



August 29, 2024
NOC-AE-24004057
10 CFR 50.73
STI: 35628492

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

South Texas Project
Unit 2
Docket No. STN 50-499
Licensee Event Report 2024-001-01
Supplement to Automatic Reactor Trip and
Actuation of Two of Three Emergency Diesel Generators

Reference: Letter; K. Harshaw (STP) to Document Control Desk (NRC) - "Licensee Event Report 2024-001-00, Automatic Reactor Trip and Actuation of Two of Three Emergency Diesel Generators," July 2, 2024, (NOC-AE-24004049) (ML24184C083)

On July 2, 2024, STP Nuclear Operating Company (STPNOC) submitted the referenced Licensee Event Report. This letter is a supplement to the report to provide updates as a result of the causal evaluations. The updated information is denoted by revision bars located in the right-hand margin. The report is submitted in accordance with 10 CFR 50.73.

The event did not have an adverse effect on the health and safety of the public.

There are no commitments in this submittal.

If there are any questions regarding this submittal, please contact Chris Warren at (361) 972-7293 or me at (361) 972-8945.

Jason R. Tomlinson
Site Vice President

Attachment: Unit 2 LER 2024-001-01, Automatic Reactor Trip and Actuation of Two of Three Emergency Diesel Generators

cc:
Regional Administrator, Region IV
U.S. Nuclear Regulatory Commission
1600 E. Lamar Boulevard
Arlington, TX 76011-4511

Attachment

Unit 2 LER 2024-001-01

Automatic Reactor Trip and Actuation of Two of Three Emergency Diesel Generators



LICENSEE EVENT REPORT (LER)

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

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1. Facility Name South Texas Project Unit 2	<input checked="" type="checkbox"/> 050	2. Docket Number 00499	3. Page 1 OF 9
	<input type="checkbox"/> 052		

4. Title
Automatic Reactor Trip and Actuation of Two of Three Emergency Diesel Generators

5. Event Date			6. LER Number			7. Report Date			8. Other Facilities Involved	
Month	Day	Year	Year	Sequential Number	Revision No.	Month	Day	Year	Facility Name	Docket Number
05	12	2024	2024	001	01	08	29	2024	N/A	<input type="checkbox"/> 050
									N/A	<input type="checkbox"/> 052

9. Operating Mode: 1 10. Power Level: 15%

11. This Report is Submitted Pursuant to the Requirements of 10 CFR §: (Check all that apply)

<input type="checkbox"/> 10 CFR Part 20	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input type="checkbox"/> 10 CFR Part 50	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)	<input type="checkbox"/> 73.1200(a)
<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)	<input type="checkbox"/> 73.1200(b)
<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)	<input type="checkbox"/> 73.1200(c)
<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.36(c)(2)	<input checked="" type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)	<input type="checkbox"/> 73.1200(d)
<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 10 CFR Part 21	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 10 CFR Part 73	<input type="checkbox"/> 73.1200(e)
<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 21.2(c)	<input type="checkbox"/> 50.69(g)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.77(a)(1)	<input type="checkbox"/> 73.1200(f)
<input type="checkbox"/> 20.2203(a)(2)(iii)		<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> 73.77(a)(2)(i)	<input type="checkbox"/> 73.1200(g)
<input type="checkbox"/> 20.2203(a)(2)(iv)		<input type="checkbox"/> 50.73(a)(2)(i)(B)	<input checked="" type="checkbox"/> 50.73(a)(2)(v)(D)	<input type="checkbox"/> 73.77(a)(2)(ii)	<input type="checkbox"/> 73.1200(h)
<input type="checkbox"/> 20.2203(a)(2)(v)		<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)		

OTHER (Specify here, in abstract, or NRC 366A).

12. Licensee Contact for this LER

Licensee Contact Chris Warren, Licensing Engineer	Phone Number (Include area code) 361-972-7293
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13. Complete One Line for each Component Failure Described in this Report

Cause	System	Component	Manufacturer	Reportable to IRIS	Cause	System	Component	Manufacturer	Reportable to IRIS
E	EL	RLY-21	W120	Y	X	SB	SLV	W120	Y

14. Supplemental Report Expected

No Yes (If yes, complete 15. Expected Submission Date)

15. Expected Submission Date

Month	Day	Year

16. Abstract (Limit to 1326 spaces, i.e., approximately 13 single-spaced typewritten lines)

On May 12, 2024, STP Unit 2 experienced a partial Loss of Offsite Power (LOOP), resulting in an automatic reactor trip and actuation of Unit 2 Standby Diesel Generators (SBDG) 21 and 23. All three Engineered Safety Feature (ESF) busses were energized. These systems actuated due to the "21/G1" relay inadvertently actuating from the sensitivity of the moving contact being affected by the vibrations caused from the closure of the Main Control Room Panel Section CP010 side door. Following the reactor trip, Steam Generator (S/G) Power Operated Relief Valve (PORV) 2C was declared inoperable due to erratic controls in Manual. Load Center E2A1 supply breaker failed to automatically close, which resulted in loss of power to S/G PORV 2A and SBDG 21 Train 2A Diesel Generator Emergency Supply Fan. With the fan inoperable, SBDG 21 may not have been able to meet its mission time, also challenging the ability of S/G PORV 2D to perform its design functions.

Completed corrective actions included installation of a replacement "21/G1" relay, replacement of the Load Center E2A1 output breaker handswitch, and replacement of the PORV push button, push button sleeve, and potentiometer. The following root causes led to the Unit 2 reactor trip: vendor instructions for calibrating the "21G1" relay contacts were not included in site procedures and the Main Generator protection schedule was not fully updated to prevent the trip function of the "21/G1" relay when the Main Generator is offline and the Main Generator Circuit Breaker is in the open position.

(04-02-2024)



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

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	<input type="checkbox"/> 052		YEAR 2024	SEQUENTIAL NUMBER 001	REV NO. 01

NARRATIVE

I. Description of the Reportable Event

A. Reportable Event Classification

This event is reportable pursuant to 10 CFR 50.73(a)(2)(iv)(A) as an event that resulted in the valid actuation of the Reactor Protection System (RPS) including reactor trip (10 CFR 50.73(a)(2)(iv)(B)(1)) and automatic actuation of Unit 2 Standby Diesel Generators (SBDG) 21 and 23 (10 CFR 50.73(a)(2)(iv)(B)(8)). This event is also reportable pursuant to 10 CFR 50.73(a)(2)(v)(D) as an event or condition that could have prevent fulfillment of a safety function of structures or systems that are needed to mitigate the consequences of an accident due to having only one of four Steam Generator (S/G) Power Operated Relief Valves (PORVs) being fully capable of responding to an analyzed accident.

B. Plant Operating Conditions Prior to Event

Prior to the event, Unit 2 was in Mode 1 at 15% power.

C. Status of Structures, Systems, and Components That Were Inoperable at the Start of the Event that Contributed to the Event

At the start of the event, there were no structures, systems, or components (SSCs) that were INOPERABLE that contributed to the event.

D. Background Information

Unit 2 was in Mode 1 at 15% power following completion of a refueling outage. The reactor automatically tripped due to a unit auxiliary transformer lockout. During the trip, all control rods fully inserted and all three Engineered Safety Feature (ESF) busses were energized by SBDGs 21 and 23 (Trains A and C) and Standby Transformer 2 (Train B). All equipment responded as expected except for Steam Generator Power Operated Relief Valve (PORV) 2C, which fully opened when the manual control was depressed slightly, and Load Center E2A1 supply breaker, which did not close automatically following the LOOP and automatic Engineered Safety Feature (ESF) sequencing.

Load Center E2A1 provides power to several components with an active safety function, including: Steam Generator (S/G) 2A auxiliary feedwater (AFW) flow regulator valve, hydraulic pump motor for S/G Power Operated Relief Valve (PORV) 2A, and Train 2A Diesel Generator Emergency Supply Fan 21A (Supply Fan 21A) for SBDG 21. When Load Center E2A1 breaker failed to close, the capability to provide AFW to S/G 2A was lost and S/G PORV 2A remained in the fully closed position. Supply Fan 21A provides adequate forced ventilation cooling flow for SBDG 21 to operate over its mission time. While SBDG 21 operated successfully for the 26 minutes that Load Center E2A1 supply breaker was open, the capability for SBDG 21 to meet its design functions for its design mission time was not ensured. This impact to SBDG 21 affects S/G PORV 2D, which was powered by SBDG 21. The reliability of S/G PORV 2D to meet its design functions during the mission time could not be ensured due to the limited capability of SBDG 21 to perform its functions without forced ventilation.

Unrelated to the Load Center E2A1 power loss, PORV 2C was declared inoperable due to erratic and unreliable control when placed in Manual. The PORV would not modulate to control pressure but would instead act like an on/off valve (either fully opened or closed).



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NARRATIVE

D. Background Information (continued)

The following three design basis accident conditions were evaluated against the equipment failures described above: Loss of Normal Feedwater with Loss of Offsite Power (LONF/LOAC), Steam Generator Tube Rupture (SGTR) with Loss of Offsite Power, and Small Break Loss of Coolant Accident (SBLOCA) with Loss of Offsite Power.

For a design basis LONF/LOAC, AFW trains 2B, 2C, and 2D would have been able to provide the required AFW flow rates; however, the heat removal capability of S/Gs 2C and 2D was questionable due to inoperability of PORV 2C and the inability of SBDG 21 to reliably provide power to PORV 2D as a result of Supply Fan 21A. Accordingly, only S/G 2B would have been fully capable of responding to the event.

For a design basis SGTR with Loss of Offsite Power or SBLOCA with Loss of Offsite Power, S/G 2A was not available to provide heat removal due to loss of AFW flow to the S/G. The heat removal capability of S/Gs 2C and 2D was questionable due to inoperability of PORV 2C and the inability of SBDG 21 to reliably provide power to PORV 2D. Only S/G 2B would have been fully capable of performing heat removal for rapid cooldown and mitigating the consequences of each accident.

E. Narrative Summary of the Event

Timeline (Note: All times are in Central Daylight Time)

05/12/2024 (1641) - Switchyard breakers Y590 and Y600 tripped. Unit 2 reactor tripped and EDGs 21 and 23 automatically actuated and sequenced on a Loss of Offsite Power. The following busses were deenergized: 13.8kV Auxiliary busses 2F, 2G, 2H, and 2J, 13.8kV Standby busses 2F and 2H, and Load Center 2W.

05/12/2024 (1641) - All four Reactor Coolant Pumps (RCP) lost power. Entered Technical Specification (TS) 3.4.1.2: "At least two of the reactor coolant loops listed below shall be OPERABLE and with two reactor coolant loops in operation when the reactor trip system breakers are closed and one reactor coolant loop in operation when the reactor trip system breakers are open," Action 'C': "With no reactor coolant pump in operation, suspend operations that would cause introduction into the Reactor Coolant System (RCS) of coolant with boron concentration less than required to meet Shutdown Margin of Limiting Condition of Operation (LCO) 3.1.1 and immediately initiate corrective action to return the required reactor coolant loop to operation."

05/12/2024 (1641) - Reactor Coolant Loop 'B' declared inoperable due to RCP 2B #2 Seal exceeding its leak-off rate limit.

05/12/2024 (1641) - Declared loss of two offsite sources due to two ESF busses not connected to a load tap changer in Auto. Entered TS 3.8.1.1.e: "With two of the required offsite A.C. circuits inoperable, within 24 hours restore at least one of the inoperable offsite sources to operable status or apply the requirements of the Configuration Risk Management Program (CRMP), or be in at least Hot Standby within the next 6 hours."



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NARRATIVE

E. Narrative Summary of the Event (continued)

05/12/2024 (1641) - Load Center E2A1 supply breaker failed to close automatically following LOOP and automatic ESF sequencing. Class 1E 480V Load Center E2A1 is de-energized. Entered TS 3.8.3.1.a, Action 'A': "With one of the required trains of A.C. ESF busses not fully energized, within 8 hours reenergize the train or apply the requirements of the CRMP, or be in at least Hot Standby within the next 6 hours and in Cold Shutdown within the following 30 hours.

05/12/2024 (1645) - Isolated Main Steam using safety grade switches from the Control Room.

05/12/2024 (1705) - Steam Generator PORV 2C placed in manual for venting, PORV opened to full travel without required input from operator. Steam Generator PORV 2C declared inoperable.

05/12/2024 (1707) - Load Center E2A1 supply breaker automatically closed after placing it in "pull to lock" and returning the hand switch to Automatic. Class 1E 480V Load Center E2A1 is energized. Exited Technical Specification 3.8.3.1.a, Action 'A'.

05/12/2024 (1729) - Energized Standby bus 2F from Standby 2 transformer (restoration of off-site power to ESF Bus A).

05/12/2024 (1733) - Energized Standby bus 2H from Standby 1 transformer (restoration of off-site power to ESF Bus C).

05/12/2024 (1745) - Energized Auxiliary bus 2F from Standby 2 transformer.

05/12/2024 (1747) - Energized Auxiliary bus 2H from Standby 1 transformer.

05/12/2024 (1750) - Auxiliary bus 2J re-energized from off site power.

05/12/2024 (1753) - Auxiliary bus 2G re-energized from off site power.

05/12/2024 (1758) - Started RCP 2D. Reactor Coolant Loop D and its associated steam generator and RCP are in operation with the reactor trip breakers open. Exited TS 3.4.1.2, Action 'C'.

05/12/2024 (1917) - Started Reactor Coolant Pump 2A for plant stabilization.

05/12/2024 (1918) - Load Center 2D1 energized from off site power.

05/12/2024 (1921) - Load Center 2D2 energized from off site power.

05/12/2024 (1950) - Completed NRC 4-hour notification under 10 CFR 50.72(b)(2)(iv)(B) for RPS actuation and 10 CFR 50.72(b)(3)(iv)(A) for EDG 21 and 23 actuations. Event Notification number 57124.

F. Method of Discovery

The event was self-revealing when the generator backup distance relay "21/G1," time delay relay "62G1," generator lockout relay "86G1" and the main transformer lockout relay "86SY" were flagged in the Unit 2 Control Room. The primary and backup pilot wire relays had the "DTT Key" light illuminated, indicating a transfer trip to the switchyard relays.



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NARRATIVE

II. Component Failures

A. Failure Mode, Mechanism, and Effects of Failed Components

The failed components in this event were: Generator backup relay "21/G1," S/G PORV 2C push button sleeve and potentiometer, and Load Center E2A1 supply breaker Control Room handswitch. The inadvertent actuation of relay "21/G1" resulted in an automatic trip of the reactor and actuation of the RPS followed by SBDGs 21 and 23. Inoperability of S/G PORV 2C and failure of Load Center E2A1 output breaker to close resulted in a condition where only S/G 2B was fully capable of providing heat removal during a LONF/LOAC, SGTR with Loss of Offsite Power, or a SBLOCA with Loss of Offsite Power.

B. Cause of Component Failure

- S/G PORV 2C was inoperable due to rough spots in the Operator Interface Module push button sleeve that caused the push button to stick in place and a previously-identified potentiometer issue.
- A definitive cause for Load Center E2A1 output breaker failure to close could not be determined, but the most likely cause was dirty, high-resistance Control Room handswitch contacts in the breaker closing circuit.
- The failure of Generator backup relay "21/G1" had two root causes and one contributing cause:
 - Root Cause 1: STP's calibration procedure 0PMP05ZE0045, "Calibration of KD-10 and KD-11 Relays," does not include the instructions for adjusting the "21/G1" relay contacts in accordance with vendor technical document VTD-B455-0076.
 - Root Cause 2: The Main Generator protection scheme was not fully updated to prevent the trip function of the "21/G1" relay when the Main Generator is offline and the Main Generator Circuit Breaker (MGCB) is in the open position
 - Contributing Cause: Closing the door to Unit 2 CP010 resulted in a second vibration of the Main Generator Backup Distance Relay "21/G1" and its actuation.

C. Systems or Secondary Functions That Were Affected by the Failure of Components with Multiple Functions

The following Unit 2 SSCs were affected by failure of Load Center E2A1 supply breaker to close or by the failure of Supply Fan 21A for SBDG 21. There were no systems or secondary functions affected by the inoperability of PORV 2C.

- Train 'A' Emergency Core Cooling System, including Residual Heat Removal (RHR)
- Train 'A' Essential Cooling Water
- Train 'A' Essential Chilled Water
- Train 'A' Component Cooling Water
- Train 'A' Control Room Envelope HVAC
- Train 'A' Containment Spray System
- Train 'C' RHR
- S/G PORV 2A
- S/G PORV 2D
- Pressurizer Heater Group 2A
- Electrical Auxiliary Building HVAC
- Auxiliary Feedwater Pump 21
- Reactor Containment Fan Cooler



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NARRATIVE

D. Failed Component Information

System: Main Generator Output Power System {EL}
Component: Backup Distance Relay {RLY-21}
Manufacturer: Westinghouse {W120}
Model: {719B196A11}

System: Main Steam System {SB}
Component: Sleeve {SLV}
Manufacturer: Westinghouse {W120}
Model: {4259A98H01}

System: Main Steam System {SB}
Component: Control, Indicating, Zone (Position) {ZIC}
Manufacturer: Paul Munroe Hydraulics {P095}
Model: {PA89292-1}

System: Low-Voltage Power System {ED}
Component: Hand switch {HS}
Manufacturer: General Electric {G080}
Model: {KA-2176-SD30}

III. Analysis of Event

A. Safety System Responses that Occurred

The Reactor Protection System actuated, automatically tripping the reactor following the inadvertent relay actuation. SBDGs 21 and 23 automatically started within the required time frame.

B. Duration of the Safety System Inoperability

Load Center E2A1 supply breaker failed to automatically close at 1641 on May 12, 2024. The breaker automatically closed at 1707. This was a total of 26 minutes. PORV 2C was inoperable from 1705 on May 12, 2024, and was declared OPERABLE at 1031 on May 16, 2024. This was a total of 3 days, 17 hours, and 26 minutes.

C. Safety Consequences and Implications

The Incremental Core Damage Probability (ICDP) and Incremental Large Early Release Probability (ILERP) of the event for the 66 minutes where Load Center E2A1 and S/G PORV 2C are concurrently inoperable is 2.28E-07 and 1.19E-09, respectively. The exposure time of 66 minutes is the time of the reactor trip to the time that the 13.8 kV buses 2F and 2H are energized from the Standby Transformer 2. The ICDP and ILERP are below the threshold of 1E-06 and 1E-07 and is therefore considered of very low safety significance.



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NARRATIVE

IV. Cause of Event

Causal investigations determined the following causes of the event:

- Degraded condition of the S/G PORV 2C push button sleeve and a known defect with the feedback potentiometer led to the inoperability of S/G PORV 2C. The push button sleeve precluded discreet control of the PORV position and the potentiometer provided inaccurate indication of PORV positioning.
- The most likely cause of Load Center E2A1 output breaker failure to close was due to dirty, high-resistance Control Room handswitch contacts in the breaker closing circuit. This condition prevented the CLOSE signal from transmitting from the control room handswitch to the breaker.
- Two root causes and one contributing cause resulted in the inadvertent actuation of relay:
 Root Cause 1 - STP's calibration procedure 0PMP05ZE0045, "Calibration of KD-10 and KD-11 Relays," does not include the instructions for adjusting the "21/G1" relay contacts in accordance with vendor technical document VTD-B455-0076. The procedure did not include the instructions for contact adjustment verification when the initial version was issued in May, 1985. The information was not included in any procedure revisions prior to this event.

Root Cause 2 - The Main Generator protection scheme was not fully updated to prevent the trip function of the "21/G1" relay when the Main Generator is offline and the Main Generator Circuit Breaker (MGCB) is in the open position. The original design of the 25kV system did not include a MGCB and the outdoor potential transformers. The original design used switchyard breakers Y590 and Y600 to synchronize the Unit 2 Main Generator to the electric grid. During construction activities, between May, 1983 and November, 1983, an MGCB was added to the design to allow back-feeding from the switchyard through the main transformers while the Main Generator was offline. In 1984, the Main Generator Backup Distance Relay "21/G1" was added to the Main Generator protection scheme. A review of the initial 25kV system design drawings and documentation revealed the failure to fully update the Main Generator Backup Distance Relay protection scheme to prevent the "21/G1" trip signal when the Main Generator was offline and the MGCB was open. The "21/G1" vendor technical document provided suggested wiring to disable the relay with the Main Generator is offline and the output breaker is open. The root cause evaluation team was not able to determine why the suggested wiring was not implemented during construction activities.

Contributing Cause - Closing the door to Unit 2 CP010 resulted in a second vibration of the Main Generator Backup Distance Relay "21/G1" and its actuation.

V. Corrective Actions

Completed Corrective Actions:

- Replaced relay "21/G1" with a spare.
- Replaced PORV 2C control push button and push button sleeve.
- Replaced PORV 2C potentiometer.
- Cleaned E2A1 output breaker control room handswitch contacts and replaced the handswitch.

Planned Corrective Actions:

- Perform required repairs to the Unit 2 CP010 door due to excessive force needed to close.
- Add instructions to STP calibration procedure 0PMP05ZE0045, "Calibration of KD-10 and KD-11 Relays," to verify adjustment of relay contacts per Vendor Technical Document VTD-B455-0076, Section 14.6.



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

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

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1. FACILITY NAME South Texas Project Unit 2	<input checked="" type="checkbox"/> 050	2. DOCKET NUMBER 00499	3. LER NUMBER		
	<input type="checkbox"/> 052		YEAR 2024	SEQUENTIAL NUMBER 001	REV NO. 01

NARRATIVE

V. Corrective Actions (continued)

Planned Corrective Actions

3. Perform a Performance Analysis to determine the process and training needs related to KD-10 and KD-11 relays' adjustments.
4. Include in Electrical Maintenance Advance Protective Relay certification the adjustment of contacts for relays type KD-10 and KD-11 per VTD-B455-0076, Section 14.6.
5. Determine a permanent solution to block the "21/G1" relay trip signal when the Main Generator is offline and perform an Engineering Change.
6. Implement the permanent solution to block the "21/G1" relay trip signal when the Main Generator is offline.
7. Implement PORV potentiometer replacement plan with planned work packages once vendor stock is replenished.

VI. Previous Similar Events

The following previous similar events were identified for S/G PORVs:

1. Condition Report (CR) 24-4183: S/G 2C PORV did not respond to the Close (down) pushbutton being depressed for approximately 11 seconds during 0PSP05-MS-7411L. S/G 2C PORV did travel full closed after the delay.
2. CRs 23-10139 and 23-10508: STP received a 10 CFR Part 21 notification (Certrec Event # 56821) from Enertech: Notification of potential defect for Steam Generator PORV potentiometer part number D2060S. A number of returned potentiometers to Enertech exhibited inconsistent resistance values at certain stroke positions. The potentiometers are used in modulating actuators. Per Enertech STP is impacted. A plant impact form was completed under CR 23-10139. This CR is tracking additional actions needed to be taken to correct the vulnerabilities with the impacted PORV potentiometers for Steam Generators 1C, 2A, 2B, and 2C.
3. CR 22-12288: Received the following silent Plant Computer alarms: MSZE7421 S/G 2B PORV POSIT at 2.1% and slowly increasing (~1% / 30 mins) and MSZC7421 S/G 2B PORV OPEN. No observable increases in Steam Flow from S/G 2B or effects on the Reactor Coolant System were observed.
4. CR 21-10382: While venting S/G 1D during performance procedure 0POP03-ZG-0007, "Plant Cooldown," while opening S/G 1D PORV and with the Valve Position Indicator (VPI) indicating approximately 90% open, we observed VPI peg low to 0% and then return to 90% two times. No other indications occurred to indicate the valve moved.
5. CR 21-8976: During performance of WAN# 605160, Operations used the Operator Interface Module (OIM) up pushbutton to open 2C PORV. After holding the up pushbutton for an adequate time for a full open stroke, the valve never moved.
6. CR 18-5534: S/G 'C' PORV indication on CP-006, plant computer point MSZE7431 showing valve position is oscillating from as high as 99% to as low as 9% open. Investigate cause of valve position indication oscillation. Operator reports no stem movement locally and indicating full open.

No previous, recent similar events were identified for Load Center E2A1 supply breaker 2E or relay "21/G1."