



10 CFR 50.90

June 9, 2016

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
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: Response to Request for Additional Information Regarding Proposed License Amendment concerning Emergency Diesel Generator Fuel Oil Transfer Surveillance Requirements for Peach Bottom Atomic Power Station, Units 2 and 3

- References:
- 1) Letter from J. Barstow (Exelon Generation Company, LLC) to the U.S. Nuclear Regulatory Commission, "License Amendment Request to Revise Surveillance Requirement 3.8.1.6 Involving EDG Fuel Oil Transfer," dated December 3, 2015.
 - 2) E-mail correspondence from R. Ennis (U.S. Nuclear Regulatory Commission) to S. J. Hanson (Exelon Generation Company, LLC), "Peach Bottom Atomic Power Station – Request for Additional Information Regarding Proposed License Amendment Request to Revise Surveillance Requirement 3.8.1.6 Involving EDG Fuel Oil Transfer (ML15337A413)," dated April 20, 2016.

By letter dated December 3, 2015, Exelon Generation Company, LLC (Exelon) submitted a license amendment request (LAR) for Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3 (Reference 1). The proposed amendment would revise the technical specification (TS) surveillance requirements (SRs) associated with the emergency diesel generator (EDG) fuel oil transfer system. Specifically, the amendment would allow for the crediting of manual actions, in lieu of automatic actions, without having to declare the EDGs inoperable.

In the Reference 2 e-mail correspondence, the U.S. Nuclear Regulatory Commission (NRC) requested additional information. Attachment 1 contains Exelon's response to the NRC request for additional information. Attachment 2 provides a copy of the marked up TS pages that reflect the proposed change. Attachment 3 provides a copy of the marked up TS Bases pages that reflect the proposed change (information only). Attachments 2 and 3 replace the TS and TS Bases markups submitted in Reference 1.

Exelon has reviewed the information supporting a finding of no significant hazards consideration and the environmental consideration provided to the U.S. NRC in Reference 1. The additional information provided in this response does not affect the bases for concluding that the proposed license amendment does not involve a significant hazards consideration. Furthermore, the additional information provided in this response does not affect the bases for concluding that neither an environmental impact statement nor an environmental assessment needs to be prepared in connection with the proposed amendment.

There are no regulatory commitments in this response.

If you have any questions concerning this response, please contact Stephanie J. Hanson at 610-765-5143.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 9th day of June 2016.

Respectfully,



James Barstow
Director, Licensing and Regulatory Affairs
Exelon Generation Company, LLC

Attachments:

1. Response to Draft Request for Additional Information Regarding Proposed License Amendment to Revise Surveillance Requirement 3.8.1.6 Involving EDG Fuel Oil Transfer for Peach Bottom Atomic Power Station, Units 2 and 3
2. Markup of Proposed Technical Specifications Pages
3. Markup of Proposed Technical Specifications Bases Pages (Information Only)

cc: USNRC Region I, Regional Administrator
USNRC Senior Resident Inspector, PBAPS
USNRC Project Manager, PBAPS
R. R. Janati, Pennsylvania Bureau of Radiation Protection
S. T. Gray, State of Maryland

ATTACHMENT 1

Peach Bottom Atomic Power Station, Units 2 and 3

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

Docket Nos. 50-277 and 50-278

**Response to Draft Request for Additional Information Regarding Proposed License
Amendment to Revise Surveillance Requirement 3.8.1.6 Involving EDG Fuel Oil Transfer
for Peach Bottom Atomic Power Station, Units 2 and 3**

By letter dated December 3, 2015, Exelon Generation Company, LLC (Exelon) submitted a license amendment request (LAR) for Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3. The proposed amendment would revise the technical specification (TS) surveillance requirements (SRs) associated with the emergency diesel generator (EDG) fuel oil transfer system. Specifically, the amendment would allow for the crediting of manual actions, in lieu of automatic actions, without having to declare the EDGs inoperable.

The NRC staff has determined that additional information is needed to complete its review. The specific request for additional information (RAI) questions, which were discussed in a conference call between the NRC staff and Exelon on May 12, 2016, are restated below along with Exelon's response.

Question 1:

Page 4 of Attachment 1 of the LAR describes the manual action as a series of tasks including entering various rooms, manipulating specific valves, and placing the EDG day tank transfer pump control switch to automatic. It does not include actions such as manually starting a fuel oil transfer pump or other equipment that would effectively refill the EDG day tank if the level were low. Additional information is needed to clarify the intent of these actions and the expected outcome.

- a. Under what conditions and how frequently will the switch be turned to "off"?
- b. How long is it acceptable to be placed in off?
- c. Are there positions on this switch other than "off" and "automatic" (such as "manual")?
- d. Is the switch ever placed in "off" because the automatic function does not work (such as to perform maintenance)? Is it possible that manual action being reviewed here, even if performed correctly, will not produce the desired outcome?
- e. What cues are provided to personnel that the proposed action(s) is/are no longer required?
- f. What administrative controls exist to assure that, when the action(s) is/are no longer required, the plant configuration is put in the correct configuration for the plant status?

Response:

- a. Each fuel oil transfer pump control switch is placed to "off" once every 31 days during scheduled testing of each Emergency Diesel Generator (EDG). The test ensures the automatic capability to makeup to the Diesel Generator fuel oil day tank from its associated fuel oil storage tank.

Each fuel oil transfer pump control switch is placed to "off" once every 31 days to obtain a sample from the Diesel Generator fuel oil storage tank.

Each fuel oil transfer pump control switch is placed to "off" once every 92 days to perform testing of the fuel oil transfer system in accordance with In-Service Testing requirements.

Each fuel oil transfer pump control switch is also placed to "off" when performing procedures to transfer fuel oil between storage tanks or when filling the EDG day tank from a different EDG's storage tank. This is infrequently performed and is not part of scheduled testing. This is performed as part of Post-Maintenance Testing following specific maintenance activities.

- b. If the EDG is not in service, the transfer pump control switch can remain in "off" as long as it is not needed to support the required evolution. If the EDG receives a start signal during the evolution, the fuel oil transfer system is realigned to support EDG operation. If the transfer pump control switch is placed in "off" during EDG operation, the fuel oil transfer system is returned to automatic operation when the associated day tank low level alarm is received.
- c. The transfer pump control switch has 3 positions:
 - 1. "Hand"
 - 2. "Off"
 - 3. "Auto"
- d. The transfer pump control switch could be placed to "off" to perform maintenance. Depending upon the maintenance being performed, if possible to return to automatic operation, returning the fuel oil transfer system to automatic operation would be governed by Maintenance procedures under the Clearance and Tagging process. If the scope of maintenance does not allow for return to service, the associated EDG is declared inoperable.
- e. The activity that placed the transfer pump control switch in "off" is procedurally driven and will govern the return to automatic operation.
- f. The activity that placed the transfer pump control switch in "off" is procedurally driven and will govern the return to automatic operation.

Question 2:

Has an operating experience review been completed, including plant-specific condition reports, Licensee Event Reports, INPO reports, and other relevant sources? If so, how will you prevent past issues from recurring? If an operating experience review has not been conducted what other analyses have been used to ensure that operator manual actions do not encounter problems?

Response:

An operating experience search was conducted, looking for issues related to improper fuel system lineups and manual operator actions. Search criteria used a combination of the following words: fuel, oil, valve, lineup, credit, manual, operator, and actions. No issues were found involving improper manipulations that resulted in EDG inoperability.

The actions associated with this LAR are not considered complex. They involve small valve and control switch manipulations, and would not be expected to be problematic when restoring the fuel oil transfer system to automatic.

Question 3:

Describe any changes to the control room task analysis that was done as a part of your Detailed Control Room Design Review. If no update to the task analysis was necessary, describe how task requirements were developed.

Also, please include information about the following considerations:

- a. Are potentially harsh or inhospitable environmental conditions expected? For instance, the LAR indicates that some of the actions necessary to complete this task take place in the EDG Cardox Room. Are there credible conditions under which the Cardox system may be initiated that would prevent operators from successfully completing the tasks described in this LAR? Are other environmental concerns (such as steam, temperature, etc.) likely that could affect task performance? If so, please describe how the effect of these environmental factors will be mitigated.
- b. Is it possible that conditions that make it desirable to use the manual actions in lieu of the automatic actions, currently described in the TSSs, will also disable the low level alarm associated with the day tank float switch? In this case, how will operators know that the tank level is low and that the switch needs to be put back into auto?
- c. NRC Information Notice 97-78 indicates that licensees should consider ingress/egress paths when crediting operator actions. The LAR describes the path taken by Equipment Operators and some potential obstacles that may impede their progress. Please provide additional information regarding the gates that must be removed, locks on valves, and any special equipment that is necessary to complete these actions.
- d. The LAR indicates that operators must remove gates (presumably floor gates). Are these gates bolted down so that tools are necessary to remove them? Are protections in place to ensure that gates that are not normally bolted do not accidentally get bolted? Are the gates light enough that they can be removed by a single operator without special equipment?
- e. The LAR also indicates that the E-4 EDG day tank transfer valve and E-4 day tank transfer pump discharge valve are normally locked according to the LAR. What type(s) of lock(s) are used on these valves? Are keys necessary to open them? If so, what assurances are in place that they keys are available when needed?

Response:

There were no changes to the control room tasks analysis that was performed for the Detailed Control Room Design Review (DCRDR) which was submitted to the NRC on February 26, 1986 (Reference 2). The occasional credit for in-plant local manual operator action for brief periods of time to restore the EDG fuel oil transfer system to automatic poses no significant adverse effect on control room operations during design basis events. If a design basis event were to occur, no additional operator action would be required from the control room. The EDGs would still automatically start and perform their design functions. The functional analysis for performing the task requirements for the DCRDR was based on the use of the emergency operating procedures. These procedures provided the definition of the functions from which the task analysis was conducted. The process was performed in two separate steps. The first step was to determine the display and control requirements for the control room instruments. The

second step involved a review that the control room instrument inventory met the display and control requirements determined in the first step. This analysis subsequently drove various control room upgrades.

- a. The EDG CARDOX system is manually initiated in accordance with Pre-Fire Strategy procedures. There is no CARDOX injection in the EDG CARDOX Room (the CARDOX Room contains the CARDOX storage tank). If CARDOX injection is required in an EDG room, the EDG in that room will be unavailable to operate and return of the fuel oil transfer system to automatic operation is not required. There are no other environmental concerns that could affect task performance.
- b. The level switch which generates the low level alarm is independent from the fuel oil transfer pump control switch and control switch position.
- c. The removal of grating and unlocking of valves would be performed as part of taking the fuel oil transfer system out of automatic operation. When out of their normal position to support automatic operation, the valve(s) remains in the unlocked position. The valves are controlled with "locked valve" locks and are controlled as part of the locked equipment program. The grating that needs to be removed to access specific valves for each EDG is not bolted in place and is approximately 40" x 18". Other than a locked valve key, there is no other specific equipment required to complete the actions.
- d. The grating that needs to be removed to access specific valves for each EDG is not bolted in place and is approximately 40" x 18". This task has been done during monthly testing and the grates are light enough to be removed by a single Operator. There are no specific protections required to ensure the grates do not accidentally get bolted. Having the grating get bolted down would prevent the fuel transfer system valve(s) from being placed out of their normal position.
- e. Each EDG day tank transfer valve and day tank transfer pump discharge valve is normally locked in its required position to support fuel oil transfer system operation. The valves are locked with locks controlled by the locked equipment program and keys are required to operate them. A key is only required to take the fuel oil transfer system out of normal alignment. Keys to operate locked components are carried by each Equipment Operator.

Question 4:

Please describe any changes to staffing or qualification needed to support the proposed license amendment. In addition, describe any increase in operator workload that will occur with the proposed license amendment.

Response:

There are no changes to staffing or qualification needed to support the license amendment request and there is no additional operator workload.

The task will be assigned as part of the normal work process or as needed during an event that requires transfer of fuel oil from EDG to EDG.

Question 5:

What is the risk associated with this action? Specifically:

- a. The marked up TS Bases uses the phrase "brief periods of time" however the proposed new TS SR 3.8.1.6 note does not specify the allowable duration. What is the acceptable duration of time to use manual operation for this task with regards to risk?
- b. What are the credible errors and the potential consequences? What are the potential consequences if the manual action is implemented for more than "brief periods of time"? How will operators know if the acceptable duration has been exceeded?

Response:

- a. The evolutions that would require use of simple manual operator actions to support operability are short in duration. It is expected that the duration for these evolutions would be less than 4 hours.
- b. The credible errors are considered to be manually operating an incorrect valve, mis-positioning the associated Emergency Diesel generator (EDG) day tank transfer control switch, and miscommunication regarding the need to return the EDG fuel oil transfer system back to an automatic status. None of these potential errors are consequential due to the following:
 1. The associated EDG(s) will automatically start for design events and would not require transfer of fuel oil between the storage tank and day tank for at least 56 minutes. The worst-case measured time for an operator to perform the realignment was 4 minutes and 35 seconds.
 2. The use of human performance tools, including self-check, peer-check, pre-job briefs and place-keeping would result in any postulated human errors becoming readily apparent and having at least 56 minutes available for recovery actions.
 3. Any communication lapses postulated from the main control room to the operators in charge of restoring the EDG fuel oil transfer system to normal automatic alignment would be backed-up by the fact that for these postulated design events, the EDGs would have started. In the event that an EDG automatically starts during the evolution, procedure controls will prompt restoration of the fuel oil transfer system to automatic control.

There are no credible additional consequences for exceeding the 'brief period of time' of 4 hours, since the safety function of the EDGs would still be preserved. Additionally, the likelihood of a design event (i.e., Loss of Off-site Power Event (LOOP), Loss of Coolant-Accident (LOCA)) requiring EDG automatic operation occurring at the same time that credit is being taken for realignment to the automatic status is minimal. The operator would become aware of exceeding the expected duration of the task as a result of procedural information and pre-job briefs.

Question 6:

Please describe any changes to training and the simulator needed to support the proposed license amendment.

Response:

There are no changes to training or the Simulator needed to support the proposed license amendment.

Question 7:

Describe the process used to monitor manual actions to ensure that they remain feasible and reliable over the long term, and are not degraded because of design changes, inadequate training, or other mechanisms.

Response:

There is no specific training required to support this license amendment request. CC-AA-102, Revision 29, "Design Input and Configuration Change Impact Screening", step 4.1.42 contains the following question, which must be answered as part of design changes:

- a. Impacts on B.5.b, SBO, flooding protection, fire protection, and other issues requiring operator manual actions have been identified and are being addressed.

Question 8:

The LAR stated that subsequent to PBAPS implementation of the Improved Technical Specifications in January 1996, a revision was made to the TS Bases for SR 3.6.1.8, under the provisions of Title 10 of the *Code of Federal Regulations* (10 CFR) Section 50.59, that allowed for manual operator action to be used for "limited cases" for the purpose of maintaining operability of the EDG fuel oil transfer system. This TS Bases change added a paragraph which allowed use of manual operator actions during the surveillances in lieu of automatic action to maintain the EDG operable. However, as a result of questions raised by the NRC Resident Inspectors in March 2013, the wording regarding manual operator actions was removed from the TS bases. During this time period (i.e., 1996-2013), credit was taken for manual operator action for very short periods of time for various operational conditions such as: (1) transferring fuel oil between the EDG underground fuel oil storage tanks; (2) filling of the EDG day tanks with the associated EDG fuel oil transfer pump out-of-service; (3) filling the day tank from another EDG fuel oil storage tank; (4) performing Inservice Testing (IST) for the fuel oil transfer pump and the associated suction check valve; and (5) performing chemistry sampling activities.

Please provide the operator steps required and the approximate total time required to perform each of the above activities (including the time used entering and exiting areas). Also, confirm which activity/operator steps would have required declaring the associated EDG inoperable and how long, if no credit was taken for manual operator action.

Response:

Using the activity that required the longest travel distance and the most valve manipulations, a time validation was performed to determine the period of time it would take to realign the fuel oil transfer system to automatic lineup from a condition where the E1 EDG fuel oil storage tank is being filled from the E4 EDG fuel oil storage tank. Two separate Equipment Operators were used for the time validation. Of the two operators, the longest time to complete steps 1 through 12 listed below was 4 minutes 35 seconds. If no credit for manual operator action was taken to maintain operability, the fuel oil transfer system would be operable at the conclusion of Step 12 when the fuel oil transfer pump control switch was placed in "AUTO". The steps were taken from AO 52D.1, "Transferring Diesel Fuel Oil between Storage Tanks" Attachment 5 Part B and are as follows:

1. Start in E-1 EDG Room.
2. Exit E-1 EDG Room.
3. Enter EDG Cardox Room.
4. Perform Step 1 of Attachment 5 Part B (Close HV-0-52D-10003A, "Diesel Fuel Oil Storage Tk 0AT038 Fill Inlet Valve).
5. Perform Step 2 of Attachment 5 Part B (Close HV-0-52D-501, "Diesel Fuel Oil Truck Fill BPV to Day Tanks Hdr Line".
6. Exit EDG Cardox Room.
7. Enter E-4 EDG Room.
8. Remove grating.
9. Perform Step 3 of Attachment 5 Part B (Close and lock HV-0-52D-10132D, "E4 D/G Fuel Oil BPV to E4 Fuel Oil Day Tank 0DT040").
10. Perform Step 4 of Attachment 5 Part B (Open and lock HV-0-52D-10133D, "E4 D/G Fuel Oil Transfer Pump 0DP060 Disch Block Vv").
11. Restore grating.
12. Perform Step 5 of Attachment 5 Part B (Place HS-0-52D-60D, "E4 D/G Fuel Oil Transfer Pump 0DP060 Control Switch" in "AUTO").

Question 9:

The LAR stated that the actions that will be procedurally in place to ensure manual actions will maintain the EDG operable will include:

- a. Constant communication with the Main Control Room (MCR).
- b. No other collateral duties by the qualified individual in charge of placing the EDG fuel oil transfer pump switch from the 'off' to the 'auto' position and restoring manual valve positions.
- c. Briefing of the qualified individual that their actions are credited for maintaining the transfer of fuel oil from the underground storage tank to the day tank to ensure TS operability.
- d. Clear procedural direction and control that the EDG fuel oil transfer valves and pump control switch will be restored to the 'auto' position if there is:
 1. An automatic start of an EDG

2. Notification by licensed MCR personnel that the EDG is required to operate
3. A receipt of the associated day tank low level alarm

Please describe how this procedure will ensure the operability of the EDG, and the fuel oil storage and transfer system while performing various manual action actions.

Response:

Each procedure or test which directs taking the fuel oil transfer system out of automatic alignment will contain the steps required to realign the fuel oil transfer system for automatic operation. A qualified individual will be assigned to perform the task and be in constant communication with the MCR should realignment for automatic operation be required.

Question 10:

Please confirm whether the low fuel level in the EDG day tank is alarmed in the MCR. Please provide details of how much time is expected to take for the fuel oil to drop from the alarm level to the level that will affect EDG operability when the EDG is supplying a load of 3000 kW during the period 10-60 minutes.

Response:

The EDG day tank low fuel oil level alarm is alarmed locally in the associated EDG bay. However, if this local alarm occurs, a general EDG trouble alarm is received in the MCR. At 3000 kW, there would exist approximately 7 minutes until the TS SR 3.8.1.4 limit of 250 gallons of fuel oil is reached after receipt of an EDG day tank low fuel oil level alarm.

Question 11:

The PBAPS TS definition for "OPERABLE – OPERABILITY" states:

A system, subsystem, division, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, division, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).

It is not clear in the LAR exactly how the PBAPS EDGs would remain operable per the definition above and LCO 3.8.1. Explain the impact of the completion of manual fuel oil transfer (MFOT) on the operability of each EDG while the manual transfer is being completed. Address each item below in your answer:

- a. Discuss fully filling (topping-off) all EDG day tanks from their associated fuel oil storage tanks (FOSTs) each time before any MFOT begins.

- b. Total time: The licensee provides a worst case simulation time of 4 minutes 29 seconds [please note, LAR response stated 4 minutes 35 seconds] for an operator to realign the fuel oil transfer system to automatic makeup. No time can be found for initial alignment of the fuel oil transfer system or completion of the transfer. Does the licensee expect that the total time would be less than 56 minutes to: (1) align the fuel oil transfer system for transfer; (2) transfer the designated amount of fuel oil; and (3) re-align the fuel oil transfer system and restore it for automatic make-up from the FOSTs to designated day tanks?
- c. If yes, further describe the manual actions and any time simulations conducted for aligning the system for transfer; and how the impact of the quantity of oil transferred on the total time would be controlled, such that the 56 minute time is not challenged.
- d. If no, then what would a limiting time be for conducting MFOT considering the various proposed configurations (see "c" below)?
- e. Transfer configuration: The LAR describes 5 operational conditions during the time that credit was being taken for MFOT to maintain the operability of the EDGs:
 - 1. Transfer between FOSTs;
 - 2. Filling one day tank with another day tank's pump;
 - 3. Filling a day tank from another FOST;
 - 4. Performing ISTs for fuel oil transfer pumps and associated suction check valves; and
 - 5. Performing chemistry sample activities.

Provide confirmation that these are the only activities where MFOT will be credited.

Response:

- a. If the EDG is operating, the EDG day tank that will not have automatic makeup from its fuel oil transfer pump will have its level raised prior to taking alignment out of automatic makeup. This will maximize the amount of time the EDG has fuel oil available before requiring realignment for automatic makeup.
- b. Yes, it is expected that the total time would be less than 56 minutes to align the fuel oil transfer system for transfer, transfer the designated amount of fuel oil, and then realign the fuel oil transfer system for automatic alignment.
- c. Using the activity that required the longest travel distance and the most valve manipulations, a time validation was performed to determine the period of time it would take to realign the fuel oil transfer system to automatic lineup from a condition where the E1 EDG fuel oil storage tank is being filled from the E4 EDG fuel oil storage tank. Two separate Equipment Operators were used for the time validation. Of the two operators, the longest time to complete steps 1 through 12 listed below was 4 minutes 35 seconds. The steps were taken from AO 52D.1, "Transferring Diesel Fuel Oil between Storage Tanks" Attachment 5 Part B and are as follows:
 - 1. Start in E-1 EDG Room.
 - 2. Exit E-1 EDG Room.
 - 3. Enter EDG Cardox Room.

4. Perform Step 1 of Attachment 5 Part B (Close HV-0-52D-10003A, "Diesel Fuel Oil Storage Tk 0AT038 Fill Inlet Valve).
5. Perform Step 2 of Attachment 5 Part B (Close HV-0-52D-501, "Diesel Fuel Oil Truck Fill BPV to Day Tanks Hdr Line").
6. Exit EDG Cardox Room.
7. Enter E-4 EDG Room.
8. Remove grating.
9. Perform Step 3 of Attachment 5 Part B (Close and lock HV-0-52D-10132D, "E4 D/G Fuel Oil BPV to E4 Fuel Oil Day Tank 0DT040").
10. Perform Step 4 of Attachment 5 Part B (Open and lock HV-0-52D-10133D, "E4 D/G Fuel Oil Transfer Pump 0DP060 Disch Block Vv").
11. Restore grating.
12. Perform Step 5 of Attachment 5 Part B (Place HS-0-52D-60D, "E4 D/G Fuel Oil Transfer Pump 0DP060 Control Switch" in "AUTO").

Each procedure or test which directs taking the fuel oil transfer system out of automatic alignment will contain the steps required to realign the fuel oil transfer system for automatic operation. Specific direction will be contained in each procedure or test when this needs to occur to ensure that the 56 minute time frame is not challenged.

- d. N/A, see response c above.
- e. The activities listed above will take credit for operator action to maintain the operability of the fuel oil transfer system. There may be other Maintenance activities covered under Maintenance procedures and the Clearance and Tagging process where manual action will be credited. These will be evaluated on a case-by-case basis to ensure EDG operability is maintained throughout the activity.

Question 12:

The LAR proposes to add a note for SR 3.8.1.6. Per 10 CFR 50.36(c)(3), SRs are requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met.

Propose new succinct wording for the SR note such that it:

- includes the specific equipment the manual actions are performed on;
- limits the time during which the manual actions can occur; and
- specifies what manual actions accomplish the goal of supporting the necessary quality of the EDG.

While the NRC does not approve TS Bases changes, please consider a modification to the Bases listing a summary statement or reasons for every equipment configuration where MFOT is expected to be used.

Response:

The changed wording to the note for SR 3.8.1.6 is proposed to be the following:

Procedurally controlled manual actions for manually operating local hand valves and control switches associated with the DG fuel oil transfer system is limited to support transferring fuel between DGs, testing, and sampling activities.

The above wording is reflected in the marked up TS pages 3.8-9 included in Attachment 2. Additional changes were made to the TS Bases pages B3.8-24, which are included in Attachment 3.

New wording to the TS Bases:

This SR is modified by a Note. The note recognizes that manual actions for manually operating local hand valves and control switches associated with the DG fuel oil transfer system is limited to support transferring fuel between DGs, testing, and sampling activities. These manual actions would promptly restore the EDG fuel oil system to an automatic status since the actions are simple and straightforward. Credit for manual operator actions for maintaining operability must be controlled procedurally. These actions include a dedicated qualified individual and constant communication with main control room licensed personnel.

Question 13:

The PBAPS definition of OPERABLE/OPERABILITY states that a support system needs to be capable of providing its support function. Also per 10 CFR Part 50, Appendix A, General Design Criteria 17, the onsite electric power supplies shall have sufficient independence and redundancy to perform their safety functions assuming a single failure.

Describe if the proposed manual actions could result in a single failure that could impact more than one EDG. If so, describe what precautions will be taken to ensure the EDGs can perform their intended functions.

Response:

An improper valve lineup, or mis-operation of the transfer pumps, could impact more than one diesel, and is dependent on the evolution. To defend against such possibilities, specific administrative controls and human performance defenses such as Stop Think Act Review (STAR), peer checks, place keeping, and pre-job briefs have been established.

REFERENCES

1. Letter from J. Barstow (Exelon Generation Company, LLC) to the U.S. Nuclear Regulatory Commission, "License Amendment Request to Revise Surveillance Requirement 3.8.1.6 Involving EDG Fuel Oil Transfer," dated December 3, 2015.
2. Peach Bottom Atomic Power Station NUREG-0737, Supplement 1, Section 5, Control Room Design Review dated 2/26/86.

ATTACHMENT 2

Markup of Technical Specifications Pages

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

**Response to Draft Request for Additional Information Regarding Proposed License
Amendment to Revise Surveillance Requirement 3.8.1.6 Involving EDG Fuel Oil
Transfer for Peach Bottom Atomic Power Station, Units 2 and 3**

Unit 2 TS Page

3.8-9

Unit 3 TS Page

3.8-9

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.8.1.6	Add Note	In accordance with the Surveillance Frequency Control Program.
	Verify the fuel oil transfer system operates to automatically transfer fuel oil from storage tank to the day tank.	
SR 3.8.1.7	-----NOTES----- 1. All DG starts may be preceded by an engine prelube period. 2. A single test at the specified Frequency will satisfy this Surveillance for both units. ----- Verify each DG starts from standby condition and achieves, in ≤ 10 seconds, voltage ≥ 4160 V and frequency ≥ 58.8 Hz, and after steady state conditions are reached, maintains voltage ≥ 4160 V and ≤ 4400 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.	In accordance with the Surveillance Frequency Control Program.
SR 3.8.1.8	-----NOTE----- This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR. ----- Verify automatic and manual transfer of the unit power supply from the normal offsite circuit to the alternate offsite circuit.	In accordance with the Surveillance Frequency Control Program.

(continued)

-----NOTE-----
Procedurally controlled manual actions for manually operating local hand valves and control switches associated with the DG fuel oil transfer system is limited to support transferring fuel between DGs, testing, and sampling activities.

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE	FREQUENCY
<div data-bbox="695 338 857 373" style="border: 1px solid black; padding: 2px; text-align: center;">Add Note</div> <p>SR 3.8.1.6 Verify the fuel oil transfer system operates to automatically transfer fuel oil from storage tank to the day tank.</p>	<p>In accordance with the Surveillance Frequency Control Program.</p>
<p>SR 3.8.1.7 -----NOTES-----</p> <ol style="list-style-type: none"> 1. All DG starts may be preceded by an engine prelube period. 2. A single test at the specified Frequency will satisfy this Surveillance for both units. <p>-----</p> <p>Verify each DG starts from standby condition and achieves, in ≤ 10 seconds, voltage ≥ 4160 V and frequency ≥ 58.8 Hz, and after steady state conditions are reached, maintains voltage ≥ 4160 V and ≤ 4400 V and frequency ≥ 58.8 Hz and ≤ 61.2 Hz.</p>	<p>In accordance with the Surveillance Frequency Control Program.</p>
<p>SR 3.8.1.8 -----NOTE-----</p> <p>This Surveillance shall not be performed in MODE 1 or 2. However, credit may be taken for unplanned events that satisfy this SR.</p> <p>-----</p> <p>Verify automatic and manual transfer of the unit power supply from the normal offsite circuit to the alternate offsite circuit.</p>	<p>In accordance with the Surveillance Frequency Control Program.</p>

(continued)

-----NOTE-----

Procedurally controlled manual actions for manually operating local hand valves and control switches associated with the DG fuel oil transfer system is limited to support transferring fuel between DGs, testing, and sampling activities.

ATTACHMENT 3

Markup of Technical Specifications Bases Pages (For Information Only)

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

**Response to Draft Request for Additional Information Regarding Proposed License
Amendment to Revise Surveillance Requirement 3.8.1.6 Involving EDG Fuel Oil
Transfer for Peach Bottom Atomic Power Station, Units 2 and 3**

Unit 2 TS Bases Page

B 3.8-24

Unit 3 TS Bases Page

B 3.8-24

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.6 (continued)

the fuel oil transfer pump is OPERABLE, the fuel oil piping system is intact, the fuel delivery piping is not obstructed, and the controls and control systems for automatic fuel transfer systems are OPERABLE.

Add Insert

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

SR 3.8.1.8

Transfer of each 4 kV emergency bus power supply from the normal offsite circuit to the alternate offsite circuit demonstrates the OPERABILITY of the alternate circuit distribution network to power the shutdown loads. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

This SR is modified by a Note. The reason for the Note is that, during operation with the reactor critical, performance of this SR could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, plant safety systems. This Surveillance tests the applicable logic associated with Unit 2. The comparable test specified in Unit 3 Technical Specifications tests the applicable logic associated with Unit 3. Consequently, a test must be performed within the specified Frequency for each unit. As the Surveillance represents separate tests, the Note

(continued)

This SR is modified by a Note. The note recognizes that manual actions for manually operating local hand valves and control switches associated with the DG fuel oil transfer system is limited to support transferring fuel between DGs, testing, and sampling activities. These manual actions would promptly restore the EDG fuel oil system to an automatic status since the actions are simple and straightforward. Credit for manual operator actions for maintaining operability must be controlled procedurally. These actions include a dedicated qualified individual and constant communication with main control room licensed personnel.

BASES

SURVEILLANCE
REQUIREMENTS

SR 3.8.1.6 (continued)

the fuel oil transfer pump is OPERABLE, the fuel oil piping system is intact, the fuel delivery piping is not obstructed, and the controls and control systems for automatic fuel transfer systems are OPERABLE.

Add Insert

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

SR 3.8.1.8

Transfer of each 4 kV emergency bus power supply from the normal offsite circuit to the alternate offsite circuit demonstrates the OPERABILITY of the alternate circuit distribution network to power the shutdown loads. The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

This SR is modified by a Note. The reason for the Note is that, during operation with the reactor critical, performance of this SR could cause perturbations to the electrical distribution systems that could challenge continued steady state operation and, as a result, plant safety systems. This Surveillance tests the applicable logic associated with Unit 3. The comparable test specified in Unit 2 Technical Specifications tests the applicable logic associated with Unit 2. Consequently, a test must be performed within the specified Frequency for each unit. As the Surveillance represents separate tests, the Note

(continued)

This SR is modified by a Note. The note recognizes that manual actions for manually operating local hand valves and control switches associated with the DG fuel oil transfer system is limited to support transferring fuel between DGs, testing, and sampling activities. These manual actions would promptly restore the EDG fuel oil system to an automatic status since the actions are simple and straightforward. Credit for manual operator actions for maintaining operability must be controlled procedurally. These actions include a dedicated qualified individual and constant communication with main control room licensed personnel.