September 7, 1990

Docket Nos. 50-277/278

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Mr. George A. Hunger, Jr.
Director-Licensing, MC 5-2A-5
Philadelphia Electric Company
Nuclear Group Headquarters
Correspondence Control Desk
P.O. Box No. 195
Wayne, Pennsylvania 19087-0195

Dear Mr. Hunger:

SUBJECT: PURGE AND VENT VALVE ISOLATION ON HIGH RADIATION SIGNAL FOR PEACH BOTTOM ATOMIC POWER STATION, UNIT NOS. 2 AND 3 (TAC NOS. 44874, 44875, 75767 AND 75768)

The Commission has issued the enclosed Amendment Nos. 156 and 158 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 (TS) in response to your application dated December 28, 1989 as supplemented on February 16, 1990. The supplemental letter certified that a copy of the December 28, 1989 application was provided to the appropriate State official. The staff has determined that this additional information does not affect the proposed no significant hazards determination.

These amendments would modify TSs to reflect the addition of a high-high radiation trip signal requirement for the control circuitry of containment purge and vent isolation valves located on lines larger than two inches in diameter.

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

Sincerely,

/S/

Gene Y. Suh, Project Manager
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 156 to DPR-44
2. Amendment No. 158 to DPR-56
3. Safety Evaluation

cc w/enclosures:
See next page

[44874]

PDI-2/LA	PDI-2/PM	SICB/BC	OGC	PDI-2/D
MO'Brien	GSuh	SNewberry	RBachmann	WButler
7/24/90	7/24/90	8/22/90	8/30/90	9/6/90

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

September 7, 1990

Docket Nos. 50-277/278

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Director-Licensing, MC 5-2A-5
Philadelphia Electric Company
Nuclear Group Headquarters
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These amendments would modify TSs to reflect the addition of a high-high radiation trip signal requirement for the control circuitry of containment purge and vent isolation valves located on lines larger than two inches in diameter.

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

Sincerely,

Gene Y. Suh

Gene Y. Suh, Project Manager
Project Directorate I-2
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 156 to DPR-44
2. Amendment No. 158 to DPR-56
3. Safety Evaluation

cc w/enclosures:
See next page

cc:

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Board of Supervisors
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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

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. 156
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 December 28, 1989 as supplemented on February 16, 1990, 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. 156 , 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.

FOR THE NUCLEAR REGULATORY COMMISSION

/S/

Walter R. Butler, Director
Project Directorate I-2
Division of Reactor Projects - I/II

Attachment:
Changes to the Technical
Specifications

Date of Issuance: September 7, 1990

PDI-2/LA	PDI-2/PM	OGC	PDI-2/D
MO'Brien	GSuh	RBachmann	WButler
7/24/90	7/19/90	8/30/90	9/6/90

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 156 , 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.

FOR THE NUCLEAR REGULATORY COMMISSION

Walter R. Butler

Walter R. Butler, Director
Project Directorate I-2
Division of Reactor Projects - I/II

Attachment:
Changes to the Technical
Specifications

Date of Issuance: September 7, 1990

ATTACHMENT TO LICENSE AMENDMENT NO. 156

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
75	75
84	84
93	93
97	97
182	182
183	183
200	200

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

Minimum No. of Operable Instrument Channels (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 Area Exhaust Monitors	Upscale, <16 mr/hr	4 Inst. Channels	B
1(3)	Main Stack Monitor	Upscale, $\leq 10^6$ cps	2 Inst. Channels	C

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.

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).

Amendment No. 102, 156

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

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

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.

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

Key:
0 = Open
C = Closed
SC = Stays Closed
GC = Goes Closed

Note: Isolation groupings are as follows:

GROUP 1: The valves in Group 1 are actuated by any one of the following conditions:

1. Reactor vessel low-low-low water level.
2. Main steam line high radiation.
3. Main steam line high flow.
4. Main steam line space high temperature.
5. Main steam line low pressure (RUN mode only).

GROUP 2A: The valves in Group 2A are actuated by any one of the following conditions:

1. Reactor vessel low water level.
2. Reactor water cleanup system heat exchanger discharge high temperature.
3. Reactor water cleanup system suction line break.
4. Standby liquid control system actuation.

GROUP 2B: The valves in Group 2B are actuated by any one of the following conditions:

1. Reactor vessel low water level.
2. High drywell pressure.
3. Reactor high pressure of shutdown mode.

GROUP 2C: The valves in Group 2C are actuated by any one of the following conditions:

1. Reactor low water level.
2. High reactor vessel pressure. (600 PSIG)
3. High drywell pressure.

GROUP 2D: The valves in Group 2D are actuated by the following conditions:

1. High drywell pressure.
2. Reactor low water level.

NOTES FOR TABLE NO. 3.7.1 (Cont'd)

GROUP 3: The valves in Group 3 are actuated by any one of the following conditions:

1. Reactor vessel low water level.
2. High drywell pressure.
3. Reactor building ventilation exhaust high radiation.
4. Refuel floor ventilation exhaust high radiation.
5. Main stack high-high radiation during containment purging through SGTS (vent and purge valves greater than two inches in diameter only).

GROUP 4: The valves in Group 4 are actuated by any one of the following conditions:

1. HPCI steam line high flow.
2. HPCI steam line space high temperature.
3. HPCI steam line low pressure. (except for HPCI steam line exhaust drain valve AO-4247)

GROUP 4A: The valves in Group 4A are actuated by either of the following conditions:

1. Reactor vessel low-low water level.
2. High drywell pressure.

GROUP 4B: The valve in Group 4B is actuated when both of the following conditions are present:

1. High drywell pressure.
2. HPCI steam line low pressure.

GROUP 5: The valves in Group 5 are actuated by any one of the following conditions:

1. RCIC steam line high flow.
2. RCIC steam line space high temperature.
3. RCIC steam line low pressure.

GROUP 5A: The valves in Group 5A are actuated by the following condition:

1. Reactor vessel low-low water level.

GROUP 5B: The valve in Group 5B is actuated when both of the following conditions are present:

1. High drywell pressure.
2. RCIC steam line low pressure.

Group 2D - line (traveling in-core probe) is isolated on high drywell pressure or reactor low water level (538"). This is to assure that this line does not provide a leakage path when containment pressure indicates a possible accident condition.

Group 3: Actuation for isolation of valves and dampers associated with the ventilation systems. Group 3 lines are connected to the primary containment but not directly to the reactor vessel. These valves are isolated on reactor low water level (538"), high drywell pressure, reactor building ventilation high radiation which would indicate a possible accident and necessitate primary containment isolation, or refueling floor ventilation high radiation which would indicate a possible refueling accident or main stack high-high radiation (a nonsafety-related signal) during containment purging through SGTS in accordance with Section 3.8.C.8a. The group 3 isolation signals, with the exception of main stack high-high radiation, also "isolate" the reactor building and start the Standby Gas Treatment System. It is not desirable to actuate the group 3 isolation signal by a transient or spurious signal.

The main stack high-high radiation signal (which is nonsafety-related in accordance with NUREG-0737) will isolate only those vent and purge valves which are greater than two inches in diameter during containment purging.

Groups 4 and 5: Actuation associated with process lines that are designed to remain operable and mitigate the consequences of an accident which results in the isolation of other process lines. The signals which initiate isolation of Group 4 and 5 process lines are therefore indicative of a condition which would render them inoperable. Groups 4 and 5 are subdivided as follows:

Group 4A: - process lines are closed on reactor low water level (490") or high drywell pressure. These close on the same signal that initiates HPCIS to ensure that the valves are not open when HPCIS action is required.

Group 4B - line is isolated on high drywell pressure if the HPCI System has been rendered inoperable by low steam line pressure.

Group 5A - process lines are closed only on reactor low water level (490"). These close on the same signal that initiates RCICS to ensure that the valves are not open when RCICS action is required.

Group 5B - line is isolated on high drywell pressure if the RCIC system has been rendered inoperable by low steam line pressure.

The maximum closure times for the automatic isolation valves of the primary containment and reactor vessel isolation control system have been selected in consideration of the design intent to prevent core uncovering following pipe breaks outside the primary containment and the need to contain released fission products following pipe breaks inside the primary containment.

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

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. 158
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 December 28, 1989 as supplemented on February 16, 1990, 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. 158, 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.

FOR THE NUCLEAR REGULATORY COMMISSION

/S/

Walter R. Butler, Director
Project Directorate I-2
Division of Reactor Projects - I/II

Attachment:
Changes to the Technical
Specifications

Date of Issuance: September 7, 1990

PDI-2/LA	PDI-2/PM	OGC	PDI-2/D
MO'Brien	GSuh	RBachmann	WButler
7/24/90	7/19/90	8/30/90	9/1/90

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 158, 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.

FOR THE NUCLEAR REGULATORY COMMISSION

Walter R. Butler

Walter R. Butler, Director
Project Directorate I-2
Division of Reactor Projects - I/II

Attachment:
Changes to the Technical
Specifications

Date of Issuance: September 7, 1990

ATTACHMENT TO LICENSE AMENDMENT NO. 158

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
75	75
84	84
93	93
97	97
182	182
183	183
200	200

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RADIATION MONITORING SYSTEMS THAT INITIATE AND/OR ISOLATE SYSTEMS

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2	Reactor Building Area Exhaust Monitors	Upscale, <16 mr/hr	4 Inst. Channels	B
1(3)	Main Stack Monitor	Upscale, $\leq 10^6$ cps	2 Inst. Channels	C

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.

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).

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

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

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.

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

NOTE 3 FOR TABLE NO. 3.7.1

Key:
0 = Open
C = Closed
SC = Stays Closed
GC = Goes Closed

Note: Isolation groupings are as follows:

GROUP 1: The valves in Group 1 are actuated by any one of the following conditions:

1. Reactor vessel low-low-low water level.
2. Main steam line high radiation.
3. Main steam line high flow.
4. Main steam line space high temperature.
5. Main steam line low pressure (RUN mode only).

GROUP 2A: The valves in Group 2A are actuated by any one of the following conditions:

1. Reactor vessel low water level.
2. Reactor water cleanup system heat exchanger discharge high temperature.
3. Reactor water cleanup system suction line break.
4. Standby liquid control system actuation.

GROUP 2B: The valves in Group 2B are actuated by any one of the following conditions:

1. Reactor vessel low water level.
2. High drywell pressure.
3. Reactor high pressure of shutdown mode.

GROUP 2C: The valves in Group 2C are actuated by any one of the following conditions:

1. Reactor low water level.
2. High reactor vessel pressure. (600 PSIG)
3. High drywell pressure.

GROUP 2D: The valves in Group 2D are actuated by the following conditions:

1. High drywell pressure.
2. Reactor low water level.

NOTES FOR TABLE NO. 3.7.1 (Cont'd)

GROUP 3: The valves in Group 3 are actuated by any one of the following conditions:

1. Reactor vessel low water level.
2. High drywell pressure.
3. Reactor building ventilation exhaust high radiation.
4. Refuel floor ventilation exhaust high radiation.
5. Main stack high-high radiation during containment purging through SGTS (vent and purge valves greater than two inches in diameter only).

GROUP 4: The valves in Group 4 are actuated by any one of the following conditions:

1. HPCI steam line high flow.
2. HPCI steam line space high temperature.
3. HPCI steam line low pressure. (except for HPCI steam line exhaust drain valve AO-5247)

GROUP 4A: The valves in Group 4A are actuated by either of the following conditions:

1. Reactor vessel low-low water level.
2. High drywell pressure.

GROUP 4B: The valve in Group 4B is actuated when both of the following conditions are present:

1. High drywell pressure.
2. HPCI steam line low pressure.

GROUP 5: The valves in Group 5 are actuated by any one of the following conditions:

1. RCIC steam line high flow.
2. RCIC steam line space high temperature.
3. RCIC steam line low pressure.

GROUP 5A: The valves in Group 5A are actuated by the following condition:

1. Reactor vessel low-low water level.

GROUP 5B: The valve in Group 5B is actuated when both of the following conditions are present:

1. High drywell pressure.
2. RCIC steam line low pressure.

Group 2D - line (traveling in-core probe) is isolated on high drywell pressure or reactor low water level (538"). This is to assure that this line does not provide a leakage path when containment pressure indicates a possible accident condition.

Group 3: Actuation for isolation of valves and dampers associated with the ventilation systems. Group 3 lines are connected to the primary containment but not directly to the reactor vessel. These valves are isolated on reactor low water level (538"), high drywell pressure, reactor building ventilation high radiation which would indicate a possible accident and necessitate primary containment isolation, or refueling floor ventilation high radiation which would indicate a possible refueling accident or main stack high-high radiation (a nonsafety-related signal) during containment purging through SGTS in accordance with Section 3.8.C.8a. The group 3 isolation signals, with the exception of main stack high-high radiation, also "isolate" the reactor building and start the Standby Gas Treatment System. It is not desirable to actuate the group 3 isolation signal by a transient or spurious signal.

The main stack high-high radiation signal (which is nonsafety-related in accordance with NUREG-0737) will isolate only those vent and purge valves which are greater than two inches in diameter during containment purging.

Groups 4 and 5: Actuation associated with process lines that are designed to remain operable and mitigate the consequences of an accident which results in the isolation of other process lines. The signals which initiate isolation of Group 4 and 5 process lines are therefore indicative of a condition which would render them inoperable. Groups 4 and 5 are subdivided as follows:

Group 4A: - process lines are closed on reactor low water level (490") or high drywell pressure. These close on the same signal that initiates HPCIS to ensure that the valves are not open when HPCIS action is required.

Group 4B - line is isolated on high drywell pressure if the HPCI System has been rendered inoperable by low steam line pressure.

Group 5A - process lines are closed only on reactor low water level (490"). These close on the same signal that initiates RCICS to ensure that the valves are not open when RCICS action is required.

Group 5B - line is isolated on high drywell pressure if the RCIC system has been rendered inoperable by low steam line pressure.

The maximum closure times for the automatic isolation valves of the primary containment and reactor vessel isolation control system have been selected in consideration of the design intent to prevent core uncovering following pipe breaks outside the primary containment and the need to contain released fission products following pipe breaks inside the primary containment.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION SUPPORTING

AMENDMENT NOS. 156 AND 158 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 December 28, 1989 as supplemented on February 16, 1990, Philadelphia Electric Company requested an amendment to Facility Operating License Nos. DPR-44 and DPR-56 for Peach Bottom Atomic Power Station, Unit Nos. 2 and 3. The licensee's February 16, 1990 letter certified that a copy of the December 28, 1989 application was provided to the appropriate State official in accordance with 10 CFR 50.91(b)(1). The staff has determined that this information does not alter the actions noticed or affect the proposed determination that the amendments involve no significant hazards consideration published May 2, 1990. The amendments would modify Technical Specifications (TS) to reflect the addition of a high-high radiation trip signal requirement for the control circuitry of containment vent and purge isolation valves located on lines larger than two inches in diameter.

As discussed in the Background section, completion of the staff's review of the proposed TS change constitutes closure of NUREG-0737, Item II.E.4.2, "Containment Isolation Dependability." The TS change, which addresses Position 7 of Item II.E.4.2, will be effective as of the date of issuance of the license amendments. The other six positions of Item II.E.4.2 were addressed in previous reviews.

2.0 BACKGROUND

Item II.E.4.2 of NUREG-0737, "Clarification of TMI Action Plan Requirements," provided the results of the staff's evaluation of features needed to improve containment isolation dependability. The staff's position on Item II.E.4.2, Containment Isolation Dependability, was as follows:

(1) Containment isolation system designs shall comply with the recommendations of Standard Review Plan Section 6.2.4 (i.e., that there be diversity in the parameters sensed for the initiation of containment isolation).

(2) All plant personnel shall give careful consideration to the definition of essential and nonessential systems, identify each system determined to be essential, identify each system

determined to be nonessential, describe the basis for selection of each essential system, modify their containment isolation designs accordingly, and report the results of the reevaluation to the NRC.

(3) All nonessential systems shall be automatically isolated by the containment isolation signal.

(4) The design of control systems for automatic containment isolation valves shall be such that resetting the isolation signal will not result in the automatic reopening of containment isolation valves. Reopening of containment isolation valves shall require deliberate operator action.

(5) The containment setpoint pressure that initiates containment isolation for nonessential penetrations must be reduced to the minimum compatable with normal operating conditions.

(6) Containment purge valves that do not satisfy the operability criteria set forth in Branch Technical Position CSB 6-4 or the Staff Interim Position of October 23, 1979 must be sealed closed as defined in SRP 6.2.4, item II.3.f during operational conditions 1, 2, 3, and 4. Furthermore, these valves must be verified to be closed at least every 31 days.

(7) Containment purge and vent isolation valves must close on a high radiation signal.

In Reference 1, the staff noted that except for Positions 5, 6, and 7 of Item II.E.4.2, the review of the remaining outstanding positions of Item II.E.4.2 would be completed by review of containment purge and venting issues (subsequently designated as Multiplant Action B-24). Reference 1 also indicated that Position 5 was completed for Peach Bottom, Units 2 and 3.

With respect to Multiplant Action B-24, Reference 2 provided the status of the staff's review of containment purge and venting issues. Reference 2 identified that the following items needed to be addressed to complete the staff's review: (a) additional Technical Specification (TS) restrictions were needed on purge and vent operations; (b) staff review of plant specific aspects of purge and vent valve operability information was ongoing; (c) additional TS changes were needed with respect to containment isolation valves and purge and vent valves.

In Reference 3 and 4 the staff transmitted evaluations which resolved the containment purge and vent valve operability Item for Peach Bottom, Units 2 and 3. In Reference 5, the staff issued license amendments and an associated safety evaluation which addressed the remaining two items of TS restrictions on purge and vent operations and TS changes for the containment purge and vent isolation valves. Reference 5 identified the need for the licensee to complete modifications to connect the safety grade purge and vent valve seal air supply system to the Containment

Atmospheric Dilution System nitrogen storage tank and to request associated TS surveillance change requests. In Reference 6, the licensee indicated that the modifications to the safety grade seal air supply system were implemented and submitted proposed changes to TS surveillance requirements. The proposed TS changes will be reviewed by the staff as a separate licensing action.

The staff considers that the activities documented in References 3 through 6 provide closure of the open items identified for Multiplant Action B-24. As indicated above, Positions 1, 2, and 3 of Item II.E.4.2 were addressed as part of the closure of B-24 since both Item II.E.4.2 and B-24 involve recommendations of Standard Review Plan Section 6.2.4. Position 4 of Item II.E.4.2 was also closed as part of the resolution of B-24 as indicated in the safety evaluation transmitted in Reference 7.

Position 6 required that containment purge and vent isolation valves must either satisfy the operability criteria set forth in Branch Technical Position CSB 6-4 or the Staff Interim Position of October 23, 1979, or they must be sealed closed during operational conditions 1, 2, and 3. In Reference 2, the staff transmitted a safety evaluation which concluded that the containment purge and vent isolation valves meet the staff's Interim Position and, thus, Item II.E.4.2 Position 6 was satisfied for Peach Bottom Atomic Power Station, Units 2 and 3.

Position 7 required that containment purge and vent isolation valves close on a high radiation signal. By letter dated December 28, 1989, the licensee submitted a Technical Specification change request which reflected the addition of a high radiation isolation signal for purge and vent valves. The staff's evaluation of this proposed TS change follows.

3.0 EVALUATION

The licensee submitted a Technical Specifications change request to reflect a modification to the primary containment isolation system for both Units 2 and 3. The modification added a high-high radiation trip signal from the main stack radiation monitors to the control circuit of the containment vent and purge isolation valves. The modification was implemented to meet the requirement of Item II.E.4.2(7) of NUREG-0737, "Clarification of TMI Action Plan Requirements." The proposed TS changes included the addition of the main stack radiation monitoring trip function to a table of radiation monitoring systems, addition of associated surveillance requirements, and associated changes to the table of containment isolation valves and TS Bases pages.

The high-high radiation isolation signal from the main stack radiation monitors is redundant to the isolation signal derived from the reactor vessel low water level and high drywell pressure signals. The high-high radiation signal is activated only when valves AO 2506 and 2507 or valves 2511 and 2512 for Unit 2 (or the corresponding Unit 3 valves) are open and there is flow through the standby gas treatment system. Therefore, isolation will occur on receipt of a high-high radiation signal during purging operations, or containment venting during normal operations. The isolation signal provides for isolation of purge and vent valves on lines larger than two inches in diameter.

The staff has reviewed the licensee's submittal and the associated background information. The staff has determined that, in addition to the primary containment isolation signals from low reactor water level and high containment pressure conditions, the licensee is providing another means to detect and indicate an abnormal degradation of the reactor coolant pressure boundary by sensing the high radiation level in the main stack. The circuitry change to close the purge and vent valves on high radiation provides another level of assurance that the consequences of a loss-of-coolant accident will be mitigated. The monitors are not considered safety-related, but were provided to assure diverse isolation signals in the event of an accident. The proposed surveillance requirements provide assurance as to equipment operability and testability. The staff has concluded that the proposed license amendments will satisfy the staff requirements stated in Position 7 of NUREG-0737, Item II.E.4.2 on "Containment Isolation Dependability." The staff has determined that the balance of the changes in the licensee's proposed amendments are editorial in nature and are acceptable.

In a letter to the BWR Owners Group dated May 7, 1986 (Reference 8), the staff provided its position that lines of two inches in diameter or smaller need not be isolated on a radiation signal, provided that the licensee demonstrates on his docket that the BWROG generic evaluation is applicable to his plant. This demonstration should include an evaluation of the ability of the operators to assess and isolate leakages that would not cause other isolation signals. The BWROG generic evaluation had assumed a 30 minute operator action time to close the purge and vent valves. In Reference 9, the licensee provided its evaluation on this item. Remote manual switches for the two inch, and smaller, purge and vent isolation valve operators are located in the control room to assure accessibility to the operator. Instrumentation available to determine the need for manual closure of the purge and vent lines includes instrumentation which would detect small leaks inside the primary containment as well as increases in radioactive effluent. This instrumentation includes the main stack effluent radiation monitors, the vent stack exhaust radiation monitors for each unit, containment high range area radiation monitors, and drywell pressure monitors. These monitors alarm in the control room and serve to provide the operators with indications that an abnormal condition exists inside the containment. Since the operator will have taken conscious actions to open these valves, receipt of any of these alarms will provide indication of the need to isolate these valves.

Furthermore, operator training and licensee emergency operating procedures provide for operator actions in situations which may require manual containment isolation. Based on our review, the staff concludes that the operator has enough time due to available instrumentation, plant procedures and operator training to isolate the two inch and smaller purge and vent valves within 30 minutes of accident initiation in the event that other isolation signals (containment pressure and reactor water level) fail to cause automatic isolation of the valves.

Based on our review of the licensee's submittal, we conclude that the proposed TS changes to ensure the capability of the main stack radiation monitor signal circuitry to isolate containment purge and vent valves located on lines that are larger that two inches in diameter, and the revisions to the affected TS pages, are acceptable and meet the requirements of NUREG-0737, Item II.E.4.2(7).

4.0 ENVIRONMENTAL CONSIDERATIONS

These amendments involve a change to 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 and changes to the surveillance requirements. The 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. 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 nor environmental assessment need be prepared in connection with the issuance of the amendments.

5.0 CONCLUSION

The Commission made a proposed determination that the amendments involve no significant hazards consideration which was published in the Federal Register (55 FR 18412) on May 2, 1990 and consulted with the Commonwealth of Pennsylvania. No public comments were received and the Commonwealth of Pennsylvania did not have any comments.

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

Dated: September 7, 1990

Principal Contributor: G. Y. Suh

REFERENCES

1. Letter from J. Stolz, NRC, to E. Bauer, Jr, Philadelphia Electric Company, "Status of Containment Purge and Venting and Completion of NUREG-0737 Item II.E.4.2," dated July 7, 1982.

2. Letter from J. Stolz, NRC, to E. Bauer, Jr., Philadelphia Electric Company, "Status of the Review of Containment Purge and Venting (Multiplant Action B-24) and NUREG-0737, Item II.E.4.2," dated December 12, 1983.

3. Letter from J. Stolz, NRC, to E. Bauer, Jr., Philadelphia Electric Company, "Containment Isolation Dependability by Demonstration of Containment Purge and Vent Valve Operability," dated February 20, 1985.

4. Letter from J. Stolz, NRC, to E. Bauer, Jr., Philadelphia Electric Company, "Containment Purge and Vent," dated October 24, 1985.

5. Letter from R. Martin, NRC, to G. Hunger, Jr., Philadelphia Electric Company, "Technical Specifications for Containment Purge and Venting," dated May 8, 1989.

6. Letter from G. Hunger, Jr., Philadelphia Electric Company, to NRC, "Technical Specifications Change Request," dated November 22, 1989.

7. Letter from J. Stolz, NRC, to E. Bauer, Jr., Philadelphia Electric Company, dated August 21, 1981.

8. Letter from R. Bernero, NRC, to J. Fulton, BWR Owners Group, dated May 7, 1986.

9. Letter from J. Gallagher, Philadelphia Electric Company, to W. Butler, NRC, dated April 28, 1987.