

February 13, 2001

Mr. Mike Bellamy
Site Vice President
Entergy Nuclear Generation Company
Pilgrim Nuclear Power Station
600 Rocky Hill Road
Plymouth, MA 02360

SUBJECT: PILGRIM NUCLEAR POWER STATION - ISSUANCE OF AMENDMENT RE:
STANDBY GAS TREATMENT AND CONTROL ROOM HIGH EFFICIENCY AIR
FILTRATION SYSTEMS (TAC NO. MA7769)

Dear Mr. Bellamy:

The Commission has issued the enclosed Amendment No. 187 to Facility Operating License No. DPR-35 for the Pilgrim Nuclear Power Station. This amendment is in response to your application dated November 22, 1999, (ENGC Ltr. 2.99.115), as supplemented on November 21, 2000, (ENGC Ltr. 2.00.066).

This amendment approves changes related to Technical Specification (TS) Sections 3.7.B.1 and 3.7.B.2, "Containment Systems." TS Section 5.0, "Administrative Controls," was also modified to reflect the addition of an omitted page from a previous amendment.

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

Sincerely,

/RA/

Alan B. Wang, Project Manager, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-293

Enclosures: 1. Amendment No. 187 to
License No. DPR-35
2. Safety Evaluation

cc w/encls: See next page

Pilgrim Nuclear Power Station

cc:

Resident Inspector
U. S. Nuclear Regulatory Commission
Pilgrim Nuclear Power Station
Post Office Box 867
Plymouth, MA 02360

Chairman, Board of Selectmen
11 Lincoln Street
Plymouth, MA 02360

Chairman, Duxbury Board of Selectmen
Town Hall
878 Tremont Street
Duxbury, MA 02332

Office of the Commissioner
Massachusetts Department of
Environmental Protection
One Winter Street
Boston, MA 02108

Office of the Attorney General
One Ashburton Place
20th Floor
Boston, MA 02108

Dr. Robert M. Hallisey, Director
Radiation Control Program
Commonwealth of Massachusetts
Executive Offices of Health and
Human Services
174 Portland Street
Boston, MA 02114

Regional Administrator, Region I
U. S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

John M. Fulton
Assistant General Counsel
Pilgrim Nuclear Power Station
600 Rocky Hill Road
Plymouth, MA 02360-5599

Mr. C. Stephen Brennon
Licensing Superintendent
Pilgrim Nuclear Power Station
600 Rocky Hill Road
Plymouth, MA 02360-5599

Mr. Jack Alexander
Manager, Reg. Relations and
Quality Assurance
Pilgrim Nuclear Power Station
600 Rocky Hill Road
Plymouth, MA 02360-5599

Mr. David F. Tarantino
Nuclear Information Manager
Pilgrim Nuclear Power Station
600 Rocky Hill Road
Plymouth, MA 02360-5599

Ms. Jane Perlov
Secretary of Public Safety
Executive Office of Public Safety
One Ashburton Place
Boston, MA 02108

Mr. Stephen J. McGrail, Director
Attn: James Muckerheide
Massachusetts Emergency Management
Agency
400 Worcester Road
Framingham, MA 01702-5399

Chairman, Citizens Urging
Responsible Energy
P.O. Box 2621
Duxbury, MA 02331

Chairman
Nuclear Matters Committee
Town Hall
11 Lincoln Street
Plymouth, MA 02360

Mr. William D. Meinert
Nuclear Engineer
Massachusetts Municipal Wholesale
Electric Company
P.O. Box 426
Ludlow, MA 01056-0426

Ms. Mary Lampert, Director
Massachusetts Citizens for Safe Energy
148 Washington Street
Duxbury, MA 02332

Mr. Mike Bellamy
Site Vice President
Entergy Nuclear Generation Company
Pilgrim Nuclear Power Station
600 Rocky Hill Road
Plymouth, MA 02360

February 13, 2001

SUBJECT: PILGRIM NUCLEAR POWER STATION - ISSUANCE OF AMENDMENT RE:
STANDBY GAS TREATMENT AND CONTROL ROOM HIGH EFFICIENCY AIR
FILTRATION SYSTEMS (TAC NO. MA7769)

Dear Mr. Sullivan:

The Commission has issued the enclosed Amendment No. 187 to Facility Operating License No. DPR-35 for the Pilgrim Nuclear Power Station. This amendment is in response to your application dated November 22, 1999, (ENGC Ltr. 2.99.115), as supplemented on November 21, 2000, (ENGC Ltr. 2.00.066).

This amendment approves changes related to Technical Specification (TS) Sections 3.7.B.1 and 3.7.B.2, "Containment Systems." TS Section 5.0, "Administrative Controls," was also modified to reflect the addition of an omitted page from a previous amendment.

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

Sincerely,
/RA/

Alan B. Wang, Project Manager, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-293

Enclosures: 1. Amendment No. 187 to
License No. DPR-35
2. Safety Evaluation

cc w/encls: See next page

DISTRIBUTION:

PUBLIC	J. Clifford	J. Linville, RI
PDI-2 Reading	T. Clark	G. Hill (2)
A. Wang	OGC	ACRS
W. Beckner		
Adensam (EGA1)		

ACCESSION NO. ML010120162

OFFICE	PM:PDI-2	LA:PDI-2	SPLB	OGC	SC:PDI-2
NAME	AWang	TClark	JHannon	MYoung	JClifford
DATE	1/16/01	01/16/01	1/14/01	2/2/01	2/13/01

OFFICIAL RECORD COPY

ENTERGY NUCLEAR GENERATION COMPANY

DOCKET NO. 50-293

PILGRIM NUCLEAR POWER STATION

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 187
License No. DPR-35

1. The Nuclear Regulatory Commission (the Commission or the NRC) has found that:
 - A. The application for amendment filed by the Entergy Nuclear Generation Company (the licensee) dated November 22, 1999, as supplemented on November 21, 2000, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations;
 - 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 3.B of Facility Operating License No. DPR-35 is hereby amended to read as follows:

B. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 187, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of its date of issuance and shall be implemented within 60 days.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

James W. Clifford, Chief, Section 2
Project Directorate I
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical
Specifications

Date of Issuance: February 13, 2001

ATTACHMENT TO LICENSE AMENDMENT NO. 187

FACILITY OPERATING LICENSE NO. DPR-35

DOCKET NO. 50-293

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

Remove

3/4.7-11
3/4.7-12
3/4.7-14

Insert

3/4.7-11
3/4.7-12
3/4.7-14
5.0-9
5.0-10
5.0-11
5.0-12
5.0-13
5.0-14
5.0-15

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO AMENDMENT NO. 187 TO FACILITY OPERATING LICENSE NO. DPR-35
ENTERGY NUCLEAR GENERATION COMPANY
PILGRIM NUCLEAR POWER STATION
DOCKET NO. 50-293

1.0 INTRODUCTION

By letter dated November 22, 1999, as supplemented November 21, 2000, the Entergy Nuclear Generation Company (the licensee) submitted a request for changes to the Pilgrim Nuclear Power Station (Pilgrim) Technical Specifications (TSs). The requested changes would modify TS Sections 3.7.B.1 and 3.7.B.2, "Containment Systems," regarding TS requirements for laboratory testing of charcoal samples for the engineered safety feature (ESF) ventilation system. The requested change would also modify TS Section 5.0, "Administrative Controls," to reflect the addition of an omitted page from a previous amendment. The November 21, 2000, letter provided clarifying information that did not change the initial proposed no significant hazards consideration determination.

2.0 BACKGROUND

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 Generic Letter (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.

The U.S. Nuclear Regulatory Commission (NRC) received a letter from the 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. The 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 most current version of

ASTM D3803 is ASTM D3803-1991 (reaffirmed in 1998). However, the NRC decided, for consistency purposes, to have all of the nuclear reactors test to the same standard (ASTM D3803-1989) because, prior to GL 99-02 being issued, approximately one third of nuclear reactors had TSs that referenced ASTM D3803-1989 and there are no substantive changes between the 1989 and 1998 versions.

3.0 EVALUATION

The licensee proposed to change TSs 3.7.B.1.b.1 and 2, "Standby Gas Treatment System" and 3.7.B.2.b.1 and 2, "Control Room High Efficiency Air Filtration System." For TSs 3.7.B.1.b.1 and 3.7.B.2.b.1 the licensee proposed to change the acceptance criteria for the halogenated hydrocarbon tests (in-place) to 99.9% from the current TS limit of 99% for the Standby Gas Treatment System (SGTS) and the Control Room High Efficiency Air Filtration System (CRHEAFS). The staff finds the proposed criteria to be acceptable because the proposed acceptance criteria of 99.9% is more conservative than the current criteria of 99%.

The NRC staff, with technical assistance from Brookhaven National Laboratory (BNL), has reviewed the licensee's submittals. The staff has reviewed the attached BNL Technical Evaluation Report (TER) regarding the proposed TS changes for TSs 3.7.B.1.b.2 and 3.7.B.2.b.2. For these TSs, the licensee has proposed to make the following changes:

- 1) The carbon sample analysis currently requires greater or equal to 95% methyl iodide removal with a temperature of greater than or equal to 125 °F. The proposed will require greater or equal to 97.5% methyl iodide removal with a temperature of greater than or equal to 86 °F.
- 2) The proposed TSs will delete the requirements for the inlet methyl iodide concentration and for the SGTS and CRHEAFS test gas velocity to be within 10% of the system design.
- 3) Add a requirement to obtain the sample in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, and
- 4) Add a requirement that the charcoal adsorber tests be performed in accordance with ASTM D3803-1989.
- 5) Add a requirement that the methyl iodide removal efficiency of 97.5% is applied to each bank.

Based on its review, the staff adopts the conclusions in the TER. The accident analyses makes certain assumptions regarding SGTS and CRHEAFS radioiodine removal efficiencies. The ASTM D3803-1989 standard for laboratory testing of activated charcoal provides an accurate and realistic protocol for testing charcoal in safety-related ventilation systems. Testing the charcoal filters, in accordance with ASTM D3803-1989, will ensure that the charcoal filters used in these systems will perform in a manner that is consistent with the licensing basis of the facility. Therefore, the NRC staff finds that the proposed TS changes satisfy the actions requested in GL 99-02, "Laboratory Testing of Nuclear-Grade Activated Charcoal," dated June 3, 1999, and are acceptable.

2.1 Editorial Changes

Several page numbers in TS Section 5.0, "Administrative Controls," were revised. License Amendment 179 inadvertently omitted page 5.0-9 that was approved by License Amendment 177. This change corrects page numbers 5.0-9 through 5.0-15, incorporating the omitted page. This is an editorial change and, therefore, is acceptable.

3.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Massachusetts State Official was notified of the proposed issuance of the amendment. 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 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 (65 FR 17913). 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 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: A. Wang

Date: February 13, 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-35
ENTERGY NUCLEAR GENERATION COMPANY
PILGRIM NUCLEAR POWER STATION
DOCKET NO. 50 - 293

1.0 INTRODUCTION

By letter dated November 22, 1999 (ENGC Ltr. 2.99.115), Entergy Nuclear Generation Company (Entergy) 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 Pilgrim Nuclear Power Station. By the same letter dated November 22, 1999, Entergy requested changes to the Technical Specifications (TS) Sections 3.7.B.1 and 3.7.B.2, covering the Standby Gas Treatment System (SGTS) and the Control Room High Efficiency Air Filtration System (CRHEAFS), respectively, for the Pilgrim Nuclear Power Station. By letter dated November 21, 2000 (ENGC Ltr. 2.00.066), Entergy submitted revised TS Sections 3.7.B.1 and 3.7.B.2 clarifying the carbon sample testing for the SGTS. 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 radio iodine. 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.

ATTACHMENT

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 High Efficiency Air Filtration System (CRHEAFS) 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% for both systems are acceptable because both systems are 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 November 21, 2000, the credited removal efficiency for radioactive organic iodine for each system is 95% for the 2-inch bed charcoal bank. The proposed test penetration for radioactive methyl iodide for each system is less than 2.5% for the 2-inch bed charcoal bank. The proposed test penetration was obtained by applying a safety factor of 2 to the credited efficiency. The proposed safety factor of 2 for all 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 letter dated November 22, 1999, the face velocity for both the SGTS and the CRHEAFS is 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: Richard E. Deem and Mano Subudhi

Date: December 21, 2000

PILGRIM NUCLEAR POWER STATION

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)							
3.7.B.1	Standby Gas Treatment System (SGTS)	4 (2 + 2)*	0.25 per 2 in. thick cell	40	95 for each two-inch charcoal bank (99 for the 4" train)	<5	Not stated (1)**	ASTM D3803-1979 Method B***	≥87.8 (190°F)	≥70	Stated as within ± 10% of system design
3.7.B.2	Control Room High Efficiency Air Filtration System (CRHEAFS)	2	0.25	40	95	<5	Not stated (1)**	ASTM D3803-1979 Method A***	≥51.6 (125°F)	≥70	Stated as within ± 10% of system design

* SGTS employs two banks of 2 in. thick carbon adsorbers in series in each train (effectively 4 inches per train). The system design volumetric flow rate is 4000 scfm ±10%. The system design volumetric flow rate for the CRHEAFS is 1000 scfm ±10%.

** Safety factor is calculated based on the credited efficiency and test penetration.

*** The TS, including the Bases, do not actually identify ASTM D3803-1979 as the standard to which the SGTS and CRHEAFS charcoal adsorbers are tested. The testing laboratory, Nuclear Containment Systems (NCS), has confirmed the use of Method B for SGTS and Method A for CRHEAFS. The difference between Method B and Method A is in the test temperatures specified.

PILGRIM NUCLEAR POWER STATION

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)							
3.7.B.1	Standby Gas Treatment System (SGTS)	4 (2 + 2)*	0.25 per 2 in. thick cell	40	95 for each two-inch charcoal bank (99 for the 4" train)	<2.5	2	ASTM D3803-1989	30 (86°F)	70	40
3.7.B.2	Control Room High Efficiency Air Filtration System (CRHEAFS)	2	0.25	40	95	<2.5	2	ASTM D3803-1989	30 (86°F)	70	40

* SGTS employs two banks of 2 in. thick carbon adsorbers in series in each train (effectively 4 inches per train). The system design volumetric flow rate is 4000 scfm ±10%. The system design volumetric flow rate for the CRHEAFS is 1000 scfm ±10%.

** Safety factor is calculated based on the credited efficiency and test penetration.

*** In accordance with ASTM D3803-1989.