

October 16, 2001

Mr. J. H. Swailes  
Vice President of Nuclear Energy  
Nebraska Public Power District  
P. O. Box 98  
Brownville, NE 68321

SUBJECT: COOPER NUCLEAR STATION - ISSUANCE OF AMENDMENT RE: REVISION  
TO VENTILATION CHARCOAL ADSORBER TESTING PROGRAM  
(TAC NO. MB1423)

Dear Mr. Swailes:

The Commission has issued the enclosed Amendment No. 186 to Facility Operating License No. DPR-46 for the Cooper Nuclear Station (CNS). The amendment consists of changes to the Technical Specifications (TSs) in response to your application dated February 28, 2001.

By letters dated December 2 and 8, 1999; January 31 and March 17, 2000, Nebraska Public Power District (NPPD, licensee) responded to the Commission's Generic Letter (GL) 99-02, "Laboratory Testing of Nuclear-Grade Activated Charcoal," dated June 3, 1999. In its March 17, 2000 letter, NPPD requested changes to its TSs regarding nuclear-grade activated charcoal testing. By letter dated January 2, 2001, NPPD withdrew its March 17, 2000 request for changes to the TSs. By letter dated February 28, 2001, NPPD submitted a revised application requesting an amendment to the TSs. The NRC staff has completed its review of NPPD's revised amendment request, and issued the enclosed amendment.

The amendment revises the CNS TSs to reflect the change in standard by which the licensee will test charcoal used in engineered safety features systems to the American Society for Testing and Materials D3803-1989 standard. These revisions are made in accordance with GL 99-02.

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

Sincerely,

*/RA/*

Mohan C. Thadani, Senior Project Manager, Section 1  
Project Directorate IV  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-298

Enclosures: 1. Amendment No. 186 to DPR-46  
2. Safety Evaluation

cc w/encls: See next page

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*/RA/*

Mohan C. Thadani, Senior Project Manager, Section 1  
Project Directorate IV & Decommissioning  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket No. 50-298

Enclosures: 1. Amendment No. 186 to DPR-46  
2. Safety Evaluation

cc w/encls: See next page

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\*\*No changes from technical staff input of 9/17/01

ACCESSION NO.: ML012420297

NRR-058

\*SEE PREVIOUS CONCURRENCE

OFFICE	PDIV-1/PM	PDIV-1/LA	OGC*	PDIV-1/SC	SPLB**
NAME	MThadani:jc	MMcAllister	MO'Neill	RGramm	GHubbard
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NEBRASKA PUBLIC POWER DISTRICT

DOCKET NO. 50-298

COOPER NUCLEAR STATION

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 186  
License No. DPR-46

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Nebraska Public Power District (the licensee) dated February 28, 2001, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and 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 license 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. DPR-46 is hereby amended to read as follows:

- (2) Technical Specifications

The Technical Specifications contained in Appendix A and the Environmental Protection Plan contained in Appendix B, as revised through Amendment No. 186, are hereby incorporated in the license. Nebraska Public Power District 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 and shall be implemented within 30 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

*/RA/*

Robert A. Gramm, Chief, Section 1  
Project Directorate IV  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical  
Specifications

Date of Issuance: October 16, 2001

ATTACHMENT TO LICENSE AMENDMENT NO. 186

FACILITY OPERATING LICENSE NO. DPR-46

DOCKET NO. 50-298

Replace the following pages of the Appendix A Technical Specifications with the enclosed revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

REMOVE

5.0-12  
B 3.6-84  
B 3.6-85  
B 3.7-21

INSERT

5.0-12  
B 3.6-84  
B 3.6-85  
B 3.7-21

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 186

TO FACILITY OPERATING LICENSE NO. DPR-46

NEBRASKA PUBLIC POWER DISTRICT

COOPER NUCLEAR STATION

DOCKET NO. 50-298

1.0 INTRODUCTION

By letter dated March 17, 2000, Nebraska Public Power District (NPPD, licensee) requested changes to the Technical Specifications (TSs). By letter dated January 2, 2001, NPPD withdrew its request for approval of changes to the TSs. Subsequently, by letter dated February 28, 2001, NPPD resubmitted its request for TS changes. The request proposed revisions to the TSs to change the standard by which the NPPD would test the charcoal used in engineered safety features (ESF) to the American Society for Testing and Materials (ASTM) D3803-1989 standard. These revisions are made in accordance with Generic Letter (GL) 99-02, "Laboratory Testing of Nuclear-Grade Activated Charcoal," dated June 3, 1999.

Safety-related air-cleaning units used in the 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 TSs 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 NRC staff alerted licensees that testing nuclear-grade activated charcoal to standards other than the American Society for Testing and Materials (ASTM) D3803-1989, "Standard Test Method for Nuclear-Grade Activated Carbon," does not provide assurance for complying with its current licensing bases with respect to the dose limits of General Design Criterion 19, "Control Room," 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 TSs reference ASTM D3803-1989 for charcoal filter laboratory testing. Licensees whose TSs do not reference ASTM D3803-1989 were requested to either amend their TSs to reference ASTM D3803-1989 or propose an alternative test protocol.

## 2.0 EVALUATION

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 ASTM D3803-1991 (1998). The NRC staff acknowledges that the most current version of ASTM D3803 is ASTM D3803-1991 (reaffirmed in 1998). However, for consistency purposes, it is preferable to have all nuclear power reactors test to the same standard (ASTM D3803-1989) because, prior to the issuance of GL 99-02, about one third of the nuclear reactors had TSs that referenced ASTM D3803-1989, and there were no substantive changes between the 1989 and 1998 versions. 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 revisions satisfy the actions requested in GL 99-02 and are acceptable.

The NRC staff, with technical assistance from Brookhaven National Laboratory (BNL), has reviewed the licensee's submittal. The NRC staff has reviewed the attached BNL Technical Evaluation Report (TER) regarding the proposed TS changes for Cooper Nuclear Station.

The current and proposed laboratory charcoal sample testing TS surveillance requirements for the Cooper Nuclear Station Standby Gas Treatment System (SGTS) 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 and relative humidity of 70 percent for the SGTS and 95 percent for the control room emergency filtration system (CREFS) are acceptable, since the SGTS is equipped with safety-related heaters and the proposed test parameters are consistent with ASTM D3803-1989. This is consistent with the actions requested in GL 99-02.

By letter dated February 28, 2001, the licensee stated that the credited removal efficiency for radioactive organic iodine for each system is 95 percent for each 2-inch bed charcoal filter. The proposed test penetration for radioactive methyl iodide for each system is less than or equal to 2.5 percent for the 2-inch bed charcoal filter. The proposed test penetration was obtained by applying a safety factor of 2 to the credited efficiency. The proposed safety factor of 2 for both systems is acceptable because it ensures that the efficiency credited in the accident analysis is still valid at the end of the surveillance interval. This is consistent with the minimum safety factor of 2 specified in GL 99-02.

The August 23, 1999, errata to GL 99-02 clarified that if the maximum actual face velocity is greater than 110 percent of 40 fpm, then the test face velocity should be specified in the TS. By letter dated February 28, 2001, the licensee stated that the face velocity ESF ventilation flows are not greater than 40 fpm. The proposed testing of the charcoal adsorbers will be performed in accordance with ASTM D3803-1989, which specifies a test face velocity of 40 fpm with appropriate margins. 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. This is consistent with the errata to GL 99-02 dated August 23, 1999.

### 3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Nebraska 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 the 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 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 the amendment involves no significant hazards consideration, and there has been no public comment on such finding (66 FR 31710). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR Section 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 amendment.

### 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 amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: M. Thadani  
H. Walker

Date: October 16, 2001

Attachments: 1. Table 1  
2. Table 2  
3. BNL TER

COOPER NUCLEAR STATION

TABLE 1 - CURRENT TS REQUIREMENTS											
System Description					Current TS Requirements						
TS Section	System	Bed Thickness (inches)	Actual Charcoal		Credited Efficiency (% organic iodine)	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)	2	0.37	27	95	≤1	Not stated (5)*	ASTM D3803-1979	≤30	≥70	≥27
5.5.7.c	Control Room Emergency Filtration System (CREFS)	2	0.25	39	95	≤1	Not stated (5)*	ASTM D3803-1979	≤30	≥95	≥39

\* Calculated based on the credited efficiency and the test penetration.

COOPER NUCLEAR STATION

TABLE 2 - PROPOSED TS REQUIREMENTS

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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)	2	0.30	33*	95	≤2.5	2	ASTM D3803-1989	30	70	40
5.5.7.c	Control Room Emergency Filtration System (CREFS)	2	0.25	40*	95	≤2.5	2	ASTM D3803-1989	30	95	40

\* Calculated based on the bed depth and residence time.

\*\* In accordance with letter dated February 28, 2001.

**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. DPR-46  
NEBRASKA PUBLIC POWER DISTRICT  
COOPER NUCLEAR STATION  
DOCKET NO. 50 - 298**

## **1.0 INTRODUCTION**

By letters dated December 2, 1999 (NLS990117), December 8, 1999 (NLS990119), January 31, 2000 (NLS200003), and March 17, 2000 (NLS2000018), Nebraska Public Power District (NPPD) 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 Cooper Nuclear Station. By the letter dated March 17, 2000, NPPD requested changes to the Technical Specifications (TS) Section 5.5.7.c, covering the Standby Gas Treatment System (SGTS) and the Control Room Emergency Filter System (CREFS), respectively, for the Cooper Nuclear Station. By letter dated January 2, 2001 (NLS2001002), NPPD withdrew its request for approval of the TS amendment. Again, by letter dated February 28, 2001, NPPD resubmitted its request for the TS changes for the above systems. 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 with respect 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 for the Cooper Nuclear Station.

The proposed use of ASTM D3803-1989 is acceptable because it provides accurate and reproducible test results. The proposed test temperature of 30°C and relative humidity of 70% for the SGTS and 95% for the CREFS are acceptable, since SGTS is equipped with safety related heaters and it is consistent with ASTM D3803-1989. This is consistent with the actions requested in GL 99-02.

By letter dated February 28, 2001, the credited removal efficiency for radioactive organic iodine for each system is 95% for each 2-inch bed charcoal filter. The proposed test penetration for radioactive methyl iodide for each system is less than 2.5% for the 2-inch bed charcoal filter. The proposed test penetration was obtained by applying a safety factor of 2 to the credited efficiency. The proposed safety factor of 2 for both systems is acceptable because it ensures that the efficiency credited in the accident analysis is still valid at the end of the surveillance interval. This is consistent with the minimum safety factor of 2 specified in GL 99-02.

The August 23, 1999 errata to GL 99-02 clarified that if the maximum actual face velocity is greater than 110% of 40 fpm, then the test face velocity should be specified in the TS. By letters dated February 28, 2001, the face velocity for the EVS and the CRATS is not greater than 40 fpm. The proposed testing of the charcoal adsorbers will be performed in accordance with ASTM D3803-1989 which specifies a test face velocity of 40 fpm with appropriate margins. 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. This 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 Contributors: Mano Subudhi

Date: June 29, 2001

COOPER NUCLEAR STATION

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\* Calculated based on the bed depth and residence time.

\*\* In accordance with letter dated February 28, 2001.

Cooper Nuclear Station

cc:

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