



**UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II**

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ATLANTA, GEORGIA 30303-1257

November 1, 2017

Mr. George A. Lippard III
Vice President
Nuclear Operations
South Carolina Electric & Gas Company
Virgil C. Summer Nuclear Station
P.O. Box 88, Mail Code 800
Jenkinsville, SC 29065

**SUBJECT: VIRGIL C. SUMMER NUCLEAR STATION, UNIT 1 – NUCLEAR
REGULATORY COMMISSION INTEGRATED INSPECTION REPORT
05000395/2017003**

Dear Mr. Lippard:

On September 30, 2017, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Virgil C. Summer Nuclear Station, Unit 1. On October 25, 2017, the NRC inspectors discussed the results of this inspection with you and other members of your staff. The results of this inspection are documented in the enclosed report.

NRC inspectors documented two NRC-identified findings of very low safety significance (Green) in this report. These findings involved violations of NRC requirements. Additionally, inspectors documented one Severity Level IV violation under the traditional enforcement process with no associated finding. Because these findings are of very low safety significance, and because the issues were entered into your corrective action program, the NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2.a of the Enforcement Policy.

If you contest the violations or significance of these NCVs, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Virgil C. Summer Nuclear Station, Unit 1.

If you disagree with a cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region II; and the NRC resident inspector at the Virgil C. Summer Nuclear Station, Unit 1.

G. Lippard

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Sincerely,

/RA/

Anthony D. Masters, Chief
Reactor Projects Branch 5
Division of Reactor Projects

Docket No.: 50-395
License No.: NPF-12

Enclosure:
IR 05000395/2017003
w/Attachment: Supplemental Information

cc: Distribution via ListServ

G. Lippard

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SUBJECT: VIRGIL C. SUMMER NUCLEAR STATION, UNIT 1 – NUCLEAR REGULATORY
COMMISSION INTEGRATED INSPECTION REPORT 05000395/2017003
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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket No. 50-395

License No. NPF-12

Report Nos. 05000395/2017003

Licensee: South Carolina Electric & Gas (SCE&G) Company

Facility: Virgil C. Summer Nuclear Station, Unit 1

Location: Jenkinsville, SC 29065

Dates: July 1 through September 30, 2017

Inspectors: J. Reece, Senior Resident Inspector
E. Hilton, Resident Inspector
P. Heher, Acting Resident Inspector
D. Lanyi, Senior Operations Engineer (Section 1R11.3)
M. Kennard, Operations Engineer (Section 1R11.3)

Approved by: Anthony D. Masters, Chief
Reactor Projects Branch 5
Division of Reactor Projects

Enclosure

SUMMARY

IR 05000395/2017003; July 1, 2017 – September 30, 2017: Virgil C. Summer Nuclear Station, Unit 1; Fire Protection; Licensed Operator Requalification Program; Maintenance Risk Assessment and Emergent Work Control.

The report covered a three-month period of inspection by resident inspectors. Two Green NRC-identified non-cited violations (NCV) and one NRC-identified Severity Level IV NCV were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP), dated April 29, 2015. The cross-cutting aspects were determined using IMC 0310, "Aspects Within the Cross Cutting Areas," dated December 4, 2014. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy dated November 1, 2016. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision (Rev.) 6.

Cornerstone: Mitigating Systems

- Green. The inspectors identified a Green, NCV of Operating License Condition 2.C.(18), "Fire Protection Program," for failure to adequately establish a surveillance procedure for fire penetration inspections. The licensee entered the problem into their corrective action program (CAP) as condition report, CR-17-04029.

The inspectors used IMC 0612, Appendix B, "Issue Screening," dated September 7, 2012, and determined that the performance deficiency (PD) was more than minor and therefore a finding because it was associated with the Mitigating System Cornerstone and the respective attribute of protection against external factors (fire). This finding had a credible impact on safety and adversely affected the cornerstone objective because STP-728.043 failed to specify adequate inspection of penetrations added by modification of which one penetration (5045) was degraded. The inspectors used IMC 0609, Appendix F, "Fire Protection Significance Determination Process," dated September 20, 2013, and determined that the finding impacted the fire confinement finding category. Based on review of respective Attachment 2, "Degradation Rating Guidance Specific to Various Fire Protection Program Elements," dated February 28, 2005, the inspectors determined that the degradation rating was low based on the size of the degradation identified. Specifically, the separation of foam seal material was approximately 3" from the mating conduit surfaces and there was greater than 12" of foam seal material when it was initially installed. As a result, this finding was determined to be of very low safety significance (Green) based on the guidance in IMC 0609, Appendix F, Attachment 1, "Fire Protection Significance Determination Process Worksheet," dated September 20, 2013. (Section 1R05)

- SL IV. The inspectors identified a Green, NCV of 10 CFR 55.49, "Integrity of examinations and tests," for the licensee's failure to ensure the paper strip chart recorders were advanced following the completion of Job Performance Measures (JPMs) and simulator scenarios to prevent examination compromise when the same examination was administered to multiple crews on the same day. While observing simulator JPMs, the inspectors identified that simulator staff was not advancing any of the strip chart recorders after each JPM. This left examination material out and visible to the next operator performing the JPM. The inspectors informed the licensee of this issue and they immediately started advancing each chart recorder until no exam

related material was visible. An initial review by the licensee indicated that not advancing the paper had been a standard practice for this exam period.

In accordance with the NRC Enforcement Policy, this violation was classified as Severity Level IV Violation (Section 6.4.d). This Severity Level IV violation is being treated as a Non-Cited Violation, consistent with Section 2.3.2.a of the Enforcement Policy. This violation is in the licensee's corrective action program under CR 17-04424 (Section 1R11.3)

- Green. The inspectors identified a Green, NCV of 10 CFR 50.65(a)(4), "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," involving the licensee's failure to perform an adequate risk assessment for an activity involving restoration of the 'B' train emergency bus to the normal supply and a subsequent loss of the 'B' train residual heat removal (RHR) pump and a consequent loss of core cooling. The issue was entered into the licensee's CAP as condition report, CR-17-03696

The inspectors reviewed IMC 0612, Appendix B, "Issue Screening," dated September 7, 2012, and determined that the PD was more than minor and therefore a finding because it was associated with the Mitigating Systems Cornerstone, and adversely affected the cornerstone objective to ensure in part the availability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to perform an adequate risk assessment resulted in performance of an activity causing a vulnerability to operability of the running RHR pump and a consequent loss of core cooling. The finding was screened for risk significance using NRC IMC 0609.04 and routed to NRC IMC 0609, Appendix G. A detailed shutdown risk assessment was performed by a regional senior risk analyst using NRC IMC 0609 Appendix G and Attachments 1 and 2. The major analysis assumptions included: treatment of the PD as a loss of RHR with an initiating event likelihood of 1.0 using NRC IMC 0609 Appendix G, Attachment 2, worksheet 9 (loss of RHR in plant operating state 2); and recovery credit was applied for closing the alternate feeder breaker. The dominant sequence was a loss of RHR, failure to recover decay heat removal prior to reactor coolant system (RCS) boiling, failure to initiate RCS injection before core damage and failure to restore power to the B train safety bus. The RCS conditions of time to boil and time to core uncover and availability of mitigating equipment limited the risk. The detailed risk evaluation determined that the PD represented an increase in core damage frequency $<1.0E-6$ a GREEN finding of very low safety significance. The inspectors reviewed IMC 0310, "Aspects Within Cross Cutting Areas," dated December 4, 2014, and determined that this finding had a cross-cutting aspect in the area of Work Management (H.5), because the licensee did not perform an adequate risk assessment in accordance with their procedure. (Section 1R13)

REPORT DETAILS

Summary of Plant Status

Unit 1 began the inspection period in Mode 3, was placed online July 1, 2017 and returned to full Rated Thermal Power (RTP) on July 2, 2017. On August 28, 2017, the unit tripped due to a faulted surge arrestor on the main transformer and subsequently cooled down to Mode 5 for maintenance activities. Unit 1 was placed online September 8, 2017, and returned to full RTP on the following day. Unit 1 operated at or near full RTP for the remainder of the period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather Protection

.1 Seasonal Weather Susceptibilities

a. Inspection Scope

The inspectors performed one seasonal extreme weather inspection for readiness of hot weather for two risk significant components. The inspectors verified the licensee had implemented applicable sections of operations administrative procedure, OAP-109.1, Revision (Rev.) 4H, "Guidelines for Severe Weather." The inspectors reviewed preparations for extreme hot weather and walked down the emergency diesel generators (EDG) and the service water (SW) pumphouse systems and buildings to assess whether the equipment was adequately protected from hot weather and would function as expected during an accident event. Also, the inspectors reviewed the licensee's corrective action program (CAP) database to verify that hot weather protection problems were being identified at the appropriate level, entered into the CAP, and appropriately resolved.

b. Findings

No findings were identified.

.2 Seasonal Weather Susceptibilities

a. Inspection Scope

On September 8-11, 2017, the inspectors reviewed the licensee's actions and preparations associated with operations administrative procedure, OAP-109.1, "Guidelines for Severe Weather," Revision (Rev.) 4H, implemented in response to elevated wind conditions from Hurricane Irma. The inspectors additionally reviewed samples of protected area yard conditions to verify that no potential missile hazards existed for potential tornadic conditions.

b. Findings

No findings were identified.

1R04 Equipment Alignment

Partial System Walkdowns

a. Inspection Scope

The inspectors conducted five partial equipment alignment walkdowns which are listed below, to evaluate the operability of selected redundant trains or backup systems with the other train or system inoperable or out of service (OOS). Correct alignment and operating conditions were determined from the applicable portions of drawings, system operating procedures (SOP), and technical specifications (TS). The inspections included review of outstanding maintenance work orders (WOs) and related condition reports (CRs) to verify that the licensee had properly identified and resolved equipment alignment problems that could lead to the initiation of an event or impact mitigating system availability.

- 'B' motor driven emergency feedwater (MDEFW) components and turbine driven emergency feedwater (TDEFW) components while 'A' MDEFW train was OOS for planned maintenance
- 'B' residual heat removal (RHR) components while 'A' RHR train was out of service for planned maintenance
- 'A' and 'B' MDEFW components during scheduled maintenance on the TDEFW pump and associated components
- 'B' emergency diesel generator (EDG) while 'A' EDG was out of service for planned maintenance
- 'B' reactor building spray (RBS) while 'A' RBS was out of service for scheduled maintenance

b. Findings

No findings were identified.

1R05 Fire Protection

.1 Quarterly Fire Protection Walkdowns

a. Inspection Scope

The inspectors reviewed recent CRs, WO, and impairments associated with the fire protection system. The inspectors reviewed surveillance activities to determine whether they supported the operability and availability of the fire protection system. The inspectors assessed the material condition of the active and passive fire protection systems and features, and observed the control of transient combustibles and ignition sources. The inspectors conducted routine inspections of the following six areas (respective fire zones also noted):

- Control building cable spreading rooms 425 and 448 elevations (fire zones CB04 and CB15)
- Auxiliary building switchgear room 412 elevation (fire zone AB01.10)
- Heating, ventilation, and air conditioning (HVAC) chilled water pump rooms 'A', 'B' and 'C' (fire zones IB07.01, IB07.02, and IB07.03)
- Battery and charger rooms 'A', 'B', and cable room (fire zones IB02, 03, 04, 05, 06, and IB27)
- Charging pump rooms 'A', 'B', and 'C' (fire zones AB01.05, AB01.06, and AB01.07)
- Control building 482 elevation (fire zones CB22 and CB23)

b. Findings

Introduction: The inspectors identified a Green, NCV of Operating License Condition 2.C.(18), "Fire Protection Program," for failure to adequately establish a surveillance procedure for fire penetration inspections.

Description: On July 20, 2017, during a fire protection walkdown of the upper cable spreading room within the control building on the 488' elevation, the inspectors identified a degraded fire barrier penetration (5045) consisting of a conduit and associated internal cable passing through the wall between the turbine building and the cable spreading room. The inspectors reviewed the licensee's surveillance test procedure, STP-728.043, "Control Building Elevation 488' Fire Barrier Inspection," Rev. 5C, and noted that while STP-728.043 directed inspection of grout around the outside of the conduit, it did not direct inspection of foam sealant used inside the affected conduit. The inspectors noted that STP-728.043 contained acceptance criteria for grout and foam, and that the condition of the foam sealant did not meet the acceptance criteria. The inspectors also noted two other conduits (5044 and 5046) which contained foam, but not inspected by STP-728.043. The inspectors informed the licensee's operations staff who declared the penetration inoperable, immediately established a fire watch, and documented the inoperable penetration and procedure problem in their CAP as CR-17-04029.

The inspectors subsequently determined that six penetrations including the aforementioned penetrations were installed in April 2011 as part of a modification. Cables were run through three of those penetrations and foam was used as a sealant. The other three penetrations were capped as spares for future use. However, the inspectors noted that STP-728.043 was not adequately established to inspect the foam installed within those three penetrations (5044, 5045 and 5046). Additionally, the inspectors noted STP-728.043 was implemented for those penetrations approximately four times since they were installed with the most recent inspection occurring on July 17, 2017. Consequently, the licensee had several opportunities to identify that the procedure was inadequate. They also had the opportunity to identify that penetration 5045 was degraded during their last inspection, but results of that inspection showed that all penetrations that were inspected within the upper cable spreading room were satisfactory.

Analysis: The inspectors determined that the failure to adequately establish STP-728.043 to inspect penetrations 5044, 5045 and 5046 was a PD. The inspectors used IMC 0612, Appendix B, "Issue Screening," dated September 7, 2012, and determined that the PD was more than minor and therefore a finding because it was associated with the Mitigating System Cornerstone and the respective attribute of

protection against external factors (fire). This finding had a credible impact on safety and adversely affected the cornerstone objective because STP-728.043 failed to specify adequate inspection of penetrations added by modification of which one penetration (5045) was degraded. The inspectors used IMC 0609, Appendix F, "Fire Protection Significance Determination Process," dated September 20, 2013, and determined that the finding impacted the fire confinement finding category. Based on review of respective Attachment 2, "Degradation Rating Guidance Specific to Various Fire Protection Program Elements," dated February 28, 2005, the inspectors determined that the degradation rating was low based on the size of the degradation identified. Specifically, the separation of foam seal material was approximately 3" from the mating conduit surfaces and there was greater than 12" of foam seal material when it was initially installed. As a result, this finding was determined to be of very low safety significance (Green) based on the guidance in IMC 0609, Appendix F, Attachment 1, "Fire Protection Significance Determination Process Worksheet," dated September 20, 2013.

The inspectors used IMC 0310, "Aspects within the Cross-Cutting Areas," dated December 4, 2014, and determined that this finding has a cross-cutting aspect in the area of Human Performance because the licensee failed to ensure that procedures were adequate to support nuclear safety (H.1).

Enforcement: The Virgil C. Summer Nuclear Station, Unit No. 1, Renewed Facility Operating Licensee No. NPF-12, Condition 2.C.(18) states, in part, that the South Carolina Electric & Gas Company (SCE&G) shall implement and maintain in effect all provisions of the approved fire protection program that comply with 10 CFR 50.48(a) and 10 CFR 50.48(c), as specified in the licensee amendment request (LAR) dated 11/15/11 (and supplements dated 1/26/12, 10/10/12, 2/1/13, 4/1/13, 10/14/13, 11/26/13, 1/9/14, 2/25/14, 5/2/14, 5/11/14, 8/14/14, 10/9/14, and 12/11/14) and as approved in the safety evaluation report dated 02/11/15.

10 CFR 50.48(c) specifies the use of NFPA 805, 2001 Edition, of which Chapter 3, Section 3.2.3, "Procedures," states in part that procedures shall be established to accomplish inspection of features credited by the fire protection program.

Contrary to the above, on July 20, 2017, the licensee failed to adequately establish procedure STP-728.043 for inspection of fire barrier penetrations. Specifically, the licensee's procedure for inspection of fire barriers in the upper cable spreading room failed to list foam as a sealing material requiring inspection for penetrations 5044, 5045 and 5046. Since the finding was of very low safety significance and has been entered into the licensee's corrective action program as CR-17-04029, this violation was treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy, and is identified as NCV 05000395/2017003-01, Inadequate Procedures for Inspection of Fire Barriers.

.2 Annual Fire Brigade Drill Observation

a. Inspection Scope

The inspectors observed the performance of an announced fire brigade drill with offsite participation on August 8, 2017. The inspectors evaluated the readiness of licensee personnel to respond and fight fires including the following aspects:

- Observe whether turnout clothing and self-contained breathing apparatus equipment were properly worn
- Determine whether fire hose lines were properly laid out and nozzle pattern simulated being tested prior to entering the fire area of concern
- Verify that the fire area was entered in a controlled manner
- Review if sufficient firefighting equipment was brought to the scene by the fire brigade to properly perform their firefighting duties
- Verify that the fire brigade leader's firefighting directions were thorough, clear and effective, and that, if necessary, offsite fire team assistance was requested
- Verify that radio communications with plant operators and between fire brigade members were efficient and effective
- Confirm that fire brigade members checked for fire victims and fire propagation into applicable plant areas
- Observe if effective smoke removal operations were simulated
- Verify that the firefighting pre-plans were properly utilized and were effective
- Verify that the licensee pre-planned drill scenario was followed, drill objectives met the acceptance criteria, and deficiencies were captured in post drill critiques

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification Program

.1 Licensed Operator Regualification

a. Inspection Scope

The inspectors observed operator regualification simulator training scenarios occurring on September 25, 2017, and involving multiple failures leading to entry into abnormal operating procedures followed by emergency operating procedures in order to combat the problems. The inspectors observed crew performance in terms of communications; ability to prioritize failures in order to take timely and proper actions; prioritizing, interpreting, and verifying alarms; correct use and implementation of procedures, including the alarm response procedures; timely control board operation and manipulation, including high-risk operator actions; and oversight and direction provided by the shift supervisor, including the ability to identify and implement appropriate TS actions and emergency action levels. The inspectors reviewed the licensee's critique comments to verify that any performance deficiencies were captured for appropriate corrective action.

b. Findings

No findings were identified.

.2 Resident Quarterly Observation of Control Room Operations

a. Inspection Scope

During the inspection period, the inspectors conducted two observations of licensed reactor operator activities to ensure consistency with licensee procedures and regulatory requirements. For the listed activities covering a total four hour period, the inspectors observed the following elements of operator performance: 1) operator compliance and use of plant procedures including TS; 2) control board component manipulations; 3) use and interpretation of plant instrumentation and alarms; 4) documentation of activities; 5) management and supervision of activities; and 6) control room communications.

- Reactor startup from forced outage
- Vital battery 'B', cell 18 isolation

b. Findings

No findings were identified.

.3 Requalification Exams

a. Inspection Scope

The inspectors reviewed the facility operating history and associated documents in preparation for this inspection. During the periods of August 14-17, 2017, the inspectors reviewed documentation, interviewed licensee personnel, and observed the administration of operating tests associated with the licensee's operator requalification program. Each of the activities performed by the inspectors was done to assess the effectiveness of the facility licensee in implementing requalification requirements identified in 10 CFR Part 55, "Operators' Licenses." The evaluations were also performed to determine if the licensee effectively implemented operator requalification guidelines established in NUREG-1021, "Operator Licensing Examination Standards for Power Reactors," and Inspection Procedure 71111.11, "Licensed Operator Requalification Program." The inspectors also evaluated the licensee's simulation facility for adequacy for use in operator licensing examinations using ANSI/ANS-3.5-2009, "American National Standard for Nuclear Power Plant Simulators for use in Operator Training and Examination." The inspectors observed two crews during the performance of the operating tests. Documentation reviewed included written examinations, Job Performance Measures (JPMs), simulator scenarios, licensee procedures, on-shift records, simulator modification request records, simulator performance test records, operator feedback records, licensed operator qualification records, remediation plans, watchstanding records, and medical records. The records were inspected using the criteria listed in Inspection Procedure 71111.11. Documents reviewed during the inspection are documented in the List of Documents Reviewed.

b. Findings

Introduction: A NRC-identified Severity Level IV Non-Cited Violation (NCV) of 10 CFR 55.49, "Integrity of examinations and tests," was identified for the licensee's failure to prevent the potential for examination compromise by allowing exam related material to remain visible to successive operators during simulator JPMs and scenarios. This violation is being treated as a NCV in accordance with the NRCs "Enforcement Policy."

Description: While observing simulator JPMs on August 15, 2017, the inspectors identified that simulator staff were not advancing any of the strip chart recorders after each JPM. Specifically, the inspectors noted that information on Main Feedwater Flow was visible and clearly indicated a sudden cessation of feedwater flow in the previous two JPMs that were administered. This would indicate to the next operator that the previous two occurrences of this JPM either had a reactor trip or would require a reactor trip. Prior to starting the JPM, each operator was told to review the Control Board prior to being read the initiating cue. This increased the likelihood that the operators had gained information about the actions of the previous operator on the same JPM. The inspectors informed the licensee of this issue and they immediately started advancing each chart recorder until no exam related material was visible. An initial review by the licensee indicated that not advancing the paper had been a standard practice for this exam period. The licensee entered the issue into their corrective action program as CR 17-04424.

The licensee's failure to advance the chart paper was likely to compromise the integrity of the 2017 annual operating exam because the potential existed for the licensed operators to gain specific knowledge of requalification examination content prior to taking the examination.

Analysis: The inspectors determined that the licensee's failure to ensure that the chart recorder paper was advanced after each administration of a part of an exam during the 2017 annual operating exams was a PD. The licensee's failure to advance the chart paper was likely to compromise portions of the integrity of the 2017 annual operating exam because the potential existed for the licensed operators to gain specific knowledge of requalification examination content prior to taking the examination. This was a violation of 10 CFR 55.49, "Integrity of examinations and tests," which states, in part, applicants, licensees, and facility licensees shall not engage in any activity that compromises the integrity of any application, test, or examination required by this part. The integrity of a test or examination is considered compromised if any activity, regardless of intent, affected, or, but for detection, would have affected the equitable and consistent administration of the test or examination. This includes activities related to the preparation and certification of license applications and all activities related to the preparation, administration, and grading of the tests and examinations required by this part.

The performance deficiency was determined to be more than minor because some of the operators that were being administered the test had exam related material visible to them prior to taking that part of the exam. This violation potentially impeded the NRC's regulatory process.

The significance determination was performed in accordance with Manual Chapter 0609, Significance Determination Process, Appendix I, Licensed Operator Requalification

Significance Determination Process (SDP). Question 10, in Appendix I, asked if the finding was related to requalification exam security. The answer to this question was “YES” because the finding was related to preventing communication of examination information to operators that had not yet taken that part of the examination. Question 11 asked if there was an actual effect on the equitable and consistent administration of any examination required by 10 CFR 55.59. Because some of the operators that were being administered the test had exam material visible to them prior to taking that part of the exam, there was an actual effect on the administration of the exam, and issue is to be handled under Traditional Enforcement.

This is determined to be a Severity Level IV violation of 10 CFR 55.49 because it was a compromise of an examination required by 10 CFR Part 55 that was non-willful and did not cause an incorrect regulatory decision. The ROP’s significance determination process does not specifically consider the regulatory process impact in its assessment of licensee performance. Therefore, it is necessary to address this violation which impedes the NRC’s ability to regulate using traditional enforcement to adequately deter non-compliance. Traditional enforcement violations are not assessed for cross-cutting aspects.

Enforcement: 10 CFR 55.49 states that applicants, licensees, and facility licensees shall not engage in any activity that compromises the integrity of any application, test, or examination required by this part. The integrity of a test or examination is considered compromised if any activity, regardless of intent, affected, or, but for detection, would have affected the equitable and consistent administration of the test or examination. This includes activities related to the preparation and certification of license applications and all activities related to the preparation, administration, and grading of the tests and examinations required by this part. Activities covered by this part include the requirements stated in 10 CFR 55.59, “Requalification.” The annual operating exam administered to all licensed operators is required by 10 CFR 55.59

Contrary to the above, on August 15, 2017, during the licensed operator requalification cycle, licensee personnel engaged in an activity that was likely to compromise the integrity of the annual operating examination, in that personnel failed to ensure all previous data had been cleared from the paper chart recorders following a JPM prior to initiating the same JPM to the next operator. This activity was likely to affect the equitable and consistent administration of the 2017 operating examination. The inspectors informed the licensee of this issue and they immediately started advancing each chart recorder until no exam related material was visible. An initial review by the licensee indicated that not advancing the paper had been a standard practice for this exam period. The licensee issued CR 17-04424.

In accordance with the NRC Enforcement Policy, this violation was classified as Severity Level IV Violation (Section 6.4.d). This Severity Level IV violation is being treated as a Non-cited Violation, consistent with Section 2.3.2.a of the Enforcement Policy. This violation is in the licensee’s corrective action program under CR 17-04424. (NCV 05000395/2017003-02, Violation of NRC Examination Security as Required by 10 CFR 55.49).

1R12 Maintenance Effectiveness

a. Inspection Scope

The inspectors evaluated the equipment issues described in the two CRs listed below to verify the licensee's effectiveness with the corresponding preventive or corrective maintenance associated with structure, system, and components (SSCs). The inspectors reviewed Maintenance Rule (MR) implementation to verify that component and equipment failures were identified, entered, and scoped within the MR program. Selected SSCs were reviewed to verify proper categorization and classification in accordance with 10 CFR 50.65. The inspectors examined the licensee's 10 CFR 50.65(a)(1) corrective action plans to determine if the licensee was identifying issues related to the MR at an appropriate threshold and that effective corrective actions were implemented. The inspectors' review evaluated if maintenance preventable functional failures or other MR findings existed that the licensee had not identified. The inspectors reviewed the licensee's controlling procedures consisting of engineering services procedure (ES)-514, Rev. 7, "Maintenance Rule Program Implementation," and station administrative procedure (SAP)-0157, Rev. 2, "Maintenance Rule Program," to verify consistency with the MR program requirements.

- CR-17-02859, Failure of 1DB normal incoming breaker to close
- CR-17-00703, 'A' EDG area ventilation fan, XFN0075B, tripped

b. Findings

The enforcement aspects associated with CR-17-02859 are discussed in Section 1R13 of this report.

1R13 Maintenance Risk Assessment and Emergent Work Control

a. Inspection Scope

The inspectors performed risk assessments, as appropriate, for the four scheduled work activities listed below to assess, as appropriate: 1) the effectiveness of the risk assessments performed before maintenance activities were conducted; 2) the management of risk; 3) that, upon identification of an unforeseen situation, necessary steps were taken to plan and control the resulting emergent work activities; and 4) that emergent work problems were adequately identified and resolved. The inspectors evaluated the licensee's work prioritization and risk characterization to determine, as appropriate, whether necessary steps were properly planned, controlled, and executed for the planned and emergent work activities.

- Yellow risk condition for 'A' train solid state protection system (SSPS) surveillance testing during work week 29
- Yellow risk condition for TDEFW scheduled maintenance during work week 32
- Yellow risk condition for 'A' train SSPS surveillance testing during work week 37
- Activity involving loss of 'B' RHR pump and consequent loss of core cooling during Refueling Outage 23.

b. Findings

Introduction: The inspectors identified a Green, NCV of 10 CFR 50.65(a)(4),

“Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants,” involving the licensee’s failure to adequately assess the risk for an activity involving restoration of the ‘B’ train emergency bus to the normal supply and a subsequent loss of the ‘B’ train RHR pump and a consequent loss of core cooling.

Description: The inspectors performed a detailed review of CR-17-02859: “While swapping power supply for Bus 1DB from Alternate Feed to Normal Feed following Cable Replacement per ECR 50919, the Alternate Feeder Breaker, 1DB 01, opened as required. However, the Normal Feeder Breaker, 1DB 16 did not close. The Alternate Feeder Breaker was reclosed to restore power to Bus 1DB.” The inspectors noted the event occurred on May 19, 2017, during Refueling Outage 23 with Unit 1 in Mode 5, loops not filled and the reactor coolant system (RCS) vented. The inspectors also noted the following from a review of CR-17-02859, control room logs and the plant computer system:

- The loss of power to the ‘B’ train emergency bus, 1DB, lasted approximately 2 minutes.
- The in-service, ‘B’ train RHR pump lost power resulting in a loss of core cooling during the 2 minutes with a consequent increase in core exit thermocouples of approximately 6 degrees.
- The ‘B’ train RHR pump was not declared inoperable in accordance with Technical Specifications (TS) 3.4.1.4.2 due to the licensee’s practice of not ‘cascading’ in TS as confirmed by interviews with licensee staff. Consequently, the licensee did not initiate a CR for the inoperability of ‘B’ RHR pump. Based on this inspector identified PD, the licensee initiated CR-17-03696 on June 30, 2017, to document the operability, reportability and maintenance rule review.
- The operators used abnormal operating procedure, AOP-304.1B, “Loss of Bus 1DB With the Diesel Not Available,” Rev. 3, as opposed to AOP-115.5, “ARG-1, Loss of RHR With the RCS Not Intact (Modes 5 and 6),” Rev. 8. The inspectors noted that TS 3.4.1.4.2 required immediate corrective action to return the RHR loop to operation. Since the licensee had lost a key safety functions (KSF) the inspectors concluded that AOP-115.5 was the most appropriate procedure to use to comply with the TS and restore the KSF via the ‘A’ train RHR loop since a definitive cause for the loss of 1DB was not well understood during the event. The inspectors also noted that this PD should be addressed in CR-17-05024 which the licensee subsequently initiated on September 18, 2017, to in part, determine what process/programmatic weaknesses led to a loss of shutdown cooling.
- The licensee stated in CR-17-02859, Action 1, that the “scheduled activity was risk assessed prior to the evolution.”

The inspectors noted that 10 CFR 50.65(a)(4) requires in part that before performing maintenance activities the licensee assess and manage the increase in risk. During Refueling Outage 23 the licensee used station scheduling procedure, SSP-004, “Outage Safety Review Guidelines,” Rev. 5B, to perform detailed risk assessments of outage activities. The inspectors noted the following from SSP-004:

- Step 4.2.9 defines KSF’s as those functions which are sufficient to prevent fuel damage and/or radioactive material release to the public. SSP-004 specifies that decay heat removal (DHR) performed by the RHR system is a KSF.
- Step 7.1.2, “Decay Heat Removal Guidelines,” states the following:

- Section A. states in part that one of the major causes of loss of DHR is a loss of power.
- Section B. states in part that the planning and control of activities is an important factor in reducing both the likelihood of a loss of DHR and consequences.
- Section E.2 states, "All scheduled activities that can affect the availability of the Decay Heat Removal System should be given a detailed review."

The inspectors interviewed the licensee's probabilistic risk assessment (PRA) staff and determined that a detailed risk analysis of the activity resulting in a loss of core cooling was not performed and that the most conservative action should have been to have the 'A' train of RHR in service before attempting to transfer power supplies for the 'B' train emergency bus.

The inspectors determined that the licensee failed to adequately assess the risk for an activity involving restoration of the 'B' train emergency bus to the normal supply for which a subsequent loss of the 'B' train RHR pump and consequent loss of core cooling occurred.

The inspectors also reviewed the licensee's conclusion to not report this event in accordance with 10 CFR 50.72 or 10 CFR 50.73. This evaluation included a discussion with NRC headquarters staff. The conclusion was that existing regulations do not require the reporting of this inadvertent loss of core cooling event.

Analysis: The inspectors identified a PD for the failure to adequately assess the risk for an activity involving restoration of the 'B' train emergency bus to the normal supply and a subsequent loss of the 'B' train residual heat removal pump and consequent loss of core cooling. The inspectors reviewed IMC 0612, Appendix B, "Issue Screening," dated September 7, 2012, and determined that the PD was more than minor and therefore a finding because it was associated with the Mitigating Systems Cornerstone, and adversely affected the cornerstone objective to ensure in part the availability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the failure to perform an adequate risk assessment resulted in performance of an activity causing a vulnerability to operability of the running RHR pump and a consequent loss of core cooling. The finding was screened for risk significance using NRC IMC 0609.04 and routed to NRC IMC 0609 Appendix G. A detailed shutdown risk assessment was performed by a regional senior risk analyst using NRC IMC 0609 Appendix G and Attachments 1 and 2. The major analysis assumptions included: treatment of the PD as a loss of RHR with an initiating event likelihood of 1.0 using NRC IMC 0609 Appendix G, Attachment 2, worksheet 9 (loss of RHR in plant operating state 2); and recovery credit was applied for closing the alternate feeder breaker. The dominant sequence was a loss of RHR, failure to recover decay heat removal prior to RCS boiling, failure to initiate RCS injection before core damage and failure to restore power to the B train safety bus. The RCS conditions of time to boil and time to core uncover and availability of mitigating equipment limited the risk. The detailed risk evaluation determined that the PD represented an increase in core damage frequency $<1.0E-6$ a GREEN finding of very low safety significance. The inspectors reviewed IMC 0310, "Aspects Within Cross Cutting Areas," dated December 4, 2014, and determined that this finding had a cross-cutting aspect in the area of Work Management (H.5), because the licensee did not perform an adequate risk assessment in accordance with their procedure.

Enforcement: 10 CFR 50.65(a)(4) requires, in part, that before performing maintenance activities the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities. Contrary to the above, on May 19, 2017, the licensee failed to adequately assess the risk for an activity causing a vulnerability to the operability of the running RHR pump and a consequent loss of core cooling.

Because this finding is of very low safety significance and has been entered into the licensee's corrective action program as condition report CR-17-03696, this violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy: NCV 05000395/2017003-03, Failure to Adequately Assess the Risk for an Activity with Consequent Loss of Core Cooling.

1R15 Operability Determinations and Functionality Assessments

a. Inspection Scope

The inspectors reviewed the two operability evaluations listed below, affecting risk significant mitigating systems to assess, as appropriate: 1) the technical adequacy of the evaluations; 2) whether operability was properly justified and the subject component or system remained available, such that no unrecognized increase in risk occurred; 3) whether other existing degraded conditions were considered; 4) that the licensee considered other degraded conditions and their impact on compensatory measures for the condition being evaluated; and 5) the impact on TS limiting conditions for operations and the risk significance in accordance with the significance determination process. The inspectors verified that the operability evaluations were performed in accordance with SAP-209, Rev. 1C, "Operability Determination Process," and SAP-999, Rev. 15, "Corrective Action Program."

- CR-17-03108, Past operability review for EFW pipe support, MK-EFW-160
- CR-17-02794, ILT00928, 'C' cold leg accumulator level transmitter was found approximately 11 percent out of tolerance

b. Findings

No findings were identified.

1R19 Post Maintenance Testing

a. Inspection Scope

For the five maintenance activities listed below, the inspectors reviewed the associated post-maintenance testing (PMT) procedures and either witnessed the testing and/or reviewed test records to assess whether: 1) the effect of testing on the plant had been adequately addressed by control room and/or engineering personnel; 2) testing was adequate for the maintenance performed; 3) test acceptance criteria were clear and adequately demonstrated operational readiness consistent with design and licensing basis documents; 4) test instrumentation had current calibrations, range, and accuracy consistent with the application; 5) tests were performed as written with applicable prerequisites satisfied; 6) jumpers installed or

leads lifted were properly controlled; 7) test equipment was removed following testing; and 8) equipment was returned to the status required to perform its safety function. The inspectors verified that these activities were performed in accordance with general test procedure, GTP-214, "Post Maintenance Testing Guideline," Rev. 5G.

- WO 1708095, Feedwater valve operability testing (IFV00488-FW, 'B' main feedwater flow control valve) following plant trip on June 29, 2017
- WO 1606996, Pressurizer PORV retest following multiple maintenance activities
- WO 1612976, Disassemble, clean, and reset pressure on XVR11022-EF for TDEFW oil flow
- WO 1712469, Replace solenoid valve on feedwater regulation valve IFV00478
- WO 1706261, TDEFW pump leak repairs

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities

Forced Outage

a. Inspection Scope

The inspectors performed the inspection activities in accordance with Inspection Procedure (IP) 71111.20, "Refueling and Outage Activities," for a forced outage following an automatic reactor trip due to a fault on the center phase of the main transformer on the non-nuclear side of the plant. The outage began on August 28, 2017, and completed when the unit returned to full RTP on September 9, 2017.

The inspectors reviewed the licensee's outage risk assessments and controls for the outage schedule to verify that the licensee had appropriately considered risk, industry experience and previous site specific problems, and to confirm that the licensee had mitigation/response strategies for losses of any key safety functions.

In the area of licensee control of outage activities, the inspectors reviewed equipment removed from service to verify that defense-in-depth was maintained in accordance with applicable TS, that configuration changes due to emergent work and unexpected conditions were controlled in accordance with the outage schedule and risk control plan, and that proper clearance tags were used for control of system status and personnel safety.

During the outage, the inspectors reviewed and/or observed the following:

- Plant shutdown activities
- Decay heat removal system operations
- Reactor heat up, mode changes, startup and power ascension activities

The inspectors reviewed various problems that arose during the outage to verify that the licensee was identifying problems related to outage activities at an appropriate threshold and was entering them in the CAP.

b. Findings

No findings were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors observed and/or reviewed four surveillance test procedures (STP) listed below to verify that TS or risk significant surveillance requirements were followed, and that test acceptance criteria were properly specified to ensure that the equipment could perform its intended safety function. The inspectors verified that proper test conditions were established as specified in the procedures, that no equipment preconditioning activities occurred, and that acceptance criteria were met.

In-Service Tests

- STP-222.002, "Component Cooling Pump Test," Rev. 10A

Routine

- STP- 115.001, "Penetration Isolation Verification," Rev. 15
- STP-530.003B, "Functional Test of Train B SW to EF Cross Connect Circuits," Rev. 3B

Reactor Coolant System (RCS)

- STP-114.002, "Operational Leakage Calculation," Rev. 12G

b. Findings

No findings were identified.

2. EMERGENCY PREPAREDNESS

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation

.1 Emergency Preparedness Drill

a. Inspection Scope

On July 12, 2017, the inspectors reviewed and observed the performance of an emergency preparedness (EP) shift turnover drill that involved a tornado impacting the protected area, high winds impacting transformers, condensate storage tank, and service water pumphouse, an inadvertent feedwater isolation, an anticipated transient without scram, emergency feedwater pump failures, and fuel failure which required entry into increasing emergency action levels starting with a Notification of Unusual Event and

ending in a General Emergency. The inspectors assessed abnormal and emergency procedure usage, emergency plan classifications, protective action recommendations, respective notifications, and the adequacy of the licensee's drill critique. The inspectors verified that drill deficiencies were captured into the licensee's corrective action program.

b. Findings

No findings were identified.

2. Emergency Preparedness Drill

a. Inspection Scope

On September 13, 2017, the inspectors reviewed and observed the performance of an emergency preparedness (EP) drill that involved a loss of an emergency bus, spent fuel pool cooling system leak, a water treatment plant ammonia leak, a steam line break within containment, failure of main steam isolation valves to close, emergency feedwater pump failures, and an earthquake which required entry into increasing emergency action levels starting with a Notification of Unusual Event and ending in a General Emergency. The inspectors assessed abnormal and emergency procedure usage, emergency plan classifications, protective action recommendations, respective notifications, and the adequacy of the licensee's drill critique. The inspectors verified that drill deficiencies were captured into the licensee's corrective action program.

b. Findings

No findings were identified.

3. OTHER ACTIVITIES

40A1 Performance Indicator (PI) Verification

Mitigating Systems Cornerstone

a. Inspection Scope

The inspectors verified the accuracy of the licensee's PI submittals listed below for the period July 1, 2016 through June 30, 2017. The inspectors used the performance indicator definitions and guidance contained in NEI 99-02, Rev. 7, "Regulatory Assessment Performance Indicator Guideline," and licensee procedure SAP-1360, Rev. 3, "NRC and INPO/WANO Performance Indicators," to check the reporting of each data element. The inspectors sampled licensee event reports (LERs), operator logs, plant status reports, CRs, and performance indicator data sheets to verify that the licensee had properly reported the PI data.

- Mitigating System Performance Index (MSPI) – Emergency AC Power
- MSPI – High Head Safety Injection
- MSPI – Residual Heat Removal

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution

.1 Review of Items Entered into the Corrective Action Program

a. Inspection Scope

As required by IP 71152, "Identification and Resolution of Problems," and in order to help identify repetitive equipment failures or specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's CAP. This review was accomplished by either attending daily screening meetings that briefly discussed major CRs, or accessing the licensee's computerized corrective action database and reviewing each CR that was initiated.

b. Findings

No findings were identified.

.2 Annual Sample Review of CR-13-03950

a. Inspection Scope

The inspectors reviewed CR-13-03950, document plan for managing obsolete circuit breakers, in detail to evaluate the effectiveness of the licensee's corrective actions for important safety issues. The inspectors assessed whether the issue was properly identified, documented accurately and completely, properly classified and prioritized, adequately considered extent of condition, generic implications, common cause, and previous occurrences, adequately identified root causes/apparent causes, and identified appropriate and timely corrective actions. Also, the inspectors verified the issues were processed in accordance with procedure, SAP-999, "Corrective Action Program," Rev. 15.

b. Findings

No findings were identified. The inspectors identified CR-17-00593 which was initiated to document and track a change management plan (CMP) to address the development of an Obsolescence Engineering Team. The inspectors performed additional related reviews of CR's in the licensee's CAP and noted that CR-13-03950 was not yet closed and had open actions to address obsolescence of non-safety and safety-related circuit breakers. This CR documented 56 CR's initiated since 2009 to identify breakers that had exceeded a self-imposed 25 year replacement date established by the licensee to preclude grease hardening from adversely affecting breakers. Additionally, these breakers were not replaced due to obsolescence. The inspectors noted that the service life chosen by the licensee was consistent with industry documents. The inspectors also reviewed the CAP for additional similar circumstances since CR-13-03950 was initiated and identified another 31 CR's through 2016. The inspectors verified that in each case, the breakers were tested to verify acceptance criteria were met and returned to service.

The inspectors reviewed SAP-1287, "Station Obsolescence Program," Rev. 5, to verify that the licensee had established a process to formally track obsolete components and prioritize action plans to replace with other vendor components based on the component function and safety significance. Additionally, the inspectors verified the licensee had established a molded case circuit breaker obsolescence plan in December, 2014, for short term and long term actions to include modifications and 'equal-to-better-than' evaluations. The inspectors developed an opinion regarding the establishment of an Obsolescence Engineering Team which could have been timelier considering the age of the plant and number of obsolete items increasing over time due to vendors no longer supporting or building respective components. The inspectors will continue to monitor the licensee's program.

4OA3 Followup of Events and Notices of Enforcement Discretion

Main Transformer Surge Arrestor Fault Results in Unit 1 Automatic Reactor Trip

a. Inspection Scope

On August 29, 2017, the inspectors responded to a Unit 1 automatic reactor trip resulting from low feedwater flow to the 'B' steam generator due to a failed close feedwater regulation valve. The inspectors evaluated plant parameters and status, monitored operator actions, and confirmed there were no applicable emergency action levels for the event. The inspectors reviewed NRC event notification requirements as required by 10 CFR 50.72.

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

On October 25, 2017, the resident inspectors presented the integrated inspection report results to Mr. G. Lippard and other members of the licensee staff. The licensee acknowledged the results of these inspections. The inspectors confirmed that inspection activities discussed in this report did not contain proprietary material.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

A. Barbee, Director, Nuclear Training
T. Bowers, Medical Coordinator, Nuclear Licensing
C. Calvert, Manager, Design Engineering
N. Constance, Manager, Nuclear Training
B. Dalick, Supervisor, Nuclear Licensing
G. Douglass, Manager, Nuclear Protection Services
D. Edwards, Supervisor, Operations
K. Ellison, Manager, Health Physics & Safety
J. Garza, Supervisor, Nuclear Licensing
L. Harris, Manager, Quality Systems
R. Haselden, General Manager, Organizational / Development Effectiveness
R. Justice, General Manager, Nuclear Plant Operations
A. Ledbetter, Manager, Planning / Outage
G. Lippard, Vice President, Nuclear Operations
R. Mike, Manager, Chemistry Services
M. Moore, Supervisor, Nuclear Licensing
R. Ray, Manager, Maintenance Services
S. Reese, Licensing Specialist
S. Rentz, LOR Lead Examiner, Nuclear Training
D. Shue, Manager, Nuclear Operations
W. Stuart, General Manager, Engineering Services
T. Tharp, Supervisor, Emergency Services
B. Thompson, Manager, Nuclear Licensing
E. Warden, Supervisor, Operations Training, Nuclear Training
J. Wasieczko, Manager, Organization Development and Performance
D. Weir, Manager, Plant Support Engineering
R. Williamson, Manager, Emergency Services
S. Zarandi, General Manager, Nuclear Support Services

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000395/2017003-01	NCV	Inadequate Procedures for Inspection of Fire Barriers (Section 1R05)
05000395/2017003-02	NCV	Violation of NRC Examination Security as Required by 10 CFR 55.49 (Section 1R11.3)
05000395/2017003-03	NCV	Failure to Adequately Assess the Risk for an Activity with Consequent Loss of Core Cooling (Section 1R1)

List of Documents Reviewed

Section 1R11

Records:

License Reactivation Packages (4).
LORP Training Attendance records (8).
Medical Files (8).
Remedial Training Records (3).
Remedial Training Examinations (1).

Written Examinations:

Week 2 2017 RO and SRO Requalification Exams, 08/13/2017.

Procedures:

VCS-TQP-0101, Personnel Qualification Tracking and Maintenance, Rev 1, Change A
VCS-TQP-0405, Regulatory Exam Security, Rev 1, Change B
VCS-TQP-0408, Development, Review, and Validation of Licensed Operator Requalification Annual and Biennial Exams, Rev 0, Change B
VCS-TQP-0804, Licensed Operator Requalification Training Program, Rev 0, Change B
VCS-TQP-1101, Simulator Discrepancy Reporting, Rev 0, Change A
VCS-TQP-1103, Simulator Conduct of Operations and Configuration Management, Rev 1, Change A

Simulator Steady State Tests:

IST-04.2, 75% Steady State Accuracy Test, Rev 23

Simulator Scenario Based Tests:

IST-07.05, 100% Unisolable Main Steamline Break, Rev 19
IST-8.6.1, Operational Leakage to RPS Seals, Rev 6
IST-08.24.01, Reactor Makeup water valve operability test, Rev 5

Closed Simulator Service Requests:

SDR-825, Letdown flow decreasing during RHR Train Swap
SDR-818, Loose Parts Monitor Alarm Delay
SDR-426, Steam Flow, Temperature and Levels on SG "C" Jumping Erratically for No Reason
SDR-668, ECR50895, "MCB Annunciator for Low SG Level & Secondary Transients"
SDR-692, Service Water Pump A Tripped due to a Bearing Failure and the Restarted while in PTL

Annual Operating Exam Scenarios:

O-LOR-SIM-SA-006R, Rev 4
O-LOR-SIM-SA-053R, Rev 11
O-LOR-SIM-SA-016R, Rev 12
O-LOR-SIM-SA-012R, Rev 8
O-LOR-SIM-SA-080R, Rev 5
O-LOR-SIM-SA-083R, Rev 4
O-LOR-SIM-SA-086R, Rev 5
O-LOR-SIM-SA-089R, Rev 4
O-LOR-SIM-SA-207R, Rev 7

JPM Packages:

JPP-085C, Rev 8
JPP-156, Rev 2
JPPF-833, Rev 0
JPS-058, Rev 10
JPS-078, Rev 12 (SRO Only)
JPSF-036, Rev 8
JPS-047, Rev 12 (SRO Only)
JPS-158, Rev 3
JPSF-012A, Rev 5
JPP-052, Rev 12
JPP-058, Rev 9
JPPF-028A, Rev 9

Condition Reports:

CR-16-03584, RCDT was Inadvertently Pumped Down to 49%
CR-16-05264, Nuclear Licensing's Medical Coordinator was not Notified in a Timely Manner of a Change to a Licensed Operator's Medical Condition
CR-17-03408, A Requalification Validator Failed to Sign into Exam Security Until After Simulator Exam Security had been set
CR-17-03506, An Operations Representative on the Requalification Exam Agreement Participated in the Evaluation and Debrief of a Crew not yet Tested
CR-17-03859, Failure to Notify Nuclear Licensing or Medical Coordinator for a Potential Change in Licensed Condition
CR-17-04265, A Sheet of Exam Material was Found Under the Simulator CRS's Desk after Examination Activities were Completed for the Day
CR-17-04424, Chart Recorders were not Properly Advanced During the Administration of Exams