



Monticello Nuclear Generating Plant  
2807 W County Road 75  
Monticello, MN 55362

September 18, 2012

L-MT-12-071  
10 CFR 50.90

U. S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D.C. 20555-0001

Monticello Nuclear Generating Plant  
Docket 50-263  
Renewed Facility Operating License No. DPR-22

License Amendment Request: Adoption of Technical Specifications Task Force (TSTF) Traveler TSTF-501, Revision 1, "Relocate Stored Fuel Oil and Lube Oil Volume Values to Licensee Control"

In accordance with 10 CFR 50.90, Northern States Power Company – Minnesota (NSPM), doing business as Xcel Energy, Inc., proposes to revise Monticello Nuclear Generating Plant (MNGP) Technical Specification (TS) 3.8.3, "Diesel Fuel Oil, Lube Oil, and Starting Air," consistent with TSTF-501, Revision 1, "Relocate Stored Fuel Oil and Lube Oil Volume Values to Licensee Control".

The proposed changes relocate the current stored diesel fuel oil and lube oil numerical volume requirements from the TS to the TS Bases so they may be modified under licensee control. The stored diesel fuel oil inventory will continue to require that a 7-day supply be available to operate one emergency diesel generator (EDG). Condition A in the Required Actions table and Surveillance Requirement (SR) 3.8.3.1 are revised to reflect this proposed change for stored diesel fuel oil. The stored lube oil inventory will continue to require that a 7-day supply be available for each EDG. Condition B in the Required Actions table and SR 3.8.3.2 are also being revised to reflect this proposed change for storage of diesel lube oil.

This proposed change exchanges the specific volume of diesel fuel oil and lubricating oil in the TS with the TS Bases statements that are the underlying basis for the 7-day volumes for a EDG. The specific volumes representing the underlying basis are moved to the TS Bases and placed under licensee control. The change eliminates the administrative burden of requesting a change to the TS when the safety basis for the volume is not changed. No changes are proposed to any SR Frequency, Required Actions, or Completion times in this application.

These proposed changes are consistent with NRC-approved Revision 1 to TSTF-501. The availability of this TS improvement was announced in the *Federal*

*Register* published on May 26, 2010 [75 FR 25988] as part of the consolidated line item improvement process (CLIP).

The current licensing basis for MNGP requires that a 7-day supply of diesel fuel oil be available for a single diesel generator, and a 7-day supply of lube oil be available for each diesel generator.

Enclosure 1 provides a description of the proposed changes and includes the technical evaluation and associated no significant hazards determination and environmental evaluation. Enclosure 2 provides a marked-up copy of the TS pages showing the proposed changes. Enclosure 3 provides a marked-up copy of the TS Bases pages showing the proposed changes. The proposed TS Bases changes are provided for information only.

NSPM requests approval of this proposed license amendment request by September 15, 2013, with the amendment being implemented within 60 days.

In accordance with 10 CFR 50.91(a)(1), "the analysis about the issue of no significant hazards consideration applying the standards in 10 CFR 50.92 is being provided to the Commission.

The MNGP Plant Operations Review Committee has reviewed this application. In accordance with 10 CFR 50.91, a copy of this application, with enclosures, is being provided to the designated Minnesota Official.

Should you have questions regarding this letter, please contact Mr. Richard Loeffler at (763) 295-1247.

#### Summary of Commitments

This letter proposes no new commitments and does not revise any existing commitments.

I declare under penalty of perjury that the foregoing is true and correct.  
Executed on September 18, 2012.



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

Enclosures (3)

cc: Administrator, Region III, USNRC  
Project Manager, Monticello, USNRC  
Resident Inspector, Monticello, USNRC  
Minnesota Department of Commerce

**ENCLOSURE 1**

**MONTICELLO NUCLEAR GENERATING PLANT**

**LICENSE AMENDMENT REQUEST**

**ADOPTION OF TECHNICAL SPECIFICATIONS TASK FORCE (TSTF) TRAVELER  
TSTF-501, REVISION 1, "RELOCATE STORED FUEL OIL AND LUBE OIL VOLUME  
VALUES TO LICENSEE CONTROL"**

**DESCRIPTION OF CHANGES**

(9 pages follow)

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## DESCRIPTION OF CHANGES

### LICENSE AMENDMENT REQUEST ADOPTION OF TECHNICAL SPECIFICATIONS TASK FORCE (TSTF) TRAVELER TSTF-501, REVISION 1, "RELOCATE STORED FUEL OIL AND LUBE OIL VOLUME VALUES TO LICENSEE CONTROL"

#### 1.0 DESCRIPTION

Pursuant to 10 CFR 50.90, Northern States Power Company – Minnesota (NSPM), doing business as Xcel Energy, Inc., proposes to revise Monticello Nuclear Generating Plant (MNGP) Technical Specification (TS) 3.8.3, "Diesel Fuel Oil, Lube Oil, and Starting Air," by relocating the current stored diesel fuel oil and lube oil numerical volume requirements from the TS to the TS Bases so that they may be modified under licensee control. The TS are modified so that the stored diesel fuel oil inventory will continue to require that a 7-day supply be available for operation of one emergency diesel generator (EDG), and the stored lube oil inventory will also continue to require that a 7-day supply be available for each diesel generator. This change is consistent with NRC-approved Technical Specification Task Force (TSTF) Improved Standard Technical Specifications (STS) Change Traveler TSTF-501, Revision 1, "Relocate Stored Fuel Oil and Lube Oil Volume Values to Licensee Control" (Reference 1). The availability of this TS improvement was announced in the *Federal Register* published on May 26, 2010 [75 FR 25988] as part of the consolidated line item improvement process (CLIP) (Reference 2).

#### 2.0 PROPOSED CHANGES

The proposed changes revise TS 3.8.3, "Diesel Fuel Oil, Lube Oil, and Starting Air," by relocating the current stored diesel fuel oil and lube oil numerical volume requirements from the TS to the TS Bases so that it may be modified under licensee control. The TS are modified so that the stored diesel fuel oil and lube oil inventory will require that a 7-day supply be available as described below:

- Condition A in the TS Required Actions

Condition A in the TS Required Actions table is revised for fuel oil inventory in the EDG storage tank. Currently, Condition A is entered when the stored diesel fuel oil numerical volume requirements are not met. As discussed in the current TS Bases, the numerical volume requirements in Condition A are based on volumes less than a 7-day supply, but greater than a 6-day supply. The revision relocates the volumetric requirement from the TS and places it in the TS Bases. The TS is modified so that Condition A is entered when the stored diesel fuel oil inventory is

less than a 7-day supply, but greater than a 6-day supply in the storage tank for operation of one EDG.

- Condition B in the TS Required Actions

Condition B in the TS Required Actions table is revised for lube oil inventory. Currently, Condition B is entered when the lube oil numerical volume requirements are not met. As discussed in the current TS Bases, the lube oil numerical volume requirements in Condition B are based on volumes less than a 7-day supply, but greater than an a 6-day supply. The revision relocates the lube oil volumetric requirements from the TS and places it in the TS Bases. The TS is modified so that Condition B is entered when the stored lube oil inventory is less than a 7-day supply, but greater than a 6-day supply for each EDG.

- Surveillance Requirements (SR) 3.8.3.1 and 3.8.3.2

Currently, SR 3.8.3.1 and SR 3.8.3.2 verify that the stored diesel fuel oil and lube oil numerical volume requirements are met, respectively. As discussed in the current TS Bases, the numerical volume requirements in SR 3.8.3.1 and SR 3.8.3.2 are based on maintaining at least a 7-day supply. The revision relocates the volumetric requirements from the TS and places it in the TS Bases. SR 3.8.3.1 is modified to verify that the stored diesel fuel oil inventory is greater than or equal to a 7-day supply for operation of one EDG. SR 3.8.3.2 is modified to verify that the stored lube oil inventory is greater than or equal to a 7-day supply for each EDG.

A mark-up of the proposed TS changes is provided in Enclosure 2. Proposed revisions to the TS Bases are also included in this application. Adoption of the TS Bases associated with TSTF Traveler-501, Revision 1, is an integral part of implementing this TS amendment. The changes to the affected TS Bases pages will be incorporated in accordance with MNGP Specification 5.5.9, "Technical Specification (TS) Bases Control Program," following approval of a license amendment. The proposed changes are provided in Enclosure 3 for information only.

TSTF Traveler-501, Revision 1, references ANSI N195-1976, "Fuel Oil Systems for Standby Diesel-Generators," and Regulatory Guide 1.137, "Fuel-Oil Systems for Standby Diesel Generators". At MNGP, the storage volume of fuel oil equivalent to a 7-day and 6-day supply is calculated using the NRC-approved methodology described in ANSI N195-1976, which is endorsed by Regulatory Guide 1.137. In addition, the proper quality of diesel fuel oil for MNGP is ensured using the recommended practices in ANSI N195-1976 and Regulatory Guide 1.137 as described in the TS Bases. MNGP meets the intent of Regulatory Guide 1.137. This application does not propose to modify the current references.

NSPM is not proposing variations or deviations from the TS changes described in TSTF-501, Revision 1, or the NRC staff's model safety evaluation (SE) published in the *Federal*

Register on May 26, 2010 (75 FR 29588) as part of the CLIP Notice of Availability.

### **3.0 BACKGROUND**

The background for this application is addressed by the model safety evaluation referenced in the NRC's Notice of Availability published on May 26, 2010 (75 FR 29588) and TSTF-501, Revision 1.

### **4.0 TECHNICAL ANALYSIS**

NSPM has reviewed the model SE published in the *Federal Register* on May 26, 2010 (75 FR 29588) as part of the CLIP Notice of Availability. NSPM has concluded that the technical justifications presented in the SE prepared by the NRC staff are applicable to MNGP and therefore justify this amendment for the incorporation of the proposed changes to the MNGP TS.

### **5.0 REGULATORY ANALYSIS**

#### **5.1 No Significant Hazards Determination**

In accordance with the requirements of 10 CFR 50.90, Northern States Power Company – Minnesota (NSPM) requests an amendment to facility Renewed Operating License DPR-22, for the Monticello Nuclear Generating Plant (MNGP). The proposed changes revise TS by relocating the current stored diesel fuel oil and lube oil numerical volume requirements from the TS to the TS Bases so that it may be modified under licensee control.

The proposed changes revise TS 3.8.3, "Diesel Fuel Oil, Lube Oil, and Starting Air". The current stored diesel fuel oil numerical volume requirements are based on a 7-day supply. The TS are modified so that the stored diesel fuel oil inventory will require that a 7-day supply be available for a diesel generator. The current stored diesel lube oil numerical volume requirements are based on a 7-day supply. The TS are modified so that the stored diesel lube oil inventory will require that a 7-day supply be available for each diesel generator.

This change is consistent with NRC-approved Technical Specification Task Force (TSTF) Improved Standard Technical Specifications (STS) Change Traveler TSTF-501, Revision 1, "Relocate Stored Fuel Oil and Lube Oil Volume Values to Licensee Control". The availability of this TS improvement was announced in the *Federal Register* published on May 26, 2010 (75 FR 25988] as part of the consolidated line item improvement process (CLIP).



The NSPM has evaluated the proposed amendment in accordance with 10 CFR 50.91 against the standards in 10 CFR 50.92 and has determined that the operation of the MNGP in accordance with the proposed amendment presents no significant hazards. NSPM's evaluation against each of the criteria in 10 CFR 50.92 follows.

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

Response: No.

The proposed change relocates the volume of diesel fuel oil required to support 7-day operation of a emergency diesel generator (EDG), and the volume equivalent to a 6-day supply, to licensee control. The proposed change also relocates the volume of diesel lube oil required to support 7-day operation of each onsite EDG, and the volume equivalent to a 6-day supply, to licensee control. The specific volume of fuel oil equivalent to a 7-day and 6-day supply is calculated using the NRC-approved methodology described in Regulatory Guide 1.137, "Fuel-Oil Systems for Standby Diesel Generators" and ANSI N195-1976, "Fuel Oil Systems for Standby Diesel-Generators." The specific volume of lube oil equivalent to a 7-day and 6-day supply is based on the diesel generator manufacturer's consumption values for the run time of the diesel generator. Because the requirement to maintain a 7-day supply of diesel fuel oil and lube oil is not changed and is consistent with the assumptions in the accident analyses, and the actions taken when the volume of fuel oil and lube oil are less than a 6-day supply have not changed, neither the probability nor the consequences of any accident previously evaluated will be affected.

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.

The change does not involve a physical alteration of the plant (i.e., no new or different type of equipment will be installed) or a change in the methods governing normal plant operation. The change does not alter assumptions made in the safety analysis but ensures that the diesel generator operates as assumed in the accident analysis. The proposed change is consistent with the safety analysis assumptions.

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

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

Response: No.

The proposed change relocates the volume of diesel fuel oil required to support 7-day operation of a emergency diesel generator, and the volume equivalent to a 6-day supply, to licensee control. The proposed change also relocates the volume of diesel lube oil required to support 7-day operation of each onsite emergency diesel generator, and the volume equivalent to a 6-day supply, to licensee control. As the bases for the existing limits on diesel fuel oil and lube oil are not changed, no change is made to the accident analysis assumptions and no margin of safety is reduced as part of this change.

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

Based on the above, NSPM has determined that operation of the facility in accordance with the proposed change does not involve a significant hazards consideration as defined in 10 CFR 50.92(c), in that it does not: (1) involve a significant increase in the probability or consequences of an accident previously evaluated; or (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety.

## 5.2 Applicable Regulatory Requirements

A description of the proposed TS change and its relationship to applicable regulatory requirements were published in the *Federal Register* Notice of Availability on May 26, 2010 [75 FR 25988]. NSPM has reviewed the NRC staff's model SE referenced in the CLIP Notice of Availability and concluded that the regulatory requirements section is applicable to MNGP.

- 10 CFR 50.36, Technical Specifications

10 CFR 50.36 "Technical Specifications," provides the regulatory requirements for the content required in the TS. As stated in 10 CFR 50.36, the TS include Limiting Conditions for Operation (LCO) and Surveillance Requirements (SR) to assure that the LCOs are met. The proposed changes to the TS LCOs and SRs for the stored diesel fuel oil and lube oil inventory will continue to require that a 7-day supply be available for

operation of emergency diesel generator (EDG) The proposed changes continue to meet the requirements of 10 CFR 50.36.

Also, MNGP was designed largely before the publishing of the 70 General Design Criteria (GDC) for Nuclear Power Plant Construction Permits proposed by the Atomic Energy Commission (AEC) for public comment in July 1967, and constructed prior to the 1971 publication of Appendix A, "General Design Criteria for Nuclear Power Plants," to 10 CFR Part 50. As such, the MNGP was not licensed to the Appendix A, General Design Criteria (GDC). A review of the applicable principal design criteria (PDC) is provided below.

The MNGP USAR, Section 1.2, lists the PDC for the design, construction and operation of the plant. MNGP USAR Appendix E provides a plant comparative evaluation to the 70 proposed AEC design criteria. It was concluded that the plant conforms to the intent of the GDC. The applicable GDC and PDC associated with the operation of the EDGs are discussed below.

- PDC 1.2.6 – Plant Electrical Power

Sufficient normal and standby auxiliary sources of electrical power are provided to attain prompt shutdown and continued maintenance of the plant in a safe condition under all credible circumstances. The capacity of the power sources is adequate to accomplish all required engineered safeguards functions under all postulated design basis accident conditions.

The applicable 70 Draft AEC General Design Criteria (AEC-GDC) are:

- Criterion 24 - Emergency Power for Protection Systems (Category B)

In the event of the loss of all off-site power, sufficient alternate sources of power shall be provided to permit the required functioning of the protection systems.

- Criterion 39 - Emergency Power for Engineered Safety Features (Category A)

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 on-site power system and the off-site power system shall each, independently, provide this capacity assuming a failure of a single active component in each power system.

While not part of the MNGP Licensing Basis, the applicable 10 CFR 50, Appendix A, General Design Criteria are:

- GDC 17, Electric Power Systems

GDC 17 requires that an onsite electric power system and an offsite electric power system be provided to permit functioning of structures, systems, and components important to safety. In addition, GDC 17 contains requirements concerning system capacity, capability, independence, redundancy, availability, testability, and reliability.

The following additional regulatory guidance are applicable:

- Regulatory Guide 1.137 and ANSI N195-1976

The specific volume of fuel oil equivalent to a 7-day and 6-day supply is calculated using the NRC-approved methodology described in Regulatory Guide 1.137, "Fuel-Oil Systems for Standby Diesel Generators" and ANSI N195-1976, "Fuel Oil Systems for Standby Diesel-Generators".

NSPM has evaluated the proposed changes against the applicable regulatory requirements and acceptance criteria. The technical analysis concludes that the proposed TS changes will continue to assure that the design requirements and acceptance criteria for MNGP are met. Based on this, there is reasonable assurance that the health and safety of the public, following approval of this TS change, is unaffected.

## **6.0 ENVIRONMENTAL EVALUATION**

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

## 7.0 REFERENCES

1. TSTF Traveler-501, Revision 1, "Relocate Stored Fuel Oil and Lube Oil Volume Values to Licensee Control" (ADAMS Accession No. ML090510686).
2. Federal Register Notice published on May 26, 2010 [75 FR 25988], Notice of Availability of the Models for Plant-Specific Adoption of Technical Specifications Task Force Traveler TSTF-501, Revision 1, "Relocate Stored Fuel Oil and Lube Oil Volume Values to Licensee Control".
3. Regulatory Guide 1.137, "Fuel-Oil Systems for Standby Diesel Generators," Revision 1.
4. ANSI N195-1976, "Fuel Oil Systems for Standby Diesel-Generators".

**ENCLOSURE 2**

**MONTICELLO NUCLEAR GENERATING PLANT**

**LICENSE AMENDMENT REQUEST**

**ADOPTION OF TECHNICAL SPECIFICATIONS TASK FORCE (TSTF) TRAVELER  
TSTF-501, REVISION 1, "RELOCATE STORED FUEL OIL AND LUBE OIL VOLUME  
VALUES TO LICENSEE CONTROL"**

**MARKED-UP TECHNICAL SPECIFICATION PAGES**

(2 pages follow)

3.8 ELECTRICAL POWER SYSTEMS

3.8.3 Diesel Fuel Oil, Lube Oil, and Starting Air

LCO 3.8.3 The stored diesel fuel oil, lube oil, and starting air subsystems shall be within limits for each required emergency diesel generator (EDG).

APPLICABILITY: When associated EDG is required to be OPERABLE.

ACTIONS

-----NOTE-----  
Separate Condition entry is allowed for each EDG.  
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CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Fuel oil level <del>&lt; 38,300 gal and</del> <del>&gt; 33,600 gal</del> in storage tank.	A.1 Restore fuel oil level to within limits.	48 hours
B. One or more EDGs with lube oil inventory <del>&lt; 165 gal and &gt; 142 gal.</del>	B.1 Restore lube oil inventory to within limits.	48 hours
C. Stored fuel oil total particulates not within limit.	C.1 Restore fuel oil total particulates to within limit.	7 days
D. New fuel oil properties not within limits.	D.1 Restore stored fuel oil properties to within limits.	30 days

*< 7-day supply and > 6-day supply.*

*< 7-day supply and > 6-day supply*

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. One or more EDGs with starting air receiver pressure in one starting air subsystem < 165 psig.	E.1 Restore starting air receiver pressure to $\geq$ 165 psig.	7 days
F. One or more EDGs with starting air receiver pressure in both starting air subsystems < 165 psig and $\geq$ 125 psig.	F.1 Restore starting air receiver pressure in one starting air subsystem to $\geq$ 165 psig.	48 hours
G. Required Action and associated Completion Time of Condition A, B, C, D, E, or F not met.  <u>OR</u>  One or more EDGs with diesel fuel oil, lube oil, or starting air subsystem(s) not within limits for reasons other than Condition A, B, C, D, E, or F.	G.1 Declare associated EDG inoperable.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.8.3.1 Verify the fuel oil storage tank contains $\geq$ <del>98,300</del> gal of fuel.	31 days
SR 3.8.3.2 Verify, for each EDG, lube oil inventory is $\geq$ <del>165</del> gal.	31 days

*a 7-day supply*

*a 7-day supply.*



**ENCLOSURE 3**

**MONTICELLO NUCLEAR GENERATING PLANT**

**LICENSE AMENDMENT REQUEST**

**ADOPTION OF TECHNICAL SPECIFICATIONS TASK FORCE (TSTF) TRAVELER  
TSTF-501, REVISION 1, "RELOCATE STORED FUEL OIL AND LUBE OIL VOLUME  
VALUES TO LICENSEE CONTROL"**

**MARKED-UP TECHNICAL SPECIFICATION BASES PAGES**

(10 pages follow)

## B 3.8 ELECTRICAL POWER SYSTEMS

### B 3.8.3 Diesel Fuel Oil, Lube Oil, and Starting Air

#### BASES

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#### BACKGROUND

The emergency diesel generators (EDGs) are provided with a common storage tank having a fuel oil capacity sufficient to operate one EDG for a period of 7 days while the EDG is supplying full load (2500 kW) as discussed in USAR, Section 8.4.1.1 (Ref. 1). This onsite fuel oil capacity is sufficient to operate the EDGs for longer than the time to replenish the onsite supply from outside sources.

*and Regulatory Guide 1.137 (Ref. 2)*

Fuel oil is transferred from storage tank to day tanks by either the diesel oil service pump or transfer pump. Redundancy of pumps and piping precludes the failure of one pump, or the rupture of any pipe or valve to result in the loss of more than one EDG. The outside fuel oil storage tank and piping are located underground. The pumps are located in the pump house.

For proper operation of the standby EDGs, it is necessary to ensure the proper quality of the fuel oil. Regulatory Guide 1.137 (Ref. 2) addresses the recommended fuel oil practices as supplemented by ANSI N195 (Ref. 3). The fuel oil properties governed by these SRs are the water and sediment content, API gravity, and impurity level.

The EDG lubrication system is designed to provide sufficient lubrication to permit proper operation of its associated EDG under all loading conditions. The system is required to circulate the lube oil to the diesel engine working surfaces and to remove excess heat generated by friction during operation. Each engine oil sump contains an inventory capable of supporting a minimum of 7 days of operation. This supply is sufficient to allow the operator to replenish lube oil from outside sources.

Each EDG includes two independent air start subsystems. Each EDG air start subsystem has adequate capacity with air receiver pressure at  $\geq 165$  psig for two successive start attempts on the EDG without recharging the air start receivers. Each EDG air start subsystem includes three starting air receivers. The automatic start logic for each EDG will provide a cranking sequence to ensure two start attempts from each subsystem staggered such that there are a total of three start attempts on the EDG. The first attempt will use the selected air start subsystem, the second attempt will use both air start subsystems, while the third attempt will use the air start subsystem that is not selected or not used on the first attempt. The third start attempt may not occur within enough time for the engine to be ready to accept load within 10 seconds of a demand requirement.

BASES

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APPLICABLE  
SAFETY  
ANALYSES

The initial conditions of Design Basis Accident (DBA) and transient analyses in USAR, Chapter 14 (Ref. 4), assume Engineered Safety Feature (ESF) systems are OPERABLE. The EDGs 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 3.5, Emergency Core Cooling Systems (ECCS) and Reactor Core Isolation Cooling (RCIC) System; and Section 3.6, Containment Systems.

Since Diesel Fuel Oil, Lube Oil, and Starting Air 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 diesel fuel oil is required to have sufficient supply for 7 days of full load operation for one EDG. It is also required to meet specific standards for quality. Additionally, sufficient lube oil supply must be available to ensure the capability to operate both EDGs at full load for 7 days. This requirement, in conjunction with an ability to obtain replacement supplies within 7 days, supports the availability of EDGs 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. EDG fuel oil transfer capability from the storage tank to the day tank and from the day tank to the base tank are addressed in LCO 3.8.1, "AC Sources - Operating," and LCO 3.8.2, "AC Sources - Shutdown."

Each starting air subsystem is required to have a minimum capacity for two successive EDG start attempts without recharging the air start receivers.

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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. Because stored diesel fuel oil, lube oil, and starting air subsystem support LCO 3.8.1 and LCO 3.8.2, stored diesel fuel oil, lube oil, and starting air are required to be within limits when the associated EDG 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 EDG. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable EDG subsystem. Complying with the Required Actions for one inoperable EDG subsystem may allow for continued operation, and subsequent inoperable EDG subsystem(s) governed by separate Condition entry and application of associated Required Actions.

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No Changes  
For Information

BASES

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ACTIONS (continued)

A.1

In this Condition, the 7 day fuel oil supply for an EDG is not available. However, the Condition is restricted to fuel oil level reductions that maintain at least a 6 day supply. These circumstances may be caused by events such as either:

Insert 1

- a. Full load operation required for an inadvertent start while at minimum required level; or
- b. Feed and bleed operations that 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 required prior to addition of the fuel oil to the tank. A period of 48 hours is considered sufficient to complete restoration of the required level prior to declaring both EDGs inoperable. This period is acceptable based on the remaining capacity (> 6 days), the fact that procedures will be initiated to obtain replenishment, and the low probability of an event during this brief period.

In this condition, the 7-day

B.1

i.e.,

Insert 2

is

With lube oil inventory  $\leq 165$  gal, sufficient lube oil to support 7 days of continuous EDG operation at full load conditions may not be available. However, the Condition is restricted to lube oil volume reductions that maintain at least a 6 day supply. This restriction allows sufficient time for obtaining the requisite replacement volume. A period of 48 hours is considered sufficient to complete restoration of the required volume prior to declaring the EDG inoperable. This period is acceptable based on the remaining capacity (> 6 days), the low rate of usage, the fact that procedures will be initiated to obtain replenishment, and the low probability of an event during this brief period.

C.1

This Condition is entered as a result of a failure to meet the acceptance criterion for particulates. Normally, trending of particulate levels allows sufficient time to correct high particulate levels prior to reaching the limit of acceptability. Poor sample procedures (bottom sampling), contaminated sampling equipment, and errors in laboratory analysis can produce failures that do not follow a trend. Since the presence of particulates does not mean failure of the fuel oil to burn properly in the

Adoption of Technical Specifications Task Force (TSTF) Traveler TSTF-501,  
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Control"

TS Bases 3.8.3 Diesel Fuel Oil, Lube Oil, and Starting Air

Insert 1 (A.1)

The fuel oil level equivalent to a 6-day supply is 33,600 gallons.

Insert 2 (B.1)

The lube oil volume equivalent to a 6-day supply is 142 gallons for each EDG.

BASES

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ACTIONS (continued)

diesel engine, since particulate concentration is unlikely to change significantly between Surveillance Frequency intervals, and since proper engine performance has been recently demonstrated (within 31 days), it is prudent to allow a brief period prior to declaring the associated EDG inoperable. The 7 day Completion Time allows for further evaluation, resampling, and re-analysis of the EDG fuel oil.

D.1

With the new fuel oil properties defined in the Bases for SR 3.8.3.3 not within the required limits, a period of 30 days is allowed for restoring the stored fuel oil properties. This period provides sufficient time to test the stored fuel oil to determine that the new fuel oil, when mixed with previously stored fuel oil, remains acceptable, or to restore the stored fuel oil properties. This restoration may involve feed and bleed procedures, filtering, or combination of these procedures. Even if a EDG start and load was required during this time interval and the fuel oil properties were outside limits, there is high likelihood that the EDG would still be capable of performing its intended function.

E.1

With starting air receiver pressure < 165 psig in one air starting subsystem, sufficient capacity for three successive EDG start attempts does not exist. However, as long as the other starting air receiver subsystem pressure is  $\geq$  165 psig, there is adequate capacity for two start attempts, and the EDG can be considered OPERABLE while the air receiver pressure is restored to the required limit. A period of 7 days is considered sufficient to complete restoration to the required pressure prior to declaring the EDG inoperable. This period is acceptable based on the remaining air start capacity in the other starting air subsystem, the fact that most EDG starts are accomplished on the first attempt, and the low probability of an event during the 7 day period.

F.1

With starting air receiver pressure < 165 psig in both starting air subsystems, sufficient capacity for three successive EDG start attempts does not exist. However, as long as the receiver pressure is > 125 psig in at least one starting air subsystem, there is adequate capacity for at least one start attempt, and the EDG can be considered OPERABLE while the

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ACTIONS (continued)

air receiver pressure is restored to the required limit. A period of 48 hours is considered sufficient to complete restoration to the required pressure prior to declaring the EDG inoperable. This period is acceptable based on the remaining air start capacity, the fact that most EDG starts are accomplished on the first attempt, and the low probability of an event during this brief period.

G.1

With a Required Action and associated Completion Time not met, or the stored diesel fuel oil, lube oil, or starting air subsystem not within limits for reasons other than addressed by Conditions A through F, the associated EDG may be incapable of performing its intended function and must be immediately declared inoperable.

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SURVEILLANCE  
REQUIREMENTS

SR 3.8.3.1

Insert 3

This SR provides verification that there is an adequate inventory of fuel oil in the storage tank to support one EDG's operation for 7 days at full load. The 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 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

Insert 4

This Surveillance ensures that sufficient lubricating oil inventory is available to support at least 7 days of full load operation for each EDG. ~~The 165 gal requirement is based on the EDG manufacturer's consumption values for the run time of the EDG.~~ Implicit in this SR is the requirement to verify the capability to transfer the lube oil from its storage location to the EDG, if the EDG lube oil sump does not hold adequate inventory for 7 days of full load operation without the level reaching the manufacturer's recommended minimum level.

A 31 day Frequency is adequate to ensure that a sufficient lube oil supply is onsite, since EDG starts and run time are closely monitored by the plant staff.

Adoption of Technical Specifications Task Force (TSTF) Traveler TSTF-501, Revision 1, "Relocate Stored Fuel Oil and Lube Oil Volume Values to Licensee Control"

Insert 3 (SR 3.8.3.1)

The fuel oil level equivalent to a 7 day supply is 38,300 gallons when calculated in accordance with RG 1.137 (Ref. 2) and ANSI N195 (Ref. 3). The required fuel storage volume is determined using the most limiting energy content of the stored fuel that meets the plant design basis requirements. Using the most limiting energy content as verified by direct energy content measurement or the 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 3.8.3.3 requires that new and stored fuel oil properties are verified and maintained within the limits of the Diesel Fuel Oil Testing Program.

Insert 4 (SR 3.8.3.2)

The lube oil volume equivalent to a 7-day supply is 165 gallons and



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SURVEILLANCE REQUIREMENTS (continued)

SR 3.8.3.3

The tests of new fuel oil prior to addition to the storage tank 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 storage tanks without concern for contaminating the entire volume of fuel oil in the storage tank. These tests are to be conducted prior to adding the new fuel that is in the diesel oil receiving tank to the storage tank. The tests, limits, and applicable ASTM Standards are as follows:

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- a. Sample the new fuel oil:
  - 1) in accordance with ASTM D4057-88 (Ref. 5); or
  - 2) by recirculating fuel oil to avoid tank stratification and allowing a single point representative sample;
- b. Verify that the new fuel oil sample has: (1) an API gravity at 60°F of  $\geq 28$  and  $\leq 38$  when tested in accordance with ASTM D287-92 (Ref. 5); (2) a saybolt viscosity at 100°F of  $\geq 32.6$  and  $\leq 40.1$  seconds universal when tested in accordance with ASTM D445-96 (Ref. 5); and (3) a flash point of  $\geq 125^\circ\text{F}$  when tested in accordance with ASTM D93-97 (Ref. 5); and
- c. Verify water and sediment content within limits when tested in accordance with ASTM D1796-90 (Ref. 5).

Failure to meet any of the above limits is cause for rejecting 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.

Following the initial analysis of the new fuel oil sample, further analysis is completed prior to or within 31 days following addition of the new fuel oil to the fuel oil storage tank to establish that the other properties specified in Table 1 of ASTM D975-91 (Ref. 5) are met for new fuel oil when tested in accordance with ASTM D975-91 (Ref. 5), except that the analysis for sulfur may be performed in accordance with ASTM D1552-95 (Ref. 5). The 31 day period is acceptable because the fuel oil properties of interest, even if they were not within stated limits, would not have an immediate effect on EDG operation. This Surveillance ensures the availability of high quality fuel oil for the EDGs.

Fuel oil degradation during long term storage shows up as an increase in particulate, mostly due to oxidation. The presence of particulate does not

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SURVEILLANCE REQUIREMENTS (continued)

mean that the fuel oil will not burn properly in a diesel engine. The particulate can cause fouling of filters and fuel oil injection equipment, however, which can cause engine failure.

Particulate concentrations should be determined in accordance with ASTM D6217-98 (Ref. 5). This method involves a gravimetric determination of total particulate concentration in the fuel oil and has a limit of 10 mg/l. It is acceptable to obtain a field sample for subsequent laboratory testing in lieu of field testing.

The Frequency of this test takes into consideration fuel oil degradation trends that indicate that particulate concentration is unlikely to change significantly between Frequency intervals.

SR 3.8.3.4

This Surveillance ensures that, without the aid of the refill compressor, sufficient air start capacity for each EDG is available. The system design requirements provide for a minimum of three engine start cycles without recharging. A start cycle is up to three seconds of cranking. The pressure specified in this SR is intended to reflect the lowest value at which the three starts can be accomplished.

The 31 day Frequency takes into account the capacity, capability, redundancy, and diversity of the AC sources and other indications available in the control room, including alarms, to alert the operator to below normal air start pressure.

SR 3.8.3.5

Microbiological fouling is a major cause of fuel oil degradation. There are numerous bacteria that can grow in fuel oil and cause fouling, but all must have a water environment in order to survive. Removal of water from the fuel storage tanks once every 31 days eliminates the necessary environment for bacterial survival. This is the most effective means of controlling microbiological fouling. In addition, it eliminates the potential for water entrainment in the fuel oil during EDG operation. Water may come from any of several sources, including condensation, ground water, rain water, contaminated fuel oil, and from breakdown of the fuel oil by bacteria. Frequent checking for and removal of accumulated water minimizes fouling and provides data regarding the watertight integrity of the fuel oil system. The Surveillance Frequencies are established by

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SURVEILLANCE REQUIREMENTS (continued)

Regulatory Guide 1.137 (Ref. 2). This SR is for preventive maintenance. The presence of water does not necessarily represent failure of this SR, provided the accumulated water is removed during performance of the Surveillance.

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REFERENCES

1. USAR, Section 8.4.1.1.
  2. Regulatory Guide 1.137.
  3. ANSI N195, 1976.
  4. USAR, Chapter 14.
  5. ASTM Standards: D4057-88; D287-92; D445-96; D93-97; D1796-90; D975-91; D1552-95; D6217-98.
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*No Changes  
For Information*