MODEL SAFETY EVALUATION FOR PLANT-SPECIFIC ADOPTION OF TECHNICAL SPECIFICATION TASK FORCE TRAVELER-501, REVISION 1, "RELOCATE STORED FUEL OIL AND LUBE OIL VOLUME VALUES TO LICENSEE CONTROL"

1.0 INTRODUCTION

The licensee's current Technical Specifications (TS) contain numerical volume requirements for both stored diesel fuel oil and lube oil. Any changes to the numerical volume requirements currently require prior approval from the U.S. Nuclear Regulatory Commission (NRC). As an example, diesel fuel oil numerical volume requirements may need to be modified in order to take into account changes to the energy content (BTU/gallon) of available fuels in the market. Fluctuations in energy content could be caused by a variety of factors, including changes to regulatory requirements. By adopting NRC-approved Technical Specification Task Force (TSTF) Improved Standard Technical Specification Change Traveler-501, Revision 1, "Relocate Stored Fuel Oil and Lube Oil Volume Values to Licensee Control," the numerical volume requirements for both stored diesel fuel oil and lube oil are relocated from the TS to a licensee-controlled document. As a result, the numerical volume requirements for both stored diesel fuel oil and lube oil may be modified under licensee control and therefore may not require prior NRC approval. By application dated [Date], [Name of Licensee] (the licensee) requested changes to the TS for the [Name of Facility].

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 an 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 Requirement (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 inventories are greater than or equal to a [7]-day supply for each diesel generator.

- The reference to Appendix B of American National Standards Institute (ANSI) N195-1976 in the TS Bases is deleted. As a result, the only reference will be to ANSI N195-1976. {NRC Reviewer's Note: This modification to the TS may not be needed if it already exists. The BWR Standard TS already contain this change. Although not a change associated with

TSTF Traveler-501, Revision 1, verify that Regulatory Guide (RG) 1.137 is referenced in the reference section of the TS Bases. This is needed because RG 1.137, Revision 1, provides supplemental information to ANSI N195-1976. In addition, RG 1.137 will now be referenced in SR 3.8.3.1, if not referenced elsewhere.}

The licensee stated that the application is consistent with NRC-approved TSTF Traveler 501, Revision 1, "Relocate Stored Fuel Oil and Lube Oil Volume Values to Licensee Control." The availability of this TS modification was announced in the Federal Register on [Date] ([ ] FR [ ]) as part of the consolidated line item improvement process.

{NRC Reviewer's Note: Discuss any differences with TSTF Traveler-501, Revision 1. Consideration should be given to obtaining technical branch concurrences when the differences are more than administrative in nature.}

2.0 REGULATORY EVALUATION

2.1 Modification to LCO 3.8.3, "Diesel Fuel Oil, Lube Oil, and Starting Air," Requirements

The regulation at Title 10 of the *Code of Federal Regulations* (10 CFR) 50.36(c)(2)(i) states TS will include Limiting Conditions for Operation (LCO) which are "the lowest functional capability or performance levels of equipment required for safe operation of the facility."

The standby alternating current (AC) power sources are a part of the primary success path and function or actuate 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. Diesel fuel oil

and lube oil are retained in the TS to satisfy 10 CFR 50.36(c)(2)(i) since they support the operation of the standby AC power sources. 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 discussed in Section 3.0, Technical Evaluation, this change still provides assurance that the lowest functional capability or performance levels of equipment required for safe operation of the facility will be continued to be met. Because 10 CFR 50.36(c)(2)(i) continues to be met, this change is acceptable.

2.2 Modification to Action Table for TS 3.8.3, "Diesel Fuel Oil, Lube Oil, and Starting Air"

Paragraph 50.36(c)(2)(i) goes on to state that "when a limiting condition for operation of a nuclear reactor is not met, the licensee shall shut down the reactor or follow any remedial action permitted by the technical specifications until the condition can be met."

Condition A and Condition B in the Action table for TS 3.8.3, "Diesel Fuel Oil, Lube Oil, and Starting Air," are revised to reflect the change in LCO requirements as discussed in Section 2.1 above. 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 an a [6]-day supply. The proposal relocates the volumetric requirements from the TS and places it in the TS Bases. The TS is 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. These remedial actions are permitted by 10 CFR 50.36(c)(2)(i), and the technical justification for allowing these remedial actions is discussed in Section 3.0, Technical Evaluation.

2.3 Modification to SR 3.8.3.1 and 3.8.3.2

Paragraph 50.36(c)(3) states TS will include SRs which 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."

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. SR 3.8.3.1 and SR 3.8.3.2 are revised to reflect the change in LCO requirements as discussed in Section 2.1 above. As a result, the SR 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. As discussed in Section 3.0, Technical Evaluation, this change still provides assurance 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. Because 10 CFR 50.36(c)(3) continues to be met, this change is acceptable.

2.4 Deletion of Reference to Appendix B of ANSI N195-1976

As discussed in Section 2.1 above, LCO 3.8.3, "Diesel Fuel Oil, Lube Oil, and Starting Air," is retained in the TS in order to satisfy 10 CFR 50.36(c)(2)(i). The staff notes that the licensee proposed change deletes the reference to Appendix B of ANSI N195-1976 in the TS Bases for TS 3.8.3. As a result, there will only be a reference to ANSI N195-1976, "Fuel Oil Systems for Standby Diesel Generators." The proposed TS Bases change establishes a basis for the TS LCO requirement.

3.0 TECHNICAL EVALUATION

3.1 Modification to LCO 3.8.3, "Diesel Fuel Oil, Lube Oil, and Starting Air," Requirements

Each diesel generator is provided with a fuel oil capacity sufficient to operate that diesel for a period of [7] days while the diesel generator is supplying maximum load demand. This onsite fuel oil capacity is sufficient to operate the diesel generators for longer than the time to replenish the onsite supply from outside sources.

The diesel generator lubrication system is designed to provide sufficient lubrication to permit proper operation of its associated diesel generator 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 diesel generator has a lube oil 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.

In order to meet a [7]-day supply of stored diesel fuel oil and lube oil for each diesel generator, TS 3.8.3, “Diesel Fuel Oil, Lube Oil, and Starting Air,” currently contains numerical volume requirements associated with a [7]-day supply for each diesel generator. The TS Bases currently discuss that the numerical volume requirements are based on meeting a [7]-day supply. The proposed change revises TS 3.8.3 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. No changes to the current plant configuration, current numerical volume requirements, or current [7]-day basis are proposed in the application; the licensee is merely relocating the current numerical volume requirements from the TS to the TS Bases and relocating the associated current [7]-day basis from the TS Bases to the TS.

Section 3.3 below discusses the methodology on how the stored diesel fuel oil and lube oil numerical volume basis in the TS Bases may be modified under licensee control. The use of this methodology will ensure that a [7]-day supply of stored diesel fuel oil and lube oil for each diesel generator will be met, thereby providing assurance that the lowest functional capability or performance levels of the diesel generator required for safe operation of the facility will be continued to be met. Therefore, this change is acceptable.

3.2 Modification to Action Table for TS 3.8.3, “Diesel Fuel Oil, Lube Oil, and Starting Air”

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 an a [6]-day supply. The proposal 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.

No other parts of Condition A and Condition B (i.e., Required Actions or Completion Times) are proposed to be modified in the application; the licensee is merely relocating the current numerical volume requirements that dictate Condition entry from the TS to the TS Bases and relocating the associated current less than [7]-day but greater than [6]-day basis for Condition entry from the TS Bases to the TS.

Section 3.3 below discusses the methodology on how the stored diesel fuel oil and lube oil numerical volume basis in the TS Bases may be modified under licensee control. The use of this methodology will ensure that the [7]-day and [6]-day supplies of stored diesel fuel oil and lube oil for each diesel generator that dictate Condition entry will continue to be calculated in accordance with NRC guidance. Therefore, this change is acceptable.

3.3 Modification to SRs 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. SR 3.8.3.1 and SR 3.8.3.2 are revised to reflect the change in LCO requirements, namely that a [7]-day supply be available for each diesel generator. As a result, the SRs 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.

No other parts of the SRs (i.e., Frequencies) are proposed to be modified in the application; the licensee is merely relocating the current numerical volume requirement verification from the TS to the TS Bases and relocating the associated current [7]-day basis for verification from the TS Bases to the TS.

The methodology for determining the [7]-day stored diesel fuel oil supply for each diesel generator, as well as the [6]-day supply associated with Condition A, is calculated in accordance with RG 1.137, Revision 1, “Fuel-Oil Systems for Standby Diesel Generators,” and ANSI N195-1976. ANSI N195-1976 discusses how the stored diesel fuel oil requirement shall be calculated based upon the diesel generators operating at the minimum required capacity for the plant condition which is most limiting for the calculation of such capacity. One method for calculating the stored diesel fuel oil supply takes into account the time dependence of diesel generator loads. That is, if diesel generator loads increase or decrease during the event, the load changes shall be included in the required fuel storage calculation. If the design includes provisions for an operator to supply power to equipment other than the minimum required for the plant condition, such additional loads shall be included in the calculation of required fuel storage capacity. RG 1.137, Revision 1, supplements the above by stating that for the time-dependent load method, the minimum required capacity should include the capacity to power the engineered safety features. A minimum margin of 10% shall be added to the calculated storage requirement if the alternate conservative calculation discussed next is not used. Another method for calculating the stored diesel fuel oil supply, which is more conservative than the time-dependent load method, is to calculate the storage capacity by assuming that the diesel operates continuously for seven days at its rated capacity. Both calculation methods shall include an explicit allowance for fuel consumption required by periodic testing. This includes the

fuel required for operation of the engine at the minimum loads specified by the engine manufacturer.

One variable used in both stored diesel fuel oil calculation methods is the fuel consumption rate. The property of diesel fuel oil having the most significant effect on the fuel consumption rate is the energy content (heating value) of the fuel. There are standards which correlate the energy content to the fuel's American Petroleum Institute (API) gravity or absolute specific gravity. At a minimum, plants calculate their required fuel storage values assuming the most limiting API gravity or absolute specific gravity, and therefore, the most limiting fuel energy content. As long as the fuel oil placed in the storage tank is within the API gravity range or absolute specific gravity range specified by the licensee, the calculations of fuel consumption and required stored volume remain valid. SR 3.8.3.3 will continue to require new fuel to be tested in order to verify that the new fuel API gravity or absolute specific gravity is within the range assumed in the diesel fuel oil consumption calculations.

The lube oil inventory equivalent to a [7]-day supply, as well as the [6]-day supply associated with Condition B, is based on the diesel generator manufacturer consumption values for the run time of the diesel generator.

The above methods still provide assurance that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the LCOs will be met. Therefore, the change to SR 3.8.3.1 and SR 3.8.3.2 is acceptable.

3.4 Deletion of Reference to Appendix B of ANSI N195-1976

The staff notes that the licensee proposed change deletes the reference to Appendix B of ANSI N195-1976 in the TS Bases for TS 3.8.3. As a result, there will only be a reference to ANSI N195-1976. This TS Bases change was made in order to provide a basis for the LCO requirements associated with TS 3.8.3. LCO 3.8.3 requires, in part, that the stored diesel fuel oil and lube oil shall be within limits for each required diesel generator. The basis for these limits is derived from RG 1.137, Revision 1, and Appendix B of ANSI N195-1976.

For proper operation of the standby diesel generators, it is necessary to ensure the proper quality of the fuel oil. RG 1.137, Revision 1, addresses the recommended fuel oil practices as supplemented by ANSI N195-1976, Appendix B. The fuel oil properties that are checked to ensure the proper quality of the fuel oil are sediment content, the kinematic viscosity, specific gravity (or API gravity), and impurity level.

Although the current TS Bases reference to Appendix B of ANSI N195-1976 will be deleted, RG 1.137, Revision 1, which is currently referenced in the TS Bases, states, "Appendix B to ANSI N195-1976 addresses the recommended fuel oil practices. Therefore, the use of Appendix B of ANSI N195-1976, as referenced by RG 1.137, provide the basis for ensuring the proper quality of the fuel oil; namely, that water and sediment content, kinematic viscosity, specific gravity (or API gravity), and impurity level are within the specified limits. Current SR 3.8.3.3 verifies these limits.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the [Name of State] State official was notified of the proposed issuance of the amendment. The State official had [no] comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration, and there has been no public comment on such finding issued on [Date] ([ ] FR [ ]). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above that (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 amendments will not be inimical to the common defense and security or to the health and safety of the public.

{NRC Reviewer’s Note: TSTF Traveler-501, Revision 1, was reviewed by and deemed acceptable for use by licensee’s for plant-specific adoption by Aron Lewin (ITSB), Gurcharan Matharu (EEEB), Mathew Yoder (CSGB), and Robert Wolfgang (CPTB).