UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
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KING OF PRUSSIA, PENNSYLVANIA 19406-1415

September 4, 2024

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: LIMERICK GENERATING STATION, UNITS 1 AND 2 – REISSUED INTEGRATED INSPECTION REPORT 05000352/2023002 AND 05000353/2023002

Dear David Rhoades:

The U.S. Nuclear Regulatory Commission (NRC) identified an administrative error in NRC Integrated Inspection Report 05000352/2023002 and 05000353/2023002, dated August 14, 2023 (ADAMS Accession No. ML23226A103). In the inspection results section, Non-Cited Violation (NCV) 05000352,05000353/2023002-01 did not properly annotate the significance screening process. The paragraph in the NCV has been edited for accuracy. As a result, the NRC has reissued the report in its entirety to correct the error.

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* 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

Jonathan E. Greives

Digitally signed by Jonathan E. Greives
Date: 2024.09.04 14:19:59 -04'00'

Jonathan E. Greives, Chief
Projects Branch 4
Division of Operating Reactor Safety

Docket Nos. 05000352 and 05000353
License Nos. NPF-39 and NPF-85

Enclosure:
As stated

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SUBJECT: LIMERICK GENERATING STATION, UNITS 1 AND 2 – REISSUED INTEGRATED INSPECTION REPORT 05000352/2023002 AND 05000353/2023002 DATED SEPTEMBER 4, 2024

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U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Numbers:	05000352 and 05000353
License Numbers:	NPF-39 and NPF-85
Report Numbers:	05000352/2023002 and 05000353/2023002
Enterprise Identifier:	I-2023-002-0039
Licensee:	Constellation Energy Generation, LLC
Facility:	Limerick Generating Station, Units 1 and 2
Location:	Sanatoga, PA 19464
Inspection Dates:	April 1, 2023 to June 30, 2023
Inspectors:	A. Ziedonis, Senior Resident Inspector L. Grimes, Resident Inspector E. Eve, Senior Project Engineer C. Hargest, Health Physicist M. Henrion, Senior Health Physicist
Approved By:	Jonathan E. Greives, Chief Projects Branch 4 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 Limerick Generating Station, 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.

List of Findings and Violations

Failure to Follow Maintenance Procedure Results in Emergency Diesel Generator Jacket Water Leak			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000352,05000353/2023002-01 Open/Closed	[H.12] - Avoid Complacency	71152A
The inspectors determined there was a self-revealing Green finding and associated non-cited violation (NCV) of Technical Specification (TS) 6.8, "Procedures and Programs," when Constellation did not properly perform procedure M-020-002, "Fairbanks Morse Opposed Piston Diesel Generator Major Examination and General Maintenance," Revision 17, during the performance of planned maintenance activities on the D21 emergency diesel generator (EDG). As a result, an instrument root valve threaded fitting was not adequately tightened during jacket water (JW) piping header restoration, which resulted in JW leakage that exceeded the administrative operability limit, and subsequent unavailability to perform corrective maintenance.			

Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
URI	05000352,05000353/ 2022004-04	Reportability Review Associated with (EDG) Jacket Water (JW) Leak	71152A	Closed
LER	05000352/2022-001-00	LER 2022-001-00 for Limerick Generating Station, Unit 1 Regarding High-Pressure Coolant Injection (HPCI) Inoperable Due to Inadvertent Isolation Signal	71153	Closed

PLANT STATUS

Unit 1 began the inspection period at rated thermal power (RTP). On April 22, 2023, operators lowered thermal power to approximately 35 percent to perform repairs on the 'A' recirculation pump adjustable speed drive cooling system. The unit was restored to RTP on April 23, 2023, and remained at or near RTP for the remainder of the inspection period.

Unit 2 began the inspection period at approximately 90 percent RTP in end of cycle coastdown status. On May 1, 2023, the unit was shut down for a planned refueling and maintenance outage. The unit was returned to RTP on May 21, 2023, and remained at or near RTP 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 (IP Section 03.01) (1 Sample)

(1) The inspectors evaluated readiness for seasonal extreme weather conditions prior to the onset of seasonal extreme hot weather conditions during the week of June 5, 2023

71111.04 - Equipment Alignment

Partial Walkdown (IP Section 03.01) (3 Samples)

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

(1) Unit 2 'C' residual heat removal (RHR) system on April 5, 2023
(2) Unit 1 D11, D13, and D14 EDGs during D12 EDG planned system outage window the week of June 9, 2023
(3) Unit 1 HPCI system on June 20 and 21, 2023

71111.05 - Fire Protection

Fire Area Walkdown and Inspection (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) Unit 1 fire area 22, Unit 1 cable spreading room on April 17, 2023
(2) Unit 1 fire area 9, Unit 1 class 1E battery room on May 26, 2023
(3) Unit 2 fire area 84, D23 EDG and fuel oil-lube oil tank room on May 30, 2023
(4) Unit 1 fire area 109, HPCI pump room on June 20, 2023
(5) Unit common fire area 7, corridor 437 on June 27, 2023

71111.06 - Flood Protection Measures

Flooding (IP Section 03.01) (1 Sample)

The inspectors evaluated internal flooding mitigation protections in the:

(1) Unit 2 reactor building safeguard system access areas and safeguard system isolation valve area room on May 15 and May 17, 2023

71111.08G - Inservice Inspection Activities (BWR)

BWR Inservice Inspection Activities - Nondestructive Examination and Welding Activities (IP Section 03.01) (1 Sample)

(1) The inspectors verified that the following nondestructive examination activities at Unit 2 were performed appropriately from May 8 through 11, 2023:

- Manual ultrasonic testing examination of 12" elbow to pipe weld on recirculation nozzle N2K, VRR-2RD-2A-16 SWB (Summary No. LIM-2-625800)
- Automated ultrasonic testing examination of reactor vessel vertical seam weld BD (Summary No. LIM-2-701900)
- Manual ultrasonic testing examination of recirculation nozzle N1B to vessel weld (Summary No. LIM-2-704200)
- Manual ultrasonic testing examination of recirculation nozzle N1B inside radius (Summary No. LIM-2-704300)
- Visual examination of containment surfaces in the suppression pool vapor space (Summary No. LIM-2-900586)

71111.11Q - Licensed Operator Requalification Program and Licensed Operator Performance

Licensed Operator Performance in the Actual Plant/Main Control Room (IP Section 03.01) (1 Sample)

(1) The inspectors observed and evaluated licensed operator performance in the control room during the Unit 2 reactor startup on May 18, 2023

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

(1) The inspectors observed and evaluated licensed operator requalification training on June 26, 2023

71111.12 - Maintenance Effectiveness

Maintenance Effectiveness (IP Section 03.01) (3 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 D11 EDG functional failure from February 27, 2023 (IR 4557807)
(2) Unit 2 HPCI minor maintenance overhaul on May 9, 12, and 15, 2023
(3) Unit 2 D24 EDG functional failures during the week of June 5, 2023 (Issue Report (IR) 4212649)

Quality Control (IP Section 03.02) (1 Sample)

The inspectors evaluated the effectiveness of maintenance and quality control activities to ensure the following SSC remains capable of performing its intended function:

(1) Unit 1 D12 EDG compression ring replacement during planned system maintenance on June 9 and 15, 2023

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management (IP Section 03.01) (5 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 2 emergent risk informed completion time TS action statement entry in response to an electrical fault in the Division 1 safeguard battery system during the weeks of April 3 and 10, 2023
(2) Unit 1 emergent risk assessment in response to D13 EDG unavailability on May 2, 2023
(3) Unit 2 elevated shutdown safety risk during reactor cavity drain-down to below the reactor vessel flange on May 14, 2023
(4) Unit 1 HPCI Nuclear Steam Supply Shutoff System relay failure on May 25 and 26, 2023
(5) Unit 2 reactor core isolation coolant full flow test valve hand switch failure on May 31, 2023

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 D24 EDG voltage above the allowable procedure band during planned testing on May 8 and 9, 2023
(2) Unit 2 HPCI testing at 200-psig during startup on May 18, 2023
(3) Unit 2 safety relief valves (SRVs) E, F, L, N, and S lift pressure testing on May 22, 2023
(4) Unit 1 outboard main steam relief valves following room temperature exceeding max safe operating temperature during reactor enclosure heating ventilation and air conditioning system trip on May 26, 2023
(5) Unit 2 SRVs A and M elevated tail pipe temperatures on June 30, 2023

71111.18 - Plant Modifications

Temporary Modifications and/or Permanent Modifications (IP Section 03.01 and/or 03.02) (2 Samples)

The inspectors evaluated the following temporary or permanent modifications:

(1) Unit common emergency service water dissimilar metal weld elimination on May 22 and June 21, 2023
(2) Unit common EDG lube oil instrument tap modification on June 9, 20, and 21, 2023

71111.20 - Refueling and Other Outage Activities

Refueling/Other Outage Sample (IP Section 03.01) (1 Sample)

(1) The inspectors evaluated Unit 2 refueling and maintenance outage (2R17) activities from May 1, 2023 through May 21, 2023

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) (5 Samples)

(1) Unit 2 RT-6-051-206-2, 'C' RHR shutdown cooling crosstie valve test following maintenance to replace valve gear box and associated linkage on April 4, 2023
(2) Unit 2 primary containment isolation valves HV-049-2F080, HV-049-2F019, and HV-051-225A, following restoration of control power during the week of April 11, 2023
(3) Unit 2 main steam isolation valve stroke timing following refueling outage (RFO) maintenance on May 1 and 17, 2023
(4) Unit 2 RHR shutdown cooling return valve 15A, following RFO maintenance on May 16, 2023

(5) Unit common 'A' RHR service water comprehensive test following pump lift adjustment on June 2, 2023

Surveillance Testing (IP Section 03.01) (4 Samples)

(1) ST-6-055-230-2, Unit 2 HPCI pump, valve and flow test following planned maintenance on April 14 and 15, 2023
(2) ST-6-052-231-1, Unit 1 'A' loop core spray pump, valve, and flow test on April 19, 2023
(3) ST-6-043-321-1, Unit 1 daily jet pump operability verification for single loop operation on April 23, 24, and 25, 2023
(4) ST-6-051-232-2, Unit 2 'B' RHR pump, valve and flow test following planned maintenance on June 22, 2023

Inservice Testing (IST) (IP Section 03.01) (1 Sample)

(1) ST-6-055-231-2, Unit 2 HPCI comprehensive inservice test on June 28, 2023

Containment Isolation Valve Testing (IP Section 03.01) (1 Sample)

(1) ST-4-LLR-031/041/051/061-2, Unit 2 main steam line A/B/C/D on May 17, 2023

71114.06 - Drill Evaluation

Drill/Training Evolution Observation (IP Section 03.02) (1 Sample)

The inspectors evaluated:

(1) Drill / Training Evolution Observation on June 26, 2023

RADIATION SAFETY

71124.01 - Radiological Hazard Assessment and Exposure Controls

Radiological Hazard Assessment (IP Section 03.01) (1 Sample)

(1) The inspectors evaluated how the licensee identifies the magnitude and extent of radiation levels and the concentrations and quantities of radioactive materials and how the licensee assesses radiological hazards.

Instructions to Workers (IP Section 03.02) (1 Sample)

(1) The inspectors evaluated how the licensee instructs workers on plant-related radiological hazards and the radiation protection requirements intended to protect workers from those hazards.

Contamination and Radioactive Material Control (IP Section 03.03) (3 Samples)

The inspectors observed/evaluated the following licensee processes for monitoring and controlling contamination and radioactive material:

(1) Licensee surveys of potentially contaminated material leaving the Unit 2 drywell during 2R17
(2) Observed worker protective clothing practices for Unit 2 drywell, suppression pool, and refueling floor entry and exit during 2R17
(3) Observed surveying of potentially contaminated material leaving the radiological controlled area through small article monitors and frisking by hand

Radiological Hazards Control and Work Coverage (IP Section 03.04) (4 Samples)

The inspectors evaluated the licensee's control of radiological hazards for the following radiological work:

(1) Radiation Work Permit LG-0-23-00506
(2) Radiation Work Permit LG-0-23-00901
(3) Radiation Work Permit LG-0-23-00903
(4) Radiation Work Permit LG-0-23-00906

High Radiation Area and Very High Radiation Area Controls (IP Section 03.05) (3 Samples)

The inspectors evaluated licensee controls of the following High Radiation Areas and Very High Radiation Areas:

(1) Unit 2 drywell
(2) Unit 2 control rod drive mechanism hatch
(3) Unit 2 suppression pool leakage tank room

Radiation Worker Performance and Radiation Protection Technician Proficiency (IP Section 03.06) (1 Sample)

(1) The inspectors evaluated radiation worker and radiation protection technician performance as it pertains to radiation protection requirements.

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below:

MS05: Safety System Functional Failures (IP Section 02.04) (2 Samples)

(1) Unit 1 for the period of April 1, 2022 through March 31, 2023
(2) Unit 2 for the period of April 1, 2022 through March 31, 2023

MS06: Emergency AC Power Systems (IP Section 02.05) (2 Samples)

(1) Unit 1 for the period of April 1, 2022 through March 31, 2023
(2) Unit 2 for the period of April 1, 2022 through March 31, 2023

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) Review of reportability associated with D21 EDG jacket water leak (IR 4514473) and closure of unresolved item (URI) 2022004-04
(2) Unit 1 HPCI outboard isolation, corrective action program (CAP) evaluation and corrective actions review (IR 4529359)

71152S - Semiannual Trend Problem Identification and Resolution

Semiannual Trend Review (Section 03.02) (1 Sample)

(1) The inspectors reviewed the licensee's CAP for potential adverse trends in that might be indicative of a more significant safety issue

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

Event Report (IP Section 03.02) (1 Sample)

The inspectors evaluated the following licensee event report (LER):

(1) LER 05000352/2022-001-00, Unit 1 HPCI Inoperable Due to Inadvertent Isolation Signal (ADAMS Accession No. ML22347A286). The inspectors determined that it was not reasonable to foresee or correct the cause discussed in the LER; therefore, no performance deficiency was identified. The inspectors did not identify a violation of NRC requirements. This LER is closed.

INSPECTION RESULTS

Failure to Follow Maintenance Procedure Results in EDG JW Leak			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000352,05000353/2023002-01 Open/Closed	[H.12] - Avoid Complacency	71152A
The inspectors determined there was a self-revealing Green finding and associated NCV of TS 6.8, "Procedures and Programs," when Constellation did not properly perform procedure M-020-002, "Fairbanks Morse Opposed Piston Diesel Generator Major Examination and General Maintenance," Revision 17, during the performance of planned maintenance activities on the D21 EDG. As a result, an instrument root valve threaded fitting was not adequately tightened during JW piping header restoration, which resulted in JW leakage that exceeded the administrative operability limit and subsequent unavailability to perform corrective maintenance.			
Description: On August 2, 2022, during a monthly surveillance test of D21 EDG at full load, equipment operators discovered a JW leak from a threaded fitting connection on a 0.25-inch diameter tubing instrument root valve connection to the five-inch JW piping header. At			

approximately 30 minutes into the loaded run, operators measured leakage at 0.37 ounces per minute. Just prior to completion of the two-hour loaded run, operators measured leakage at 0.78 ounces per minute. Operators subsequently declared D21 EDG inoperable, because leakage was measure above the pre-determined operability limit of 0.5 ounces per minute, as calculated in Technical Evaluation (TE) 202873-01. The inspectors noted the 0.5 ounce per minute limit supported successful operation of the EDG over the seven-day mission time required for TS operability, without credit for inventory make-up to the closed-loop JW sub-system. The inspectors further noted that Updated Final Safety Analysis Report, Section 9.5.5.2.1 stated that normal maintenance of system components will ensure that leakage rates will be kept below the amount requiring tank makeup within a seven-day period. Operators determined that D21 EDG remained available, because leakage was not expected to exceed the 24-hour probabilistic risk assessment mission time limit of 3.5 ounces per minute, based on no visible cracks observed in the fitting connection and no evidence that there was a risk of complete fitting failure. In addition, the downstream (JW outlet) side of the instrument root valve was noted to consist of a second, leak-tight, threaded connection to a pressure switch and small diameter hard pipe tubing, such that complete unthreading of the upstream (JW inlet) threaded connection to the JW header was very unlikely.

On August 3, 2022, Constellation performed corrective maintenance repairs that consisted of tagging out D21 EDG, draining the JW system, disassembling the two fittings on either side of the instrument root valve, replacing a reducer coupling at the threaded connection between the instrument root valve and JW header, re-installing the threaded fittings on either side of the instrument root valve, and performing an unloaded EDG run with no JW leakage observed from the re-assembled threaded connections.

Following corrective maintenance, Constellation performed work group evaluation (WGE) 4514473-12, to determine the cause of the leaking fitting that resulted in D21 EDG inoperability. Constellation determined that the cause was attributed to inadequately tightening the instrument root valve fitting connection to the JW header during D21 EDG planned maintenance that was completed on June 18, 2022. As part of the WGE, Constellation sent the reducer coupling, which was removed during the August 3, 2022 corrective maintenance, off-site for a failure analysis. No presence of cracks, galling, or cross-threading were noted in the reducer coupling. The inspectors reviewed the reportability aspects associated with this issue under the closure of URI 2022004-04, as discussed in this report.

The inspectors reviewed the WGE and discussed the D21 EDG JW leak with maintenance technicians, operators, and engineers. The inspectors reviewed Constellation procedure M-020-002, “Fairbanks Morse Opposed Piston Diesel Generator Major Examination and General Maintenance,” Revision 17, and noted that step 5.3.58, requires re-installation of the instrument root valve and its associated pipe fitting in the jacket water pump discharge header piping, following planned maintenance and testing that required root valve removal. Therefore, the inspectors determined that step 5.3.58 was not adequately performed.

Corrective Actions: Constellation documented the JW leakage on August 2, 2022 (IR 4514473), completed corrective maintenance on August 3, 2022 (work order (WO) 5281072), performed a WGE to determine the cause of the leakage (4514473-12), and assigned corrective action 4514473-18 to enhance maintenance procedure instructions.

Corrective Action References: IRs 4514473 and 4508586, and WOs 5281072 and 5219425

Performance Assessment:
Performance Deficiency: The inspectors determined that not properly pre-planning and performing preventive maintenance in accordance with station procedures was reasonably within Constellation's ability to foresee and correct, should have been prevented, and was therefore determined to be a 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, the performance deficiency resulted in JW leakage that rendered the D21 EDG inoperable and resulted in unavailability of the EDG during repair activities.

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 utilized Exhibit 2, "Mitigating System Screening Questions," to determine this finding was of very low safety significance (Green) because it did not represent the loss of the probabilistic risk assessment function of a TS system (EDG). Specifically, the inspectors determined that the D21 EDG JW leak would not have exceeded the 24-hour PRA mission time leakage limit.

Cross-Cutting Aspect: H.12 - Avoid Complacency: Individuals recognize and plan for the possibility of mistakes, latent issues, and inherent risk, even while expecting successful outcomes. Individuals implement appropriate error reduction tools. Specifically, Constellation did not recognize and plan for the possibility of a mistake, nor plan for the inherent risk, during reinstallation of a D21 EDG JW header root valve that consisted of two separate threaded fitting connections at both the valve inlet and outlet, which resulted in a loose connection at the valve inlet that rendered the EDG inoperable due to JW leakage.

Enforcement:

Violation: Limerick Generating Station, Unit 1, TS 6.8, "Procedures and Programs," Section 6.8.1a, requires written procedures shall be established, implemented, and maintained covering the activities in Regulatory Guide (RG) 1.33, "Quality Assurance Program Requirements," Revision 2. RG 1.33, Section 9.a, "Procedures for Performing Maintenance," requires maintenance that can affect the performance of safety-related equipment be properly pre-planned and performed in accordance with written procedures. Constellation procedure M-020-002, "Fairbanks Morse Opposed Piston Diesel Generator Major Examination and General Maintenance," Revision 17, step 5.3.58, requires re-installation of the instrument root valve and its associated pipe fitting in the JW pump discharge header piping.

Contrary to the above, from June 18, 2022 until August 3, 2022, Constellation did not properly perform installation of the root valve pipe fitting in the D21 EDG JW pump discharge header piping. Specifically, the pipe fitting was not properly tightened in the JW header piping during planned maintenance that completed on June 18, 2022. Consequently, JW coolant leakage was identified on August 2, 2022, which resulted in D21 EDG being declared inoperable, and subsequently resulted in unavailability for corrective maintenance.

Enforcement Action: This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy.

URI (Closed)	Reportability Review Associated with (EDG) JW Leak URI 05000352,05000353/2022004-04	71152A

Description: The inspectors reviewed URI 2022004-04, and Constellation's engineering technical evaluations (TEs) performed under TE 202873-01 and engineering change (EC) 638279, to determine whether the D21 EDG was inoperable for greater than the allowed outage time under TS limiting condition for operation (LCO) 3.8.1, after D21 was declared inoperable on August 2, 2023, due to a loose JW fitting that was determined to not be adequately tightened on June 18, 2023. This URI was originally described and documented in Inspection Report 05000352,353/2022004 (ML23041A388).

The inspectors' reviewed focused on whether there was firm evidence that D21 would have exceeded the allowable JW leakage during the time between June 18 and August 2, 2023, given the limited amount of actual run time during that period. The inspectors noted from interviews with maintenance technicians and engineering staff that thread sealant was applied to the fitting during maintenance reassembly on June 18, 2022, but without the appropriate amount of cure time prior to post-maintenance test (PMT) runs. Additionally, the inspectors noted that no leakage was identified during PMT runs on June 17 and 18, 2023. While weepage was subsequently identified on June 30, 2022, during equipment operator rounds with D21 EDG in a standby condition (IR 4508586), no leakage was observed during the July 5, 2022, monthly surveillance test. During the monthly surveillance test on August 2, 2023, operators identified JW leakage that was above the administrative limit for operability and declared the EDG inoperable until repairs were completed. Based on the overall timeline of circumstances and uncertainty, as well as the unknown conditions of the semi-cured thread sealant that could have experienced viscosity changes with ambient temperature fluctuations between June 18 and August 2, 2022, with the EDG in standby, the inspectors determined there was no firm evidence that D21 was inoperable for a period of time greater than the TS-allowed outage time of 30 days.

The inspectors documented the maintenance performance aspects of this issue under NCV 2023002-01. This URI is closed.

Corrective Action Reference(s): IRs 4514473 and 4508586, and TE 202873

EXIT MEETINGS AND DEBRIEFS

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

- On May 11, 2023, the inspectors presented the Inservice Inspection Activities inspection results to Shannon Rafferty-Czincila, Engineering Director, and other members of the licensee staff.
- On May 11, 2023, the inspectors presented the Radiological Hazard Assessment and Exposure Controls inspection results to Shannon Rafferty-Czincila, Engineering Director, and other members of the licensee staff.
- On August 3, 2023, the inspectors presented the integrated inspection results to Matthew Bonanno, Plant Manager, and other members of the licensee staff.