 10 Code of Federal Regulations 50.36, "Technical specifications":

(c) Technical specifications will include items in the following categories:

2) *Limiting conditions for operations.* (ii) A technical specification limiting condition for operation of a nuclear reactor must be established for each item meeting one or more of the following criteria:

(C) Criterion 3. A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.

Regulation 10CFR50.36(c)(2)(ii)(C) Criterion 3 requires the diesel fuel oil system to have a limiting condition for operation because the system directly supports the operability of the emergency diesel generators which are required to mitigate a DBA. Regulation 10CFR50.36 supports the proposed changes in this LAR because the

current basis for the limiting condition of operability is the maximum probable flood. The maximum probable flood is not a DBA. Therefore, replacing the current TS requirement to maintain a 14 day FOS with the requirement to maintain a redundant seven day FOS meets 10CRF50.36(c)(2).

3) *Surveillance requirements.* Surveillance requirements are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met.

This license amendment request proposes to replace the current TS license bases required 14 day FOS requirement with redundant seven day FOS and to replace specific FOS gallon TS requirement with day supply. With these changes, the TS will assure that an adequate supply of fuel is maintained and the limiting conditions for operation of the emergency diesel generators will continue to be met.

Thus with the changes proposed in this license amendment request, the requirements of Title 10 CFR 50.36 continue to be met.

#### General Design Criteria

The construction of the Prairie Island Nuclear Generating Plant was significantly complete prior to issuance of 10 CFR 50, Appendix A, General Design Criteria. The Prairie Island Nuclear Generating Plant was designed and constructed to comply with the Atomic Energy Commission General Design Criteria as proposed on July 10, 1967 (AEC GDC) as described in the plant Updated Safety Analysis Report. AEC GDC proposed Criterion 39 provides design guidance for the operating capability of alternate power systems.

#### Criterion 39 - Emergency Power For Engineered Safety Features

Alternate power systems shall be provided and designed with adequate independency, redundancy, capacity, and testability to permit the functioning required of the engineered safety features. As a minimum, the onsite power system and the offsite power system shall each, independently, provide this capacity assuming a failure of a single active component in each power system.

This license amendment request proposes an additional license basis and changes to the associated Technical Specification to require redundant seven day diesel fuel oil supplies and allows licensee control of the diesel fuel oil storage volume. These changes assure there is sufficient stored diesel fuel oil to permit the functioning of the four emergency diesel generators installed at the plant which provide the redundant source of onsite emergency power. Thus the AEC GDC stated above will continue to be met when the plant is operated with the proposed revision of the Technical Specification.

NUREG-1431, "Standard Technical Specifications, Westinghouse Plants," Revision 3.0

NUREG-1431 provides content and format guidance for Technical Specifications for Westinghouse designed plants such as the Prairie Island Nuclear Generating Plant. NUREG-1431 Technical Specification 3.8.3 provided the content model for Prairie Island Nuclear Generating Plant Technical Specification 3.8.3. Specifically, the proposed Note and changes to the Condition and Required Action sections allow Separate Condition entry and are consistent with NUREG-1431. Additionally, the plant Condition B was modeled after NUREG-1431 Condition D. This license amendment also proposes an administrative change to add "properties" to the statement of Technical Specification 3.8.3, Condition B to provide clarity. With this change, the plant Condition B statement will be consistent with the NUREG-1431 Condition D statement. This is an administrative change which does not affect plant operations.

Regulatory Guide 1.137, "Fuel-Oil Systems for Standby Diesel Generators"

Regulatory Guide 1.137 provides guidance for complying with regulations regarding fuel oil systems and fuel oil quality for standby diesel generators. This regulatory guide states "The requirements for the design of fuel-oil systems for diesel generators that provide standby electrical power for a nuclear power plant that are included in ANSI N195-1976, "Fuel Oil Systems for Standby Diesel-Generators," provide a method acceptable to the NRC staff for complying with the pertinent requirements of General Design Criterion 17 of Appendix A to 10 CFR Part 50." NSPM uses ANSI N195-1976 methodology in determining emergency diesel generator diesel fuel oil consumption rates. Additionally, the regulatory guide discusses calculation methodology "based on the assumption that the diesel generator operates continuously for 7 days at its rated capacity". The proposed replacement of the gallon specific requirement based on a 14 days of emergency diesel operation with the requirement to have redundant seven day diesel fuel oil supplies is consistent with the assumption used in Regulatory Guide 1.137.

TSTF-501, "Relocate Stored Fuel Oil and Lube Oil Volume Values to Licensee Control"

TSTF-501 provides content and format guidance for replacing the specified diesel fuel oil gallon requirement with days supply requirement in the Technical Specification. TSTF-501 has been reviewed and approved by the NRC. The proposed changes to the Actions and Surveillance Requirements sections allow licensee control of the diesel fuel oil storage volume and are consistent with TSTF-501.

#### **4.2 Precedent**

NSPM is not aware of another nuclear facility that has added a license basis for their diesel fuel oil supplies to mitigate a design basis accident with loss of offsite power: most nuclear plants already have a license basis for this event.

The proposed TS change to specify diesel fuel oil requirements as a days supply and

relocate the volume requirements to the TS Bases was noticed by the NRC in the Federal Register with a model application and model safety evaluation as TSTF-501. Other nuclear plants have applied for and been granted license amendments to adopt TSTF-501, such as, Comanche Peak Nuclear Power Plant, Units 1 and 2 (ML102580952) and James A. FitzPatrick Nuclear Power Plant (ML083400161).

#### **4.3 Significant Hazards Consideration**

Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy (hereafter "NSPM"), has evaluated whether or not a significant hazards consideration is involved with the proposed amendment by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

**1. Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?**

Response: No

This license amendment request proposes addition of a diesel fuel oil supply license basis and revision of the associated Technical Specifications to require an adequate emergency diesel generator and diesel driven cooling water pump fuel oil supply for mitigation of a design basis accident with a loss of offsite power. This license amendment request also proposes to: adopt provisions of Technical Specifications Task Force (TSTF) industry traveler 501 (TSTF-501) to specify diesel fuel oil supply requirements as required days for the supply and relocate the corresponding volume to the Technical Specification Bases; and, make minor wording changes to improve conformance to the content guidance of NUREG-1431, "Standard Technical Specifications, Westinghouse Plants".

The emergency diesel generators, diesel driven cooling water pumps and their supporting diesel fuel oil storage systems are not accident initiators and therefore the proposed diesel fuel oil supply license basis addition and proposed Technical Specification changes do not involve an increase in the probability of an accident.

The proposed change to the emergency diesel generator fuel oil supply license basis and the associated Technical Specification changes will assure that the emergency diesel generators diesel driven cooling water pumps perform their required design basis accident mitigation safety function with a loss of offsite power. Since the emergency diesel generators will provide required electrical power as assumed in the accident analyses and the cooling water diesel will provide cooling water as assumed in the accident analyses, the results of the previous accident analyses are not changed and the license basis changes proposed in this license amendment request do not involve a significant increase in the consequences of an accident.

Specification of the diesel fuel oil supply requirements as required days supply in accordance with TSTF-501 continues to assure an adequate quantity of diesel fuel oil is required to be stored; the emergency diesel generators and diesel driven cooling water pumps will have sufficient diesel fuel oil to mitigate a design basis accident with a loss of offsite power, as assumed in the accident analyses, until the fuel supply can be replenished; and therefore, this change does not involve a significant increase in the consequences of an accident.

The proposed minor Technical Specification wording changes to improve alignment with the content guidance of NUREG-1431 are administrative and thus do not involve an increase in the consequences of an accident.

Therefore, the proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

**2. Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?**

Response: No

This license amendment request proposes addition of a diesel fuel oil supply license basis and revision of the associated Technical Specifications to require an adequate emergency diesel generator and diesel driven cooling water pump fuel oil supply for mitigation of a design basis accident with a loss of offsite power. This license amendment request also proposes to: adopt provisions of Technical Specifications Task Force (TSTF) industry traveler 501 (TSTF-501) to specify diesel fuel oil supply requirements as required days for the supply and relocate the corresponding volume to the Technical Specification Bases; and, make minor wording changes to improve conformance to the content guidance of NUREG-1431, "Standard Technical Specifications, Westinghouse Plants".

The proposed diesel fuel oil supply license basis change and the associated Technical Specification changes assure that each emergency diesel generator and diesel driven cooling water pump has an adequate supply of diesel fuel oil, assuming an active single failure, to mitigate a design basis accident with a loss of offsite power until the fuel oil supply can be replenished. The proposed license basis change and associated Technical Specification changes do not create new failure modes or mechanisms and no new accident precursors are generated. The proposed specification of the diesel fuel oil supply requirements as required days supply in accordance with TSTF-501 does not create new failure modes or mechanisms and does not generate new accident. These proposed changes do not challenge the performance or integrity of any safety-related system. Surveillance requirements for the emergency diesel generator and diesel driven cooling water pump fuel oil supplies will continue to demonstrate that the Limiting Conditions for Operation are met and the

emergency diesel generators and diesel driven cooling water pumps have adequate supplies of diesel fuel oil to perform their safety functions.

The proposed minor Technical Specification wording changes to improve alignment with the content guidance of NUREG-1431 are administrative and thus do not create the possibility of a new or different kind of accident.

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

**3. Does the proposed amendment involve a significant reduction in a margin of safety?**

Response: No

This license amendment request proposes addition of a diesel fuel oil supply license basis and revision of the associated Technical Specifications to require an adequate emergency diesel generator and diesel driven cooling water pump fuel oil supply for mitigation of a design basis accident with a loss of offsite power. This license amendment request also proposes to: adopt provisions of Technical Specifications Task Force (TSTF) industry traveler 501 (TSTF-501) to specify diesel fuel oil supply requirements as required days for the supply and relocate the corresponding volume to the Technical Specification Bases; and, make minor wording changes to improve conformance to the content guidance of NUREG-1431, "Standard Technical Specifications, Westinghouse Plants".

The proposed diesel fuel oil supply licensing basis addition and the associated Technical Specification changes involve the addition of a new requirement to assure that each emergency diesel generator and diesel driven cooling water pump has an adequate supply of diesel fuel oil, assuming an active single failure, to mitigate a design basis accident with a loss of offsite power until the fuel oil supply can be replenished. The current license basis for mitigation of an external flood without a single failure will be maintained. Therefore margins of safety are increased and thus no margin of safety is reduced due to these changes.

Specification of the diesel fuel oil supply requirements as required days supply in accordance with TSTF-501 continues to assure an adequate quantity of diesel fuel oil is required to be stored and thus does not reduce a margin of safety.

The proposed minor Technical Specification wording changes to improve alignment with the content guidance of NUREG-1431 are administrative and thus do not involve a significant reduction in a margin of safety.

The proposed Technical Specification changes do not adversely affect the availability, operability, or performance of safety-related systems and components: the emergency diesel generators diesel driven cooling water pumps

will continue to perform their safety functions. The ability of operable structures, systems, and components to perform their designated safety functions are unaffected by these proposed changes. The operability requirements of the proposed Technical Specifications are consistent with the initial condition assumptions of the safety analyses, and the Surveillance requirements for the emergency diesel generator and diesel driven cooling water pump fuel oil supplies will assure that the Limiting Conditions for Operation are met and the emergency diesel generators diesel driven cooling water pumps have adequate supplies of diesel fuel oil to perform their safety functions.

Therefore, the proposed changes do not involve a significant reduction in a margin of safety.

Based on the above, NSPM concludes that the proposed amendment does not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92(c) and, accordingly, a finding of "no significant hazards consideration" is justified.

#### **4.4 Conclusions**

In conclusion, based on the considerations discussed in above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

### **5. ENVIRONMENTAL CONSIDERATION**

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluent that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

## 6. REFERENCES

1. Technical Specification Task Force Improved Standard Technical Specifications Change Traveler TSTF-501-A, "Relocate Stored Fuel Oil and Lube Oil Volume Values to Licensee Control".
2. NRC Administrative Letter (AL) 98-10, "Dispositioning of Technical Specifications That Are Insufficient to Assure Plant Safety".
3. NUREG-1431 Vol.1, Rev. 3.0, "Standard Technical Specifications Westinghouse Plants".
4. ANSI N195-1976, American National Standards Institute "Fuel oil Systems for Standby Diesel-Generators".
5. TIA2001-10 NRR – Subject: Prairie Island Nuclear Generating Plant, Unit 2 Response to TIA 2001-10 – "Design Basis Assumptions for Ability of Prairie Island, Unit 2, Emergency Diesel Generators to Meet Single Failure Criteria for External Events" (TAC NO. MB 2953).
6. Quality Assurance Inspection Report : PINGP Receipt Inspection Report – Diesel Engine & Accessories (DDCLP Engine Performance Data).
7. Regulatory Guide 1.137, "Fuel-Oil Systems For Standby Diesel Generators".
8. NUREG-0800, "Standard Review Plan (SRP) for the Review of Safety Analysis Reports for Nuclear Power Plants".

**ENCLOSURE, ATTACHMENT 1**

**Technical Specification Pages (Markup)**

3.7.8-4; 3.7.8-5; 3.8.3-1; 3.8.3-2

5 pages follow

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. <u>-----NOTE-----</u>  <u>Separate Condition entry is allowed for each stored diesel driven CL pump fuel oil supply.</u>  <u>-----</u>  <u>-----</u></p> <p><u>One or both stored diesel driven CL pumps stored fuel oil supply(s) &lt; 19,500 gal 7 days and ≥ 17,000 gal 6 days.</u></p>	<p>D.1 Restore fuel oil supply to ≥ <u>7 days</u> within limits.</p>	<p>48 hours</p> <p><u>AND</u></p> <p>9 days from discovery of failure to meet the LCO</p>
<p>E. <u>-----NOTE-----</u>  <u>Separate Condition entry is allowed for each stored diesel driven CL pump fuel oil supply.</u>  <u>-----</u>  <u>-----</u></p> <p><u>One or both stored diesel driven CL pumps stored fuel oil supply(s) &lt; 6 days 17,000 gal.</u></p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition D not met.</p>	<p>E.1 Declare <u>associated</u> diesel driven CL pumps inoperable.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.7.8.1 -----NOTE----- Isolation of CL flow to individual components does not render the CL System inoperable. ----- Verify each CL System manual, power operated, and automatic valve in the flow path servicing safety related equipment, that is not locked, sealed, or otherwise secured in position, is in the correct position.</p>	31 days
<p>SR 3.7.8.2 Verify each required diesel driven CL pump starts and assumes load within one minute.</p>	31 days
<p>SR 3.7.8.3 Verify <u>each</u> stored diesel driven CL pumps fuel oil supply <u>contains &gt; 19,500 gal</u> <u>7 day supply</u>.</p>	31 days
<p>SR 3.7.8.4 Verify OPERABILITY of required vertical motor driven CL pump.</p>	92 days
<p>SR 3.7.8.5 Verify each CL System automatic valve required to mitigate accidents that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.</p>	24 months
<p>SR 3.7.8.6 Verify the required diesel driven and required vertical motor driven CL pumps start automatically on an actual or simulated actuation signal.</p>	24 months

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 Diesel Fuel Oil

LCO 3.8.3 ~~The Each~~ stored diesel generator (DG) fuel oil supply shall be within limits.

APPLICABILITY: When the associated DG(s) is required to be OPERABLE.

ACTIONS

-----NOTE-----

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Separate Condition entry is allowed for each stored DG fuel oil supply.  
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CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>A. <del>One or both</del> stored DG fuel oil supply(s) <u>&lt; 7 days and &gt; 6 days</u>.</p> <p>— Unit 1 &lt; 42,000 gal and &gt; 36,000 gal;</p> <p>— Unit 2 &lt; 75,000 gal and &gt; 65,000 gal.</p>	<p>A.1 Restore fuel oil supply to <math>\geq</math> <u>7 days</u> within limits.</p>	48 hours
<p>B. One or more <del>DG</del> fuel oil tank(s) with stored <u>DG</u> fuel oil <u>properties not</u> within limits(s).</p>	<p>B.1 Restore fuel oil <del>tank(s)</del> properties to within limits(s).</p>	7 days

Diesel Fuel Oil  
3.8.3

C. Required Action and associated Completion Time of Condition B not met.	C.1 Isolate the associated <del>DG</del> fuel oil tank(s).	2 hours
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ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. <u>One or both</u> stored DG fuel oil supply(s) &lt; 6 days.÷</p> <p>— Unit 1 &lt; 36,000 gal;</p> <p>— Unit 2 &lt; 65,000 gal.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Conditions A or C not met.</p>	<p>-----NOTE-----</p> <p>Enter applicable Conditions and Required Actions of LCO 3.7.8, "CL System" for CL train(s) made inoperable as a result of stored fuel oil properties not within limits.</p> <p>-----</p> <p>D.1 Declare <u>associated</u> DGs inoperable.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.3.1 Verify <u>each</u> stored DG fuel oil supply contains <u>≥ 7</u> day supply.÷</p> <p>Unit 1 ≥ 42,000 gal; and Unit 2 ≥ 75,000 gal of fuel.</p>	<p>31 days</p>
<p>SR 3.8.3.2 Verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.</p>	<p>In accordance with the Diesel Fuel Oil Testing Program</p>

**ENCLOSURE, ATTACHMENT 2**

**Technical Specification Bases (Markup)**

B 3.7.8-4; B 3.7.8-12; B 3.7.8-13; B 3.7.8-14; B 3.7.8-16; B 3.7.8-17;  
B 3.7.8-20; B 3.8.3-1 – B 3.8.3-8

15 pages follow

BASES

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APPLICABLE  
SAFETY  
ANALYSES  
(continued)

failure of any active component, assuming the loss of offsite power. This assumes a maximum CL temperature of 95°F occurring simultaneously with design heat loads for the system.

The CL System satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

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LCO

Two CL trains are required to be OPERABLE to provide the required redundancy to ensure that the system functions to remove post accident heat loads, assuming that the worst case single active failure occurs coincident with the loss of offsite power.

A CL train is considered OPERABLE when:

- a. The safeguards CL pump, aligned to the train, is OPERABLE;
- b. The associated header is OPERABLE; and
- c. The associated piping, valves, and instrumentation and controls required to perform the safety related function are OPERABLE.

A diesel driven safeguards CL pump is considered OPERABLE when:

- a. The pump can meet the design flow/pressure requirements in accordance with the Inservice Testing Program;
  - b. The associated piping, valves, auxiliaries, and instrumentation and controls required to perform the safety related function are OPERABLE; and
  - c. There is a minimum 7 day stored diesel driven CL pump fuel oil supply of 19,500 gallons available for in that train's tankse diesel driven safeguards pumps. The fuel oil supply equivalent to 7 days is 9,750 gallons.
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BASES

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ACTIONS

B.1, B.2 and B.3 (continued)

The second Note indicates that the applicable Conditions and Required Actions of LCO 3.4.6, "RCS Loops-MODE 4," should be entered if an inoperable CL train results in an inoperable decay heat removal train. This is an exception to LCO 3.0.6 and ensures the proper actions are taken for these components.

The 4 and 72 hour Completion Times are based on the redundant capabilities afforded by the OPERABLE train, and the low probability of a DBA occurring during this time period. In addition, the 4 hour Completion Time for Required Actions B.1 and B.2 is within the time period anticipated to verify OPERABILITY of the required CL pump by administrative means.

C.1 and C.2

If at least one safeguards CL pump for a train or a CL supply header cannot be restored to OPERABLE status within the associated Completion Time, the units must be placed in a MODE in which the LCO does not apply. To achieve this status the units must be placed in at least MODE 3 within 6 hours and in MODE 5 within 36 hours.

The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

D.1

This Condition is modified by a note indicating that separate Condition entry is allowed for each stored diesel driven CL pump fuel oil supply. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each

BASES

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ACTIONS                      D.1 (continued)

inoperable stored diesel driven CL pump fuel oil supply. Complying with the Required Actions for one inoperable stored diesel driven CL pump fuel oil supply may allow for continued operation, and subsequent inoperable stored diesel driven CL pump fuel oil supply is governed by separate Condition entry and application of associated Required Actions.

In this Condition, the 14-7 day stored diesel driven CL pump fuel oil supply for the diesel driven CL pumps is not available. However, the Condition is restricted to fuel oil supply reductions that maintain at least a 12-6 day supply. The fuel oil supply equivalent to a 6 day supply is 8,500 gallons. This restriction allows sufficient time for obtaining the requisite replacement volume and performing the analyses required prior to addition of fuel oil to the tank(s). A period of 48 hours is considered sufficient to complete restoration of the required supply prior to

BASES

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ACTIONS                      D.1 (continued)

declaring the diesel driven CL pumps inoperable. This period is acceptable based on the remaining 12-6 day fuel oil supply, the fact that procedures will be initiated to obtain replenishment, availability of the vertical motor driven CL pump and the low probability of an event during this brief period.

The second Completion Time for Required Action D.1 establishes a limit on the maximum time allowed for combinations of Conditions A and D to be inoperable during any continuous failure to meet this LCO for these Conditions.

The 9 day Completion Time provides a limitation time allowed in this specified Condition after discovery of failure to meet the LCO. This limit is considered reasonable for situations in which

Conditions A and D are entered concurrently. The AND connector between 48 hours and 9 days dictates that both Completion Times apply simultaneously, and the more restrictive must be met.

E.1

This Condition is modified by a note indicating that separate Condition entry is allowed for each stored diesel driven CL pump fuel oil supply. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable stored diesel driven CL pump fuel oil supply. Complying with the Required Actions for one inoperable stored diesel driven CL pump fuel oil supply may allow for continued operation, and subsequent inoperable stored diesel driven CL pump fuel oil supply is governed by separate Condition entry and application of associated Required Actions

With the stored fuel oil supply not within the limits specified or Required Actions and associated Completion Times of Condition D not met, the diesel driven CL pumps may be incapable of performing their intended function and must be immediately declared inoperable.

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SURVEILLANCE  
REQUIREMENTS

SR 3.7.8.1

This SR is modified by a Note indicating that the isolation of the CL System components or systems may render those components inoperable, but does not affect the OPERABILITY of the CL System.

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BASES

SURVEILLANCE  
REQUIREMENTS

SR 3.7.8.1 (continued)

This SR verifies the correct alignment for manual, power operated, and automatic valves in the CL System flow path to assure that the proper flow paths exist for CL System operation. This SR does not

BASES

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SURVEILLANCE  
REQUIREMENTS  
(continued)

SR 3.7.8.3

This SR provides verification that there is an adequate supply inventory of diesel driven CL pump fuel oil in the storage tanks to support ~~the each train's diesel driven CL pump operation of one diesel driven CL pump~~ for 14-7 days. The stored DG fuel oil supply equivalent to a 7 day supply for one train, is 9,750 gallons when calculated in accordance with Regulatory Guide 1.137 (Ref. 3) and ANSI N195-1976 (Ref. 4). The required fuel storage volume is determined using the most limiting energy content of the stored fuel. Using known correlation of diesel fuel oil absolute specific gravity or API gravity to energy content, the required diesel generator output, and the corresponding fuel consumption rate, the onsite fuel storage volume required for 7 days of operation can be determined. SR 3.8.3.2 requires new fuel to be tested to verify that the absolute specific gravity or API gravity is within the range assumed in the diesel driven CL pump diesel fuel oil consumption calculations. The 14-7 day period is sufficient time to place the unit in a safe shutdown condition and to bring in replenishment fuel from an offsite location.

The specified fuel oil inventory for the diesel driven cooling water pumps is in addition to the fuel oil inventory specified for the Unit 1 diesel generators (DGs) (LCO 3.8.3) that must be available in the Unit 1 diesel fuel oil storage system. The Unit 1 fuel oil system has two safety related trains. Each train consists of ~~There are two~~four Design Class I fuel oil storage tanks for the same train ~~Unit 1~~DGs and ~~two~~one Design Class I fuel oil storage tanks for the diesel driven cooling water pumps. These ~~six~~three Design Class I tanks are interconnected such that any tank can be manually aligned to supply ~~any Unit 1~~ either the DG or diesel driven cooling water pump day tank for that train. Any combination of inventory in these ~~six~~three tanks may be used to satisfy the ~~inventory~~supply requirements for the train's diesel driven cooling water pumps and ~~the Unit 1~~DGs. Since the fuel oil for the CL pumps comes from the common fuel oil tanks shared by the Unit 1 diesel generators, the testing and the quality of the fuel oil is controlled by Technical Specification 5.5.11, "Diesel Fuel Oil Testing Program."

The 31 day Frequency is adequate to ensure that a sufficient supply of fuel oil is available, since low level alarms are provided and plant operators would be aware of any large uses of fuel oil during this period.

SR 3.7.8.4

This SR verifies the vertical motor driven CL pump, when required to meet the LCO, is OPERABLE to provide assurance that equipment, when lined up in the safeguards mode, will perform as expected in the safety analysis.

BASES

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SURVEILLANCE  
REQUIREMENTS

SR 3.7.8.4 (continued)

For this test, an acceptable level of performance shall be:

- a. Pump starts and reaches required developed head; and
- b. Control board indications and visual observations indicate that the pump is operating properly for at least 15 minutes.

The 92 day Frequency is based on the Inservice Testing Program requirements (Ref. 35).

Under some plant conditions, the vertical motor driven CL pump is required to operate to provide additional CL flow. When this pump is operated to support plant operations, this test can not be performed and this pump is considered inoperable as a safeguards CL pump.

SR 3.7.8.5

This SR verifies proper automatic operation of the CL System valves on an actual or simulated safety injection actuation signal, including those valves that isolate non-essential equipment from the system. The CL System is a normally operating system that is shared

BASES

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SURVEILLANCE  
REQUIREMENTS

SR 3.7.8.6 (continued)

Operating experience has shown that these components usually pass the Surveillance when performed. Therefore, the Frequency is acceptable from a reliability standpoint.

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REFERENCES

1. USAR, Section 10.4.
  2. USAR, Section 6.
  3. Regulatory Guide 1.137.
  4. ANSI N195-1976.
  5. ASME Code for Operation and Maintenance of Nuclear Power Plants.
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## B 3.8 ELECTRICAL POWER SYSTEMS

### B 3.8.3 Diesel Fuel Oil

#### BASES

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**BACKGROUND** Each diesel generator (DG) unit is provided with a stored DG fuel oil capacity supply sufficient to operate ~~that~~ diesel generator (DGs) for a period of 14-7 days while the DG is supplying maximum post loss of coolant accident load demand as discussed in the USAR (Ref. 1). The onsite fuel oil capacity supply is sufficient to operate the DGs for longer than the time to replenish the onsite supply from outside sources.

New DG fuel oil is placed in a receiving tank where it is tested in accordance with the Prairie Island Nuclear Generation Plant (PINGP) Diesel Fuel Oil Testing Program. Once the test results have verified that the fuel oil is within limits, the fuel oil may be transferred to the safeguards fuel oil storage tanks. Fuel oil is then transferred from the safeguards fuel oil storage tank to the day tank by the fuel oil transfer pumps associated with each storage tank. Redundancy of pumps and piping precludes the failure of one pump, or the rupture of any pipe, valve or tank to result in the loss of more than one DG.

For proper operation of the DGs, it is necessary to ensure the proper quality of the fuel oil. PINGP ensures fuel oil quality through implementation of the Diesel Fuel Oil Testing Program.

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**APPLICABLE  
SAFETY  
ANALYSES**

The initial conditions of Design Basis Accident (DBA) and transient analyses in the USAR (Ref. 2) assume Engineered Safety Feature (ESF) systems are OPERABLE. The DGs are designed to provide sufficient capacity, capability, redundancy, and reliability to ensure the availability of necessary power to ESF systems so that fuel, Reactor Coolant System and containment design limits are not exceeded. These limits are discussed in more detail in the Bases for Section 3.2, Power Distribution Limits; Section 3.4, Reactor Coolant System (RCS); and Section 3.6, Containment Systems.

BASES

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APPLICABLE SAFETY ANALYSES (continued) Since the diesel fuel oil system supports the operation of the standby AC power sources, it satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

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LCO Stored DG diesel fuel oil supply is required to have sufficient supply for 7 days of DG operation at maximum post loss of coolant accident load demand.

~~DG on each unit to operate for 14 days (Ref. 1).~~ It is also required to meet specific standards for quality. This requirement, in conjunction with an ability to obtain replacement supplies within 14-7 days, supports the availability of DGs required to shut down the reactor and to maintain it in a safe condition for an anticipated operational occurrence (AOO) or a postulated DBA with loss of offsite power. DG day tank fuel requirements, as well as transfer capability from the safeguards storage tank to the day tank, are addressed in LCO 3.8.1, "AC Sources-Operating," and LCO 3.8.2, "AC Sources-Shutdown."

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APPLICABILITY The AC sources (LCO 3.8.1 and LCO 3.8.2) are required to ensure the availability of the required power to shut down the reactor and maintain it in a safe shutdown condition after an AOO or a postulated DBA. Since stored DG diesel fuel oil supply supports LCO 3.8.1 and LCO 3.8.2, it is required to be within limits when the associated DG(s) is required to be OPERABLE.

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ACTIONS The ACTIONS Table is modified by a note indicating that separate Condition entry is allowed for each stored DG fuel oil supply. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable stored DG fuel oil supply. Complying with the Required Actions for one inoperable stored DG fuel oil supply may allow for continued operation, and subsequent inoperable stored DG fuel oil supply is governed by separate Condition entry and application of associated Required Actions.

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BASES

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A.1

In this Condition, the ~~14-7~~ day stored DG fuel oil supply for ~~the a~~ DGs is not available. However, the Condition is restricted to fuel oil supply reductions that maintain at least a ~~12-6~~ day supply. The fuel oil supply equivalent to a 6 day supply is 22,000 gallons (Unit 2 – 35,250 gallons). These circumstances may be caused by events, such as full load operation required after an inadvertent start while at minimum required supply, or feed and bleed operations, which may be necessitated by increasing particulate levels or any number of other oil quality degradations. This restriction allows sufficient time for obtaining the requisite replacement volume and performing the analyses

BASES

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ACTIONS

A.1 (continued)

required prior to addition of fuel oil to the tank(s). A period of 48 hours is considered sufficient to complete restoration of the required supply prior to declaring the DGs inoperable. This period is acceptable based on the remaining capacity (> ~~12~~6 days), the fact that procedures will be initiated to obtain replenishment, and the low probability of an event during this brief period.

B.1

This Condition is entered as a result of a failure to meet the acceptance criterion of SR 3.8.3.2. If fuel oil properties in one or more required DG fuel oil tank(s) are not within limits, actions must be taken to restore the fuel oil properties to within limits. If the fuel oil properties in the fuel oil tank(s) are not within limits, it does not mean failure of the fuel oil to burn properly in the diesel engine, and particulate concentration is unlikely to change significantly between Surveillance Frequency intervals, and proper engine performance has been recently demonstrated it is prudent to allow a brief period prior to declaring the associated DG inoperable or isolating the associated fuel oil tank(s). Therefore the 7 day Completion Time allows for further evaluation, resampling and re-analysis of the DG fuel oil.

C.1

With a Required Action and associated Completion Time of Condition B not met, the associated fuel oil tank must be isolated within 2 hours. Isolation of a specific fuel oil tank may not make the associated DG inoperable since the DG can take suction from another fuel oil tank. Isolation of the associated fuel oil tank may cause entry into Conditions A or D which could result in the DG being inoperable.

ACTIONS  
(continued)

D.1

With the stored fuel oil supply not within the limits specified or Required Actions and associated Completion Times of Conditions A or C not met, the DGs may be incapable of performing ~~their~~the intended function and must be immediately declared inoperable.

A Note has been added to Condition D requiring entry into the applicable Conditions and Required Actions of LCO 3.7.8, "CL System" for CL train(s) made inoperable as a result of stored fuel oil properties not within limits. Since the diesel generators and the diesel driven CL pumps share a common storage tank, the diesel fuel oil properties are maintained by Specification 5.5.11, "Diesel Fuel Oil Testing Program." Therefore, if the fuel oil properties are not within limits, both the diesel generators and the diesel driven CL pumps are affected and appropriate Required Actions taken.

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SURVEILLANCE  
REQUIREMENTS

SR 3.8.3.1

This SR provides verification that there is an adequate ~~inventory~~ supply of DG fuel oil in the storage tanks to support ~~the DG~~ operation of one DG for 14-7 days. The stored DG fuel oil supply equivalent to a 7 day supply is 26,750 gallons (Unit 2 – 39,900 gallons) when calculated in accordance with Regulatory Guide 1.137 (Ref. 3) and ANSI N195-1976 (Ref. 4). The required fuel storage volume is determined using the most limiting energy content of the stored fuel. Using known correlation of diesel fuel oil absolute specific gravity or API gravity to energy content, the required diesel generator output, and the corresponding fuel consumption rate, the onsite fuel storage volume required for 7 days of operation can be determined. SR 3.8.3.2 requires new fuel to be tested to verify that the absolute specific gravity or API gravity is within the range assumed in the DG diesel fuel oil consumption calculations. The 7-14 day period is sufficient time to place the unit in a safe shutdown condition and to bring in replenishment fuel from an offsite location.

The specified fuel oil inventory for the Unit 1 diesel generators (DGs) is in addition to the fuel oil inventory specified for the diesel driven cooling water pumps (LCO 3.7.8) that must be available in

the Unit 1 diesel fuel oil storage system. The Unit 1 fuel oil system has two safety related trains. Each train consists of ~~There are~~ ~~four~~two Design Class I fuel oil storage tanks for the same train ~~Unit~~ ~~1-DGs and~~ ~~two~~one Design Class I fuel oil storage tanks for the same train diesel driven cooling water pumps. These ~~six~~three Design Class I tanks are interconnected such that any tank can be manually aligned to supply ~~any~~ ~~either~~ ~~the~~ ~~Unit 1~~ DG or diesel driven cooling water pump day tank for that train. Any combination of inventory in these ~~six~~three tanks may be used to satisfy the ~~inventory supply~~ requirements for the ~~Unit 1~~train's DGs and ~~the~~ diesel driven cooling water pumps.

SURVEILLANCE  
REQUIREMENTS

SR 3.8.3.1 (continued)

Unit 2 DG fuel oil system has two safety related trains. Each train consists of ~~There are four Unit 2 two~~ Design Class I fuel oil storage tanks for the same train DG. These ~~four two~~ Unit 2 tanks are interconnected such that any tank can be manually aligned to supply either ~~Unit 2 the same train~~ DG day tank. Any combination of inventory in these ~~four two~~ Unit 2 tanks may be used to satisfy the Unit 2 DG inventory supply requirements for the train's DG.

The 31 day Frequency is adequate to ensure that a sufficient supply of fuel oil is available, since low level alarms are provided and unit operators would be aware of any large uses of fuel oil during this period.

SR 3.8.3.2

The tests for the new fuel oil prior to addition into the safeguards storage tank(s) are a means of determining whether new fuel oil is of the appropriate grade and has not been contaminated with substances that would have an immediate, detrimental impact on diesel engine combustion. If results from these tests are within acceptable limits, the fuel oil may be added to the safeguards storage tanks without concern for contaminating the entire volume of fuel oil in the safeguards storage tanks. These tests are to be conducted prior to adding the new fuel to the safeguards storage tank(s), but in no case is the time between receipt of new fuel and conducting the tests to exceed 31 days. The tests and limits for new and stored fuel are described in the Diesel Fuel Oil Testing Program of Specification 5.5.11.

SURVEILLANCE  
REQUIREMENTS

SR 3.8.3.2 (continued)

Failure to meet any of the limits specified in the Diesel Fuel Oil Testing Program is cause for rejection of the new fuel oil, but does not represent a failure to meet the LCO concern since the fuel oil is not added to the storage tanks. Failure to meet any of the limits for stored fuel requires entry into Condition B.

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REFERENCES

1. USAR, Sections 8.4 and 10.3.
  2. USAR, Section 14.
  3. Regulatory Guide 1.137.
  4. ANSI N195-1976.
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**ENCLOSURE, ATTACHMENT 3**

**Technical Specification Pages (Retyped)**

3.8.7-4; 3.7.8-5; 3.8.3-1; 3.8.3-2

4 pages follow

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. -----NOTE----- Separate Condition entry is allowed for each stored diesel driven CL pump fuel oil supply. -----</p> <p>One or both stored diesel driven CL pump fuel oil supply(s) &lt; 7 days and ≥ 6 days.</p>	<p>D.1 Restore fuel oil supply to ≥ 7 days.</p>	<p>48 hours</p> <p><u>AND</u></p> <p>9 days from discovery of failure to meet the LCO</p>
<p>E. -----NOTE----- Separate Condition entry is allowed for each stored diesel driven CL pump fuel oil supply. -----</p> <p>One or both stored diesel driven CL pump fuel oil supply(s) &lt; 6 days.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Condition D not met.</p>	<p>E.1 Declare associated diesel driven CL pump inoperable.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.7.8.1 -----NOTE----- Isolation of CL flow to individual components does not render the CL System inoperable. -----  Verify each CL System manual, power operated, and automatic valve in the flow path servicing safety related equipment, that is not locked, sealed, or otherwise secured in position, is in the correct position.</p>	31 days
<p>SR 3.7.8.2 Verify each required diesel driven CL pump starts and assumes load within one minute.</p>	31 days
<p>SR 3.7.8.3 Verify each stored diesel driven CL pump fuel oil supply contains <math>\geq 7</math> day supply.</p>	31 days
<p>SR 3.7.8.4 Verify OPERABILITY of required vertical motor driven CL pump.</p>	92 days
<p>SR 3.7.8.5 Verify each CL System automatic valve required to mitigate accidents that is not locked, sealed, or otherwise secured in position, actuates to the correct position on an actual or simulated actuation signal.</p>	24 months
<p>SR 3.7.8.6 Verify the required diesel driven and required vertical motor driven CL pumps start automatically on an actual or simulated actuation signal.</p>	24 months

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 Diesel Fuel Oil

LCO 3.8.3 Each stored diesel generator (DG) fuel oil supply shall be within limits.

APPLICABILITY: When associated DG is required to be OPERABLE.

ACTIONS

-----NOTE-----  
Separate Condition entry is allowed for each stored DG fuel oil supply.  
-----

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or both stored DG fuel oil supply(s) < 7 days and ≥ 6 days.	A.1 Restore fuel oil supply to ≥ 7 days.	48 hours
B. One or more fuel oil tank(s) with stored DG fuel oil properties not within limits.	B.1 Restore fuel oil properties to within limits.	7 days
C. Required Action and associated Completion Time of Condition B not met.	C.1 Isolate the associated fuel oil tank(s).	2 hours

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>D. One or both stored DG fuel oil supply(s) &lt; 6 days.</p> <p><u>OR</u></p> <p>Required Action and associated Completion Time of Conditions A or C not met.</p>	<p>-----NOTE-----</p> <p>Enter applicable Conditions and Required Actions of LCO 3.7.8, "CL System" for CL train(s) made inoperable as a result of stored fuel oil properties not within limits.</p> <p>-----</p> <p>D.1 Declare associated DG inoperable.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.8.3.1 Verify each stored DG fuel oil supply contains <math>\geq 7</math> day supply.</p>	<p>31 days</p>
<p>SR 3.8.3.2 Verify fuel oil properties of new and stored fuel oil are tested in accordance with, and maintained within the limits of, the Diesel Fuel Oil Testing Program.</p>	<p>In accordance with the Diesel Fuel Oil Testing Program</p>