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10CFR 50.73

November 24, 2010

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

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

Subject: Licensee Event Report (LER) 2-10-04

Enclosed is a Licensee Event Report concerning a condition involving various plant equipment that were considered inoperable due to improper credit given to the operation of an off-site power source transformer load tap changer. In accordance with NEI 99-04, the regulatory commitment contained in this correspondence is to restore compliance with the regulations. The specific methods that are planned to restore and maintain compliance are discussed in the LER. If you have any questions or require additional information, please do not hesitate to contact us.

Sincerely,



Garey L. Stathes
Plant Manager
Peach Bottom Atomic Power Station

GLS/djf/IR 1119440 / 1125359 / 762371

Attachment

cc: US NRC, Administrator, Region I
US NRC, Senior Resident Inspector
R. R. Janati, Commonwealth of Pennsylvania
S. Grey, State of Maryland
P. Steinhauer, PSE&G, Financial Controls and Co-owner Affairs
INPO Records Center

CCN: 10-95

IE22
NRR

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the FOIA/Privacy Section (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects.resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0104), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. FACILITY NAME Peach Bottom Atomic Power Station (PBAPS) Unit 2	2. DOCKET NUMBER 05000277	3. PAGE 1 OF 6
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4. TITLE
Improper Credit for Function of Off-Site Power Source Transformer Load Tap Changer

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO.	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
09	29	2010	10	004	00	11	24	2010	PBAPS Unit 3	05000278
									FACILITY NAME	DOCKET NUMBER
										05000

9. OPERATING MODE 5	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: <i>(Check all that apply)</i>
10. POWER LEVEL 0%	<input type="checkbox"/> 20.2201(b) <input type="checkbox"/> 20.2203(a)(3)(i) <input type="checkbox"/> 50.73(a)(2)(i)(C) <input type="checkbox"/> 50.73(a)(2)(vii) <input type="checkbox"/> 20.2201(d) <input type="checkbox"/> 20.2203(a)(3)(ii) <input type="checkbox"/> 50.73(a)(2)(ii)(A) <input type="checkbox"/> 50.73(a)(2)(viii)(A) <input type="checkbox"/> 20.2203(a)(1) <input type="checkbox"/> 20.2203(a)(4) <input type="checkbox"/> 50.73(a)(2)(ii)(B) <input type="checkbox"/> 50.73(a)(2)(viii)(B) <input type="checkbox"/> 20.2203(a)(2)(i) <input type="checkbox"/> 50.36(c)(1)(i)(A) <input type="checkbox"/> 50.73(a)(2)(iii) <input type="checkbox"/> 50.73(a)(2)(ix)(A) <input type="checkbox"/> 20.2203(a)(2)(ii) <input type="checkbox"/> 50.36(c)(1)(ii)(A) <input type="checkbox"/> 50.73(a)(2)(iv)(A) <input type="checkbox"/> 50.73(a)(2)(x) <input type="checkbox"/> 20.2203(a)(2)(iii) <input type="checkbox"/> 50.36(c)(2) <input type="checkbox"/> 50.73(a)(2)(v)(A) <input type="checkbox"/> 73.71(a)(4) <input type="checkbox"/> 20.2203(a)(2)(iv) <input type="checkbox"/> 50.46(a)(3)(ii) <input type="checkbox"/> 50.73(a)(2)(v)(B) <input type="checkbox"/> 73.71(a)(5) <input type="checkbox"/> 20.2203(a)(2)(v) <input type="checkbox"/> 50.73(a)(2)(i)(A) <input type="checkbox"/> 50.73(a)(2)(v)(C) <input type="checkbox"/> OTHER <input type="checkbox"/> 20.2203(a)(2)(vi) <input checked="" type="checkbox"/> 50.73(a)(2)(i)(B) <input type="checkbox"/> 50.73(a)(2)(v)(D)

Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

FACILITY NAME PBAPS Unit 2, James M. Armstrong, Regulatory Assurance Manager	TELEPHONE NUMBER <i>(Include Area Code)</i> 717-456-3351
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13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

14. SUPPLEMENTAL REPORT EXPECTED <input type="checkbox"/> YES <i>(If yes, complete 15. EXPECTED SUBMISSION DATE)</i> <input checked="" type="checkbox"/> NO	15. EXPECTED SUBMISSION DATE MONTH: DAY: YEAR:
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ABSTRACT *(Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)*

Based on information provided by the Nuclear Regulatory Commission (NRC) as part of their closeout of a Task Interface Agreement associated with an NRC unresolved item, the plant management staff determined that certain plant equipment could be degraded as a result of lower voltages that may exist during a postulated design basis loss-of-coolant event coupled with certain degraded voltage conditions. Although the safety significance of this event is considered to be very low, the event is considered to be a condition prohibited by Technical Specifications (TS).

The cause of the event was due to the previous assumption that credit could be taken for the operation of the load tap changers associated with the offsite power source transformers. This credit would result in higher voltages to the supplied equipment. Upgrades to most of the TS impacted equipment have been performed. Other compensatory measures have been put in place to assure operability of other components until other design upgrades can be completed. There were no actual safety consequences associated with this event. There were no previous events identified.

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NARRATIVE

Unit Conditions Prior to the Event

Unit 2 was in Mode 5 for its 18th Refueling Outage (P2R18) when the event was determined to impact plant operations on 9/29/10. Unit 3 was operating at 100% rated thermal power. There were no other structures, systems or components out of service that contributed to this event.

Description of the Event

Based on information provided by the Nuclear Regulatory Commission (NRC) as part of their closeout of a Task Interface Agreement (TIA) associated with an NRC unresolved item, the plant management staff determined that certain plant equipment could be degraded as a result of lower voltages that may exist during a design basis Loss-of-Coolant (LOCA) event coupled with certain degraded voltage conditions. Historically, the PBAPS plant engineering staff had incorrectly assumed that it was acceptable to credit the operation of the offsite power transformer load tap changers (i.e., ability to automatically raise voltage) when analyzing minimum voltages that were required for electrical equipment to operate. However, it was recently determined that the voltage associated with the degraded voltage relay for transferring electrical power buses to the Emergency Diesel Generator (EDG) was required to be used for determining minimum equipment voltage. As a result, credit for these load tap changers was not appropriate. The required voltage for the components is associated with the Technical Specification (TS) Limiting Condition for Operation (LCO) 3.3.8.1, Loss of Power (LOP) Instrumentation Degraded Voltage LOCA relay allowable value.

Based on further analysis by the plant engineering staff, it was determined that certain valve motor-operators (EIIIS: 20) and other equipment Motor Control Center (MCC) contactors (EIIIS: CNTR) may not have been able to operate at these postulated lower voltages. It was identified that this postulated lower voltage affected 15 TS component operability requirements. Of these components, 10 (MCC contactors) were either already upgraded or would be upgraded prior to startup from the Unit 2 refueling outage that was in progress. The other 5 components (motor-operators for valves) required compensatory measures to be put in place to assure continued operability of the components. It was determined that the equipment non-conformance only applied to LOCA conditions involving certain degraded voltage conditions.

Requirements for the Report:

From a historical perspective, the impact of these 15 component concerns is considered as a condition prohibited by Technical Specifications (10CFR 50.73(a)(2)(i)(B)) and is therefore, being reported. However, this event is of very low safety significance and is not considered to result in the loss of a safety function.

The below description of the affected components is presented to reflect the impact on plant TS:

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NARRATIVE

Description of the Event, continued

Common to Units 2 and 3:

1. Limiting Condition for Operation (LCO) 3.8.1, AC Sources – Operating - Because the MCC contactors for the following equipment were in a non-conforming condition, a condition prohibited by TS LCO 3.8.1 is considered to have occurred (10CFR 50.73(a)(2)(i)(B)):
 - o E-1 EDG Ventilation Supply Fan (0AV064) motor
 - o E-1 EDG Fuel Oil Transfer Pump (0AP060) motor
 - o E-3 EDG Supplemental Ventilation Fan (0CV091) motor
 - o E-4 EDG Ventilation Supply Fan (0DV064) motor

Unit 2:

1. LCO 3.5.1, Emergency Core Cooling Systems (ECCS) and Reactor Core Isolation Cooling (RCIC) System – Because the MCC contactor for the 2B Core Spray Room Cooler Fan (2FV024) motor was in a non-conforming condition, a condition prohibited by TS LCO 3.5.1 is considered to have occurred (10CFR 50.73(a)(2)(i)(B)). In accordance with the PBAPS Technical Requirements Manual Section 3.11, Engineered Safeguards (ES) Compartment Cooling and Ventilation, the associated Core Spray pump is required to be declared inoperable if the associated room cooler unit is inoperable. Therefore, the non-conforming condition of the 2B Core Spray Room Cooler would have resulted in an entry into the appropriate conditions of TS LCO 3.5.1 for an inoperable low pressure ECCS subsystem being inoperable.

2. LCO 3.6.2.3, Residual Heat Removal (RHR) Suppression Pool Cooling and LCO 3.6.2.4, Residual Heat Removal (RHR) Suppression Pool Spray – Because the motor MCC contactors / motor-operators for the following valves were in a non-conforming condition, a condition prohibited by TS LCOs 3.6.2.3 and 3.6.2.4 is considered to have occurred (10CFR 50.73(a)(2)(i)(B)):
 - o 2B RHR Suppression Pool Cooling Valve (MO-2-10-034B) - MCC contactor
 - o 2A RHR Pump Discharge Valve (MO-2-10-154A) - motor-operator
 - o 2B RHR Pump Discharge Valve (MO-2-10-154B) - motor-operator

The 2B RHR Suppression Pool Cooling Valve is required to open to provide a flow path for Suppression Pool Cooling and Suppression Pool Spray. The 2A and 2B RHR Pump Discharge Valves (pressure isolation valves) are required to close after the Low Pressure Coolant Injection (LPCI) mode of RHR has performed its function in order to line the system up for Suppression Pool Cooling / Spray.

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NARRATIVE

Description of the Event, continued

3. LCO 3.6.1.3, Primary Containment Isolation Valves (PCIVs) – Because the MCC contactors for the motors for the following valves were in a non-conforming condition, a condition prohibited by TS LCO 3.6.1.3 is considered to have occurred (10CFR 50.73(a)(2)(i)(B)):
 - o 2B RHR Suppression Pool Cooling Valve (MO-2-10-034B)
 - o 2B RHR Drywell Spray Inboard Isolation Valve (MO-2-10-031B)

If the above normally-closed valves were opened to perform their Suppression Pool Cooling / Suppression Pool Spray / Drywell Spray function, it could not be assured the valves could be re-closed while in the non-conforming condition.

4. LCO 3.7.1, High Pressure Service Water (HPSW) System – Because the MCC contactor for the 2A HPSW / Emergency Service Water (ESW) area exhaust fan (2AV083) motor was in a non-conforming condition, a condition prohibited by TS LCO 3.7.1 is considered to have occurred (10CFR 50.73(a)(2)(i)(B)). In accordance with the PBAPS Technical Requirements Manual Section 3.11, Engineered Safeguards (ES) Compartment Cooling and Ventilation, the associated HPSW subsystem is required to be declared inoperable if the associated area exhaust fan is inoperable. Therefore, the non-conforming condition of the 2A HPSW / ESW area exhaust fan would have resulted in an entry into the appropriate conditions of TS LCO 3.7.1 for an inoperable HPSW subsystem.

Unit 3:

1. LCO 3.6.1.3, Primary Containment Isolation Valves (PCIVs) – Because the MCC contactors / motor-operator for the following valves were in a non-conforming condition, a condition prohibited by TS LCO 3.6.1.3 is considered to have occurred (10CFR 50.73(a)(2)(i)(B)):
 - o 3B RHR Suppression Pool Cooling Valve (MO-3-10-034B) – MCC contactor
 - o 3B RHR Drywell Spray Inboard Isolation Valve (MO-3-10-031B) – MCC contactor
 - o 3B RHR Drywell Spray Outboard Isolation Valve (MO-3-10-026B) – motor-operator

If the above normally-closed valves were opened to perform their Suppression Pool Cooling / Suppression Pool Spray / Drywell Spray function, it could not be assured the valves could be closed while in the non-conforming condition.

2. LCO 3.6.2.3, Residual Heat Removal (RHR) Suppression Pool Cooling and LCO 3.6.2.4, Residual Heat Removal (RHR) Suppression Pool Spray – Because the motors for the MCC contactors / motor-operators for the following valves were in a non-conforming condition, a condition prohibited by TS LCOs 3.6.2.3 and 3.6.2.4 is considered to have occurred (10CFR 50.73(a)(2)(i)(B)):
 - o 3B RHR Suppression Pool Cooling Valve (MO-3-10-034B) - MCC contactor
 - o 3A RHR Pump Discharge Valve (MO-3-10-154A) - motor-operator
 - o 3B RHR Pump Discharge Valve (MO-3-10-154B) - motor-operator

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NARRATIVE

Description of the Event, continued

The 3B RHR Suppression Pool Cooling Valve is required to open to provide a flow path for Suppression Pool Cooling and Suppression Pool Spray. The 3A and 3B RHR Pump Discharge Valves (pressure isolation valves) are required to close after the Low Pressure Coolant Injection (LPCI) mode of RHR has performed its function in order to line the system up for Suppression Pool Cooling / Spray.

Cause of the Event

The plant engineering staff (utility, non-licensed) had previously assumed that credit could be taken in the design basis for the operation of the load tap changers associated with the offsite power source transformers. This was based on the incorrect assumption that this credit had been found acceptable as part of the licensing associated with Technical Specification amendment 143/145 that was approved by the NRC on 4/13/89. It was determined that the individual component design bases must be determined without reliance on the load tap changers and must use voltages associated with the TS 3.3.8.1 Loss of Power (LOP) Instrumentation Degraded Voltage LOCA relay allowable value.

Analysis of the Event

There were no actual safety consequences associated with this event. This condition has been determined to be of very low safety significance. Analyses performed by NRC personnel have determined that this design deficiency impacted operability but not functionality of the affected equipment. There was no loss of safety function involved with this design deficiency. There were no affects on the ability of the offsite power system (EIS: EA) to maintain adequate voltage during a design basis LOCA.

Two qualified circuits between the offsite transmission network and the onsite Class 1E electrical power distribution system (EIS: EK) are supported by multiple, independent power sources. The voltage of the three offsite sources that are available to the two qualified circuits is stepped down using transformers that are equipped with load tap changers. These load tap changers automatically adjust the transformers (EIS: XRMR) to produce sufficient voltage to supply the onsite power distribution network. The load tap changers, although not considered as safety related, are highly reliable.

The onsite power distribution network is equipped with loss of power instrumentation (EIS: RLY) that monitors incoming bus voltage. This monitoring equipment can detect degraded voltage / loss of voltage and initiate actions to transfer the associated onsite distribution network buses from the qualified offsite circuits to the onsite EDGs.

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NARRATIVE

Analysis of the Event, continued

The non-conforming condition had no impact on the LOCA / loss-of-offsite power design basis event. The only impact this condition had was on LOCA events that involved a degraded voltage event where the voltage did not go low enough to transfer to the EDGs, but was not high enough to power all required equipment. Due to the extreme low likelihood of this postulated design basis event, the event was not considered to be risk significant.

Corrective Actions

Components with affected MCC contactors that directly impacted TS have been upgraded.

An operability evaluation was promptly completed for other valves that require upgrading of the associate motor-operator. Compensatory measures were put in place to ensure operability until design margin improvements can be made. These compensatory measures include procedural controls to verify appropriate voltages exist prior to operating the associated valves. Appropriate design upgrades will be performed for affected components.

Other components that did not directly impact TS operability are also being evaluated for upgrades.

Previous Similar Occurrences

There were no previous similar events identified.