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Ms. Cindy Bladey, Chief
Rules, Announcements, and Directives Branch (RADB)
Office of Administration
Mail Stop: TWB-05-B01M
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Subject: Comments Concerning Draft Regulatory Guide DG-1282, "Fuel Oil Systems for Emergency Power Supplies" (77FR39745, dated July 5, 2012, Docket ID NRC-2012-0159)

This letter is being submitted in response to the U.S. Nuclear Regulatory Commission (NRC) request for comments concerning draft Regulatory Guide (RG) DG-1282, "Fuel Oil Systems for Emergency Power Supplies," published in the *Federal Register* on July 5, 2012 (i.e., 77FR39745).

DG-1282 is proposed Revision 2 of RG 1.137, dated October 1979, and describes updated methods that the NRC considers acceptable for use in complying with its requirements regarding fuel oil systems for safety-related emergency diesel generators and oil-fueled gas turbine generators, including assurance of adequate fuel oil quality. The guidance in this draft RG may also be applied to the fuel oil systems for nonsafety-related standby power supplies to the extent deemed appropriate to the safety significance of the power supplies.

Exelon appreciates the opportunity to comment on draft RG and offers the attached comments for consideration by the NRC.

If you have any questions or require additional information, please do not hesitate to contact Richard Gropp at (610) 765-5557.

Respectfully,

David P. Helker
Manager - Licensing and Regulatory Affairs
Exelon Generation Company, LLC

Attachment

SUNSI Review Complete
Template = ADM-013

E-RFDS = ADM-03
Add = M. Dis (mpd)
B. Badlinski (rfr.1)

**Comments Regarding Draft Regulatory Guide
DG-1282, "Fuel Oil Systems for Emergency Power Supplies"**

Exelon Generation Company, LLC (Exelon) appreciates the opportunity to comment on this draft Regulatory Guide (RG) and offers the comments below for consideration by the NRC. The comments are provided in the order of paragraph numbering in Section C, "*Staff Regulatory Guidance*," as described in the draft RG.

Comments

1. Paragraph C.4

Exelon considers that the discussion in this paragraph related to severe natural event or major disaster causing interruption of onsite diesel fuel replenishment might be premature, given that the nuclear energy industry is currently developing a comprehensive strategy to implement the lessons learned from the Fukushima event in Japan. This strategy, known as "*FLEX*," is being developed by the Nuclear Energy Institute (NEI) to deliver a diverse and flexible coping capability in these events. Exelon believes that the prescriptive instruction in this paragraph for establishing pre-disaster fuel replenishment agreements and onsite temporary storage tanks is not necessary given this comprehensive industry initiative, and recommends that this discussion be reconsidered.

2. Paragraph C.5

Appendix B of ANSI/ANS-59.51 - 1997, "*Alternate Calculation of Usable Fuel Oil Storage Capacity*," contains a provision for the calculation to include: 1) an allowance for an operator to supply power to equipment other than the minimum required for the plant condition, 2) an explicit allowance for periodic testing, and 3) an additional 10% margin to account for remaining uncertainties. Exelon believes that the justification for the NRC to not accept the time-dependent method for calculating fuel storage requirements that is discussed in the second to last sentence of the introductory paragraph to Section C.5 is unwarranted. Therefore, Exelon suggests that the NRC consider deleting this sentence from the final revision.

3. Paragraph C.5.1

Exelon believes that it is common practice to include the volume of fuel in day or integral tanks, piping, etc., in the usable fuel storage calculations, since this fuel meets all specification requirements and is viable fuel for operation of the machine. Therefore, Exelon suggests that the NRC consider deleting this discussion since there appears to be no reasonable technical basis for its inclusion.

4. Paragraphs C.5.3 and C.5.4

Exelon believes that the example of a 2% or more capacity change due to use of Ultra-Low Sulfur Diesel (ULSD) fuel oil seems excessive and might be without practical technical basis. Exelon has analyzed and trended information of tests of ULSD fuel oil samples. The tests indicate that the heat content on a volumetric basis, and thereby the tank capacity to

achieve the 7-day storage goal, follows the correlation established in ASTM D-4868, "*Standard Test Method for Estimation of Net and Gross Heat of Combustion of Burner and Diesel Fuels*," to within 1%. Figure 1 is being provided for information and reference purposes and helps to depict the test result trending data. Exelon suggests that licensees be afforded the option to perform actual heat content testing to establish limiting values. ASTM D-4809, "*Standard Test Method for Heat of Combustion of Liquid Hydrocarbon Fuels by Bomb Calorimeter (Precision Method)*," provides a state-of-the-art method for determining this value.

5. Paragraph 6.1

Emergency Diesel Generator (EDG) manufacturers typically utilize positive-displacement engine-driven fuel pumps to transfer the fuel from the day tank to feed the engine fuel rail. These pumps have self-priming suction lift capability and Net Positive Suction Head (NPSH) requirements would not necessarily apply. Therefore, under these circumstances, Exelon suggests that this paragraph be removed or modified accordingly.

6. Paragraph 13.1

Substituting the standards of ASTM D-4057, "*Practice for Manual Sampling of Petroleum and Petroleum Products*," for ASTM D-2276, "*Standard Test Method for Particulate Contaminant in Aviation Fuel by Line Sampling*," appears inconsistent with the Bases of Improved Technical Specifications Surveillance Requirement (SR) 3.8.3.3 of NUREG-1431 and NUREG-1433. As applied in nuclear plants, ASTM D-4057 is used to obtain "grab" samples from the delivery tankers in order to perform fuel acceptance testing. Flowing samples per ASTM D-2276 are obtained for the periodic storage testing for particulates in order to provide a sample of the fuel that is representative of that which is going to the engine. An alternative to ASTM D-2276 successfully used by many operating nuclear plants is ASTM D-6217, "*Standard Test Method for Particulate Contamination in Middle Distillate Fuels by Laboratory Filtration*." Therefore, Exelon recommends that this paragraph cite ASTM D-6217 as an alternative to ASTM D-2276, and not cite ASTM D-4057 as currently proposed.

7. Paragraph 13.2

The range for American Petroleum Institute (API) gravity (or specific gravity) cited in Appendix C of ANSI/ANS 59.51-1997, "*Recommended Fuel Oil Practices*," was developed prior to the advent of ULSD and may need to be modified by individual plants in order to reflect the properties of locally-available diesel fuel and/or in order to accommodate the 7-day volumetric storage criterion. Therefore, Exelon recommends that the last sentence of this paragraph be deleted for this draft RG.

8. Paragraph 13.3.2

The Bases for SR 3.8.3.3 of Improved Technical Specifications NUREG-1431 and NUREG-1433, allows for the determination of a clear and bright appearance with proper color per ASTM D-4176, "*Standard Test Method for Free Water and Particulate Contamination in Distillate Fuels (Visual Inspection Procedures)*" as a choice in place of specific water and sediment testing per ASTM D-2709, "*Standard Test Method for Water and Sediment in Middle Distillate Fuels by Centrifuge*." By contemporary standards, diesel fuel should be

clean and dry. Therefore, Exelon suggests that this paragraph be revised to include the phrase "clear and bright with proper color" as an alternative to "*water and sediment*" to reflect contemporary state-of-the-art practice for fuel delivery acceptance.

9. Paragraph 13.5

This paragraph is intended to check for and remove any water that may have been transferred from the storage tank and may have settled out in the day and integral tanks. The requirement to laboratory centrifuge the sample per ASTM D-2709 is not necessary because water in the storage tanks has been removed in the monthly checks per Paragraph 13.4 of this draft Regulatory Guide. Only minimal amounts of water could appear at the bottom of the day tank which is easily removed by draining a sufficient volume of oil from the tank bottom. Operating experience has shown that little-to-no water appears at this location in the system. Exelon believes that the use of ASTM D-2709 standards for this practice imposes an unnecessary burden on licensees. Therefore, Exelon suggests that the wording of this paragraph remain as currently discussed in Revision 1 of RG 1.137 (1979).

10. Paragraph 13.10

The specification for ULSD (15 ppm sulfur maximum) first appeared in the 2006 version of ASTM D-975, "*Standard Specification for Diesel Fuel Oils*," not in the 1992 version as stated in this paragraph. Use of versions of ASTM D-975 prior to 2006 will not address ULSD fuel. Use of versions of ASTM D-975 from 1993 until 2005 address Low Sulfur Fuel which has a maximum sulfur content of 0.05% or 500 ppm, but do not address ULSD. Use of 1992 version and earlier editions of ASTM D-975 address only 5000 ppm sulfur fuel, which is now known as "high sulfur fuel." Exelon recommends that the NRC consider providing the appropriate clarification concerning this aspect.

11. General

American oil refiners supply diesel fuel to the commercial market in accordance with the latest version of ASTM D-975. Therefore, Exelon recommends removing citations to specific years of this standard throughout the draft RG standard since the citations might rapidly become obsolete.

Figure 1

