



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION II
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ATLANTA, GEORGIA 30303-1257

May 10, 2018

Mr. George A. Lippard III
Vice President, Nuclear Operations
South Carolina Electric & Gas Company
Virgil C. Summer Nuclear Station
Bradham Blvd & Hwy 215
P.O. Box 88, Mail Code 800
Jenkinsville, SC 29065

**SUBJECT: VIRGIL C. SUMMER NUCLEAR STATION, UNIT 1 – NUCLEAR REGULATORY
COMMISSION INTEGRATED INSPECTION REPORT 05000395/2018001**

Dear Mr. Lippard:

On March 31, 2018, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Virgil C. Summer Nuclear Station, Unit 1. On April 30, 2018, 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 one finding of very low safety significance (Green) in this report. This finding involved a violation of NRC requirements. The NRC is treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2.a of the Enforcement Policy.

If you contest the violation or significance of this NCV, 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 II; the Director, Office of Enforcement; and the NRC resident inspector at the Virgil C. Summer Nuclear Station.

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.

G. Lippard

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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 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Randall A. Musser, Chief
Reactor Projects Branch 3
Division of Reactor Projects

Docket Nos.: 50-395
License Nos.: NPF-12

Enclosure:
IR 05000395/2018001

cc: Distribution via ListServ

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SUBJECT: VIRGIL C. SUMMER NUCLEAR STATION, UNIT 1 – NUCLEAR REGULATORY
COMMISSION INTEGRATED INSPECTION REPORT 05000395/2018001
May 10, 2018

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos: 50-395

License Nos: NPF-12

Report Nos: 05000395/2018001

Enterprise Identifier: I-2018-001-0064

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

Facility: Virgil C. Summer Nuclear Station, Unit 1

Location: Jenkinsville, SC 29065

Dates: January 1, 2018 through March 31, 2018

Inspectors: J. Reece, Senior Resident Inspector
E. Hilton, Resident Inspector
R. Taylor, Senior Project Engineer (Section 92723)

Approved by: Randall A. Musser, Chief
Reactor Projects Branch 3
Division of Reactor Projects

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring licensee’s performance by conducting a baseline inspection at Virgil C. Summer Nuclear Station, Unit 1, in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC’s program for overseeing the safe operation of commercial nuclear power reactors. Refer to <https://www.nrc.gov/reactors/operating/oversight.html> for more information. NRC and self-revealed findings, violations, and additional items are summarized in the table below.

List of Findings and Violations

“Failure to Perform an Adequate Risk Assessment With Consequent Reactor Trip”			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Initiating Events	Green NCV 05000395/2018001-01 Opened/Closed	[H.5] – Work Management	71153
A self-revealed, Green NCV was identified for the licensee’s failure to adequately assess risk in accordance with 10 CFR 50.65(a)(4), “Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants,” involving repairs to a non-safety related inverter, XIT-5905. This NCV closes LER 05000395/2017-005-00: Automatic Reactor Trip Due to Main Turbine Trip.			

Additional Tracking Items

Type	Tracking number	Title	Report Section	Status
Licensee Event Report (LER)	05000395/2017-002-01	Low Feedwater Flow to the 'B' Steam Generator Causes Automatic Reactor Trip	71153	Closed
LER	05000395/2017-003-00	Failed Lightning Arrester on Main Transformer Causes Reactor Trip	71153	Closed
LER	05000395/2017-003-01	Failed Lightning Arrester on Main Transformer Causes Reactor Trip	71153	Closed
LER	05000395/2017-005-00	Automatic Reactor Trip Due to Main Turbine Trip	71153	Closed

LER	05000395/2017-006-00	Technical Specification Action Not Met for Inoperable Oxygen Monitor	71153	Closed
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PLANT STATUS

Unit 1 operated at or near rated thermal power for the entire inspection period.

INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at <http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html>. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors performed plant status activities described in IMC 2515 Appendix D, "Plant Status" and conducted routine reviews using IP 71152, "Problem Identification and Resolution." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

REACTOR SAFETY

71111.04 - Equipment Alignment

Partial Walkdown (5 Samples)

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

- (1) Walkdown motor driven emergency feedwater (MDEFW) pump 'B' and turbine driven emergency feedwater (TDEFW) pump while 'A' MDEFW pump was tagged out for maintenance; inspection was completed on January 8, 2018
- (2) Walkdown 'B' train engineered safety feature (ESF) power as a loss of 'A' train offsite power circuit 115 kV line (1DA) was due to transmission maintenance; inspection was completed on January 18, 2018
- (3) 'A' and 'B' MDEFW during scheduled maintenance on TDEFW on January 23, 2018
- (4) 'A' residual heat removal (RHR) pump while 'B' RHR pump was tagged out for maintenance; inspection was completed on January 25, 2018
- (5) 'B' emergency diesel generator (EDG) during planned maintenance on 'A' EDG; inspection was completed on February 27, 2018

71111.05AQ - Fire Protection Annual/Quarterly

Quarterly Inspection (6 Samples)

The inspectors evaluated fire protection program implementation in the following selected areas:

- (1) Auxiliary building 374 foot (ft) elevation (fire zones AB01.01.01, 01.01.02, AB01.02, AB01.03) ; inspection was completed on January 25, 2018

- (2) Control room (fire zone CB17.01); inspection was completed on January 25, 2018
- (3) 1DA switchgear room (fire zone IB01.20); inspection completed on February 22, 2018
- (4) 1DB switchgear rooms and heating, ventilation, and air conditioning (HVAC) rooms (fire zones IB01.16, IB01.17, IB01.22.02); inspection was completed on February 22, 2018
- (5) Control building cable spreading rooms 425 and 448 elevations (fire zones CB04, CB15); inspection was completed on February 22, 2018
- (6) Service water pumphouse (fire zones SWPH01, 02, 03, 04.02, 05.01.01, 05.01.02, 05.01.03 and 05.02.01, 05.02.02, 05.02.03); inspection was completed on February 22, 2018

71111.11Q - Licensed Operator Requalification Program and Licensed Operator Performance

Operator Requalification (1 Sample)

The inspectors observed an operator requalification simulator training scenario occurring on March 5, 2018, and involving multiple failures leading to entry into abnormal operating procedures followed by emergency operating procedures.

Operator Performance (3 Samples)

The inspectors observed and evaluated:

- (1) Troubleshoot rad monitor RM-A14 Reactor Building (RB) Purge Supply Exhaust System degraded with digital display issues; inspection was completed on February 18, 2018
- (2) 'A' EDG surveillance test; observation was completed on March 1, 2018
- (3) 'B' EDG maintenance runs; observation was completed on March 16, 2018

71111.12 - Maintenance Effectiveness

Routine Maintenance Effectiveness (2 Samples)

The inspectors evaluated the effectiveness of routine maintenance activities associated with the following equipment and/or safety significant functions:

- (1) Maintenance Rule (a)(1) evaluation for AC Vital Buses System; inspection was completed on February 5, 2018
- (2) Emergent maintenance at Parr Substation resulted in loss of offsite power to emergency bus 1DA; inspection was completed on March 20, 2018

71111.13 - Maintenance Risk Assessments and Emergent Work Control (2 Samples)

The inspectors evaluated the risk assessments for the following planned and emergent work activities:

- (1) Yellow risk condition during work week 4 for scheduled maintenance of TDEFW pump; inspection was completed on January 23, 2018

- (2) Yellow risk condition for scheduled solid state protection system (SSPS) 'A' surveillance test during work week 9; inspection was completed on March 2, 2018

71111.15 - Operability Determinations and Functionality Assessments (6 Samples)

The inspectors evaluated the following operability determinations and functionality assessments:

- (1) CR-17-06495, 'B' EDG breaker failed to close; inspection was completed on January 24, 2018
- (2) CR-18-00302, Evaluate immediate operability of LCV00115D-CS stroke time; inspection was completed on February 5, 2018
- (3) CR-18-00233, 'B' EDG cylinder number 11 petcock discovered open; inspection was completed on January 20, 2018
- (4) CR-18-00783, Review qualification of spent fuel level instrument ILT09781; inspection was completed on March 21, 2018
- (5) CR-17-04978, 'A' train reactor building cooling unit (RBCU) condensate drain flow alarm did not clear during RBCU functional test; inspection was completed on March 6, 2018
- (6) CR-18-01093, Both 'B' EDG air start tanks have moisture and debris buildup; inspection was completed on March 23, 2018

71111.18 - Plant Modifications (1 Sample)

The inspectors evaluated the following temporary or permanent modifications:

WO1801542, Bypass Authorization Request for RBCU drain flow switch problem; inspection was completed on February 7, 2018

71111.19 - Post Maintenance Testing (4 Samples)

The inspectors evaluated the following post maintenance tests:

- (1) WO1717009 and WO1715870, 'A' charging pump preventive maintenance (PMT), replaced leaking outboard seal; inspection was completed on January 4, 2018
- (2) WO1713073, Repair oil leaks at flanges on XVR11022-EF on TDEFW; inspection was completed on January 23, 2018
- (3) WO1807327, 'A' EDG jacket water leak repairs; inspection was completed on March 1, 2018
- (4) WO1807963, 'B' steam generator (SG) power operated relief valve (PORV) would not stroke during surveillance test; inspection was completed on March 20, 2018

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

Routine (2 Samples)

- (1) STP 125.002A, "Diesel Generator A Operability Test," Revision 2E; inspection was completed on March 1, 2018
- (2) STP 345.037, "Solid State Protection System Actuation Logic and Master Relay Test Train A," Revision 18D; inspection was performed on March 2 & 5, 2018

In-service (3 Samples)

- (1) STP 205.003, "Charging Safety Injection Pump and Valve Test," Revision 8B; inspection was completed on February 8, 2018
- (2) STP 205.004, "RHR Pump and Valve Operability Test," Revision 9B; inspection was completed on March 5, 2018
- (3) STP 220.001A, "Motor Driven Emergency Feedwater Pump and Valve Test," Revision 12; inspection was completed on March 9, 2018

71114.06 - Drill Evaluation

Emergency Planning Drill (2 Samples)

The inspectors evaluated the performance of an emergency preparedness (EP) drill on February 6, 2018. The drill involved an anticipated trip without scram (ATWS), faulted steam generator, EDG malfunctions, loss of offsite power, and steam generator tube rupture which required entry into increasing emergency action levels starting with an Alert and ending in a General Emergency.

On March 28, 2018, the inspectors reviewed and observed the performance of an EP drill that involved failure of an underground fire system header, damage to a loaded independent spent fuel storage installation (ISFSI) cask, grid disturbance, main transformer lightning arrestor failure, control rod ejection, and subsequent fuel failure which required entry into increasing emergency action levels starting with a Notification of Unusual Event and ending in a Site Area Emergency.

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators submittals listed below for the period from January 1, 2017, through December 31, 2017. (3 Samples)

- (1) Unplanned Scrams per 7000 Critical Hours
- (2) Unplanned Power Changes per 7000 Critical Hours
- (3) Unplanned Scrams with Complications

71152 - Problem Identification and Resolution

Annual Follow-up of Selected Issues (1 Sample)

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

CR-17-00198, 'A' EDG service water discharge line pinhole leak; inspection was completed on March 27, 2018

71153 - Follow-up of Events and Notices of Enforcement Discretion

Licensee Event Reports (4 Samples)

The inspectors evaluated and closed the following LERs which can be accessed at the following website: <https://lersearch.inl.gov/LERSearchCriteria.aspx>

- (1) LER 05000395/2017-002-01: Low Feedwater Flow to the 'B' Steam Generator Causes Automatic Reactor Trip
- (2) LER's 05000395/2017-003-00, 01: Failed Lightning Arrester on Main Transformer Causes Reactor Trip
- (3) LER 05000395/2017-005-00: Automatic Reactor Trip Due to Main Turbine Trip
- (4) LER 05000395/2017-006-00: Technical Specification Action Not Met for Inoperable Oxygen Monitor

OTHER ACTIVITIES – TEMPORARY INSTRUCTIONS, INFREQUENT AND ABNORMAL

92723 - Follow Up Inspection for Three or More Severity Level IV Traditional Enforcement Violations in the Same Area in a 12-Month Period

The inspector evaluated the licensee's root cause evaluation 17-00537 and corrective actions associated with the Severity Level IV (SL IV) violations. The inspector's review included but were not limited to: 1) assurance that the causes of the violations were understood, 2) that the extent of condition and extent of cause for the violations were identified, and 3) that both completed and proposed corrective actions for the violations were appropriate and sufficient to address the causes.

INSPECTION RESULTS

Observations and Minor Violation for Review of CR-17-00198, 'A' EDG service water discharge line pinhole leak	71152
<p>Minor Violation: 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for failure to promptly identify a condition adverse to quality (CAQ). Specifically, the licensee did not initiate a CR to document cavitation damage for on the downstream pipe reducer element for XVB03121A.</p> <p>Screening: Because the licensee corrected the condition with their work order system under WO 1305828, the inspectors identified this as a minor violation of Criterion XVI.</p> <p>Enforcement: This failure to comply with 10 CFR 50, Appendix B, Criterion XVI constitutes a minor violation that is not subject to enforcement action in accordance with the NRC's Enforcement Policy. The licensee entered this problem into their CAP as CR-18-01588.</p> <p>The inspectors reviewed CR-17-00198 that was initiated on January 11, 2017, following the licensee's discovery of a pinhole leak in the 'A' EDG service water (SW) discharge pipe reducer element flanged to the SW return valve, XVB03121A-SW. The pipe reducer element was subsequently replaced during the refueling outage (RF) 23 completed in the Spring, 2017, and a vendor analysis report of pipe reducer element was completed and attached to CR-17-00198 on November 14, 2017. The inspectors noted that the report concluded the pinhole leak resulted in deep metal loss consistent with cavitation induced degradation. The inspectors noted that XVB03121A-SW is a butterfly valve and maintained in a throttled position to ensure the required SW flow through the 'A' EDG heat exchangers; 'B' train has a similar arrangement. The inspectors also noted that this configuration results in a near continuous conditions allowing cavitation since the licensee maintains continuous SW flow to both trains of EDGs even when they are not in service. The inspectors noted that the downstream piping below the reducer element on both trains is marked with a grid pattern to allow the licensee to monitor flow accelerated corrosion (FAC).</p> <p>The inspectors reviewed historical corrective actions and noted the following:</p> <ul style="list-style-type: none"> • CR-04-03364 was initiated on October 25, 2004, due to NRC observation of noise noted at the SW discharge butterfly valves, XVB03121A,B, which may be due to cavitation due to the throttled condition of the valves. During RF-16 in October 2006, both valves were subsequently removed for inspection and found to have cavitation damage to the valve body and the outlet flange which was documented in CR-06-03587 and CR-06-03758. The valves and associated reducer elements were replaced. Additionally, Action 10 of CR-06-03587 created a preventative maintenance (PM) task to inspect the valves every fifth RF and created WO's for the inspections. XVB03121A was scheduled for inspection in RF-21, Spring 2014, and XVB03121B was scheduled for inspection in RF-22, Fall 2015. • During RF-21, cavitation damage was identified on the downstream pipe reducer element for XVB03121A and it was replaced under WO 1305828. However, the inspectors noted the licensee did not initiate a CR for this CAQ per SAP-999, 	

“Corrective Action Program,” Rev. 12, which is the licensee’s process for promptly identifying a CAQ as required by 10 CFR 50, Appendix B, Criterion XVI, “Corrective Action.”

- During RF-22 the licensee initiated CR-15-05473 due to cavitation damage found on the downstream piping reducer element for XVB03121B. The damaged reducer element was replaced during the outage. The inspectors noted that this CR did not perform any new evaluations relative to any changes to their periodicity of inspections.

The inspectors noted that the ‘A’ train SW pinhole leak documented by CR-17-00198 and repaired in RF-23 occurred prior to the next scheduled inspection for XVB03121A during RF-26. The inspectors also verified the licensee had created new PM inspections to perform ultrasonic examination of the pipe reducer elements every 6 months. However, the inspectors also observed that the licensee did not address the use of a butterfly valve for throttling resulting in cavitation conditions as opposed to a more suitable valve design. Following discussion with the licensee, Action 14 to CR-17-00198 was initiated for a design review and presentation to the Plant Health Committee.

Observations for LER 05000395/2017-002-01: Low Feedwater Flow to the 'B' Steam Generator Causes Automatic Reactor Trip	71153
<p>The inspectors reviewed and closed LER 05000395/2017-002-00 in NRC integrated inspection report 05000395/2017004.</p> <p>Inspectors noted that a vendor concluded the solenoid valve failure was due to a manufacturing defect relating to lack of solder at a wiring junction. The inspectors determined that the licensee had not performed a Part 21 evaluation. The licensee added Action 26 to CR-17-03674 to complete the Part 21 evaluation which concluded there was no substantial safety hazard. This LER is closed.</p>	

Observations for LERs 05000395/2017-003-00, 01: Failed Lightning Arrester on Main Transformer Causes Reactor Trip	71153
<p>The inspectors reviewed LER’s 05000395/2017-003-00, 01. On August 28, 2017, the failure of a surge arrester on the center phase of the main transformer, XTF-1, resulted in an automatic turbine trip that initiated an automatic reactor trip. Subsequent examination revealed that the surge arrester failed as a result of moisture ingress past the upper housing seal leading to a flash-over of the internal metal oxide varistors. The inspectors reviewed industry data regarding testing of surge arrestors which indicate that single test results may not indicate an impending failure, but trending of multiple tests can indicate degradation of the internal components. The inspectors determined that the licensee does perform testing but on a periodicity of every two refueling outages. The inspectors concluded that more frequent testing may provide better trend results, and the licensee took this information into consideration. The inspectors reviewed the licensee’s corrective actions documented in CR-17-04597. This LER is closed.</p>	

Failure to Perform an Adequate Risk Assessment With Consequent Reactor Trip			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Initiating Events	Green NCV 05000395/2018001-01 Opened/Closed	[H.5] – Work Management	71153
<p>A self-revealed, Green NCV was identified for the licensee’s failure to adequately assess risk in accordance with 10 CFR 50.65(a)(4), “Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants,” during repairs to a non-safety related inverter, XIT-5905.</p> <p>This NCV closes LER 05000395/2017-005-00: Automatic Reactor Trip Due to Main Turbine Trip.</p>			
<p>Description: On November 7, 2017, a loss of XIT-5905 caused a loss of power to the feedwater digital control system (DCS) which led to a loss of all three feedwater pumps and subsequent main turbine trip and an automatic reactor trip. The licensee entered the event into their CAP as CR-17-05860 and later performed a root cause analysis (RCA) documented by CR-17-05908, which addressed the programmatic, behavioral, and organizational aspects of planning, maintenance, operation and risk management of components leading to the reactor trip. The inspectors reviewed the RCA and noted the following:</p> <ul style="list-style-type: none"> • Direct cause stated, “Maintenance was performed on-line on single point vulnerability (SPV) equipment without proper controls (i.e., less than adequate mitigating strategies, vendor oversight, and retest requirements), with subsequent component failure resulting in a plant trip.” • Root cause (RC01) stated, “VCS-SAP-1315, [Process Requirements for Obtaining Services], was not followed correctly, resulting in no assessment of risk, mitigating strategies, or vendor oversight.” • RC02 stated, “Implementation of the planning process failed to ensure station expectations were met associated with adherence to SSP-001, such that proper assessment of the scope of work, vendor oversight, and retest requirement were not provided for the work performed.” • RC03 stated, “Less than adequate oversight and reinforcement of standards and expectations associated with Maintenance review of scope of work for corrective maintenance, use of HU tools, and vendor oversight.” • Contributing cause (CC1) stated, “Implementation of the planning and scheduling process failed to ensure station expectations were met associated with adherence to SSP-001, such that “single point vulnerability” was not identified for the planning of WO 1705755 Step 2.” • CC2 stated, “Engineering resources were not allocated for the inverter work, due to subject matter expert (SME) involvement with an emergent activity and SME understanding of expected work scope, which contributed to inadequate vendor oversight, inadequate identification of the scope of work, and inadequate retest of the work performed.” 			

The inspectors reviewed additional actions in CR-17-05860 and noted that Action 005 was initiated to scope XIT-5905 into the maintenance rule (MRule). Following additional inspector inquiries, the licensee initiated CR-18-00533 to perform the maintenance rule evaluation and CR-18-00651 to document that the evaluation originally documented in Action 005 of CR-17-05860 did not follow CAP procedure requirements.

The inspectors reviewed design calculation, DC00300-156, "Eighth Major Update of the PRA Model," Revision 3A, which included a change to add XIT-5905 to the equipment out of service (EOOS) computer model used by the licensee to perform risk evaluations in accordance with 10 CFR 50.65(a)(4). DC00300-156 was issued on November 13, 2017, six days after the unit trip.

The inspectors performed additional research and discovered relevant information not discussed in the RCA. The inspectors concluded the licensee had the opportunity to mitigate or eliminate the SPV aspects in 2011 or approximately six years prior to the unit trip on November 7, 2017. The licensee initiated CR-18-00954 to determine why CR-09-05101 was not reviewed or discussed in the RCA documented in CR-17-05908.

Corrective Action(s): The licensee implemented CR-17-05860 and CR-17-5908 to identify causes and appropriate corrective actions.

Corrective Action Reference(s): The licensee entered this issue into their CAP as CR-17-05860 and CR-17-05908.

Performance Assessment:

Performance Deficiency: The licensee's failure to adequately assess the risk in accordance with 10 CFR 50.65(a)(4) for an activity involving repairs to inverter XIT-5905 was a performance deficiency (PD).

Screening: The inspectors determined the PD was more than minor because it adversely affected the initiating events cornerstone objective to limit the likelihood of events that upset plant stability and challenge safety functions during power operations and the associated attribute of equipment performance relative to maintenance and reliability. Specifically, the licensee failed to consider the SPV significance of maintenance on inverter XIT-5905 during power operations, and the failure of the inverter led to an automatic reactor trip.

Significance: The inspectors assessed the significance of the finding using IMC 0609, Attachment 4, "Initial Characterization of Findings," dated October 7, 2016, and IMC 0609, Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process," dated May 19, 2005. The baseline core damage frequency (CDF) was 3.3208E-6 and the increase in CDF due to the turbine trip was 3.5260E-6 resulting in an incremental core damage frequency (ICDF) involving the reactor/turbine trip was 2.0520E-7. The duration of the work on XIT-5905 was approximately 12 hours resulting in an incremental core damage probability (ICDP) of 2.811E-10. Since the licensee performed no actual risk assessment for the work on XIT-5905, the ICDP is equal to the incremental core damage probability deficit (ICDPD) or risk deficit. The finding was therefore determined to be of very

low safety significance (Green) using flowchart 1 of IMC0609, Appendix K, because the risk deficit was less than 1E-6.

Cross-cutting Aspect: The inspectors determined the finding had a cross-cutting aspect of work management (H.5) in the area of human performance, because the licensee did not perform an adequate risk assessment in accordance with their procedures.

Enforcement:

Violation: 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 November 7, 2017, the licensee failed to adequately assess the risk for maintenance on inverter XIT-5905.

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

Minor Violation for LER 05000395/2017-006-00: Technical Specification Action Not Met for Inoperable Oxygen Monitor	71153
<p>Minor Violation: Technical Specification (TS) 3.3.3.9, "Explosive Gas Monitoring Instrumentation," for failure perform a grab sample and analysis at least once per 24 hours.</p> <p>Screening: Subsequent grab sample and analysis performed on October 31, 2017 determined that oxygen levels were satisfactory. Therefore the inspectors determined the TS violation was minor. The licensee entered the issue into the CAP as CR-17-05725.</p> <p>Enforcement: The failure to comply with TS 3.3.3.9, "Explosive Gas Monitoring Instrumentation," constitutes a minor violation that is not subject to enforcement action in accordance with the NRC's Enforcement Policy.</p> <p>The inspectors reviewed LER 05000395/2017-006-00 and identified the above information. This LER is closed.</p>	

EXIT MEETINGS AND DEBRIEFS

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

The inspectors confirmed that proprietary information was controlled to protect from public disclosure.

On April 30, 2018, the inspector presented the quarterly resident inspector inspection results to Mr. George Lippard and other members of the licensee staff.

DOCUMENTS REVIEWED

71111.04 - Equipment Alignment

E-302-641, Residual Heat Removal, Rev. 21
SOP-115, Residual Heat Removal, Rev. 22D
SOP-306, Emergency Diesel Generator, Rev. 19E
SOP-211, Emergency Feedwater System, Revision 14G
D-302-085, Emergency Feedwater System Flow Diagram, Rev. 41
FSAR 8.3.1.1.2, Onsite Standby Power Supplies
SOP-304, 115kV, 7.2 kV Operations, Rev. 14A

71111.05AQ - Fire Protection Annual/Quarterly

VC Summer Unit 1 Fire Pre-Plans
STP-728.040, Auxiliary Building Fire Barrier Inspection, Elevations 400', 397', 388' and 374', Rev. 4C
STP-728.042, Control Building Elevation 463' Fire Barrier Inspection, Rev. 7B
STP-728.043, Control Building Elevation 448' Fire Barrier Inspection, Rev. 5C
STP-728.045, Control Building Elevation 425' Fire Barrier Inspection, Rev. 4G
STP-728.047, Intermediate Building Elevations 476', 463', and 451' Fire Barrier Inspection, Rev. 4C
STP-728.048, Intermediate Building Elevations 436' Fire Barrier Inspection, Rev. 4G

71111.12 - Maintenance Effectiveness

ES-514, Maintenance Rule Program Implementation, Rev. 7
SAP-0157, Maintenance Rule Program, Rev. 2

71111.13 - Maintenance Risk Assessments and Emergent Work Control

SSP-001, Planning and Scheduling Maintenance Activities, Rev. 24H
OAP-100.6, Control Room Conduct and Control of Shift Activities, Rev. 4L
OAP-102.1, Conduct of Operations Scheduling Unit, Rev. 8E

71111.18 - Plant Modifications

Drawing 1MS-28-058, Train 'A' XPN-6091, Rev. 21
Drawing B-208-060, Leak Detection System, Rev. 17
SAP-148, Attachment 1, Bypass Authorization Request #18-01, Rev 9
Special Order 18-01, RBCU Operation Impact on RBCU Drain Flow Alarm, Rev. 0