

August 25, 2000

Mr. J. V. Parrish  
Chief Executive Officer  
Energy Northwest  
P.O. Box 968 (Mail Drop 1023)  
Richland, WA 99352-0968

SUBJECT: WNP-2 - ISSUANCE OF AMENDMENT RE: TECHNICAL SPECIFICATIONS  
CHANGES IN ACCORDANCE WITH GENERIC LETTER 99-02,  
"LABORATORY TESTING OF NUCLEAR-GRADE ACTIVATED CHARCOAL"  
(TAC NO. MA7227)

Dear Mr. Parrish:

The Commission has issued the enclosed Amendment No. 167 to Facility Operating License No. NPF-21 for WNP-2. The amendment consists of changes to the Technical Specifications (TS) in response to your application dated November 18, 1999, as supplemented by letter dated June 7, 2000.

The amendment changes TS 5.5.7, "Ventilation Filter Testing Program (VFTP)" to include the requirement for laboratory testing of engineered safety feature ventilation system charcoal samples in accordance with the American Society for Testing and Materials D3803-1989 and the application of a safety factor of 2.0 to the charcoal filter efficiency assumed in the plant design-basis dose analyses.

A copy of the related Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's next biweekly Federal Register notice.

Sincerely,

/RA/

Jack Cushing, Project Manager, Section 2  
Project Directorate IV & Decommissioning  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-397

Enclosures: 1. Amendment No.167to NPF-2  
2. Safety Evaluation

cc w/encls: See next page

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WNP-2

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UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D.C. 20555-0001

ENERGY NORTHWEST

DOCKET NO. 50-397

WNP-2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 167  
License No. NPF-21

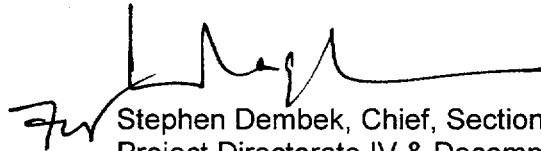
1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Energy Northwest (licensee) dated November 18, 1999, as supplemented by letter dated June 7, 2000, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the 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 rules and 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;
  - 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 attachment 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. 167 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. The license amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION



Stephen Dembek, Chief, Section 2  
Project Directorate IV & Decommissioning  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical  
Specifications

Date of Issuance: August 25, 2000

ATTACHMENT TO LICENSE AMENDMENT NO. 167

FACILITY OPERATING LICENSE NO. NPF-21

DOCKET NO. 50-397

Replace the following page of the Appendix A Technical Specifications with the attached revised page. The revised page is identified by amendment number and contains vertical lines indicating the areas of change. The corresponding overleaf page is also provided to maintain document completeness.

REMOVE

5.5.7

INSERT

5.5.7

5.5 Programs and Manuals

5.5.7 Ventilation Filter Testing Program (VFTP) (continued)

- b. Demonstrate for each of the ESF systems that an in-place test of the charcoal adsorber shows a penetration and system bypass < 0.05% when tested in accordance with Regulatory Guide 1.52, Revision 2, and ASME N510-1989 at the system flowrate specified below:

ESF Ventilation System	Flowrate (cfm)
SGT System	4012 to 4902
CREF System	900 to 1100

- c. Demonstrate for each of the ESF systems that a laboratory test of a sample of the charcoal adsorber, when obtained as described in Regulatory Guide 1.52, Revision 2, shows the methyl iodide penetration less than the value specified below when tested in accordance with ASTM D3803-1989 at a temperature of 30°C (86°F) and the relative humidity specified below. Testing of the SGT System will also be conducted at a face velocity of 75 feet per minute.

ESF Ventilation System	Penetration (%)	RH (%)
SGT System	0.5	70
CREF System	2.5	70

Allowed tolerances in the above testing parameters of temperature, relative humidity, and face velocity are as specified in ASTM D3803-1989.

- d. Demonstrate for each of the ESF systems that the pressure drop across the combined HEPA filters and the charcoal adsorbers is less than the value specified below when tested at the system flowrate specified below:

ESF Ventilation System	Delta P (inches wg)	Flowrate (cfm)
SGT System	< 8	4012 to 4902
CREF System	< 6	900 to 1100

(continued)

## 5.5 Programs and Manuals

5.5.7 Ventilation Filter Testing Program (VFTP) (continued)

- e. Demonstrate that the heaters for each of the ESF systems dissipate the nominal value specified below when tested in accordance with ASME N510-1989:

ESF Ventilation System	Wattage (kW)
SGT System	18.6 to 22.8
CREF System	4.5 to 5.5

5.5.8 Explosive Gas and Storage Tank Radioactivity Monitoring Program

This program provides controls for potentially explosive gas mixtures contained in the Main Condenser Offgas Treatment System and the quantity of radioactivity contained in unprotected outdoor liquid storage tanks.

The program shall include:

- a. The limits for concentrations of hydrogen in the Main Condenser Offgas Treatment System and a surveillance program to ensure the limits are maintained. Such limits shall be appropriate to the system's design criteria (i.e., whether or not the system is designed to withstand a hydrogen explosion); and
- b. A surveillance program to ensure that the quantity of radioactivity contained in all outside temporary liquid radwaste tanks that are not surrounded by liners, dikes, or walls, capable of holding the tanks' contents and that do not have tank overflows and surrounding area drains connected to the Liquid Radwaste Treatment System is less than the amount that would result in concentrations greater than the limits of Appendix B, Table 2, Column 2 to 10 CFR 20.1001 - 20.2402, at the nearest potable water supply and the nearest surface water supply in an unrestricted area, in the event of an uncontrolled release of the tanks' contents.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Explosive Gas and Storage Tank Radioactivity Monitoring Program Surveillance Frequencies.

(continued)



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 167 TO FACILITY OPERATING LICENSE NO. NPF-21

ENERGY NORTHWEST

WNP-2

DOCKET NO. 50-397

1.0 INTRODUCTION

By letter dated November 18, 1999, as supplemented by letter dated June 7, 2000, Energy Northwest (the licensee) submitted its response to the actions requested in Generic Letter (GL) 99-02, "Laboratory Testing of Nuclear-Grade Activated Charcoal," dated June 3, 1999, for WNP-2. By the same letter dated November 18, 1999, Energy Northwest requested a change to the Technical Specifications (TS) (Appendix A to Facility Operating License No. NPF-21) for WNP-2. The proposed changes would change TS 5.5.7, "Ventilation Filter Testing Program (VFTP)" to include the requirement for laboratory testing of engineered safety feature (ESF) ventilation system charcoal samples in accordance with the American Society for Testing and Materials (ASTM) D3803-1989 and the application of a safety factor of 2.0 to the charcoal filter efficiency assumed in the plant design-basis dose analyses.

The June 7, 2000, supplemental letter provided clarifying information, did not expand the scope of the application as originally noticed, and did not change the staff's original proposed no significant hazards consideration determination published in the Federal Register on December 29, 1999 (64 FR 73088).

2.0 EVALUATION

The NRC staff, with technical assistance from Brookhaven National Laboratory (BNL), has reviewed the licensee's submittals. In addition, the staff has reviewed the attached BNL Technical Evaluation Report (TER) regarding the proposed TS changes for WNP-2. Based on its review, the staff adopts the TER. In view of the above, and because the NRC staff considers ASTM D3803-1989 to be the most accurate and most realistic protocol for testing charcoal in safety-related ventilation systems, the NRC staff finds that the proposed TS changes satisfy the actions requested in GL 99-02 and are acceptable.

The NRC received a letter from ASTM in response to a March 8, 2000, *Federal Register* notice (65 FR 12286) related to revising testing standards in accordance with ASTM D3803-1989, for laboratory testing of activated charcoal in response to GL 99-02. ASTM notified the NRC that the 1989 standard is out-of-date and should be replaced by D3803-1991 (1998). The staff acknowledges that the current version of ASTM D3803 is ASTM D3803-1991 (reaffirmed in 1998). However, it was decided, for consistency purposes, to have all of the



nuclear reactors test by the same standard (ASTM D3803-1989) because prior to GL 99-02 being issued, approximately one third of nuclear reactors had technical specifications that referenced ASTM D3803-1989 and there are no substantive changes between the 1989 and 1998 versions.

### 3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Washington State official was notified of the proposed issuance of the amendments. The State official had no comments.

### 4.0 ENVIRONMENTAL CONSIDERATION

The amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20. The NRC staff has determined that the amendments involve 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 the amendments involve no significant hazards consideration, and there has been no public comment on such finding (64 FR 73088). Accordingly, the 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 the amendments.

### 5.0 CONCLUSION

The Commission has 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, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Attachment: Technical Evaluation Report

Principal Contributor: J. Cushing

Date: August 25, 2000

TECHNICAL EVALUATION REPORT  
BROOKHAVEN NATIONAL LABORATORY  
FOR THE OFFICE OF NUCLEAR REACTOR REGULATION  
DIVISION OF SYSTEMS SAFETY AND ANALYSIS  
PLANT SYSTEMS BRANCH  
RELATED TO AMENDMENT TO FACILITY OPERATING LICENSE NO. NPF-21  
ENERGY NORTHWEST  
WASHINGTON NUCLEAR PLANT-2  
DOCKET NO. 50 - 397

## 1.0 INTRODUCTION

By letter dated November 18, 1999 (GO2-99-203), Energy Northwest submitted its response to the actions requested in Generic Letter (GL) 99-02, "Laboratory Testing of Nuclear-Grade Activated Charcoal," dated June 3, 1999, for the Washington Nuclear Plant-2 (WNP-2). By the same letter dated November 18, 1999, Energy Northwest requested a change to the Technical Specifications (TS) Section 5.5.7.c, covering the Standby Gas Treatment System (SGTS) and the Control Room Emergency Filtration System (CREFS), for WNP-2. By letter dated June 7, 2000 (GO2-00-104), Energy Northwest provided additional information concerning the system face velocities at the maximum flow rates specified in the TS, the charcoal bed depths and residence times, the credited efficiencies in the accident analyses, and the proposed test tolerances. The proposed changes would revise the TS surveillance testing of the safety related ventilation system charcoal to meet the requested actions of GL 99-02.

## 2.0 BACKGROUND

Safety-related air-cleaning units used in the engineered safety features (ESF) ventilation systems of nuclear power plants reduce the potential onsite and offsite consequences of a radiological accident by filtering radioiodine. Analyses of design basis accidents assume particular safety related charcoal adsorption efficiencies when calculating offsite and control room operator doses. To ensure that the charcoal filters used in these systems will perform in a manner that is consistent with the licensing basis of a facility, licensees have requirements in their TS to periodically perform a laboratory test (in accordance with a test standard) of charcoal samples taken from these ventilation systems.

In GL 99-02, the staff alerted licensees that testing nuclear-grade activated charcoal to standards other than American Society for Testing and Materials (ASTM) D3803-1989, "Standard Test Method for Nuclear-Grade Activated Carbon," does not provide assurance for complying with their current licensing bases as it relates to the dose limits of General Design Criterion (GDC) 19 of Appendix A to Part 50 of Title 10 of the Code of Federal Regulations (10 CFR) and Subpart A of 10 CFR Part 100.

GL 99-02 requested that all licensees determine whether their TS reference ASTM D3803-1989 for charcoal filter laboratory testing. Licensees whose TS do not reference ASTM D3803-1989

were requested to either amend their TS to reference ASTM D3803-1989 or propose an alternative test protocol.

### **3.0 EVALUATION**

#### **3.1 Laboratory Charcoal Sample Testing Surveillance Requirements**

The current and proposed laboratory charcoal sample testing TS surveillance requirements for the Standby Gas Treatment System (SGTS), and the Control Room Emergency Filtration System (CREFS) are shown in Table 1 and Table 2, respectively.

The proposed use of ASTM D3803-1989 is acceptable because it provides accurate and reproducible test results. The proposed test temperature of 30 °C is acceptable because it is consistent with ASTM D3803-1989. The proposed test relative humidity (RH) of 70 percent is also acceptable, because both SGTS and CREFS systems are equipped with safety-related heaters which maintain less than or equal to 70% RH during accident conditions.

Based on the FSAR Sections 6.4.4.1 and 6.5.1.1 and the Energy Northwest letter of June 7, 2000, the credited efficiencies for radioactive iodine for the SGTS and CREFS are 99% and 95%, respectively. The proposed test penetrations for radioactive methyl iodide for the SGTS and CREFS are <0.5% and <2.5%, respectively. The proposed test penetrations were obtained by applying a safety factor of 2 to the credited efficiencies. The proposed safety factor of 2 is acceptable because it ensures that the efficiencies credited in the accident analysis are still valid at the end of the surveillance interval. This is consistent with the minimum safety factor of 2 specified in GL 99-02.

Based on the Energy Northwest letter of June 7, 2000, for the CREFS, the system face velocity at the charcoal adsorber sections will not exceed 44 fpm (110% of 40 fpm) at the maximum system flow rates specified in the TS. This is acceptable because it ensures that the testing will be consistent with the operation of the ventilation system during accident conditions. Therefore, it is not necessary to specify the face velocity in the proposed TS change. For the SGTS, since the face velocity of 75 fpm is greater than 110 percent of 40 fpm, this face velocity will be specified in the TS. This is acceptable because it is consistent with the errata to GL 99-02 dated August 23, 1999.

### **4.0 CONCLUSION**

On the basis of its evaluation, BNL recommends that the NRC staff consider the proposed TS changes to be acceptable.

Principal Contributor: Richard E. Deem / Mano Subudhi/ Anthony Fresco  
Project Monitor: John Segala, SPLB/DSSA/NRR

WASHINGTON NUCLEAR PLANT-2

TABLE 1 - CURRENT TS REQUIREMENTS

TABLE 1 - CURRENT TS REQUIREMENTS											
System Description					Current TS Requirements						
TS Section	System	Bed Thickness (inches)	Actual Charcoal		Credited Efficiency of organic iodine	Test Penetration of methyl iodide (%)	Safety Factor	Test Standard	Test Temp (° C)	Test RH	Test Face Velocity (fpm)
			Res. Time (sec)	Face Velocity (fpm)							
5.5.7.c	Standby Gas Treatment System (SGTS)	4+4 Type III Deep Beds	0.533 per 8-inch bed	75	99%	<0.175	5	ASTM D3803-1986	80*	≥70%	Not stated
5.5.7.c	Control Room Emergency Filtration System (CREFS)	2+2+2 Type II Trays	0.229 per 2-inch bed	<44	95%	<1.0	5	ASTM D3803-1986	30*	≥70%	Not stated

\* Not stated in TS, but specified in Method A and B of ASTM D3803-1986.

TABLE 2 - PROPOSED TS REQUIREMENTS

TABLE 2 - PROPOSED TS REQUIREMENTS											
System Description					Proposed TS Requirements						
TS Section	System	Bed Thickness (inches)	Actual Charcoal		Credited Efficiency (% organic iodide)	Test Penetration (%methyl iodide)	Safety Factor	Test Standard	Test Temp (° C)	Test RH	Test Face Velocity (fpm)
			Res. Time (sec)	Face Velocity (fpm)							
5.5.7.c	Standby Gas Treatment System (SGTS)	4+4 Type III Deep Beds	0.533 per 8-inch bed	75	99	<0.5	2	ASTM D3803-1989	30	70%	75
5.5.7.c	Control Room Emergency Filtration System (CREFS)	2+2+2 Type II Trays	0.229 per 2-inch bed	<44	95	<2.5	2	ASTM D3803-1989	30	70%	40