



LIC-16-0025
April 8, 2016

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

Fort Calhoun Station (FCS), Unit 1
Renewed Facility Operating License No. DPR-40
NRC Docket No. 50-285

Subject: Response to Request for Additional Information Re: FORT CALHOUN STATION, UNIT NO. 1 - Request for Additional Information RE: Adoption of TSTF-501, REVISION 1 (CAC NO. MF6722)

- References:
1. Letter from OPPD (L. P. Cortopassi) to NRC (Document Control Desk), "License Amendment Request 15-06; Adoption of Technical Specifications Task Force (TSTF) Traveler TSTF-501, Revision 1 , "Relocate Stored Fuel Oil and Lube Oil Volume Values to Licensee Control"," dated September 11, 2015 (LIC-15-0076) (ML15254A464)
 2. Letter from NRC (C. F. Lyon) to OPPD (S. M. Marik), "Fort Calhoun Station, Unit No. 1 – Request for Additional Information RE: Adoption of TSTF-501, Revision 1 (CAC NO. MF6722)," dated February 23, 2016 (NRC-16-020) (ML16048A024)

Attached is the Omaha Public Power District (OPPD) response to an NRC request for additional information (RAI) (Reference 2) regarding License Amendment Request (LAR) 15-06 (Reference 1), which proposed Adoption of Technical Specifications Task Force (TSTF) Traveler TSTF-501, Revision 1, "Relocate Stored Fuel Oil and Lube Oil Volume Values to Licensee Control" for the FCS, Unit No. 1, Technical Specifications. This letter contains no regulatory commitments.

If you should have any questions regarding this submittal or require additional information, please contact Mr. Brad Blome at 402-533-7270.

Respectfully,

Shane M. Marik
Site Vice President and CNO

SMM/epm

Attachment

c: M. L. Dapas, NRC Regional Administrator, Region IV
C. F. Lyon, NRC Senior Project Manager
S. M. Schneider, NRC Senior Resident Inspector

REQUEST FOR ADDITIONAL INFORMATION
LICENSE AMENDMENT REQUEST
OMAHA PUBLIC POWER DISTRICT
FORT CALHOUN STATION. UNIT NO. 1
DOCKET NO. 50-285

By letter dated September 11, 2015 (Agencywide Document Access and Management System (ADAMS) Accession No. ML 15254A464), Omaha Public Power District (the licensee) submitted a license amendment request to adopt Technical Specifications Task Force (TSTF) Traveler TSTF-501, Revision 1, "Relocate Stored Fuel Oil and Lube Oil Volume Values to Licensee Control, at Fort Calhoun Station, Unit No. 1 (FCS).

The U.S. Nuclear Regulatory Commission staff has reviewed the information provided in the application and determined that additional information is required in order to complete its formal review of the request.

RAI EPNB-1

The submittal states that storage tanks FO-1 and FO-10 are both 18,000 gallon storage tanks. Please provide the usable capacity of each tank. If the usable capacity is greater than 16,000 gallons, discuss why more than 16,000 gallons cannot be stored in the tank to provide more margin for emergency diesel generator (EDG) testing

OPPD Response

(Note: It is assumed that this question is asked in the context of the ANSI standard N195 requirement to maintain a 10% margin for diesel fuel inventory when using a time dependent loading for diesel fuel consumption calculations.)

FO-1 and FO-10 are designed to contain 18,000 gallons each although administrative controls prevent filling the tanks greater than 17,500 gallons to ensure that overflow does not occur during fill operations. The 16,000 gallon value is used as an administrative limit to allow operational flexibility during EDG testing. A typical monthly test for each EDG uses approximately 200 – 300 gallons. If the administrative limits were raised approximately 2000 gallons, (1000 gallons in FO-1 and 1000 gallons in FO-10) to a value that would permit crediting the required additional fuel to meet the 10% margin requirement, then the Technical Specification limit for FO-1 would be 17,000 gallons and the administrative limit for FO-10 would be 17,000 gallons. Since diesel fuel is required to be ordered when the tank inventory is within 500 gallons of the Technical Specification limit, fuel would need to be ordered every time an EDG monthly test is performed. This is considered excessively restrictive for normal operation.

RAI EPNB-2

In Section 3.0 of the submittal it states, in part that:

Since no piping existed between FO-1 and FO-10, operator action would be credited for the installation of a hose between the two tanks to allow transfer of fuel from FO-10 to FO-1 using a small motor-driven pump, (i. e. , FO-37), which was originally installed to transfer fuel between FO-10 and the diesel driven auxiliary feedwater pump, FW-54. In the event of a failure of FO-37, a backup method of fuel transfer between the two tanks was a manually operated portable pump that required no external power source.

Please discuss how fuel will be transferred from FO-10 to FO-1 when pump FO-37 is in operation pumping fuel to the diesel driven auxiliary feedwater pump. Provide the flow rates of pump FO-37 and the manually operated portable pump.

OPPD Response

The steps for transferring fuel from FO-10 to FO-1 are included in Emergency Operating Procedure EOP/AOP Attachment MVA-19. This procedure requires the operator to connect a temporary fuel transfer hose to a fitting located at the discharge of pump FO-37 normally isolated from the pump by drain valve FO-201. The other end of the temporary hose is connected to the FO-1 fill pipe. FO-201 is then opened and the normal flow of FO-37 to the diesel driven auxiliary feedwater pump (FW-54) is stopped by closing FO-37 discharge isolation valve FO-196. This action prevents FO-37 from pumping to both FO-1 and FW-54 simultaneously. If the diesel-driven auxiliary feedwater pump FW-54 is operating during the fuel transfer process, the operator is directed to monitor the inventory in the FW-54 diesel fuel storage tank. FO-37 flow can be re-directed back to the FW-54 diesel storage tank at any time as needed. If FO-37 is unavailable, the manually operated portable pump, FO-57, is connected to hoses as needed to transfer fuel directly from FO-10 to FO-1 without reliance on any installed piping.

FO-37 is a screw-type positive displacement pump designed to operate at nominal flow of 5.8 gpm which is adequate for makeup to FO-1 as it supplies fuel to the operating EDG at a maximum rate of 3 gpm. The manually operated portable pump, (backup to FO-37), is capable of transferring a minimum of 7 gpm of No. 2 diesel fuel oil from FO-10 to FO-1 (Refer to calculation FC07807 for details including hose length and tank elevations.).

RAI EPNB-3

Please provide the justification for selecting a 3 percent margin for stored fuel oil for EDG testing instead of the 10 percent margin required by the American Nuclear Standards Institute (ANSI) Standard N195-1976.

OPPD Response

The margin for stored fuel is calculated by comparing the amount of fuel available on site (in FO-1, FO-10 and tanks local to the EDGs) to the amount of fuel calculated to be necessary for seven days of EDG operation. Calculation FC06871 determines that the total volume of available fuel is 27,592 gallons. Engineering Analysis EA92-072 runs various cases of EDG loading to determine the most conservative value for required fuel. The resulting required minimum value is 26,739 gallons for seven days of operation. Comparing these two values results in a margin of approximately 3%.

Note that the required minimum from EA92-072 does not include an allowance for periodic testing. Fuel inventory in excess of the minimum is administratively controlled to ensure that monthly EDG testing can be performed without fuel inventory reaching or exceeding the minimum amount required to ensure seven days of operation. Therefore, the calculated 3% margin does not need to ensure available inventory for testing since separate testing margin is made available. Whereas, the minimum inventory in FO-1 for seven days of operation is 16,000 gallons, the administrative limit for ordering additional fuel for FO-1 from a fuel vendor is 16,500 gallons.

Since the fuel consumption calculation is intended to be a bounding calculation addressing anticipated worst case loading, and testing inventory is addressed separately, the 3% margin is concluded to be adequate for ensuring seven days of emergency operation.

In regard to the requirement to maintain a 10% margin in accordance with ANSI Standard N195-1976, it should be noted that FCS has not committed to maintaining a 10% margin in past licensing correspondence related to diesel fuel oil storage capacity.

RAI EPNB-4

In Section 3.0 of the submittal, it states that the EDG fuel consumption calculation was revised to address the use of Ultra Low Sulfur Diesel fuel. The American Society for Testing and Materials (ASTM) D-975 allows up to 5 percent biodiesel in normal diesel fuel oil without labeling. Please discuss whether or not the EDG fuel consumption calculation accounts for this 5 percent biodiesel in the fuel oil, which could cause an increase in EDG fuel consumption.

OPPD Response

Fuel consumption calculations do not account for biodiesel in the determination of EDG fuel consumption, that is, it is assumed that there is no impact due to the reduced energy content of biodiesel. The basis for this assumption is as follows:

Fort Calhoun Station purchase requirements for diesel fuel used for supplying EDGs require the fuel vendor to meet a maximum specification for biodiesel content. This specification is $\leq 0.2\%$. When fuel deliveries are made, tests of the delivered fuel are conducted prior to offloading the fuel from the delivery truck to ensure that the biodiesel and other quality specifications are met. If all specifications are not met, the delivered fuel is either rejected or used in applications other than EDGs. (Reference OI-FO-1, Form FC-94, CH-ANL-MI-0034 and Diesel Fuel Catalog ID #127027-2) If the biodiesel content is $\leq 0.2\%$, the impact on overall fuel energy content is considered negligible.

RAI EPNB-5

In Section 4.0 of the submittal, it states that if 3,000 gallons (16,000 gallons FO-10 inventory minus 13,000 gallons dedicated to the EDG) of fuel oil in FO-10 is dedicated to the auxiliary boiler, its operating time is reduced to 20 hours at maximum fuel consumption rates. In Section 3.0, it states that, in 2002, it was recognized that the auxiliary feedwater pump diesel engine consumes fuel oil from the FO-10 tank. Please explain how the auxiliary feedwater pump diesel engine fuel oil consumption is accounted for if it is not included in the 3,000 gallons of fuel oil dedicated to the auxiliary boiler.

OPPD Response

Engineering Calculation FC06871 determines the amount of diesel fuel that is available for EDG usage for the purpose of meeting the seven day diesel operating requirement. FC06871 accounts for various effects that may reduce the amount of available fuel including instrument uncertainty, vortexing and fuel unavailability due to elevation of the transfer pump suction valve. This calculation also accounts for the possible operation of diesel-driven auxiliary feedwater pump FW-54 for the purpose of supplying power to transfer pump FO-37 during the transfer of fuel from FO-10 to FO-1. The calculation assumes that the diesel providing the motive force for FW-54 is operating the entire time that FO-37 is operating for fuel transfer resulting in the determination that 568 gallons of inventory is diverted from FO-10 for FW-54 operation and therefore is not available for transfer to FO-1. This diverted fuel is accounted for in the overall available quantity of fuel for EDG operation.

RAI EPNB-6

In Section 4.0 of the submittal, it states that the auxiliary boiler is not specifically credited for operation to mitigate design basis events. If it is not credited for operation to mitigate design basis events, please explain why fuel oil in tank FO-10 is reserved for the auxiliary boiler and cannot be reserved for the EDG.

OPPD Response

Even though the auxiliary boiler is not formally credited for operation during a design basis event, it is likely that it would be operated soon after the start of the event if outside air temperature is in a range normally expected in the winter season. This conclusion is based on the fact that most areas within the plant are heated solely by the auxiliary steam system which is supplied from the auxiliary boiler when the main turbine is not operating. Since there are no procedures to prohibit auxiliary boiler operation or restrict boiler loading during a design basis event coincident with an extended loss of offsite power, it is necessary to assume that FO-10 would be supplying both the operating EDG and the auxiliary boiler during such a scenario.

In the original license amendment request for crediting FO-10 to support the seven day EDG operating period (OPPD Letter LIC-93-0093, dated September 17, 1993, requested for Technical Specification Amendment 162), only 8,000 gallons in FO-10 was allocated for EDG operation. The amendment request specifically stated that the remaining fuel in FO-10, i.e., the remaining 8,000 gallons, would be able to operate the auxiliary boiler for 53 hours without impacting the EDG minimum operating time. With the current license amendment request (LAR 15-06), the fuel allocated for auxiliary boiler operation is reduced to 3,000 gallons. This amount of fuel is still considered acceptable with the understanding that, during an extended loss of offsite power, diesel fuel conservation would be considered a high priority for the emergency response organization which would focus on ways to reduce fuel consumption by the auxiliary boiler, if it is operating.