June 4, 1990

Docket No. 50-397

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Mr. G. C. Sorensen, Manager
Regulatory Programs
Washington Public Power Supply System
P.O. Box 968
3000 George Washington Way
Richland, Washington 99352

Dear Mr. Sorensen:

SUBJECT: ISSUANCE OF AMENDMENT NO. 86 TO FACILITY OPERATING LICENSE NO. NPF-21 - WPPSS NUCLEAR PROJECT NO. 2 (TAC NO. 76409)

The U.S. Nuclear Regulatory Commission has issued the enclosed amendment to Facility Operating License No. NPF-21 to the Washington Public Power Supply System for WPPSS Nuclear Project No. 2, located in Benton County near Richland, Washington. This amendment is in response to your letter dated March 30, 1990 (G02-90-065).

This amendment revises Technical Specification 3/4.8.1, "A.C. Sources," by replacing the surveillance requirements applicable to the fuel oil for the emergency diesel generators. Specifically, surveillance requirements 4.8.1.1.2.b, c, and d are replaced. The new tests should enhance your ability to detect unsatisfactory fuel oil. This amendment permanently resolves the concern over fuel oil particulate testing that was addressed on a temporary basis by license amendment 76 issued to you by an NRC letter dated February 22, 1990.

A copy of the related safety evaluation supporting the amendment is enclosed. A Notice of Issuance will be included in the Commission's bi-weekly Federal Register notice.

Sincerely,

original signed by

Robert B. Samworth, Senior Project Manager
Project Directorate V
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 86 to Facility Operating License No. NPF-21
2. Safety Evaluation

cc w/enclosures:
See next page

DRSP/PD5	DRSP/PD5	OGC	(A)DRSP/D:PD5
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

June 4, 1990

Docket No. 50-397

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Regulatory Programs
Washington Public Power Supply System
P.O. Box 968
3000 George Washington Way
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IV, V and Special Projects
Office of Nuclear Reactor Regulation

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2. Safety Evaluation

cc w/enclosures:
See next page

cc:

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

DOCKET NO. 50-397

NUCLEAR PROJECT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 86
License No. NPF-21

1. The Nuclear Regulatory Commission (the Commission or the NRC) has found that:

   A. The application for amendment filed by the Washington Public Power Supply System (the licensee), dated March 30, 1990 complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations set forth in 10 CFR Chapter I;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the enclosure to this license amendment and paragraph 2.C.(2) of Facility Operating License No. NPF-21 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 86, and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This amendment is effective as of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

John T. Larkins, Acting Director
Project Directorate V
Division of Reactor Projects - III,
IV, V and Special Projects
Office of Nuclear Reactor Regulation

Enclosure:
Changes to the Technical
Specifications

Date of Issuance: June 4, 1990

ENCLOSURE TO LICENSE AMENDMENT NO. 86

FACILITY OPERATING LICENSE NO. NPF-21

DOCKET NO. 50-397

Replace the following page of the Appendix "A" Technical Specifications with the enclosed page. The revised page is identified by Amendment number and contain vertical lines indicating the areas of change. Also to be replaced is the following overleaf page.

AMENDMENT PAGE	OVERLEAF PAGE
3/4 8-4	3/4 8-3

SURVEILLANCE REQUIREMENTS (Continued)

b. By checking for and removing accumulated free water in the diesel fuel tanks as follows:

1. Check for and drain any accumulated water from the day tanks at least once per 31 days and after each occasion when the diesel is operated for greater than 1 hour.

2. Check for accumulated water at the bottom of the storage tank below the transfer pump every 31 days. Initiate the procedure for pumping off accumulated water within 48 hours of detection.

c. By sampling new diesel fuel in accordance with ASTM D4057-81 prior to addition to the storage tanks and:

1. By verifying in accordance with the tests specified in ASTM D975-81 prior to addition to the storage tanks that the sample has:

a. An API gravity of within 0.3 degrees at 60°F or a specific gravity of within 0.0016 at 60/60°F, when compared to the supplier's certificate or an absolute specific gravity at 60/60°F of greater than or equal to 0.83 but less than or equal to 0.89 or an API gravity at 60°F of greater than or equal to 27 degrees but less than or equal to 39 degrees.

b. A kinematic viscosity at 40°C of greater than or equal to 1.9 centistokes, but less than or equal to 4.1 centistokes, if gravity was not determined by comparison with the supplier's certification.

c. A flash point equal to or greater than 125°F, and

d. A water and sediment content of less than or equal 0.05 volume percent per ASTM D1796-83 or a Clear and Bright appearance with proper color when tested in accordance with ASTM D4176-82.

2. By verifying within 31 days of obtaining the sample that the other properties specified in Table 1 of ASTM D975-81 are met when tested in accordance with ASTM D975-81 except that the analysis for sulfur may be performed in accordance with ASTM D1552-79 or ASTM D2622-82.

d. By obtaining a sample, at least once every 31 days of fuel oil from the storage tanks in accordance with ASTM D2276-78, and verifying within 1 week after obtaining the sample that the total particulate contamination is less than 10 mg/liter when checked in accordance with ASTM D2276-78, Method A.

e. At least once per 18 months, during shutdown, by:

1. Subjecting the diesel to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for this class of standby service.

2. Verifying the diesel generator capability to reject a load of greater than or equal to 1377 kW for DG-1, greater than or equal to 1377 kW for DG-2, and greater than or equal to

4.8.1.1.1 Each of the above required independent circuits between the offsite transmission network and the onsite Class 1E distribution system shall be:

a. Determined OPERABLE at least once per 7 days by verifying correct breaker alignments and indicated power availability, and

b. Demonstrated OPERABLE at least once per 18 months during shutdown by transferring, manually and automatically, unit power supply from the normal circuit to the alternate circuit.

4.8.1.1.2 Each of the above required diesel generators shall be demonstrated OPERABLE:

a. In accordance with the frequency specified in Table 4.8.1.1.2-1 on a STAGGERED TEST BASIS by:

1. Verifying the fuel level in the day fuel tank.

2. Verifying the fuel level in the fuel storage tank.

3. Verifying the fuel transfer pump starts and transfers fuel from the storage system to the day fuel tank.

4. Verifying the diesel starts from ambient condition and accelerates to at least 900 rpm (60 Hz) in less than or equal to 10 seconds* for DG-1 and DG-2 and 13 seconds* for DG-3. The generator voltage and frequency shall be 4160 (+420, -250) volts and 60 ± 3.0 Hz within 10 seconds* for DG-1 and DG-2 and 4160 ± 420 volts within 13 seconds* for DG-3 after the start signal. The diesel generator shall be started for this test by using one of the following signals:

a) Manual.
b) Simulated loss-of-offsite power by itself.
c) Simulated loss-of-offsite power in conjunction with an ESF actuation test signal.
d) An ESF actuation test signal by itself.

5. Verifying the diesel generator is synchronized, loaded to greater than or equal to 4400 kW for DG-1 and DG-2 and 2600 kW for DG-3 in less than or equal to 60 seconds*, and operates with these loads for at least 60 minutes.

6. Verifying the diesel generator is aligned to provide standby power to the associated emergency busses.

7. Verifying the pressure in all diesel generator air start receivers to be greater than or equal to 230 psig for DG-1 and DG-2 and 200 psig for DG-3.

---

*These diesel generator starts from ambient conditions shall be performed at least once per 184 days in these surveillance tests and all other engine starts for the purpose of this surveillance testing shall be preceded by an engine prelube period and/or other warmup procedures recommended by the manufacturer so that mechanical stress and wear on the diesel engine is minimized.

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3. Verifying the fuel transfer pump starts and transfers fuel from the storage system to the day fuel tank.

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO.86 TO FACILITY OPERATING LICENSE NO. NPF-21

WASHINGTON PUBLIC POWER SUPPLY SYSTEM

NUCLEAR PROJECT NO. 2

DOCKET NO. 50-397

1.0 INTRODUCTION

By letter dated March 30, 1990 Washington Public Power Supply System (the licensee) submitted a request for an amendment to the Technical Specifications (TS) for the WNP-2 plant. The amendment consists of modifying surveillance requirement 4.8.1.1.2 for testing of diesel fuel oil. Before submitting the present amendment, the licensee requested in letters dated January 3 and 4 and February 2, 1990 that the surveillance be modified by replacing the fuel oil oxidation testing performed in accordance with the ASTM D2274-70 standard by the particle contaminant testing performed in accordance with the ASTM D2276-78 standard. By letter dated February 22, 1990 the NRC approved this request on an emergency basis because it was needed to permit continued operation of the plant. However, the licensee was required to complete ongoing examination of the fuel oil program and to propose by May 30, 1990 amended technical specifications which would ensure emergency diesel generator operability. The present submittal contains these amended Technical Specifications.

2.0 EVALUATION

The proposed changes of surveillance requirement 4.8.1.1.2 consist of replacing fuel oil tests presently required by the Technical Specifications with different tests. The new tests will provide an increased and more effective ability to detect unsatisfactory fuel oil. They can be performed onsite with more immediate results and they are simpler to perform.

The most significant change is deletion of requirements for testing stored fuel oil in accordance with ASTM D2274-70 every 92 days (surveillance 4.8.1.1.2.d.2). In lieu of this test, the licensee proposes to test stored fuel oil for particulate concentration every 31 days in accordance with ASTM D2276-78, Method A and to verify within one week after obtaining the sample that total particulate concentration is within the prescribed limit. The rationale for this change is that the proposed test addresses the actual condition of the fuel oil that will be pumped to the diesel generators in terms of particulate (solid) matter which could impair diesel generator operation or result in diesel generator unavailability. The current surveillance requirements stated in ASTM D2274-70 are oriented to predicting the tendency of fuel to oxidize and form particulates during long term storage, but do not address particulates that may already exist.

In addition, the ASTM D2274-70 test results may not accurately correlate with actual fuel condition because they tend to vary depending on factors such as storage conditions. Also, the proposed ASTM D2276-78 tests would be performed every 31 days as opposed to every 92 days for ASTM D2274-70. The more frequent testing for actual particulates in the stored fuel oil would provide better data on fuel condition at the time of test as well as the tendency for formation of particulates under site storage conditions. The proposed test is more conservative in establishing adequacy of stored fuel than present requirements and it is, therefore, acceptable.

The other proposed change of the surveillance requirements is a more frequent check and removal of accumulated water from the fuel storage tank (surveillance 4.8.1.1.2.c). The frequency of checks was changed from once per 92 days to once every 31 days. Also, it was specified that the fuel be sampled below the transfer pump suction which is believed to be the most desirable location and that the procedure for pumping off accumulated water be initiated within 48 hours of detection. This change makes the surveillance for water in the fuel tank more conservative and the staff concurs with it.

The licensee also modified the surveillance procedure and acceptance criteria for new fuel oil (surveillance 4.8.1.1.2.d). Sampling is to be performed in accordance with ASTM D4057-81 prior to addition to the storage tanks. Immediately afterwards (before oil is added to the tanks) the samples will be analyzed for specific gravity, kinematic viscosity, flash point and water and sediment content in accordance with the test methods specified in ASTM D975-81. The requirement for comparing of specific gravity to the supplier's certification will provide the necessary assurance that the new fuel is within the specification limits. Similarly, information about the flash point, kinematic viscosity and water and sediment content would help to verify oil quality since the out of range values for these parameters could be easily detected by the tests. Two options were provided for determining water and sediment content: the centrifuge method described in ASTM D1796 and the Clear and Bright test described in ASTM D4176-82. The staff reviewed these options and concluded that the Clear and Bright test is more sensitive and its inclusion as an alternate method is acceptable. In addition to these immediate tests the new fuel oil has to be tested for conformance to the limits specified in Table 1 of the ASTM D975-81 standard. At present, the Technical Specifications require that the results of these tests be available within 14 days following fuel delivery. Under the licensee's proposed surveillance program, the fuel oil properties which, if not in conformance with requirements, would have the most detrimental and immediate impact on diesel generator operation (specific gravity, kinematic viscosity, flash point, water and sediment) are checked for conformance to ASTM D975-81 immediately prior to accepting the new oil. The remaining fuel oil properties are those which might impact diesel generator performance only on a long term basis. Therefore, the licensee's proposal to extend the time for obtaining test results for the remaining fuel oil properties from 14 to 31 days would not adversely affect diesel generator reliability. The staff concurs with the licensee and concludes that this time extension is acceptable.

The ASTM D975-81 standard requires that the new fuel oil testing should be performed in accordance with ASTM D129-64. However, Federal Diesel Specification VV-F-800C and ASTM D396-84 Specification for Fuel Oil allow the use of ASTM D1552-79 and ASTM D2622-82 tests for sulfur determination in No. 2 grade oil. The staff recognizes both of the above fuel oil specifications and believes that obtaining test results by their use will be equivalent to results obtained by use of ASTM D129-64 and concludes, therefore, that the proposed alternate methods of determining sulfur are acceptable.

The proposed changes to the Technical Specification include deleting the requirement for testing of fuel oil stored in tanks in accordance with the ASTM D975-81 standard on a 92 day basis. The licensee's rationale for this deletion is that the fuel oil properties which can affect diesel generator performance 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 licensee's proposed new fuel surveillance program as described above. Over a prolonged period stored fuel can oxidize and form products which, in significant concentrations, could impair diesel generator performance. Particulate concentrations and bacteria concentrations are the only things that will change in stored fuel oil. Particulate concentrations will be monitored every 31 days, as required by the amended surveillance procedures. Bacteria growth will be prevented by periodic removal of water from the storage tanks. Considering that the fuel oil properties will not change significantly 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 the ASTM D975-81 standard every 92 days will not provide any additional data nor improve diesel generator reliability and, therefore, can be deleted. The staff concurs with the licensee's justification and concludes that the proposed deletion is acceptable.

3.0 ENVIRONMENTAL CONSIDERATION

This amendment involves a change in a requirement with respect to surveillance of facility components located within the restricted area as defined in 10 CFR Part 20. The staff has determined that this amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

4.0 CONTACT WITH STATE OFFICIAL

The Commission made a proposed determination that the amendment involves no significant hazards consideration (55 FR 18419 May 2, 1990) and consulted with the State of Washington. No public comments were received, and the State of Washington did not have any comment.

5.0 CONCLUSION

In summary, the staff finds that the proposed changes by the licensee to diesel fuel oil surveillance requirement 4.8.1.1.2 in the Technical Specifications for the WNP-2 plant will result in a more conservative approach to fuel oil surveillance. The added conservatism coupled with the simplified testing of fuel oil will provide immediate assurance in the acceptance of quality fuel oil on delivery and the maintenance of high quality stored fuel. This change will contribute to the increase of diesel generator availability. Therefore, the TS amendment submitted in the letter of March 30, 1990 is acceptable.

We have concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations and (3) the issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: K. Parczewski, EMCB

Dated: June 4, 1990