UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE RD, STE 102
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

August 7, 2025

EAF-RI-2025-0142

Charles McFeaters
President and Chief Nuclear Officer
PSEG Nuclear, LLC - N09
P.O. Box 236
Hancocks Bridge, NJ 08038

SUBJECT: HOPE CREEK GENERATING STATION – NRC INSPECTION REPORT 05000354/2025090 AND PRELIMINARY WHITE FINDING AND APPARENT VIOLATION

Dear Charles McFeaters:

On July 16, 2025, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Hope Creek Generating Station and discussed the results of this inspection with Eric Larson, Site Vice President, and other members of your staff. The results of this inspection are documented in the enclosed report.

Section 71153 of the enclosed report documents a finding with an associated apparent violation that the NRC has preliminarily determined to be White with low-to-moderate safety significance. Contrary to Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix B, Criterion XVI, "Corrective Action," PSEG did not promptly identify and correct a condition adverse to quality involving the 'D' emergency diesel generator (EDG) engine lubrication system. Specifically, despite multiple indications of a degraded condition on the 'D' EDG, PSEG did not identify and correct the source of water intrusion into the 'D' EDG lubricating system oil and subsequently decided to enter a planned maintenance window on the 'A' EDG, placing the plant into a second degraded condition due to the same performance deficiency. We assessed the significance of the finding using the significance determination process (SDP) and readily available information. We are considering escalated enforcement for the apparent violation consistent with our Enforcement Policy, which can be found at http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html. Because we have not made a final determination, no notice of violation is being issued at this time. Please be aware that further NRC review may prompt us to modify the number and characterization of the apparent violation.

We intend to issue our final significance determination and enforcement decision, in writing, within 90 days of the date of this letter. The NRC's SDP is designed to encourage an open dialogue between your staff and the NRC; however, neither the dialogue nor the written information you provide should affect the timeliness of our final determination.

Before we make a final decision, you may choose to communicate your position on the facts and assumptions used to arrive at the finding and assess its significance by either: (1) attending

and presenting at a regulatory conference, or (2) submitting your position in writing. The focus of a regulatory conference is to discuss the significance of the finding.

Written responses should reference the inspection report number and enforcement action number associated with this letter in the subject line. Responses related to this apparent violation should include: (a) the reason for the apparent violation or, if contested, the basis for disputing the violation; (b) the corrective steps that have been taken and the results achieved; (c) the corrective steps that will be taken; and (d) the date when full compliance will be achieved. Your response should be sent to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 205550001; with copies to the Regional Administrator, Region I; and the NRC Resident Inspector at Hope Creek Generating Station. Your response may reference or include previously docketed correspondences.

If you request a regulatory conference, it should be held within 40 days of your receipt of this letter. Please provide information you would like us to consider or discuss with you at least 10 days prior to any scheduled conference. If you choose to attend a regulatory conference, it will be open for public observation. If you decide to submit only a written response, it should be sent to the NRC within 40 days of your receipt of this letter. If you choose not to request a regulatory conference or to submit a written response, you will not be allowed to appeal the NRC's final significance determination.

Please contact Nicole Warnek at 610-337-6954, and in writing, within 10 days from the issue date of this letter to notify the NRC of your intentions. If we have not heard from you within 10 days, we will continue with our significance determination and enforcement decision.

If you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region I; and the NRC Resident Inspector at Hope Creek Generating Station.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at http://www.nrc.gov/reading-rm/adams.html and at the NRC Public Document Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

BLAKE WELLING

Digitally signed by BLAKE WELLING
Date: 2025.08.07 08:13:12 -04'00'

Blake D. Welling, Director
Division of Operating Reactor Safety

Docket No. 05000354
License No. NPF-57

Enclosure:
Inspection Report 05000354/2025090
w/ Attachment: Detailed Risk Evaluation

cc w/ encl: Distribution via LISTSERV

SUBJECT: HOPE CREEK GENERATING STATION – NRC INSPECTION REPORT 05000354/2025090 AND PRELIMINARY WHITE FINDING AND APPARENT VIOLATION DATED AUGUST 7, 2025

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DOCUMENT NAME: HC 2025-090 'D' EDG PRELIM White (FINAL)
ADAMS ACCESSION NUMBER: ML25219A003

☑ SUNSI Review		☑ Non-Sensitive ☐ Sensitive		☑ Publicly Available ☐ Non-Publicly Available	
OFFICE	RI/DORS	RI/DORS	RI/DORS	RI/EAGL	OE/EB
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U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Number:	05000354
License Number:	NPF-57
Report Number:	05000354/2025090
Enterprise Identifier:	I-2025-090-0007
Licensee:	PSEG Nuclear, LLC
Facility:	Hope Creek Generating Station
Location:	Hancocks Bridge, NJ
Inspection Dates:	July 1, 2025 to July 16, 2025
Inspectors:	P. Finney, Senior Resident Inspector J. Bresson, Resident Inspector C. Bickett, Senior Reactor Analyst F. Arner, Senior Reactor Analyst
Approved By:	Blake D. Welling, Director Division of Operating Reactor Safety

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting an NRC inspection at Hope Creek Generating Station, in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC's program for overseeing the safe operation of commercial nuclear power reactors. Refer to https://www.nrc.gov/reactors/operating/oversight.html for more information.

List of Findings and Violations

Inadequate Identification and Correction of Water Intrusion into Emergency Diesel Generator Lube Oil System			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Preliminary White AV 05000354/2025090-01 Open EAF-RI-2025-0142	[H.14] - Conservative Bias	71153
The inspectors documented a self-revealed preliminary White finding and apparent violation of Title 10 of the *Code of Federal Regulations* (10 CFR) Part 50, Appendix B, Criterion XVI, "Corrective Action," when PSEG did not promptly identify and correct a condition adverse to quality (CAQ) involving the 'D' emergency diesel generator (EDG) engine lubrication system. Specifically, despite multiple indications of a degraded condition on the 'D' EDG, PSEG did not identify and correct the source of water intrusion into the 'D' EDG lubricating system oil and, subsequently, decided to enter a planned maintenance window on the 'A' EDG, placing the plant into a second degraded condition.			

Additional Tracking Items

None.

INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

OTHER ACTIVITIES – BASELINE

71153 - Follow Up of Events and Notices of Enforcement Discretion

Notice of Enforcement Discretion (IP Section 03.04) (1 Sample)

(1) The inspectors evaluated PSEG's actions surrounding Notice of Enforcement Discretion EAF-RI-2025-0048 which can be accessed at http://www.nrc.gov/reading-rm/doc-collections/enforcement/notices/noedreactor.html, on June 9, 2025.

INSPECTION RESULTS

<table>
<tr><td colspan="4">Inadequate Identification and Correction of Water Intrusion into Emergency Diesel Generator Lube Oil System</td></tr>
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AV 05000354/2025090-01
Open
EAF-RI-2025-0142</td><td>[H.14] - Conservative Bias</td><td>71153</td></tr>
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<tr><td colspan="4">Description: As stated in the Hope Creek Updated Final Safety Analysis Report, the EDG lubrication system is a safety-related system designed to supply a continuous flow of oil to all EDG surfaces requiring lubrication at a controlled pressure, temperature, and cleanliness. The EDG lubrication system consists of two subsystems, the engine lube oil (LO) system and the rocker arm lube oil (RALO) system. The engine LO system lubricates moving engine parts, such as the main bearings, camshaft, and auxiliary equipment drives, and removes excess heat from the pistons. The RALO system lubricates the valve train, such as rocker arm pivot bushings, push rods and tappets. The two subsystems are separated to prevent contamination of the engine LO system in the event of water or fuel oil leakage in the cylinder head area which is lubricated by the RALO system. The engine LO system serves as a</td></tr>
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source of makeup oil to the RALO system to account for any oil that may be consumed by the valve train. The engine LO system contains a shell and tube heat exchanger that transfers heat from the engine LO to the safety auxiliaries cooling system (SACS). The RALO system is a closed system, and a high level in the tank could indicate intrusion of process fluid from another system.

On January 23, 2025, PSEG ran the 'D' EDG to demonstrate operability in accordance with Technical Specification (TS) 4.8.1.1.2.a, using surveillance procedure HC.OP-ST.KJ-0004, “Emergency Diesel Generator 1DG400 Operability Test.” As part of the test and after reaching full load, operators record the LO filter differential pressure (D/P) at 15 minutes and 60 minutes and draw a LO sample from the crankcase at 15 minutes. Because LO samples are sent to a vendor for analysis, results are not immediately available.

Fifteen minutes after reaching full load, the LO filter D/P was recorded as 13 psid, and at 60 minutes, it was recorded as 12.5 psid. HC.OP-ST.KJ-0004, Attachment 3, Note 1 states, in part, that if the D/P across the LO filter or strainer exceeds 10 psid, write a notification (NOTF) to clean them and document contents. PSEG did not identify this degraded condition in a NOTF and marked the surveillance as satisfactory. When exceeding 10 psid, the vendor, Fairbanks Morse, directs changing LO filter elements and cleaning LO strainer elements, respectively. Data from previous 'D' EDG testing established that LO filter D/P was typically about zero PSID. The LO filters contain a paper element, and an elevated D/P across the filter could indicate moisture absorption by the paper due to excess water in the EDG crankcase LO system. Inspectors determined this was a missed opportunity for PSEG to identify and correct the source of water intrusion into the 'D' EDG lubrication system.

At 5:53 a.m. on January 26, 2025, control room operators received an alarm for high level in the 'D' EDG RALO tank. Operators responded at 6:17 a.m. and drained approximately one half of a liter of free water from the RALO tank before any oil appeared. Operators then drained an additional gallon of oil to clear the alarm. PSEG captured this degraded condition in NOTF 20986136 and assessed 'D' EDG operability. This operability determination stated, in part, that the deficient condition did not affect the function of the EDG and that “this system does not affect or impact the operation of the EDG and none of its oil is associated with or mingles with the EDG lube oil.” The control room supervisor initially suggested taking a confirmatory crankcase LO sample to verify it was free of water but, after consulting with the shift manager, concluded that the sample was unnecessary. PSEG also implemented temporary log 25-014 for operations to “perform troubleshooter to remove water from the 'D' EDG RALO reservoir” daily.

TS Surveillance Requirement (SR) 4.8.1.1.2.b requires that each EDG be demonstrated operable by visually examining a sample of LO from the diesel engine to verify absence of water at a periodicity delineated in the Surveillance Frequency Control Program. HC.OP-ST.KJ-0004, step 4.1.6, “Check Rocker Arm Lube Oil Sump for water accumulation,” references CD-670 as to why the RALO sample is being drawn and what requirement it is satisfying. CD-670 is a commitment database report clarifying how “each Standby Diesel Generator will be tested in accordance with… TS 4.8.1.1.2.” The commitment was made to draw the RALO sample to satisfy TS SR 4.8.1.1.2.b. Based on this, inspectors concluded that the RALO system is an integral part of the EDG, and proper lubrication of the valve train is important to the proper operation of the EDG. Additionally, the inspectors noted that, although the RALO system does not return oil to the engine LO system, the RALO system does receive makeup from the engine LO system. As such, any water that is present in the engine LO could be transferred into the RALO system, and thus, water in the RALO system could be

a symptom of water intrusion into the engine LO. The operability evaluation did not consider the potential source of the water and its functional impact, instead relying on “incomplete information and prior experiences," according to a PSEG root cause evaluation, 70239337, completed after this sequence of events. Inspectors concluded this was another missed opportunity for PSEG to identify and correct the source of water intrusion into the 'D' EDG lubrication system.

Despite indications of water intrusion into the 'D' EDG, at 12:01 a.m. on January 27, 2025, PSEG removed the 'A' EDG from service for a planned maintenance window. PSEG procedure WC-AA-101, “On-line Work Management Process,” step 4.3.1. directs the operating shift to continuously evaluate the risk of the scheduled online maintenance activity based, in part, on current plant and system, structure, and component status. At 10:32 a.m. on January 27, 2025, operators drained an additional quarter of a liter of water from the 'D' RALO tank. Engineering updated NOTF 20986136 and requested that a crankcase LO sample be drawn to validate the absence of water in the 'D' EDG engine LO system, but PSEG did not take this sample. Inspectors determined this was another missed opportunity for PSEG to identify and correct the source of water intrusion into the 'D' EDG lubrication system. PSEG began sampling the 'D' RALO tank on January 28, 2025, to assess the oil condition and sent these samples to a third-party vendor’s laboratory for analysis. The 'D' RALO sample results were delayed several days due to shipping and processing and were not received until February 3, 2025.

At 7:05 a.m. on January 31, 2025, with the 'D' EDG in a standby condition, operators received a high D/P alarm for its LO filter. Operators responded and found that the LO filter D/P was 14 psid and the LO strainer D/P was greater than 20 psid. At 7:35 a.m., the 'D' EDG was declared inoperable as it could not meet TS SR 4.8.1.1.2.a.8, which requires the LO pressure, temperature, and D/P across the LO filter to be within the manufacturer’s specifications. Since the 'A' EDG was also inoperable and unavailable, PSEG entered TS Limiting Condition for Operation (LCO) 3.8.1.1.e for two inoperable EDGs, which required restoration of at least one of two inoperable EDGs to an operable status within two hours or be in hot shutdown within the next 12 hours and in cold shutdown within the following 24 hours. PSEG commenced troubleshooting on the 'D' EDG. Around 12:30 p.m., PSEG received crankcase oil sample results from the monthly surveillance on January 23, 2025, which documented 35,980 ppm water. This was significantly greater than the PSEG fault limit of 1000 ppm and confirmed the presence of water intrusion into the LO system. Given this information, PSEG prioritized recovery of the 'A' EDG and sought a Notice of Enforcement Discretion (NOED) from the NRC. At 8:15 p.m. on January 31, 2025, PSEG commenced a power reduction in preparation for the shutdown required by the EDG TS LCO. Ultimately, the NRC approved a NOED at 9:10 p.m., and the 'A' EDG was returned to service at 9:21 p.m., allowing PSEG to exit the TS LCO for two inoperable EDGs.

Subsequent to this, PSEG continued to troubleshoot the 'D' EDG. Their testing confirmed the water source was not jacket water, and their focus shifted to the LO heat exchanger (HX). They conducted LO HX pressure testing and eddy current testing of the HX tubes. PSEG plugged five suspect LO HX tubes, replaced the LO, filters, and strainer elements, restored the engine, and post-maintenance tested the ‘D’ EDG.

While PSEG’s complex troubleshooting had refuted most failure modes, two causes for water intrusion from the LO HX remained open when PSEG declared the 'D' EDG operable at 5:00 p.m. on February 9, 2025. PSEG exited their complex troubleshooting procedure without “high confidence that the true cause was identified,” using procedure MA-AA-716-004,

"Conduct of Troubleshooting," but also without indications of ongoing leakage in the LO HX. PSEG created an adverse condition monitoring plan and operational and technical decision-making document to support returning the EDG to service. Inspectors determined that, while PSEG's procedures allowed them to exit their troubleshooting plan, they did so without refuting the potential failure mode of SACS leakage through the LO HX floating head lantern ring, which ultimately was the cause of water intrusion. As such, when the 'D' EDG was returned to service on February 9, 2025, the CAQ still existed and remained unidentified.

PSEG declared the 'D' EDG inoperable on February 19, 2025, at 2:00 a.m. for planned maintenance that included a LO filter and strainer replacement. During the post-maintenance surveillance later that day, the LO strainer D/P was 5.5 psid and the engine LO and RALO samples appeared milky, indicating the presence of water (NOTF 20987065). PSEG determined the EDG remained inoperable for water in the LO. The results of these LO samples came back the next day as greater than 13,000 ppm water in the crankcase and the RALO. NRC initiated a special inspection on February 25, 2025, to independently review PSEG's troubleshooting efforts and ensure the cause of the water intrusion was identified. On February 26 and 27, 2025, PSEG's troubleshooting efforts determined that the LO HX floating head packing was extruded into the lantern ring, HX shell recess, and lantern ring weep holes, thereby allowing the SACS to communicate with the EDG LO system. After replacing the packing and lantern ring and conducting a post-maintenance EDG surveillance, PSEG declared the 'D' EDG operable at 4:25 a.m. on March 4, 2025.

As mentioned in NRC Special Inspection Report 05000354/2025050 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML25122A007), inspectors determined that the water intrusion events would likely have prevented the 'D' EDG from achieving its safety function.

Corrective Actions: PSEG replaced the LO HX packing and lantern ring, ran the LO through a dehydrator, conducted a post-maintenance EDG surveillance, and declared the 'D' EDG operable on March 4, 2025.

Corrective Action References: NOTFs 20986136, 20986536, 20986169, 20986551, 20986309, 20986746, 20986607, 20986382, 20986761, 20986771, 20986796, 20986795, 20987033, 20987066, 20987065, 20986920, 20982073, 20987274, 20990718, 20988939, 20988880, and 20986205
Work Order 70239337

Performance Assessment:

Performance Deficiency: Contrary to 10 CFR Part 50, Appendix B, Criterion XVI, PSEG did not promptly identify and correct a CAQ involving the 'D' EDG engine lubrication system. Specifically, despite multiple indications of a degraded condition on the 'D' EDG, PSEG did not identify and correct the source of water intrusion into the 'D' EDG lubricating system oil, and subsequently decided to enter a planned maintenance window on the 'A' EDG, placing the plant into a second degraded condition due to the same performance deficiency.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Equipment Performance attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent

undesirable consequences. Specifically, this ultimately resulted in periods of 'D' EDG inoperability and unavailability, some concurrent with the 'A' EDG, entry into an associated short duration LCO, and an unplanned unit downpower.

Significance: The inspectors assessed the significance of the finding using IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." The inspectors determined this finding required a detailed risk evaluation because, when screened utilizing Exhibit 2, "Mitigating Systems Screening Questions," Question 3, it was determined that the degraded condition of the EDGs represented a loss of the probabilistic risk assessment function of one train (or in this case, two trains) of a multi-train TS system for greater than its TS allowed outage time. Specifically, despite multiple indications of a degraded condition on the 'D' EDG, PSEG entered a planned maintenance window on the 'A' EDG, resulting in both the 'A' and 'D' EDGs being inoperable for greater than the TS allowed outage time of two hours.

Region I senior reactor analysts performed the detailed risk evaluation. The finding was preliminarily determined to be of low-to-moderate safety significance (White), assuming a total exposure time of approximately 30 days. See Attachment, "Hope Creek Generating Station 'D' Emergency Diesel Generator Water Intrusion into Lube Oil Detailed Risk Evaluation," for a summary of the preliminary risk determination.

Cross-Cutting Aspect: H.14 - Conservative Bias: Individuals use decision making-practices that emphasize prudent choices over those that are simply allowable. A proposed action is determined to be safe in order to proceed, rather than unsafe in order to stop. Specifically, PSEG's root cause evaluation determined that Operations staff demonstrated a confirmation bias and over-confidence based on a review of past operability screenings and past experiences, did not apply adequate technical rigor when evaluating potential water contamination sources, and their approach to decision-making lacked a consequence-bias to evaluate the risk of entering an LCO maintenance window when equipment conditions changed.

Enforcement:

Violation: 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requires, in part, that "measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected." Contrary to the above, between January 23 and March 4, 2025, PSEG did not promptly identify and correct a CAQ associated with water intrusion into the 'D' EDG LO system. Specifically, despite multiple indications of a degraded condition on the 'D' EDG, PSEG did not write a NOTF in accordance with PSEG procedure HC.OP-ST.KJ-0004 on January 23, 2025, for elevated LO D/P, properly assess the implications of the EDG condition and its operability in a NOTF generated on January 26, 2025, sample the crankcase following the additional water discovered and documented in an updated NOTF on January 27, 2025, or identify with high confidence that the degradation cause was determined before returning the EDG to service on February 9, 2025. Consequently, the 'D' EDG experienced several periods of inoperability and unavailability between January 23 and March 4, 2025, including a period coincident with the 'A' EDG being inoperable and unavailable from January 27 through 31, 2025.

Enforcement Action: This violation is being treated as an apparent violation pending a final significance (enforcement) determination.

EXIT MEETINGS AND DEBRIEFS

The inspectors verified no proprietary information was retained or documented in this report.

- On July 16, 2025, the inspectors presented the inspection results inspection results to Eric Larson, Site Vice President, and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71153	Engineering Evaluations	1108-0106-LTR-001	Evaluation of Operation of Hope Creek Generating Station Emergency Diesel Generator D with Water in Lube Oil	Revision 0
	Miscellaneous	Agencywide Documents Access and Management System (ADAMS) Accession No. ML25034A230)	Request for Enforcement Discretion for Limiting Condition for Operation (LCO) 3.8.1.1, “A.C. Sources – Operating”	02/03/2025
		HC-PRA-004	Hope Creek Generating Station Probabilistic Risk Assessment Human Reliability Analysis Notebook	Revision 6
		HC-SDP-009	Risk Significance Determination for 'D' EDG Water in Lube Oil	Revision 0
		ML25036A046	NOTICE OF ENFORCEMENT DISCRETION FOR HOPE CREEK GENERATING STATION (EPID: L-2025-LLD-0002)	02/05/2025
		ML25052A166	MD 8.3 Evaluation for Hope Creek - 'D' EDG Water in Lube Oil	02/21/2025
		ML25058A095	Hope Creek Generating Station, Emergency License Amendment Request to Extend Completion Time for Inoperable D Emergency Diesel Generator	02/27/2025
		ML25058A312	Supplement to Emergency License Amendment Request to Extend Completion Time for Inoperable D Emergency Diesel Generator	02/27/2025
		ML25122A007	HOPE CREEK GENERATING STATION – SPECIAL INSPECTION REPORT 05000354/2025050	05/02/2025
		PM018Q-0499(3)	Emergency Diesel Generator Vendor Manual	

Hope Creek Generating Station
'D' Emergency Diesel Generator Water Intrusion into Lube Oil
Detailed Risk Evaluation

Conclusion

The senior reactor analysts (SRAs) estimated the total increase in core damage frequency (ΔCDF) related to water intrusion into the 'D' emergency diesel generator (EDG) lube oil system to be preliminarily White, a finding with low-to-moderate safety significance. Based on the best-estimate assumptions discussed below, the SRAs determined the ΔCDF associated with this performance deficiency to be approximately 6.4E-6/year.

Key Assumptions and Considerations

'D' EDG non-functionality. The SRAs determined the capability of the 'D' EDG to perform its safety function if called into service to mitigate an event between January 23, 2025, and January 31, 2025, was highly uncertain given the degraded lube oil support system. Therefore, the SRAs considered the 'D' EDG non-functional with respect to being able to fulfill its 24-hour mission time during a portion of this timeframe. The SRAs considered the following for this determination:

- On January 31, 2025, at 7:05 a.m., the high lube oil filter differential pressure alarmed at a setpoint of 15 psid. While this indicates continued degradation of the 5-micron lube oil filter component, the more significant issue was that operations staff visually identified that the 40-micron lube oil strainer differential pressure indicator was pegged off-scale high (maximum gauge reading of 20 psid). The SRAs noted there was potential for the differential pressure to be much higher than 20 psid (i.e., 25, 30, 40 psid or more) at the time of discovery.
- Both the 5-micron filter and 40-micron strainer readings listed above exceeded the EDG operability surveillance test and technical specifications acceptance criteria within HC.OP-ST.KJ-0004, “Emergency Diesel Generator 1DG400 Operability Test,” Attachment 4, “Log Sheet.”
- The actual value of strainer differential pressure on January 31, 2025, and rate of increase of strainer differential pressure since the last functional test on January 23, 2025, were unknown, as the strainer differential pressure alarm was not designed to be functional while the EDG was in the standby mode and there were no operator logs taken on this parameter during this period.
- A third-party vendor oil analysis report, received by PSEG on January 31, 2025, reflected that a lube oil sample taken from the crankcase at 15 minutes into the EDG loaded run on January 23, 2025, was indicative of a “critical condition” with near 36,000 ppm water in the oil sample. Wear particle count (WPC) also exceeded the upper alert vendor oil analyses limit, suggesting unusual contamination in the oil. Further, this analysis report stated, “All efforts in locating and eliminating the source of water should be made, including an inspection of the seals.” It was not clear to the SRAs why there was a large delay between the loaded run and the receipt of the sample results; per PSEG root cause report 70239337, EDG lube oil samples are normally sent to the vendor with a four-day turnaround.

- The SRAs noted the high strainer differential pressure occurred at only a 50-gpm flowrate from the keepwarm system lube oil pump. An EDG start would increase the lube oil flowrate to 450 gpm from a combination of flow from the continuously running keepwarm pump and the 400-gpm engine-driven pump. The exact impact of the increased flowrate on strainer differential pressure is uncertain but can be approximated by modeling differential pressure as proportional to flowrate raised to a theoretical exponent, based on fluid dynamic principles for flow through porous media such as filters and strainers. In other words, the differential pressure would be expected to be higher to an unknown extent, and any assumption that contamination would clear itself would be unproven speculation given the 40-micron strainer mesh had been restricted by an oil/water mixture with contaminants that had likely accumulated for many days.
- The SRAs agreed with the following statement in Hope Creek third-party vendor report 1108-0106-LTR-001, “Evaluation of Operation of Hope Creek Generating Station Emergency Diesel Generator D with Water in Lube Oil,” dated May 20, 2025: “The filters and strainers likely would have become clogged during this operation and experienced high pressure drops due to collection of semisolid products that form when water is added to the oil.”
- The SRAs noted that with no internal bypass valve in the strainer, the high strainer differential pressure could result in actuation of the engine driven lube oil pump relief valve, potentially further reducing oil flow and pressure to the 'D' EDG critical components.

In summary, given the highly fouled 40-micron lube oil strainer condition, as evidenced by the high off-scale unknown differential pressure indication, high WPC which exceeded the upper alert limit, and very high water contamination/concentration levels, there was no evidence to support the strainer downstream pressure would have remained above the low lube oil pressure trip setpoints over the entire required EDG mission time. Therefore, the SRAs determined it was reasonable to conclude the 'D' EDG would not remain functional under these conditions for its 24-hour probabilistic risk assessment (PRA) mission time.

Exposure Time. Due to the synergistic effects of very high water contamination and increased WPC level, along with uncertainty associated with how quickly or how high the strainer differential pressure increased while the 'D' EDG was in standby after the January 23, 2025, run, the SRAs used the “t/2 + repair time” method discussed in the *Risk Assessment of Operational Events Handbook*, Volume 1, Revision 2.02, for a best estimate of exposure time for the ‘D’ EDG non-functionality. This is consistent with NRC Inspection Manual Chapter (IMC) 0308, Attachment 3, which requires objectivity, scrutability, and timeliness within performance of the Significance Determination Process. The SRAs considered the following in this determination:

- The 'D' EDG was a normally standby piece of equipment that was supported by its skid-mounted lube oil system. While some portions of the lube oil system were in continuous operation to support the readiness of the standby EDG (e.g., the keepwarm system), other parts of the lube oil system, including the engine-driven lube oil pump and the lube oil heat exchanger, were normally in a standby condition. While the EDG was in the standby condition, the high lube oil strainer differential pressure alarm was not functional.
- The SRAs determined that water in-leakage was likely more dominant when the EDG was in standby versus a running condition. The EDG lube oil heat exchanger was cooled by the safety auxiliaries cooling system (SACS). In standby, SACS pressure was

approximately 110–125 psig, and the EDG lube oil keepwarm pressure was approximately 10 psig. While running, the 'D' EDG lube oil pressure was historically 104–105 psig, which results in a smaller differential pressure across the packing rings and lantern ring assembly, and thus, a smaller rate of in-leakage of water. Therefore, the SRAs determined it was reasonable to assume that water continued to leak into the 'D' EDG lube oil system after the 'D' EDG was secured from its monthly run on January 23, 2025. The actual water contamination level at the time of the high filter differential pressure alarm on January 31, 2025, was unknown, but logically would be higher than the documented lube oil sample report level as the leak would have likely remained active. This would further contribute to adverse conditions and degradation of the lube oil if the engine would have started during this timeframe.

- PSEG secured the 'D' EDG at 11:26 a.m. on January 23, 2025, following the monthly run. The 'D' EDG remained in standby through January 31, 2025, at 7:05 a.m. when PSEG received the high 'D' EDG lube oil filter differential pressure alarm. The SRAs reduced this portion of the exposure by “t/2” given the uncertainty associated with the rate of strainer differential pressure increase, the magnitude of strainer differential pressure on January 31, 2025, and the resultant impact on the ‘D’ EDG low lube oil pressure trip instrumentation. The SRAs included a sensitivity evaluation assuming that the 'D' EDG was non-functional for the entirety of January 23 through 31, 2025.
- Despite indications of a degraded condition on the 'D' EDG, including high lube oil filter differential pressure during the January 23, 2025, run and high level in the RALO tank due to water intrusion on January 26, 2025, PSEG proceeded with a planned maintenance window on the 'A' EDG at 12:01 a.m. on January 27, 2025. The SRAs determined that it was appropriate to include the risk of this outage in the overall risk, as discussed below. PSEG returned the 'A' EDG to available status at 5:42 p.m. on January 31, 2025.
- Following the first troubleshooting period, PSEG returned the 'D' EDG to service at 5:00 p.m. on February 9, 2025. PSEG did not complete the sections of their troubleshooting plan that addressed the lube oil heat exchanger seals and the lantern ring. PSEG did completely replace the 'D' EDG lube oil and performed multiple runs and strainer/filter replacements due to high differential pressure readings prior to declaring the 'D' EDG operable. PSEG considered the 'D' EDG operable from February 9, 2025, until February 19, 2025, when operators identified water in the 'D' EDG oil at levels greater than 13,000 ppm. Because PSEG changed the oil, filters, and strainer elements during the first troubleshooting attempt, the SRAs concluded that it would take some time for water concentration in the lube oil to build to levels that would affect the functionality of the 'D' EDG. As such, the SRAs determined that a “t/2” approach would be appropriate for the period between February 9 and 19, 2025. PSEG completed repairs on the lube oil heat exchanger seals and lantern ring and returned the 'D' EDG to available status on March 3, 2025, at 10:38 a.m.

Based on the above, the SRAs determined the overall exposure time for the best estimate case was approximately 30 days. This includes 4.4 days of 'A' and 'D' EDGs concurrently out of service and 26 days of only the ‘D’ EDG out of service. This exposure time includes repair time associated with the 'D' EDG. As documented in NRC Inspection Report 05000354/2025050 (ADAMS Accession No. ML25122A007), inspectors identified an unresolved item related to EDG lube oil heat exchanger maintenance practices (URI 2025050-03) indicating that the NRC requires more information to determine whether PSEG performance resulted in failure of the heat exchanger seals and the lantern ring. Therefore, the SRAs considered PSEGs actions once the degraded condition presented itself to determine whether repair time was applicable. The SRAs determined it was appropriate to include repair time in this detailed risk evaluation.

Per the *Risk Assessment of Operational Events Handbook*, Volume 1, Revision 2.02, repair time is typically included in the exposure period, and the SRAs judged that this issue did not meet the listed exceptions. This is further supported by NRC IMC 0609, “Significance Determination Process,” which states, “Any repair time in which the SSC was unable to perform a PRA function is included in the exposure time.”

The ‘A’ EDG maintenance window was appropriate to include in the risk. Per NRC IMC 0609, “Significance Determination Process,” issued December 16, 2024, deficient licensee performance (i.e., the inspection finding) is the proximate cause of the degraded condition(s). Additionally, “the SDP is designed to estimate the safety or security significance of a degraded condition(s) that was caused by deficient licensee performance above the baseline risk profile.” Multiple degraded conditions can result from the same performance deficiency.

This is further described with an example in IMC 0308, Attachment 3, “Technical Basis for the Significance Determination Process,” dated December 16, 2024 (*emphasis added*): “The SDP focuses only on assessing significance of degraded conditions caused by deficient licensee performance, and not degraded conditions caused by equipment out of service for planned maintenance or testing, a random failure or a random initiating event. As such, when multiple degraded conditions are in effect during the same period and a performance deficiency was the proximate cause of only one of the degraded conditions, *only the degraded condition caused by the independent performance deficiency is assessed by the SDP*. For example, assume there are three degraded conditions in effect over the same period. One degraded condition was caused by a performance deficiency, another was caused by a random failure, and another was the result of a planned test or maintenance activity. If all three concurrent degraded conditions were assessed collectively, the overall safety or security significance could be very significant. However, the degraded conditions caused by the random failure and the test and maintenance activity are considered contributors to the baseline risk of the plant *since they are not linked to any deficient performance*. In this example, the one degraded condition caused by the performance deficiency is assessed by the SDP as the increase above (i.e., deviation from) the baseline risk.” Based on this, the SRAs concluded that test and maintenance activities that *are* linked to deficient performance are beyond the baseline risk of the plant and should be included in the SDP risk assessment.

The SRAs determined that multiple degraded conditions resulted from this performance deficiency: non-functionality of the ‘D’ EDG due to water intrusion into the lube oil and conduct of the 'A' EDG maintenance window. Despite multiple opportunities to identify and correct the degraded condition on the 'D' EDG, PSEG decided to continue with the planned maintenance window on the ‘A’ EDG, resulting in a period where the 'A' and 'D' EDGs were concurrently inoperable. Had PSEG appropriately identified the condition of the ‘D’ EDG, the maintenance window on the 'A' EDG would not have occurred as planned, as this configuration requires entry into a two-hour technical specification action statement. As such, the SRAs determined that conduct of the 'A' EDG maintenance window was linked to the performance deficiency, and it was appropriate to include concurrent inoperability of the 'A' and 'D' EDGs in the risk assessment for this issue (i.e., PSEG accrued more risk than they normally would have based on the performance deficiency).

The SRAs determined this position was supported by PSEG root cause report 70239337. This root cause report noted multiple station personnel were aware of the high lube oil filter differential pressure during the loaded run on January 23, 2025, but due to unclear expectations and inadequate accountability, never documented the degraded condition in a notification. The root cause report further stated, “The consequences of this missed documentation were

significant. The elevated differential pressure, which indicated potential equipment degradation, went unanalyzed. This contributed to a situation where subsequent water intrusion from the lube oil heat exchanger caused a sudden change in filter differential pressure that remained undetected. As a result, when the station entered an 'A' EDG maintenance window, the 'D' EDG was later declared inoperable, forcing entry into a short duration shutdown technical specification action (2 hours to restore a diesel to operable, or in the next 12 hours be in hot shutdown). This event demonstrates how procedural compliance failures and documentation gaps can cascade into serious operational challenges with potential safety implications."

Allowed Outage Time (AOT) Diesel Generator Credit. In 2019, PSEG decommissioned the gas turbine generator and replaced it with two AOT diesel generators, which were credited in Hope Creek's PRA model. The AOT diesel generators were two portable diesel generators that could be connected in parallel to supply either the 'A' or 'B' 4KV safety buses, but not both. There were no procedures to connect the AOT diesels to the 'C' and 'D' buses, so that was not credited. The AOT diesels were also not credited for large or medium loss of coolant accidents or station blackout. PSEG required about three hours to align the AOT diesels. The SRAs independently reviewed documentation associated with the AOT diesel generators and completed walkdowns of the associated equipment and staging areas. The SRAs determined it was appropriate to credit the AOT diesel generators in the SPAR model, subject to the restrictions listed above. For the portion of the risk that included both the 'A' and 'D' EDGs, the SRAs assumed that the operators would preferentially align the AOT diesel generators to the 'A' 4KV bus.

B5b Equipment Credit for Powering the Safety Relief Valves (SRVs). The Hope Creek PRA model credited the strategy discussed in procedure HC.OP-AM.TSC-0004, "Alternate Power Supply to 1E 125/250 VDC," to restore power to the SRVs. This procedure used the B5b (Baldor) diesel generator to power the SRVs via temporary power to the station battery chargers. Based on review of station procedures, operator interviews, and equipment walkdowns, the SRAs concluded that it would be reasonable to provide some credit for B5b equipment in this detailed risk evaluation, but via procedure HC.OP-AM.TSC-0024, "Remote Operation of SRVs with RPV Injection."

- *Availability of Procedures*. PSEG procedure HC.OP-AM.TSC-0004 provides guidance to operators on using the B5b (Baldor) diesel generator to supply power to the 1E battery chargers and 125 VDC power to the SRVs. PSEG's associated human error probability (HEP) calculation stated there was no direct instruction for operators to proceed to procedure HC.OP-AM.TSC-0004 and no operator job performance measure or simulator practice for this action. The HEP calculation also stated the shift manager would have to anticipate the need to re-establish AC power to the 'B' and 'D' battery chargers early in an event. Absent this anticipatory action, the operator cue would be loss of power to the SRVs which would occur later in the event, near battery depletion, and potentially limit the time available to establish alternate power to the SRVs.

  The SRAs reviewed station procedures and independently verified there was no clear direction for operators to transition to HC.OP-AM.TSC-0004 if there was no power to SRVs. The SRAs noted there was clear direction in emergency operating procedure HC.OP-EO.ZZ-0101(Q)-FC, "Hot Conditions Modes 1 – 3 Reactor/Pressure Vessel (RPV) Control," that referenced operators to procedure HC.OP-AM.TSC-0024 if remote operation of SRVs was required to augment pressure reduction. Also, during interviews, an operator confirmed they would implement HC.OP-AM.TSC-0024 via the emergency operating procedures. Procedure HC.OP-AM.TSC-0024 directs operators to restore

power to SRVs using the B5b portable gasoline generator (versus the Baldor diesel generator) and rectifier from either the lower relay room or the reactor building.

Based on the above, the SRAs concluded operators would be more likely to implement the strategy in HC.OP-AM.TSC-0024 than that described in HC.OP-AM.TSC-0004 to repower the SRVs. Because the strategy to reenergize SRVs differs between the two procedures, the SRAs determined that PSEGs human error probability calculation associated with HC.OP-AM.TSC-0004 would not be a reasonable surrogate for actions taken per HC.OP-AM.TSC-0024. During review of procedure HC.OP-AM.TSC-0024, the SRAs noted the starting instructions for the portable gasoline generator were different depending on whether operators were connecting the portable generator in the lower relay room or the reactor building. Based on the SRA's questions, PSEG determined that instructions in one section were revised to support a newer generator, but the station did not update all applicable sections of the procedure. PSEG captured this issue in notification 20993803.

- *Operator Training*. Use of the B5b portable gasoline generator is not discussed in HC-PRA-004, “Hope Creek Generating Station Probabilistic Risk Assessment Human Reliability Analysis (HRA) Notebook,” Revision 6, since the Hope Creek PRA does not credit this equipment. The SRAs reviewed B5b/FLEX Licensed Operator Requalification Training 23-01 and noted that there appeared to be some high-level discussion of the B5b procedures, and a tabletop exercise related to HC.OP-AM.TSC-0024. During interviews, an operator noted they were not as familiar with the beyond-design-basis procedures as compared to the emergency operating procedures, as the station has training on severe accident mitigation guidelines, but not as frequently.

- *Equipment Maintenance*. The SRAs reviewed PSEG’s testing and maintenance practices for B5b equipment and walked down the B5b equipment during a site visit. The SRAs determined that PSEG did have periodic preventive maintenance activities for B5b equipment and appeared to be implementing those activities.

The SRAs developed a new HEP for this operator action using the SPAR-H module of the Systems Analysis Programs for Hands-On Evaluation (SAPHIRE) program and guidance described in the *Risk Assessment of Operational Events Handbook*, Volume 1, Revision 2.02 and INL/EXT-10-18533, “SPAR-H Step-by-Step Guidance,” Revision 2. The resultant HEP was 3.5E-1. The SRAs also added the B5b gasoline portable generator to the SPAR model as an alternate power source to the SRVs. Given that the B5b equipment was somewhat similar to FLEX equipment, the SRAs utilized PWROG FLEX diesel generator failure probabilities for the B5b portable gasoline generator.

SPAR Model Changes

The SRAs evaluated the finding using SAPHIRE version 8.2.12 and a test and limited use (TLU) version of the Hope Creek Standardized Plant Analysis Risk (SPAR) model created by Idaho National Laboratories (TLU1). This TLU1 model included revisions to the Hope Creek SPAR model of record (version 8.81) to more closely reflect the as-built, as-operated plant. The SPAR model used for this detailed risk evaluation included the following:

- In accordance with the *Risk Assessment of Operational Events Handbook*, Volume 1, Revision 2.02, the SRAs set the basic event for ‘D’ EDG fails-to-run to TRUE for the exposure time to represent the failure of the 'D' EDG.
- The SRAs added credit for the AOT diesel generators, as discussed above.
- The SRAs added credit for B5b gasoline generator alternate power to the SRVs, as discussed above.
- The SRAs credited FLEX mitigating strategies and equipment in this analysis.
- The SRAs included equipment failure data as documented in INL/EXT-21-65055, “Industry Average Performance for Components and Initiating Events at U.S. Commercial Nuclear Power Plants,” as this was considered best-available information for this analysis.
- The SRAs updated loss of offsite power initiating event probabilities to reflect the data provided in report INL/RPT-22-68809, “Analysis of Loss of Offsite Power Events,” as this was considered best-available information for this analysis.
- The SRAs utilized component-specific alpha factors for the EDGs as provided in INL/EXT-21-65527, “Developing Component-Specific Prior Distributions for Common Cause Failure Alpha Factors,” Revision 2, as this was considered best-available information for this analysis.
- The SRAs set the operator action for failure to crosstie the diesels to TRUE, as there are no procedures or hardware to support this configuration at Hope Creek.
- The SRAs adjusted power dependencies for the SRVs and primary containment instrument gas compressors to model the as-built, as-operated plant.
- The SRAs removed the operator action for failure to restore inverter room cooling as PSEG performed a calculation to demonstrate that inverters would operate for at least 24 hours without cooling.
- The SRAs provided credit for crosstie of SACS and instrument air cross connect to primary containment instrument gas, as there are procedures to support this configuration at Hope Creek.
- For cases involving concurrent unavailability of the 'A' and 'D' EDGs, the SRAs adjusted the station service water pump test and maintenance basic events to account for station procedures that ensure work is conducted based on ‘channelized’ work weeks.
- No additional credit for recovery of the 'D' EDG was provided in this analysis beyond the recovery credit provided for emergency power systems in the SPAR model sequences.

Overall Results

		Best Estimate (/year)	Sensitivity (/year)
Internal Events (SPAR)	A & D EDGs	1.3E-6	1.5E-6
	D EDG Only	9.3E-7	1.1E-6
	Total Internal Events Risk	**2.3E-6**	**2.5E-6**
Other SPAR Events (seismic, etc.)		**1E-7**	**1E-7**
Fire	A & D EDGs	1.5E-6	1.6E-6
	D EDG Only	2.5E-6	2.9E-6
	Total Fire Risk	**4.0E-6**	**4.5E-6**
Overall Risk		**6.4E-6**	**7.1E-6**

Using the Events and Condition Assessment (ECA) module of SAPHIRE, the SRAs estimated the ΔCDF related to water intrusion into the 'D' EDG lube oil to be 6.4E-6/year, a preliminary

White finding with low-to-moderate safety significance. The dominant sequences included losses of offsite power with failure of the 'B' EDG/AOT diesels/B5b portable generator, failure to depressurize, failure of suppression pool cooling, and failure to recover offsite power.

The SRAs estimated the risk contribution from seismic, high winds, and tornadoes to be approximately 1E-7/year. These events do not significantly impact risk.

The Hope Creek SPAR model does not evaluate fire risk. Therefore, the SRAs used PSEG's fire risk results for this issue, as documented in HC-SDP-009, "Risk Significance Determination for 'D' EDG Water in Lube Oil." Using the data in this report, the SRAs determined the overall fire risk for this issue to be approximately 4E-6/year.

The SRAs determined the impact to large early release frequency (LERF) was bounded by the increase in CDF. Using the information in PSEG's risk assessment, HC-SDP-009, ΔLERF was approximately 1.5E-8/year for internal events and 3.4E-7/year for fire.

Given the uncertainty associated with the rate of strainer differential pressure increase between January 23 and 31, 2025, the magnitude of strainer differential pressure on January 31, 2025, and the resultant impact on the 'D' EDG low lube oil pressure trip instrumentation, the SRAs included a sensitivity evaluation assuming that the 'D' EDG was non-functional for the entirety of January 23 through 31, 2025. Though the risk was higher due to the increased exposure time, the result did not affect the overall conclusions of the analysis.

PSEGs Risk Evaluation and Technical Analysis

PSEG provided a technical evaluation in late May 2025 with the purpose of demonstrating 'D' EDG functionality. PSEG later withdrew this technical evaluation based on NRC questions because the evaluation incorrectly credited an internal relief valve in the lube oil strainer. On July 1, 2025, PSEG provided a white paper to the SRAs discussing their best estimate risk. The key points in this document were as follows:

- Water in the 'D' EDG lube oil is a random failure and not attributable to licensee performance because it was not within PSEG's ability to foresee and correct.
- PSEG's technical evaluation demonstrated that even with the high moisture content in the lube oil, the 'D' EDG could perform its safety function if lube oil continued to flow through the strainer.
- The 'D' EDG remained operable and available until January 31, 2025, when the station received the high filter differential pressure alarm and operators discovered strainer differential pressure was greater than the maximum indication of 20 psid.
- The EDG lube oil system, except for the engine drive rocker arm lube oil and crankcase lube oil pumps, is an operating sub-system, and use of the t/2 methodology is not appropriate. Control room alarms are in service, and parameters are monitored locally by log takers. The occurrence of alarms on January 31, 2025, at 7:05 a.m. indicated a problem in the lube oil system but cannot be directly linked to 'D' EDG being in a failed or unavailable state.
- There should be no exposure from January 31, 2025, to March 4, 2025, because deficient performance did not cause the 'D' EDG failure and the repair time was an inevitable consequence of a random failure. Additionally, use of the t/2 methodology from

February 9 to 19, 2025, is not appropriate, and the decision to exit the first troubleshooting window was appropriate under the circumstances.

- The only applicable exposure time is from January 31, 2025, at 7:05 a.m., when the station received the 'D' EDG high filter differential pressure alarm until January 31, 2025, at 5:42 p.m., when the 'A' EDG was returned to available status (10.6 hours of exposure). Any exposure time that includes unavailability of both 'A' and 'D' EDG unduly penalizes the station for a planned EDG maintenance activity which would normally be accounted for in the PRA model testing and maintenance parameters. Using 10.6 hours of exposure would result in the following risk:

	ΔCDF (/year)	ΔLERF (/year)
Internal Events Risk	1.8E-8	4.6E-10
Fire Risk	1.5E-7	1.0E-8
Total Risk	1.7E-7	1.1E-8

The SRAs did not consider PSEG's position, as described in this white paper, to be best-available information. Most notably, the SRAs determined that the 'D' EDG was likely non-functional sometime prior to January 31, 2025, based on as-found strainer differential pressure being unknown but pegged offscale high at the standby oil flowrate, as well as high water content and particulate in the oil. The SRAs considered the 'D' EDG to be a normally standby piece of equipment that was supported by its skid-mounted lube oil system. The SRAs did not agree with the "t/2" assessment above because the high strainer differential pressure alarm was not in-service or functional while the EDG was in a standby condition, by design, and operators did not normally take logs on filter or strainer differential pressure. While some portions of the lube oil system were in continuous operation to support the readiness of the standby EDG (e.g., the keepwarm system), other parts of the lube oil system, including the engine-driven lube oil pump and the lube oil heat exchanger, were normally in standby. Therefore, the SRAs determined it was reasonable, given the uncertainties discussed previously, to utilize the "t/2 + repair time" method discussed in the *Risk Assessment of Operational Events Handbook*, Volume 1, Revision 2.02. The SRAs noted that PSEG finally identified the packing and lantern ring seal as the source of water intrusion into the 'D' lube oil heat exchanger on or about February 26 to 27, 2025. Given the unresolved item related to EDG lube oil heat exchanger maintenance practices (URI 2025050-03), the SRAs considered the impact on risk had the repair time between February 27 and March 3, 2025, been removed from the risk estimate. The SRAs determined this would decrease the risk associated with this performance deficiency but would not have changed the overall conclusions of this detailed risk assessment.