



PECO NUCLEAR

A Unit of PECO Energy

10CFR 50.90
GL 97-04

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

June 29, 2000

Docket Nos. 50-277
50-278

License Nos. DPR-44
DPR-56

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555-0001

Subject: Peach Bottom Atomic Power Station, Units 2 and 3
Response to May 10, 2000, Telephone Questions Regarding
PECO Energy License Amendment Request Related to
Generic Letter 97-04

Reference: Letter from PECO Energy Company to the Nuclear Regulatory
Commission dated August 11, 1999

Dear Sir/Madam:

In a telephone conversation on May 10, 2000, NRC staff requested the following clarifying information in order to finalize their review of our subject license amendment request.

QUESTION 1:

Please provide a better copy of proposed table under Containment Overpressure License of the PBAPS UFSAR. I have three copies of the submittal and can barely read the table on page 2 of 4 of the proposed UFSAR pages on any of them.

RESPONSE:

We apologize for the poor copies and submit the following copy of the requested table. The entire text of the proposed PBAPS UFSAR addition is attached.

Time	COPL
0 to 10 minutes	2.25 psig
10 minutes to 12.5 hours	COPL of Figure 5.2.16
12.5 to 78 hours	Exponentially decreasing from Figure 5.2.16 to zero.

A001

QUESTION 2:

I have a copy of Calculation PM-1010; Rev. 2, "RHR Pump NPSH" dated 6/23/98 and was submitted in 1998. Is this the current NPSH calculation of record which will be used for this licensing basis change? If not, please provide the latest NPSH calculation of record.

RESPONSE:

While revision 4 of PM-1010 is the first revision that incorporates the license amendment request information (COPL), the current version is revision 5, which incorporates minor editorial changes. Calculations PM-1010 and PM-1013 are attached. PM-1010, the RHR pump NPSH calculation, uses the COPL as submitted to the NRC in the license amendment request. PM-1013 is the PBAPS, Units 2 and 3 Minimum Containment Pressure Available (MCPA) analysis from which the COPL was originally developed.

QUESTION 3:

Explain why the containment overpressure license (COPL) depicted in the proposed UFSAR figure 5.2.16 is different than the containment overpressure required (COPR) curve in the presentation attached to the PBAPS submittal (i.e., COPL is greater than COPR).

RESPONSE:

The PBAPS MCPA analysis (PM-1013) determined a conservative estimate for the minimum containment pressure that will be available during a design basis LOCA, including design basis containment leakage and use of containment sprays in accordance with plant emergency procedures. The COPL is developed from the MCPA analysis for the design basis LOCA by providing some additional margin (i.e., conservatism) from the MCPA analysis results, as discussed and agreed upon in the November 18, 1998 meeting between NRC Staff and PECO Energy Company personnel. This development of the COPL is explained below.

Short Term (\leq 10 minutes from event initiation)

The PBAPS MCPA analysis for the design basis LOCA assumes the control room operator will ensure ECCS pumps are operating at their design flow rates and initiate suppression pool cooling at 10 minutes from event initiation. The return flow path for suppression pool cooling is conservatively assumed through the containment spray headers. In the short term, prior to spray initiation at 10 minutes, containment pressure will be approximately that shown in UFSAR Figure 14.6.10A. Although this figure presents a maximum containment pressure evaluation, prior to the use of containment sprays at 10 minutes, a minimum containment pressure evaluation would not present significantly lower pressures. Thus the minimum containment pressure available prior to initiation of containment sprays at 10 minutes would be substantially greater than that required for pump NPSH. However, a containment overpressure license (COPL) limit of 2.25 psig is chosen to provide a conservative but reasonable limit for credit of containment overpressure during the early stage of a design basis LOCA.

Intermediate Term (> 10 minutes and ≤ 12.5 hours from event initiation)

The PBAPS MCPA analysis is a conservative estimate of containment pressure that will be available to the ECCS pumps for maintaining NPSH available greater than that required by the pump. However, the COPL during the intermediate term of the event provides an additional one-foot margin below the already conservative MCPA.

Long Term (> 12.5 hours from event initiation)

The design basis LOCA analysis assumes only one suppression pool cooling loop is used for the duration of the event. The suppression pool temperature profile of UFSAR Figure 14.6.12A, which was used to develop the MCPA, is only evaluated to a time of 45,680 seconds (about 12.5 hours). The MCPA analysis (PM-1013) includes an extrapolation of the suppression pool temperature profile assuming the continued use of only one suppression pool cooling loop. The extrapolation finds the suppression pool temperature returns to 150°F and the COPL reduces to 0 psig at approximately 78 hours from event initiation. Thus the COPL is defined as exponentially decreasing from the proposed UFSAR Figure 5.2.16 at 12.5 hours to 0 psig at 78 hours, as stated in the proposed UFSAR text and the above table (see response to Question 1).

Relationship Between COPL and COPR

As discussed in the November 18, 1998 meeting and documented in the Referenced submittal, a significant amount of containment overpressure credit is required (COPR) to ensure proper operation of the RHR and Core Spray pumps for the Design Basis Accident (DBA) LOCA at PBAPS Units 2 and 3. Therefore, the margin between MCPA and COPR is relatively small. Given that, COPL was defined in such a way as to provide regulatory margin below the MCPA, while providing some licensee margin for minor design changes which could affect the COPR. Allowing for margin in both directions in the establishment of the COPL should minimize the need for subsequent licensing actions while providing additional assurance beyond the conservative minimum containment pressure analysis that sufficient ECCS pump NPSH will always be available for DBA LOCA events.

With regard to specifics, the minimum margin between MCPA and COPR is 1.3 psig, and occurs at the maximum suppression pool temperature of 205.7°F. Verbal agreement was reached during the 11/18/98 meeting that it would be reasonable to establish the COPL at a value (or series of values) less than the MCPA by 1 foot. This is the approach that was taken in the Reference submittal.

Note that the MCPA is event specific and system independent, while COPR is both event and system dependent. The COPL is event and system independent (it is a defined curve or set of values), although it is based on the design basis LOCA MCPA, since this is the event that requires the most credit for containment overpressure.

QUESTION 4:

Confirm that the requested containment overpressure license curve is applicable to both the RHR and core spray pumps. Which pumps have a higher requirement for containment overpressure (RHR or core spray) for a design basis LOCA?

RESPONSE:

The COPL indicated on the proposed UFSAR Figure 5.2.16 is applicable to both the RHR and core spray pumps. The RHR pumps have a higher requirement for containment overpressure for the design basis LOCA. The COPL represents the maximum containment overpressure credit that can be taken for PBAPS, Units 2 and 3 design basis accident analysis. Note that although COPL represents the maximum credit, the analytical credit may not exceed the containment overpressure available for the specific event being analyzed.

Editorial Change to Reference Letter Attachment 1

In review of the Reference letter and its attachments, we identified a statement which should be clarified in order to ensure proper understanding. On page 3 of 6 of Attachment 1 to the Reference letter, in the first paragraph under Non-LOCA Events, the third sentence begins, "Since these events result in..." Please note the following replacement for this sentence:

"The combination of torus water temperatures, negligible torus water level drawdown, and essentially no suction strainer debris load results in the DB-LOCA bounding these events with regard to Containment Overpressure Required (COPR) and margin to MCPA."

The peak temperature for the DB-LOCA is documented as 205.7°F, while the peak temperature for the fire safe shutdown (FSSD) event is documented as 206°F. These temperatures are considered essentially the same. However, this editorial change more precisely describes how DB-LOCA bounds the other events.

If you have any further questions or require more information, please do not hesitate to contact us.

Very truly yours,



James A. Hutton
Director - Licensing

Enclosures: Affidavit, Proposed UFSAR text, Calculation PM-1010,
Calculation PM-1013

cc: H. J. Miller, Administrator, Region I, USNRC, w/o enc.
A. C. McMurtry, USNRC Senior Resident Inspector, PBAPS, w/o enc.

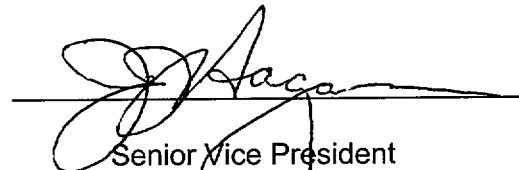
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Page 5

bcc: w/o enclosures
Manager, Financial Controls and Co-Owner Affairs,
Public Service Electric & Gas
R. I. McLean, State of Maryland
A. F. Kirby, III, Delmarva Power & Light Company/Atlantic Electric
R. R. Janati, Commonwealth of Pennsylvania
G. R. Rainey - 63C-3
C. P. Lewis - 63C-3
J. J. Hagan - 62C-3
J. W. Langenbach - 62C-3
J. Doering - PB, SMB4-9
G. L. Johnston - PB, A4-1S
P. J. Davison - PB, SMB3-2A
J. P. Grimes - 63B-1
R. W. Boyce - 63C-3
R. A. Kankus - 63C-5
A. A. Winter - PB, A4-5S
J. G. Hufnagel - 62A-1
PBAPS ISEG - PB, SMB4-6
Commitment Coordinator - 62A-1
Correspondence Control Desk - 61B-3
DAC - 61B-5
J. R. Berg - SMB3-3
G. R. Denny - 63B-3
J. A. Jordan - PB - TC
J. F. O'Rourke - 63B-3

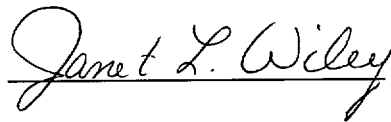
COMMONWEALTH OF PENNSYLVANIA :
: SS
COUNTY OF YORK :

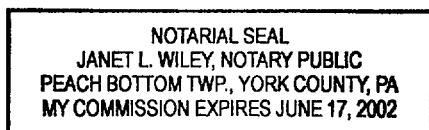
J. J. Hagan, being first duly sworn, deposes and says:

That he is Senior Vice President of PECO Energy Company; the Applicant herein; that he has read the attached letter related to the License Amendment Request associated with Generic Letter 97-04 for Peach Bottom Atomic Power Station, Units 2 and 3, Facility Operating License Nos. 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.


Senior Vice President

Subscribed and sworn to
before me this 29th day
of June 2000.


Notary Public



PROPOSED UFSAR TEXT

3 PAGES

5.2.4.3.2 Minimum Containment Pressure Available

Emergency pumps that take suction from the suppression pool rely on some amount of containment pressure to provide for adequate net positive suction head (NPSH) at elevated suppression pool temperatures. The bounding event for containment overpressure required (COPR) is the design basis large break loss of coolant accident (LOCA).

Figure 5.2.16 provides the results of an analysis to determine the minimum containment pressure available (MCPA) following a LOCA. The suppression pool temperature used for this analysis is the design basis LOCA response of Figure 14.6.12A. Conservative assumptions and inputs used in the analysis for the suppression pool temperature response are discussed in Section 14.6.3. Additional assumptions and inputs used to determine the MCPA are listed below.

1. Offsite power is assumed lost at the time of the accident and is not restored for the duration of the event.
2. One of the onsite diesel-generators fails to start and remains out of service during the entire event.
3. The RHR heat exchanger performance and high pressure service water (HPSW) supply flow rate and temperature are consistent with the design basis LOCA analysis (Section 14.6.3).
4. Prior to the accident the maximum temperature of 145°F exists in the drywell together with 100% relative humidity. Temperature in the wetwell is also assumed at its maximum of 95°F and 100% relative humidity.
5. Minimum pre-accident containment pressure of 0 psig.
6. A containment gas leakage rate of 0.5% per day. This leakage is the maximum allowable containment leakage and is assumed to be constant throughout the event, even at low containment pressures. It is also assumed that only non-condensable gas leaks.
7. At 10 minutes following the initiation of the event, pump flow rates are confirmed at their design flow rates and one loop of suppression pool cooling is initiated.
8. Suppression pool cooling return is via containment sprays. Spray effectiveness of 100% is assumed such that the containment atmosphere is saturated at the spray temperature.

Although the decay heat model used to generate the suppression pool temperature profile of Figure 14.6.12A did not include a 2 σ adder, other assumptions and input values ensure that the temperature profile of Figure 14.6.12A is conservative. This position has been reviewed and approved by the NRC in their letter dated xx/yy/zz.

The MCPA analysis of Figure 5.2.16 begins at 10 minutes following initiation of the event. An MCPA analysis was not performed for the time prior to 10 minutes. Although the containment pressure response of Figure 14.6.10A is a maximum containment pressure profile, without the use of containment sprays a minimum containment pressure profile would not be significantly less than the profile of Figure 14.6.10A.

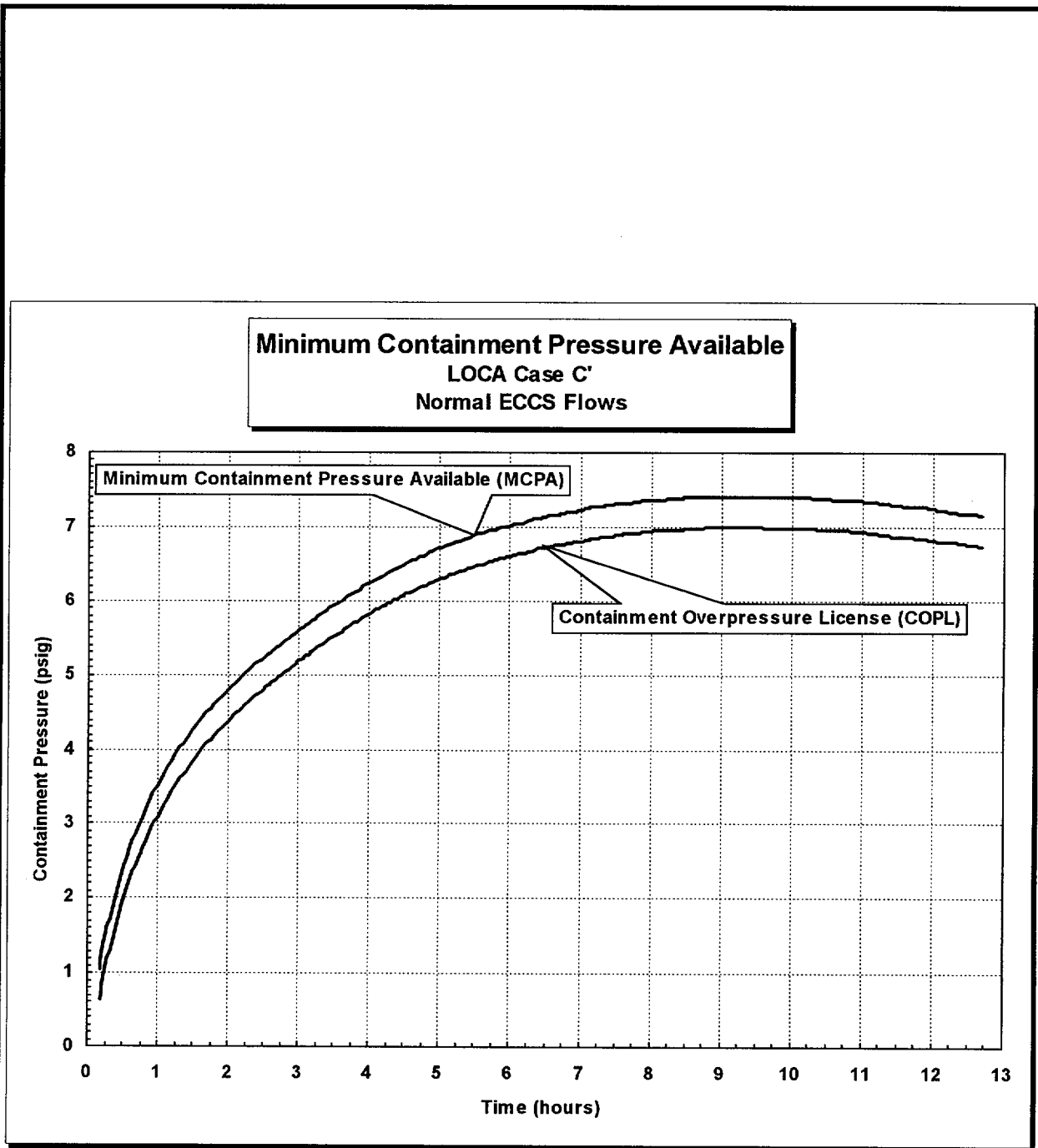
The MCPA analysis of Figure 5.2.16 is evaluated until just after the suppression pool temperature reaches its peak and begins to decrease, about 12.5 hours. Beyond this time MCPA continues to decrease until it again becomes atmospheric.

Containment Overpressure License

Because of the conservative assumptions and inputs values used in the MCPA analysis, use of the MCPA in NPSH analyses is conservative. However, the PBAPS licensing basis grants containment overpressure credit as follows:

Time	COPL
0 to 10 minutes	2.25 psig
10 minutes to 12.5 hours	COPL of Figure 5.2.16
12.5 to 78 hours	Exponentially decreasing from Figure 5.2.16 to zero.

For any design basis event, the maximum containment overpressure credit allowed is therefore the MCPA associated with that event, but not greater than the containment overpressure credit given in the table above.



PECO ENERGY COMPANY
PEACH BOTTOM ATOMIC POWER STATION
UNITS 2 AND 3
UPDATED FINAL SAFETY ANALYSIS REPORT

**MINIMUM CONTAINMENT PRESSURE
AVAILABLE AND CONTAINMENT
OVERPRESSURE LICENSE**

FIGURE 5.2.16 Rev. XX XX/XX