



Mark Flaherty
Plant Manager

Calvert Cliffs Nuclear Power Plant
1650 Calvert Cliffs Parkway
Lusby, MD 20657

410 495 5205 Office
443-534-5475 Mobile
www.exeloncorp.com

mark.flaherty@exeloncorp.com

10 CFR 50.73

November 9, 2015

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

Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2
Renewed Facility Operating License Nos. DPR-53 and DPR-69
NRC Docket Nos. 50-317 and 50-318

Subject: Licensee Event Report 2015-003, Revision 00
Diesel Generator Inoperable Due to Lube Oil Filter Fouling Due to Coolant
Leakby on a Cylinder Liner

The attached report is being sent to you as required by 10 CFR 50.73.

There are no regulatory commitments contained in this correspondence.

Should you have questions regarding this report, please contact Mr. Larry D. Smith at
(410) 495-5219.

Respectfully,

A handwritten signature in black ink that reads "Mark D. Flaherty".

Mark D. Flaherty
Plant Manager

MDF/PSF/bjm

Attachment: As stated

cc: NRC Project Manager, Calvert Cliffs
NRC Regional Administrator, Region I

NRC Resident Inspector, Calvert Cliffs
S. Gray, MD-DNR

JE22
NRR

LICENSEE EVENT REPORT (LER)

(See Page 2 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 and Information Collections Branch (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 Calvert Cliffs Nuclear Power Plant, Unit 1	2. DOCKET NUMBER 05000 317	3. PAGE 1 OF 4
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4. TITLE
Diesel Generator Inoperable Due to Lube Oil Filter Fouling Due to Coolant Leakby on a Cylinder Liner

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	
06	17	2015	2015	- 003 -	00	11	9	2015	Calvert Cliffs , Unit 2	05000 318
									FACILITY NAME	

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)(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)
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)(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"/> 50.73(a)(2)(vii)
	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)	<input checked="" 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	TELEPHONE NUMBER (Include Area Code)
P. S. Furio, Principal Engineer	410-495-4374

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX
X	EK	ENG	---	Y					

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 15 single-spaced typewritten lines)

On June 17, 2015 during 1A diesel generator (DG) Surveillance testing, the 1A2 "lube oil differential pressure high" alarm annunciated on both sides of the engine (side A and side B) shortly after DG start. The DG was shut down and declared inoperable. The cause of the alarms was a leaking cylinder liner which allowed coolant (glycol) to contaminate the lube oil and foul the lube oil filters. The cause of the cylinder leak was determined to be damaged O rings on the leaking cylinder. The damaged O rings were replaced and the 1A DG was satisfactorily tested and returned to Operable status on June 22, 2015. To address the apparent cause of the degraded O rings, a process to ensure O rings are stored flat to prevent twists was implemented. Because the 1A DG was determined to be inoperable for 32 days, the Required Action Completion Times of Technical Specification 3.8.1.B, C, E, F, and J were not met and this event is reportable as an operation or condition prohibited by Technical Specifications. This event is also reportable as an event or condition that could have prevented fulfilment of a safety function, because the inoperability of the second Unit 1 DG for 24 minutes resulted in a loss of safety function for emergency power on Unit 1, and the inoperability of the Unit 2 2B DG for 8 minutes resulted in a loss of safety function for the emergency power to the Control Room ventilation system for Units 1 and 2.

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CONTINUATION SHEET**

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 and Information Collections Branch (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.

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NARRATIVE

I. DESCRIPTION OF EVENT:

Energy Industry Identification System (EIS) codes are typically identified in the text as [XX].

A. INITIAL CONDITIONS:

Unit 1 and Unit 2 were operating at 100 percent power in Mode 1 prior to the event.

B. EVENT:

On June 17, 2015 during 1A diesel generator (DG) [EK] Surveillance testing, the 1A2 "lube oil differential pressure high" alarm annunciated on both sides of the engine (side A and side B) shortly after DG start. The DG was shut down and declared inoperable. Troubleshooting concluded the cause of the alarms was due to a leaking cylinder liner which allowed coolant (glycol) to contaminate the lube oil [LA] and foul the lube oil filters.

The 1A DG had been previously tested satisfactorily (Surveillance test) on May 21, 2015. A review of operator logs for the preceding months found no adverse trend of lube oil fouling.

On September 18, 2015 a past operability evaluation of the 1A DG was completed. The completion of this evaluation began the 60 day LER report clock. The evaluation determined the DG was inoperable from its last successful Surveillance on May 21, 2015 until it was restored to Operable status on June 22, 2015. The length of the evaluation period was due to the studies that were required to determine when the leak would have reached sufficient volume to result in DG inoperability.

No automatic or manual safety system response was required for this event.

C. INOPERABLE STRUCTURES, COMPONENTS, OR SYSTEMS THAT CONTRIBUTED TO THE EVENT:

There were no inoperable structures, components, or systems at the start of the event that contributed to the event.

D. DATES AND APPROXIMATE TIMES OF MAJOR OCCURRENCES:

May 21, 2015 – Successful Surveillance test of the 1A DG.

June 3, 2015 – 1B DG inoperable for 24 minutes for air bar-over following testing, loss of safety function for Unit 1, onsite power.

June 11, 2015 – 2B DG inoperable for 8 minutes for air bar-over following testing, loss of safety function for Unit 2 Control Room ventilation power.

June 17, 2015 – Unsuccessful Surveillance run of the 1A DG, 1A DG declared inoperable.

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June 22, 2015 – Cylinder liner and O rings replaced and 1A DG returned to Operable status following successful Surveillance test.

September 18, 2015 – Past operability evaluation of the 1A DG completed. LER reporting clock started.

E. FAILURE MODES:

The 1A DG failed a Surveillance test on June 17, 2015. The cause of the failure was fouling of the lube oil filters on the 1A2 DG engine. The fouling was caused by a leaking cylinder liner that permitted coolant (glycol) to leak into the lube oil over a period of time. The cause of the cylinder leak was determined to be damaged O rings on the leaking cylinder. This damage may have been the result of twisted O rings. The 1A DG was inoperable for approximately 32 days.

The 1A DG is a SACM DG, model number UD 45 V16 S 5D.

F. METHOD OF DISCOVERY:

The event was self-revealing. The 1A DG Surveillance failure is documented in station Issue Report number 02515614.

II. CAUSE OF EVENT

The apparent cause of the cylinder leak was determined to be damaged O rings on the leaking cylinder.

A. SAFETY CONSEQUENCES:

The 1A DG is one of two DGs associated with Unit 1. There are also 2 DGs on Unit 2. The Technical Specification Required Actions for the DGs can require the operability of the opposite Unit DGs under certain circumstances.

The DGs provide onsite electrical power to safety-related plant systems in the event that offsite electrical power is interrupted. Calvert Cliffs Unit 1 has two safety-related DGs, 1A and 1B. Calvert Cliffs also has one non-safety-related DG that can be manually aligned to either of the Unit 1 safety-related 4 kV busses that are served by the 1A and 1B DGs.

This event did not result in any actual nuclear safety consequences. The significance of the event was that the 1A DG was inoperable as a result of coolant leakage into the lube oil and would have been unable to perform its design function to provide power to the 11 4kV bus for its required mission time. The potential consequence was to have a DG inoperable without recognizing it during a design basis event with a loss of offsite power. Additionally, the 1B DG was inoperable during this period for 24 minutes while performing an air bar-over following testing. This inoperability resulted in a loss of safety function for this time. In this period, the non-safety related DG would have been capable of providing power to the safety related busses. The 2B DG was also inoperable for 8 minutes during this period while performing an air

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bar-over following testing. This resulted in no DG power available to the Control Room ventilation system (one DG from Unit 1 and one DG from Unit 2 provide power to the Control Room ventilation system). The non-safety related DG would have been able to power the affected safety related bus during this period, if needed.

This event was reviewed for probabilistic risk assessment impact and the change in risk is quantitatively less than 1E-6 change in core damage frequency and 1E-7 change in large early release frequency. This represents events of very low safety significance.

This event is reportable based on the criteria in NUREG-1022, Revision 3. Because the 1A DG was determined to be inoperable for 32 days, the Required Action Completion Times of Technical Specification 3.8.1.B, C, E, F and J were not met. Therefore this event is reportable as an operation or condition prohibited by Technical Specifications [10 CFR 50.73(a)(2)(i)(B)]. Although other DGs were taken out-of-service during the 32 day inoperability of the 1A DG, no additional Technical Specification Required Action Completion Times were violated. There is no corresponding ENS report. This event is also reportable as an event or condition that could have prevented fulfillment of a safety function. As described above, the inoperability of the second Unit 1 DG for 24 minutes resulted in a loss of safety function for Unit 1. And the inoperability of the Unit 2 2B DG for 8 minutes resulted in a loss of safety function for the emergency power to the Control Room ventilation system for Units 1 and 2.

B. CORRECTIVE ACTIONS:

The damaged O rings were replaced and the 1A DG was satisfactorily tested and returned to Operable status on June 22, 2015.

To address the apparent cause of the degraded O rings, a process to ensure O rings are stored flat to prevent twists was implemented.

III. PREVIOUS SIMILAR EVENTS:

A review of past LERs from the last five years was performed and no similar events were found.