PHILADELPHIA ELECTRIC COMPANY

NUCLEAR GROUP HEADQUARTERS

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STATION SUPPORT DEPARTMENT

July 7, 1993

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
Additional Information Regarding Technical Specification
Change Requests to Accommodate a 24 Month Fuel Cycle

Reference:
1. Letter from G. J. Beck (PECo) to USNRC, dated September 28, 1992
2. Letter from G. J. Beck (PECo) to USNRC, dated October 19, 1992
3. Letter from J. W. Shea (NRC) to G. A. Hunger, Jr. (PECo), dated April 30, 1993
4. Letter from G. A. Hunger, Jr. (PECo) to USNRC, dated May 28, 1993
5. Letter from J. W. Shea (NRC) to G. A. Hunger, Jr. (PECo), dated June 17, 1993

Dear Sir:

In References (1) and (2), Philadelphia Electric Company (PECo) submitted Technical Specifications Change Requests (TSCR) 92-03 and 92-04, respectively. These TSCRs were submitted to accommodate a 24 month fuel cycle. TSCR 92-03 addressed non-instrument TS changes, and TSCR 92-04 addressed instrument TS changes. In Reference (3), the NRC transmitted a Request for Additional Information (RAI) related to TSCR 92-04. PECo's response to this RAI was provided in Reference (4). The purpose of this letter is to provide additional information related to both TSCR 92-03 and 92-04.

In Reference (5), the NRC transmitted a second RAI, consisting of five questions associated with the instrument changes proposed in TSCR 92-04. PECo's response to this RAI is provided as Enclosure 1 to this letter. During a July 1, 1993 telephone conversation between the NRC and PECo, an additional question was presented. PECo's response to this additional question is also included in Enclosure 1. Each of the six NRC questions is restated followed by the PECo response.

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Enclosure 2 to this letter documents information which was provided to the NRC during a conference call on June 23, 1993. This information is related to the snubber functional testing program. Also included in Enclosure 2 is a clarification regarding testing of the emergency diesel generators (EDGs). Both the snubber testing and EDG testing were addressed in TSCR 92-03.

This information is being submitted under affirmation, with the appropriate affidavit. If you have any questions, please feel free to contact us.

Sincerely yours,

M. C. Kray for

G. A. Hunger, Jr., Director
Licensing Section

Enclosures, Affidavit

cc: T. T. Martin, Administrator, Region I, USNRC
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 Request for Additional Information for Technical Specification Change Request (TSCR) 92-03 and TSCR 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.

Gerald R. Rainey

Vice President

Subscribed and sworn to

before me this 7th day

of July 1993.

Erica A. Santori

Notary Public

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

PEACH BOTTOM ATOMIC POWER STATION, UNITS 2 AND 3
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION RELATED TO TECHNICAL SPECIFICATIONS CHANGE REQUEST 92-04

QUESTION 1:

The Rosemount report D8900126 documenting a 30-month drift term for type 1152, 1153, and 1154 transmitters indicates that only four transmitters were included in the long-term testing program. The test results indicate that all 4 transmitters remained bounded by the published stability specification for 30 months. Please discuss the validity of these test results as being representative of the 1152, 1153, and 1154 transmitter population. It is not clear that 4 transmitters provide a large enough sample size to determine a stability/drift specification for these transmitters. Confirm that as found/as left plant-specific surveillance data validates the vendor drift value.

RESPONSE:

The Rosemount test is similar to the type of testing done for environmental qualification of equipment and was used to specify the drift performance of the nuclear qualified 1100 series transmitters. The test was also used for Rosemount to redefine the stability term as including only the drift of the transmitter. The old term included both transmitter accuracy and drift. This test is also an independent verification of the results contained in Section 4.4 of NEDC-31336, response to open item 5.4, "Expanding Manufacturers Performance Specifications." Under the section's conclusions (page 4-57, subparagraph 3) it is stated, "Surveillance intervals up to 24 months and beyond are feasible for both the transmitters and trip units, without exceeding design allowances." As can be seen from Figure 4.4-4 on page 4-50, the as-found/as-left field data taken from Peach Bottom Units 2 and 3 and Grand Gulf Unit 1 support a calibration interval of 33 months.

Based on the results of the two studies and review of surveillance test failures, it was not necessary to collect additional data for a 24 month fuel cycle.

QUESTION 2:

The drift terms developed in the referenced submittal are based on the methodology referenced in NEDC-31336. Discuss using existing setpoint acceptance criteria (i.e. procedure drift allowance) as the basis of acceptability for the General Electric (GE) developed drift terms. For example, the Peach Bottom procedure drift allowance is defined as the difference between the "leave along zone" and the TS value for protective action setpoints. Does this allowance include the same error terms as the GE developed drift term? Provide justification as to the suitability of comparing the GE methodology derived drift term to the Peach Bottom "procedure drift allowance" when evaluating a 30-month surveillance interval.

RESPONSE:

Our submittal is based on the mathematical methods for determining instrument drift used in the General Electric Instrument Setpoint Methodology Report (NEDC-31336).

This mathematical method was developed and justified in response to NRC open item 5.4. As described in Section 4.4 of NEDC-31336, the purpose of the section was to present the results of the GE evaluation of field data on performance of Rosemount transmitters and trip units in relation to the design assumptions for drift embodied in Section 1, "Instrument Setpoint Methodology," and Section 2, "Instrument Accuracy and Drift," of the report. Therefore, the mathematical model can be used to determine drift for any instruments regardless of the original setpoint methodology.

Our use of Section 4.4 differs from the original use in NEDC-31336. GE removed the various errors (e.g., measuring and test equipment, temperature, and accuracy), which are inherent in the field data from the observed in-service difference term to determine the drift of the instrument. GE demonstrated that the instrument setpoint methodology appropriately handled the extension of vendor drift specifications. In our TSCR 92-04 submittal, we are interested in the maximum expected observed in-service difference of the instrument setpoint on a 30-month surveillance test interval rather than the drift of the instrument. Therefore, we have not identified or removed the various errors contained in the field data. These errors are not affected by extending the surveillance interval from 18 to 24 months. The resulting drift was determined with a 95% probability and good confidence for our plants.

QUESTION 3:

For main steam resistance temperature detectors (RTD), describe the calibration/functional testing performed and the criteria used to determine the operability and accuracy of these RTDs. If calibration testing is not done discuss the means used to determine the continued accuracy of main steam RTDs.

RESPONSE:

I. The main steam RTDs are located in the ventilation exhaust duct from the outboard main steam isolation valve room and at various points above the main steam line. They are arranged in groups of four (one above each main steam line) along the main steam lines. Each of the groupings is functionally tested by comparing the temperature indication between the two channels in the same division. The channel is operational if the difference between the two channels is within 10°F.

II. The above testing method is sufficient based on the following:

   A. The physical features of RTDs provide for a high degree of stability in that they are completely passive and have no active components.

B. Both NUREG/CR-5560, "Aging of Nuclear Plant Resistance Temperature Detectors," and EPRI/RP2409-15, "Effects of Aging of Resistance Temperature Detectors on Cross-Calibration Techniques," note that RTDs have small drift. The main steam line RTDs have a required accuracy of ±3°F while the required accuracy for the suppression pool RTDs is ±1°F.

1. NUREG/CR-5560: This report states that RTDs have a very small drift (data is bounded by ±0.2°C/0.36°F) after their initial operating period of approximately 6 months. This band remains constant out to the end of the thermal aging test at 18 months. The report also cites two tests done on naturally aged RTDs. The first test included 8 RTDs that had been operated from 2 to 5 years and results of that test fell within the 0.2°C drift band. The second test was run on 16 RTDs that had been in service for five years. Five of the RTDs where found out of the acceptance band of the test and where replaced. The test was rerun resulting in the 11 original RTDs showed a drift band of 0.13°C (0.23°F)

2. EPRI/RP2409-15: This report essentially agrees with the findings of NUREG/CR-5560. This report also includes findings from one Boiling Water Reactor (BWR) plant where the RTDs are subject to much milder operating conditions than that of a Pressurized Water Reactor (PWR) (100°F and atmospheric pressure compared to 560°F and 1000 psia). Section 7.3, page 54, "Drift Rate Determination," shows the average drift rate from 0.25°F/yr at installation down to 0.12°F/yr at approximately 7 years. This report also showed that the RTDs in the study tended to favor a positive drift 61.8% of the time. This tendency is conservative in our case because this positive drift would initiate the protective action associated with the RTD to occur sooner than necessary.

C. The readouts for these RTDs are recorded by plant operators on a daily basis (ST-O-100-01Z). The readings have acceptance criteria for the minimum and maximum reading for each RTD and maximum delta between any two RTDs in a grouping. Corrective actions are initiated for any reading that does not meet the acceptance criteria.

QUESTION 4:

The response to question 11 of the April 30, 1993 RAI references RTDs. The licensing submittal indicates that these are thermocouples. Please clarify as to what type of equipment is installed. Additionally, describe the methods used to determine the accuracy of the suppression pool thermocouples during surveillance testing or, if testing is not done, discuss how the accuracy of the installed thermocouples is determined.

RESPONSE:

Our review of the system design documents and surveillance tests shows that the original submittal was in error by identifying the Pyco devices as thermocouples. The devices are Pyco resistance temperature detectors (100 ohm, platinum).

The suppression pool is divided into 13 sectors. Each sector is monitored by two RTDs one from Spotmos "A" and one from Spotmos "B". During the calibration surveillance test, the RTDs are functionally checked by comparing the indication for the "A" and "B" detector in each sector. The difference must be within 3°F to be operational.

The above testing method is sufficient based on the response to question 3 of this RAI. The acceptance criteria differ from the main steam line RTD readings in that the maximum difference between the "A" and "B" RTD is 2.8°F for each sector.

QUESTION 5:

The drift documentation provided for the proposed NUMAC equipment specifically excludes the contribution from the sensors. Discuss the applicability of this document to 30 month sensor calibrations. For drift values referenced to less than 30 months, describe the methodology used to expand the drift term to a 30-month value.

RESPONSE:

The detector used for Main Steam Line Radiation Monitoring (MSLRM) is a pressurized gamma ionization chamber and as such is not subject to drift. The loss of gas from the detector (loss of sensitivity) would be detected by the daily operator's readings or during the source calibration check of the detector which is conducted each refueling outage. Further, Main Steam Line Radiation Monitors do not have a safety or analytical limit associated with them. No credit is taken for the trip function in the safety analysis of the Updated Final Safety Analysis Report.

QUESTION 6:

The drywell pressure instrumentation drift analysis results represent only an 18-month value. Provide details on the method of determining the 30-month drift term based on the limited data set of the drift study. Also confirm that a surveillance history evaluation was performed on the plant as-left and as-found drift data. No assessment of instrument availability was presented in the submittal. Provide details on the stated change in calibration method for drywell instrumentation.

RESPONSE:

The GE program was able to calculate an estimated 18-month drift number. This estimated drift number is 44% of the present allowable drift value. If we use linear projection to determine the estimated 30-month value, the results would only be 73% of the present allowable drift value. The projected estimated time that would be equal to the present allowable drift is 40.91 months. Therefore, based on the small drift number as compared to the allowable and the fact that the review of testing before the 1987-1989 shutdown showed that the switches did not need recalibration from the time they were installed in 1983, we conclude that the present allowance will be more than sufficient for the additional seven and half months between surveillance tests.

Since these devices have not been a concern in the past, as verified by both surveillance history and equipment history, we do not expect device availability to change with a 24 month refuel cycle.

PEACH BOTTOM ATOMIC POWER STATION, UNITS 2 AND 3 ADDITIONAL INFORMATION RELATED TO TECHNICAL SPECIFICATION CHANGE REQUEST 92-03

Snubber Functional Testing

1. Snubber Surveillance Test Criteria

   The table in Attachment 1 details the surveillance test (ST) criteria that were used for Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3 mechanical and hydraulic snubbers.

2. ST History

   The history of STs at PBAPS is included in Attachment 2. An explanation of the ST results is included below.

3. ST Results and ST Criteria

   Hydraulic Snubber Acceptance Criteria

   The hydraulic snubber acceptance criteria for as-found lockup and bleed velocities and the associated setting criteria are established for the general population of hydraulic snubbers. The as-found and as-left settings reflect velocities that provide adequate protection during thermal transients, seismic and other dynamic events and during post lock-up thermal expansion. These events occur in various environmental conditions including changes in ambient temperature. The density of hydraulic snubber fluid varies with temperature, and therefore performance varies with temperature. The acceptance and setting criteria are established to ensure a snubber within the criteria will perform its design function in a wide variety of temperatures and applications. A snubber found outside the acceptance criteria, yet within the manufacturer's guidance, may still be operable if the snubber is exposed to less severe temperatures or applications than those considered when establishing the acceptance criteria. To make this determination, an engineering evaluation is completed.

   Mechanical Snubber Acceptance Criteria

   Similar to hydraulic snubber acceptance criteria, individual mechanical snubber acceptance criteria may vary from one location, system or application to another due to differences in the structural capacity or configuration of piping systems and components. Because of this variance, each individual snubber could have unique acceptance criteria; however, the ST acceptance criteria are established at the minimum values to assure operability without further detailed evaluations. With the ST acceptance criteria established for this condition, a snubber outside the ST criteria, but with in the manufacturer's guidance may be able to perform its function. An engineering evaluation is required for this determination.

4. Snubber Inoperability:

When a snubber has been declared inoperable (i.e., after Engineering has determined that the snubber does not meet its design criteria) an increased sample of snubbers is tested in accordance with Technical Specification (TS) 4.11.D.4.a. The inoperable snubber is repaired and retested before being returned to service and then retested during the next refueling outage. This retesting is in addition to the 10 percent sample size and in accordance with TS 4.11.D.5. In addition, an evaluation of the affect of the inoperable snubber on the snubber's associated piping or components is performed. This evaluation is performed to determine if the associated system has been adversely affected by the inoperability of the snubber and to determine if additional TS actions should be performed.

Emergency Diesel Generator

In our TSCR 92-03 submittal, we did not explicitly include TS 4.9.A.1.2.f.7. This requirement was added to the TS subsequent to our TSCR 92-03 submittal. This requirement is to verify that the fuel transfer pump transfers fuel from each fuel storage tank to the day tank of each diesel via the installed cross connection lines. It is our intent that this requirement be included in our TSCR. This clarification does not affect the finding of no significant hazards.

UNIT	REFUEL OUTAGE	ST ACCEPTANCE CRITERIA: HYDRAULIC — CALIBRATION DATE	LOCKING VELOCITY	BLEED VELOCITY	MECHANICAL
2	2RF05	a) All snubbers calibrated before January 3, 1979	5 to 30 in/min	1/8 to 10 in/min	N/A
		b) All snubbers calibrated after January 3, 1979	5 to 20 in/min	1/8 to 5 in/min	
2	2RF06	a) All snubbers calibrated before January 3, 1979	5 to 30 in/min	1/8 to 10 in/min	. Max drag load (2% of rated load) . Max allowable acceleration = .02g's . Min allowable acceleration = .001g's . Drag force did not increase more than 50% since last functional test
		b) All snubbers calibrated after January 3, 1979	5 to 20 in/min	1/8 to 5 in/min	
2	2RF07	**FOR TEMPERATURES BETWEEN 70°F AND 80°F**			. Max drag load (2% of rated load) . Max allowable acceleration = .02g's . Min allowable acceleration = .001g's . Drag force did not increase more than 50% since last functional test
		a) Snubbers calibrated before January 3, 1979	7 to 30 in/min	.5 to 10 in/min	
		b) Snubbers calibrated after January 3, 1979	7 to 20 in/min	.5 to 7 in/min	
		FOR TEMPERATURES ABOVE 80°F AND NO GREATER THAN 90°F			
		a) Snubbers calibrated before January 3, 1979	9 to 41 in/min	.7 to 13.5 in/min	
		b) Snubbers calibrated after January 3, 1979	9 to 28 in/min	.7 to 9 in/min	

ST ACCEPTANCE CRITERIA

UNIT	REFUEL OUTAGE	HYDRAULIC	MECHANICAL
2	2RF08	**FOR TEMPERATURES BETWEEN 70°F AND 80°F** LOCKING VELOCITY: 7 to 20 in/min; BLEED VELOCITY: .5 to 7 in/min **FOR TEMPERATURES ABOVE 80°F AND NO GREATER THAN 90°F** LOCKING VELOCITY: 9 to 28 in/min; BLEED VELOCITY: .7 to 9 in/min	. Max drag load (2% of rated load) . Max allowable acceleration = .02g's . Min allowable acceleration = .001g's . Drag force did not increase more than 50% since last functional test
3	3RF05	CALIBRATION DATE / LOCKING VELOCITY / BLEED VELOCITY a) All snubbers calibrated before January 3, 1979: 5 to 30 in/min; 1/8 to 10 in/min b) All snubbers calibrated after January 3, 1979: 5 to 20 in/min; 1/8 to 5 in/min	N/A
3	3RF06	**FOR TEMPERATURES BETWEEN 70°F AND 80°F** CALIBRATION DATE / LOCKING VELOCITY / BLEED VELOCITY a) Snubbers calibrated before January 3, 1979: 7 to 30 in/min; .5 to 10 in/min b) Snubbers calibrated after January 3, 1979: 7 to 20 in/min; .5 to 7 in/min **FOR TEMPERATURES ABOVE 80°F AND NO GREATER THAN 90°F** CALIBRATION DATE / LOCKING VELOCITY / BLEED VELOCITY a) Snubbers calibrated before January 3, 1979: 9 to 41 in/min; .7 to 13.5 in/min b) Snubbers calibrated after January 3, 1979: 9 to 28 in/min; .7 to 9 in/min	. Max drag load (2% of rated load) . Max allowable acceleration = .02g's . Min allowable acceleration = .001g's . Drag force did not increase more than 50% since last functional test

UNIT	REFUEL OUTAGE	ST ACCEPTANCE CRITERIA	
		HYDRAULIC	MECHANICAL
3	3RF07	FOR TEMPERATURES BETWEEN 70°F AND 80°F	. Max drag load (2% of rated load) . Max allowable acceleration = .02g's . Min allowable acceleration = .001g's . Drag force did not increase more than 50% since last functional test
3	3RF08	FOR TEMPERATURES BETWEEN 70°F AND 80°F	. Max drag load (2% of rated load) . Max allowable acceleration = .02g's . Min allowable acceleration = .001g's . Drag force did not increase more than 50% since last functional test

Unit 3, 3RF07 — Hydraulic

FOR TEMPERATURES BETWEEN 70°F AND 80°F

CALIBRATION DATE	LOCKING VELOCITY	BLEED VELOCITY
a) Snubbers calibrated before January 3, 1979	7 to 30 in/min	.5 to 10 in/min
b) Snubbers calibrated after January 3, 1979	7 to 20 in/min	.5 to 7 in/min

FOR TEMPERATURES ABOVE 80°F AND NO GREATER THAN 90°F

CALIBRATION DATE	LOCKING VELOCITY	BLEED VELOCITY
a) Snubbers calibrated before January 3, 1979	9 to 41 in/min	.7 to 13.5 in/min
b) Snubbers calibrated after January 3, 1979	9 to 28 in/min	.7 to 9 in/min

Unit 3, 3RF08 — Hydraulic

FOR TEMPERATURES BETWEEN 70°F AND 80°F

LOCKING VELOCITY	BLEED VELOCITY
7 to 20 in/min	.5 to 7 in/min

FOR TEMPERATURES ABOVE 80°F AND NO GREATER THAN 90°F

LOCKING VELOCITY	BLEED VELOCITY
9 to 28 in/min	.7 to 9 in/min

PBAPS UNITS 2 & 3 --- HISTORICAL SNUBBER FUNCTIONAL SURVEILLANCE TEST DATA

UNIT NO.	RFO	DATE S\D	DATE S\U	SNUBBER TYPE	SNUBBERS TESTED	DIDN'T MEET ST CRITERIA	SYSTEM OPERABLE	ENGINEERING EVALUATIONS	NOTES
2	2RFO5	2/82	7/82	HYDR.	30	2	YES	NO EVALUATION LOCATED	1
2	2RFO6	4/84	7/85	HYDR.	30	0	YES	NO HYDR. FUNCT. FAILURES	4
	Mini Outage	11/85		MECH.	62	23	YES	SAFETY EVAL., DATED 12/20/85	2
2	2RFO7	3/87	4/89	HYDR.	12	18	YES	SAFETY EVAL., DATED 12/9/87	3
				MECH.	8	7	YES	REF. MOD No. 2245	3
2	2RFO8	1/91	3/91	HYDR.	13	10	YES	EWR No. A0006312	
				MECH.	9	2	YES	EWR No. A0006312	
3	3RFO5	2/83	10/83	HYDR.	10	0	YES	NO FUNCT. FAILURES	4
3	3RFO6	7/85	3/86	HYDR.	123	54	YES	SAFETY EVAL., DATED 2/18/86	5
				MECH.	71	47	YES	ALL MECH. SNUBBERS TESTED	2
3	3RFO7	3/87	12/89	HYDR.	13	29	YES	SAFETY EVAL., DATED 12/9/87 &	3
				MECH.	8	6	YES	EWR No. P50323	3
3	3RFO8	9/91	12/91	HYDR.	13	2	YES	NCRs P91730, P91748 &	
				MECH.	7	3	YES	P91758	

NOTE 1: For each snubber which did not meet the ST acceptance criteria an additional 10% sample was selected until the sample of snubbers meet the acceptance criteria. An engineering evaluation is not avaliable for this surveillance test. However, the system was operable based upon the results of subsequent evaluations.

NOTE 2: Mechanical snubbers were not required to be tested, prior to this outage. During this outage all mechanical snubbers were tested. There was a high number of mechanical snubbers not meeting the acceptance criteria because of a generic manufacturers defect with the grease. However, the engineering evaluations completed for the associated snubbers and piping systems indicated that all systems still remained operable.

TABLE NO. 1

PBAPS UNITS 2 & 3 --- HISTORICAL SNUBBER FUNCTIONAL SURVEILLANCE TEST DATA

NOTE 3: The total number of "snubbers tested" was the total number of snubbers required to be tested and listed on survillance test 13.31 and 13.48. However, during the shutdown additional snubbers were tested beyond the TS requirements because of the pipe replacement. The additional snubbers which were removed because of piping modifications were also tested. All the snubbers that did not meet the ST acceptance criteria were included in the same engineering evaluation. The evaluations indicated that all associated snubbers and piping systems were operable.

NOTE 4: Testing of the 10% sample of the hydraulic snubbers selected was completed (approx. 10 snubbers tested) and all snubbers meet the acceptance criteria, therefore, an engineering evaluation was not required. Additional snubbers may have been tested because of generic problems or that maintance did not want to jepordize the outage schedule with last minute required snubber testing.

NOTE 5: A majority of the rejections of hydraulic snubbers was due to the excessively restrictive ST criteria applied to the snubbers testing which "failed" snubbers that were, infact, working properly.