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10 CFR 50.90

October 20, 2011
NRC-11-0046

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

- References: 1) Fermi 2
NRC Docket No. 50-341
NRC License No. NPF-43
- 2) Detroit Edison's Letter to NRC, "License Amendment Request for Adoption of Technical Specifications Task Force (TSTF) Traveler TSTF-501, Revision 1 – Relocate Stored Fuel Oil and Lube Oil Volume Values to Licensee Control," NRC-11-0030, dated August 12, 2011 [ADAMS Accession No. ML 112270114, TAC No. ME6861]

Subject: Response to Request for Additional Information (RAI) Regarding License Amendment Request for Adoption of TSTF-501, Revision 1

In Reference 2, Detroit Edison submitted a License Amendment Request (LAR) for the adoption of Technical Specifications (TS) Task Force Traveler TSTF-501, Revision 1. The proposed change in the LAR would revise TS 3.8.3, Diesel Fuel Oil and Starting Air," by relocating the current stored diesel fuel oil numerical volume requirements from the TS to the TS Bases so that it may be modified under licensee control.

In an e-mail from Mr. Mahesh Chawla to Mr. Alan Hassoun dated September 13, 2011, the NRC requested additional information in order for the NRC staff to proceed with the review of the subject LAR. The RAI questions were discussed in a subsequent telephone conversation between NRC staff and Detroit Edison personnel on September 20, 2011. The additional information requested by the NRC staff is enclosed.

There are no new commitments included in this document.

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Should you have any questions or require additional information, please contact Mr. Rodney Johnson of my staff at (734) 586-5076.

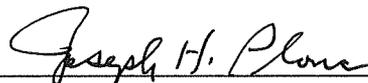
Sincerely,

A handwritten signature in cursive script that reads "Joseph H. Plone".

Enclosure

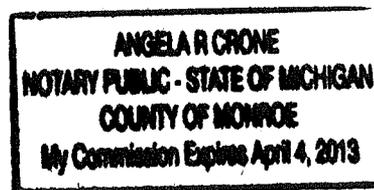
cc: NRC Project Manager
NRC Resident Office
Reactor Projects Chief, Branch 4, Region III
Regional Administrator, Region III
Supervisor, Electric Operators,
Michigan Public Service Commission

I, Joseph H. Plona, do hereby affirm that the foregoing statements are based on facts and circumstances which are true and accurate to the best of my knowledge and belief.



Joseph H. Plona
Site Vice President, Nuclear Generation

On this 20th day of October, 2011 before me personally appeared Joseph H. Plona, being first duly sworn and says that he executed the foregoing as his free act and deed.



Notary Public

**Enclosure to
NRC-11-0046**

**Fermi 2 NRC Docket No. 50-341
Operating License No. NPF-43**

**Response to Request for Additional Information (RAI) Regarding
License Amendment Request for Adoption of TSTF-501, Revision 1**

**Response to Request for Additional Information (RAI) Regarding
License Amendment Request for Adoption of TSTF-501, Revision 1**

Responses to the RAI questions are provided below:

RAI CPTB-1:

Section 2.0 of your submittal states that the current reference at Fermi 2 is ANSI-N195 (no revision). Reference 3 in the Bases denotes ANSI N195-1976. Please confirm that Fermi 2 uses ANSI N195-1976 as the current reference.

Response:

ANSI N195-1976 is the current reference used at Fermi 2.

RAI CPTB-2:

Section 5.1 of your submittal states that “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” based on the diesel generator manufacturer’s consumption values including consideration of minimum required energy content.” Reference 2 in the Bases denotes Regulatory Guide 1.137 without any revision. Please confirm that Fermi 2 uses Revision 1 of Regulatory Guide 1.137.

Response:

Revision 1 of Regulatory Guide 1.137 is used at Fermi 2 to calculate the specific fuel oil storage volume requirement.

RAI CPTB-3:

Please provide the methodology of how you determine the direct energy content of the fuel oil. Also provide the range of energy content that is acceptable and the energy content value that is used in your fuel oil volume calculation.

Response:

Direct energy content measurement is normally performed in accordance with the methodology in ASTM D4809-09, "Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter (Precision Method)." However, ASTM D240-09, "Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter" is an approved backup methodology for performing this measurement.

The acceptable range of energy content is greater or equal to 136,820 BTU/gal, which is the limiting value used in the fuel oil volume calculation.

RAI CPTB-4:

Please state which calculation method in ANSI N195-1976 you use to calculate the fuel oil volumes, the time dependent method or the conservative alternative method. Please confirm that your calculation includes an explicit allowance for fuel consumption required by periodic testing. If you use the time dependent method, please confirm that the calculation includes a minimum margin of 10 percent.

Response:

The conservative alternative method of ANSI N195-1976 is the calculation method used at Fermi 2 to calculate the fuel oil volumes. Since the time dependent load method is not employed, the 10 percent margin requirement is not applicable.

The calculated value for seven day minimum fuel oil volume represents the volume required to support seven days operation at rated load based on nominal fuel consumption supplied by the manufacturer. This value of minimum required volume does not include an additional inventory for engine testing. Fuel oil volume maintained in the storage tanks includes allowance for routine monthly EDG surveillance testing. Routine testing typically lasts 2 to 4 hours and can normally be accommodated without the need for frequent re-ordering. Fuel oil level may decrease below the seven-day minimum level while performing longer duration 18-month surveillances (e.g., 24 hour runs). Under these circumstances, in accordance with LCO 3.8.3, the seven-day minimum fuel oil level must be restored within 48 hours.

RAI CPTB-5:

Please confirm that the energy content in a fuel shipment is determined before it is transferred to the fuel oil storage tank.

Response:

The energy content in a fuel shipment is verified to meet the acceptance criteria before it is transferred to the fuel oil storage tank.

RAI CPTB-6:

Is Fermi 2 currently using Ultra Low Sulfur Diesel (ULSD) fuel?

Response:

Yes, Fermi is currently using ULSD fuel.

RAI CPTB-7:

Are the fuel oil quantity values (storage tank and day tank) currently in the Technical Specifications (TSs) and the diesel generator manufacturer's fuel consumption values based on ULSD fuel? If not, what type of fuel are they based on?

Response:

The fuel oil quantity values (storage tank and day tank) currently in the TSs and the diesel generator manufacturer's fuel consumption values are not based on ULSD fuel. These values were established based on the original nominal rating of the engines prior to the development of ULSD. The type of fuel these values were based on was not specified; however, the consumption values are expressed in units of pounds of fuel oil consumed per kilowatt-hour with a corresponding fuel energy content in units of BTU per pound. In combination with the requirement that 35,280 gallons be sufficient to support operation for seven-days at 100% rated load (2850 kW), the minimum energy content per gallon is also defined. As stated earlier, the minimum fuel oil energy content is verified by direct measurement.

RAI CPTB-8:

Please confirm that the fuel oil quantity values (storage tank and day tank) and the diesel generator fuel consumption values are based on the EDGs operating at their upper TS frequency of 61.2 Hertz.

Response:

The fuel oil quantity values (storage tank and day tank) and the diesel generator fuel consumption values are not based on the EDGs operating at their upper TS frequency of 61.2 Hertz. The upper TS frequency value may be considered applicable to the time-dependent load history method of ANSI N195-1976. However, the conservative alternative method used at Fermi 2 calculates the minimum volume requirement assuming continuous operation at 100% rated capacity. Therefore, the alternate method includes additional conservatism over the time dependent method and does not require additional frequency adjustments.

RAI CPTB-9:

Section 2.0 of your submittal states that "Direct energy content measurement of the diesel fuel oil is used to verify compliance with the most limiting energy content assumed in the determination of the required fuel oil volume." However, Insert 2 to TS Surveillance Requirement (SR) 3.8.3.1 in the Bases states that "Using the most limiting energy content as verified by direct energy content measurement or the known correlation of diesel fuel 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." Also, TS SR 3.8.3.2 in the Bases discusses measuring the fuel oil absolute specific gravity or API gravity, but measuring direct energy content is not mentioned. Please discuss the discrepancy between Section 2.0 and what is written in TS SR 3.8.3.1 and SR 3.8.3.2 in the Bases and also discuss which method of determining fuel oil energy content at Fermi 2 will be used.

Response:

The following discussion is provided to clarify the intent of the information in Section 2.0 of Detroit Edison's submittal and the TS Bases for SRs 3.8.3.1 and 3.8.3.2. The information in Section 2.0 is consistent with the statements in the TS Bases for SR

3.8.3.1. TS Bases for SR 3.8.3.2 are aligned to compliance with pertinent ASTM standards.

Section 2.0 of Detroit Edison's submittal proposed a variation from the NRC staff's model safety evaluation (SE) published in the Federal Register on May 26, 2010 (Vol. 75 FR No. 101) as part of the CLIIP Notice of Availability. The variation is for use of direct energy content measurement as an alternative to using the correlation between absolute gravity or API gravity to energy content. Direct energy content measurement is the current methodology used at Fermi 2. Detroit Edison requested NRC approval of this alternate methodology since it provides an equivalent assurance of meeting energy content limits.

Insert 2 provided in Attachment 4 to Reference 2 for updating the TS Bases of SR 3.8.3.1 reflects the same two alternate methodologies for verifying the fuel oil energy content. The use of the correlation methodology has been approved by NRC. NRC approval of the direct energy content measurement methodology is requested as part of this LAR. Since both methodologies provide assurance of meeting design basis energy content limits, they are both maintained in the TS Bases as acceptable alternate methods.

TS SR 3.8.3.2 verifies that fuel oil properties for each required EDG are tested in accordance with, and maintained within the limits of the Emergency Diesel Generator Fuel Oil Testing Program (TS 5.5.9). The TS Bases for SR 3.8.3.2 provide details of the required testing per the applicable ASTM standards. This is consistent with the standard TS Bases for BWR-4 plants (NUREG-1433). There is no conflict between the TS Bases for SRs 3.8.3.1 and 3.8.3.2. Detroit Edison is not proposing any changes to TS SR 3.8.3.2 in this LAR.

RAI CPTB-10:

Paragraph 6.1 of ANSI N-195-1976 states that "Each diesel shall be equipped with day or integral tank or tanks whose capacity is sufficient to maintain at least 60 minutes of operation at the level where oil is automatically added to the day or integral tank or tanks. This capacity shall be based on fuel consumption at a load of 100% of the continuous rating of the diesel plus a minimum margin of 10%. Please confirm that your fuel oil calculation for the diesel generator day tanks complies with this requirement.

Response:

The fuel oil calculation for the diesel generator verifies the hourly consumption rate of 210 gallons. This volume is consistent with 60-minute design fuel consumption under rated engine load with no additional margin. The minimum fuel oil storage requirements calculation establishes the adequacy of the capacity of the 550 gallon day tanks relative to Paragraph 6.1 of ANSI N195-1976 on the basis that the fuel oil transfer pumps automatically maintain each day tank standby minimum level at greater than 460 gallons. This represents a margin of over 100% relative to the required fuel oil volume for 60-minute consumption.

RAI ISTB-1:

Background:

Fermi 2 proposes the following TS SR 3.8.1.4:

TS SR 3.8.1.4: “Verify each day tank contains \geq one hour supply of fuel oil.”

Fermi 2 provided the following regarding the corresponding change to the TS SR 3.8.1.4 Bases:

“This SR provides verification that there is an adequate inventory of fuel oil in the day tank to support the EDG operation for one hour at full load. The volume of fuel oil **equivalent to** [emphasis added] one hour supply is 210 gallons.”

The current Fermi 2 TS SR 3.8.1.4 Bases states:

“This SR provides verification that the level of fuel oil in the day tank is at or above the level at which fuel oil is automatically added. The level is expressed as an equivalent volume in gallons, and is selected to ensure adequate fuel oil for a **minimum of** [emphasis added] 1 hour of EDG operation at full load.”

Question:

The proposed Fermi 2 TS SR 3.8.1.4 Bases is inconsistent with the proposed TS SR because the proposed Bases states the volume of fuel oil is equivalent to a one hour supply but the TS states “... \geq [greater than or equal to] a one hour supply... .” Please explain the reason for this

discrepancy and the difference with the minimum TS requirement from the current TS SR
3.8.1.4 Bases.

Response:

The intent of this LAR is to relocate the fuel oil volume numerical values from the TS to the TS Bases, and not change the current TS requirements. The requirement in TS SR 3.8.3.1 is to verify that each day tank contains greater than or equal to one hour supply of fuel oil. The statement “The volume of fuel oil equivalent to one hour supply is 210 gallons” was only intended to define the hourly consumption value; however, to provide additional clarification, the paragraph denoted as ‘Insert 1 (SR 3.8.1.4)’ in Attachment 4 to Reference 2 will be reworded to state:

“This SR provides verification that there is an adequate inventory of fuel oil in the day tank to support the EDG operation for **a minimum of** one hour at full load. The volume of fuel oil equivalent to one hour supply is 210 gallons.”