


PECO ENERGY

PECO Energy Company
Nuclear Group Headquarters
965 Chesterbrook Boulevard
Wayne, PA 19087-5691

November 17, 1994

Docket Nos. 50-277
50-278
License Nos. DPR-44
DPR-56

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555

SUBJECT: Peach Bottom Atomic Power Station, Units 2 and 3
Facility Operating License Change Request

Dear Sir:

PECO Energy Company hereby submits License Change Request (LCR) 93-13, in accordance with 10 CFR 50.90, requesting changes to Appendix A of the Peach Bottom Atomic Power Station (PBAPS) Facility Operating Licenses.

The proposed changes to the Technical Specifications (TS) are being requested to support modifications 5384 and 5386, which upgrade the Main Stack and Vent Stack Radiation Monitoring Systems.

Attachment 1 to this letter describes the proposed changes, and Attachment 2 contains the revised TS pages.

Please note, during the installation of modifications 5384 and 5386, we anticipate not having the minimum number of instrument channels operable as indicated in Table 3.2.F, for the Main Stack and the Vent Stack Radiation Monitors. Therefore, we will submit a Special Report to the NRC, per Note 7b) for Table 3.2.F, outlining our schedule for restoring the systems to operable status.

If you have any questions concerning this submittal, please contact us.

Sincerely,

G. A. Hunger, Jr.

G. A. Hunger, Jr.
Director - Licensing

Enclosures: Affidavit, Attachments

cc: T. T. Martin, Administrator, Region I, USNRC
W. L. Schmidt, Senior Resident Inspector, PBAPS, USNRC
R. R. Janati, Commonwealth of Pennsylvania

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COMMONWEALTH OF PENNSYLVANIA

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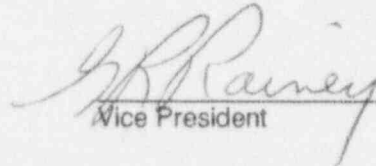
: ss.

COUNTY OF YORK

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G. R. Rainey, being first duly sworn, deposes and says:

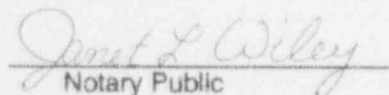
That he is Vice President of PECO Energy Company; the applicant herein; that he has read the attached License Change Request (LCR) 93-13 for changes to the Peach Bottom Facility Operating Licenses DPR-44 and DPR-56, and knows the contents thereof; and that the statements and matters set forth therein are true and correct to the best of his knowledge, information and belief.

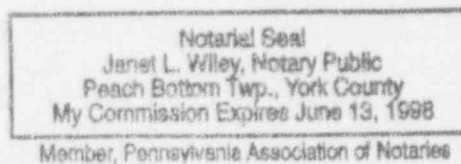

Vice President

Subscribed and sworn to

before me this 16th day

of November 1994.


Notary Public



ATTACHMENT 1

PEACH BOTTOM ATOMIC POWER STATION
UNITS 2 AND 3

Docket Nos. 50-277
50-278

License Nos. DPR-44
DPR-56

Facility Operating License Change Request
93-13

"Main Stack and Vent Stack
Radiation Monitoring System Upgrades"

Supporting Information for Changes

PECO Energy Company (PECO Energy), Licensee under Facility Operating Licenses DPR-44 and DPR-56 for the Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3 respectively, requests that the Technical Specifications (TS) contained in Appendix A to the Operating Licenses be amended. Handwritten proposed changes to the Technical Specifications are contained in Attachment 2, and listed here: 59, 75, 77a, 84, 86a, 93, 97, 210, 211, 212, 213, and 216c-1.

The proposed changes affect the Main Stack and Vent Stack Radiation Monitoring sections of the TS and are necessary to support modifications 5384 and 5386. Modifications 5384 and 5386 upgrade the obsolete Vent Stack and Main Stack Radiation Monitoring Systems with new microprocessor based systems.

PECO Energy requests that the proposed changes be approved by the NRC as soon as possible in order to support the modifications. The approved changes will be implemented upon completion of the modifications.

DESCRIPTION OF CHANGES

Licensee proposes the following changes:

- 1) Section 3/4.2.D, page 59
 - (a) Insert proposed Limiting Conditions for Operation 3.2.D.3., "Main Stack Noble Gas Monitors," which states:

"The limiting conditions for operation are given in Table 3.2.D."
 - (b) Insert proposed Surveillance Requirements 4.2.D.3., "Main Stack Noble Gas Monitors," which states:

"Instrumentation shall be functionally tested, calibrated and checked as indicated in Table 4.2.D."
- 2) Table 3.2.D, "Radiation Monitoring Systems That Initiate And/Or Isolate Systems," page 75
 - (a) Revise the "Trip Function" column for the "Reactor Building Exhaust Monitors," to read:

"Vent Stack Noble Gas Monitors"
 - (b) Revise the "Trip Function" column for the "Main Stack Monitor," to read:

"Main Stack Noble Gas Monitors"
 - (c) Revise the "Trip Level Setting" column for the "Main Stack Monitor," to read:

"Upscale, $\leq 1.0 \times 10^{-1} \mu\text{Ci/cc}$ "
- 3) Table 3.2.F, "Surveillance Instrumentation," page 77a
 - (a) Revise Item 10, "Parameter" column to read:

"Main Stack Wide Range Gas Radiation Monitor"

- (b) Revise Item 16, "Instrument" column to read:
"RR-0-17-051B"
 - (c) Revise Item 16, "Type Indication and Range" column to read:
"Recorder"
" 1.0×10^{-7} to $1.0 \times 10^5 \mu\text{Ci/cc}$ "
 - (d) Revise Item 17, "Parameter" column to read:
"Vent Stack Wide Range Gas Radiation Monitor"
 - (e) Revise Item 17, "Instrument" column to read:
"RR-2979B" (for Unit 2 TS page only)
"RR-3979B" (for Unit 3 TS page only)
 - (f) Revise Item 17, "Type Indication and Range" column to read:
"Recorder"
" 1.0×10^{-7} to $1.0 \times 10^5 \mu\text{Ci/cc}$ "
- 4) Table 4.2.D, "Minimum Test & Calibration Frequency For Radiation Monitoring Systems," page 84
- (a) Revise Item 3, "Instrument Channels" column to read:
"Main Stack Noble Gas Monitors"
 - (b) Revise Item 3, "Calibration" column to read:
"Once/18 months as described in 4.8.C.4.a"
- 5) Table 4.2.F, "Minimum Test And Calibration Frequency For Surveillance Instrumentation," page 86a
- (a) Revise Item 19, "Instrument Channel" column to read:
"Main Stack Wide Range Gas Radiation Monitor"
 - (b) Revise Item 19, "Instrument Check" column to read:
"Once/Day"
 - (c) Revise Item 20, "Instrument Channel" column to read:
"Vent Stack Wide Range Gas Radiation Monitor"

- (d) Revise Item 20, "Instrument Check" column to read:
"Once/Day"
- 6) Section 3.2, Bases, page 93
 - (a) Revise Item 4, to read:
"Main stack wide range gas radiation monitor (II.F.1.1)"
 - (b) Revise Item 5, to read:
"Vent stack wide range gas radiation monitor (II.F.1.1)"
- 7) Section 4.2, Bases, page 97
Revise the last sentence of the second paragraph to read:
"The calibration interval is as described in Section 4.2.D"
- 8) Sections 3/4.8.C.4, page 210
 - (a) Revise Section 3.8.C.4a, "Limiting Conditions For Operation," to read:
"The main stack minimum dilution flow of 10,000 cfm shall be maintained."
 - (b) Revise Section 3.8.C.4b, "Limiting Conditions For Operation," to read:
"One vent stack monitor..."
 - (c) Revise Section 4.3.C.4a, "Surveillance Requirements," to read:
"The vent stack and main stack noble gas radiation monitors shall be calibrated every 18 months with a known radioactive source positioned in a reproducible geometry with respect to the sensor, and every quarter by means of a functional test. The channel functional test..."
- 9) Section 3/4.8.C.4, page 211
 - (a) Revise Section 3.8.C.4b, "Limiting Conditions For Operation," to read:
"...ODCM. From and after the date that both vent stack monitors or both main stack...calculations."
 - (b) Revise Section 3.8.C.4c, "Limiting Conditions For Operation," to read:
 - (i) "One vent stack iodine filter and one main stack iodine filter and one vent stack particulate filter and one...operable."

- (ii) "...or all particulate filters for either the vent stack monitor or the main stack..."
 - (c) Revise Section 4.8.C.4b, "Surveillance Requirements," to read:

"The vent stack and the main stack flow rate monitors shall be calibrated every 18 months. Additionally, an instrument check shall be performed every day."
 - (d) Revise Section 4.8.C.4c, "Surveillance Requirements," to read:

"The vent stack and the main stack iodine and particulate sample flow rate monitors shall be calibrated every 18 months."
 - (e) Delete Section 4.8.C.4d, "Surveillance Requirements," in its entirety.
- 10) Section 3.8.C.4, page 212
- (a) Revise Section 3.8.C.4d, "Limiting Conditions For Operation," to read:
 - (i) "One vent stack flow rate monitor and one main stack flow rate...in the ODCM."
 - (ii) "From and after the date that both vent stack flow rate monitors or both main stack...per 4 hours."
- 11) Section 3.8.C.5, page 213
- Revise Section 3.8.C.5c, Limiting Conditions For Operation," to read:
- "Reactor...and the vent stack, with the exception of the following unmonitored exhausts..."
- 12) Table 4.8.2, "Radioactive Gaseous Waste Sampling And Analysis From Main Off-Gas Stack and Reactor Building Vent Exhaust Stack," page 216c-1
- (a) Revise Table 4.8.2 title to read:

"Radioactive Gaseous Waste Sampling And Analysis From Main Stack And Vent Stack"
 - (b) Revise the "Sample Lower Limit of Detection (LLD) (1)(4)," column for the "Noble Gas Monitor (Main Stack)," to read:

" $1 \times 10^{-6} \mu\text{Ci/cc}$ "

SAFETY DISCUSSION

The above change requests support PBAPS modifications 5384 and 5386 which were initiated to replace and upgrade the Main Stack and Vent Stack Radiation Monitoring Systems.

Change Request 1: (TS page 59) This change is being proposed to include the Main Stack Noble Gas Monitors in Sections 3.2.D and 4.2.D. This change will associate the monitors with Table 3.2.D, and is considered to be administrative in nature, therefore, it has no negative impact on safety.

Change Request 2: (TS page 75) Currently, the Trip Level Setting for the Main Stack monitor is expressed in counts per seconds (CPS). As a result of modification 5386, the Trip Level Setting for the Main Stack monitor will be expressed in $\mu\text{Ci/cc}$. The new setpoint value of $1.0 \times 10^{-1} \mu\text{Ci/cc}$ is based on the upscale value of the current low range noble gas radiation detector and is considered to be conservative when compared to the current setpoint value of 10^6 CPS. The engineering unit change from CPS to $\mu\text{Ci/cc}$ is justified because it is a more direct method for determining the level of radiation. The changes associated with the system description provide clarity when interpreting TS. Therefore, because these changes provide clarity and aid the operators in determining actual radiation, they are considered to be enhancements to safety.

Change Request 3: (TS page 77a) The parameter names and instrument numbers for Items 16 and 17 are being changed to accurately describe the new radiation monitoring systems.

The current units of measure of the recorders in Items 16 and 17 is CPS and CPM, respectively. These units of measure will be converted to $\mu\text{Ci/cc}$ as a result of the modifications. The unit of $\mu\text{Ci/cc}$ is a physical measurement of an amount of radioactivity, whereas CPS and CPM are a response of a particular detector to a particular isotope.

The new proposed ranges of 1×10^{-7} to $1 \times 10^5 \mu\text{Ci/cc}$ for Items 16 and 17 will cover a range greater than the current ranges of 10^5 to 10^{11} CPS and 10^7 to 10^{13} CPM, respectively. These range changes are justified because they represent a direct method for determining the level of radiation at the Main Stack and Vent Stack and, therefore, they will aid the operators in readily assessing the level of Main Stack and Vent Stack radiation. Because these changes provide clarifications and benefit operations, they are considered to be enhancements to safety.

Change Request 4: (TS page 84) The proposed change in calibration frequency from 12 to 18 months for the Main Stack Noble Gas Monitor is based on vendor information and operating experience with instrumentation of similar design. The changes to the Instrument Channels description accurately describes the new radiation monitoring system. These changes have no negative impact on safety.

Change Request 5: (TS page 86a) The proposed changes revise the "Instrument Channel" description for Items 19 and 20 to accurately describe the new radiation monitoring systems. Also, the surveillance frequency is being revised from once/month to once/day. This change is consistent with other Instrument Check surveillance frequencies. The changes associated with the description of the Instrument Channel labeling are considered to be administrative and the change to the Instrument Check frequency is considered to be an enhancement to safety.

Change Request 6: (TS page 93) These proposed changes accurately describe the new radiation monitoring systems. They are administrative in nature and have no negative impact on safety.

Change Request 7: (TS page 97) This change deletes the reference to the old system's calibration interval and replaces it with wording that is consistent with other proposed changes. This change is considered to be administrative and, therefore, has no impact on safety.

Change Request 8: (TS page 210) This change proposes to revise the calibration frequency of 12 months for the old system to 18 months for the new systems. Revision of the calibration frequency is based on vendor information and experience with instrumentation of similar design. Changes associated with the systems description are intended to accurately describe the new radiation monitoring systems. These changes have no negative impact on safety.

Change Request 9: (TS page 211) This change request deletes reference to the sample flow line rate monitors and pressure switches, which are being removed as part of the modification. The function of the sample flow line rate monitors and pressure switches has been incorporated into the sample flow rate portion of the new radiation monitors. The change to revise the calibration frequency of 12 months for the old system to 18 months for the new systems is based on vendor information and experience with instrumentation of similar design. The changes associated with the system description are intended to accurately describe the new radiation monitoring system. These changes have no negative impact on safety.

Change Request 10: (TS page 212) These proposed changes accurately describe the new radiation monitoring systems. They are administrative in nature and have no negative impact on safety.

Change Request 11: (TS page 213) These proposed changes accurately describe the new radiation monitoring systems. They are administrative in nature and have no negative impact on safety.

Change Request 12: (TS page 216c-1) This change revises the sample lower limit of detection (LLD) for the Main Stack Noble Gas Monitor from $1 \times 10^{-3} \mu\text{Ci/cc}$ to $1 \times 10^{-6} \mu\text{Ci/cc}$. This change is consistent with the value stated for the Roof Vents Noble Gas Monitor and the value specified in NUREG 0473. This change is considered to be an enhancement to safety.

Modification 5384

Modification 5384 replaces the existing Vent Stack High Range Radiation Monitor with a microprocessor based state-of-art system.

The existing system consists of two low range noble gas monitors and one high range monitor. The new system will consist of a wide range gas monitor (WRGM) and a normal range fixed filter particulate, iodine, and gas (PIG) monitor per unit. The existing isokinetic probes and sampling lines for each unit will be replaced with new probe assemblies. The new probe assemblies will consist of two isokinetic sample probes and flow sensing devices. Two new sample lines, one for WRGM and one for PIG will be connected to their respective probe assembly.

Related existing control room instrumentation (rate-meters and recorder) will be replaced with state-of-art instrumentation. For each unit, the WRGM will have an extended range covering low, mid, and high range of radiation, and the PIG will have a normal radiation range. Two new recorders will be provided in the control room replacing the existing single one. One recorder will monitor the low, mid, and high radiation ranges from the WRGM, and the other recorder will monitor the normal noble gas radiation range from the PIG. The recorders' indication will be $\mu\text{Ci/cc}$.

The system will also incorporate the stack flow monitors at the sampling point to allow for automatic computation of the effluent release rate through the Vent Stack.

The new microprocessor based system uses a menu driven display. The system contains safeguards to prevent inadvertent changes to the software and system parameters. The new system exhibits the same system failures as the existing system (i.e., loss of sample flow, pump failure, radiation monitor failure, etc.).

The new system will be located in an acceptable electromagnetic and radio-frequency (EMI/RFI) environment. It will be evaluated for EMI using the susceptibility and emissions guidelines of EPRI Report TR-102323, "Electromagnetic Interference Testing of Digital Safety Systems." The new equipment will be manufactured under the vendor's Quality Assurance Program. The vendor utilizes methods and techniques endorsed by ANSI/IEEE-ANS 7.4.3.2 (1982), and ANS 10.4 (1987), for validation and verification of the radiation monitoring software. The accuracy of the radiation monitoring system for indication and alarm functions has not been degraded by replacing the existing analog system with a new microprocessor based system. The response time of the new system is adequate for performing its intended function.

Modification 5386

Modification 5386 replaces the existing Main Stack Radiation Monitor with a microprocessor based state-of-art system.

The existing system consists of two low range noble gas monitors and one high range monitor. A single isokinetic probe is used to draw a sample for all three monitors. One three-pen recorder is used to record the main stack gas radiation as indicated by the three monitors.

The new system will consist of a wide range gas monitor (WRGM) and a normal range fixed filter particulate, iodine, and gas (PIG) monitor. The WRGM will have four channels. The low, mid, and high range channels will provide radiation indication in $\mu\text{Ci/cc}$. The fourth channel will provide indication of effluent release through the main stack in $\mu\text{Ci/sec}$. The PIG monitor will also have four channels. The particulate, iodine, and noble gas channels will provide radiation indication in $\mu\text{Ci/cc}$. The fourth channel will provide indication of gaseous effluent release through the main stack in $\mu\text{Ci/sec}$. The low, mid, and high range channels of the WRGM will have overlapping ranges and be suitable to monitor stack radiation during normal full power operation as well as accident conditions.

The existing isokinetic probe will be replaced with a single probe assembly consisting of two isokinetic probes, one for WRGM and one for PIG, and two flow sensing devices. Two new sample lines will be installed, one for the WRGM and one for the PIG, replacing the existing sample line.

Existing control room instrumentation (rate-meters and recorder) related to the main stack radiation monitoring system will be replaced with state-of-the-art instrumentation. The WRGM will have an extended range covering low, mid, and high range of radiation, and the PIG will have normal radiation range. Two new recorders will be provided in the control room replacing the existing recorder. One recorder will monitor the low, mid, and high radiation ranges from WRGM, and the other recorder will monitor the normal noble gas radiation range from PIG. In addition, the system will incorporate the stack flow monitors at the sampling point to allow automatic computation of effluent release rate through the main stack.

The new system contains safeguards to prevent inadvertent changes to the software and system parameters. The new system exhibits the same system failures as the existing analog system (i.e., loss of sample flow, pump failure, radiation monitor failure, etc.).

The probability of a malfunction of the new radiation monitoring equipment will be minimized by locating it in an environment that is within the acceptable environmental limits of the equipment.

The new Main Stack Radiation Monitor System will be evaluated for EMI to assure conformance with the susceptibility and emissions guidelines of EPRI Report TR-102323, Electromagnetic Interference Testing of Digital Safety Systems." The equipment will be manufactured under the Vendor's Quality Assurance Program. The vendor utilizes methods and techniques endorsed by ANSI/IEEE-ANS 7.4.3.2 (1982) and ANS 10.4 (1987) for validation and verification of their software.

The Main Stack Radiation Monitoring System provides a trip signal to Group III isolation valves on high-high radiation during purging of the containment through the Standby Gas Treatment System (SBGTS).

The response time of the new microprocessor based system is adequate for performing its intended function. The new main stack monitoring system will meet or exceed the objectives and the performance requirements of the existing system.

No Significant Hazards Consideration

Licensee proposes that this application does not involve significant hazards consideration for the following reasons:

- i) The proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

Neither the Main Stack nor the Vent Stack Radiation Monitoring Systems serves as an initiator or contributor to any accidents previously evaluated. The systems provide indication and detection of radioactivity and effluent release in the main and vent stacks. The new systems perform the same function as the old, and have equal or better performance characteristics. Installation and operation of the new radiation monitoring systems do not degrade any active or passive equipment that responds to an accident.

The proposed increase in the surveillance test interval of the subject radiation monitoring systems from 12 to 18 months is consistent with vendor recommendations, and is based on operating experience with instrumentation of a similar design.

Therefore, the proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

- ii) The proposed changes do not create the possibility of a new or different kind of accident from any previously evaluated.

Both modifications replace obsolete radiation monitoring equipment and have the same failure modes as the existing equipment. The upgraded systems are considered enhancements to the existing systems and are considered neither a contributor nor initiator of any accidents previously evaluated.

Based on the above, the proposed changes do not create the possibility of a new or different kind of accident from any previously evaluated.

iii) The proposed changes do not involve a significant reduction in a margin of safety.

Neither the accuracy nor the responsiveness of the existing radiation monitoring equipment will be degraded as a result of the installation of modifications 5384 and 5386. Revisions to the calibration and surveillance frequencies are based on vendor information and experience with instrumentation of similar design. The changes associated with setpoints and the lower limit of detection are in the conservative direction. The upgraded main stack system continues to provide a non-safety related trip signal to Group III isolation valves during purging of the containment through the SBGTS. The revisions to parameter descriptions and instrument designation are considered administrative.

Therefore, based on the above, the proposed changes do not involve a significant reduction in a margin of safety.

Environmental Impact Assessment

An environmental impact assessment is not required for the changes proposed by this application because the changes conform to the criteria for "actions eligible for categorical exclusion" as specified in 10 CFR 50.22(c)(9).

The proposed changes support modifications 5384 and 5386, which upgrade the existing main stack and vent stack radiation monitoring systems.

The Application involves no significant change in the types or significant increase in the amounts of any effluent that may be released offsite, and there will be no significant increase in individual or cumulative occupational radiation exposure.

Conclusion

The Plant Operations Review Committee and the Nuclear Review Board have reviewed these proposed changes and have concluded that they do not involve an unreviewed safety question and that they are not a threat to the health and safety of the public.