



10CFR 50.73

CCN: 20-46

April 24, 2020

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

Peach Bottom Atomic Power Station (PBAPS) Unit 2 and Unit 3
Renewed Facility Operating License No. DPR-44 and DPR-56
NRC Docket No. 50-277 and 50-278

Subject: Licensee Event Report (LER) 2-20-001

Enclosed is a Licensee Event Report concerning a trip of our E-1 emergency diesel generator, which resulted in a violation of Technical Specifications. In accordance with NEI 99-04, there are no regulatory commitments contained in this correspondence. If you have any questions or require additional information, please do not hesitate to contact Matthew Rector at 717-456-4351.

Sincerely,

A handwritten signature in black ink, appearing to read "Matthew J. Herr".

Matthew J. Herr
Site Vice President
Peach Bottom Atomic Power Station

MJH/dnd/IR 4321794

Enclosure

cc: US NRC, Administrator, Region I
US NRC, Senior Resident Inspector
R. R. Janati, Commonwealth of Pennsylvania
S. Seaman, State of Maryland
B. Watkins, PSE&G, Financial Controls and Co-Owner Affairs

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 Information Services Branch (T-6 A10M), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@nrc.gov, and the OMB reviewer at: OMB Office of Information and Regulatory Affairs, (3150-0104), Attn: Desk Officer for the Nuclear Regulatory Commission, 725 17th Street NW, Washington, DC 20503; e-mail: aira_submission@omb.eop.gov. The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless the document requesting or requiring the collection displays a currently valid OMB control number.



LICENSEE EVENT REPORT (LER)

(See Page 2 for required number of digits/characters for each block)

(See NUREG-1022, R.3 for instruction and guidance for completing this form)

<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/>

1. Facility Name Peach Bottom Atomic Power Station Unit 2	2. Docket Number 05000 - 277	3. Page 1 OF 4
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4. Title Emergency Diesel Generator Shutdown Due to Intercooler Low Pressure Results in Condition Prohibited by Technical Specifications
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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
02	26	2020	2020	001	00	04	24	2020	Peach Bottom APS Unit 3	05000 278
									Facility Name	Docket Number
										05000

9. Operating Mode	11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: (Check all that apply)			
1	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
10. Power Level	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)
100	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> 73.77(a)(1)
	<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)(D)	<input type="checkbox"/> 73.77(a)(2)(i)
	<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)(vii)	<input type="checkbox"/> 73.77(a)(2)(ii)
		<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> Other (Specify in Abstract below or in NRC Form 366A)	

12. Licensee Contact for this LER	
Licensee Contact Matthew Rector, Regulatory Assurance Manager	Telephone Number (Include Area Code) 717-456-4351

13. Complete One Line for each Component Failure Described in this Report										
Cause	System	Component	Manufacturer	Reportable to ICES	Cause	System	Component	Manufacturer	Reportable to ICES	
14. Supplemental Report Expected					15. Expected Submission Date			Month	Day	Year
<input type="checkbox"/> Yes (If yes, complete 15. Expected Submission Date) <input checked="" type="checkbox"/> No										

Abstract (Limit to 1400 spaces, i.e., approximately 14 single-spaced typewritten lines)

On 2/26/20, Emergency Diesel Generator #1 (E-1) was started for a monthly surveillance test. Shortly after reaching full speed, E-1 tripped due to low intercooler coolant pressure. Troubleshooting identified air in the coolant system. Further investigation determined the air was introduced into the system during maintenance activities earlier in the month and not adequately vented at the conclusion of the maintenance.

The system was vented and returned to an operable status on 2/27/20. Corrective actions include revising procedures to improve guidance for venting.

There were no actual safety consequences as a result of this event. This event is being reported pursuant to the requirements of 10 CFR 50.73(a)(2)(i)(B) for an operation or condition prohibited by Technical Specifications.



LICENSEE EVENT REPORT (LER) CONTINUATION SHEET

(See NUREG-1022, R.3 for instruction and guidance for completing this form
<http://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr1022/r3/>)

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 Information Services Branch (T-6 A10M), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@nrc.gov, and the OMB reviewer at: OMB Office of Information and Regulatory Affairs, (3150-0104), Attn: Desk Officer for the Nuclear Regulatory Commission, 725 17th Street NW, Washington, DC 20503; e-mail: oir_submission@omb.eop.gov. The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless the document requesting or requiring the collection displays a currently valid OMB control number.

1. FACILITY NAME	2. DOCKET NUMBER	3. LER NUMBER		
		YEAR	SEQUENTIAL NUMBER	REV NO.
Peach Bottom Atomic Power Station Unit 2	05000- 277	2020	- 001	00

NARRATIVE

Unit Conditions Prior to the Event

Unit 2 and Unit 3 were both operating in Mode 1 at approximately 100% rated thermal power. There were no structures, systems or components out of service that contributed to this event.

Description of Event

On 2/26/20, at approximately 2110, operators began a monthly surveillance test of the E-1 Emergency Diesel Generator [EIS:DG]. At 2126, a slow start of E-1 was performed in accordance with station procedures. Shortly after the engine was raised to full speed, a local alarm indicated low pressure in the intercooler coolant system. While the equipment operator was in the process of reporting the alarm to the Main Control Room, the engine automatically tripped at approximately 2129. The test was aborted and the engine placed in its normal shutdown lineup. In accordance with Technical Specifications (TS), offsite and onsite electrical power breaker alignment and a power availability check was performed to verify critical loads are connected to their preferred power source and that appropriate independence of offsite circuits was maintained.

Troubleshooting identified air in the intercooler coolant system, which prevented the pump from establishing the normal system pressure. A series of venting evolutions was performed to remove the air. During the first venting, it was estimated that approximately one cubic foot of air was released. Smaller amounts were released during subsequent ventings, which were performed when the diesel was not running, when it was running unloaded and running loaded. A final run of the diesel was performed on 2/27/20 at 1436 and the engine ran without incident for approximately three hours. A final vent produced no air and E-1 was returned to operable on 2/27/20 at 2030.

For the above testing and venting, the E-1 diesel was inoperable for approximately 23.3 hours from the start of the test on 2/26/20 until the engine was returned to operable on 2/27/20.

Analysis of Event

The site's four Emergency Diesel Generators are standby units that provide adequate power to safely shutdown both units in the event of a design basis accident with a loss of offsite power (LOOP). The accident analysis assumes one of the four diesel generators fails. Each diesel generator starts automatically on a LOOP, low reactor water level or high drywell pressure. Periodic testing ensures the diesel engines can start automatically and reach full speed within 10 seconds. The engines can also be started manually for testing and maintenance purposes.

Each diesel engine has several protective features that automatically trip the engine under the following abnormal conditions:

1. Engine overspeed
2. Jacket coolant high temperature or low pressure
3. Lube oil high temperature or low pressure

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

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NARRATIVE

4. Crankcase high pressure
5. Engine overspeed
6. Intercooler coolant low pressure
7. Fuel oil low pressure

In the event of a design basis loss of coolant accident (LOCA), all of the above trips are bypassed except for engine overspeed, which is considered indicative of a condition that could result in significant equipment damage. The remaining trips are considered non-critical and identify potential equipment degradation. Although they are bypassed during a LOCA, they are not bypassed during a LOOP with other postulated abnormal operating conditions.

On 1/26/20, the E-1 diesel was taken out of service for planned maintenance, which involved draining both the intercooler coolant and jacket water systems. Following maintenance, the systems were filled and vented. During post maintenance testing (PMT), the engine was started and stopped a total of nine times to support a series of break-in runs required based on the maintenance that had been performed and also to address issues identified during the PMT. Following completion of these activities, the E-1 diesel was returned to an operable status on 2/7/20 at 0230.

Further investigation of the trip on 2/26/20 determined that the air was likely introduced into the system during the maintenance activities performed earlier in the month. Since the engine tripped due to low intercooler coolant pressure during the first run of the engine following the maintenance, it is assumed it would have tripped if it had been required to perform its safety function during a non-LOCA transient at any time following completion of the maintenance on 2/7/20. As a result, it was inoperable from 2/7/20 at 0230 until the intercooler coolant system had been fully vented and the diesel generator returned to operable on 2/27/20 at 2030, for a total of 20 days and 18 hours.

TS LCO 3.8.1.b requires all four diesel generators to be capable of supplying the onsite Class IE AC electrical power distribution system. With one diesel generator inoperable, TS 3.8.1 Condition B requires several actions (B.1 through B.5) to be completed at varying frequencies, including restoring the diesel generator to operable within 14 days. Since these actions were not performed between 2/7/20 at 0230 until 2/26/20 at 2110 (19 days, 18.7 hours), TS were not complied with during that time period. This event is being reported as a violation of Technical Specifications in accordance with 10 CFR 50.73(a)(2)(i)(B).

During the period where it was determined the E-1 diesel generator was inoperable (2/7/20 to 2/26/20), surveillance tests were performed for diesel generator E-2 on 2/7/20, diesel generator E-3 on 2/24/20 and diesel generator E-4 on 2/18/20 to demonstrate operability in accordance with TS surveillance requirements and the Surveillance Frequency Control Program. When performing these surveillance tests, the diesel generator is inoperable for a short period of time. For each of these tests, the diesel generators were inoperable for less than five hours. This is less than the maximum allowed time in TS 3.8.1 Conditions F and G of 14 hours for two inoperable diesel generators. Therefore, there was no inadvertent violation of these two TS conditions.

There were no actual safety consequences as a result of this event. There was no LOOP during the period of inoperability or other condition resulting in a diesel generator start signal.

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

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NARRATIVE**Cause of the Event**

The cause of the event was inadequate venting of the intercooler coolant system during maintenance. Venting was performed during the start of one of the initial PMT runs and not performed when the engine was hot. Following this event, the vendor recommended the system should be vented when the engine is loaded, but this was not known prior to the maintenance and was not specified in the procedures in use at the time.

Corrective Actions

The intercooler coolant system was vented which allowed the diesel generator to be returned to operable. In order to improve guidance for venting following maintenance and prior to returning the diesel generator to operable, procedures are being revised to require venting to be performed when the engine is hot and loaded. Additional corrective actions are documented in the corrective action program.

Previous Similar Occurrences

There have been previous cases where E-1 has tripped due to air in the system when the diesel generator was out of service for maintenance. In all cases, prior to returning the diesel generator operable, adequate venting was performed. This was the first case where post maintenance testing did not identify the condition prior to returning the diesel generator to operable.