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10 CFR 50.90

NMP2L2762

May 26, 2021

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

Nine Mile Point Nuclear Station, Unit 2
Renewed Facility Operating License No. NPF-69
NRC Docket No. 50-410

Subject: License Amendment Request –Adoption of Technical Specification 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, "Application for amendment of license, construction permit, or early site permit," Exelon Generation Company, LLC (Exelon) is submitting a request for an amendment to the Technical Specifications (TS), Appendix A, of Renewed Facility Operating License No. NPF-69 for Nine Mile Point Nuclear Station, Unit 2 (NMP2).

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 is modified so that the stored diesel fuel oil and lube oil inventory will require that a 7-day supply be available for each diesel generator. Condition A and Condition B in the Action table are revised and Surveillance Requirements (SR) 3.8.3.1 and 3.8.3.2 are revised to reflect the above change. In addition, the reference to Appendix B of ANSI N195-1976, "Fuel Oil Systems for Standby Diesel-Generators," in the TS Bases is deleted. As a result, the only reference will be to ANSI N195-1976.

Regarding stored diesel fuel oil and lube oil, no changes to the current plant configuration, current numerical volume requirements, or current 7-day basis are proposed in this application; the proposal merely swaps the current numerical volume requirements from the TS to the TS Bases and swaps the associated current 7-day basis from the TS Bases to the TS. In addition, no changes to any SR Frequency, Required Actions, or Completion Times are proposed in this application.

These proposed changes are consistent with NRC-approved Revision 1 to Technical Specification Task Force (TSTF) Improved Standard Technical Specifications (STS) Change Traveler TSTF-501, "Relocate Stored Fuel Oil and Lube Oil Volume Values to Licensee Control." The availability of this TS improvement was announced in the Federal Register on May 26, 2010 (75 FR 29588) as part of the Consolidated Line Item Improvement Process (CLIIP).

The current licensing basis for NMP2 requires that a 7-day supply of stored diesel fuel oil and lube oil be available for each diesel generator.

Attachment 1 provides a description and assessment of the proposed changes, the requested confirmation of applicability, and plant-specific verifications. Attachment 2 provides the Proposed TS Marked-Up Pages. Attachment 3 provides the Proposed Technical Specifications Bases Marked-Up Pages for information only.

The proposed changes have been reviewed by the NMP Plant Operations Review Committee in accordance with the requirements of the Exelon Quality Assurance Program.

Exelon requests approval of the proposed amendment by May 26, 2022. Once approved, the amendment shall be implemented within 60 days.

There are no regulatory commitments contained in this request.

Exelon has concluded that the proposed change presents no significant hazards consideration under the standards set forth in 10 CFR 50.92.

In accordance with 10 CFR 50.91, "Notice for public comment; State consultation," paragraph (b), Exelon is transmitting a copy of this application and its attachments to the designated State of New York Official.

Should you have any questions concerning this submittal, please contact Ron Reynolds at (610) 765-5247.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 26th day of May 2021.

Respectfully,

David T. Gudger

David T. Gudger
Senior Manager - Licensing
Exelon Generation Company, LLC

Attachments:
1) Evaluation of Proposed Changes
2) Proposed Technical Specification Marked-Up Pages
3) Proposed Technical Specification Bases Marked-Up Pages

cc: NRC Region I, Regional Administrator w/attachments
NRC Senior Resident Inspector, NMP w/attachments
NRC Project Manager, NMP w/attachments
A. L. Peterson, NYSERDA w/attachments

ATTACHMENT 1

EVALUATION OF PROPOSED CHANGES

License Amendment Request

Nine Mile Point Nuclear Station Unit 2

Docket No. 50-410

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

1.0 DESCRIPTION

The proposed changes revise 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 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 for each diesel generator. This change is consistent with NRC-approved Technical Specifications 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 on May 26, 2010 (75 FR 29588) (Reference 2) as part of the Consolidated Line Item Improvement Process (CLIIP).

Exelon has reviewed the model safety evaluation dated May 14, 2010, as part of Reference 2. This review included a review of the NRC staff's evaluation, as well as the information provided in Reference 1. Exelon has concluded that the justifications presented in the Reference 1 proposal and the model safety evaluation prepared by the NRC staff are applicable to Nine Mile Point Nuclear Station Unit 2 (NMP2) and justify this amendment for the incorporation of the changes to the NMP2 TS.

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 for each diesel generator. As a result:

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

- Surveillance Requirements (SR) 3.8.3.1 and 3.8.3.2 are revised. 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. 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. The TS are modified so that SR 3.8.3.1 and SR 3.8.3.2 verify that the stored diesel fuel oil and lube oil inventory is greater than or equal to a 7-day supply for each diesel generator.

- The reference to Appendix B of ANSI N195-1976 in the TS Bases is deleted.

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 the TS Bases Control Program.

NMP2 is proposing the following variations from the TS changes described in Reference 1, or the NRC staff's model Safety Evaluation (SE) published in Reference 2 as part of the CLIIP Notice of Availability.

- A revision to TS 3.8.1, AC Sources-Operating following a similar approach to the TS 3.8.3 changes discussed above is proposed. The proposed revision to SR 3.8.1.4 relocates the specific day tank numerical volume requirements to a licensee-controlled document and replaces the volumes with the requirement to maintain greater than or equal to a one-hour supply of fuel oil. The specific day tank volumes of fuel oil for the Division 1, 2 and 3 Diesel Generators (DGs) will be moved to the TS Bases. Similar to the technical justification provided in the model SE as part of the CLIIP, this proposed variation is acceptable since it removes the current numerical volume requirement for the day tank and replaces it with the requirement to maintain greater than or equal to a one-hour supply of fuel oil from the TS Bases. This variation is the same as that described in the License Amendment Request (LAR) submitted and approved by license amendment 262 for Cooper Nuclear Station identified as precedent in Section 5.3 of this submittal.
- Section 3.3. of the NRC Staff's model SE contains the following statement:

  > "Both calculation methods shall include explicit allowance for fuel oil consumption required by periodic testing."

  NMP2 calculations that determine fuel oil volumes required to support operation of the DGs for 7-days do not include an explicit allowance for fuel oil consumption due to periodic testing. Instead, NMP2 administratively controls fuel oil in support of required periodic testing, such that the required volumes for the fuel oil tanks are maintained. This variation is the same as that described in the License Amendment Request (LAR) submitted and approved by license amendment 262 for Cooper Nuclear Station identified as precedent in Section 5.3 of this submittal.

3.0 BACKGROUND

The background for this application is addressed by Reference 1 and the model safety evaluation in Reference 2.

4.0 TECHNICAL ANALYSIS

Exelon has reviewed the model SE published in Reference 2 as part of the CLIIP Notice of Availability. Exelon has concluded that the technical justifications presented in the model SE prepared by the NRC staff are applicable to NMP2 and therefore justify this amendment for the incorporation of the proposed changes to the NMP2 TS.

5.0 REGULATORY SAFETY ANALYSIS

5.1 No Significant Hazards Consideration

Exelon has evaluated the proposed changes to the TS using the criteria in 10 CFR 50.92 and has determined that the proposed changes do not involve a significant hazards consideration.

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 current stored diesel fuel oil and lube oil numerical volume requirements are based on a 7-day supply with a greater than or equal to one-hour supply in each day tank. The TS are modified so that the stored diesel fuel oil and lube oil inventory will require that a 7-day storage supply be available for each diesel generator and a greater than or equal to one-hour fuel oil supply be available in each day tank.

As required by 10 CFR 50.91(a), an analysis of the issue of no significant hazards consideration is presented below:

1. Does the proposed change 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 and lube oil required to support 7-day operation of each onsite diesel generator, and the volume equivalent to a 6-day supply, to licensee control. The specific volume of fuel oil equivalent to a 7 and 6-day supply is calculated using the NRC-approved methodology described in Regulatory Guide 1.137, Revision 1, "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.

The proposed change also relocates the specific volumes of diesel fuel oil in the day tanks for the Division 1, 2, and 3 Diesel Generators(DGs) to the Technical Specifications (TS) Bases and replaces the volumes with the requirement to maintain greater than or equal to a one-hour supply of fuel oil. The specific volume is not changed and is consistent with the existing plant design basis to support the emergency DGs under accident load conditions.

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

2. Does the proposed change 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.

Therefore, it is concluded that 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 change involve a significant reduction in a margin of safety?

Response: No.

The proposed change relocates the volume of diesel fuel oil and lube oil required to support 7-day operation of each onsite diesel generator, the volume equivalent to a 6-day supply, and the specific volumes of the day tank supplies 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 change does not involve a significant reduction in a margin of safety.

Therefore, it is concluded that this proposed change does not involve a significant reduction in a margin of safety.

Based on the above, Exelon concludes that the proposed change presents no 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.

5.2 Applicable Regulatory Requirements/Criteria

A description of the proposed TS change and its relationship to applicable regulatory requirements was provided in the NRC Notice of Availability published on May 26, 2010, (75 FR 29588) (Reference 2). Exelon has concluded that the technical justifications presented in the SE prepared by the NRC staff are applicable to NMP2 and therefore justify this amendment for the incorporation of the proposed change to the NMP2 TS.

5.3 Precedent

Letter from NRC (T. Wengert, Senior Project Manager) to Nebraska Public Power District (J. Dent, Jr., Vice President and CNO), Cooper Nuclear Station – Issuance of Amendment RE: Adoption of Technical Specifications task Force (TSTF) Traveler TSTF-501, Revision1, "Relocate Stored Fuel Oil and Lube Oil Volume Values to Licensee Control," dated February 21, 2019 (ML18348B103)

Additionally, this change is consistent with NRC approved Revision 1 to Technical Specification Task Force (TSTF) Improved Standard Technical Specification Change Traveler, TSTF-501, "Relocate Stored Fuel Oil and Lube Oil Volume Values to Licensee Control." (Reference 1)

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 20, or would change an inspection or surveillance requirement. However, the proposed change 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 change 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 change.

7.0 REFERENCES

1. TSTF-501-A, Revision 1, "Relocate Stored Fuel Oil and Lube Oil Volume Values to Licensee Control," dated May 28, 2010.

2. Federal Register Notice, Notice of availability, published May 26, 2010 (75 FR 29588)

3. ANSI N195-1976

ATTACHMENT 2

Proposed Technical Specification Marked-Up Pages

License Amendment Request

Nine Mile Point Nuclear Station Unit 2
Docket No. 50-410

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

TS Pages

3.8.1-7

3.8.3-1

3.8.3-3

ATTACHMENT 3

Proposed Technical Specification Bases Marked-Up Pages
(for information only)

License Amendment Request

Nine Mile Point Nuclear Station Unit 2
Docket No. 50-410

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

TS Bases Pages

B 3.8.1-20

B 3.8.3-1

B 3.8.3-3

B 3.8.3-4

B 3.8.3-5

B 3.8.3-6

B 3.8.3-9

Note: Bases pages B 3.8.1-2, -7, and -8 are provided for completeness.

ATTACHMENT 2

Proposed Technical Specification Marked-Up Pages

License Amendment Request

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

TS Pages

3.8.1-7

3.8.3-1

3.8.3-3

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.3	---------- NOTES ---------- 1. DG loadings may include gradual loading as recommended by the manufacturer. 2. Momentary transients outside the load range do not invalidate this test. 3. This Surveillance shall be conducted on only one DG at a time. 4. This SR shall be preceded by, and immediately follow, without shutdown, a successful performance of SR 3.8.1.2. ---------- Verify each required DG is synchronized and loaded and operates for ≥ 60 minutes at a load ≥ 3960 kW and ≤ 4400 kW for Division 1 and 2 DGs, and ≥ 2340 kW and ≤ 2600 kW for Division 3 DG.	In accordance with the Surveillance Frequency Control Program*
SR 3.8.1.4	Verify each required day tank contains ≥ ~~403 gal of fuel oil for Division 1 and 2 DGs and ≥ 282 gal for Division 3 DG.~~ one hour supply of fuel oil.	In accordance with the Surveillance Frequency Control Program*
SR 3.8.1.5	Check for and remove accumulated water from each required day tank.	In accordance with the Surveillance Frequency Control Program*
SR 3.8.1.6	Verify each required fuel oil transfer subsystem operates to automatically transfer fuel oil from the storage tank to the day tank.	In accordance with the Surveillance Frequency Control Program*

(continued)

* Following return to OPERABILITY of the HPCS System, the past due Surveillances will be completed by January 18, 2019.

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 subsystem shall be within limits for each required diesel generator (DG).

APPLICABILITY: When associated DG is required to be OPERABLE.

ACTIONS

---NOTE---
Separate Condition entry is allowed for each DG.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more DGs with stored fuel oil level~~:~~ ~~1. For Division 1 DG or Division 2 DG, < 50,000 gal and ≥ 44,000 gal; and~~ ~~2. For Division 3 DG, < 35,342 gal and ≥ 30,813 gal.~~	A.1 Restore stored fuel oil level to within limit. less than a 7 day supply and greater than a 6 day supply.	48 hours
B. One or more DGs with lube oil inventory~~:~~ ~~1. For Division 1 DG or Division 2 DG, < 99 gal and ≥ 84 gal; and~~ ~~2. For Division 3 DG, < 168 gal and ≥ 144 gal.~~	B.1 Restore lube oil inventory to within limit. less than a 7 day supply and greater than a 6 day supply.	48 hours

(continued)

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE	FREQUENCY
SR 3.8.3.1	Verify each fuel oil storage tank contains: ~~a. ≥ 50,000 gal of fuel for Division 1 DG and Division 2 DG; and~~ ~~b. ≥ 35,342 gal of fuel for Division 3 DG.~~ ≥ a 7 day supply of fuel.	In accordance with the Surveillance Frequency Control Program*
SR 3.8.3.2	Verify lube oil inventory is: ~~a. ≥ 99 gal for Division 1 DG and Division 2 DG; and~~ ~~b. ≥ 168 gal for Division 3 DG.~~ ≥ a 7 day supply.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.3	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.	In accordance with the Diesel Fuel Oil Testing Program*
SR 3.8.3.4	Verify each DG air start receiver pressure is: a. ≥ 225 psig for Division 1 DG and Division 2 DG; and b. ≥ 190 psig for Division 3 DG.	In accordance with the Surveillance Frequency Control Program
SR 3.8.3.5	Check for and remove accumulated water from each fuel oil storage tank.	In accordance with the Surveillance Frequency Control Program*

* Following return to OPERABILITY of the HPCS System, the past due Surveillances will be completed by January 18, 2019.

ATTACHMENT 3

Proposed Technical Specification Bases Marked-Up Pages
(for information only)

License Amendment Request

Nine Mile Point Nuclear Station Unit 2
Docket No. 50-410

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

TS Bases Pages

B 3.8.1-20

B 3.8.3-1

B 3.8.3-3

B 3.8.3-4

B 3.8.3-5

B 3.8.3-6

B 3.8.3-9

Note: Bases pages B 3.8.1-2, -7, and -8 are provided for completeness.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.1.3 (continued)

the generator. Operating the generator at a power factor between 0.8 lagging and 1.0 avoids adverse conditions associated with underexciting the generator and more closely represents the generator operating requirements when performing its safety function (running isolated on its associated 4.16 kV emergency bus). The load band is provided to avoid routine overloading of the DG. Routine overloading may result in more frequent teardown inspections in accordance with vendor recommendations in order to maintain DG OPERABILITY.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

Note 1 modifies this Surveillance to indicate that diesel engine runs for this Surveillance may include gradual loading, as recommended by the manufacturer, so that mechanical stress and wear on the diesel engine are minimized.

Note 2 modifies this Surveillance by stating that momentary transients because of changing bus loads do not invalidate this test.

Note 3 indicates that this Surveillance must be conducted on only one DG at a time in order to avoid common cause failures that might result from offsite circuit or grid perturbations.

Note 4 stipulates a prerequisite requirement for performance of this SR. A successful DG start must precede this test to credit satisfactory performance.

each

Insert A:
The fuel oil level equivalent for a one hour supply for the Division 1 and 2 DGs is ≥ 403 gallons and the fuel oil level equivalent for the Division 3 DG is ≥ 282 gallons.

SR 3.8.1.4

This SR provides verification that the level of fuel oil in ~~the~~ day tank is at or above the level at which the low-low level alarm is annunciated. ~~The level is expressed as an equivalent volume in gallons, and is selected to ensure~~ adequate fuel oil for a minimum of 1 hour of DG operation at full load plus 10%.

This level ensures

Insert A

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

(continued)

B 3.8 ELECTRICAL POWER SYSTEMS

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

and Regulatory Guide 1.137 (Ref. 2)

BASES

BACKGROUND

Each diesel generator (DG) is provided with a storage tank having a fuel oil capacity sufficient to operate that DG for a period of 7 days while the DG is supplying maximum post loss of coolant accident load demand (Ref. 1). The maximum load demand is calculated using the assumption that at least two DGs are available. This onsite fuel oil capacity is sufficient to operate the DGs for longer than the time to replenish the onsite supply from outside sources.

Fuel oil is transferred from each storage tank to its respective day tank by two 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. With the exception of certain components (e.g., the fill connections), all outside tanks, pumps, and piping are located underground. The fuel oil level in the storage tank is indicated locally and is provided with high and low level switches which actuate alarm annunciators in the main control room.

For proper operation of the standby DGs, 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, the kinematic viscosity, specific gravity (or API gravity or absolute specific gravity), and impurity level.

The DG lubrication system is designed to provide sufficient lubrication to permit proper operation of its associated DG 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 is sized to contain 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.

(continued)

BASES

BACKGROUND (continued)

Each DG has an air start subsystem (that includes two air receivers) with adequate capacity for five successive starts without recharging the air start receivers.

APPLICABLE SAFETY ANALYSES

The initial conditions of Design Basis Accident (DBA) and transient analyses in USAR, Chapter 6 (Ref. 4) and Chapter 15 and Appendix A (Ref. 5), 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 3.5, 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 subsystem support the operation of the standby AC power sources, they satisfy Criterion 3 of Reference 6.

LCO

Stored diesel fuel oil is required to have sufficient supply for 7 days of full load operation. It is also required to meet specific standards for quality. Additionally, sufficient lube oil supply must be available to ensure the capability to operate at full load for 7 days. This requirement, in conjunction with an ability to obtain replacement supplies within 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 storage tank to the day tank, are addressed in LCO 3.8.1, "AC Sources – Operating," and LCO 3.8.2, "AC Sources – Shutdown."

The starting air system is required to have a minimum capacity for five successive DG starts without recharging the air start receivers. Both air start receivers per DG are required to ensure adequate capacity.

(continued)

BASES (continued)

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 diesel fuel oil, lube oil, and starting air subsystems 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 DG is required to be OPERABLE.

ACTIONS

The ACTIONS Table is modified by a Note indicating that separate Condition entry is allowed for each DG. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable DG subsystem. Complying with the Required Actions for one inoperable DG subsystem may allow for continued operation, and subsequent inoperable DG subsystem(s) are governed by separate Condition entry and application of associated Required Actions.

In this condition

A.1

~~With fuel oil level < 50,000 gallons in a Division 1 or 2 DG storage tank, or < 35,342 gallons in the Division 3 DG storage tank~~, the 7 day fuel oil supply for a DG 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:

a. Full load operation required after 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.

The fuel oil level equivalent to a 6 day supply for the Division 1 or 2 DG is 44,000 gallons. The fuel oil level equivalent to a 6 day supply for the Division 3 DG is 30,813 gallons.

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 the DG 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.

(continued)

In this condition, the 7 day

, is

i.e.,

BASES

ACTIONS (continued)

B.1

~~With~~ lube oil inventory ~~< 99 gallons for a Division 1 or 2 DG or < 168 gallons for the Division 3 DG~~, sufficient lube oil to support 7 days of continuous DG 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 DG 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.

The lube oil level equivalent to a 6 day supply for the Division 1 or 2 DG is 84 gallons. The lube oil level equivalent to a 6 day supply for the Division 3 DG is 144 gallons.

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 particulate does not mean failure of the fuel oil to burn properly in the 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 DG inoperable. The 7 day Completion Time allows for further evaluation, resampling, and re-analysis of the DG 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,

(continued)

BASES

ACTIONS

D.1 (continued)

or to restore the stored fuel oil properties. This restoration may involve feed and bleed procedures, filtering, or a combination of these procedures. Even if a DG start and load was required during this time interval and the fuel oil properties were outside limits, there is high likelihood that the DG would still be capable of performing its intended function.

E.1

With any starting air receiver pressure < 225 psig for a Division 1 or 2 DG or < 190 psig for the Division 3 DG, sufficient capacity for five successive DG starts does not exist. However, as long as the receiver pressure in both receivers is ≥ 175 psig for a Division 1 or 2 DG and ≥ 110 psig for the Division 3 DG, there is adequate capacity for at least one start, and the DG can be considered OPERABLE while the 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 DG inoperable. This period is acceptable based on the remaining air start capacity, the fact that most DG starts are accomplished on the first attempt, and the low probability of an event during this brief period.

F.1

With a Required Action and associated Completion Time of Condition A, B, C, D, or E 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 E, the associated DG may be incapable of performing its intended function and must be immediately declared inoperable.

SURVEILLANCE REQUIREMENTS

SR 3.8.3.1

This SR provides verification that there is an adequate inventory of fuel oil in the storage tanks to support each DG's operation for 7 days at full load. The 7 day period is

See Insert B

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.3.1 (continued)

sufficient time to place the unit in a safe shutdown condition and to bring in replenishment fuel from an offsite location.

The lube oil inventory equivalent to a 7 day supply is 99 gallons for the Division 1 and 2 DG and 168 gallons for the Division 3 DG and is

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

SR 3.8.3.2

This Surveillance ensures that sufficient lube oil inventory (above the manufacturers minimum recommended level) is available to support at least 7 days of full load operation for each DG. ~~The 99 gallon requirement for the Division 1 and 2 DGs and the 168 gallon requirement for the Division 3 DG are~~ based on the DG manufacturer's consumption values for the run time of the DG. The 7 day inventory can be in the engine oil sump or a combination of the engine oil sump and remote storage location. Implicit in this SR is the requirement to verify the capability to transfer the lube oil from its storage location to the DG when the DG lube oil sumps do not hold adequate inventory for 7 days of full load operation without the level reaching the manufacturer's recommended minimum level.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

SR 3.8.3.3

The tests of new fuel oil prior to addition to the storage tanks 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 and operation. 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 tanks. These tests are to be conducted prior to adding the new fuel to the storage tank(s).

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.3.3 (continued)

The tests, limits, and applicable ASTM Standards are as follows:

a. Sample the new fuel oil in accordance with ASTM D4057-81 (Ref. 7);

b. Verify in accordance with the tests specified in ASTM D975-81 (Ref. 7) that: (1) the sample has an API gravity of within 0.3° at 60°F or a specific gravity of within 0.0016 at 60/60°F, when compared to the supplier's certificate, or the sample has an absolute specific gravity at 60/60°F of ≥ 0.83 and ≤ 0.89 or an API gravity at 60°F of ≥ 27 and ≤ 37; (2) a kinematic viscosity at 40°C of ≥ 1.9 centistokes and ≤ 4.1 centistokes; and (3) a flash point of ≥ 125°F; and

c. Verify that the new fuel oil has a clear and bright appearance when tested in accordance with ASTM D4176-82 (Ref. 7).

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 since the fuel oil is not added to the storage tanks.

Following the initial new fuel oil sample, the fuel oil is analyzed within 31 days following addition of the new fuel oil to the fuel oil storage tank(s) to establish that the other properties specified in Table 1 of ASTM D975-81 (Ref. 7) are met for new fuel oil when tested in accordance with ASTM D975-81 (Ref. 7), except that the analysis for sulfur may be performed in accordance with ASTM D5453-12 (Ref. 7).

The 31 day period is acceptable because the fuel oil properties of interest, even if not within stated limits, would not have an immediate effect on DG operation. This Surveillance ensures the availability of high quality fuel oil for the DGs.

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

(continued)

SURVEILLANCE REQUIREMENTS

SR 3.8.3.3 (continued)

not burn properly in a diesel engine. However, the particulate can cause fouling of filters and fuel oil injection equipment, which can cause engine failure.

Particulate concentrations should be determined in accordance with ASTM D2276-78, Method A (Ref. 7). 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 Surveillance takes into consideration fuel oil degradation trends indicating that particulate concentration is unlikely to change 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 DG is available. The system design requirements provide for a minimum of five engine starts without recharging. The pressure specified in this SR is intended to support the lowest value in both receivers at which the five starts can be accomplished.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

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. Periodic removal of water from the storage tanks 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 DG operation. Water

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.8.3.5 (continued)

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 Frequency is controlled under the Surveillance Frequency Control Program.

REFERENCES

1. USAR, Section 9.5.4.
2. Regulatory Guide 1.137, Revision 1, October 1979.
3. ~~ANSI N195, Appendix B, 1976~~.
4. USAR, Chapter 6.
5. USAR, Chapter 15 and Appendix A.
6. 10 CFR 50.36(c)(2)(ii).
7. ASTM Standards: D4057-81; D975-81; D4176-82; D2276-78; D5453-12.

ANSI N195, 1976

Insert B

The fuel oil level equivalent to a 7 day supply for the Division 1 and 2 DG is 50,000 gallons and the fuel oil level equivalent to a 7 day supply for the Division 3 DG is 35,342 gallons when calculated in accordance with References 2 and 3. The required fuel storage volume is determined using the most limiting energy content of the stored fuel. Using 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 new fuel to be tested to verify that the absolute specific gravity or API gravity is within the range assumed in the diesel fuel oil consumption calculations.