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February 25, 1993

NUCLEAR SERVICES DEPARTMENT

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  
Technical Specifications Change Request

Dear Sir:

Philadelphia Electric Company (PECo) hereby submits Technical Specifications Change Request (TSCR) No. 92-13 in accordance with 10 CFR 50.90, requesting a change to Appendix A of the Peach Bottom Facility Operating Licenses. These changes are being proposed to support the implementation of proposed modification 5274 which is intended to replace the PBAPS, Unit 3 Containment Atmospheric Dilution (CAD) System and Containment Atmospheric Control (CAC) System analyzers.

Attachment 1 to this letter describes the proposed changes, and provides justification for the changes. Attachment 2 contains the revised Technical Specification pages.

If you have any questions concerning this matter, please do not hesitate to contact us.

Very truly yours,



G. J. Beck, Manager  
Licensing Section

080082

Enclosures: Affidavit, Attachment 1, Attachment 2

cc: T. T. Martin, Administrator, Region I, USNRC  
J. J. Lyash, USNRC Senior Resident Inspector, PBAPS  
W. P. Dornisfe, Commonwealth of Pennsylvania

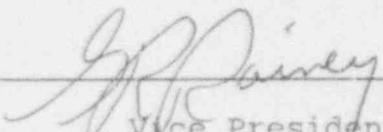
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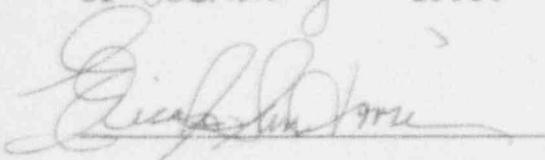
COMMONWEALTH OF PENNSYLVANIA :  
: SS.  
COUNTY OF CHESTER :

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

That he is Vice President of Philadelphia Electric Company;  
the Applicant herein; that he has read the attached Technical  
Specifications Change Request (Number 92-13) for 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 <sup>25th</sup> day  
of February 1993.

  
Notary Public

Notarial Seal  
Erica A. Santon, Notary Public  
Tredyffrin Twp., Chester County  
My Commission Expires July 10, 1995

Attachment 1

PEACH BOTTOM ATOMIC POWER STATION  
UNITS 2 AND 3

Docket Nos. 50-277  
50-278

License Nos. DPR-44  
DPR-56

TECHNICAL SPECIFICATION CHANGE REQUEST  
No. 92-13

"Containment Atmospheric Dilution (CAD)  
System/Containment Atmospheric Control (CAC)  
System Analyzer Replacement"

Supporting Information for Changes: 8 Pages

## Introduction

Philadelphia Electric Company, Licensee under Facility Operating Licenses DPR-44 and DPR-56 for 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. This amendment is necessary to reflect the replacement and redesign of the analyzers and supporting components (herein defined as the containment monitoring system) utilized to monitor hydrogen and oxygen in support of the PBAPS, Unit 3 Containment Atmosphere Dilution (CAD) System and Containment Atmospheric Control (CAC) System. Proposed changes to the Technical Specifications are shown in Attachment 2 for PBAPS, Units 2 and 3. The proposed change pages are: Unit 2 - page 172, and; Unit 3 - pages 77a, 172, 173, and 194.

The proposed changes are requested to become effective following the restart from the PBAPS, Unit 3 refueling outage currently scheduled to begin in September, 1993.

## Discussion

It is the intent of Modification 5274 to replace the existing CAC System oxygen analyzer and the 4 CAD System hydrogen/oxygen analyzers with a reconfigured containment monitoring system composed of 2 new analyzers. The current arrangement of 5 analyzers was installed as a part of the original licensing of the plant. The 2 new containment monitoring system analyzers will be independent and perform redundant functions. In addition, Modification 5274 replaces the existing four CAD analyzer recorders located in the control room with two new recorders.

Associated with this modification is the reconfiguring of the process piping and electrical wiring and components necessary to support the operation of the 2 new analyzers.

Therefore, revisions are necessary to TS Limiting Conditions for Operation (LCO) 3.7.A.6 (Units 2 and 3), Surveillance Requirement 4.7.A.6 (Unit 3), Table 3.2.F (Unit 3) and the associated Bases Section 3.7.A and 4.7.A (Unit 3).

## Description of the Proposed Changes

1. TS LCO 3.7.A.6.c for PBAPS, Unit 3 currently states that there shall be "at least one CAD system oxygen analyzer serving the drywell and one CAD system oxygen analyzer serving the suppression chamber on that reactor. If this specification cannot be met, the unit shall be in Hot Shutdown within 12 hours." Licensee proposes to delete these words for the PBAPS, Unit 3 TS and replace them with operability requirements for the two new analyzers. These operability requirements are based on the operability of the analyzer and the operability of the process lines that connect to the

analyzers. The shutdown requirements are based on the guidance provided by the model Technical Specifications provided in Generic Letter 83-36, "NUREG-0737 Technical Specifications", dated November 1, 1983.

2. In the case of LCO 3.7.A.6.c for PBAPS, Unit 2, reference will be deleted to the reference to "either of the reactors" since the design of Unit 3 is being altered.
3. A new TS LCO 3.7.A.6.d will be added to the PBAPS, Unit 3 TS to provide a convenient cross reference to Tables 3.2.F and 4.2.F for the hydrogen requirements.
4. The current Unit 3 TS LCO 3.7.A.6.d will be renumbered to 3.7.A.6.e.
5. The current Unit 3 SR 4.7.A.6.c states that "the CAD system oxygen analyzers shall be tested for operability using standard bottled oxygen once per month and shall be calibrated once per 6 months." The reference to the operability test using "standard bottled oxygen" is being deleted and replaced with updated terminology which refers to the analyzers being channel checked. Additionally, the calibration frequency is being reduced from once per 6 months to once per 3 months which conforms with the vendor recommended calibration frequency for oxygen sensors and is consistent with the calibration frequency for the hydrogen sensors (e.g., once per 3 months) provided in Generic Letter 83-36.
6. The current Unit 3 SR 4.7.A.6.c requires an increased frequency in operability testing if one of the two dedicated CAD oxygen analyzers serving either the drywell or the torus becomes inoperable. Additionally, this SR does not have a time limit for return to service of the inoperable CAD oxygen analyzer. This increased frequency in operability testing is being replaced with LCO 3.7.A.6.c. LCO 3.7.A.6.c provides a operability limit that will not exceed 7 days with inoperable channels.
7. Table 3.2.F ("Surveillance Instrumentation") contains the instrument numbers and range for the drywell hydrogen concentration analyzer and monitor. Due to the replacement of the analyzers and monitors, the instrument numbers will be revised. The range will also be revised to reflect the range provided by the new analyzers.

### Safety Assessment

As discussed in the PBAPS UFSAR, the Containment Atmospheric Control (CAC) System oxygen analyzer supports the operation of CAC System in two functions. First, the CAC System oxygen analyzer monitors the content of oxygen in the primary containment to ensure that during each startup the primary containment is purged of air with pure nitrogen until the atmosphere contains less than 4 percent oxygen. Second, the CAC System oxygen analyzer continuously monitors the primary containment for oxygen.

As also discussed in the PBAPS UFSAR, the four (4) Containment Atmospheric Dilution (CAD) System hydrogen/oxygen analyzers support the operation of the CAD System by ensuring that following a Loss of Coolant Accident (LOCA), the primary containment is monitored to maintain the concentration of hydrogen and oxygen. Following a LOCA, the CAD System is used instead of the normal nitrogen inerting system to maintain the oxygen concentration within the containment at or less than 5 percent.

The Safety Design Bases of the CAC and CAD System as discussed in the PBAPS UFSAR will not be altered as a result of Modification 5274 which incorporates a new design for the containment monitoring system that consists of 2 new hydrogen/oxygen analyzers, associated piping and circuitry and two new recorders.

The two new hydrogen/oxygen analyzers were manufactured by the Whittaker Corporation. These units are designed as Class 1E equipment and are environmentally qualified for 1E safety related service in accordance with IEEE 323-1974 ("IEEE Standard for Qualifying Class 1E Equipment for Nuclear Power Generating Stations") and Regulatory Guide 1.89 ("Environmental Qualification of Certain Electrical Equipment Important to Safety for Nuclear Power Plants"), and are seismically qualified in accordance with IEEE Standard 344-1975 ("IEEE Recommended Practices for Seismic Qualification of Class 1E Equipment for Nuclear Generating Stations").

The existing CAD and CAC sampling points in the drywell and torus, and the associated process lines up to and including the two primary containment isolation valves that are utilized by the hydrogen/oxygen analyzers to withdrawal samples will not be altered as a result of this modification.

Independence between the CAC and CAD System process lines will be maintained. As identified in the revised Technical Specification (TS) Limiting Condition for Operation (LCO) 3.7.A.6, provisions have been established to define the operability of the analyzers through the use of functional channels, which in the case of the

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

CAC and CAD System, represents process lines that connect to sampling points in the drywell and torus.

The replacement containment monitoring system design contains sufficient redundancy to ensure its reliability. A single failure in either analyzer or its associated hardware and circuitry would render only that portion of the system unavailable with the redundant analyzer and its associated hardware and circuitry fully capable of performing the required function of monitoring oxygen and hydrogen.

During normal operation, one analyzer can be in operation with the redundant unit in standby. In the post-LOCA condition, one analyzer will monitor the drywell and one analyzer will monitor the torus.

In the unlikely event that one of the analyzers or its associated components would be rendered inoperable such that the analyzer could no longer provide the capability to monitor hydrogen or oxygen in the post-LOCA condition, the operator can reestablish the monitoring function of both the drywell and torus with one analyzer through the use of a keypad on the analyzer remote control unit in the Control Room.

To operate the system in the post-LOCA condition, two operator actions are necessary. The operator must open the two containment isolation valves to each analyzer and restart/start the analyzers. This number of operator actions is not anticipated to reduce the margin of safety considering that the analyzers would not be needed for a time period of one day following a LOCA. As discussed in the PBAPS UFSAR, the earliest time for nitrogen addition to begin is approximately one day.

With the current analyzers, warmup time following startup of the analyzers is approximately 2 hours. With the new analyzers, warmup time is approximately 15 minutes which will enhance the availability and usefulness of the analyzers to monitor post-LOCA hydrogen and oxygen.

The Technical Specifications for hydrogen are being revised to reflect the enhanced monitoring range of the two new analyzers. Currently, Technical Specification Table 3.2.F identifies that the range of hydrogen monitored is 0-20% volume. This range will be increased to 0-30% volume. This range is in accordance with Regulatory Guide 1.97 ("Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident").

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

In the case of oxygen, the monitoring range will remain the same. The monitoring function provides a dual range of 0-10% and 0-30% volume. These ranges are also in accordance with Regulatory Guide 1.97.

These ranges will ensure the operators ability to assess the concentration of hydrogen and oxygen in the containment.

The analyzers are tested once per month to verify the operability of the hydrogen and oxygen sensor instrumentation within the analyzer. The method of testing and the frequency will not change. Additionally, the analyzers will be calibrated once per 3 months instead of the current 6 months which conforms to the surveillance frequency supplied in Generic Letter 83-36 for drywell hydrogen analyzers.

This system is designed to operate under post-LOCA conditions and has been provided with appropriate boundaries that ensure the leak tight integrity of the system. As stated previously, the existing primary containment isolation valves will not be altered as a result of this modification. The process tubing internal to the analyzers is designed with redundant valves at the interface with the non-safety related CAC process lines and at the interface with the non-safety related radioactive gas sampler. Leak testing of the analyzers and their associated process piping will be performed as a part of the 10 CFR 50, Appendix J Type A leak test. All tubing, fitting, and valves associated with the analyzers is designed, fabricated, inspected, and tested in accordance with ANSI B31.1-1973 Edition with addenda through Summer 1973.

The system design complies with the PECO fire protection program and the requirements for Class 1E circuit separation criteria.

The instrumentation for this design has been upgraded such that the new design meets the requirements of Regulatory Guide 1.97.

The containment monitoring system is capable of operating continuously for a minimum for 101 days following a LOCA in accordance with ANSI/ANS-4.5-1980 ("Criteria for Accident Monitoring Functions in Light-Water-Cooled Reactors").

Information Supporting a Finding of  
No Significant Hazards Consideration

We have concluded that the proposed changes to the PBAPS, Units 2 and 3 TS do not constitute a significant hazards consideration. In support of this determination, an evaluation of each of the three (3) standards set forth in 10CFR50.92 is provided below.

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

The design function and operation of the CAD and CAC systems which are supported by the operation of the containment monitoring system has not been altered as a result of these changes. The CAC system monitors the content of oxygen during startup and normal operation and the CAD system is utilized to monitor the content of hydrogen and oxygen during post-LOCA operation. The monitoring of these variables will continue to mitigate the consequences of accidents previously evaluated. Additionally, no accident precursors will be impacted by these changes.

The new system meets or exceeds the design standards of the original system. Additionally, the decrease in warmup time will increase the availability and usefulness of the analyzers to mitigate the consequences of an accident. Therefore, the proposed changes will not involve a significant increase in the probability or consequences of an accident previously.

- (2) Create the possibility of a new or different type of accident from any accident previously evaluated; or,

The proposed TS change does not involve the introduction of any new accident initiators. The new containment monitoring system will enhance the ability of CAD system to mitigate the consequences of an accident and prevent the introduction of a new or different type of accident previously evaluated. The new system meets or exceeds existing design standards and will be tested to ensure its reliability thus ensuring that no new accidents initiators will be introduced. Therefore, the proposed changes will not create the possibility of a new or different type of accident from any accident previously evaluated.

- (3) Involve a significant reduction in a margin of safety.

Although the number of analyzers is being reduced, the proposed modification and TS changes will enhance the ability of the containment monitoring system to support the operation of the CAC and CAD systems though the use of improved equipment that meets or exceeds the design standards of the original system. Therefore, the proposed changes will not reduce the margin of safety.

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

### Information Supporting An Environmental Assessment

An environmental impact assessment is not required for the changes proposed by this Change Request because the changes conform to the criteria for "actions eligible for categorical exclusion" as specified in 10 CFR 51.22 (c)(9). The change request involves no significant hazards as demonstrated in the preceding sections. The change request involves no significant change in the types or significant increase in the amount of any effluents that may be released offsite and there is 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 will not endanger the health and safety of the public.