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U.S. Nuclear Regulatory Commission
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Washington, DC 20555-0001

Peach Bottom Atomic Power Station, Units 2 and 3
Renewed Facility Operating License Nos. DPR-44 and DPR-56
NRC Docket Nos. 50-277 and 50-278

Subject: Request for Enforcement Discretion for Technical Specification (TS) 3.7.2, "Emergency Service Water (ESW) System"

On August 23, 2014, Exelon Generation Company, LLC (EGC) verbally requested a Notice of Enforcement Discretion (NOED) associated with Technical Specification (TS) 3.7.2, "Emergency Service Water (ESW) System," for Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3. The following information was discussed with representatives of the U.S. Nuclear Regulatory Commission (USNRC) on August 23, 2014, with subsequent approval being verbally granted by the USNRC at 1922 hours.

A NOED was requested in accordance with NOED Criterion 03.03(b) of NRC Inspection Manual, Chapter 0410, "Notices of Enforcement Discretion." This is based on both Unit 2 and Unit 3 being in a 12-hour plant shutdown statement (TS 3.7.2, REQUIRED ACTION B.2). This TS REQUIRED ACTION requires that the plants be placed in Mode 3 if both subsystems of ESW are inoperable. The determination of this criterion's applicability is that the additional time to justify OPERABILITY of the ESW system beyond the 12-hour REQUIRED ACTION will not result in more than a minimal increase in radiological risk as determined in a qualitative risk assessment. The request was for an additional 48-hour extension to REQUIRED ACTION B.1 and REQUIRED ACTION B.2 for TS LCO 3.7.2 to allow for the development of an emergency relief request. The emergency relief request was subsequently submitted to the NRC on August 24, 2014. The NRC approved the emergency relief request at approximately 1930 hours on August 24, 2014, thereby allowing for ESW to be declared OPERABLE.

The enclosure provides the information necessary for approval of the requested enforcement discretion. The enclosure has been reviewed and approved by the Plant Operations Review Committee in accordance with the requirements of the EGC Quality Assurance Program. There are no regulatory commitments contained within this letter.

Should you have any questions or comments regarding this matter, please contact Jim Armstrong at 717-456-3351.

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Site Vice President – Peach Bottom Atomic Power Station
Exelon Generation Company, LLC

CCN: 14-67
Enclosure: Request for Enforcement Discretion for Technical Specification 3.7.2, "Emergency Service Water (ESW) System"

cc: Regional Administrator - USNRC Region I
USNRC Senior Resident Inspector
USNRC Project Manager - NRR

ENCLOSURE

Peach Bottom Atomic Power Station, Units 2 and 3

Docket Nos. 50-277 and 50-278

Renewed Facility Operating License Nos. DPR-44 and DPR-56

Request for Enforcement Discretion for
Technical Specification 3.7.2, "Emergency Service Water (ESW) System"

1. Specifically address what type of NOED is being requested (regular or natural event), which of the NOED criteria for appropriate plant conditions specified in IMC 0410, subsection 03.03 is satisfied, and how those criteria are satisfied. (Also reference subsection 06.02 of IMC 0410).

Exelon Generation Company, LLC, (EGC) is requesting enforcement discretion for Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3 from Technical Specification (TS) 3.7.2, "Emergency Service Water (ESW) System," Condition B.

A regular Notice of Enforcement Discretion (NOED) is being requested in accordance with NOED Criterion 03.03(b) of U.S. Nuclear Regulatory Commission (USNRC) Inspection Manual, Chapter 0410, "Notices of Enforcement Discretion". Criterion 03.03(b) involves the following condition: "an unnecessary down-power or the shutdown of a reactor without a corresponding health and safety benefit." The determination of this criterion's applicability is based on both Unit 2 and Unit 3 currently being in a 12-hour plant shutdown statement (TS 3.7.2, REQUIRED ACTION B.2). This TS REQUIRED ACTION requires the plants be placed in Mode 3 if both subsystems of ESW are inoperable. The determination of this criterion's applicability is based on the additional time to justify OPERABILITY of the ESW system beyond the 12-hour REQUIRED ACTION will not result in more than a minimal increase in radiological risk as determined in a qualitative assessment. The request is for a 48-hour extension to REQUIRED ACTION B.1 and B.2 for TS LCO 3.7.2.

2. Provide a description of the TS or other license conditions that will be violated.

PBAPS hereby requests enforcement discretion from certain requirements of TS 3.7.2, "Emergency Service Water (ESW) System, CONDITION B for both Units 2 and 3. TS CONDITION B requires that, when in Mode 1 with both ESW subsystems inoperable that the unit be placed in Mode 3 within 12 hours and Mode 4 within 36 hours. This request for enforcement discretion is being made to avoid a plant shutdown on both units as the result of compliance with TS 3.7.2, "Emergency Service Water (ESW) System," CONDITION B. CONDITION B was entered at 1300 hours on 08/23/14. Mode 3 would be required to be entered by 0100 hours on 08/24/14. Mode 4 would be required to be entered by 0100 hours on 08/25/14.

EGC is requesting enforcement discretion for PBAPS, Units 2 and 3, from compliance with TS 3.7.2, CONDITION B, which requires that:

B. Required Action and associated Completion Time of Condition A not met. OR Both ESW subsystems inoperable. OR Normal heat sink inoperable.	B.1 AND B.2	Be in MODE 3. Be in MODE 4.	12 hours 36 hours

EGC is requesting an extension to allow an additional 48 hours for the completion of calculations that will demonstrate that a through-wall leak in ESW piping would meet the eligibility requirements for an emergent, one-time relief request that would result in the ESW system being able to be declared OPERABLE with the leak. This would be based on an emergent relief request to NRC-approved ASME Code Case N-513-3, which will allow PBAPS to perform an evaluation of the piping flaw utilizing an ASME-approved methodology for evaluating elbows, which has not yet been approved by the NRC.

3. Provide a description of the circumstances, including as a minimum: likely causes; the need for prompt action; the action taken to avoid the need for a NOED; and any relevant historical events.

A 10 dpm leak from an ESW piping elbow was identified by a technician performing work in the PBAPS, Unit 2 Reactor Building Closed Cooling Water (RBCCW) room, elevation 116'. The insulation was removed and a pinhole leak was identified in the ESW piping on an elbow between the CHK-2-33-513 and HV-2-33-502. The leak rate was measured with a graduated cylinder and determined to be 3 mL/min at 1030 hours on 08/23/14. The leak is at a location that cannot be demonstrated to be operable within the associated TS 3.7.2 B.1 COMPLETION TIME of 12 hours requiring a unit shutdown (Mode 3). The most likely cause of the leak is due to corrosion under deposits and microbiologically-influenced corrosion. ESW operability could not be maintained by applying ASME Code Case N-513-3 since the ASME Code Case cannot be applied to fittings. No actions could be taken to avoid the need for a NOED due to the location of the leak. PBAPS has developed an emergent relief request to NRC-approved ASME Code Case N-513-3, which will allow PBAPS to perform an evaluation of the piping flaw utilizing an ASME-approved methodology for evaluating elbows, which has not yet been approved by the NRC.

There have been instances at PBAPS where ASME Code Case N-513 has been applied to safety related piping or where ESW piping has been able to be isolated and repaired using a hot tap or branch connections.

4. Provide information that shows the Station fully understands the cause of the situation that has led to the NOED request.

The condition of the ESW piping is considered to be isolated pitting due to corrosion under deposits and microbiologically-influenced corrosion. The condition is accelerated by flow. The high turbulence flow created by the pump, valves, elbows, and associated welds all enable high surface fluid velocities that can shear off old corrosion layers and deposits, expose new metal, and increase corrosion rates. PBAPS has identified other piping flaws through the Generic Letter 89-13 Raw Water Corrosion Program. The locations selected for proactive inspection are those determined most susceptible based on station and industry experience. The majority of those flaws identified have been located in pipe and pipe welds. In 2008, a flaw similar to the subject leak was identified in a 6" elbow in the ESW supply to the E1 Emergency Diesel Generator (EDG). Based on non-destructive examination of the currently leaking elbow, the cause is most likely under-deposit corrosion and microbiologically-influenced corrosion.

5. Detail the proposed course of action to resolve the situation, so enforcement discretion is no longer required.

Due to the nature of the required repair and TS requirements, the proposed course of action is to submit an emergent relief request to NRC-approved ASME Code Case N-513-3, which will allow PBAPS to perform an evaluation of the piping flaw utilizing an ASME-approved methodology for evaluating elbows, which has not yet been approved by the NRC. The provisions of this ASME Code Case demonstrate the integrity of the piping in the presence of detected leakage.

Per the ASME Code Case, the flaw size shall be monitored by periodic inspection or flaw growth analysis. The flaw will be repaired, as required by the ASME Code Case, during the next scheduled refueling outage or prior to the flaw size exceeding the acceptance criteria of the ASME-approved methodology for flaw evaluation. The repairs will be performed in accordance with the ASME Section XI Repair/Replacement Program and required Construction Codes.

6. Explain that the resolution itself will not result in a different, unnecessary transient.

The identified leak is located on a pipe elbow. The application of the ASME-approved flaw evaluation for fittings including elbows would result in an acceptable condition for operability and continued operation of the system in its current condition. Continued operation with the current flaw will not result in a different or unnecessary transient. The potential flow impact of the identified leak is to the Emergency Core Cooling System (ECCS) room coolers. Based on recent flow testing performed in May 2014 the most limiting flow margin to an ECCS room cooler is greater than 10 gpm. The 3 ml/min leak rate identified will not adversely affect flow to any ECCS room coolers.

7. Explain that there was insufficient time to process an emergency license amendment, or that a license amendment is not needed.

TS 3.7.2, "Emergency Service Water (ESW) System," CONDITION B was entered at 1300 hours on 08/23/14. This entry was made based on a leak discovered by maintenance personnel performing unrelated work in the area of the ESW leak. The 12-hour

COMPLETION TIME provided to restore the ESW system to an operable condition does not provide adequate time to prepare and submit an emergency license amendment request.

The cause of this event is not normally expected to recur. Therefore, no permanent change to the Operating License or the TS is required.

8. Describe the condition and operational status of the plant, including safety-related equipment out of service or otherwise inoperable and non-safety-related equipment that is degraded or out of service that may have risk significance and that may increase the probability of a plant transient or may complicate the recovery from a transient or may be used to mitigate the condition.

PBAPS Units 2 and 3 will be expected to operate at 100% power. The stations' risk condition is Green. There are currently no safety related or non-safety related equipment systems out of service or degraded that may increase the probability of a plant transient, complicate the recovery from a plant transient, or be used to mitigate this condition.

9. Request a specific time period for the NOED, including a justification for the duration of the noncompliance.

PBAPS has determined that there is minimal safety consequence of extending the TS COMPLETION TIME by 48 hours. This determination is based on the low probability of a combination of events that would lead to an undesirable transient. Given the low risk significance for the additional 48-hour extension and the inherent risk introduced by an unnecessary shutdown of the unit, the short duration of the requested enforcement discretion is justified.

10. Detail and explain compensatory measures the plant has both taken and will take to reduce the risk associated with the specified configuration. All compensatory actions must be completed before the NOED Completion Time begins. Compensatory measures used to reduce plant vulnerabilities shall focus on both event mitigation and initiating event likelihood. The objectives are to achieve the following:

a. Reduce the likelihood of initiating events,
b. Reduce the likelihood of the unavailability of trains redundant to equipment that is out-of-service during the period of enforcement discretion, and
c. Increase the likelihood of successful operator recovery actions in response to initiating events.

The following compensatory measures were put in place:

- No activities involving operational risk that is not required by TS will be performed that present a risk to causing an initiating event
- No planned unavailability of risk significant equipment will be taken
- Operator rounds will be performed twice per shift in the U2 RBCCW Room
- Briefing on isolation of a flood in the U2 RBCCW Room

11. Discuss the status and potential challenges to offsite and onsite power sources, including any current or planned maintenance in the distribution system and any current or planned maintenance to the emergency diesel generators.

All off-site and on-site power sources are currently operable with no expected outages for the duration of the repair and period of enforcement discretion. All EGS are within their surveillance testing frequency. There are no scheduled maintenance activities which would adverse impact off-site power sources or EGS sources.

12. Include the safety basis for the request and an evaluation of the safety significance and potential consequences of the proposed course of action.

a. **Use the zero maintenance probabilistic risk assessment (PRA) model to establish the plant's baseline risk and the estimated risk increase associated with the period of enforcement discretion. (Refer to ER-AA-600-1046 for guidance on the specific risk management process to be followed for NOEDs.)**

The zero maintenance CDF is 2.9E-6/yr for Unit 2 and 2.8E-6/yr for Unit 3. The zero maintenance LERF is 3.7E-7/yr for Unit 2 and 3.6E-7/yr for Unit 3. The estimated increase in risk is 0 for Unit 2 CDF and LERF and 0 for Unit 3 CDF and LERF.

b. **Discuss the dominant risk contributors (cut sets or sequences or both) and summarize the risk insights for the plant-specific configuration the plant intends to operate in during the period of enforcement discretion. This discussion should focus primarily on risk contributors that have changed (increased or decreased) from the baseline model as a result of the degraded condition and resultant compensatory measures, if any.**

The ESW system is Available for performing all functions. Therefore, there is no change to the risk sequences due to unavailable equipment. There may be a larger probability of an internal flood in the U2 RBCCW room due to the ESW leak, which would increase the risk contribution of the internal flooding scenario accordingly. An internal flood in the U2 RBCCW room could potentially impact the availability of HPCI.

<u>Potential Internal Flooding</u>
The ESW piping is leaking into the Unit 2 RBCCW room. There is no equipment required for safe shutdown in the area of the leak, such that even if the pipe degraded further and resulted in a spray, no equipment necessary for safe shutdown would be impacted.

If the flow rate of the leak significantly increased, flooding could be experienced in the RBCCW room, which could eventually propagate to the Unit 2 HPCI room. As twice per shift operator rounds will be in place, a significant increase in the leak would be identified and the leak could be isolated. Isolation of the leak through closure of those valves would make ESW unavailable to the Unit 2 ECCS coolers, but remain available for EDG cooling. The PRA model considers the ECCS room coolers as not required for availability of the ECCS systems. The Core Spray motor oil coolers are modeled as required for Core Spray availability. This unavailability would be taken whether ESW is isolated for an internal flood, or it is isolated to

disconnect the Unit 3 loads from the ESW ring header during a Unit 2 shutdown. Therefore, no delta risk is applied due to this unavailability.

Compensatory Measures

- No activities involving operational risk that is not required by TS will be performed that present a risk to causing an initiating event
- No planned unavailability of risk significant equipment will be taken
- Operator rounds will be performed twice per shift in the U2 RBCCW Room
- Briefing on isolation of a flood in the U2 RBCCW Room

c. **Discuss how the compensatory measures are accounted for in the PRA.**

The compensatory measures are assumed to remove the potential increase in risk due to a postulated increase in the internal flooding frequency.

d. **Discuss the extent of condition of the failed or unavailable component(s) to other trains/divisions of equipment and what adjustments, if any, to the related PRA common cause factors have been made to account for potential increases in their failure probabilities. The method used to determine the extent of condition shall be discussed.**

There are no other identified leaks in the ESW system. In addition, as there is no unavailable equipment as a result of the ESW leak, no adjustments were made to the PRA model to account for an increase in the common cause failure probability.

e. **Discuss external event risks for the specified plant configuration.**

There is no unavailable equipment as a result of the ESW leak. The leak in the ESW pipe does not result in a change to Fire or External Flooding risk. Pipe leaks of this nature have consistently been shown to not present a concern for seismic capability. In addition, the probability of a seismic event within the short 48 hour window is very small. Therefore, the increase in seismic risk is negligible.

13. Demonstrate that the NOED condition, along with any compensatory measures, will not result in more than a minimal increase in radiological risk, either in a quantitative assessment that risk will be within the normal work control levels (ICCDP less than or equal to 5E-7 and/or ICLERP less than or equal to 5E-8) or in a defensible qualitative manner.

No equipment is unavailable as a result of the ESW pipe leakage. The potential increase in internal flooding frequency is countered by the compensatory measures. Therefore, the ICCDP and ICLERP are 0, which is less than the applicable thresholds.

14. Discuss forecasted weather and pandemic conditions for the requested NOED period and any plant vulnerabilities related to weather or pandemic conditions.

Forecasted weather conditions for the NOED are favorable. A review of the national weather service website indicates that there is a low risk of severe weather for the requested period of enforcement discretion. A chance of showers is forecasted for this

evening, with fair conditions for the next 72 hours. There are no expected plant vulnerabilities related to the weather.

15. Include the basis for the conclusion the noncompliance will not create undue risk to public health and safety.

The proposed period of noncompliance will not be detrimental to public health and safety. EGC has evaluated the risk and determined that it is sufficiently low. A summary of the risk evaluation is provided as part of Item 12, above. To further protect the health and safety of the public, the risk assessment has resulted in a number of compensatory measures that have been taken to increase operator awareness of critical equipment and to minimize the likelihood of a transient for the duration of the noncompliance.

16. Include the basis for the conclusion that the noncompliance will not involve adverse consequences to the environment.

This request for enforcement discretion will not result in any significant changes in the types, or significant increase in the amounts, of any effluents that may be released offsite. In addition, no significant increase in individual or cumulative occupational radiation exposures will be involved as a result of the request. Therefore, it can be concluded that the USNRC's granting of this request for enforcement discretion will not involve any adverse consequences to the environment.

17. Did the facility organization that normally reviews safety issues approve the request?

This request for enforcement discretion was approved by the PBAPS Plant Operations Review Committee (PORC) on 8/23/14 at approximately 1830 hours in accordance with the requirements of the EGC Quality Assurance Program.

18. Did the station commit that it will submit a written NOED request within two working days and a follow-up license amendment request following the USNRC’s verbal granting of the NOED?

Peach Bottom Atomic Power Station stated that a written NOED request would be submitted to the NRC within 2 working days. A follow-up TS amendment is not needed because the conditions requiring the requested NOED are not typical. EGC's decision to not submit a follow-up license amendment was discussed in a call with the USNRC on 08/23/14.

19. Additional information for Natural Event NOEDs:

This request for Enforcement Discretion does not involve severe weather or other natural phenomena-related events; therefore, the associated Natural Event NOED questions do not apply.