

# REQUEST FOR ADDITIONAL INFORMATION 467-3609 REVISION 1

10/6/2009

US-APWR Design Certification

Mitsubishi Heavy Industries

Docket No. 52-021

SRP Section: 09.05.04 - Emergency Diesel Engine Fuel Oil Storage and Transfer System  
Application Section: 9.5.4

QUESTIONS for Component Integrity, Performance, and Testing Branch 1 (AP1000/EPR Projects)  
(CIB1)

09.05.04-43

## Background

To assure compliance with GDC 17 as it relates to the capability of the diesel engine fuel oil system (in this case, the gas turbine generator) to meet independence and redundancy criteria, SRP Section 9.5.4 references Regulatory Guide 1.137 as acceptable guidance with respect to the fuel oil properties and testing program. In turn, RG 1.137 cites ANSI N195-1976 (ANS-59.51) as a reference. In addition RG 1.137 (C.2.a) mentions ASTM D975 as the definitive standard for this testing both old and new fuel oil. This standard contains reference to many additional standards which contain the details of various procedures and criteria. The procedure distinctly cited in ASTM D975 (Table 1 and Section 5.1.3) for measurement of water and sediment is ASTM D2709, which describes centrifugation of a fuel oil sample and measurement of the water and solids separated from the bulk fuel. In Technical Specification 5.5.13, the applicant mentions a visual inspection of new fuel oil for "...clear and bright appearance," but does not mention the centrifugation test of ASTM D2709. The staff requested clarification of this testing procedure in RAI 317-2061, Question No. 09.05.04-3 (Reference 1). The applicant's response (Reference 2) indicated that the visual test was based on ASTM D4176, which describes an approximate method for field-testing fuel oil. The applicant claimed that this approximate method was justified in ANSI N195-1976 as an acceptable alternative to the quantitative centrifugation test of ASTM D2709. However, the staff cannot find any justification in ANSI N195-1976 for this reasoning. Because RG 1.137 specifically references ASTM D975, and the only procedure cited therein is the centrifugation method in ASTM D2709, the staff does not accept the approximate visual method of ASTM D4176 without further justification explaining why it provides an acceptable alternative to the centrifugation test of ASTM D2709.

## Requested Information

Describe how the testing of water and sediment in new fuel will satisfy the guidelines of ASTM D975, as recommended in RG 1.137.

## References

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1. "Request for Additional Information No. 317-2061 Revision 1, SRP Section: 09.05.04 – Emergency Diesel Engine Fuel Oil Storage and Transfer System, Application Section: Section 9.5.4" dated April 6, 2009. (ADAMS Accession No. ML090960765)
2. Letter from Yoshiki Ogata, MHI, to NRC dated June 9, 2009; Docket No. 52-021 MHI Ref: UAP-HF-09291; Subject: MHI's Response to US-APWR DCD RAI No. 317 (ADAMS Accession No. ML091660231).