Docket Nos. 50-277
and 50-278

March 15, 199

Mr. George A. Hunger, Jr.
Director-Licensing, MC 52A-5
PECO Energy Company
Nuclear Group Headquarters
Correspondence Control Desk
P.O. Box No. 195
Wayne, Pennsylvania 19087-0195

Dear Mr. Hunger:

SUBJECT: ISSUANCE OF MAIN CONTROL ROOM INTAKE AIR RADIATION MONITORS AMENDMENTS, PEACH BOTTOM ATOMIC POWER STATION, UNITS 2 AND 3 (TAC NOS. M88185 AND M88186)

The Commission has issued the enclosed Amendments Nos. 184 and 189 to Facility Operating License Nos. DPR-44 and DPR-56 for the Peach Bottom Atomic Power Station, Unit Nos. 2 and 3. These amendments consist of changes to the Technical Specifications in response to your application dated November 1, 1993 as supplemented on January 26, 1994 and February 18, 1994.

These amendments concern the Radiation Monitoring Systems - Isolation and Initiation Functions of the Technical Specifications and are necessary to support modification 5281. This modification replaces the obsolete control room ventilation radiation monitoring equipment.

A copy of the Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's Bi-Weekly Federal Register Notice. You are requested to promptly notify the staff, in writing, when you have implemented the provisions of these amendments.

Sincerely,
/S/
Stephen Dembek, Project Manager
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 184 to DPR-44
2. Amendment No. 189 to DPR-56
3. Safety Evaluation

cc w/enclosures:
See next page

DISTRIBUTION:

Docket File	MO'Brien(2)	CGrimes, 11E21	CMcCracken
NRC & Local PDRs	JShea	LCunningham	JWermiel
PDI-2 Reading	OGC	ACRS(10)	
SVarga	DHagan, 3206	OPA	
JCalvo	GHill(4), P1-22	OC/LFDCB	
CMiller	EWenzinger, RGN-I	CAnderson, RGN-I	

*Previous Concurrence

OFC	:PDI-2/LA	:PDI-2/PM	:PRPB/BC	:*SPLB/BC	:*HICB/BC	:OGC	:PDI-2/D	:
NAME	:MO'Brien	:SDembek:rb	:LCunningham	:CMcCracken	:JWermiel	:R Bachmann	:CMiller	:
DATE	:2/23/94	:2/23/94	:2/23/94	:02/07/94	:02/02/94	:2/24/94	:3/14/94	:

DFO1

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

March 15, 1994

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and 50-278

Mr. George A. Hunger, Jr.
Director-Licensing, MC 52A-5
PECO Energy Company
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These amendments concern the Radiation Monitoring Systems - Isolation and Initiation Functions of the Technical Specifications and are necessary to support modification 5281. This modification replaces the obsolete control room ventilation radiation monitoring equipment.

A copy of the Safety Evaluation is also enclosed. Notice of Issuance will be included in the Commission's Bi-Weekly Federal Register Notice. You are requested to promptly notify the staff, in writing, when you have implemented the provisions of these amendments.

Sincerely,

Stephen Dembek, Project Manager
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 184 to DPR-44
2. Amendment No. 189 to DPR-56
3. Safety Evaluation

cc w/enclosures:
See next page

cc:

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

PHILADELPHIA ELECTRIC COMPANY

PUBLIC SERVICE ELECTRIC AND GAS COMPANY

DELMARVA POWER AND LIGHT COMPANY

ATLANTIC CITY ELECTRIC COMPANY

DOCKET NO. 50-277

PEACH BOTTOM ATOMIC POWER STATION, UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 184
License No. DPR-44

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

   A. The application for amendment by Philadelphia Electric Company, et. al. (the licensee) dated November 1, 1993 as supplemented on January 26, 1994 and February 18, 1994, 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 amendment will not be inimical to the common defense and security or to the health or 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-44 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 184 , are hereby incorporated in the license. PECO 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 upon completion of modification 5281.

FOR THE NUCLEAR REGULATORY COMMISSION

Charles L. Miller

Charles L. Miller, Director
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: March 15, 1994

ATTACHMENT TO LICENSE AMENDMENT NO. 184

FACILITY OPERATING LICENSE NO. DPR-44

DOCKET NO. 50-277

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages. The revised areas are indicated by marginal lines.

Remove	Insert
59	59
75	75
84	84
93	93
97	97
233a	233a
234	234
235	235
240v	240v

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.2.D. Radiation Monitoring Systems-Isolation and Initiation Functions	4.2.D. Radiation Monitoring Systems-Isolation and Initiation Functions
1. Reactor Building Isolation and Standby Gas Treatment System The limiting conditions for operation are given in Table 3.2.D.	1. Reactor Building Isolation and Standby Gas Treatment System Instrumentation shall be functionally tested, calibrated and checked as indicated in Table 4.2.D. System logic shall be functionally tested as indicated in Table 4.2.D.
2. Main Control Room The limiting conditions for operation are given in Table 3.2.D.	2. Main Control Room Instrumentation shall be functionally tested, calibrated and checked as indicated in Table 4.2.D.
E. Drywell Leak Detection The limiting conditions of operation for the instrumentation that monitors drywell leak detection are given in Section 3.6.C, "Coolant Leakage".	E. Drywell Leak Detection Instrumentation shall be calibrated and checked as indicated in table 4.2.E.

PBAPS

TABLE 3.2.D
RADIATION MONITORING SYSTEMS THAT INITIATE AND/OR ISOLATE SYSTEMS

Minimum No. of Operable Instrument Channels per Trip System (1)	Trip Function	Trip Level Setting	No. of Instrument Channels Provided by Design	Action (2)
2	Refuel Area Exhaust Monitor	Upscale, <16 mr/hr	4 Inst. Channels	A or B
2	Reactor Building Exhaust Monitors	Upscale, <16 mr/hr	4 Inst. Channels	B
1 (3)	Main Stack Monitor	Upscale, $\leq 10^6$ cps	2 Inst. Channels	C
2 (4)	Main Control Room	Upscale, <400 cpm	4 Inst. Channels	D

Notes for Table 3.2.D

1. Whenever the systems are required to be operable, the specified number of instrument channels shall be operable or placed in the tripped condition. If this cannot be met, the indicated action shall be taken.

2. Action

   A. Cease operation of the refueling equipment.
   B. Isolate secondary containment and start the standby gas treatment system.
   C. Cease purging of primary containment, and close vent and purge valves greater than 2 inches in diameter.
   D. As described in LCO 3.11.A.5

3. The trip function is required to be operable only when the containment is purging through the SGTS and containment integrity is required. If both radiation monitors are out of service, action shall be taken as indicated in Note 2, (C).

4. The trip function is required to be operable whenever secondary containment is required on either unit.

PBAPS

TABLE 4.2.D

MINIMUM TEST & CALIBRATION FREQUENCY FOR RADIATION MONITORING SYSTEMS

	Instrument Channels	Instrument Functional Test	Calibration	Instrument Check (2)
1)	Refuel Area Exhaust Monitors - Upscale	(1)	Once/3 months	Once/day
2)	Reactor Building Area	(1)	Once/3 months	Once/day
3)	Main Stack Monitor	Once/3 months	Once/12 months as described in 4.8.C.4.a	Once/day
4)	Main Control Room	Once/3 months	Once/18 months as described in 4.11.A.5	Once/day

	Logic System Functional Test (4) (6)	Frequency
1)	Reactor Building Isolation	Once/Operating Cycle
2)	Standby Gas Treatment System Actuation	Once/Operating Cycle

Amendment No. 102, 156, 178, 184

3.2 BASES (Cont'd)

Four sets of two radiation monitors are provided which initiate the Reactor Building Isolation function and operation of the standby gas treatment system. Four instrument channels monitor the radiation from the refueling area ventilation exhaust ducts and four instrument channels monitor the building ventilation below the refueling floor. Each set of instrument channels is arranged in a 1 out of 2 twice trip logic.

Trip settings of less than 16 mr/hr for the monitors in the refueling area ventilation exhaust ducts are based upon initiating normal ventilation isolation and standby gas treatment system operation so that none of the activity released during the refueling accident leaves the Reactor Building via the normal ventilation path but rather all the activity is processed by the standby gas treatment system.

Two channels of nonsafety-related radiation monitors are provided in the main stack. Trip signals from these monitors are required only when purging the containment through the SGTS and containment integrity is required. The trip signals isolate primary containment vent and purge valves greater than 2 inches in diameter to prevent accidental releases of radioactivity offsite when the valves are open. This signal is added to fulfill the requirements of item II.E.4.2(7) of NUREG-0737.

Four channels of in-duct radiation monitors are provided which initiate the Main Control Room Emergency Ventilation System. Each set of instrument channels are arranged in a one (1) out of two (2) twice trip logic.

Flow integrators are used to record the integrated flow of liquid from the drywell sumps. The integrated flow is indicative of reactor coolant leakage. A Drywell Atmosphere Radioactivity Monitor is provided to give supporting information to that supplied by the reactor coolant leakage monitoring system. (See Bases for 3.6.C and 4.6.C)

Some of the surveillance instrumentation listed in Table 3.2.F are required to meet the accident monitoring requirements of NUREG-0737, Clarification of TMI Action Plan Requirements. This instrumentation and the applicable NUREG-0737 requirements are:

1. Wide range drywell pressure (II.F.1.4)
2. Subatmospheric drywell pressure (II.F.1.4)
3. Wide range suppression chamber water level (II.F.1.5)
4. Main stack high range radiation monitor (II.F.1.1)
5. Reactor building roof vent high range radiation monitor (II.F.1.1)
6. Drywell hydrogen concentration analyzer and monitor (II.F.1.6)
7. Drywell high range radiation monitors (II.F.1.3)
8. Reactor Water Level - wide and fuel range (II.F.2)
9. Safety-Relief Valve position indication (II.D.3)

4.2 BASES (cont'd)

The radiation monitors in the refueling area ventilation duct which initiate building isolation and standby gas treatment operation are arranged in a 1 out of 2 twice logic system. The bases given above for the rod blocks apply here also and were used to arrive at the functional testing frequency. The air ejector off-gas monitors are connected in a 2 out of 2 logic arrangement. Based on the experience with instruments of similar design, a testing interval of once every three months has been found adequate.

Radiation monitors in the main stack which initiate containment isolation are not safety-related and are required only during containment purging through the SGTS and when containment integrity is required, an activity which occurs infrequently. Therefore, a twelve (12) month calibration interval is appropriate.

The Control Room Intake Air Radiation Monitors are safety-related and are required to be operable at all times when secondary containment is required. The calibration interval is as described in Section 4.11.A.

The automatic pressure relief instrumentation can be considered to be a 1 out of 2 logic system and the discussion above applies also.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
b. The results of laboratory carbon sample analysis shall show 90% radioactive methyl iodide removal at a velocity within 20% of system design, 0.05 to 0.15 mg/m3 inlet methyl iodide concentration, ≥ 95% relative humidity and ≥ 125 degrees F, or that filter train shall not be considered operable.	d. A dry gas purge shall be provided to the filters to insure that the relative humidity in the filter systems does not exceed 70% during idle periods.
c. Fans shall be shown to operate at approximately 3,000 CFM ± 300 CFM (design flow for the filter train).	e. A sample of the charcoal filter shall be analyzed once per year to assure halogen removal efficiency of at least 99.5 percent.
5. The main control room ventilation radiation monitors, which monitor main control room ventilation radiation levels, shall be operable at all times when secondary containment is required.	3. Once every 18 months automatic initiation of control room emergency ventilation, from all designed initiation signals shall be demonstrated.
a. One radiation monitoring channel may be inoperable for 7 days, as long as the remaining radiation monitoring channel maintains the capability of initiating emergency ventilation on any designed trip functions.	4. Operability of the main control room ventilation radiation monitors and flow switches shall be functionally tested every 3 months.
b. A trip system is operable when 1 of 2 channels is available to provide its trip function and the inoperable channel is placed in its tripped condition. If a channel is inoperable or placed in its tripped condition in both trip systems, then emergency ventilation must be initiated and maintained.	5. The main control room radiation monitors shall be calibrated electronically and with a known radioactive source positioned in a reproducible geometry with respect to the sensor every 18 months. 6. The main control room ventilation supply flow switches shall be calibrated every 18 months.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.11.A (cont'd.)	4.11.A (cont'd).
6. The main control room ventilation supply flow switches shall be operable at all times when secondary containment is required except one flow switch may be inoperable for 7 days as long as the other flow switch is operable.	
7. If specification 3.11.A.5 or 3.11.A.6 cannot be met, manually initiate and maintain main control room emergency ventilation.	
B. Emergency Heat Sink Facility	B. Emergency Heat Sink Facility
The level in the emergency reservoir of the Emergency Heat Sink Facility shall not be less than 17'. Should the level drop below this point action shall be taken to restore the level to above the minimum, within 7 days.	1. The level in the emergency reservoir of the Emergency Heat Sink Facility shall be checked once per month.
	2. Once a year the portable fire pump which is used to provide makeup water to the emergency reservoir will be checked for operability and availability.
	3a. The Emergency Cooling Water pump and ESW booster pumps shall be tested in accordance with Section XI of the ASME Boiler Pressure Vessel Code and applicable addenda, except where relief has been granted.
	b. The Emergency Cooling Tower fans shall be tested every three months to verify operability.
C. Emergency Shutdown Control Panel	C. Emergency Shutdown Control Panel
1. At all times when not in use or being maintained, the emergency shutdown control panels shall be secured.	1. The emergency shutdown control panels shall be visually checked once per week to verify they are secured.
	2. Operability of the switches on the emergency shutdown control panels shall be tested by electrical check once per refueling outage.

3.11 BASES

A. Main Control Room Emergency Ventilation System

The control room emergency ventilation system (CREV) is designed to filter the control room intake air during control room isolation conditions. The CREV system is designed to automatically start upon receipt of control room isolation signals and to maintain the control room at a positive pressure so that all leakage should be out-leakage.

High efficiency particulate absolute (HEPA) filters are installed before the charcoal adsorbers to prevent clogging of the iodine adsorbers. The charcoal adsorbers are installed to reduce the potential intake of radioiodine to the control room. The in-place test results should indicate a system leak tightness of less than 1 percent bypass leakage for the charcoal adsorbers and a HEPA efficiency of at least 99 percent removal of DOP particulates. The laboratory carbon sample test results should indicate a radioactive methyl iodide removal efficiency of at least 90 percent for expected accident conditions. If the efficiencies of the HEPA filters and charcoal adsorbers are as specified, the resulting doses will be less than the allowable levels stated in Criterion 19 of the General Design Criteria for Nuclear Power Plants, Appendix A to 10 CFR Part 50.

One main control room emergency ventilation air supply fan provides adequate ventilation flow under accident conditions. Should one emergency ventilation air supply fan and/or fresh air filter train be out of service during reactor operation, the allowable repair time for 7 days is justified.

At least 1 of 2 channels per trip system in the Control Room Ventilation Radiation Monitoring System for indication and alarm of radioactive air being drawn into the main control room is considered adequate, provided that 3 of the 4 channels are available. With one channel of control room radiation monitoring inoperable the capability of automatically initiating emergency ventilation on receipt of any trip signal is still maintained and at no time is the ability to manually initiate emergency ventilation lost. Therefore, the allowable time for repair of 7 days is justified. When one (1) radiation monitoring channel in both trip systems are inoperable, then emergency ventilation shall be initiated and maintained. Main control room emergency ventilation is initiated when a trip signal from the radiation detectors is given via high radiation or downscale/failure signal (one out of two twice logic) or loss of divisional power to local radiation monitoring system panel. Main control room emergency ventilation is also initiated on a low flow signal from one of two flow switches in the main control room normal supply after a time delay.

TABLE 4.15**

SEISMIC MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

Instruments and Sensor Locations#	Instrument* Check	Instrument* Functional Test	Instrument Calibration
1. Triaxial Time-History Accelerographs			
a. Containment Foundation (torus compartment)	M	SA	R
b. Refueling Floor	M	SA	R
c. RCIC Pump (Rm #7)	M	SA	R
d. "C" Diesel Generator	M	SA	R
2. Triaxial Peak Accelerographs			
a. Reactor Piping (Drywell)	NA	NA	R
b. Refueling Floor	NA	NA	R
c. "C" Diesel Generator	NA	NA	R
3. Central Recording and Analysis System			
a. Cable Spreading Rm	M	SA	R

* Surveillance Frequencies

M: every month
SA: every 6 months
R: every 24 months

** Effective upon completion of installation.
# Seismic instrumentation located in Unit 2.

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

PHILADELPHIA ELECTRIC COMPANY

PUBLIC SERVICE ELECTRIC AND GAS COMPANY

DELMARVA POWER AND LIGHT COMPANY

ATLANTIC CITY ELECTRIC COMPANY

DOCKET NO. 50-278

PEACH BOTTOM ATOMIC POWER STATION, UNIT NO. 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 189
License No. DPR-56

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

   A. The application for amendment by Philadelphia Electric Company, et. al. (the licensee) dated November 1, 1993 as supplemented on January 26, 1994 and February 18, 1994, 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 amendment will not be inimical to the common defense and security or to the health or 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-56 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 189 , are hereby incorporated in the license. PECO 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 upon completion of modification 5281.

FOR THE NUCLEAR REGULATORY COMMISSION

Charles L. Miller

Charles L. Miller, Director
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical
Specifications

Date of Issuance: March 15, 1994

ATTACHMENT TO LICENSE AMENDMENT NO. 189

FACILITY OPERATING LICENSE NO. DPR-56

DOCKET NO. 50-278

Replace the following pages of the Appendix A Technical Specifications with the enclosed pages. The revised areas are indicated by marginal lines.

Remove	Insert
59	59
75	75
84	84
93	93
97	97
233a	233a
234	234
235	235
240v	240v

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.2.D. Radiation Monitoring Systems-Isolation and Initiation Functions	4.2.D. Radiation Monitoring Systems-Isolation and Initiation Functions
1. Reactor Building Isolation and Standby Gas Treatment System The limiting conditions for operation are given in Table 3.2.D.	1. Reactor Building Isolation and Standby Gas Treatment System Instrumentation shall be functionally tested, calibrated and checked as indicated in Table 4.2.D. System logic shall be functionally tested as indicated in Table 4.2.D.
2. Main Control Room The limiting conditions for operation are given in Table 3.2.D.	2. Main Control Room Instrumentation shall be functionally tested, calibrated and checked as indicated in Table 4.2.D.
E. Drywell Leak Detection The limiting conditions of operation for the instrumentation that monitors drywell leak detection are given in Section 3.6.C, "Coolant Leakage".	E. Drywell Leak Detection Instrumentation shall be calibrated and checked as indicated in table 4.2.E.

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TABLE 3.2.D
RADIATION MONITORING SYSTEMS THAT INITIATE AND/OR ISOLATE SYSTEMS

Minimum No. of Operable Instrument Channels per Trip System (1)	Trip Function	Trip Level Setting	No. of Instrument Channels Provided by Design	Action (2)
2	Refuel Area Exhaust Monitor	Upscale, <16 mr/hr	4 Inst. Channels	A or B
2	Reactor Building Exhaust Monitors	Upscale, <16 mr/hr	4 Inst. Channels	B
1 (3)	Main Stack Monitor	Upscale, $\leq 10^6$ cps	2 Inst. Channels	C
2 (4)	Main Control Room	Upscale, <400 cpm	4 Inst. Channels	D

Notes for Table 3.2.D

1. Whenever the systems are required to be operable, the specified number of instrument channels shall be operable or placed in the tripped condition. If this cannot be met, the indicated action shall be taken.

2. Action

   A. Cease operation of the refueling equipment.
   B. Isolate secondary containment and start the standby gas treatment system.
   C. Cease purging of primary containment, and close vent and purge valves greater than 2 inches in diameter.
   D. As described in LCO 3.11.A.5

3. The trip function is required to be operable only when the containment is purging through the SGTS and containment integrity is required. If both radiation monitors are out of service, action shall be taken as indicated in Note 2, (C).

4. The trip function is required to be operable whenever secondary containment is required on either unit.

Amendment No. 104, 158, 189

PBAPS

TABLE 4.2.D

MINIMUM TEST & CALIBRATION FREQUENCY FOR RADIATION MONITORING SYSTEMS

	Instrument Channels	Instrument Functional Test	Calibration	Instrument Check (2)
1)	Refuel Area Exhaust Monitors - Upscale	(1)	Once/3 months	Once/day
2)	Reactor Building Area	(1)	Once/3 months	Once/day
3)	Main Stack Monitor	Once/3 months	Once/12 months as described in 4.8.C.4.a	Once/day
4)	Main Control Room	Once/3 months	Once/18 months as described in 4.11.A.5	Once/day

	Logic System Functional Test (4) (6)	Frequency
1)	Reactor Building Isolation	Once/Operating Cycle
2)	Standby Gas Treatment System Actuation	Once/Operating Cycle

Amendment No. 104, 158, 181, 189

3.2 BASES (Cont'd)

Four sets of two radiation monitors are provided which initiate the Reactor Building Isolation function and operation of the standby gas treatment system. Four instrument channels monitor the radiation from the refueling area ventilation exhaust ducts and four instrument channels monitor the building ventilation below the refueling floor. Each set of instrument channels is arranged in a 1 out of 2 twice trip logic.

Trip settings of less than 16 mr/hr for the monitors in the refueling area ventilation exhaust ducts are based upon initiating normal ventilation isolation and standby gas treatment system operation so that none of the activity released during the refueling accident leaves the Reactor Building via the normal ventilation path but rather all the activity is processed by the standby gas treatment system.

Two channels of nonsafety-related radiation monitors are provided in the main stack. Trip signals from these monitors are required only when purging the containment through the SGTS and containment integrity is required. The trip signals isolate primary containment vent and purge valves greater than 2 inches in diameter to prevent accidental releases of radioactivity offsite when the valves are open. This signal is added to fulfill the requirements of item II.E.4.2(7) of NUREG-0737.

Four channels of in-duct radiation monitors are provided which initiate the Main Control Room Emergency Ventilation System. Each set of instrument channels are arranged in a one (1) out of two (2) twice trip logic.

Flow integrators are used to record the integrated flow of liquid from the drywell sumps. The integrated flow is indicative of reactor coolant leakage. A Drywell Atmosphere Radioactivity Monitor is provided to give supporting information to that supplied by the reactor coolant leakage monitoring system. (See Bases for 3.6.C and 4.6.C)

Some of the surveillance instrumentation listed in Table 3.2.F are required to meet the accident monitoring requirements of NUREG-0737, Clarification of TMI Action Plan Requirements. This instrumentation and the applicable NUREG-0737 requirements are:

1. Wide range drywell pressure (II.F.1.4)
2. Subatmospheric drywell pressure (II.F.1.4)
3. Wide range suppression chamber water level (II.F.1.5)
4. Main stack high range radiation monitor (II.F.1.1)
5. Reactor building roof vent high range radiation monitor (II.F.1.1)
6. Drywell hydrogen concentration analyzer and monitor (II.F.1.6)
7. Drywell high range radiation monitors (II.F.1.3)
8. Reactor Water Level - wide and fuel range (II.F.2)
9. Safety-Relief Valve position indication (II.D.3)

4.2 BASES (cont'd)

The radiation monitors in the refueling area ventilation duct which initiate building isolation and standby gas treatment operation are arranged in a 1 out of 2 twice logic system. The bases given above for the rod blocks apply here also and were used to arrive at the functional testing frequency. The air ejector off-gas monitors are connected in a 2 out of 2 logic arrangement. Based on the experience with instruments of similar design, a testing interval of once every three months has been found adequate.

Radiation monitors in the main stack which initiate containment isolation are not safety-related and are required only during containment purging through the SGTS and when containment integrity is required, an activity which occurs infrequently. Therefore, a twelve (12) month calibration interval is appropriate.

The Control Room Intake Air Radiation Monitors are safety-related and are required to be operable at all times when secondary containment is required. The calibration interval is as described in Section 4.11.A.

The automatic pressure relief instrumentation can be considered to be a 1 out of 2 logic system and the discussion above applies also.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
b. The results of laboratory carbon sample analysis shall show 90% radioactive methyl iodide removal at a velocity within 20% of system design, 0.05 to 0.15 mg/m3 inlet methyl iodide concentration, ≥ 95% relative humidity and ≥ 125 degrees F, or that filter train shall not be considered operable.	d. A dry gas purge shall be provided to the filters to insure that the relative humidity in the filter systems does not exceed 70% during idle periods.
c. Fans shall be shown to operate at approximately 3,000 CFM ± 300 CFM (design flow for the filter train).	e. A sample of the charcoal filter shall be analyzed once per year to assure halogen removal efficiency of at least 99.5 percent.
5. The main control room ventilation radiation monitors, which monitor main control room ventilation radiation levels shall be operable at all times when secondary containment is required.	3. Once every 18 months automatic initiation of control room emergency ventilation, from all designed initiation signals shall be demonstrated.
a. One radiation monitoring channel may be inoperable for 7 days, as long as the remaining radiation monitoring channel maintains the capability of initiating emergency ventilation on any designed trip functions.	4. Operability of the main control room ventilation radiation monitors and flow switches shall be functionally tested every 3 months.
b. A trip system is operable when 1 of 2 channels is available to provide its trip function and the inoperable channel is placed in its tripped condition. If a channel is inoperable or placed in its tripped condition in both trip systems, then emergency ventilation must be initiated and maintained.	5. The main control room radiation monitors shall be calibrated electronically and with a known radioactive source positioned in a reproducible geometry with respect to the sensor every 18 months.
	6. The main control room ventilation supply flow switches shall be calibrated every 18 months.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.11.A (cont'd.)	4.11.A (cont'd).
6. The main control room ventilation supply flow switches shall be operable at all times when secondary containment is required except one flow switch may be inoperable for 7 days as long as the other flow switch is operable.	
7. If specification 3.11.A.5 or 3.11.A.6 cannot be met, manually initiate and maintain main control room emergency ventilation.	
B. Emergency Heat Sink Facility	B. Emergency Heat Sink Facility
The level in the emergency reservoir of the Emergency Heat Sink Facility shall not be less than 17'. Should the level drop below this point action shall be taken to restore the level to above the minimum, within 7 days.	1. The level in the emergency reservoir of the Emergency Heat Sink Facility shall be checked once per month.
	2. Once a year the portable fire pump which is used to provide makeup water to the emergency reservoir will be checked for operability and availability.
	3a. The Emergency Cooling Water pump and ESW booster pumps shall be tested in accordance with Section XI of the ASME Boiler Pressure Vessel Code and applicable addenda, except where relief has been granted.
	b. The Emergency Cooling Tower fans shall be tested every three months to verify operability.
C. Emergency Shutdown Control Panel	C. Emergency Shutdown Control Panel
1. At all times when not in use or being maintained, the emergency shutdown control panels shall be secured.	1. The emergency shutdown control panels shall be visually checked once per week to verify they are secured.
	2. Operability of the switches on the emergency shutdown control panels shall be tested by electrical check once per refueling outage.

3.11 BASES

A. Main Control Room Emergency Ventilation System

The control room emergency ventilation system (CREV) is designed to filter the control room intake air during control room isolation conditions. The CREV system is designed to automatically start upon receipt of control room isolation signals and to maintain the control room at a positive pressure so that all leakage should be out-leakage.

High efficiency particulate absolute (HEPA) filters are installed before the charcoal adsorbers to prevent clogging of the iodine adsorbers. The charcoal adsorbers are installed to reduce the potential intake of radioiodine to the control room. The in-place test results should indicate a system leak tightness of less than 1 percent bypass leakage for the charcoal adsorbers and a HEPA efficiency of at least 99 percent removal of DOP particulates. The laboratory carbon sample test results should indicate a radioactive methyl iodide removal efficiency of at least 90 percent for expected accident conditions. If the efficiencies of the HEPA filters and charcoal adsorbers are as specified, the resulting doses will be less than the allowable levels stated in Criterion 19 of the General Design Criteria for Nuclear Power Plants, Appendix A to 10 CFR Part 50.

One main control room emergency ventilation air supply fan provides adequate ventilation flow under accident conditions. Should one emergency ventilation air supply fan and/or fresh air filter train be out of service during reactor operation, the allowable repair time for 7 days is justified.

At least 1 of 2 channels per trip system in the Control Room Ventilation Radiation Monitoring System for indication and alarm of radioactive air being drawn into the main control room is considered adequate, provided that 3 of the 4 channels are available. With one channel of control room radiation monitoring inoperable the capability of automatically initiating emergency ventilation on receipt of any trip signal is still maintained and at no time is the ability to manually initiate emergency ventilation lost. Therefore, the allowable time for repair of 7 days is justified. When one (1) radiation monitoring channel in both trip systems are inoperable, then emergency ventilation shall be initiated and maintained. Main control room emergency ventilation is initiated when a trip signal from the radiation detectors is given via high radiation or downscale/failure signal (one out of two twice logic) or loss of divisional power to local radiation monitoring system panel. Main control room emergency ventilation is also initiated on a low flow signal from one of two flow switches in the main control room normal supply after a time delay.

PBAPS

TABLE 4.15**

SEISMIC MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

Instruments and Sensor Locations#	Instrument* Check	Instrument* Functional Test	Instrument Calibration
1. Triaxial Time-History Accelerographs			
a. Containment Foundation (torus compartment)	M	SA	R
b. Refueling Floor	M	SA	R
c. RCIC Pump (Rm #7)	M	SA	R
d. "C" Diesel Generator	M	SA	R
2. Triaxial Peak Accelerographs			
a. Reactor Piping (Drywell)	NA	NA	R
b. Refueling Floor	NA	NA	R
c. "C" Diesel Generator	NA	NA	R
3. Central Recording and Analysis System			
a. Cable Spreading Rm	M	SA	R

* Surveillance Frequencies

M: every month
SA: every 6 months
R: every 24 months

** Effective upon completion of installation.
# Seismic instrumentation located in Unit 2.

Amendment No. 74, 84, 182, 189

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NOS. 184 AND 189 TO FACILITY OPERATING

LICENSE NOS. DPR-44 AND DPR-56

PHILADELPHIA ELECTRIC COMPANY
PUBLIC SERVICE ELECTRIC AND GAS COMPANY
DELMARVA POWER AND LIGHT COMPANY
ATLANTIC CITY ELECTRIC COMPANY

PEACH BOTTOM ATOMIC POWER STATION, UNIT NOS. 2 AND 3

DOCKET NOS. 50-277 AND 50-278

1.0 INTRODUCTION

By letter dated November 1, 1993 as supplemented on January 26, 1994 and February 18, 1994, Philadelphia Electric Company (the licensee) submitted a request for changes to the Peach Bottom Atomic Power Station, Unit Nos. 2 and 3, Technical Specifications (TS). The requested changes would revise the Radiation Monitoring Systems - Isolation and Initiation Functions section of the Technical Specifications to support modification 5281. Modification 5281 updates the obsolete control room ventilation radiation monitoring equipment and replaces it with a microprocessor based in-duct system. The Control Room Emergency Ventilation (CREV) System actuation logic would also be revised. Currently, CREV is initiated via high radiation signals from either detector (using a one out of two logic) or failure signals from both detectors or failure of one detector and low flow in the other detector sample line or low flow in both detector sample lines. With the new system, CREV will be initiated on 1) high radiation (using a one out of two taken twice logic), 2) low flow in the control room ventilation duct, 3) loss of power in one division at the local radiation monitoring system (RMS) panel, or 4) downscale/failure of the radiation indicating switches (RIS) using a one out of two twice logic). The January 26, 1994 letter corrected typographical errors in the originally submitted TS pages. The February 18, 1994 letter provided clarifying information. The supplemental letters did not change the original no significant hazards consideration determination.

Additionally, the proposed amendment would revise page 240v of the TS to change the title of Item 3 of Table 4.15 from "Triaxial Response-Spectrum Recorders" to "Central Recording and Analysis System." This administrative change was requested to correct an omission that occurred during the preparation of TS Change Request 92-11, which was previously approved by the staff in license amendments 176 and 179 for Units 2 and 3.

2.0 EVALUATION

The licensee's submittal lists nine TS changes. The changes are evaluated below (the TS page numbers are the same for Units 2 and 3):

1) Page 59

   a) Insert proposed Limiting Condition for Operation (LCO) 3.2.D.2., "Main Control Room" which states:

      "The limiting conditions for operation are given in Table 3.2.D."

   b) Insert proposed Surveillance Requirements (SR) 4.2.D.2., "Main Control Room" which states:

      "Instrumentation shall be functionally tested, calibrated and checked as indicated in Table 4.2.D."

Previously the TS did not have an LCO or SR associated with the control room radiation monitoring system in the radiation monitoring systems section in the TS. The previous TS relied on the LCO and SR for the Main Control Room Emergency Ventilation System (i.e., TS 3.11.A). Therefore, the licensee's proposal clarifies the TS by explicitly stating the LCO and SR associated with this radiation monitor in a more appropriate TS section. The staff reviewed the new LCOs and SRs for acceptability. The staff determined that the proposed LCO provides acceptable actions in the event a radiation monitor becomes inoperable. The staff also determined that the licensee's proposed SR provide an acceptable means for testing the operability of the radiation monitors.

2) Page 75 (Table 3.2.D), "Radiation Monitoring Systems that Initiate and/or Isolate Systems"

   a) Revise the column heading "Minimum No. of Operable Instrument Channels" to read: "Minimum No. of Operable Instrument Channels per trip System," to provide clarity regarding the minimum number of instruments required for each trip system.

   b) Insert Trip Function "Main Control Room" and its associated information.

   c) Insert Item D, under Note 2, "Action," as follows: "As described in LCO 3.11.A.5."

   d) Insert Note 4, in "Notes for Table 3.2.D," as follows: "The trip function is required to be operable whenever secondary containment is required on either unit."

These changes provide details of the LCOs discussed in item 1 above. Therefore, the staff's evaluation of item 1 above also applies to these changes.

3) Page 84, (Table 4.2.D), "Minimum Test & Calibration Frequency for Radiation Monitoring Systems"

   Insert proposed "Instrument Channel" Item 4, "Main Control Room" and its associated information.

This change provides the details of the SR discussed in item 1 above. Therefore, the staff's evaluation of item 1 above also applies to these changes.

4) Page 93, 3.2 BASES (Cont'd)

   Insert proposed 4th paragraph which states:

   "Four channels of in-duct radiation monitors are provided which initiate the Main Control Room Emergency Ventilation System. Each set of instrument channels are arranged in a one (1) out of two (2) twice trip logic."

This bases change merely provides a system description and is acceptable.

5) Page 97, 4.2 BASES (Cont'd)

   Insert proposed 3rd paragraph which states:

   "The Control Room Intake Air Radiation Monitors are safety-related and are required to be operable at all times when secondary containment is required. The calibration interval is as described in Section 4.11.A."

This bases change merely provides clarifying information and is acceptable.

6) Page 233a, Additional Safety Related Plant Capabilities

   a) Revise LCO 3.11.A.5.

   b) Insert proposed LCOs 3.11.A.5.a and 3.11.A.5.b.

   c) Relocate and renumber SR 4.11.A.d. from page 234 to 4.11.A.2.e.

   d) Revise SR 4.11.A.3 and 4.11.A.4.

   e) Insert proposed SR 4.11.A.5 and 4.11.A.6.

These changes provide further details of the LCOs and SRs discussed in item 1 above. Therefore, the staff's evaluation of item 1 above also applies to these changes.

7) Page 234, Additional Safety Related Plant Capabilities

   a) Delete LCO 3.11.A.2 which is a restatement of existing 3.11.A.5 on page 233a.

   b) Insert proposed LCOs 3.11.A.6 and 3.11.A.7.

   c) Relocate and renumber SR 4.11.A.d to page 233a, 4.11.A.2.e.

   d) Delete SR 4.11.A.2 which is a restatement of 4.11.A.4 on page 233a.

These changes are editorial with the exception of inserting LCOs 3.11.A.6 and 7. The previous TS relied on the LCO for the Main Control Room Emergency Ventilation System (i.e., TS 3.11.A). Therefore, the licensee's proposal enhances safety by explicitly stating the LCOs associated with the main control room ventilation radiation monitors and flow supply switches. The staff determined that the proposed LCOs provide acceptable actions in the event a radiation monitor becomes inoperable. The editorial changes associated with this item were reviewed by the staff and determined to be acceptable.

8) Page 235, 3.11. BASES, "Main Control Room Emergency Ventilation System"

   Inserts justification for LCOs.

These bases changes provide the justification for the proposed LCOs and are acceptable.

9) Page 240v, Table 4.15, "Seismic Monitoring Instrumentation Surveillance Requirements"

   Revises "Instruments and Sensor Locations#," Item 3, title from "Triaxial Response-Spectrum Recorders" to "Central Recording and Analysis system."

This is an administrative change that corrects an omission that occurred during a previous TS Change Request (as noted in the Section 1.0 above). This change is acceptable.

In addition to reviewing the changes to the TS discussed above, the staff also reviewed the licensee's modification design as described in the submittal. The licensee designed the new system to meet the IEEE 279 recommendations regarding prevention of single failure susceptibility. The licensee's contractor (i.e., Nuclear Research Corporation) utilized methods endorsed by ANSI/IEEE 7.4.3.2, 1982, and ANSI/ANS 10.4, 1987 for validation and verification of its software. To ensure that central processing unit (CPU) lockup does not occur, the licensee's contractor uses an analog "watchdog" circuit to detect failures that may cause the microprocessor to lockup. This watchdog circuit will indicate equipment failure (including failures caused by common mode microprocessor failures) which will be annunciated in the main

control room. The staff believes the licensee and its contractor have appropriately considered the possibility of credible equipment failures in the design of this modification.

During a February 1, 1994, conference call, the staff asked the licensee three questions. These questions were answered by the licensee during the phone call and in a February 18, 1994 supplemental letter. The questions and the licensee's responses are discussed below:

1) Compare the system responsiveness of the new system to the existing one.

The licensee stated that the new system used in-duct sensors 20 feet upstream of the existing sensors (which are external to the duct). Therefore, even with a new logic arrangement (i.e., one-out-of-two taken twice verses one-out-of-two in the original arrangement) the system will respond at least as fast as the original system.

The staff agrees that the new system will be at least as responsive as the original system because the delay in transporting the sample to the detector has been eliminated and the detectors are upstream of the original detectors.

2) Discuss why the instrument check frequency of once/day was chosen for the Main Control Room Instrument Channel.

The licensee stated that the requested frequency was consistent with similar instrumentation in the TS.

The staff reviewed the licensee's TS and agrees that the plant-specific TS (i.e., Table 4.2.D), specifies an instrument check frequency of once/day. Since the licensee's proposal is consistent with the current plant specific TS, the proposal is acceptable.

3) Discuss the deviations from the IEEE 279 recommendations.

The licensee stated that they complied with IEEE 279 in its entirety, but utilized an exception to Section 4.11 (authorized in IEEE 279) regarding the recommendation that a protective action not be initiated when a single channel of a system is tested. In this case, when the flow switches are tested, CREV will be initiated. The licensee stated that the initiation of CREV will not challenge the reactor or plant integrity.

The staff agrees that the exception used for the flow switches is appropriate. Therefore, the licensee's proposal is in compliance with the recommendations of IEEE 279.

Based on the above discussion, the staff finds the proposed main control room intake air radiation monitor system modification and the associated changes to the TS to be acceptable. The modification should improve the reliability of

the system and minimize spurious actuations. The TS changes will provide operability of the updated system consistent with the original TS.

3.0 STATE CONSULTATION

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

4.0 ENVIRONMENTAL CONSIDERATION

The amendments change 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 (58 FR 64614). Accordingly, the amendments meet 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.

Principal Contributor: S. Dembek

Date: March 15, 1994