NFPA 110-Proposed 2019 Edition
Standard for Emergency and Standby Power Systems
TIA Log No.: 1388
Reference: 2.3.2(new), 8.3.7, C.1.2.2, and C.1.2.3(new)
Comment Closing Date: September 20, 2018
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www.nfpa.org/110

1. Add new section in Chapter 2 to read as follows:

2.3.2 ASTM Publications. ASTM International, 100 Barr Harbor Drive, P.O. Box C700, West Conshohocken, PA 19428-2959.
ASTM D2709, *Standard Test Method for Water and Sediment in Middle Distillate Fuels by Centrifuge*, 2016.
ASTM D6469, *Standard Guide for Microbial Contamination in Fuels and Fuel Systems*, 2017.
ASTM D7371, *Standard Test Method for Determination of Biodiesel (Fatty Acid Methyl Esters) Content in Diesel Fuel Oil Using Mid Infrared Spectroscopy (FTIR-ATF-PLS Method)*, 2014.

2. Revise 8.3.7 and associated Annex material to read as follows:

8.3.7 ~~A fuel quality test shall be performed at least annually using appropriate ASTM standards or the manufacturer's recommendations.~~ **Diesel Fuel.**
8.3.7.1 Diesel fuel maintenance and testing shall begin the day of installation and first fill in order to establish a benchmark for future comparison.
8.3.7.1.1 Diesel fuel shall be tested for degradation no less than twice annually with a maximum of 6 months between testing.
8.3.7.1.2 All testing shall be performed using ASTM-approved test methods and meet engine manufacturer's requirements.
8.3.7.1.3 Fuel testing shall be performed on all diesel fuel sources of EPSS.
8.3.7.2* Tests.
8.3.7.2.1 Tests shall include at a minimum Microbial Contamination per guidelines referenced under ASTM D6469, *Standard Guide for Microbial Contamination in Fuels and Fuel Systems*, Free Water and Sediment under ASTM D2709, *Standard Test Method for Water and Sediment in Middle Distillate Fuels by Centrifuge*, and Biodiesel Concentration under ASTM D7371, *Standard Test Method for Determination of Biodiesel (Fatty Acid Methyl Esters) Content in Diesel Fuel Oil Using Mid Infrared Spectroscopy (FTIR-ATR-PLS Method).*
8.3.7.2.2 Similar, modified, and proven methods recognized under ASTM shall be accepted.

A.8.3.7.2 For acceptable values, consult with the engine manufacturer and the most current ASTM test documents, including Appendix X3.1.3 of ASTM D975, *Standard Specification for Diesel Fuel Oils.*

8.3.7.3* For diesel fuel stored consecutively for 12 months or longer, a diesel fuel stability test shall be performed annually.

A.8.3.7.3 PetroOxy under ASTM D7545, *Standard Test Method for Oxidation Stability of Middle Distillate Fuels — Rapid Small Scale Oxidation Test (RSSOT)*, is the accepted ASTM

test method for S15 diesel fuels and biodiesel blends containing up to a biodiesel blend of 5 percent. Additional methods might be acceptable. Refer to the most current ASTM test documents, including Appendix X3.1.3 of ASTM D975, *Standard Specification for Diesel Fuel Oils.*

8.3.7.4* Any additional testing requirements shall be determined by equipment manufacturer, government regulations, recent test results, and geographical region.

A.8.3.7.4 Refer to the most current, ASTM D975, *Standard Specification for Diesel Fuel Oils*, Appendix, and the CRC Report No. 667, *Diesel Fuel Storage and Handling Guide*, for detailed testing and descriptions.

8.3.7.5* If diesel fuel is found to be outside of the acceptable range in the testing listed in 8.3.7.2, the fuel shall be remediated to bring back to the required fuel quality for long-term storage specified under ASTM.

A.8.3.7.5 Remediation could be in the form of fuel additives, polishing, tank cleaning, or diesel fuel replacement and will be dependent on the test results received.

3. Update document references in existing section as follows:

C.1.2.2 ASTM Publications.

ASTM D975, *Standard Specification for Diesel Fuel Oils,* ~~2015c~~ 2018.

ASTM D7545, *Standard Test method for Oxidation Stability of Middle Distillate Fuels – Rapid Small Scale Oxidation Test (RSSOT)*, 2014.

4. Add new section to read as follows:

C.1.2.3 CRC Publications. Coordinating Research Council, Inc., 5755 North Point Parkway, Suite 265, Alpharetta, GA 30022.

CRC Report No. 667, *Diesel Fuel Storage and Handling Guide*, 2014.

Substantiation: Diesel fuel is the power source of a generator. It is often the factor between life and death in a state of emergency. If the diesel fuel fails due to poor quality and maintenance, it doesn't matter how well the generator has been maintained as it will not get the power from the fuel source to run.

For several years, there has been uncertainty between end users, service companies, laboratories, manufacturers, and dealers when it comes to the proper fuel testing to provide to those adhering to NFPA 110 Chapter 8.3.7. The language has been too broad in only referencing an annual test, but not what to test for. In many cases, AHJ's and others refer back to the test standards of ASTM D975 which is the Diesel Fuel Oil Specification for **NEW** Fuel Oils at time of production.

The problem with this reference is emergency standby power, is just that, standby. The diesel fuel can sit in these tanks for 6 months, 1 year, and often several years. There needs to be testing done for the degradation of diesel fuel and a remediation process in place to be followed to ensure the diesel fuel does not fail in the event of any emergency.

NFPA 25 for the maintenance of Fire Pumps already has the language in place for remediation of the fuel in case of degradation, why does not the NFPA 110. However, just like NFPA 110, the NFPA 25 does lack the specific testing to be performed on the unit.

In July 2017, our first request to revise Chapter 8.3.7 was denied as it was not written in code language. Between the voting members there was no consensus within the marketplace to add specific testing to the code so instead "or the manufacturer's recommendation" was added to the 2019 revision. The problem is, manufacturers refer back to ASTM D975 which once again, is the specification for NEW diesel fuel oils, not long-term storage fuels.

Over the last year, within EGSA (Electrical Generating Systems Association) we compiled a collaborative working group between the Dealer & Distributor Committee and the Codes & Standards Committee to create a consensus for the minimum testing requirements and maintenance of diesel fuel for the safety and reliability of EPSS. The above TIA wording has been sponsored by (2) NFPA 110 TC Members, the EGSA Executive Board, and several collaborators across the industry. I have attached statements from those involved in a separate document.

Emergency Nature. The standard contains an error or an omission that was overlooked during the regular revision process. The proposed TIA intends to offer to the public a benefit that would lessen a recognized (known) hazard or ameliorate a continuing dangerous condition or situation. The proposed TIA intends to accomplish a recognition of an advance in the art of safeguarding property or life where an alternative method is not in current use or is unavailable to the public.

With the changes to the production of diesel fuel over the last several years, the importance of proper maintenance to diesel fuel has become a matter of a life and death. Diesel fuel has changed drastically with the reduction of sulfur to 15ppm and the addition of biodiesel blends. It is no longer a maintenance free product. Without the code dictating what testing needs to be done, and requiring maintenance and remediation, it is only a matter of time before "bad" fuel fails to start a generator. The fuel may have been tested per the annual requirement, but for the wrong tests. We need to equip the industry with the proper testing and remediation for diesel fuel before the consequence is a catastrophic lost of innocent human lives within a medical facility.

Anyone may submit a comment by the closing date indicated above. Please identify the TIA number forward to the Secretary, Standards Council. SUBMIT A COMMENT