UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 EAST LAMAR BOULEVARD
ARLINGTON, TEXAS 76011-4511

May 06, 2022

Mr. Fadi Diya, Senior Vice President
and Chief Nuclear Officer
Ameren Missouri
8315 County Road 459
Steedman, MO 65077

SUBJECT: CALLAWAY PLANT – 95001 SUPPLEMENTAL INSPECTION REPORT 05000483/2022040 AND FOLLOW-UP ASSESSMENT LETTER

Dear Mr. Diya:

On April 14, 2022, the U.S. Nuclear Regulatory Commission (NRC) completed a supplemental inspection using Inspection Procedure 95001, "Supplemental Inspection Response to Action Matrix Column 2 (Regulatory Response) Inputs," and discussed the results of this inspection with Mr. B. Cox, Site Vice President, and other members of your staff.

The NRC performed this inspection to review your station's actions in response to a White Unplanned Scrams per 7000 Critical Hours performance indicator, which you reported on February 10, 2021. On January 3, 2022, you informed the NRC that your station was ready for the supplemental inspection.

The NRC determined that your staff's evaluation identified the cause of the White performance indicator. Specifically, the common cause evaluation for the three reactor trips that resulted in the White performance indicator identified the root causes. These included ineffective evaluation and resolution of problems with some balance-of-plant equipment and untimely implementation of corrective actions. This reduced the effectiveness of the corrective action program in preventing repeat events. Corrective actions to preclude repetition are discussed in detail in the attached inspection report.

Overall, the NRC determined that the licensee's problem identification, causal analyses, and corrective actions sufficiently addressed the performance issues that led to the White performance indicator. All inspection objectives, as described in Inspection Procedure 95001, were met**,** and this inspection is, therefore, closed. In accordance with Inspection Manual Chapter 2515, Appendix B, "Supplemental Inspection Program," dated October 21, 2020, the NRC plans to conduct follow-up inspection activities for the planned corrective action to preclude repetition that was not yet complete at the time of this supplemental inspection and may include an evaluation of the associated "effectiveness review" actions. This inspection activity will be scheduled consistent with your corrective action to preclude repetition completion date as part of a future baseline inspection sample to verify that Callaway completed these actions in accordance with the established plan.

One finding of very low safety significance (Green) is documented in this report. This finding 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.

If you contest the violation or the significance or severity of the violation 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 IV; the Director, Office of Enforcement; and the NRC Resident Inspector at the Callaway Plant.

The NRC determined that completed or planned corrective actions were sufficient to address the performance issues that led to the White performance indicator. Therefore, the performance issues will not be considered as an Action Matrix input after the end of the first quarter of 2022 in which the supplemental inspection was conducted. Additionally, the NRC determined that the "Unplanned Scrams per 7,000 Critical Hours" performance indicator had returned to Green in the fourth quarter of 2021. Based on the results of this inspection and our Action Matrix assessment, the NRC has determined that Callaway Plant, Unit 1 will be transitioned to the Licensee Response Column (Column 1) of the Action Matrix on the date of this letter, considering the absence of additional Action Matrix inputs.

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,

Signed by Werner, Gregory
on 05/06/22

Gregory E. Werner, Chief
Projects Branch B
Division of Operating Reactor Safety

Docket No. 05000483
License No. NPF-30

Enclosure:
As stated

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U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Number:	05000483
License Number:	NPF-30
Report Number:	05000483/2022040
Enterprise Identifier:	I-2022-040-0000
Licensee:	Ameren Missouri
Facility:	Callaway Plant
Location:	Steedman, Missouri
Inspection Dates:	March 14 – April 14, 2022
Inspectors:	H. Freeman, Senior Project Engineer J. Melfi, Project Engineer D. Proulx, Senior Project Engineer
Approved By:	Gregory E. Werner, Chief Projects Branch B Division of Operating Reactor Safety

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) reviewed the licensee's corrective actions to address a White performance indicator in the area of unplanned scrams per 7000 critical hours, reported to the NRC in February 2021, by performing a supplemental inspection using Inspection Procedure 95001, "Supplemental Inspection Response to Action Matrix Column 2 Inputs," in accordance with the Reactor Oversight Process.

The inspectors determined that the licensee licensee's problem identification, causal analysis, and corrective actions sufficiently addressed the performance issue that led to the White performance indicator.

List of Findings and Violations

Reactor Trip During Surveillance Testing due to Inadequate Procedure			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Initiating Events	Green NCV 05000483/2022040-01 Open/Closed	None (NPP)	71153
The inspectors reviewed a self revealed, Green finding and associated non cited violation of Technical Specification 5.4.1.a, for the licensee's failure to properly maintain a surveillance procedure that tested the reactor trip breakers. Specifically, industry operating experience identified the importance of checking the status of certain relays, which were not included in the surveillance procedure, before actuating test switches in the opposite train. As a result, the reactor trip logic was satisfied during a surveillance test, which caused a reactor trip.			

Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
LER	05000483/2022-001-00	Reactor Trip During Reactor Trip Breaker Surveillance Testing	71153	Closed

INSPECTION SCOPES

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

OTHER ACTIVITIES – TEMPORARY INSTRUCTIONS, INFREQUENT AND ABNORMAL

71153 - Follow Up of Events and Notices of Enforcement Discretion

Follow Up of Events and Notices of Enforcement Discretion (1 Sample)

(1) Licensee Event Report (LER) 05000483/2022-01-00, "Reactor Trip During Reactor Trip Breaker Surveillance Testing"

The inspectors reviewed the LER submittal. The inspection conclusions associated with this LER are documented in this report under the Inspection Results Section. This LER is closed.

95001 - Supplemental Inspection Response to Action Matrix Column 2 (Regulatory Response) Inputs

The inspectors reviewed and selectively challenged aspects of the licensee's problem identification, causal analysis, and corrective actions in response to a White performance indicator in unplanned scrams per 7000 critical hours, reported to the NRC in February 2021. The NRC communicated the licensee's entry into Reactor Oversight Process Action Matrix Column 2, "Regulatory Response Column," in the cover letter of NRC Inspection Report 05000483/2020004, dated February 10, 2021 (Agencywide Document and Management System (ADAMS) Accession Number ML21040A410). Specifically, the Callaway Plant experienced three reactor trips in calendar year 2020 as follows:

- On April 4, 2020, Callaway experienced a reactor trip from 100 percent power due to low level in steam generator C. The main feedwater regulating valve (MFRV) C unexpectedly closed because of a failed positioner. This event was reported under LER 2020-002-00, "Reactor Trip and AFW Actuation Following Spurious MFRV Closure" (ADAMS Accession Number ML20155K873). The NRC issued a self-revealed Green finding for the licensee's failure to adequately evaluate the failure modes of the MFRV positioner as part of a design change process in NRC Inspection Report 05000483/2020004, as FIN 05000483/2020004-01.

- On September 27, 2020, Callaway experienced a turbine trip/reactor trip from 98 percent power because of a ground fault on flexible links in the isophase bus. The licensee identified degraded flexible links in the isophase bus in 2013 but deferred corrective maintenance on the degraded components until a ground fault occurred that resulted in a turbine trip/reactor trip. The licensee reported this event in LER 2020-006-00,

"Reactor Trip Due to Main Generator Ground Fault" (ADAMS Accession Number ML20330A267). The NRC issued a self-revealed Green finding for the licensee's failure to correct degradation in high voltage flexible links connecting different segments of the isophase bus in a timely manner in NRC Inspection Report 05000483/2020004, as FIN 05000483/2020004-02.

- On December 24, 2020, Callaway experienced a turbine trip/reactor trip from 90 percent power because of a main generator fault. The licensee reported this event in LER 2020-008-00, "Reactor Trip Due to Main Generator Fault," (ADAMS Accession Number ML21049A109). The NRC issued a self-revealed, Green non-cited violation of Technical Specification 5.4.1.a, for the licensee's failure to properly pre-plan and perform maintenance on the main generator, because the scope of planned work on the main generator changed significantly as new problems were discovered, errors occurred, and planning inadequacies existed. In addition, the licensee did not implement appropriate risk mitigating actions such as providing additional vendor oversight or obtaining third party expertise. This noncited violation is documented in NRC Inspection Report 05000483/2021002, (ADAMS Accession Number ML21216A312) as NCV 05000483/2021002-01.

To address each of these reactor trips, the licensee performed individual root cause analyses (RCA). Following identification of the White performance indicator in unplanned scrams per 7000 critical hours and subsequent entry into Reactor Oversight Process Action Matrix Column 2, "Regulatory Response Column," the licensee performed a common cause analysis to identify the common themes that led to the three events. Because the common cause analysis identified deficiencies in support and implementation of the corrective action program (CAP), the licensee performed an additional root cause analysis for the issues with the CAP. In a letter dated January 3, 2022 (ML22003A179), the NRC was notified of the licensee's readiness for the supplemental inspection to review the actions taken to address the performance issues. Subsequently the NRC performed the onsite portion of this supplemental inspection during the week of March 14-18, 2022.

The inspectors reviewed the following RCAs during this inspection:

- Condition Report (CR) 202001783, "Reactor Trip Due to C Steam Generator Lo-Lo Level"
- CR 202004895, "Reactor Trip on Turbine Trip - Isophase Flexible Link"
- CR 202007410, "Reactor Trip on Turbine Trip - Main Generator Fault"
- CR 202103733, "Organizational Weaknesses in CAP Implementation"
- CR 202100010, "Increased Regulatory Response Threshold Crossed for Unplanned Scrams per 7000 Critical Hours - Common Cause Evaluation"

The inspectors used Inspection Procedure 95001 to review these RCAs. The inspection objectives were to ensure that:

- Root and contributing causes of the White performance issue are understood.
- Extent of condition and extent of cause of the White performance issue are identified.
- Completed corrective actions to address and preclude repetition of the White performance issue are prompt and effective.
- Pending corrective action plans direct prompt and effective actions to address and preclude repetition of the White performance issue.

In addition to the above inspection activities, the inspectors reviewed the circumstances associated with the reactor trip that occurred on January 7, 2022, and as reported in LER 2022-001-00, "Reactor Trip During Reactor Trip Breaker Surveillance Testing," submitted on March 7, 2022 (ADAMS Accession Number ML22066B310), to determine if the trip was a result of similar themes to the common cause evaluation discussed above. The inspectors used Inspection Procedure 71153, "Follow Up of Events and Notices of Enforcement Discretion," to review this event.

Supplemental Inspection Response to Action Matrix Column 2 (Regulatory Response) Inputs (1 Sample)

(1) This supplemental inspection was conducted in response to the licensee being placed in the Regulatory Response Column due to one White performance indicator in the Initiating Events Cornerstone for "Unplanned Scrams per 7,000 Critical Hours."

INSPECTION RESULTS

Reactor Trip During Surveillance Testing due to Inadequate Procedure			
Cornerstone	Significance	Cross-Cutting Aspect	Report Section
Initiating Events	Green NCV 05000483/2022040-01 Open/Closed	None (NPP)	71153
The inspectors reviewed a self-revealed, Green finding and associated non-cited violation of Technical Specification 5.4.1.a, for the licensee's failure to properly maintain a surveillance procedure that tested the reactor trip breakers. Specifically, industry operating experience identified the importance of checking the status of certain relays, which were not included in the surveillance procedure, before actuating test switches in the opposite train. As a result, the reactor trip logic was satisfied during a surveillance test, which caused a reactor trip.			
Description: On January 7, 2022, an unplanned reactor trip occurred while performing the reactor trip breaker B trip actuating device operational test (TADOT). The reactor trip breakers are part of the solid state protection system (SSPS), which provides the means to process reactor parameters and generate trip signals to the reactor trip breaker if logic combinations are satisfied and provides a means for testing the trip functions while at power without causing a reactor trip. The licensee used two procedures in conjunction with each other while performing the TADOT, instrumentation and control procedure ISF-SB-00A32, "SSPS Trn [train] B Functional Test," and operations procedure OSP-SB-0001B, "Reactor Trip Breaker 'B' Trip Actuating Device Operational Test." This TADOT surveillance is required to be performed by Technical Specification 3.3.1, "Reactor Trip System Instrumentation," items 4 and 14. This surveillance test requires coordination between two back panels: panel SB029B, which has the status lights, and SB032B, where the multiplexer test switch is operated. With the instrumentation and controls portion of the testing completed, operations personnel proceeded with the performance of Section 6.4 of procedure OSP-SB-0001B, which closes reactor trip breaker bypass breaker B in order to conduct testing that opens reactor trip breaker B. By design, closing reactor trip breaker bypass breaker B creates a "general warning" signal which has the potential to trip the reactor if a second "general warning" signal is received.			

One relay, SSPS train B relay SB032CK524, provides annunciation of a general warning condition when power is taken away from the reactor trip breaker B undervoltage coils. This relay has multiple contacts that are opened or closed by a single coil. When this relay operates properly, all the contacts change state simultaneously, including whether electrical power is available to the reactor trip breaker undervoltage coil via a green status light on panel SB032B. Other contacts provide a general warning signal on control board annunciator 76A, "SSPS B General Warning," and "General Warning" red light on SSPS Train B panel SB029B.

During the restoration according to Section 6.4 of procedure OSP-SB-0001B, operators verified that annunciator 76A, "SSPS B General Warning," was clear and that the "General Warning" red light on panel SB029B for SSPS Train B was off. These indications led operators to believe that the "General Warning" signal was no longer present. The green test light on panel SB032B that was not checked would have ensured that power was available to the reactor trip breaker. With this green status light off, power was not available to the reactor trip breaker undervoltage coil, making up one half of the reactor trip logic. Operators proceeded with step 6.4.45 to return the multiplexer test switch through "Inhibit" to the "A+B" position at panel SB029B. Moving the multiplexer test switch through "Inhibit" is known to generate a second "General Warning" signal on train A. When operations performed step 6.4.45 to rotate the multiplexer test switch through "Inhibit," a second reactor trip input signal was received, satisfying the logic to trip the reactor.

The licensee investigation determined that a set of contacts internal to the SSPS train B relay SB032CK524 failed to close, specifically the contacts to the undervoltage coil.

The licensee concluded that operations procedure OSP-SB-0001B did not include adequate instructions for verifying the absence of a train B "General Warning" trip signal on panel SB032B prior to operating the train A multiplexer test switch during test restoration, as described below in the three operating experience reports. Specifically, the procedure did not direct the operators to check that both test indicating lights were illuminated on panel SB032B prior to rotating the multiplexer test switch on panel SB029B, which would have demonstrated that no inputs to the reactor trip logic were present.

The licensee noted a contributing cause for this event was that reviews of industry operating experience were not adequately screened. There were similar events that had been noted within the industry, including an event at Byron Unit 2 in December 2006 and another at Comanche Peak Unit 1 in April 2012. Information was also included in Westinghouse Commercial Atomic Power Report 17677, "Solid State Protection System Life Cycle Management Planning Sourcebook," dated October 2012.

The inspectors independently reviewed the issue, associated CR, relevant industry operating experience related to the event, and the root cause for the White performance indicator, CR 202100010. The inspectors concluded that sufficient industry operating experience was available to have modified procedure OSP-SB-0001B to verify that both test indicating lights were lit on panel SB032B**,** but the corrective actions associated with the root cause for the White performance indicator in unplanned scrams per 7000 critical hours could not have reasonably prevented this event.

Corrective Actions: Corrective Actions included revising applicable operations surveillance procedures to include verification of green and amber test lights at panel SB032B during

restoration and revising procedures to include verification that contacts for relays that have actuated during the test have changed back to their normal state, prior to test restoration. Additional corrective actions included revising the procedure preparation process, improving the screening and incorporation of operating experience, improving lesson plans, conducting training, placing operator aids adjacent to the multiplexer test switch, and requiring an inspection on other master relays.

Corrective Action References: CR 202200154

Performance Assessment:

Performance Deficiency: The failure to have adequate surveillance instructions was a performance deficiency. Specifically, previous industry operating experience showed the importance to verify the status of certain relays before actuating test switches. The licensee's review of industry operating experience did not implement changes to all relevant procedures.

Screening: The inspectors determined the performance deficiency was more than minor because it was associated with the Procedure Quality 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 performance deficiency resulted in an unplanned reactor trip that affected plant stability.

Significance: The inspectors assessed the significance of the finding using Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." The finding was determined to be of very low safety significance (Green) under Exhibit 1, "Initiating Events Screening Questions," because while the finding did cause a reactor trip, it did not also result in the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. Specifically, safety systems remained available, and the plant responded per design without any complications.

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. Specifically, the licensee did not effectively implement external operating experience that was received in 2006 and 2012.

Enforcement:

Violation: Technical Specification 5.4.1.a, states, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33, Revision 2, Appendix A, Section 8.b requires, in part that, "Specific procedures for surveillance tests, inspections, and calibrations should be written (implementing procedures are required for each surveillance test, inspection, or calibration listed in the technical specifications)." Technical Specification Surveillance Requirement 3.3.1.4 requires performance of a TADOT on the reactor trip breakers in accordance with the licensee's surveillance testing program. Procedure OSP-SB-0001B implemented this surveillance test.

Contrary to the above, the licensee failed to maintain procedure OSP-SB-0001B during a surveillance test that could affect the performance of safety-related equipment. Specifically, from December 15, 2006, to January 7, 2022, procedure OSP-SB-0001B that is required by Technical Specification 3.3.1.4 did not require verification of the test indicating lights for relay SB032CK524 status on panel SB032B prior to rotating the multiplexer test switch on

panel SB029B, which resulted in the reactor trip logic being satisfied. As a result, this resulted in a reactor trip.

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

Assessment	95001

1. Problem Identification.

   a. Identification.

      All three reactor trips were self-revealed issues. The licensee identified the common causes through the RCA of CR 202100010 and the root causes of the organizational weaknesses in the CAP through CR 202103733.

   b. Exposure Time.

      The issues that led to the three reactor trips had approximately the following exposure times:

      - For the reactor trip of April 4, 2020, the inadequate failure modes and effects analysis (FMEA) for the modification of the MFRVs was performed in 2013 (approximately 7 years).

      - For the reactor trip of September 27, 2020, the degradation of the isophase flexible links was identified in 2013 (approximately 7 years).

      - For the reactor trip of December 24, 2020, the licensee's causal analysis addressed two main issues associated with the main generator: the first issue was identified during refueling outage 24 (RF24) as part of an investigation into hydrogen in-leakage to the stator cooling water system on November 3, 2020; and the second issue was identified as the result of a generator fault that resulted in a turbine trip and reactor trip during the startup following RF24 on December 24, 2020, and lead to Forced Outage (FO) 73 (approximately 51 days).

   c. Identification Opportunities.

      The licensee had multiple prior opportunities to identify the conditions that led to each of the three reactor trips, including operating experience, previous failures, and system reviews. The licensee's RCAs sufficiently addressed these prior opportunities to identify these conditions, as discussed below.

   d. Risk and Compliance.

      All three of the reactor trips were evaluated by a Region IV senior reactor analyst and were determined to be of very low risk significance. The NRC issued Green findings for the circumstances associated with the April 4, 2020, and September 27, 2020, reactor trips, and a Green NCV for the December 24, 2020,

reactor trip, as discussed previously in this inspection report. The licensee evaluated the risk in each of the three LERs submitted for the reactor trips, as discussed above, which were consistent with the NRC assessments.

NRC Assessment:

The inspectors determined that the licensee had multiple opportunities to identify and address the conditions that led to the reactor trips, prior to them becoming self-revealed. However, the root and common cause analyses adequately addressed prior opportunities to identify.

2. Causal Analysis.

   a. Methodology.

      The RCA for CR 202001783 on the reactor trip caused by the MFRV failure employed multiple causal methods in identifying the root and contributing causes including barrier analysis, equipment failure analysis, organizational and programmatic analysis, why analysis, and events and causal factors chart.

      The RCA for CR 202004895 on the reactor trip caused by the isophase bus ground fault failure used fault tree analysis to determine the cause of the ground fault; equipment failure analysis to determine failure mechanisms and modes; event and causal factor chart to lay out a timeline of events and decisions documented which led up to the event; and organizational and programmatic effectiveness (OPE) evaluation to investigate organizational and programmatic contributors for this event. The inspectors determined that the different methods provided a reliable and scrutable evaluation.

      The RCA for CR 202007410 on the reactor trip caused by the main generator fault used multiple causal methods in identifying the root cause including event and causal factors charting, fault tree analysis, failure modes analysis/troubleshooting, barrier analysis, change analysis, Kepner-Tregoe problem analysis, and why analysis.

      The RCA for CR 202103733 for the deficiencies in the CAP program as discussed in was performed using a management oversight and risk tree (MORT) analysis and an operating experience evaluation. The inspectors determined that these analyses were performed with sufficient rigor to identify the root and contributing causes.

      The RCA for CR 202100010 associated with identifying common causes for the three reactor trips used a MORT analysis to identify the root and contributing causes. The inspectors determined that the MORT analysis provided a reliable and scrutable evaluation.

   b. Level of Detail.

      The inspectors determined that each of the five RCAs was of sufficient detail commensurate with the significance and complexity of the issues and regulatory requirements.

c. Operating Experience.

CR 202001783: Based on the uniqueness of the digital feedwater control system and MFRV positioner, no external operating experience was identified that could have been considered a “missed opportunity” to provide information that would have changed the outcome of this event. However, the causal analysis did identify internal operating experience that could have influenced the outcome of this event. Specifically, the causal analysis identified six positioner failures (several were of a critical failure mode - would not open the valve) that indicated a redundant positioner/fault tolerant positioner design had not been provided. The causal analysis determined that the corrective actions for one of the prior events (replace the filter regulator that supplies the positioners to improve the air supply quality) had not been implemented and thus considered this a repeat event. The inspectors considered that the licensee appropriately considered operating experience to identify and prevent similar occurrences.

CR 202004895: The causal analysis considered industry operating experience associated with forced air-cooling systems used on isolated phase bus systems that caused or contributed to downpower or trip events such as NRC Information Notice 00-14, “Non-Vital Bus Fault Leads to Fire and LOOP.” The causal analysis also considered internal operating experience such as two prior events which were similar: the 2013 isophase bus duct high energy ground fault and the 2014 failure of exciter transformer XMB01. These events were similar in that they both involved the isophase bus or equipment directly connected to the isophase bus and resulted in a plant trip. The inspectors considered that the operating experience review was appropriate.

CR 202007410: The licensee concluded that there were no specific opportunities where direct generator or stator cooling water operating experience was not evaluated or acted upon that could have resulted in these issues being avoided. However, the causal analysis identified that operating experience and lessons learned related to integrated risk, contractor oversight, and nuclear industry desired behaviors associated with plant modifications could have helped mitigate these issues. The causal analysis reviewed operating experience, both internal and external, associated with generator vibration, hydrogen leakage, equipment design, stator coil end turn failure, strainer failure, foreign material, and workmanship among other issues. The inspectors concluded that operating experience review was appropriate.

CR 202103733: The licensee identified that industry operating experience provided in NRC supplemental inspection reports had not been effectively reviewed by Callaway for CAP weaknesses and lessons learned. The licensee revised procedure APA-ZZ-01400, Appendix E, “Operating Experience,” to address to include a review of NRC supplemental inspection reports. The inspectors considered this an appropriate implementation of operating experience.

CR 202100010: Referenced the operating experience that was discussed in the individual RCAs for each of the reactor trips and the operating experience reviews in CR 202103733 for the deficiencies in the CAP program. The inspectors determined this analysis to be appropriate.

d. Extent of Condition and Cause.

CR 202001783: The extent of condition considered the entire scope of the digital feedwater controls modification to determine if any similar conditions existed where a control function could be impacted by the failure of a lead controller that could also fail the backup controller. Other than the MFRVs and the MFRV bypass valves, no similar conditions were identified. The extent of cause also determined that the failure mode of the lead MFRV positioner (discovered during commissioning) was not properly evaluated for an extent of condition in that only a single, unexpected failure mode was discovered. The extent of cause determined that debris induced failure of the primary positioner due to decreased reliability initiated the challenge to the MFRV such that it ultimately failed. The debris discovered in the valve positioner was the result of lubricant (grease) used in the valve mechanism diaphragm and from an incorrect, oversized filter design (40 vs. 5 micron), in the air supply. The inspectors concluded that the licensee's causal assessment adequately addressed the extent of condition and extent of cause.

CR 202004895: The causal analysis concluded that the extent of condition was bounded by the 25-kV portion of the main generation system. The causal analysis considered the main generator stator, isophase bus, unit auxiliary transformer primary, main generation step up transformer primaries, exciter transformer primary, potential transformers, surge arrestors, generator neutral grounding transformer, and neutral box. The causal analysis developed actions to inspect and repair all components deemed to be vulnerable to similar failure modes. The licensee inspected all flexible links in the isophase bus system to identify any additional degraded links to address the extent of cause. The licensee reviewed all existing single point vulnerability elimination and mitigating strategies to ensure elimination options are thoroughly explored and mitigation strategies address the known failure modes to address the extent of cause. The inspectors determined that actions were appropriate to identify and address similar conditions and causes.

CR 202007410: The extent of condition review for potential impacted equipment included (1) other main generator stator water cooled conductors, and (2) other Teflon hoses that connect the generator sections to the inlet and return headers. To address the extent of condition scope, extensive inspections were performed on main generator components, auxiliary/support systems, and connected electrical distribution systems. The extent of cause scope included the RF24 identified T6 phase ring cracking root cause areas of (1) workmanship/proficiency gaps in implementing first-of-a-kind (FOAK) design elements in challenging environments on risk significant components, (2) inadequate testing of repair activities on a risk significant component, and (3) introduction of an unknown failure mode due to inadequate failure modes and effects analysis on enterprise level assets. The inspectors concluded that the causal analysis appropriately identified the extent of condition and extent of cause related to these issues.

CR 202103733: The licensee performed an analysis to summarize the extent of condition and cause for the weaknesses in implementation of the CAP with station personnel. The licensee expanded personnel to include contract/supplemental workers, and non-Callaway Ameren employees. In addition, the licensee expanded their review of the condition to include other aspects of the NRC safety culture cross-cutting aspects in the areas of trending, operating experience, and

self-assessments. The evaluation covered all aspects presented in this extent of condition. The licensee determined that the corrective actions to address the root and contributing causes will encompass the areas identified in the extent of condition and cause. The inspectors determined that these reviews were appropriate with one exception, noted below.

CR 202100010: The licensee performed an analysis to summarize the extent of condition and cause for the common cause analysis. The licensee analyzed the possibility that deficiencies in managing the CAP, equipment reliability and control of modifications could result in the performance indicators in all the other areas required exceeding the Green/White threshold. The licensee determined that declines in these areas could result in additional challenges to the performance indicators. The licensee determined that the corrective action to preclude repetition (CAPR) assigned to CR 202100010 and the actions delineated in their recovery plan encompassed the actions necessary to prevent further performance indicator declines. The inspectors determined that this review was appropriate for the circumstances.

e. Safety Culture.

The licensee addressed the safety culture aspects in the common cause evaluation of CR 202100010. The licensee provided a matrix that discussed each of the performance issues that resulted in the White performance indicator with respect to each of the safety culture components noted in NUREG-2165, “Safety Culture Common Language.” The licensee provided appropriate corrective actions for any of the performance deficiencies that aligned with safety culture aspects.

NRC Assessment:
The licensee identified the following root causes and contributing causes for each of the five different problem statements:

CR 202001783, “Reactor Trip due to ‘C’ Steam Generator Lo-Lo Level”
Root Cause 1: The review and owner acceptance of the FMEA prepared by the vendor for the modification did not identify and mitigate a discreet internal positioner failure mode that could lead to the inability to control a MFRV.

Root Cause 2: Inadequate air quality and debris within the MFRV primary positioners, introduced by actuator lubrication and improper air supply filtration, resulted in decreased reliability and subsequent failure of the primary MFRV positioner.

CR 202004895, “Reactor Trip on Turbine Trip, Isophase Flexible Link Failure”
Root Cause: Station personnel failed to recognize the potential consequence that changes in configuration of the isophase shunt pack with the torn leaf represented a long-term degradation and reliability vulnerability when subjected to the operating environment of the isophase bus.

CR 202007410, “Reactor Trip on Turbine Trip - Main Generator Fault”
Root Cause 1.0: The main generator stator rewind vendor did not adequately assess proficiency and address mitigation actions of workers due to their

unfamiliarity with site-specific changes introduced by the FOAK generator stator installation.

Root Cause 1.1: Callaway processes did not require specific demonstration or verification that FOAK design elements could be successfully installed and were capable of meeting critical design criteria.

Root Cause 2.0: The phase ring wedging connection bolting was not installed as specified by design during original fabrication by vendor.

Root Cause 2.1: The T6 phase replacement section was not adequately tested by the generator stator rewind vendor as required by the design modification work package. The vendor failed to test for local resonance vulnerabilities and did not inform Callaway that this testing was not completed.

Root Cause 3.0: Generator stator rewind vendor workers were not adequately prepared to successfully install the FOAK T6 partial phase ring replacement during RF24.

CR 202103733, “Organizational Weaknesses in CAP Implementation”
Root Cause: Senior leaders have not effectively aligned the station on the CAP as core business. This has resulted in not effectively upholding the standards and managing the health of the CAP.

CR 202100010, “Increased Regulatory Response Threshold Crossed for Unplanned Scrams per 7000 Critical Hours - Common Cause Evaluation”
Root Cause: Ineffective evaluation and resolution of problems with some balance-of-plant production critical equipment and untimely implementation of corrective actions reduced the effectiveness of the CAP in preventing repeat events.

In addition to the root causes the licensee identified two contributing causes in the common cause analysis that were common themes for the events leading to the White performance indicator:

Contributing Cause 1: Insufficient stakeholder engagement and critical reviews of vendor design deliverables for some balance-of-plant equipment has led to the implementation of modifications which later caused unplanned trips.

Contributing Cause 2: Engineers, supervisors, managers, and directors did not effectively manage station equipment reliability as defined in procedure APA--ZZ--00549, “Equipment Reliability Improvement Program,” to ensure that the risk presented by some degraded balance-of-plant equipment was resolved in a timely manner.

The inspectors determined that each of the five RCAs appropriately identified and documented the root and contributing causes for the associated problem statements and identified the appropriate extent of cause and condition. The inspectors identified the following weakness (no significant weaknesses identified) in this inspection area:

Weakness

The inspectors noted that the extent of condition for the failure to review operating experience of previous supplemental inspections directed the licensee to sample Information Notices and Significant Event Reports (six each) to determine if additional deficiencies in the use of operating experience existed and that these past evaluations were appropriate to the circumstances. However, these reviews did not have a formal plan to increase sample size if deficiencies were identified, which could indicate a programmatic issue with the operating experience program. The licensee initiated CR 202201526 to address this concern. The licensee was in the process of conducting these reviews and had developed an increased sampling plan. The inspectors determined that the licensees corrective action plan was appropriate.

3. Corrective Actions.

CR 202001783, "Reactor Trip due to 'C' Steam Generator Lo-Lo Level"

a. Corrective Actions to Preclude Repetition

(1) Completed

(a) Reevaluated the FMEA associated with MFRV positioner modification to address the previously unidentified failure mode (fail closed vs. fail as is) and identify any additional failure modes associated with the MFRVs.

(b) Replaced the positioners and volume booster air supply filter regulators with a model that filters the air to 5 microns (vendor recommended) to ensure the air passing through the regulators is of sufficient quality to not impede positioner operation. This corrective action partially addresses the inadequate air supply quality and was completed for each MFRV and MFRV bypass valve.

(c) Disassembled and cleaned the four MFRV actuators to prevent debris from migrating back to the positioners during the venting cycle. During rebuild, used an O-ring/reassembly lubricant that will not break down and contaminate the air. Incorporated lubrication change into subsequent jobs and preventive maintenance for future rebuilds and lubrication.

(2) Planned

(a) Incorporate the revised FMEA and implement a modification that eliminates the MFRV positioner single point vulnerability by installing an automatic positioner swapping device. This corrective action addresses the inadequate FMEA accepted for the digital feedwater modification root cause. At the time of the inspection, this corrective action had not been completed because it required an outage to implement the modification. The modification is scheduled to be implemented during refueling outage 25 (April 4 - May 29, 2022).

The effectiveness reviews of the CAPRs for CR 202001783 include: (1) a review of the effectiveness of switching to a 5-micron filter regulator following two cycles of replacement and refurbishment of the MFRV positioners (each primary positioner is replaced with the secondary positioner each refueling outage); and (2) a formal self-assessment of completed FMEAs and improvements to the FMEA process

24 months after developing and training on FMEA case studies (completed April 15, 2021). The inspectors concluded that the licensee has identified appropriate effectiveness reviews for CR 202001783.

b. Other Corrective Actions
   (1) Completed
      (a) Determine a new lubricant to use to support actuator reassembly.

      (b) Add job tasks disassembling the MFRV positioners (pneumatic blocks) following removal in RF25 to inspect inlet and internal air filters for debris or signs of dirty air for effectiveness review.

CR 202004895, "Reactor Trip on Turbine Trip, Isophase Flexible Link Failure"
a. Corrective Actions to Preclude Repetition
   (1) Completed
      (a) Revised the station's single point vulnerability process (EDP-ZZ-01131, Appendix O, "Single Point Vulnerabilities") to require revisiting, reviewing, and approving the mitigation strategy to be employed when a degraded condition is identified and left unresolved or where trending is identified as the mitigation strategy for a single point vulnerability.

   The effectiveness review of the CAPR for CR 202004895 will consist of assessments to identify any single point vulnerability that relies on trending of a condition or monitoring of a parameter as the sole or primary means of failure mitigation, get challenged and approved by the plant health committee. These assessments will be conducted once each year for a period of 5 years beginning on January 1, 2022. To be fully effective, no single point vulnerabilities should meet this category (relies on trending as the sole or primary means of mitigation) without having been approved by the plant health committee. The inspectors concluded that the licensee has identified appropriate effectiveness reviews for CR 202004895.

b. Other Corrective Actions
   (1) Completed
      (a) Implemented projects to the isophase bus system to ensure reliability for the remaining plant life. These projects will harden the design of the system and increase the ability to perform inspections.

      (b) Aligned the isophase bus maintenance strategy with industry best practices. Made changes to the preventive maintenance bases and preventive maintenance tasks as appropriate to incorporate any identified changes.

      (c) Revised procedure APA-ZZ-01400, Appendix E, to require supervisor or higher level of review for trip or scram operating experience to ensure appropriate level of risk is considered for a single point vulnerability.

CR 202007410, “Reactor Trip on Turbine Trip - Main Generator Fault”

a. Corrective Actions to Preclude Repetition

(1) Completed

(a) Removed and replaced all existing Teflon hose connections in the generator stator installed during RF22 and RF24 and during implementation of FO73 generator modifications.

(b) Revised Callaway standards (procedures APA-ZZ-01110 and EDP-ZZ-04600) to require vendors to perform specific training and/or demonstrations of proficiency/constructability on critical tasks related to FOAK or one-of-a-kind designs on risk significant structures, systems, or components that can impact successful implementation prior to installation. Ensured the standards included a review of the specific proficiency demonstration at a manager level or above.

(c) Removed and replaced all similar phase ring wedging bolted connections on the phase ring assemblies installed during RF22 through implementation of a generator stator rewind (replacement). During installation of the generator stator rewind modifications, ensured inspection/verification points were in place to verify bolted connections installed on the connection ring cone/basket assemblies are installed in accordance with vendor installation instructions to conform with design requirements.

(d) Revised main generator preventive maintenance documents/basis and main generator maintenance specifications to require the performance of resonance testing and inspection of accessible bolted connections during major generation maintenance windows to detect any changes in resonance due to in-service loosening/degradation.

The effectiveness reviews of the CAPRs of CR 202007410 included: (1) a self-assessment to ensure completion of new generator modifications (stator water cooling, stator and rotor) met the requirements of the post modification and maintenance test plan; and (2) a review of system performance metrics of the generator following modifications. The inspectors concluded that the licensee has identified appropriate effectiveness reviews for CR 202007410.

CR 202103733, “Organizational Weaknesses in CAP Implementation”

b. Corrective Actions to Preclude Repetition

(1) Completed

(a) Established an external mentor to provide guidance to the senior leaders regarding proper implementation, oversight, and establishment of the CAP as core business.

(b) Revised procedure LDP-ZZ-00500 “Management Review Committee,” to anchor the purpose, scope, roles, and responsibilities of the Corrective Action Review Board/Management Oversight.

(c) Each Manager, Director, or Senior Director conducted coaching sessions with individuals on behaviors that demonstrate CAP is core business to improve personnel and plant performance.

(d) Added CAP as a required topic in the New and Transitioning Leader Program to ensure new leaders are provided with the roles and responsibilities for sustaining CAP health.

(e) Instituted Department CAP Performance metrics (such as quality, timeliness, and backlog reduction) as part of the annual performance reviews for manager level personnel and above, to ensure CAP is maintained as core business.

(f) Developed clear and visible performance metrics for CAP Health. Institutionalized the required review of the CAP performance metrics through revision of procedures LDP-ZZ-00500 and APA-ZZ-00500, "Corrective Action Program."

The effectiveness reviews for the CAPRs of CR 202103733 included both 5-month and 8-month reviews that demonstrate the following: (1) CAPR actions are completed, (2) an improving trend for CR cause evaluation, disposition, and extent of condition assessment to meet the APA-ZZ-00500 quality requirements, (3) an improving trend in CR closures for quality and timeliness, (4) corrective action review board behaviors meet the CAP guidelines, (5) interviews and observations show CAP training knowledge retention and focus as a core business process has been effective, (6) CAP performance and backlog metrics show improving sustained trend in performance, (7) examples of individuals being recognized for positive CAP implementation exist, and (8) objective evidence exists that the CAP performance metrics are improving CAP performance. The inspectors concluded that the licensee has identified appropriate effectiveness reviews for CR 202103733.

c. Other Corrective Actions

(1) Completed

(a) Revised CA2744, "Callaway Energy Center Cause Analysis Brief," to include a section for the root cause team lead, root cause analyst, and root cause coordinator (at a minimum) to brief on the root cause process. This brief should focus on providing an overview of the root cause process, review the role the analyst plays, and how to be effective as the team lead.

(b) Revised the root cause manual to ensure adequate guidance for performance of cause analysis. It will serve as an aid/guide to facilitate maintaining proficiency and instruct the user on proper performance and provide guidance to the team leader.

(2) Planned

(a) Review roles and responsibilities of department performance coordinators and CR screeners in procedure APA-ZZ-00500. Revise procedure as necessary to reflect these roles and responsibilities.

CR 202100010, “Increased Regulatory Response Threshold Crossed for Unplanned Scrams per 7000 Critical Hours - Common Cause Evaluation”

a. Corrective Actions to Preclude Repetition
   (1) Completed
      (a) The root cause of this CR was the ineffectiveness of the CAP. The CAPRs for CR 202103733 fully encompassed what was necessary for the root cause determination of CR 202100010. Similarly, the effectiveness reviews for CR 202103733 fully encompassed those needed to verify the effectiveness of this CAPR.

b. Other Corrective Actions
   (1) Completed
      (a) Revised Attachment 10 to procedure APA-ZZ-00500, Appendix 12, “Significant Adverse Condition – ADCN-1,” to provide clear guidance that the root cause evaluation for repeat occurrences should document a cause and an additional corrective action to address why the corrective actions for the previous occurrence were inadequate.

      (b) Determined the appropriate population of qualified root cause analysts such that proficiency is not lost between assignments as an analyst.

      (c) Established continuing training requirements to ensure proficiency for root cause analysts at Callaway.

      (d) Updated the population of Corrective Action Review Board qualified individuals to optimize diversity of CAP oversight and to promote consistent quorum membership participation as much as practical.

   (2) Planned
      (a) Conduct a review of all RCAs completed over the past five years. For those which are identified as a repeat event, develop corrective actions that address why the corrective actions for the previous occurrence were inadequate.

      (b) Review modifications over the past seven years for latent plant operational risks, that could result in: (1) reactor trip, (2) 20 percent power change, (3) safety system actuations, and (4) entry into 72-hour or less technical specification action statement, and provide corrective actions based on vulnerabilities identified.

      (c) Review mitigating strategies associated with single point vulnerabilities on digital components to ensure the strategies are addressing applicable failure modes to effectively manage risk.

      (d) Review health issues associated with critical and risk significant systems and ensure actions have been taken to mitigate risk.

      (e) Review a sampling of equipment CRs associated with critical and risk significant systems and ensure actions have been developed to effectively mitigate risk.

(f) Review for equipment trends indicating degrading and declining performance that has not been previously identified and evaluated. Document trends in the CAP.

(g) Identify and eliminate latent operational risk (review degraded equipment job backlogs).

(h) Use a cross-functional team to develop “FO73 Fix the Plant Now” tactical items to be implemented.

(i) Perform a risk assessment for equipment failure cause analyses for actions in the station recovery plan.

NRC Assessment

The inspectors determined that the licensee implemented or planned appropriate and timely corrective actions to preclude repetition. The licensee also identified appropriate effectiveness review for these corrective actions. When complete, the NRC plans to inspect and assess the planned corrective actions to preclude repetition identified in Section 3.a (2) (i.e. modifications to the MFRVs). The inspectors identified the following weaknesses/performance deficiencies in this inspection:

Weaknesses

- On March 7, 2022, the licensee identified inadequate implementation of a CAPR for CR 202001783. During preparations for RF24, the licensee discovered that after replacing all the air supply filter regulators that filter air to 5 microns, the air supply filter regulators on two of the MFRV bypass valves had been replaced with the original model that filtered air to 35 microns during subsequently performed preventive maintenance activities. The licensee determined that they had failed to provide permanent corrective actions to update the maintenance procedures with the correct material identification number for the 5 micron filter. The licensee initiated actions to revise the maintenance procedure and documented the issue in CRs 202201248 and 202201290.

- The inspectors identified that one of the actions designated as a CAPR for CR 202007410 to remove and replace all existing Teflon hose connections was an action that restored those components to acceptable condition and did not address the associated root cause (vendor did not adequately assess proficiency and address mitigation actions). However, the inspectors noted that a second CAPR (revise Callaway standards) did address this root cause.

4. Conclusion.

Overall, the inspectors determined that the licensee’s problem identification, causal analyses, and corrective actions sufficiently addressed the performance issues that led to the White performance indicator. All inspection objectives, as described in Inspection Procedure 95001, were met, and this inspection is, therefore, closed. Open items such as CAPR follow-up will be inspected as part of the ongoing NRC baseline inspection program. The inspectors identified three weaknesses that the licensee took action to correct, that did not affect the inspection objectives.

Although the reactor trip of January 7, 2022, discussed previously in this report, included aspects of inadequate operating experience reviews, the inspectors concluded that since the corrective actions related to operating experience reviews were still open at the time of the reactor trip, the CAPRs as a response to the White performance indicator could not reasonably have prevented the reactor trip of January 7, 2022.

EXIT MEETINGS AND DEBRIEFS

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

- On April 14, 2022, the inspectors presented the 95001 supplemental inspection results to Mr. B. Cox, Site Vice President, and other members of the licensee staff.

DOCUMENTS REVIEWED

Inspection Procedure	Type	Designation	Description or Title	Revision or Date
71153	Corrective Action Documents	CR 202200154	Unexpected Reactor Trip during Reactor Breaker Trip Actuating Device Operational Test	2/24/2022
71153	Corrective Action Documents	CR 201308486	Eval of NRC EN 49407 – Rx Trip During Solid State Protection Sys Testing	12/04/13
71153	Drawings	1084H37, Sheet 13B	Solid State Protection System	L
71153	Drawings	1084H37, Sheet 22C	Solid State Protection System	F
71153	Drawings	1084H37, Sheet 28D	Solid State Protection System	L
71153	Miscellaneous	Licensee Event Report	LER 05000483/2022-001-00, Reactor Trip During Reactor Trip Breaker Surveillance Testing (Adams Accession Number ML22066B310)	3/7/2022
71153	Miscellaneous	Operating Experience OE24345	Westinghouse Solid State Protection System General Warning Circuit Abnormal Indications - OE24927 - Preliminary OE2434443 (Byron Unit 2)	12/15/2006
71153	Miscellaneous	Operating Experience OE24927	Westinghouse Solid State Protection System (SSPS) General Warning Circuit Abnormal Indications - Update to OE24345 (Byron)	06/06/2007
71153	Miscellaneous	Operating Experience OE35630	Use of Multiple Indications to Identify the Presence of Solid State Protection System General Warning Condition (Comanche Peak 1)	04/17/2012
71153	Miscellaneous	Westinghouse Non-Proprietary Class 3	WCAP-14129, Reliability Assessment of Westinghouse Type AR Relays Uses as SSPS Slave Relays, WOR Program MUHP-7040	07/1994
71153	Miscellaneous	Westinghouse Proprietary Class 2	WCAP-17677-P, Solid State Protection System Life Cycle Management Planning Sourcebook (PA-SEE-0656)	10/2012
71153	Procedures	APA-ZZ-01400, Appendix E	Operating Experience	33
71153	Procedures	ISF-SB-00A32	SSPS TRN B Functional Test	36

71153	Procedures	OSP-SB-0001B	Reactor Trip Breaker 'B' Trip Actuating Device Operational Test	20
95001	Corrective Action Documents	CR 202001783	Reactor Trip Due to 'C' Steam Generator Lo-Lo Level	04/04/2020
95001	Corrective Action Documents	CR 202004895	Reactor Trip on Turbine Trip	09/27/2020
95001	Corrective Action Documents	CR 202007410	Reactor Trip on Turbine Trip (Main Generator)	12/24/2020
95001	Corrective Action Documents	CR 202100010	Increased Regulatory Response Threshold Crossed for Unplanned Scrams per 7000 Critical Hours - Common Cause Evaluation	12/02/2021
95001	Corrective Action Documents	CR 202103733	Organization Weaknesses in CAP Implementation	10/15/2021
95001	Corrective Action Documents	AUCA 20200002	Root Cause Analysis for CR 202001783 Reactor Trip Due to 'C' Steam Generator Lo-Lo Level	11/30/2021
95001	Corrective Action Documents	AUCA 20200003	Root Cause Analysis for CR 202004895 Reactor Trip on Turbine Trip	12/11/2021
95001	Corrective Action Documents	AUCA 2021001	Root Cause Analysis for CR 202007410 RF24 T6 Phase Ring Cracking and FO73 Generator Fault/Reactor Trip on Turbine Trip	04/29/2021
95001	Corrective Action Documents Resulting from Inspection	CR 202201526	No Formal Plan to Expand Operating Experience Scope	03/18/2022
95001	Miscellaneous	CA2744	Callaway Energy Center Cause Analysis Brief	
95001	Procedures	APA-ZZ-00500	Corrective Action Program	75
95001	Procedures	APA-ZZ-00500, Appendix 12	Significant Adverse Condition - ADCN-1	39
95001	Procedures	APA-ZZ-00500, Appendix 7	Effectiveness Reviews	15
95001	Procedures	APA-ZZ-01400, Appendix E	Operating Experience	33
95001	Procedures	EDP-ZZ-01131, Appendix O	Single Point Vulnerabilities	15
95001	Procedures	LDP-ZZ-00500	Management Review Committee	37