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10 CFR 50.90

NUCLEAR SERVICES DEPARTMENT

October 19, 1992

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 (TSCR) 92-04

REFERENCE: TSCR 92-03, G. J. Beck to USNRC, Sept. 28, 1992

Gentlemen:

Philadelphia Electric Company is submitting Technical Specifications Change Request (TSCR) No. 92-04, in accordance with 10 CFR 50.90, requesting an amendment to the Technical Specifications (TS) (Appendix A) of Operating License Nos. DPR-44 and DPR-56. Information supporting this Change Request is contained in Attachment 1 to this letter, and the proposed replacement pages are contained in Attachment 2.

This submittal requests changes to TS surveillance intervals to facilitate a change in the Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3, refueling cycles from 18 months to 24 months. The 24 month refueling cycle will require a change from the current 18 month TS surveillance testing interval (i.e., a maximum of 22.5 months accounting for the allowable grace period) to a 24 month testing interval (i.e., a maximum of 30 months accounting for the allowable grace period). These TS changes were evaluated in accordance with the guidance provided in NRC Generic Letter 91-04, Changes in Technical Specification

Surveillance Intervals to Accommodate a 24-Month Fuel Cycle," dated April 2, 1991, and are being proposed accordingly.

As discussed in our letter dated February 11, 1992, this is the third of three Change Requests being submitted to the NRC to support the current change to 24 month refueling cycles at PBAPS, Units 2 and 3. This Change Request involves a proposed change to the TS surveillance intervals for instrument calibration TS line items and and a change to the definition of refuel cycle and operating cycle.

Certain of the evaluations included in this Change Request relate to specific items in the TS tables and text for which no change to the text is required. The TS surveillance interval for these items is delineated by "operating cycle" or "refuel outage" in the TS tables (i.e., at least once per 18 months as defined in the definition section of TS). The change to this definition is proposed in this Change Request. Accordingly, we request that the NRC review and issue the changes when the NRC has approved all of TS changes proposed in this and the previous Change Request. We request that all approved TS changes associated with the change to 24 month refueling cycles for PBAPS, Units 2 and 3, requested in the second and third Change Requests, be issued by February 28, 1993. Also, we request that the approved TS changes be effective 30 days after issuance of the Amendments.

If you have any questions regarding this matter, please contact us.

Very truly yours,

G. J. Beck, Manager
Licensing Section

Enclosures: Affidavit, Attachment 1, Attachment 2

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

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 92-04) 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.

G. R. Rainey

Vice President

Subscribed and sworn to
before me this 19th day
of October 1992.

Dolores A Cloran

Notary Public

Notarial Seal
Dolores A. Cloran, Notary Public
Tredyffrin Twp., Chester County
My Commission Expires July 24, 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
92-04

"Change to the Frequency of Instrument Surveillance Tests"

Supporting Information for Changes 33 Pages

Docket Nos. 50-277
50-278

License Nos. DPR-44
DPR-56

Philadelphia Electric Company (PECo), Licensee under Facility Operating Licenses DPR-44 and DPR-56 for the Peach Bottom Atomic Power Station (PBAPS) Unit No. 2 and Unit No. 3, respectively, requests that the Technical Specifications contained in Appendix A to the Operating Licenses be amended. Proposed changes to the Technical Specifications are indicated by vertical bars in the margin of each page. The proposed revised pages for each unit are included in Attachment 2.

The proposed changes are being requested to support changing the fuel cycle at PBAPS from 18 to 24 months. This request is limited to changing the surveillance frequency only. The surveillance tests will continue to be performed as they always have been in that no modifications to test methodologies or station equipment have been included in this request. Equipment required to mitigate the consequences of an accident will not be affected, except that the frequency of testing that equipment will be extended to accommodate a 24 month fuel cycle. In addition, the frequency of some TS line items currently required once every "refuel outage" or "operating cycle" will not be changed; for these TS items a change in the text of the TS is being requested. The TS frequency for these items will be defined as once every "18 months". This will not change the effect of the TS; the requirement will still be performed once every 18 months, but the TS words for those line items must be changed.

This request in conjunction with the previous submittal proposes two types of changes: intent changes and text changes. Intent changes are those TS line items that use "refuel cycle" or "operating cycle" to define the surveillance frequency. As noted previously, these terms are currently defined to mean 18 months with a 25% grace period. No change to the text of the TS is being requested for these line items; however, a TS change request to change the definition of the "REFUEL OUTAGE" and "OPERATING CYCLE" to 24 months with a 25 percent grace period is included in this request. The request to change the definition of these terms is being submitted now because the evaluation of the instrument calibration surveillance frequency is complete as well as the evaluation of all other TS line items that use the terms "REFUEL OUTAGE" or "OPERATING CYCLE". The other type of change in this submittal are text changes. In some TS line items, where sufficient justification to extend the surveillance period to 24 months could not be developed we are requesting that the interval remain the same. In some other TS line items the surveillance frequency was specifically designated as 18 months. For these items a change to the TS page is required. The revised pages are attached.

A: Discussion on the Effect of Increased Surveillance Intervals on Instrument Drift and Safety Analysis Assumptions:

NRC Generic Letter 91-04 (GL91-04), Enclosure 2 provided guidance to licensees on the type of analysis and information that would be required to justify a change to the Surveillance Interval for instrument recalibrations. Seven specific actions were delineated in GL91-04 and are repeated below along with our response. This discussion is meant as a generic discussion to provide insight into the methodology PECo used to evaluate the affects of an increased surveillance interval on instrument drift. A specific discussion on the affects of such a change are included in the description of changes and safety discussion section which follows.

1. Confirm that instrument drift as determined by as-found and as-left calibration data from surveillance and maintenance records has not, except on rare occasions, exceeded acceptable limits for a calibration interval.

The effect of increased calibration intervals on the TS instrumentation for PBAPS Units 2 and 3 to accommodate 24 month refueling cycles has been determined. Two issues associated with the instrumentation have been evaluated: a) instrument availability based on consideration of historical instrument test failures and b) instrument drift.

a. Instrument Availability with Consideration to Historical Instrument Test Failures

For the TS instrumentation at PBAPS Units 2 and 3, a search was done of all surveillance tests (STs) that satisfy the instrument calibration requirement. The search identified all failed test since 1982 unless the testing requirement had been established after that time. Each of the failed tests were reviewed to determine the cause of the failure. The purpose of this evaluation was to determine the impact an increase in the surveillance interval has on instrument availability. This review identified that instrument failure rates detected by the eighteen month surveillance requirement was significantly less than 1 percent. Because of the very small percentage of failures which are detected only on an eighteen month basis and system redundancy the change in the surveillance frequency will have a small impact, if any, on system availability.

b. Instrument Drift

For the TS instrumentation at PBAPS Units 2 and 3, all applicable surveillance tests were reviewed, and historical instrument drift related data was obtained. This data included as-left values, as-found values and required limits identified during each instrument calibration. Based on this data a drift analysis was performed. The failure history in combination with the drift study demonstrates that except in rare occasions instrument drift has not exceeded the current allowable limits.

2. Confirm that the values of drift for each instrument type (make, model, and range) and application have been determined with a high probability and a high degree of confidence. Provide a summary of the methodology and assumptions used to determine the rate of instrument drift with time based upon historical plant calibration data.

The following details the methodology used to perform the PBAPS drift analysis:

General Electric (GE) developed a computer model for drift determination as documented in NEDC-31336 "GE Instrument Setpoint Methodology" to perform instrument setpoint calculations. This document was submitted and is currently under review by the NRC. The Boiling Water Reactor Owners' Group (BWROG) committee for Surveillance Test Extension determined that the drift module of the GE Instrument Setpoint Methodology could be used to determine instrument drift for periods longer than eighteen months based on actual instrument performance in plant environments.

General Electric under the direction of the BWROG Surveillance Test Extension committee developed the "General Electric Instrument Trending Analysis System (GEITAS). This quality assured program is being used to determine the feasibility of extending various surveillance tests to thirty-six months.

A copy of the verified and validated GEITAS program was obtained from General Electric and was used to project the thirty month drift number. The as-found and as-left data was taken from eighteen month/refueling cycle instrument calibration surveillance tests and analyzed. This analysis produced values at intervals from one to thirty months. However, for conservatism, (1) the various errors contained in the as-found and as-left values (e.g., temperature and calibration errors) where not removed and (2) the interval with the highest projected drift value was compared with the present eighteen month surveillance test acceptance criteria.

The results of the computer runs showed acceptable 30 month drift values that were within surveillance test drift allowances if (1) there were a sufficient amount of historical data to satisfy the computer algorithms and (2) the majority of the as-found and as-left values were within acceptable limits.

It should be noted that for certain cases a different methodology was utilized to demonstrate that the drift was acceptable. These cases included instruments that were recently installed, instruments that were tested more frequently because of other commitments or instruments that have 30 month drift numbers published. For each instrument where the GE Program was not utilized to evaluate the drift data a summary of the methodology is contained in the specific write up for the change.

3. Confirm that the magnitude of instrument drift has been determined with a high probability and a high degree of confidence for a bounding calibration interval of 30 months for each instrument type (make, model number and range) and application that performs a safety function. Provide a list of the channels by TS section that identifies these instrument application.

The determination that the magnitude of instrument drift has been determined with a high degree of probability and a high degree of confidence for a bounding calibration interval of 30 months for each instrument type is included in the description of changes and the safety discussion section that follows. A list of channels by TS section is included.

4. Confirm that a comparison of the projected instrument drift errors has been made with the values of drift used in the setpoint analysis. If this results in revised setpoints to accommodate larger drift errors, provide proposed TS changes to update trip setpoints. If the drift errors result in revised safety analysis to support existing setpoints, provide a summary of the updated analysis conclusions to confirm that safety limits and safety analysis assumptions are not exceeded.

The thirty month projected drift number was compared to the present allowance for the instrument application. If the drift for an instrument type did not fall within the present bounds of the acceptance criteria the surveillance interval was either left at a eighteen month calibration surveillance interval or was extended to a 30 month calibration surveillance interval based on other justification, such as more frequent testing. If an instrument has not been in

service long enough to establish a thirty month projected drift value, the surveillance interval was either left at an eighteen month surveillance interval or extended to a 30 month surveillance interval. To extend to a 30 month surveillance interval, justification of either more frequent testing or justification from the instrument manufacturer was provided. In no case was the setpoint of an instrument changed to accommodate a drift error larger than previously evaluated.

5. Confirm that the projected instrument errors caused by drift are acceptable for control of plant parameters to effect a safe shutdown with associated instrumentation.

As discussed in response to number 4, the justification for extending the surveillance interval of an instrument was an instrument drift calculation within the existing design basis. Additional factors included more frequent testing or a manufacturer's recommendation. In no case was the existing safe shutdown analysis changed to accommodate a large drift error.

6. Confirm that all conditions and assumptions of the setpoint and safety analyses have been checked and are appropriately reflected in the acceptance criteria of plant surveillance procedures for channel checks, channel functional tests, and channel calibrations.

PECo has not changed any of the setpoint or acceptance criteria of the present eighteen month surveillance test, therefore, there is no cause to reverify the criteria used to establish the acceptance criteria in the surveillance test.

7. Provide a summary description of the program for monitoring and assessing the effects of increased calibration surveillance intervals on instrument drift and its effects on safety.

PECo's program will review each calibration surveillance that does not meet the leave alone criteria (i.e no recalibration or adjustment required) of the calibration surveillance test. Based on the results of that review a decision on the appropriate calibration interval will be made. Such a decision will consider such things as shortening the surveillance test (ST) interval, changing the setpoint of the instrument or leaving the surveillance interval at thirty months. Review of the ST results will be performed until such time as we determine that further evaluation is no longer necessary.

B: Description of Changes and Safety Discussions

Because of the volume of TS line items required to be evaluated, the specific changes were grouped and each group has been analyzed. Note that the name of each group is merely an administrative title and may not contain all of the items that could be logically connected to this group. Each group is described below with a list of the TS line items, a description of the requirement, and a safety discussion. Where a change to the TS is being proposed and text from the TS section is reproduced in the discussion section, the affected words or phrases will be highlighted with bold type. In performing these evaluations, the guidelines of Generic Letter 91-04 were followed.

(1)	Isolation Instruments	Table 4.2.A, item 2	page 80
		Table 4.2.A, item 3	page 80
		Table 4.2.A, item 4	page 80
		Table 4.2.A, item 8	page 80

Table 4.2.A delineates the minimum test and calibration frequency for core standby cooling systems. The instruments for the following Primary Containment Integrity System (PCIS) functions: Low-Low-Low Water Level (item 2), Main Steam High Temperature (item 3), Main Steam High Flow (item 4) and Reactor Pressure - Feedwater Flush Permissive (item 8) have a listed calibration frequency of "once/operating cycle."

Safety Discussion: The subject TS line items currently require the calibration testing of the subject instrumentation to be performed once per operating cycle. The calibration surveillance is performed to ensure that at a previously evaluated setpoint actuation takes place to provide the required safety function. By increasing the refueling cycle, the time interval for calibration surveillance of the subject instrumentation will be increased. However, as currently required by PBAPS TS, functional tests are performed during the refueling cycle more frequently than the calibration surveillance. These functional tests detect failures of the instrumentation channels, except for field devices, such as transmitters, that are only tested once every 18 months. Gross instrumentation failures are detected by alarms, by a comparison with redundant and independent indications.

Instrumentation purchased for these functions are highly reliable and meet the design criteria of safety related status. All isolation instrumentation is designed with redundant and independent channels which provide means to verify proper instrumentation performance during operation, and adequate redundancy to ensure a high confidence of system performance even with the failure of a single component. Based on the above discussion, PECo concluded that the impact on

instrumentation availability was small, if any as a result of this change.

To verify this conclusion, an historical search of the surveillance tests for each instrument was performed. The search identified all failed or partially failed tests, and then each failed or partially failed test was reviewed and evaluated. The purpose of this evaluation was to demonstrate that the increased calibration surveillance interval would not increase the period an instrument would be unavailable. The results of this search support the above conclusions that the impact on instrument availability, if any, is small as a result of the change in the surveillance interval.

A second evaluation performed an instrument drift analysis for the increase in the calibration interval to a maximum of 30 months. The details of the drift analysis are included below.

The GE methodology, previously described, was used to perform the drift analysis on the Moduflash 652, Main Steam Line High Temperature instruments (TS 4.2.4, item 3). Based on this drift analysis, we conclude an increase in the surveillance interval to accommodate a 24 month fuel cycle does not affect these instruments with respect to drift.

The main steam temperature loops (item 3) use Burns RTD's for the temperature sensing elements. An RTD is a factory calibrated device that does not exhibit drift because of the principle of operation of the temperature sensing mechanism. Therefore, an increase in the surveillance interval to accommodate a 24 month fuel cycle does not affect the Burns RTD with respect to drift.

Rosemount transmitters are used for the input to the following channels: Reactor Low - Low - Low Water Level (item 2), Main Steam Line High Flow (item 4), and Reactor Pressure (item 8). Drift values for 30 months are published for Rosemount transmitters, Rosemount Report D8900126, and these published values are within the surveillance test drift allowances. Therefore, an increase in the surveillance interval to accommodate a 24 month fuel cycle does not affect the Rosemount transmitters with respect to drift.

Rosemount trip units are functionally checked and the setpoint verified, and recalibrated if necessary, on a more frequent basis than every 18 months. This more frequent functional check and setpoint verification requirement remains unchanged. Therefore, an increase in the surveillance interval to accommodate a 24 month fuel cycle does not affect the Rosemount trip units with respect to drift.

Based on the above evaluations, we have concluded that the impact on instrument availability, if any, is small as a result of this change to a 24 month surveillance interval.

(2) Alternate Rod Insertation/Recirculation Pump Trip Instruments

Table 4.2.G Items 1 and 2 page 88

Table 4.2.G defines the minimum test and calibration frequency for instruments that initiate a Alternate Rod Insertation (ARI) and a Recirculation Pump Trip (RPT). The plant conditions that initiate an ARI/RPT are Reactor High pressure and Reactor Low-Low Water level.

Safety Discussion: The subject TS line items currently require the calibration testing of the subject instrumentation to be performed once per operating cycle. The calibration surveillance is performed to ensure that the instrument is properly aligned so that at a previously evaluated setpoint, actuation takes place to provide the required safety function. By increasing the refueling cycle, the time interval for calibration surveillance of the subject instrumentation will be increased. However, as currently required by PBAPS TS, functional tests are performed during the refueling cycle more frequently than the calibration surveillance. These functional tests detect failures of the instrumentation channels, except for field devices, such as transmitters, that are only tested once every 18 months. Gross instrumentation failures are detected by alarms and by a comparison with redundant and independent indications.

Instrumentation purchased for these functions are highly reliable and meet the design criteria of safety related status. Note the contact inputs for the ARI/RPT functions, which are not safety-related, are electrically isolated from the safety related instrumentation. All ARI/RPT equipment power sources, logic and sensors are electrically independent from the RPS shutdown to ensure a high confidence in system performance. Based on the above discussion, PECo concluded that the impact on instrumentation availability was small, if any as a result of this change.

To verify this conclusion, an historical search of the surveillance tests for each instrument was performed. The search identified all failed or partially failed tests, and then each failed or partially failed test was reviewed and evaluated. The purpose of this evaluation was to demonstrate that the increased calibration surveillance interval would not increase the period an instrument would be unavailable. The results of this search support the above conclusions that the

impact on instrument availability, if any, is small as a result of the change in the surveillance interval.

A second evaluation performed an instrument drift analysis for the increase in the calibration interval to a maximum of 30 months. The details of the drift analysis conducted for this section are included below.

Rosemount Transmitters provide the signal for the Reactor High Pressure (Table 4.2.G., item 1) and the Reactor Low - Low Water Level (Table 4.2.G, item 2). These transmitters do not require a 30 month drift study because as previously discussed Rosemount has published a 30 month drift value that is within the existing surveillance test drift allowances. Therefore, an increase in the surveillance interval to accommodate a 24 month fuel cycle does not affect the Rosemount transmitters with respect to drift.

The signal from the Rosemounts is processed by a Foxboro micro-computer, which consists of, Foxboro I/E converters, Foxboro trip switches and E/I converters. A monthly surveillance test is performed to verify all ARI/RPT setpoints related to the Foxboro micro-computer. During the performance of this test switch setpoints are recorded and functions checked in the associated test logics strings. During the monthly performance of the test, control indication is not checked; however, this indication is checked on a daily basis by an ST performed to verify reactor level and pressure indicators are within acceptable limits. With the more frequent testing provided by the monthly and daily tests, it in concluded that the calibration for the ARI/RPT compensated level may be extended to a 30 month interval.

(3) Containment Systems and Primary System Boundary Instrumentation

TS 4.6.D.3	page 147
TS 4.7.A.3	page 170

TS 4.6.D.3 requires that the switches that monitor the integrity of the relief safety valve bellows be calibrated once per operating cycle.

TS 4.7.A.3.a requires: "The pressure suppression chamber-reactor building vacuum breakers including setpoint shall be checked for proper operation every refueling outage." It is requested that this wording be changed as follows: "The pressure suppression chamber-reactor building vacuum breakers shall be checked for proper operation every refueling outage.

Associated instrumentation including setpoint shall be checked for proper operation every eighteen months."

Safety Discussion: The wording change to Technical Specifications item 4.7.A.3.a is being proposed to ensure that the present calibration surveillance interval remains unchanged when the definition of refueling cycle is changed. Because the change maintains the calibration interval at the same frequency, this change can be considered administrative in nature and therefore have no impact on the safety or operation of the plant.

Technical Specification line item TS 4.6.D.3 requires the calibration testing of the subject instrumentation to be performed once per operating cycle. The calibration surveillance is performed to ensure that the instrument is properly aligned so that at a previously evaluated setpoint, actuation takes place to provide the required safety function. By increasing the operating cycle length, the time interval for calibration surveillance of the subject instrumentation will be increased. The ADS relief valve pressure switches are not safety related. Their function is to inform the operator of a safety related bellows leak. Since the device is only for indication a once per twenty-four month surveillance test frequency is acceptable.

To verify the conclusion, an historical search of the surveillance tests for each instrument was performed. The search identified all failed or partially failed tests, and then each failed or partially failed test was reviewed and evaluated. The purpose of this evaluation was to demonstrate that the increased calibration surveillance interval would not increase the period an instrument would be unavailable. the results of this search support the above conclusions that the impact on instrument availability, if any, is small as a result of the change in the surveillance interval.

A second evaluation preformed an instrument drift analysis for the increase in the calibration interval to a maximum of 30 months. The details of the drift analysis conducted for this section are included below.

The GE methodology, previously described, was used to perform the drift analysis on the following instruments: ITT Barton, 580A-0, Torus to Reactor Building pressure switches, (TS 4.7.A.3.a) and Pressure Control Inc, A17-1, Torus Vacuum Relief Valve switches, (TS 4.6.D.3). Based on this drift analysis, we conclude an increase in the surveillance interval to accommodate a 24 month fuel cycle does not affect these instruments with respect to drift.

(4) Emergency Core Cooling System (ECCS) Instrumentation

TS Table 4.2.B,
items 1, 2, 3, 5, 10, 11, 16, and 18
page 81

TS 4.5.G.2 page 133

TS Table 4.2.B defines the minimum test and calibration frequency for Core Standby Cooling Systems (CSCS). The instrument channels with a calibration frequency of "once/operating" cycle are as follows: Reactor Water Level(item 1), Drywell Pressure (item 2), Reactor Pressure (item 3), Auto Sequencing Timers (item 5), Steam Line High Flow - HPCI & RCIC (item 10), Steam Line High Temperature - HPCI & RCIC (item 11), ADS Relief Valves Bellows Pressure Switches (item 16) and Condensate Storage Tank Level - RCIC (item 18).

Safety Discussion: The subject Technical Specification line items currently require the calibration testing of the subject instrumentation to be performed once per operating cycle. The calibration surveillance is performed to ensure that the instrument is properly aligned so that at the previously evaluated setpoint, Engineering Safeguard Functions (ESF) actuate to provide the required safety function. By increasing the operating cycle length, the time interval for calibration surveillance of the subject instrumentation will be increased. However, as currently required by PBAPS Technical Specifications, functional tests are performed during the operating cycle more frequently than the calibration surveillance. These functional tests detect failures of the instrumentation channels, except for field devices, such as transmitters, that are only tested once every 18 months. Except for the Automatic Depressurization (ADS) relief valve bellow pressure switches, gross instrumentation failures are detected by alarms, and deviations or inconsistencies are detected by a comparison with redundant and/or independent indications.

Instrumentation purchased for these functions are highly reliable and meet the design criteria of the system in which they are installed. ECCS Group initiation instrumentation is designed with redundant and independent channels which provide means to verify proper instrumentation performance during plant operation. Adequate redundancy is provided for other ECCS group instrumentation to ensure a high confidence of system performance even with the failure of a single component. Based on the above discussion, the conclusion is made that the impact, if any, is small on instrumentation

availability from the change to 24 month surveillance intervals.

The ADS relief valve pressure switches are not safety related. Their function is to inform the operator of a safety related bellows leak. Loss of the bellows will not prevent the relief valve from performing its ADS function. Since the device is only for indication and loss of the safety related bellows would not prevent the ADS system from operating, a once per 24 month surveillance test frequency is acceptable.

To verify these conclusions, an historical search of the surveillance tests for each instrument was performed. The search identified all failed or partially failed tests, and then each failed or partially failed test was reviewed and evaluated. The purpose of this evaluation was to demonstrate that the increased calibration surveillance interval would not increase the period an instrument would be unavailable. The results support the above conclusion that the impact on instrument availability, if any, is small as a result of the change to the subject surveillance interval.

A second evaluation performed an instrument drift to analyze the increase in the calibration interval to a maximum of 30 months. The details of the drift analysis are included below.

The GE methodology, previously described, was used to perform the drift analysis on the following instrument: Pressure Control Inc, A17-1, pressure switches, (TS 4.2.B, item 16), Moduflash 652, temperature switches (TS 4.2.B, item 11), Agastat ETR14D3BC200200, timers, (TS 4.2.B, item 10), Agastat "TR," ETR14D3BC, timers, (TS4.2.B, item 5). Based on this drift analysis, we conclude an increase in the surveillance interval to accommodate a 24 month fuel cycle does not affect these instruments with respect to drift.

Rosemount transmitters are used for the input to the following channels: Reactor Water Level (item 1), Drywell Pressure (item 2), Reactor Pressure (item 3) and Condensate Storage Tank Level (item 18). Drift values for 30 months are published for Rosemount transmitters, Rosemount Report D8900126, and these published values are within the surveillance test drift allowances. Rosemount trip units are functionally checked and the setpoint verified, and recalibrated if necessary, on a more frequent basis than every 18 months. This more frequent functional check and setpoint verification requirement remains unchanged. Therefore, an increase in the surveillance interval to accommodate a 24 month fuel cycle does not affect the Rosemount trip units with respect to drift.

The signal from the Rosemounts is processed by a Foxboro micro-computer, which consists of, Foxboro I/E converters, Foxboro trip switches and E/I converters which provide main control room indication. A monthly surveillance test is performed to verify all setpoints related to the Foxboro micro-computer. During the performance of this test switch setpoints are recorded and functions checked in the associated test logic strings. During the monthly performance of the test, control indication is not checked; however, this indication is checked on a daily basis by an ST performed to verify reactor level and pressure indicators are within acceptable limits.

The steam line temperature loops (item 11) use Burns RTD's for the temperature sensing elements. An RTD is a factory calibrated device that does not exhibit drift because of the principle of operation of the temperature sensing mechanism.

Based on the above evaluations, it is concluded that the impact on instrument availability, if any, is small as a result of the 24 month surveillance interval changes.

(5) Electrical Protection Group Instrumentation

TS 4.1.D.1	page 36
TS 4.1.D.2	page 36a
TS Table 4.2.B, item 19	page 81a

TS 4.1.D.1 requires the Reactor Protection System (RPS) power supply (MG Set) protective devices listed below be functionally tested at least once every six months and calibrated once each refueling outage. TS 4.1.D.2 requires the RPS alternate power supply protective devices listed below be functionally tested at least once every six months and calibrated once each refueling outage. The following setpoints shall be verified:

Device	Acceptable Setting
Undervoltage	113 + or - 2 volts
Overvoltage	131 + or - 2 volts
Underfrequency	57 Hz + or - .2 Hz
Underfrequency Time Delay	6 seconds + or - 1 second

Safety Discussion: The electrical power system is designed to provide a diversity of dependable power sources which are physically isolated so that any failure affecting one source of supply does not affect the other source. The auxiliary electrical power systems are designed to provide electrical and physical independence, and to supply the necessary power for start-up, operation, shutdown and other station

requirements. The auxiliary power system is tested and inspected as required during the life of the plant to demonstrate the capability of the system to provide sufficient power to the essential loads. The RPS MG Set overvoltage, undervoltage and underfrequency relays are periodically tested to verify settings, operability and functional performance in accordance with surveillance test procedures. These tests will provide assurance that the electrical protection system will operate at the required voltages, frequencies and times, and perform the intended functions when called upon to operate. Based on designed redundancy and reliability, it is concluded that the impact, if any, on component availability is small from the change to the subject surveillance interval. A review of the ST history was not performed since the tests have been and will continue to be conducted on a six month basis. Further, a drift analysis was not performed on the relays associated with the STs because these tests functionally check the set point every six months.

TS Table 4.2.B, Item 19 requires the 4Kv Emergency Power Source Degraded Voltage Relays have a minimum test and calibration frequency of "**once per operating cycle.**" The wording in the table will be changed to "**once per eighteen months.**"

Safety Discussion: The wording change to Table 4.2.B, item 19 is being made to ensure that this requirement remains at its current specified frequency when the definition of operating cycle is changed. Because the change maintains the surveillance test interval at the same frequency, this change can be considered an administrative change which has no impact on the availability of the relays.

(6) Monitoring Group Instruments

TS Table 4.2.F Items 1, 2, 3, 4, 6, 7, 9, 11, 14, 16 page 86
TS Table 4.15 Items 1A - 1D, 2A - 2C, 3A page 240v

TS Table 4.2.F delineates the minimum test and calibration frequency for surveillance instruments. The calibration frequency of once per operating cycle is required for the following instruments: Reactor Water Level (narrow range, item 1), Reactor Water Level (wide range, item 2), Reactor Water Level (fuel zone, item 3), Reactor Pressure (item 4), Wide Range Drywell Pressure (item 6), Subatmospheric Drywell Pressure (item 7), Suppression Chamber Water Temperature (item 9), Wide Range Suppression Chamber Water Level (item 11), Safety/Relief Valve Position Indicator (acoustics, item 14), Safety Valve Position Indicator (acoustics, item 16).

Safety Discussion: An evaluation of the subject changes demonstrated that the overall impact, if any, on the instrument availability is small. The subject Technical Specification line items currently require the calibration testing of the subject instrumentation to be performed "once/operating cycle". The accident monitoring calibration surveillance is performed to ensure reliable information is provided to the operator to monitor transient reactor plant behavior and to verify proper safety system performance following an accident. By increasing the operating cycle length, the time interval for calibration surveillance of the subject instrumentation will be increased. However, as currently required by PBAPS TS, functional tests are performed during the operating cycle more frequently than the calibration surveillance. These functional tests detect failures of the instrumentation channels, except for field devices, such as transmitters, that are only tested nominally once every 18 months. Instrumentation purchased for these functions are highly reliable. The monitoring instrumentation is classified as safety related and meets the associated design criteria. This criteria includes redundancy and independent channels which ensures a high confidence of system performance even with the failure of a single component. Based on the above discussion, the conclusion is made that the impact, if any, on instrumentation availability is small which permits the change to 24 month surveillance intervals.

To verify this conclusion, an historical search of the surveillance tests for each instrument was performed. The search identified all failed or partially failed tests, and then each failed or partially failed test was reviewed and evaluated. The purpose of this evaluation was to demonstrate that the increased calibration surveillance interval would not increase the period an instrument would be unavailable. The results support the conclusion that the impact on instrument availability, if any, is small for the change to the subject surveillance interval.

A second evaluation performed an instrument drift analysis for the increase in the calibration interval to a maximum of 30 months.

The GE methodology, previously described, was used to perform the drift analysis on the following instruments: ITT Barton 764, water level, (TS 4.2.F, item 1J), Foxboro 2A-AIM, 227S-2R6, 2AP-AIM-2R, N-E11GM, pressure switches, (TS 4.2.F, item 6), Simmonds Precision, 10701F11060, temperature switches, (TS 4.2.F, item 9), Foxboro, 227S-2R6, pressure switches, (TS 4.2.F, item 7). Based on this drift analysis, we conclude an increase in the surveillance interval to

accommodate a 24 month fuel cycle does not affect these instruments with respect to drift.

Rosemount transmitters provide the input for the following instrument channels: Reactor Water Level (narrow range, item 1), Reactor Water Level (wide range, item 2), Reactor Water Level (fuel zone, item 3), Reactor Pressure (item 4), Wide Range Drywell Pressure (item 6)and Subatmospheric Drywell Pressure (item 7). Drift values for 30 months are published for Rosemount transmitters, Rosemount Report D8900126, and these published values are within the surveillance test drift allowances. Therefore, an increase in the surveillance interval to accommodate a 24 month fuel cycle does not affect Rosemount transmitters with respect to drift.

The signal from the Rosemounts is processed by a Foxboro micro-computer, which consists of, Foxboro I/E converters, Foxboro trip switches and E/I converters. A monthly surveillance test is performed to verify all setpoints related to the Foxboro micro-computer. During the performance of this test switch setpoints are recorded and functions checked in the associated test logic strings. During the monthly performance of the test, control indication is not checked; however, this indication is checked on a daily basis of the ST performed to verify reactor level and pressure indicators are within acceptable limits. With the more frequent testing provided by the monthly and daily tests, it is concluded that the calibration interval may be extended to 30 months.

The Safety Relief Valve (SRV) position indicating instrument loops (Table 4.2.F, items 14, 16) were reviewed. A review of data from existing surveillance tests indicates that the historical as-found and as-left values could not support a 30 month drift value. However, a review of the data shows that failures of the instruments during calibration (i.e., as-found values greater than acceptable limits) were in the conservative direction with respect to the detection of flow. Based on the fact that the instrumentation fails in the conservative direction, the calibration interval can be extended to support a 24 month fuel cycle. Further, this instrumentation will continue to be monitored for drift using the trending program being established for instrument drift.

Reactor water (narrow range) level (TS 4.2.F item 1) and reactor pressure instrumentation (TS 4.2.F, item 4): These instrument loops have been upgraded for Unit 3 in 1991 by Modification 1843. The modification replaced the existing transmitters with Rosemount transmitters and replaced the existing analog signal processors with new digital processing instruments. For Unit 2, the same changes will be made by

Modification 1843. These changes for Unit 2 are scheduled to be implemented during the refueling outage in September 1992, prior to the start of the first 24 month fuel cycle. For the digital processing instruments installed for Unit 3 in 1991, there has not been sufficient operating time to generate historical as-found and as-left data for determining 30 month drift values. Of the digital processing instruments, only the analog-to-digital (A/D) converters could show drift. The A/D converters that could show drift are only a portion of the analog processing instrumentation that was replaced by Modification 1843. The drift for the A/D converters is an order of magnitude less than the drift for signal conditioning instruments that were replaced. The remaining digital processing portions of the loops will not drift due to the fact that digital conversions have no mechanisms for drift (i.e., voltage levels corresponding to "0's" and "1's" or "off" and "on" conditions, not varying analog signal conditions). In addition to the reduction in total instrument drift, an increase in the surveillance interval is justified because the digital feedwater instrumentation includes self-diagnostic software programs. These self-diagnostic programs and associated hardware check the operation of the instrumentation and identify with an alarm those signals that are out of tolerance. The diagnostics monitor the instrumentation from the input to the A/D converters to the output circuits of the digital processors. Instrumentation is monitored at a frequency commensurate with the reliability of each instrument. Based on the above discussion, the conclusion is made that the surveillance interval for the digital feedwater instrumentation for Unit 3 can be extended to accommodate a 24 fuel cycle. This conclusion would also be applicable for Unit 2 when the digital feedwater changes are made by Modification 1843.

Reactor Compensated Level Loops for Monitoring: The reactor level loops used for monitoring at PBAPS are currently tested on a monthly basis and daily indication checks for instrument operability are also performed. The level instrumentation used for monitoring is comprised of Rosemount level and pressure transmitters and a Foxboro micro-computer consisting of, Foxboro I/E converters, Foxboro trip switches, and E/I converters which provide Main Control Room indication. In addition, a monthly surveillance is performed to verify all setpoints related to the Foxboro micro-computer. During the performance of this test, a calibrated current source is input into the I/E's which tests the micro-computer and the output of the electronic switches. Also, switch setpoints are recorded and functions are checked in the associated logic strings. During a monthly performance of the test, the indication in the Control Room is not checked. This

indication, however, is checked on a daily basis to verify that reactor level and pressure indications are within acceptable limits. With the more frequent testing provided by the monthly tests and the daily tests, the conclusion is made that the calibration for the reactor level instrumentation may be extended to a 30 month interval.

Note, as previously discussed, the transmitters which are Rosemount transmitters, do not require a 30 month drift evaluation. Published drift values from Rosemount document that 30 month drift for the transmitters is within the existing surveillance test drift allowances.

Pyco Thermocouples are used to measure suppression chamber water temperature (Technical Specification, Table 4.2.F, Item 9). These thermocouples provide input to the Simmond Precision instrumentation. The thermocouples are factory calibrated devices that do not exhibit drift due to the operation of the temperature sensing mechanism. Therefore, an increase in the surveillance interval to accommodate a 24 month fuel cycle does not affect the operation of the Pyco Thermocouples.

Differential Pressure Switches in the Drywell Pressure Instrument Loops (Table 4.2.F, item 6):
Foxboro differential pressure switches are used in the Drywell pressure instrument loops. A review of the surveillance tests used to calibrate these switches shows that since the restart of Peach Bottom Atomic Power station, the method used to test and calibrate the switches has changed. The change to the tests results in different numerical data being obtained. Due to different sets of numerical data for the same switches, the GE drift analysis program was used to evaluate a drift value using data from tests using the newer test method only. The results indicate that the drift value is within acceptable limits. However, due to a limited amount of data, the drift value represents an eighteen month period only. A review of the data from tests using the earlier test method indicates that the switches have not needed recalibration. Therefore, since historical data shows that instrument drift has been within acceptable limits for a period of time that is greater than thirty months, the calibration surveillance interval can be extended to accommodate a twenty-four month fuel cycle. Further, these switches will continue to be monitored for drift using the trending program being established for instrument drift.

Based on the above evaluations, it is concluded that the impact on instrument availability, if any, is small as a result of the 24 month surveillance interval changes.

TS Table 4.15 delineates the seismic monitoring instrumentation surveillance requirements. The surveillance frequency for this table is defined as 18 months and a change to the text of Table 4.15 is required. The specific instruments with a surveillance frequency of 18 months are as follows: Triaxial Time-History Accelerographs (item 1), located at the following plant locations: Containment Foundation (item 1a), Refueling Floor (item 1b), Reactor Core Isolation Cooling (RCIC, item 1c) Pump and the "C" Diesel Generator (item 1d), the Triaxial Peak Accelerographs (item 2) located at the following plant locations: Reactor Piping (Drywell, item 2a), Refueling Floor (item 2b), and the "C" Diesel Generator (item 2c) and the Triaxial Response-Spectrum Recorder located in the Cable Spreading Room (item 3a).

Safety Discussion: The seismic monitoring calibration surveillances are performed to ensure that the operator is provided with information on the effects of an earthquake on the structures, systems and components of the plant that are necessary for continued operation without undue risk to the health and safety of the public. The seismic monitoring instrumentation is not required and does not have redundancy with independent indications. However, functional test and monthly instrument checks are performed during the operating cycle more frequently than the calibration surveillance. These functional test detect failures of the instrument channels. Portions of the monitoring instrumentation that are classified as non-safety related have been designed to the criteria of NRC Regulatory Guide 1.97, category 2. Requirements for non-safety related instrumentation that is classified as Category 2 instruments per NRC Regulatory Guide 1.97 for Post-Accident monitoring include the following:

a) Environmental qualification
b) Highly reliable and/or battery backed power source.
c) QA requirements consistent with the importance to safety of the instrumentation.
d) Diverse or backup instrument channel.

Other non-safety related instrumentation is inherently designed to perform its intended function. For example, seismic instrumentation is designed to operate during a seismic event and the seismic instrumentation panel is powered from a non-safeguard distribution panel that is fed from safeguard power. A backup power supply is located in the seismic instrumentation panel and is capable of supplying the seismic system for a minimum of 25 minutes following a loss of power. Based on the above discussion, the conclusion is made

that the impact; if any, is small on instrument availability from the change to 24 month surveillance intervals.

To verify this conclusion, an historical search of the surveillance tests for each instrument was performed. The search identified all failed or partially failed tests, and then each failed or partially failed test was reviewed and evaluated. The purpose of this evaluation was to demonstrate that the increased calibration surveillance interval would not increase the period an instrument would be unavailable. The results support the conclusion that the impact on instrument availability, if any, is small for the change to the subject surveillance interval.

A second evaluation performed an instrument drift analysis for the increase in the calibration interval to a maximum of 30 months. The details of this analysis are below.

Seismic monitoring instrumentation manufactured by Kinemetrics will provide the input for TS Table 15, items 1A, 1B, 1C, 1D, 3A. This instrument is new equipment that will be installed during the refueling outage scheduled for Spring of 1993. Note, the existing instrumentation will operate to the expiration of the current 18 month fuel cycle until the new Kinemetrics instrumentation is installed. An evaluation of drift for 30 months for the new Kinemetrics instrumentation cannot be done because there is no historical data to determine a 30 month drift value using the GE drift computer program. However, Kinemetrics has determined that the calibration interval for this instrumentation can be increased to 30 months. Based on the information provided by Kinemetrics the calibration interval can be increased to accommodate a 24-month fuel cycle.

Seismic monitoring instrumentation manufactured by Engdahl are triaxial accelerographs (Table 4.15, items 2A, 2B, 2C). An evaluation of drift for thirty months for the Engdahl triaxial accelerographs cannot be done because of changing testing methods. However, Engdahl Enterprises has determined that the calibration interval for this instrumentation can be increased to twenty-four month with a grace period of six months.

Based on the above evaluations, it is concluded that the impact on instrument availability, if any, is small as a result of the 24 month surveillance interval changes.

(7) Reactor Protection System (RPS) Instrumentation

TS Table 4.1.2 items 4 - 9, 12, 13 and note 5 for item 9 and 13 page 44

TS Table 4.1.2 item 2 page 44

TS Table 4.1.2 defines the Reactor Protection System (RPS) instrument calibration frequencies for reactor protection instrument channels. For the following items, PECo is requesting that the frequency of calibration be extended to accommodate the 24 month fuel cycle: High Reactor Pressure (item 4), High Drywell Pressure (item 5), Reactor Low Water Level (item 6), High Water Level in the Scram Discharge Volume (item 7), Turbine Low Condenser Vacuum (item 8), Main Steam Line Isolation Valve Closure (item 9), Turbine Control Valve Fast Closure (item 12), and Turbine Stop Valve Closure (item 13). For items 9 and 13 note 5 is referenced. Note 5 requires "Physical inspection and actuation of these position switches will be performed during the refueling outage" (page 46). Item 2 of Table 4.1.2; the calibration requirement for the APRM High Flux - Flow Bias Signal is an exception. PECo is requesting the calibration frequency of this item not be extended but rather the frequency be changed from "every refueling outage" to "once per eighteen months".

Safety Discussion:

The subject Technical Specification line items currently require the calibration testing of the subject instrumentation to be performed once per operating cycle. The calibration surveillance is performed to ensure that the instrument is properly aligned so that at the previously evaluated setpoint, actuation takes place to provide the required safety function. By increasing the operating cycle length, the time interval for surveillance of the subject instrumentation will be increased. However as currently required by the PBAPS Technical Specifications, functional tests are performed during the operating cycle more frequently than the calibration surveillance. These functional tests detect failures of the instrumentation channels, except for field devices, such as transmitters, that are only tested once every 18 months. Gross instrumentation failures are detected by alarms, and deviations or inconsistencies are detected by a comparison with redundant and independent indications.

Instrumentation purchased for these functions are highly reliable and meet the design criteria of safety related status. All RPS instrumentation is designed with redundant and independent channels which provide means to verify proper instrumentation performance during operation, and adequate redundancy to ensure a high confidence of system performance even with the failure of a single component. Based on the above discussion, the conclusion is made that the negligible

impact on instrumentation availability permits the change to 24 month surveillance intervals.

To verify this conclusion, an historical search of the surveillance tests for each instrument was performed. The search identified all failed or partially failed tests, and then each failed or partially failed test was reviewed and evaluated. The purpose of this evaluation was to demonstrate that the increased calibration surveillance interval would not increase the period an instrument would be unavailable. The results of this review support the above conclusions that the impact on instrument availability, if any, is small as a result of the change in the surveillance interval.

A second evaluation performed an instrument drift analysis for the increase in the calibration interval to a maximum of 30 months.

The following RPS inputs used Rosemount transmitters:

Table 4.1.2, item 4 - High Reactor Pressure
Table 4.1.2, item 5 - High Drywell Pressure
Table 4.1.2, item 6 - Reactor Low Water Level
Table 4.1.2, item 9 - Turbine Condenser Low Vacuum

Drift values for 30 months are published for Rosemount transmitters, Rosemount Report D8900126, and these published values are within the surveillance test drift allowances.

The Rosemount trip units are functionally checked and the setpoint verified, and re-calibrated if necessary, on a more frequent basis than every 18 months. This more frequent functional check and setpoint verification requirement remains unchanged. Therefore, an increase in the surveillance interval to accommodate a 24 month fuel cycle does not affect the Rosemount trip units with respect to drift.
Limit switches;

The limit switches associated with the Main Steam Isolation Valves (MSIV's) provide input to reactor scram logic and also provide valve position indication. Functional testing on the MSIV's is provided on a more frequent basis than every 18 months. This functional testing consists of cycling one of the MSIV's from the open position to a specified percent closed position, and back to the open position. A different valve is cycled each time the functional test is run. Confirmation that the switch is operating properly is done by observing the position indicating lights when the valve opens and closes. Since functional testing to confirm proper valve and limit switch operation is performed more frequently than

every 18 months, an increase in the surveillance interval to accommodate a 24 month fuel cycle does not affect the limit switches with respect to drift. Note, for the limit switches which are mechanical devices, misalignment is a more applicable term than drift.

Main Turbine Control Valve (MTCV) Fast Closure Pressure Switches. The pressure switch for the MTCV Electro-Hydraulic Control (EHC) oil pressure has been evaluated using the GE drift Computer Program. This evaluation showed that these instruments (Barksdale pressure switches) experienced significant drift. This drift was found to be 88 psi for the Barksdale pressure switches which exceeds the current allowable drift of 60 psi identified in the original GE Setpoint Methodology (NEDC 31336). Note, the GE Setpoint Methodology (NEDC-31336) utilized historical data from Peach Bottom and other plants to develop the 60 psi allowable value; therefore, the allowable drift of 60 psi would be applicable for this evaluation. The function of this pressure input is to provide an anticipatory scram in the event of the fast closure of the MTCVs which could result in a significant pressure transient following a generator load reject. After reviewing the accident scenario and considering the potential impact to the analysis performed for this event, it was concluded that the only impact from drift in the non-conservative direction would be to the response time of the scram signal. As identified in the General Electric Instrument Setpoint Methodology NEDC-31336 dated October 1986, upon initiation of the event (Load Reject), the fast acting solenoid valve will energize allowing the trip oil to drain. The GE document identified that the pressure will decrease from nominal 1600 psi to 0 psi within 8-10 milliseconds. At approximately 400 psig, it is identified that the disk dump valve will open to allow the MTCV to start to fast close. Since it takes approximately 10 milliseconds for pressure to reach zero, it can be reasonably concluded that the approximate 100 psi of drift would in the worst case cause an additional time delay of no greater that 2 - 3 milliseconds. This 2 - 3 millisecond time delay would be added to the overall response time of the trip. Licensing document OPL-3 identifies that the time between when the MTCV starts to fast close and the pressure switch actuates will be no greater than 30 milliseconds. OPL-3 also identifies an additional 250 milliseconds allowance for the RPS and Control Rods to start to insert. Historically, the response times for these functions has been in the order of 150 milliseconds, allowing significant margin to the input allowed for in OPL-3. In addition to the impact of drift on the response time, it should also be understood that the logic for these trips provides redundancy which would make it highly unlikely that

all instruments composing a channel would drift to the same degree and in the same direction. Considering any potential drift in the conservative direction, it has been determined that this is not a concern since the coincident logic for these trips should prevent any spurious scrams, and any excessive drift will be identified during the operating cycle and require corrective action. When evaluating the maximum drift projected by the BWROG's program and determining the potential impact on the plant's safety analysis, it can be concluded that this potential drift has a negligible impact.

Further, based on our experience at Limerick Generating Station (LGS), we have postulated that this drift could be caused by the EHC System vibrations and pressure oscillations. After modifications on LGS Unit 1 to eliminate the vibration and pressure oscillations, the MTCV Fast Closure Pressure Switches drift was reduced to within the allowable surveillance test values. PECo will monitor the results of the LGS drift and apply those lessons learned to improving the PBAPS EHC system.

The Magnetrol, Robertshaw and FCI switches are associated with the Scram Discharge Volume (SDV) reactor scram (Technical Specification Table 4.1.2, item 7.). A review of the tests for these switches indicates the following: the acceptance criteria of a test for the switch is that the switch contacts change state and indicate an alarm when a rising water level corresponding to 50 gallons is reached. This acceptance criteria is observed with a marked sight glass. The alarm is confirmed to actuate when the observed level is at or below 50 gallons. Based on this method of testing, there are no as-found and as-left values. Therefore, a 30-month drift value is not determined by the GE drift computer program.

The Robertshaw and RCI switches are replacements for the Magnetrol Switches and were installed to provide diversity. A review of the calibration check surveillance test showed that since 1983 there has been no failed tests. In addition, the same model Magnetrol switches were evaluated for LGS and found to have a 30 month drift of approximately the same as calibration allowance. Based on these reviews and the diverse switches, it is concluded that the surveillance interval can be extended to a maximum 30 months.

Based on the above evaluations, it is concluded that the impact on instrument availability, if any, is small as a result of the subject surveillance interval changes.

The wording change to Technical Specifications Table 4.1.2, item 2, is being made to ensure that the present calibration

surveillance interval remains at the specified frequency when the definition of refueling cycle is changed. Because the change maintains the calibration interval at the same frequency, this change can be considered an administrative change.

(8) Radiation/Effluent Monitoring Instrumentation

TS Table 4.1.2, item 10	page 44
TS Table 4.2.F, item 18	page 86a
TS Table 4.2.F, items 19 and 20	page 86a
TS 4.8.C.4d	page 211

TS Table 4.1.2, item 10 requires a calibration check using a radiation source be made each refueling outage for the Main Steam Line High Radiation RPS instrument channel.

TS Table 4.2.F, item 18 requires the instrument channel for the Drywell High Range Radiation Monitors be calibrated "once/operating cycle".

TS Table 4.2.F, item 19 and item 20 requires the instrument channel for the Main Stack High Range Radiation Monitor and the Reactor Building Roof Vent High Range Radiation Monitor be calibrated "once/operating cycle". A change to Table 4.2.F is requested to make the calibration frequency for these two instrument channels be "once per 18 months"

TS item 4.8.C.4d requires the main stack sample flow line Hi/Lo pressure switches be calibrated every 18 months. A change to TS 4.8.C.4d is requested to make the calibration frequency every 24 months.

Safety Discussion: The subject Technical Specification line items currently require the calibration testing of the subject instrumentation to be performed once every 18 months and/or once per operating cycle. The calibration surveillance is performed to ensure that the instrument is properly aligned so that at the previously evaluated setpoint, actuation takes place to provide the required safety function and to provide sufficient information for control of radioactive material release from the site. By increasing the operating cycle length, the time interval for calibration surveillance for the subject instrumentation (except TS 4.2.F 19 and 20) will be increased. However, as currently required by PBAPS Technical Specifications, functional tests are performed during the operating cycle more frequently than the calibration surveillance. These functional tests can detect failures of the instrumentation channels more frequently than once every 18 months. The drywell high range radiation monitoring instrument loops (Technical Specification Table 4.2.F, item

18) are highly reliable. This monitoring instrumentation is classified as safety related and meets the design criteria of safety related status. This includes redundancy and independent channels which ensures a high confidence of system performance even with the failure of a single component. The other monitoring instrumentation (except the drywell high range radiation monitoring loops) is classified as non-safety related. This instrumentation also has been designed to criteria that provides reliability with multiple instrument channels to provide backup information in the event of a single channel failure. Note, an exception to multiple channels for backup are the common main stack sample flow switches. The main stack sample flow switches do not backup one another. A review of the Technical Specifications indicates that these switches are functionally tested every six months. Since the switches provide only a gross high/low flow alarm, the six month functional tests are adequate to detect failures. Based on the above discussion, the conclusion is made that the negligible impact on instrumentation availability permits the change to 24 month surveillance intervals.

To verify this conclusion, an historical search of the surveillance tests for each instrument was performed. The search identified all failed or partially failed tests, and then each failed or partially failed test was reviewed and evaluated. The purpose of this evaluation was to demonstrate that the increased calibration surveillance interval would not increase the period an instrument would be unavailable. The results of this review supports the above conclusion that the impact on safety, if any, is small as a result of the change in the subject surveillance interval.

A second evaluation performed an instrument drift analysis for the increase in the calibration interval to a maximum of 30 months. The summary of the drift analysis is below:

The GE methodology, previously described, was used to perform the drift analysis on the Mercoid D7400, Main Stack Gas Sample Pressure Switch, (TS 4.8.C.4d). Based on this drift analysis, we conclude an increase in the surveillance interval to accommodate a 24 month fuel cycle does not affect these instruments with respect to drift.

RPS MSL Radiation Monitors: The current radiation monitors installed for Unit 2 and Unit 3 are being replaced by General Electric's NUMAC microprocessor based instrumentation. This instrumentation is scheduled to be replaced on Unit 2 during the next refueling outage which started in September 1992, and on Unit 3 during the next refueling outage currently

scheduled for September 1993. Since the NUMAC instrumentation has not been installed at PBAPS, no drift study is possible. However, GE has published data that supports the conclusion that the 30 month drift values do not exceed existing surveillance test drift allowances. Since for Unit 2, the NUMAC instrumentation will be replaced prior to commencing a 24 Month Cycle, the GE provided justification is sufficient for changing the surveillance interval to 24 months with a maximum of 30 months. On Unit 3, the NUMAC instrumentation will not be installed until the next refueling outage currently scheduled for September 1993. Since Unit 3 is currently on a 24 Month Operating Cycle, this will result in the existing instrumentation being subjected to a surveillance interval of greater than the current evaluated interval of 22.5 month (18 months plus grace). For this additional period the instrument may drift. This is not considered to be a problem because this instrument (except the detector) is calibrated quarterly and the setpoint is checked by a weekly functional test. These tests will identify any potential drift of these instruments (except for the detector and cable) during this period of time. Furthermore, the readout of these instruments are monitored by station personnel and any deviation greater than +100 mR/hr/-200 mR/hr will require further action by plant staff. The quarterly and weekly surveillance tests, monitoring by plant staff, and the fact that the ion chamber detectors and cable are not considered susceptible to drift ensure that there is no potential impact on the subject instrument availability by allowing the additional time interval of source calibration of the existing radiation monitors. If Unit 2 NUMAC instrumentation is not installed during the current refuel outage a similiar justification would still apply for extending the surveillance frequency to 24 months.

General Atomics Rad Monitors: The drywell high range radiation monitors are manufactured by General Atomics (Table 4.2.F, item 18). A review of the surveillance tests indicates that a sufficient amount of historical data does not exist to satisfy the statistical algorithms of the GE drift computer program. A closer examination of the data from the surveillance tests identifies that, except for equipment that malfunctioned and had to be replaced, the monitors did not require recalibration for a period of time from 1988 to 1991. Based on the above discussion that historical data for the radiation monitors shows that recalibration was not required for a period of time greater than 24 months, the conclusion is made that the recalibration interval can be extended. Further, the instrumentation will continue to be monitored for drift using the trending program being established for instrument drift.

Based on the above evaluations, it is concluded that the impact on instrument availability, if any, is small as a result of the 24 month surveillance interval changes.

The wording change to Technical Specification Table 4.2.F, items 19 and 20, are being made to ensure that the present calibration surveillance interval remains at the specified frequency when the definition of operating cycle is changed. Because the change maintains the calibration interval at the same frequency, this change can be considered an administrative change.

(9) Control Rod Block

TS Table 4.2.C, item 10 page 83

TS Table 4.2.C, item 10 defines the minimum test and calibration frequency for Control Rod Blocks Actuation. The calibration frequency for the Scram Discharge Instrument Volume High Level, instrument channel is delineated as "once/operating cycle".

Safety Discussion: The subject Technical Specification line item currently requires the calibration testing of the subject instrumentation to be performed once per operating cycle. The calibration surveillance is performed to ensure that the instrument is properly aligned so that at a previously evaluated setpoint, actuation takes place to provide the required safety function. By increasing the operating cycle length, the time interval for calibration surveillance of the subject instrumentation will be increased. However, as currently required by PBAPS Technical Specifications, functional tests are performed during the operating cycle more frequently than the calibration surveillance.

The Control Rod Block instrumentation is classified as safety related (for pressure boundary only). Instrumentation purchased for this function is highly reliable and meets the design criteria of safety related status. Based on the above discussion, the conclusion is made that the negligible impact on instrumentation availability permits the change to 24 month surveillance intervals.

To verify this conclusion, an historical search of the surveillance tests for each instrument was performed. The search identified all failed or partially failed tests, and then each failed or partially failed test was reviewed and evaluated. The purpose of this evaluation was to demonstrate that the increased calibration surveillance interval would not increase the period an instrument would be unavailable. The

results support the above conclusion that the impact on instrument availability, if any, is small as a result of the change in the subject surveillance interval.

A second evaluation performed an instrument drift analysis for the increase in the calibration interval to a maximum of 30 months. The purpose of this evaluation was to support the conclusion that the impact due to drift on the subject instruments would have a small, if any, impact on the instrument availability. The following summarizes the arguments that the impact from drift for the increased surveillance interval will have a small, if any, impact on instrument availability. Magnetrol Switches provide the input for the Scram Discharge Volume (SDV) for a Control Rod Block, Table 4.2.c, item 10. The acceptance criteria of a test for the switch is that the switch contacts change state and indicate an alarm, when a rising water level corresponding to 25 gallons is reached. This acceptance criteria is observed with a marked sight glass. The alarm is confirmed to actuate when the observed level is at or below 25 gallons. Based on this method of testing, there are no as-found and as-left values. Therefore, a 30 month drift value cannot be determined. A review of the results of existing surveillance tests indicates that, except for tests with defective switches that had to be replaced, the tests were satisfactory. This indicates that the switches actuated at or below a level corresponding to 25 gallons unless a switch was defective. Further, the Magnetrol level switches have the same trip mechanism as the SDV Switches used at the Limerick Generating Station (LGS). For LGS, the Magnetrol SDV Switches have been evaluated satisfactorily for 30 month drift. Based on the above discussion, the Magnetrol Switches have operated satisfactorily without recalibration and have been identified to be similar switches that have been satisfactorily evaluated for drift at LGS. Therefore, it is concluded that the surveillance interval for these switches can be increased to accommodate a 24 month fuel cycle.

Other Changes to the PBAPS Technical Specifications to Support 24 Fuel Cycle Operation:

In addition to the proposed changes to the instrumentation TS line items, the following is a discussion of other changes PECo is requesting to support a change to a 24 month fuel cycle. The overall impact of these changes has been shown to be minimal based on the combination of the evaluations provided for the individual TS line items changes proposed in the submittal and the earlier submittal.

(1) The following changes to the Definition Section (page 8) are being proposed:

- the definition of "Once per Cycle" will be changed from "At least once per 550 days" to "At least once per 732" days.
- the definition of "Refuel" will be changed from "At least once per 550 days" to "At least once per 732 days".
- the definition of "(N) Refuel Cycle" will be changed from "At least once per (550xN) days" to "At least once per (732xN) days".
- A new definition for 24 months will be added: "At least once per 732 days".

(2) In the bases of PBAPS TS sections 3/4.6.D, page 157 the following change is proposed: change "50 percent of the valves **per year**..." to "50 per cent of the valves **per cycle**....". This change to the bases will correct an omission that occurred when PECo converted from a 12 month fuel cycle to an 18 month fuel cycle. PECo changed the TS but did not reflect the change in the bases. The change will maintain consistency between the TS and the current operating practices, and the TS bases.

(3) In the bases of PBAPS TS section 3/4.7.A, page 193, the following change is proposed: delete "approximately once per year" from the "Drywell Interior Paragraph". This change to the bases will correct an omission that occurred when PECo converted from a 12 month fuel cycle to an 18 month fuel cycle. PECo changed the TS but did not reflect the change in the bases. The change will maintain consistency between the TS, the current operating practices, and the TS Bases.

(4) Technical Specification Table 4.15 (page 240v): change the definition of "R" from "every 18 months" to "every 24 months".

Safety Assessment Summary

The proposed TS changes involve a change in the surveillance testing intervals from 18 months to 24 months to facilitate the current change in the PBAPS Unit 2 and Unit 3 refueling cycles from 18 months to 24 months. The proposed changes are to the surveillance frequencies only, and do not involve a change to the TS surveillance requirements themselves or the way in which the surveillances are performed. Additionally, the impact of the proposed TS changes on the availability of equipment or systems required to mitigate the consequences of an accident, if any, is small based on other, more frequent testing or the availability of

redundant systems or equipment. A review of surveillance test history demonstrated that there was no evidence of any failures that would invalidate the above conclusions.

Information Supporting a Finding of No Significant Hazards Consideration

We have concluded that the proposed changes to the PBAPS TS, to facilitate a change from 18 month to 24 month refueling cycles, do not involve a Significant Hazards Consideration. In support of this determination, an evaluation of each of the three standards set forth in 10CFR50.92 is provided below.

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

   The proposed TS changes involve a change in the surveillance testing intervals to facilitate the current change in the PBAPS Unit 2 and Unit 3 refueling cycles from 18 months to 24 months. The proposed TS changes do not physically impact the plant nor do they impact any design or functional requirements of the associated systems. That is, the proposed TS changes do not degrade the performance or increase the challenges of any safety systems assumed to function in the accident analysis below the design basis. The proposed TS changes do not impact the TS surveillance requirements themselves nor the way in which the surveillances are performed. In addition, the proposed TS changes do not introduce any new accident initiators since no accidents previously evaluated have as their initiators anything related to the change in the frequency of surveillance testing. Also, the proposed TS changes do not affect the availability of equipment or systems required to mitigate the consequences of an accident because of other, more frequent testing or the availability of redundant systems or equipment. Furthermore, an historical review of surveillance test results indicated that there was no evidence of any failures that would invalidate the above conclusions. Therefore, the proposed TS changes do not increase the probability or consequences of an accident previously evaluated.

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

The proposed TS changes involve a change in the surveillance testing intervals to facilitate the current change in the PBAPS Unit 2 and Unit 3 refueling cycles from 18 months to 24 months. The proposed TS changes do not introduce any failure mechanisms of a different type than those previously evaluated since there are no physical changes being made to the facility. In addition, the surveillance test requirements themselves and the way surveillance tests are performed will remain unchanged. Furthermore, an historical review of surveillance test results indicated there was no evidence of any failures that would invalidate the above conclusions. Therefore, the proposed TS changes do not create the possibility of a new or different kind of accident from any previously evaluated.

3. The proposed TS changes do not involve a significant reduction in a margin of safety.

Although the proposed TS changes will result in an increase in the interval between surveillance tests, the impact on system availability is small based on other, more frequent testing or redundant systems or equipment, and there is no evidence of any failures that would impact, if any, the availability of the systems. Therefore, the assumptions in the licensing basis are not impacted, and the proposed TS changes do not reduce a margin of safety.

Information Supporting an Environmental Assessment

An environmental assessment is not required for the changes proposed by this Change Request because the requested changes conform to the criteria for "actions eligible for categorical exclusion," as specified in 10CFR51.22(c)(9). The requested changes will have no impact on the environment. The requested changes do not involve a significant hazards consideration as discussed in the preceding section. The requested changes do not involve a significant change in the types or significant increase in the amounts of any effluents that may be released offsite. In addition, the proposed changes do not involve a 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 to the TS and have concluded that they do not involve an unreviewed safety question, or a significant hazards consideration, and will not endanger the health and safety of the public.