



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION I
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KING OF PRUSSIA, PENNSYLVANIA 19406-1415

February 5, 2025

David P. Rhoades
Senior Vice President
Constellation Energy Generation, LLC
President and Chief Nuclear Officer (CNO)
Constellation Nuclear
4300 Winfield Road
Warrenville, IL 60555

SUBJECT: CALVERT CLIFFS NUCLEAR POWER PLANT, UNITS 1 AND 2 –
INTEGRATED INSPECTION REPORT 05000317/2024004 AND
05000318/2024004

Dear David Rhoades:

On December 31, 2024, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Calvert Cliffs Nuclear Power Plant, Units 1 and 2. On January 21, 2025, the NRC inspectors discussed the results of this inspection with Christopher Smith, Plant Manager, and other members of your staff. The results of this inspection are documented in the enclosed report.

Four findings of very low safety significance (Green) are documented in this report. One of these findings involved a violation of NRC requirements. We are treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2 of the Enforcement Policy.

A licensee-identified violation which was determined to be of very low safety significance is documented in this report. We are treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2 of the Enforcement Policy.

If you contest the violations or the significance or severity of the violations documented in this inspection report, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region I; the Director, Office of Enforcement; and the NRC Resident Inspector at Calvert Cliffs Nuclear Power Plant, Units 1 and 2.

If you disagree with a cross-cutting aspect assignment or a finding not associated with a regulatory requirement 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 Calvert Cliffs Nuclear Power Plant, Units 1 and 2.

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 Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

Nicole S. Warnek, Chief
Projects Branch 3
Division of Operating Reactor Safety

Docket Nos. 05000317 and 05000318
License Nos. DPR-53 and DPR-69

Enclosure:
As stated

cc w/ encl: Distribution via ListServ

SUBJECT: CALVERT CLIFFS NUCLEAR POWER PLANT, UNITS 1 AND 2 –
INTEGRATED INSPECTION REPORT 05000317/2024004 AND
05000318/2024004 DATED FEBRUARY 5, 2025

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**U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report**

Docket Numbers: 05000317 and 05000318

License Numbers: DPR-53 and DPR-69

Report Numbers: 05000317/2024004 and 05000318/2024004

Enterprise Identifier: I-2024-004-0031

Licensee: Constellation Energy Generation, LLC

Facility: Calvert Cliffs Nuclear Power Plant, Units 1 and 2

Location: Lusby, MD

Inspection Dates: October 01, 2024 to December 31, 2024

Inspectors: G. Dipaolo, Senior Resident Inspector
A. Tran, Resident Inspector
P. Cataldo, Senior Reactor Inspector
L. Dumont, Senior Reactor Inspector

Approved By: Nicole S. Warnek, Chief
Projects Branch 3
Division of Operating Reactor Safety

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee’s performance by conducting an integrated inspection at Calvert Cliffs Nuclear Power Plant, Units 1 and 2, 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. A licensee-identified non-cited violation is documented in report section: 71153.

List of Findings and Violations

Failure to Incorporate Special Installation Features and Operating Experience into Design Modification			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Initiating Events	Green FIN 05000317,05000318/2024004-01 Open/Closed	None (NPP)	71111.04
A self-revealed Green finding was identified for Constellation’s failure to incorporate special installation features and operating experience for the mounting of protection relays during a 13 kilovolt (kV) offsite electrical distribution modification. Specifically, protection relay seismic constraints found in vendor technical documents and related industry operating experience were not incorporated into the design. As a result, the design introduced a vulnerability of inadvertent relay actuation due to mechanical agitation. This contributed to the loss of the 11 13kV service bus on February 28, 2024.			
Inadequate Control of Transient Combustible Materials			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000318/2024004-02 Open/Closed	[P.3] - Resolution	71111.05
The inspectors identified a Green finding and associated non-cited violation (NCV) of the Unit 2, Renewed Facility Operation License, Condition 2.E, for the failure to properly control transient combustibles. Specifically, on October 9, 2024, and October 24, 2024, Constellation failed to ensure transient combustible materials were controlled as required by OP-AA-201-009, “Control of Transient Combustible Material.”			
Failure to Correct Feedwater System Reactor Trip Override (RTO) Response			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green FIN 05000318/2024004-03 Open/Closed	[P.2] - Evaluation	71111.12
The inspectors identified a Green finding for Constellation’s failure to properly classify, evaluate, and correct the Unit 2 feedwater control system “Reactor Trip Override” response deficiency following a reactor trip on November 21, 2021. Specifically, the associated action request (AR) was not classified with the proper significance level and, as a result, corrective actions were not developed and completed as required by corrective action program (CAP)			

procedures. This resulted in the 21 steam generator feed pump (SGFP) tripping on high discharge pressure following the February 24, 2024, Unit 2 reactor trip.

Failure to Incorporate Performance Centered Maintenance (PCM) Template into Maintenance Strategy for Unit 1 Emergency Diesel Generator (EDG) 'A' Potential Transformer (PT)

Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green FIN 05000317/2024004-04 Open/Closed	[H.8] - Procedure Adherence	71111.12

The inspectors identified a Green finding for Constellation's failure to maintain a maintenance strategy for EDG PTs. Specifically, the 1A EDG PT maintenance strategy did not include electrical testing as required by Constellation's PCM templates and no technical justification for a deviation was documented. This resulted in the inoperability of the 1A EDG on July 2, 2024.

Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
LER	05000317,05000318/2024-003-00	LER 2024-003-00 for Calvert Cliffs Nuclear Power Plant, Units 1 and 2, 1A Diesel Generator Inoperable Due to Potential Transformer Failure	71153	Closed
LER	05000318/2024-001-00	LER 2024-001-00 for Calvert Cliffs Nuclear Power Plant, Unit No. 2, Manual Reactor Trip Due to 22 Steam Generator Feed Pump Trip	71153	Closed
LER	05000318/2024-001-01	LER 2024-001-01 for Calvert Cliffs Nuclear Power Plant, Unit 2, Manual Reactor Trip Due to 22 Steam Generator Feed Pump Trip	71153	Closed
LER	05000317,05000318/2024-002-00	LER 2024-002-00 for Calvert Cliffs Nuclear Power Plant, Units 1 and 2, Emergency Diesel Generators Automatic Start due to Loss of a 13kV Bus	71153	Closed

PLANT STATUS

Unit 1 began the inspection period at rated thermal power and remained at or near full power for the remainder of the inspection period.

Unit 2 began the inspection period at rated thermal power. On October 10, 2024, the unit experienced an automatic turbine and reactor trip due to a loss of main generator field. Operators commenced a unit startup on October 12, 2024, and returned the unit to 100 percent power on October 13, 2024. The unit remained at or near rated thermal power for the remainder of the inspection period.

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 performed activities described in IMC 2515, Appendix D, "Plant Status," observed risk significant activities, and completed on-site portions of IPs. 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.

REACTOR SAFETY

71111.01 - Adverse Weather Protection

Seasonal Extreme Weather Sample (IP Section 03.01) (1 Sample)

- (1) The inspectors evaluated readiness for seasonal extreme weather conditions prior to the onset of seasonal cold temperature for the fire pump house, 11 fuel oil storage tank, and 12 condensate storage tank on December 17, 2024.

71111.04 - Equipment Alignment

Partial Walkdown Sample (IP Section 03.01) (4 Samples)

The inspectors evaluated system configurations during partial walkdowns of the following systems/trains:

- (1) Units 1 and 2, 13 kV offsite distribution system, October 15, 2024
- (2) Unit 1, 'A' train emergency core cooling system (ECCS) while 12 ECCS cooler out of service due to maintenance, October 16, 2024
- (3) Unit 2, 22 auxiliary feedwater (AFW) train following return to service following maintenance, October 22, 2024
- (4) Unit 1, 11 and 12 saltwater header following 12 saltwater pump return to service following maintenance, December 19, 2024

Complete Walkdown Sample (IP Section 03.02) (1 Sample)

- (1) The inspectors evaluated system configurations during a complete walkdown of the Unit 1, AFW system on December 27, 2024.

71111.05 - Fire Protection

Fire Area Walkdown and Inspection Sample (IP Section 03.01) (5 Samples)

The inspectors evaluated the implementation of the fire protection program by conducting a walkdown and performing a review to verify program compliance, equipment functionality, material condition, and operational readiness of the following fire areas:

- (1) Units 1 and 2, AFW pump room, fire areas 42 and 43, October 21, 2024
- (2) Units 1 and 2, intake structure, intake structure outside, and intake structure pump room, fire area COMP, October 22, 2024
- (3) Units 1 and 2, refueling water tank rooms, fire area YARD, October 23, 2024
- (4) Unit 2, east and west electrical penetration rooms, fire areas 26 and 27, October 23, 2024
- (5) Units 1 and 2, 1B, 2A and 2B EDG rooms, fire areas 20, 28, and 31, October 24, 2024

Fire Brigade Drill Performance Sample (IP Section 03.02) (1 Sample)

- (1) The inspectors evaluated the onsite fire brigade training and performance during an unannounced fire drill in the Unit 1 auxiliary building on November 26, 2024.

71111.06 - Flood Protection Measures

Flooding Sample (IP Section 03.01) (1 Sample)

- (1) The inspectors evaluated internal flooding mitigation protections in the Units 1 and 2 ECCS pump rooms on November 21, 2024.

71111.11A - Licensed Operator Requalification Program and Licensed Operator Performance

Requalification Examination Results (IP Section 03.03) (1 Sample)

- (1) The inspectors reviewed and evaluated the licensed operator examination failure rates for the requalification annual operating exam completed on November 13, 2024.

71111.11Q - Licensed Operator Requalification Program and Licensed Operator Performance

Licensed Operator Requalification Training/Examinations (IP Section 03.02) (1 Sample)

- (1) The inspectors observed and evaluated a licensed operator simulator requalification examination scenario involving instrumentation failures, loss of a safety-related cooling pump, loss of a 4kV service bus requiring a manual reactor trip, and decay heat removal failures requiring once-through core cooling resulting in the declaration of a Site Area Emergency on November 13, 2024.

71111.12 - Maintenance Effectiveness

Maintenance Effectiveness (IP Section 03.01) (2 Samples)

The inspectors evaluated the effectiveness of maintenance to ensure the following structures, systems, and components (SSCs) remain capable of performing their intended function:

- (1) Unit 1, AR 4784452, 1A EDG bus PT failure, November 14, 2024
- (2) Unit 2, ARs 4462401 and 4755563, SGFP high discharge pressure trips, December 13, 2024

Aging Management (IP Section 03.03) (1 Sample)

The inspectors evaluated the effectiveness of the aging management program for the following SSCs that did not meet their inspection or test acceptance criteria:

- (1) Unit 1, AR 4802778, AMBD-0052 walkdown – corrosion on 11 ECCS air cooler basket strainer support steel, 1-HVSW-234, December 13, 2024

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (4 Samples)

The inspectors evaluated the accuracy and completeness of risk assessments for the following planned and emergent work activities to ensure configuration changes and appropriate work controls were addressed:

- (1) Unit 1, elevated risk condition due to 11 low pressure safety injection pump planned maintenance, October 23, 2024
- (2) Unit 1, elevated risk condition due to 13 high pressure safety injection pump planned maintenance, November 15, 2024
- (3) Unit 1, elevated risk condition due to 13 AFW planned maintenance, November 22, 2024
- (4) Units 1 and 2, elevated risk condition due to 13 component cooling water pump, 13 high pressure safety injection pump, 22 saltwater pump, and 22A service water heater exchanger planned maintenance, December 9, 2024

71111.15 - Operability Determinations and Functionality Assessments

Operability Determination or Functionality Assessment (IP Section 03.01) (5 Samples)

The inspectors evaluated the licensee's justifications and actions associated with the following operability determinations and functionality assessments:

- (1) Unit 2, AR 4805141, potential loss of 125-volt direct current control power to 2B EDG, October 7, 2024
- (2) Unit 1, AR 4806805, dry boric acid identified on 12B safety injection header check valve, 1-CKVSI-148, due to valve stem packing leak, October 19, 2024
- (3) Unit 1, Engineering Change Package (ECP)-24-000348, "12 Auxiliary Feedwater Pump Thrust Bearing Out of Tolerance Evaluation," Revision 0, October 21, 2024

- (4) Unit 2, AR 4815036, 21 component cooling water heat exchanger outlet saltwater branch pipe through-wall leak, November 8, 2024
- (5) Unit 1, AR 4816446, 12 low pressure safety injection pump failed to start during surveillance testing, December 6, 2024

71111.18 - Plant Modifications

Temporary Modifications and/or Permanent Modifications (IP Section 03.01 and/or 03.02) (1 Sample)

The inspectors evaluated the following temporary or permanent modifications:

- (1) ECP-24-000318, "Temporary Alteration to Evaluate Effect of Missing Unit 2 High Pressure Safety Injection Suction Piping Insulation," Revision 0, October 31, 2024

71111.24 - Testing and Maintenance of Equipment Important to Risk

The inspectors evaluated the following testing and maintenance activities to verify system operability and/or functionality:

Post-Maintenance Testing (PMT) (IP Section 03.01) (6 Samples)

- (1) Work Order (WO) C93949883, 22 AFW isolation valve, 2-AFW-4531-CV, post-maintenance testing following solenoid replacement, October 7, 2024
- (2) WO C93994448, 11 ECCS air cooler outlet saltwater valve, 1-SW-5171-CV, post-maintenance testing following trunnion replacement, October 9, 2024
- (3) WO C93996646, 22 'A' and 'B' service water heat exchanger saltwater strainer post-maintenance testing following repairs on strainer flushing electrical controls, November 7, 2024
- (4) WO C93999144, 1A EDG post-maintenance testing following repairs on low temperature coolant system north lubricating oil cooler inlet temperature switch, 1-TS-10125, November 20, 2024
- (5) WO C93770735, 21 service water pump post-maintenance testing following bearing replacement and oil seal upgrade, November 25, 2024
- (6) WO C93953178, 1B EDG post-maintenance testing following electrical testing of shutdown logic and load shed trip bypass, December 10, 2024

Surveillance Testing (IP Section 03.01) (2 Samples)

- (1) Unit 1, STP-O-5A12-1, "12 Auxiliary Feedwater Pump Quarterly Surveillance Test," Revision 14, October 17, 2024
- (2) Unit 2, STP-O-8B-2, "Test of 2B EDG and 4kV Bus 24 UV," Revision 37, November 12, 2024

71114.06 - Drill Evaluation

Additional Drill and/or Training Evolution (1 Sample)

The inspectors evaluated:

- (1) a licensed operator simulator training scenario involving failures that resulted in the declaration of an Unusual Event on November 19, 2024.

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

IE03: Unplanned Power Changes per 7000 Critical Hours Sample (IP Section 02.02) (2 Samples)

- (1) Unit 1, October 1, 2023 - September 30, 2024
- (2) Unit 2, October 1, 2023 - September 30, 2024

MS09: Residual Heat Removal Systems (IP Section 02.08) (2 Samples)

- (1) Unit 1, October 1, 2023 - September 30, 2024
- (2) Unit 2, October 1, 2023 - September 30, 2024

MS10: Cooling Water Support Systems (IP Section 02.09) (2 Samples)

- (1) Unit 1, October 1, 2023 - September 30, 2024
- (2) Unit 2, October 1, 2023 - September 30, 2024

71152A - Annual Follow-up Problem Identification and Resolution

Annual Follow-up of Selected Issues (Section 03.03) (2 Samples)

The inspectors reviewed the licensee's implementation of its corrective action program related to the following issues:

- (1) Unit 2, manual reactor trip on February 24, 2024, due to loss of the 22 SGFP caused by pump coupling failure (ARs 4752936 and 4755563), December 13, 2024
- (2) Evaluation of corrective actions associated with diverse and flexible coping strategies (FLEX) finding FIN 05000317, 05000318/2023004-02 (ARs 47005896, 4702601, 4704844, and 47005896), December 20, 2024

71152S - Semiannual Trend Problem Identification and Resolution

Semiannual Trend Review (Section 03.02) (1 Sample)

- (1) The inspectors reviewed Constellation's CAP for potential trends that might be indicative of a more significant safety issue.

71153 – Follow-Up of Events and Notices of Enforcement Discretion

Event Follow-Up (IP Section 03.01) (2 Samples)

- (1) The inspectors evaluated the Unit 2 automatic reactor trip due to loss of main generator field and licensee's response on October 10, 2024.

- (2) The inspectors evaluated AR 4820528, Unit 1 entered Abnormal Operating Procedure-7K, "Overcooling Event in Mode One or Two," on November 29, 2024.

Event Report (IP Section 03.02) (3 Samples)

The inspectors evaluated the following licensee’s event reporting (LER) determinations to ensure it complied with reporting requirements.

- (1) LER 05000317, 05000318/2024-002-00, 01, “Emergency Diesel Generators Automatic Start Due to Loss of a 13kV Bus,” (Agency Documents Access Management System (ADAMS) Accession No. ML24121A002). A self-revealed Green finding was identified during the review of the LER and is documented in the Inspection Results section of this report. This LER is closed.
- (2) LER 05000317,05000318/2024-003-00, “1A Diesel Generator Inoperable Due to Potential Transformer Failure,” (ADAMS Accession No. ML24250A179). One NRC-identified Green finding and one licensee-identified violation were identified during the review of the LER and are documented in the Inspection Results section of this report. This LER is closed.
- (3) LER 05000318/2024001-00, 01, “Manual Reactor Trip due to 22 Steam Generator Feed Pump Trip,” (ADAMS Accession Nos. ML24115A183 and ML 24233A038). One NRC-identified Green finding was identified during the review of the LERs and is documented in the Inspection Results section of this report. This LER is closed.

INSPECTION RESULTS

Failure to Incorporate Special Installation Features and Operating Experience into Design Modification			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Initiating Events	Green FIN 05000317,05000318/2024004-01 Open/Closed	None (NPP)	71111.04
A self-revealed Green finding was identified for Constellation’s failure to incorporate special installation features and operating experience for the mounting of protection relays during a 13 kilovolt (kV) offsite electrical distribution modification. Specifically, protection relay seismic constraints found in vendor technical documents and related industry operating experience were not incorporated into the design. As a result, the design introduced a vulnerability of inadvertent relay actuation due to mechanical agitation. This contributed to the loss of the 11 13kV service bus on February 28, 2024.			
<u>Description:</u> On February 28, 2024, during clearance and tagging activities, Operations personnel closed a switchgear cabinet hinged door after accessing an Electrical Distribution Reliability Improvement Project (EDRIP) 13kV circuit breaker switchgear cabinet. This resulted in the tripping of “Swing Feed to 13kV Bus 11 Breaker,” 0-BKR-252-0101, causing a loss of power to the 11 13kV service bus. The opening of 0-BKR-252-0101 was caused by actuation of the breaker’s associated tripping relay, an Asea Brown Boveri (ABB) Type AR relay, that was mounted on the switchgear cabinet hinged door being accessed.			
The loss of 11 13kV service bus caused a loss of power to the safety-related Unit 1 11 4kV and Unit 2 21 4kV service buses which were automatically repowered by the 1A and 2A EDGs, respectively. Unit 1 was in Mode 5 (Cold Shutdown) with the 11 and 12 low pressure			

safety injection pumps operating in shutdown cooling mode. The effect of the momentary loss of power to the Unit 1 11 4kV service bus resulted in the tripping of the 11 low pressure safety injection pump. No change in shutdown cooling parameters occurred, because the 12 low pressure safety injection pump was also in operation for shutdown cooling and system temperature, and flow control valves adjusted for the loss of the 11 low pressure safety injection pump. Unit 2 was at 65 percent power and experienced no loss of any major equipment. See LER 05000317, 05000318/2024-002-00, "Emergency Diesel Generators Automatic Start due to Loss of a 13kV Bus" (ADAMS Accession No. ML24121A002) for additional description of the event.

The EDRIP modifications, completed under ECP-17-000334 and ECP-17-000335, added an additional 13 kV service transformer, P-13000-3, to improve station electrical distribution reliability and were completed in March 2020. The inspectors reviewed Constellation's causal evaluation and noted that it documented the cause of the event was due to actuation of the sensitive ABB Type AR relay due to mechanical agitation, which was improperly located on the switchgear cabinet hinged door during the EDRIP modifications. This was based on vendor instructions, Instruction Leaflet 41-759L, Type AR Auxiliary Relay, that identified the ABB Type AR relay as having a "high seismic fragility rating." Also, available industry operating experience associated with the same model relay identified the ABB Type AR relay's sensitivity to mechanical agitation. Constellation's design introduced a vulnerability of inadvertent relay actuation due to mechanical agitation during switchgear cabinet door operation.

CC-AA-103-1001, "Design Resource Manual," Revision 11, which was in effect at the time of developing the EDRIP modifications, provided detailed guidance related to configuration change topics. Section 26, "Special Implementation Instructions," provided directions to incorporate special installation features such as seismic constraints found in vendor technical documents. Section 27, "Operating Experience," provided direction to review and to incorporate operating experience considerations into the design.

Corrective Actions: The associated tripping relay was replaced. Operations restricted access to the EDRIP building and restricted operation of the associated circuit breakers. Caution statements were added to the Operations' procedures regarding the sensitivity of relays mounted on breaker cubicle doors to mechanical agitation. Planned corrective actions include relocating the susceptible relays from the EDRIP switchgear doors to a location better suited for these style relays.

Corrective Action References: AR 4753992

Performance Assessment:

Performance Deficiency: The inspectors determined that the failure to incorporate special installation features related to seismic constraints found in vendor technical documents and to incorporate operating experience considerations into the design of the EDRIP modification, as required by CC-AA-103-1001, "Design Resource Manual," was a performance deficiency. Specifically, ABB Type AR tripping relays were installed on switchgear cabinet hinged doors even though vendor instructions identified the ABB Type AR relay as having a "high seismic fragility rating," and industry operating experience was available that identified the ABB Type AR relay's sensitivity to mechanical agitation.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Design Control attribute of the Initiating Events

cornerstone and adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the mounting of ABB Type AR tripping relays on switchgear cabinet hinged doors made them susceptible to inadvertent actuation due to mechanical agitation and resulted in the loss of 13kV offsite power to plant service buses.

Significance: For Unit 1, the inspectors assessed the significance of the finding using IMC 0609, Appendix G, Attachment 1, "Shutdown Operations Significance Determination Process Phase 1 Initial Screening and Characterization of Findings." Based on discussions with a regional senior reactor analyst, the significance of the finding is best reflected by using Exhibit 2, "Initiating Events Screening Questions." The finding is assumed to affect one 13kV power source independently. Considering the details of the shutdown plant status, decay heat and inventory control line-up, and the cross-unit power configuration during the event, the inspectors determined this finding to be of very low safety significance, Green.

For Unit 2, the inspectors assessed the significance of the finding using IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." The inspectors used Appendix A, Exhibit 1, Section C, "Support System Initiators," since this primarily affected the Unit 2 21 4kV service bus. In consultation with a regional senior reactor analyst and based on the momentary loss and immediate repowering of 21 4kV service bus (not considered a partial loss) and the cross-unit power configuration (negligible increase in likelihood of complete loss of a support system that causes a plant trip), the inspectors determined this finding to be of very low safety significance, Green.

Cross-Cutting Aspect: Not Present Performance. No cross-cutting aspect was assigned to this finding because the inspectors determined the finding did not reflect present licensee performance. The design modification was developed beginning in 2017 and fully implemented in March 2020.

Enforcement: Inspectors did not identify a violation of regulatory requirements associated with this finding.

Inadequate Control of Transient Combustible Materials			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000318/2024004-02 Open/Closed	[P.3] - Resolution	71111.05
The inspectors identified a Green finding and associated non-cited violation (NCV) of the Unit 2, Renewed Facility Operation License, Condition 2.E, for the failure to properly control transient combustibles. Specifically, on October 9, 2024, and October 24, 2024, Constellation failed to ensure transient combustible materials were controlled as required by OP-AA-201-009, "Control of Transient Combustible Material."			
<u>Description:</u> On October 9, 2024, inspectors performed a walkdown of the Unit 2, service water pump room, fire area 40. During the walkdown, the inspectors noted an area beneath a room stairway marked "no combustible permanent storage area" with transient combustibles, such as a plastic bucket and mop, stored in the area. Constellation documented this issue in the CAP as AR 4808089 and removed the combustible materials.			
The inspectors reviewed procedure OP-AA-201-009, "Control of Transient Combustible			

Material,” Revision 31, and noted fire area 40 is marked “no combustible,” because Step 4.4.1.5 required “do not stage or store Transient Combustible Material that is inside or beneath stairways, unless the area underneath the stairway is protected by an operable automatic sprinkler system.”

CA02243, “Combustible Loading Analysis Revision,” Revision 4, was being updated at the time of the inspection. The site fire protection engineer provided the inspectors with the updated calculation for fire area 40. Fire area 40 had a new combustible loading design margin of (-)896,427 British Thermal Units (BTU). Therefore, the quantity of combustible material in the fire area exceeded the combustible loading analysis for the fire area.

On October 24, 2024, the inspectors performed a walkdown of the 2A EDG, fire area 31. During the walkdown, the inspectors noted an oil drip pan, with a capacity of approximately 9.3 gallons, containing some absorbent material underneath the engine that was full of engine lubricating oil and had overflowed to the floor. OP-AA-201-009, Step 4.4.4.7.D, required “Catch containers, buckets, drums, etc., may be used to catch oil leaks. However, the leakage should not be allowed to accumulate, and the container should be emptied periodically or placed in an approved Class B storage area to ensure the container does not overflow.” Also, OP-AA-201-009, Attachment 10, “Calvert Cliffs – Station Specific Information,” Step 5, required “Drip pans are allowed with absorbent material and no accumulation of combustible liquids.”

CA02243 provided a combustible loading design margin of 1,112 BTU including an allowance of five gallons of transient lubricating oil equivalent. As stated above, the oil drip pan capacity was approximately 9.3 gallons and contained absorbent material. The heat content of one gallon of lubricating oil is 144,500 BTU per CA02243. Therefore, the quantity of combustible material in the fire area exceeded the combustible loading analysis for the fire area.

Corrective Actions: Constellation removed the associated transient combustibles from the associated areas on the dates they were identified.

Corrective Action References: ARs 4808089, 4811944, and 4824057

Performance Assessment:

Performance Deficiency: The inspectors determined that Constellation’s failure to adhere to the requirements of control of transient combustibles in accordance with OP-AA-201-009 was a performance deficiency. Specifically, combustible materials were identified in fire areas on October 9, 2024, and October 24, 2024, that were contrary to the requirements of OP-AA-201-009 and exceeded the combustible loading analysis for the associated fire areas.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Protection Against External Factors 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, the transient combustible additional fire loading was not within the fire hazard analysis limit. The inspectors also reviewed IMC 0612, Appendix E, “Examples of Minor Issues,” and noted that this issue is similar to Example 4.j.

Significance: The inspectors assessed the significance of the finding using IMC 0609, Appendix F, “Fire Protection and Post - Fire Safe Shutdown SDP.” The inspectors used Appendix F, Attachment 2, and determined that the finding was of very low safety

significance, Green, because it was associated with Fire Prevention and Administrative Controls and was assigned a Low degradation rating.

Cross-Cutting Aspect: P.3 - Resolution: The organization takes effective corrective actions to address issues in a timely manner commensurate with their safety significance. Specifically, this finding is similar to NCV 05000317/2023004-01, "Failure to Control Transient Combustible Material" (ADAMS Accession No. ML24032A041) and NCV 05000317/2023001-01, "Failure to Adhere to the Requirements of a Transient Combustible Exclusion Zone" (ADAMS No. ML23114A173) demonstrating that Constellation has not taken effective corrective actions related to transient combustible controls.

Enforcement:

Violation: Unit 2, Renewed Facility Operating License for Calvert Cliffs Nuclear Power Plant, Condition 2.E., requires, in part, that Constellation implement and maintain in effect all provisions of the approved fire protection program that comply with 10 CFR 50.48(a) and 10 CFR 50.48(c), as specified in the License Amendment Request dated September 24, 2013, and as approved in the NRC safety evaluation dated August 30, 2016.

NRC safety evaluation dated August 30, 2016, states, in part, to implement and maintain fire protection program in accordance with 10 CFR 50.48(c), NFPA 805, "Performance-Based Standard Fire Protection for Light-Water Reactor Electric Generating Plants," 2001 Edition. NFPA 805, Section 3.3.1.2, "Control of Combustible Materials," requires procedures for the control of general housekeeping practices and the control of transient combustibles shall be developed and implemented. OP-AA-201-009, "Control of Transient Combustible Material," Revision 31, implements the procedure requirements for the control of combustible materials.

Contrary to the above, on October 9, 2024, and October 24, 2024, Constellation failed to control transient combustible materials in fire areas 40 and 31, respectively, as required by OP-AA-201-009.

Enforcement Action: This violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.

Failure to Correct Feedwater System Reactor Trip Override (RTO) Response			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green FIN 05000318/2024004-03 Open/Closed	[P.2] - Evaluation	71111.12
The inspectors identified a Green finding for Constellation's failure to properly classify, evaluate, and correct the Unit 2 feedwater control system "Reactor Trip Override" response deficiency following a reactor trip on November 21, 2021. Specifically, the associated action request (AR) was not classified with the proper significance level and, as a result, corrective actions were not developed and completed as required by corrective action program (CAP) procedures. This resulted in the 21 steam generator feed pump (SGFP) tripping on high discharge pressure following the February 24, 2024, Unit 2 reactor trip.			
<u>Description:</u> The inspectors performed a review of SGFP performance following the February 24, 2024, Unit 2 reactor trip. In response to lowering steam generator levels due to the 22 SGFP tripping caused by a pump-to-turbine coupling failure, operators manually			

tripped Unit 2. Shortly after the manual reactor trip, the 21 SGFP tripped on high discharge pressure requiring operators to manually initiate AFW to maintain steam generator levels. The licensee initiated AR 4755563, because the speed of the 21 SGFP did not properly ramp down to 3400 RPM following the reactor trip which resulted in the high pump discharge pressure trip.

Following a reactor trip, the feedwater control system applies an RTO signal which closes the feedwater control valves, opens the feedwater control bypass valves to the 56 percent open position, and lowers operating SGFPs' speed to a fixed value of 3400 RPM. This is performed to prevent overfeeding the steam generators which prevents over cooling the reactor coolant system due to the reduced steam load following a reactor trip/turbine trip.

The inspectors performed a review of recent history of SGFP response following reactor trips. The inspectors reviewed AR 4462401 which documented that the 22 SGFP tripped on high discharge pressure following the Unit 2 manual reactor trip on November 21, 2021. AR 4462401 documented that "According to the data shown, the RTO signal was present, but the system did not respond as intended and did not function as designed." This was the cause of the 22 SGFP tripping on high discharge pressure.

The inspectors reviewed LER 05000318/2021-004-00, "Unit 2 Manual Reactor Trip due to Lowering Steam Generator Levels," (ADAMS Ascension No. ML2201A025) which documented the November 21, 2021, Unit 2 reactor trip, the manual start of an AFW pump, and a valid automatic AFW actuation signal. The LER documented that 22 SGFP did not operate as designed because the pump "failed to properly reduce its speed in response to a feedwater speed control signal." For corrective action, the LER stated that "Engineering will evaluate whether the steam generator feed pumps' low suction and high discharge pressure trip setpoints can be modified to provide separate setpoints for each steam generator feed pump."

AR 4462401 created an action tracking item to generate an engineering service request, ESR-22-000008, to "evaluate potential changes to RTO and/or discharge and suction pressure setpoints for both unit's SGFPs." The inspectors noted that corrective actions were limited to addressing the vulnerability related to the SGFP low suction pressure trip. No further action was taken to evaluate or resolve the inadequate RTO response which resulted in the 22 SGFP tripping on high discharge pressure.

ARs 4462401 and 4755563 were both assigned as significance level 4 events with investigation classes of 'D' requiring no formal investigation to determine causes or corrective actions in the CAP. The inspectors reviewed CAP procedures to determine the appropriateness of the significance levels and investigation classes of the issues.

PI-AA-120, "Issue Identification and Screening Process," Revision 11, in effect in November 2021, Attachment 2, "CAP Issue Report Level and Class Criteria," lists ARs requiring an LER, as a significance level 2 example. The inspectors concluded that the significance level of ARs 4462401 and 4755563 should have been assigned as significance level 2 events. This was because the tripping of the SGFPs on high discharge pressure directly resulted in conditions that were reportable via LERs due to the need to start AFW, an engineered safety feature actuation, to control steam generator levels following both reactor trips.

PI-AA-120, Revision 11, Attachment 2, "Guidance for Determining Investigation Class," provided guidance that significance level 2 issues should be investigated with a root cause

analysis or CAP evaluation. Investigation Class 'D' (i.e., no formal investigation) may be assigned to significance level 2 events if the cause is known, corrected, and documented in the AR. Also, PI-AA-125, "Corrective Action Program (CAP) Procedure," Revision 9, stated that "Corrective Action" assignments were necessary to restore significance level 2 conditions whereas "Action Tracking Item" assignments were completed to improve performance or correct minor problems. These requirements of PI-AA-125 were also in effect at the time of ARs 4462401 and 4755563.

The inspectors concluded that the high discharge pressure trip of the 21 SGFP following the February 2024, Unit 2 reactor trip was preventable. Following the November 2021 trip of the 22 SGFP it is reasonable to conclude that had AR 4462401 been properly classified as a significance level 2, the feedwater system RTO response deficiency would have been evaluated and corrective actions would have been completed that would have prevented the February 2024 trip of the 21 SGFP.

Corrective Actions: Constellation entered the missed opportunity to evaluate changes to the RTO feature into the CAP. Actions were established to assure feedwater control system RTO recommended changes were implemented.

Corrective Action References: ARs 4822437, 4823629, 4825272, and 4829579

Performance Assessment:

Performance Deficiency: The inspectors determined that the failure to properly classify, evaluate, and correct the feedwater control system RTO response deficiency following the November 21, 2021, Unit 2 reactor trip, was a performance deficiency. Specifically, AR4462401, was not classified as significance level 2 and, as a result, corrective actions were not developed and completed as required by PI-AA-125. This resulted in the 21 SGFP tripping on high discharge pressure following the February 24, 2024, Unit 2 reactor trip.

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, the failure to evaluate and correct the feedwater control system RTO response resulted in the 21 SGFP tripping on high discharge pressure following the February 24, 2024, Unit 2 reactor trip and required operators to manually initiate AFW to control steam generator water levels.

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 used Appendix A, Exhibit 2, Section A, and determined the finding to be of very low safety significance, Green, because questions were answered "No."

Cross-Cutting Aspect: P.2 - Evaluation: The organization thoroughly evaluates issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance. Specifically, the significance level of the unexpected response of RTO following the November 21, 2021, Unit 2 reactor trip, was not properly assessed in the CAP. As a result, the level of investigation was not commensurate with the significance level of the event and corrective actions were not established to correct the improper RTO response.

Enforcement: Inspectors did not identify a violation of regulatory requirements associated with this finding.

Failure to Incorporate Performance Centered Maintenance (PCM) Template into Maintenance Strategy for Unit 1 Emergency Diesel Generator (EDG) 'A' Potential Transformer (PT)			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green FIN 05000317/2024004-04 Open/Closed	[H.8] - Procedure Adherence	71111.12
<p>The inspectors identified a Green finding for Constellation’s failure to maintain a maintenance strategy for EDG PTs. Specifically, the 1A EDG PT maintenance strategy did not include electrical testing as required by Constellation’s PCM templates and no technical justification for a deviation was documented. This resulted in the inoperability of the 1A EDG on July 2, 2024.</p> <p><u>Description:</u> On July 2, 2024, the control room received alarm AA06, “4KV Bus U/V, 480V U/V, 125V DC,” a common alarm fed by multiple relays. On July 3, 2024, troubleshooting determined the undervoltage (U/V) relay was valid condition and the issue appeared to be related to the 1A EDG bus PT drawer.</p> <p>The 1A EDG PT reduces primary side voltage, 4200 volts, to secondary side voltage, 120 volts. The secondary side power is then used in protection circuitry and synchronizing circuitry. Protection circuitry for the 1A EDG output breaker contained a 152-1702, voltage restraint overcurrent device, that detects an overcurrent condition and trips the EDG output breaker. Secondary voltage affects the trip setting for the 152-1702 device so that a lower voltage results in a lower trip setting.</p> <p>On July 8, 2024, the 1A EDG was declared inoperable following evaluation that a lower voltage would impact the trip setting of the 152-1702 device, potentially tripping the EDG output breaker during an accident scenario.</p> <p>Subsequent testing determined that the primary and secondary windings of the PT had failures. In addition, SL-019226, “Technical Evaluation of Time Overcurrent with Voltage Restraint Protective Relays for EDG 1A with a Failed 4kV Unit Bus 17 PT,” Revision 0, analyzed multiple scenarios and determined the 1A EDG output breaker would trip in some scenarios.</p> <p>The inspectors reviewed ER-AA-200, “Preventive Maintenance Program,” Revision 4, Step 4.3.3, and noted it stated that PCM templates are developed to help develop the maintenance strategy for a specific station. Step 4.3.6 stated that all PCM template deviations are documented by site’s subject matter expert using a graded approach. The graded approach was based on the classification of the component which are classified as operational critical components, critical components, or non-critical components. The guidance states that deviations from the PCM template shall be documented for operational critical components and should be documented for non-critical components. No instructions were provided for critical components.</p> <p>The inspectors questioned if deviations for critical components should or shall be documented, given that the 1A EDG PT was a critical component. AR 4813293 was written to capture the lack of guidance for critical components and stated that the guidance found in ER-AA-200, Revision 4, Step 4.3.6, was added in 2018 and that critical component deviations were intended to be documented in accordance with WC-AA-120, “Preventive Maintenance</p>			

Database Revision Requirements.”

The inspectors performed a review of Constellation’s preventive maintenance strategy for the PT and noted a task, added in 2018, was to perform electrical testing (turns ratio, megger, and transformer excitation current test) on a 10-year interval. The preventive maintenance strategy for 1A EDG PT was Preventive Maintenance 10240046, which was last performed in 2020 and did not include any electrical testing.

No technical deviation was documented for the lack of electrical testing for 1A EDG PT maintenance strategy. AR 4819301 was written to capture the failure to implement the changes to the PT PCM template.

Corrective Actions: Constellation replaced the PT, completed post-maintenance testing on the 1A EDG, and planned to perform electrical testing on the PTs.

Corrective Action References: AR 4784452, 4785644, 4819301, and 4813293

Performance Assessment:

Performance Deficiency: The inspectors determined the licensee’s failure to maintain a maintenance strategy for PTs was a performance deficiency. Specifically, the 1A EDG PT maintenance strategy did not include electrical testing as required by Constellation PCM templates and no technical justification for a deviation was documented.

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, the 1A EDG was rendered inoperable due to a failed PT and electrical testing could have detected the degradation prior to the failure.

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 used Appendix A, Exhibit 2, Section A, and determined the finding was of very low safety significance, Green, because all questions were answered “No.”

Cross-Cutting Aspect: H.8 - Procedure Adherence: Individuals follow processes, procedures, and work instructions. Specifically, ER-AA-1004 was not followed and the electrical testing was not included when the PCM template was updated.

Enforcement: Inspectors did not identify a violation of regulatory requirements associated with this finding.

Observation: Corrective Action Review of Unit 2 Reactor Trip due to 22 Steam Generator Feed Pump (SGFP) Trip	71152A
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The inspectors reviewed Root Cause Analysis Report 4752936, “Unit 2 Manual Reactor Trip – 22 Steam Generator Feed Pump,” and related AR 4755563, “21 Steam Generator Feed Pump did not Ramp to 3400 RPM for Post Trip,” and the corrective actions associated with the issues. On February 24, 2024, the 22 SGFP tripped due to the pump-to-turbine coupling failing. Operators manually tripped the reactor due to lowering steam generator levels. Shortly after the reactor trip, the 21 SGFP tripped on high pump discharge pressure. For additional details on the event see LER 05000318/2024-001-00/01 (ADAMS Accession Nos.

ML24115A183 and ML 24233A038), "Manual Reactor Trip due to 22 Steam Generator Feed Pump Trip." Review of the 21 SGFP trip on high discharge pressure resulted in NRC-identified FIN 05000318/2024004-03 and is documented in Inspection Results section of this report.

Constellation used several evaluation methods (equipment evaluation, organizational effectiveness, human performance evaluation, etc.) to evaluate the root cause of the 22 SGFP coupling failure. The inspectors observed that the root cause analysis appeared to be thorough in determining the root cause and contributing causes. Corrective actions were completed or planned to address the issues identified. The root cause was determined to be piping strain that caused misalignment from the pump-to-turbine leading to catastrophic failure of the coupling. No performance deficiencies were identified associated with the coupling failure because the failure was not reasonably with the licensee's ability to foresee and correct.

In addition to FIN 05000318/2024004-03, the inspectors observed several deficiencies associated with implementation of the Maintenance Rule and CAP Programs as they pertained to the 21 SGFP trip in 2024 and a prior 22 SGFP trip in 2021:

1. AR 4462401 documented that the 22 SGFP tripped on high discharge pressure following the November 21, 2021, reactor trip and required manual initiation of AFW to maintain steam generator levels. The inspectors determined that the pump failed to fulfill its Maintenance Rule function to provide demand flow to the steam generators such that appropriate levels are maintained for all conditions. However, the issue was not classified as a Maintenance Rule functional failure.
2. AR 4755563 documented that the 21 SGFP tripped on high discharge pressure following the February 24, 2024, reactor trip and required manual initiation of AFW to maintain steam generator levels. The inspectors also determined that the pump failed to fulfill its Maintenance Rule function. However, the issue was not initially classified as a Maintenance Rule functional failure.
3. Constellation subsequently performed a work group evaluation associated with AR 4755563 that correctly identified that the 22 SGFP trip on November 21, 2021, and the 21 SGFP trip on February 24, 2024, were Maintenance Rule functional failures. No actions were created by the work group evaluation to change the Maintenance Rule functional failure status of these events.

Constellation entered the issues into the CAP as AR 4822437, planned to reperform the Maintenance Rule evaluation of the failures, perform an extent of condition of SGFP operational issues and other issues related to safety system actuations. The SGFP trips were also not screened as critical component failures. The inappropriate screening was entered into the CAP as AR 4825272. With respect to the observations related to the implementation of the Maintenance Rule Program, the inspectors determined that the functional failures were related to the design of the feedwater control system RTO response and not related to effective performance of maintenance and therefore determined to be minor.

The inspectors reviewed LER 05000318/2024-001-00 and supplement 05000318/2024-001-01, "Manual Reactor Trip due to 22 Steam Generator Feed Pump Trip," associated with February 24, 2024, Unit 2 reactor trip. The LER reported the manual start of the 23 AFW pump to restore feedwater to the steam generators due to the loss of 22 SGFP (coupling

failure) and 21 SGFP tripping (high pump discharge pressure) following the manual reactor trip as an engineered safety features actuation. The cause of the 22 SGFP loss was described in the LER, however, no cause for the trip of the 21 SGFP on high discharge pressure was provided as required by 10 CFR 50.73(b), "Contents." Constellation entered this issue into the CAP as AR 4819720 and planned to submit a supplement to the associated LER to report the cause of the 21 SGFP tripping on high discharge pressure. This issue was determined to be a minor documentation error.

The inspectors did not identify any findings or violations of more than minor significance.

Observation: Evaluation of Corrective Actions Associated with FLEX Finding FIN 05000317, 05000318/2023004-02	71152A
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The inspectors reviewed Constellation's evaluation and corrective actions following the NRCs identification and disposition of issues associated with the performance of FLEX surveillance testing, which included acceptance criteria and other parameters. Specifically, the inspectors reviewed the corrective action evaluations and other aspects of problem identification and resolution associated with ARs 47005896, 4702601, 4704844, and 4705896. This sample was selected due to the nature and scope of the issues identified by the NRC regarding the implementation of the FLEX program, which resulted in the disposition of a Finding in NRC Inspection Report 05000317, 05000318/2023004 (ADAMS Accession No. ML24032A041).

The inspectors reviewed associated work group evaluations, extent of condition reviews, applicable FLEX procedures and implementation work orders, and revisions to requirements contained in Attachment 3 of CC-AA-118, "FLEX/SFPI/HCVS Equipment Preventive Maintenance Requirements." Additionally, the inspectors reviewed a timely self-assessment conducted by Constellation staff, which resulted in the identification of additional enhancements to the FLEX program. Although some actions remain to be completed based on the timing and completion of the self-assessment, the inspector determined these actions were appropriate and timely. The inspectors did not identify any findings or violations of more than minor significance.

Licensee-Identified Non-Cited Violation	71153
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This violation of very low safety significance was identified by the licensee and has been entered into the licensee corrective action program and is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy.

Violation: Units 1 and 2, Technical Specification (TS) Limiting Condition for Operation (LCO) 3.8.1, "AC Sources-Operating," requires two diesel generators (DG) to be operable. With one required LCO 3.8.1.b DG inoperable, LCO 3.8.1B states the required actions to be completed, with completion times of one hour to 14 days. With LCO 3.8.1.c DG inoperable, LCO 3.8.1E states the required actions to be completed, with completion times of one hour to 14 days. If required actions are not completed, LCO 3.8.1.J states to be in Mode 3 in six hours, and Mode 5 in 36 hours.

Contrary to the above, from July 2, 2024, to July 8, 2024, the licensee failed to properly assess the operability of the 1A DG, as required by TS, resulting in a condition prohibited by TS. Specifically, the 1A DG was inoperable for approximately seven days, and Constellation did not enter the appropriate TS action statement and take the TS required actions.

Significance/Severity: Green. The inspectors assessed the significance of the violation using IMC 0609, Appendix A, "The Significance Determination Process for Finding At-

Power.” Using Appendix A, Exhibit 2, Section A, the inspectors determined that a detailed risk evaluation was required because the degraded condition represented a loss of the probabilistic risk assessment function of one train of a multi-train TS system for greater than its TS allowed outage time. A regional senior reactor analyst performed a bounding risk analysis using SAPHIRE 8.2.11 and Calvert Cliffs Unit 1 SPAR, Version 8.8.4. The senior reactor analyst used the 1A failure to start basic event, set to 1.0, as a surrogate for the tripping of the 1A EDG output breaker. This is bounding since the breaker may not trip in all scenarios. A 10-day exposure period (alarm on July 2nd, system return to service July 11th) was used. This resulted in an internal events risk increase approximation of 2E-7/year. Adding 2E-7/year increase for external events based on NRC SPAR high winds, seismic, and licensee fire risk estimates for the 1A EDG results in a total estimated risk increase estimate of 4E-7/year, therefore the violation is of very low safety significance, Green. The risk assessed for Unit 1 bounds the risk to Unit 2.

Corrective Action References: AR 4784452, 4785644, 4819301, and 4813293

EXIT MEETINGS AND DEBRIEFS

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

- On January 21, 2025, the inspectors presented the integrated inspection results to Christopher Smith, Plant Manager, and other members of the licensee staff.
- On December 16, 2024, the inspectors presented the problem identification and resolution annual focused sample on the FLEX program inspection results to Michael Fick, Principal Regulatory Engineer, and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71111.04	Drawings	Drawing Number 60583SH0001	Auxiliary Feedwater System (Steam)	70
		Drawing Number 60583SH0002	Auxiliary Feedwater System (Condensate)	9
71111.05	Corrective Action Documents Resulting from Inspection	AR 4808089	Transient Combustibles Found in Unit 2 Service Water Pump Room	
		AR 4811621	Staged Material for Maintenance in Intake Structure not Labeled	
		AR 4811944	Unit 2 A Emergency Diesel Generator Oil Pan Full	
71111.06	Corrective Action Documents Resulting from Inspection	AR 4819065	Degraded Rubber Seal on Door 109 Unit 1 West ECCS Pump Room	11/21/2024
71111.12	Corrective Action Documents Resulting from Inspection	AR 4813293	ER-AA-200 Section 4.3.6 Requires Enhancement/Clarification	10/29/2024
		AR 4819301	Failure to Implement Potential Transformer Template Revision 1 Changes	11/22/2024
		AR 4819720	LER 318-2024-001 Did Not Address 21 Steam Generator Feed Pump High Discharge Pressure Trip	11/24/2024
		AR 4822437	Steam Generator Feed Pump Failures Screened Incorrectly for Maintenance Rule Functional Failure Status	12/09/2024
		AR 4823629	Missed Opportunity to Evaluate Changes to the RTO Circuit	12/13/2024
		AR 4825272	Steam Generator Feed Pump Failures not Screened for Critical Component Failure Status	12/20/2024
71111.15	Miscellaneous	AT-23-0096	Saltwater RISC-3 2" Piping ASME XI Alternative Treatment	06/15/2023
	Operability Evaluations	CAL-2-2024-0267	2B EDG 125VDC Alarm	0
71111.18	Corrective Action Documents Resulting from Inspection	AR 4818239	Hear Removal Capacity of Calculation CA08865 Incorrect	11/18/2024
71111.24	Engineering	CA-5069-024-003	10 CFR 50.69 System Categorization Document, Emergency	3

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
	Evaluations		Diesel Generator System (024)	
		ECP-24-000382	In Situ Dedication of 1-TS-10125	0
	Procedures	CC-CA-304	System, Structure, and Component Evaluation	2
71152A	Corrective Action Documents	AR 4768382	OPEX Missed Opportunity-CAPE 4753992 Loss of 11 13kV Bus	04/22/2024
	Corrective Action Documents Resulting from Inspection	AR 4825062	NRC: FLEX PMs Don't Restore Equipment to Ready Status	12/19/2024