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 AUTH. NAME AUTHOR AFFILIATION  
 SORESENSEN, G.C. Washington Public Power Supply System  
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SUBJECT: Application for amend to License NPF-21, replacing  
 surveillance requirements 4.8.1.1.2.b, c & d.

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AA-2

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

P.O. Box 968 • 3000 George Washington Way • Richland, Washington 99352

March 30, 1990  
Docket No. 50-397  
G02-90-065

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, D.C. 20555

Gentlemen:

Subject: NUCLEAR PLANT NO. 2, OPERATING LICENSE NPF-21  
REQUEST FOR AMENDMENT TO TECHNICAL SPECIFICATION  
SURVEILLANCE REQUIREMENT 4.8.1.1.2

Reference: Letter, RB Samworth (NRR) to GC Sorensen (SS),  
"Issuance of Amendment 76 to Facility Operating  
License No. NPF-21 - WPPSS Project No. 2  
(TAC No. 75564)", dated February 22, 1990

The reference responded to an emergency technical specification amendment request and subsequent temporary waiver of compliance by providing an alternative method of performing the subject surveillance until May 30, 1990. It further stated that the NRC expected the Supply System to submit a new technical specification amendment application to be effective when the interim technical specification expired. Accordingly, and per the Code of Federal Regulations, Title 10 Parts 50.90 and 2.101, the Supply System hereby submits a request for amendment to the WNP-2 Technical Specifications. Specifically, the Supply System is requesting that surveillance requirements 4.8.1.1.2.b, c and d be replaced, as attached, to allow a more comprehensive and effective fuel oil surveillance program to be implemented at WNP-2.

The significant items of this requested change are: 1) more frequent check and removal of accumulated water, if found, from the fuel storage tanks; 2) increased frequency and a different method for testing stored fuel (ASTM D2276 on a 31-day schedule in lieu of ASTM D2274 on a quarterly schedule); 3) modifications to the procedure and acceptance criteria for new fuel oil addition to the storage tanks; 4) addition of alternate test methods for determining some fuel oil properties; and 5) deletion of tests on stored fuel oil which do not serve to determine the impact of the fuel condition on diesel generator operability. The benefits in implementing the proposed changes are an increased and more effective ability to detect unsatisfactory fuel oil, testing that can be performed onsite with more immediate results, and testing that is simpler to perform.

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The change in frequency for checking and removing accumulated free water in the fuel storage tanks reduces the possibility of bacteria contamination of the stored fuel, minimizes the formation of corrosion products and prevents water from contaminating the fuel oil transfer system and the diesel generator fuel systems. The quarterly checks for accumulated water in the tanks have proven negative since the tanks were installed (approximately 9 years ago). Further, the water table at the WNP-2 site is significantly below the tanks (the water table is at 380 feet and the bottoms of the tanks are at 422.5 feet) which eliminates this potential source of water contamination. Increasing the frequency of checking for and removal, if necessary, of any free water accumulation in the storage tanks adds to the conservatism of the present testing program.

The present technical specifications do not specify where the fuel is to be tested for free water accumulation. The proposed change specifies that the fuel will be sampled below the transfer pump suction which is believed to be the most desirable location. Also, as the current design has no provision to drain the tanks, the pumping out of accumulated water is specified.

The use of ASTM D2276 in lieu of D2274 for testing stored fuel provides a better indication of the present fuel conditions in the storage tanks. ASTM D2276 indicates the condition of the fuel in terms of particulates which could impair diesel generator operability. ASTM D2274 has been recognized to be of limited value with regard to fuel suitability for immediate use. ASTM D2274 test results are an indication of the tendency of fuel oil to degrade (oxidize and form particulates) during long term storage. The test results are not an indication of actual particulate matter present in the fuel oil. The accuracy of the test is questionable and it is more commonly used as a means of quality assurance at refineries. As presently used ASTM D2274 samples are required quarterly. Use of ASTM D2276 on a monthly frequency provides better data on fuel condition at the time of the test as well as any particulates formed during storage. Hence ASTM D2276 sampling on a monthly basis is more conservative than the presently required ASTM D2274 test on a quarterly basis. ASTM D2276 recommends, where possible, filtering of 3.785 to 5 liters of fuel. The time required to filter this amount of fuel is excessive and therefore only 1 to 2 liters of fuel will be used. Also, the analysis may be performed using an equivalent solvent such as T, T, 4-Trinethylpentane or Isooctane for ease of testing.

Modifications to the procedure and acceptance criteria for new fuel oil additions are also proposed to simplify testing of new fuel, provide immediate assurance of the quality of fuel being delivered, and continued quality of stored fuel.

The present technical specifications require that new fuel additions meet the properties specified in ASTM D975-77. This standard and ASTM D975-81 included in the requested changes, recognize ASTM D1796, "Test for Water and Sediment in Crude Oils and Fuel Oils by Centrifuge" as providing criteria for acceptance of

new fuel. This test can be performed on site and provides a good indicator of fuel quality. However, it can be time consuming with respect to the ASTM D4176-82 "Clear and Bright" test. This test is recognized by the NRC staff and industry as an equally acceptable test for recognizing the presence of water and sediment contaminants in new fuel. Accordingly, the Supply System proposes that satisfactory results from either test will indicate acceptability with respect to water and sediment contaminants. Because both tests have been found acceptable, the addition of the "Clear and Bright" test to the acceptance criteria for new fuel remains conservative.

The addition of a flash point test provides additional confirmation that new fuel is acceptable and within specification limits, thereby reducing the possibility of adding "bad" fuel to that already in storage. With this additional test the acceptance criteria for new fuel remain conservative relative to that presently required by the WNP-2 Technical Specifications.

An optional method of verifying gravity prior to storing is proposed for 4.8.1.1.2.c.1.a to simplify new fuel acceptance procedures. This would involve testing and comparing the test results with the suppliers certification. The justification for this change is that any contamination during transportation, i.e. after certification by the supplier, would be recognized by changes in flash point, viscosity, or appearance. As discussed above, contamination that alters the appearance of the fuel oil will be detected in the water and sediment test or the "Clear and Bright" test. The flash point test will provide additional indication that the new fuel oil is within specification limits and has not been contaminated. A viscosity measurement within limits provides further confirmation that the new fuel is acceptable. Hence, given satisfactory results on these tests, verification of fuel oil gravity by testing and comparing to the supplier's certification provides the necessary assurance that the new fuel is within specification limits. Thus, verification of fuel oil gravity by optional methods as proposed is acceptable.

At present, the WNP-2 Technical Specifications require new fuel to be tested to ensure that the properties listed in ASTM D975-77 are met with the test results available within 14 days after sampling. The proposed change recognizes that those properties having the most detrimental and immediate impact on fuel performance (flash point, viscosity, gravity, and water and sediment) are checked for conformance prior to addition of the fuel to the storage tanks. The remaining properties are those which might impact fuel performance only on a long term basis. Hence an extension of time from 14 to 31 days to obtain indications of acceptability for long term fuel performance has no impact on fuel suitability during the additional 17-day interval.

The proposed changes to the Technical Specifications include deleting the requirement for testing of stored fuel oil in accordance with ASTM D975 requirements on a 92-day basis. The rationale for this deletion is that the fuel oil properties which can effect diesel generator performance (flash point, cetane, viscosity and cloud point) do not change during storage. If these properties are within specification when the fuel oil is placed in storage, they will remain within specification unless other non-specification petroleum products are added to the storage tanks. The addition of non-specification petroleum products is precluded by the proposed new fuel surveillance program



as detailed above. Over a prolonged period stored fuel can oxidize and form particulates which, in significant concentrations, could impair diesel generator performance. Particulate and bacterial concentrations are parameters that can change in stored fuel oil. Particulate concentrations will be monitored every 31 days as discussed previously. Bacteria growth will be prevented by periodic checking for and removal of free water, if necessary, from the storage tanks. Considering that the fuel oil properties will not change in storage, and that fuel oil conditions which could affect diesel generator operation will be closely monitored (on a 31-day basis), further testing of stored fuel in accordance with ASTM D975 every 92 days will not provide any additional data nor improve diesel generator reliability. As such, it is proposed that this additional testing be deleted.

By ASTM D975-77, as specified in the present technical specifications, sulfur content analysis may only be performed using ASTM D129 to verify acceptability. Federal diesel specification VV-F-800C and ASTM D396, "Specification for Fuel Oil", allow the use of ASTM D1552-79 and ASTM D2262-82 tests for sulfur determination in No. 2 grade fuel oil. The attached technical specification change proposes to allow the use of these tests as a substitute for ASTM D129. These tests, in use at numerous laboratories, can be performed more rapidly than ASTM D129. The ASTM D129 test may be utilized when the two tests provide conflicting results. This substitution has been found acceptable by the NRC staff on other dockets. Use of these tests will provide equivalent results to those obtained by the use of ASTM D129.

In summary, the proposed changes provide a more comprehensive program for determining fuel oil properties than that presently required by the WNP-2 Technical Specifications. New fuel additions will meet flash point, viscosity, gravity, and water and sediment requirements prior to addition to the storage tanks. The combination of these requirements is more stringent than that presently required. Further, the continuous addition of high quality fuel (with these properties satisfied) to the storage tanks combined with the monthly monitoring ensures that the fuel remains suitable for immediate use. Water in the storage tanks, although not expected, will be checked monthly versus quarterly and removed as necessary. As discussed above, stored fuel properties will be verified on a monthly basis by a testing method that reflects immediate suitability of the fuel instead of a long term tendency to oxidize and evolve particulates. The proposed changes provide a more conservative, accurate determination of fuel oil properties than that presently approved for use at WNP-2.

The Supply System has evaluated this amendment request per 10CFR 50.92 and determined that it does not represent a significant hazard because it does not:

- 1) Involve a significant increase in the probability or consequences of an accident previously evaluated.

As discussed above the proposed program represents a more comprehensive, accurate method for determining fuel suitability. As such, the adoption of this program cannot impact the probability or consequences of an accident previously evaluated because the fuel supporting the operability of the diesel generators (utilized in accident analysis) will be tested to a more conservative program. As such, diesel generator operability continues to be maintained.





- 2) Create the possibility of a new or different kind of accident from any accident previously evaluated.

The design function and operation of the DG fuel oil system is not affected by this change. There are no new modes of operation introduced. The reliability of the DG system to provide an emergency source of power is not reduced as no fuel oil acceptance or long term storage criteria are being compromised. As discussed above the proposed program will provide a more accurate assessment of fuel oil suitability. Hence no new or different kind of accidents from any previously evaluated are introduced by this change.


- 3) Involve a significant reduction in a margin of safety.

No reduction in the margin of safety is involved as this proposed change provides a more comprehensive program for determining fuel oil properties and their impact on diesel generator operability. As such, this program helps assure that reliability and operability of the diesel generators are maintained.

As discussed above, the Supply System considers that this change does not involve a significant hazards consideration, nor is there a potential for significant change in the types or significant increase in the amount of any effluents that may be released offsite, nor does it involve a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed change meets the eligibility criteria for categorical exclusion set forth in 10CFR 51.22(c)(9) and therefore, per 10CFR 51.22(b), an environmental assessment of the change is not required.

This Technical Specification change has been reviewed and approved by the WNP-2 Plant Operations Committee (POC) and the Supply System Corporate Nuclear Safety Review Board (CNSRB). In accordance with 10CFR 50.91, the State of Washington has been provided a copy of this letter.

Very truly yours,

  
G. C. Sorensen, Manager  
Regulatory Programs

PLP/bk  
Attachments

cc: JB Martin - NRC RV  
NS Reynolds - BCP&R  
RB Samworth - NRC  
DL Williams - BPA/399  
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C Eschels - EFSEC

