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

May 6, 2019

Mr. Brad Sawatzke, Chief Executive Officer
Energy Northwest
MD 1023
P.O. Box 968
Richland, WA 99352

SUBJECT: COLUMBIA GENERATING STATION – NRC INTEGRATED INSPECTION REPORT 05000397/2019001

Dear Mr. Sawatzke:

On March 31, 2019, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Columbia Generating Station. On April 11, 2019, the NRC inspectors discussed the results of this inspection with Mr. A. Javorik, Vice President of Engineering, 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. The finding did not involve a violation of NRC requirements.

If you disagree with a cross-cutting aspect assignment or a finding not associated with a regulatory requirement 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 IV; and the NRC resident inspector at the Columbia Generating Station.

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/

Mark S. Haire, Branch Chief
Project Branch A
Division of Reactor Projects

Docket No. 05000397
License No. NPF-21

Enclosure:
Inspection Report 05000397/2019001
w/attachment: Documents Reviewed

U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Number(s):	05000397
License Number(s):	NPF-21
Report Number(s):	05000397/2019001
Enterprise Identifier:	I-2019-001-0010
Licensee:	Energy Northwest
Facility:	Columbia Generating Station
Location:	North Power Plant Loop Richland, WA 99354
Inspection Dates:	January 1, 2019, to March 31, 2019
Inspectors:	G. Kolcum, Senior Resident Inspector L. Merker, Senior Resident Inspector R. Alexander, Senior Project Engineer E. Combs, Project Engineer/Acting Resident Inspector P. Elkmann, Senior Emergency Preparedness Inspector
Approved By:	Mark S. Haire, Chief Project Branch A Division of Reactor Projects

Enclosure

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting a Quarterly inspection at Columbia Generating Station 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. Findings being considered in the NRC's assessment are summarized in the table below.

List of Findings and Violations

Failure to Enter the Operational Decision-Making Process for a Condition Reducing Operating Margin in Accordance with Station Procedures			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Initiating Events	Green FIN 05000397/2019001-01 Closed	[H.14] - Conservative Bias	71111.13
The inspectors identified a Green finding for the licensee's failure to adhere to station procedure, Plant Procedures Manual 1.3.67, "Operational Decision-Making Process," Revision 17, Step 6.1, for a condition that creates an actual or potential reduction in operating or design margin. Specifically, the station failed to enter the Operational Decision-Making (ODM) process for degraded startup auxiliary power transformer oil level that reduced operating margin. This resulted in a lockout of the transformer requiring an unplanned entry into Technical Specification 3.8.1, "AC Sources – Operating," Condition A for one offsite circuit inoperable and elevation of plant risk level to Orange Risk for emergent maintenance.			

Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
LER	05000397/2018001-00	Automatic Reactor Scram Due to Main Transformer Trip	71153	Closed
LER	05000397/2018001-01	Automatic Reactor Scram Due to Main Transformer Trip	71153	Closed

PLANT STATUS

The plant began the inspection period at 100 percent rated thermal power.

On January 12, 2019, the unit was down powered to 65 percent to perform a control rod sequence exchange. Reactor power returned to 100 percent on January 13, 2019.

On January 21, 2019, the unit was down powered to 65 percent due to condensate booster pump 2C discharge check valve COND-V-119C leakage. Reactor power returned to 100 percent on January 24, 2019, and remained at or near rated thermal power for the remainder of the inspection period.

INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors performed 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

71111.01 - Adverse Weather Protection

Impending Severe Weather Sample (IP Section 03.03) (2 Samples)

(1) The inspectors evaluated readiness for impending adverse weather conditions for extreme cold weather during the week of February 4, 2019.

(2) The inspectors evaluated readiness for impending adverse weather conditions for winds greater than 30 mph during a snowstorm, on February 9, 2019.

External Flooding Sample (IP Section 03.04) (1 Sample)

The inspectors evaluated readiness to cope with external flooding for the standby service water pump rooms, on February 15, 2019.

71111.04 - Equipment Alignment

Partial Walkdown (IP Section 02.01) (4 Samples)

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

(1) 125V dc system, on January 11, 2019

(2) reactor core isolation coolant system lineup with diesel generator 3 maintenance, on January 28, 2019

(3) seismic monitoring system on February 28, 2019

(4) standby service water system A with standby service water system B inoperability, on March 22, 2019

71111.04S - Equipment Alignment

Complete Walkdown (IP Section 02.02) (1 Sample)

The inspectors evaluated system configurations during a complete walkdown of the 125/250 VDC breaker lineup system on February 8, 2019.

71111.05Q - Fire Protection

Quarterly Inspection (IP Section 03.01) (5 Samples)

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

(1) Fire Area RC-4/1: Electrical Equip and RPS Rooms Division 1, on February 8, 2019

(2) Fire Area RC-5/1: Battery and Security Equip Rooms Division 1, on February 15, 2019

(3) Fire Area RC-6/2: Battery Room Division 2, on February 22, 2019

(4) Fire Area RC-7/2: Electrical Equip and RPS Rooms Division 2, on March 1, 2019

(5) Fire Area RC-14, SM-7: Switchgear Room Division 1, on March 18, 2019

71111.06 - Flood Protection Measures

Inspection Activities - Internal Flooding (IP Section 02.02a.) (1 Sample)

The inspectors evaluated internal flooding mitigation protections in the Division 1 and Division 2 switchgear rooms, on March 8, 2019.

71111.11Q - Licensed Operator Requalification Program and Licensed Operator Performance

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

The inspectors observed and evaluated licensed operator performance in the Control Room during a down-power and removal of the 2C condensate booster pump for maintenance on January 21, 2019, and restart of the 2C condensate booster pump on January 24, 2019.

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

The inspectors observed and evaluated the licensed operator requalification evaluated scenario (Crew C) on January 14, 2019.

71111.12 - Maintenance Effectiveness

Routine Maintenance Effectiveness Inspection (IP Section 02.01) (4 Samples)

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

(1) standby service water system A planned maintenance, week of January 7, 2019

(2) condensate booster pump 2C discharge check valve packing leakage, on January 21, 2019

(3) startup transformer lockout due to low oil level, on February 7, 2019

(4) residual heat removal system A pump and motor replacement, on March 29, 2019

71111.13 - Maintenance Risk Assessments and Emergent Work Control

Risk Assessment and Management Sample (IP Section 03.01) (8 Samples)

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

(1) yellow risk due to standby service water system A planned maintenance, week of January 7, 2019

(2) high risk troubleshooting of control room reactor vessel wide range water level, on January 18, 2019

(3) yellow risk due to diesel generator 3 planned maintenance, week of January 27, 2019

(4) high risk work during lifting and landing leads for scram discharge volume trip transmitter, on February 1, 2019

(5) orange risk due to start up transformer lockout caused by low oil level, on February 7, 2019

(6) high risk lift plan for new fuel receipt, on February 18, 2019

(7) yellow plant risk and blue fire risk due to diesel generator 2 out-of-service for planned major maintenance, on March 18, 2019

(8) yellow risk for standby service water pump 1B maintenance, on March 23, 2019

71111.15 - Operability Determinations and Functionality Assessments

Sample Selection (IP Section 02.01) (7 Samples)

The inspectors evaluated the following operability determinations and functionality assessments:

(1) diverse and flexible coping strategy (FLEX) components environmental qualifications for site extreme temperatures, on January 15, 2019

(2) reactor level switch MS-LS-300C and reactor level indicating switch MS-LIS-200C operability, on January 18, 2019

(3) main steam isolation valve indication during surveillance, on January 23, 2019

(4) low oil level in startup transformer, on February 7, 2019

(5) diesel generator 1 governor setting, on March 1, 2019

(6) vital island fire detector fault, on March 8, 2019

(7) standby service water pump 1B failure to run, on March 22, 2019

71111.18 - Plant Modifications

Temporary Modifications and/or Permanent Modifications (IP Section 03.01 and/or 03.02) (1 Sample)

The inspectors evaluated permanent modification Engineering Change (EC) 15891, seismic monitoring system replacement, on March 21, 2019.

71111.19 - Post Maintenance Testing

Post Maintenance Test Sample (IP Section 03.01) (9 Samples)

The inspectors evaluated the following post maintenance tests:

(1) standby service water pump room fan 1A, on January 7, 2019

(2) standby service water pump A, on January 9, 2019

(3) low-pressure core spray water leg pump, on January 10, 2019

(4) condensate booster pump 2C, discharge check valve packing maintenance run, on January 23, 2019

(5) circulating water pump B, on January 28, 2019

(6) high voltage power supply replacement of intermediate range channel F monitor, on January 29, 2019

(7) rod drive control system post maintenance testing, on February 15, 2019

(8) diesel fire pump leak on coupling during pump run, on February 18, 2019

(9) standby service water pump 1B, on March 23, 2019

71111.22 - Surveillance Testing

The inspectors evaluated the following surveillance tests:

In Service Testing (IST) (IP Section 03.01) (1 Sample)

The inspectors evaluated OSP-SLC/IST-Q701, standby liquid control pumps operability test, on January 15, 2019.

Surveillance Testing (IP Section 03.01) (4 Samples)

(1) PPM OSP-SW-M101, perform standby service water pump A flow balance, on January 8, 2019

(2) OSP-CCH/IST-M701, control room emergency chiller system A operation, on January 9, 2019

(3) OSP-ELEC-M701, diesel generator 1 monthly operation, on January 9, 2019

(4) OSP-ELEC-M702, diesel generator 2 monthly operation, on January 22, 2019

71114.02 - Alert and Notification System Testing

Inspection Review (IP Section 02.01-02.04) (1 Sample)

The inspectors evaluated the maintenance and testing of the licensee's offsite alert and notification system for the public on January 31, 2019.

71114.03 - Emergency Response Organization Staffing and Augmentation System

Inspection Review (IP Section 02.01-02.02) (1 Sample)

The inspectors evaluated the staffing and readiness of the licensee's Emergency Preparedness Organization on January 31, 2019.

71114.04 - Emergency Action Level and Emergency Plan Changes

Inspection Review (IP Section 02.01-02.03) (1 Sample)

The inspectors evaluated the following submitted Emergency Action Level and Emergency Plan changes:

- Columbia Generating Station Emergency Plan, Revision 66
- EPIP 13.1.1A, "Classifying the Emergency, Technical Bases," Revision 34

This evaluation does not constitute NRC approval.

71114.05 - Maintenance of Emergency Preparedness

Inspection Review (IP Section 02.01 - 02.11) (1 Sample)

The inspectors evaluated the licensee's maintenance of their emergency preparedness program on January 28 and 29, 2019.

71114.06 - Drill Evaluation

Emergency Preparedness (EP) Drill (IP Section 02.01) (1 Sample)

The inspectors evaluated the emergency planning drill on February 19, 2019.

OTHER ACTIVITIES – BASELINE

71151 - Performance Indicator Verification

The inspectors verified licensee performance indicators listed below:

IE01: Unplanned Scrams per 7000 Critical Hours Sample (IP Section 02.01) (1 Sample)

Date Range: January 1, 2018, through December 31, 2018

IE03: Unplanned Power Changes per 7000 Critical Hours Sample (IP Section 02.02) (1 Sample)

Date Range: January 1, 2018, through December 31, 2018

IE04: Unplanned Scrams with Complications (USwC) Sample (IP Section 02.03) (1 Sample)

Date Range: January 1, 2018, through December 31, 2018

Drill/Exercise Performance (IP Section 02.12) (1 Sample)

Date Range: January 1, 2018, through December 31, 2018

ERO Drill Participation (IP Section 02.13) (1 Sample)

Date Range: January 1, 2018, through December 31, 2018

Alert & Notification System Reliability (IP Section 02.14) (1 Sample)

Date Range: January 1, 2018, through December 31, 2018

71152 - Problem Identification and Resolution

Annual Follow-up of Selected Issues (IP Section 02.03) (2 Samples)

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

(1) root cause evaluation for the May 18, 2018, reactor scram

(2) evaluation of the December 13, 2018, reactor core isolation cooling system minimum flow valve, RCIC-V-19, trip on thermal overloads

71153 - Followup of Events and Notices of Enforcement Discretion

Event Report (IP Section 03.02) (2 Samples)

The inspectors evaluated the following Licensee Event Reports (LERs) which can be accessed at https://lersearch.inl.gov/LERSearchCriteria.aspx:

(1) LER 0500397/2018-001-00, Automatic Reactor Scram Due to Main Transformer Trip, on May 18, 2018.

The inspectors determined it was not reasonable to foresee or correct the cause discussed in the LER; therefore, no performance deficiency was identified. The inspectors also concluded that no violation of NRC requirements occurred.

(2) LER 0500397/2018-001-01, Automatic Reactor Scram Due to Main Transformer Trip, on May 18, 2018.

The inspectors reviewed the updated LER submittal. The inspectors determined that it was not reasonable to foresee or correct the cause discussed in the LER; therefore, no performance deficiency was identified. The inspectors also concluded that no violation of NRC requirements occurred.

INSPECTION RESULTS

Failure to Enter the Operational Decision-Making Process for a Condition Reducing Operating Margin in Accordance with Station Procedures			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Initiating Events	Green FIN 05000397/2019001-01 Closed	[H.14] - Conservative Bias	71111.13

The inspectors identified a Green finding for the licensee's failure to adhere to station procedure, Plant Procedures Manual 1.3.67, "Operational Decision-Making Process," Revision 17, Step 6.1, for a condition that creates an actual or potential reduction in operating or design margin. Specifically, the station failed to enter the Operational Decision-Making (ODM) process for degraded startup auxiliary power transformer oil level that reduced operating margin. This resulted in a lockout of the transformer requiring an unplanned entry into Technical Specification 3.8.1, "AC Sources – Operating," Condition A for one offsite circuit inoperable and elevation of plant risk level to Orange Risk for emergent maintenance.

Description: At 4:07 a.m. on February 7, 2019, the plant entered abnormal procedures ABN-Transformer and ABN-Grid after the startup auxiliary power transformer, E-TR-S, locked out on low oil level. An operator in the field reported the oil level out-of-sight low with no observable oil leakage in the vicinity of the transformer.

The licensee determined a significant decrease in oil volume occurred as already sub-freezing outside temperatures dropped an additional 15°F that night. Because the pre-event level was already below the normal operating band, the level change due to temperature was sufficient to lockout the transformer on low oil level.

The inspectors' review of the transformer yard logs found that E-TR-S oil level had been consistently recorded through the operating cycle as low in the indicating range, just above the alarm setpoint. Action Reports for alarms received during winter months in previous years indicate that the low temperatures of winter periodically caused the oil volume to shrink to the point of causing an oil level alarm. This phenomenon was a known issue and a nuisance to operators. Those Action Reports were either closed as being complete or closed to trending with no actionable assignments made. Work Requests related to oil addition to the transformer were deferred to the R24 Refueling Outage with the contingency to add oil online.

Plant Procedures Manual (PPM) 1.3.67, "Operational Decision-Making (ODM) Process," provides "a systematic method for making operational decisions that could significantly challenge plant safety, reduce operating margins, threaten generation, or pose risks to personnel or equipment." It is intended to "be performed when there is an actual or potential reduction in operating or design margin." Maintaining the E-TR-S oil level low outside the normal operating band reduced the operating margin by increasing the transformer's susceptibility to weather induced level fluctuations with the potential to cause a lockout. Yet, the licensee failed to enter the ODM process to address this reduction in operating margin during the several month period where the transformer oil level was consistently recorded as low. Operators should have entered the ODM process and corrected the low oil level condition to prevent the low temperatures from causing the level to shrink to the point that a transformer low oil level lockout occurred.

Corrective Action(s): The licensee coordinated with Bonneville Power Authority to add oil to E-TR-S. Additional corrective actions include assignments to revise the transformer yard logs to reflect the markings on the level instruments for both startup and backup transformers and to align the methods used by Engineering and Operations to more accurately record and track transformer oil levels.

Corrective Action Reference(s): Action Reports 389753, 389843, 374476, 387608, and 376707

Performance Assessment:

Performance Deficiency: The failure to adhere to station procedures was a performance deficiency.

Screening: The inspectors determined the performance deficiency was more than minor because it could reasonably be viewed as a precursor to a significant event. The inspectors determined the performance deficiency was more than minor because it adversely affected the Equipment Performance attribute of the Initiating Events cornerstone and its objective to limit the frequency of those events and operations that upset plant stability and challenge critical safety functions, during shutdown as well as power operations. Specifically, the failure to enter a chronic, degraded startup auxiliary power transformer oil level condition that reduced the plant operational margin into the ODM process for tracking and resolution resulted in an unexpected lockout of the transformer on low oil level caused by fluctuation in volume due to cold weather conditions. Loss of the startup auxiliary power transformer resulted in an abnormal electrical distribution and left the backup auxiliary power transformer as the only remaining offsite power source, therefore elevating plant risk level to Orange Risk.

Significance: The inspectors assessed the significance of the finding using Appendix A, "Significance Determination of Reactor Inspection Findings for At - Power Situations." Using the questions in Exhibit 1, "Initiating Events Screening Questions," the finding was determined to be of very low safety significance (Green) because (1) the finding did not result in exceeding the reactor coolant system leak rate for a small loss-of-coolant-accident and (2) did not affect other systems used to mitigate a loss-of-coolant-accident resulting in a total loss of their function.

Cross-cutting Aspect: H.14 - Conservative Bias: Individuals use decision-making-practices that emphasize prudent choices over those that are simply allowable. A proposed action is determined to be safe in order to proceed, rather than unsafe in order to stop. Rather, in this situation the licensee tolerated a degraded condition that reduced operating margin for operational convenience as opposed to identifying the issue as a challenge to plant reliability and entering it into the ODM process for higher visibility, tracking, and resolution.

Enforcement: Inspectors did not identify a violation of regulatory requirements associated with this finding.

EXIT MEETINGS AND DEBRIEFS

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

- On January 31, 2019, the inspectors presented the results of the emergency preparedness inspection results to Mr. B. Schuetz, Site Vice President, and other members of the licensee staff.

- On April 11, 2019, the inspectors presented the integrated inspection results for the quarter to Mr. A. Javorik, Vice President of Engineering, and other members of the licensee staff.

DOCUMENTS REVIEWED

71111.01 – Adverse Weather Protection

Procedures Number	Title	Revision
1.3.76	Integrated Risk Management	054
ABN-FLOODING	Flooding	020
ABN-WIND	Tornado/High Winds	032
SOP-COLDWEATHER-OPS	Cold Weather Operations	032

71111.04 – Equipment Alignment

Procedures Number	Title	Revision
ABN-EARTHQUAKE	Earthquake	014
ABN-ELEC-125VDC	Plant BOP, Div 1,2, & 3 125 VDC Distribution System Failures	015
ABN-ELEC-24VDC	Plant 24VDC Distribution System Failures	005
ABN-ELEC-250VDC	Plant 250VDC Distribution System Failures	004
OSP-SW-M101	Standby Service Water Loop A Valve Position Verification	039
SOP-ELEC-125V-OPS	125 VDC System Operation	003
SOP-ELEC-125V-SHUTDOWN	125 VDC System Shutdown	003
SOP-ELEC-125V-START	125 VDC System Start	009
SOP-ELEC-24V-OPS	24 VDC System Operations	004
SOP-ELEC-24V-SHUTDOWN	24 VDC System Shutdown	002
SOP-ELEC-24V-START	24 VDC System Start	003
SOP-ELEC-250V-OPS	250 VDC System Operations	002

SOP-ELEC-250V-SHUTDOWN	250 VDC System Shutdown	001
SOP-ELEC-250V-START	250 VDC Startup of the 250 VDC System	002

Miscellaneous Documents Number	Title	Revision
EC 15891	Seismic System Replacement	001
LCS 1.3.7.2	Seismic Monitoring Instrumentation	073

71111.05 – Fire Protection Annual/Quarterly

Procedures Number	Title	Revision
1.3.10	Plant Fire Protection Program Implementation	034
1.3.10A	Control of Ignition Sources	017
1.3.10B	Active Fire System Operability and Impairment Control	016
1.3.10C	Control of Transient Combustibles	020
1.3.85	On-Line Fire Risk Management	005
SOP-FP-DRAIN	Fire Protection System Drain	001
SOP-FP-FILL	Fire Protection System Fill	003
SOP-FP-LU	Fire Protection System Valve and Breaker Lineup	009
SOP-FP-OPS	Fire Protection System Operations	015
SOP-FP-SHUTDOWN	Fire Protection System Shutdown	006
SOP-FP-START	Fire Protection System Startup	006

Miscellaneous Documents Number	Title	Revision
RC-14/1	Pre-Fire Plan: Radwaste 467’ Division 1 Switchgear Room	003

71111.06 – Flood Protection Measures

Procedures Number	Title	Revision
1.3.57	Barrier Impairment	037
ABN-FLOODING	Flooding	020
FSAR-01	Final Safety Analysis Report	064
ISP-FED-X301	ECCS Pump Room Flood Level – Calibration	003

71111.11 – Licensed Operator Requalification Program and Licensed Operator Performance

Procedures Number	Title	Revision
3.3.1-QC	Reactor Scram Quick Card	001
3.3.1	Reactor Scram	065
5.1.1	RPV Control	021
5.1.3	Emergency RPV Depressurization	021
5.2.1	Primary Containment Control	027
5.3.1	Secondary Containment Control	020
5.5.25	Alternate Injection Using the SLC System	006
13.1.1	Classifying the Emergency	049
13.1.1A	Classifying the Emergency Technical Bases	034
ABN-CORE	Unplanned Core Operating Conditions	017
ABN-FLOODING	Flooding	020
OI-09	Operations Standards and Expectation	070

Miscellaneous Documents Number	Title	Revision
	Crew C Evaluated Scenario Cycle 19-1, 4.0 Critique Summary	000
LR002447	Cycle 19-1 Evaluated Scenario	000

71111.12 – Maintenance Effectiveness

Action Reports				
389079	389087	389183	389224	389753
375957	374476	387700		

Work Orders						
02126449	02084428	02114328	02116386	02087947	02138264	02042797
02072877	29155963					

Drawings Number	Title	Revision
43-00.84.2	Cast Steel Swing Check Valve ASME Class 600	001
M504-1	Flow Diagram Condensate and Feed Water Systems (Condensate)	111

71111.13 – Maintenance Risk Assessments and Emergent Work Control

Action Reports				
388934	388951	389016	389111	384850

Action Reports

389115	389182	365352	389753	391347
391337	391352			

Work Orders

02118830	02138131	02138018	02138019

Procedures

Number	Title	Revision
1.3.10	Plant Fire Protection Program Implementation	034
1.3.76	Integrated Risk Management	052
1.3.76	Integrated Risk Management	054
1.3.83	Protected Equipment Program	029
ABN-ELEC-GRID	Degraded Off Site Power Grid	011
ABN-TRANSFORMER	Transformer Abnormal Operation	024
SOP-ELEC-230KV-OPS	Removing/Restoring TR-S, From/To Service	006
SOP-ELEC-4160V-OPS	4160 Volt AC Electrical Power Distribution System Operation	016
SWP-MAI-03	Emergent Issue Management	013

71111.15 – Operability Determinations and Functionality Assessments

Action Reports

388768	381457	388934	388951	389016
389111	384850	389115	389182	365352
390459	390460	390461	389753	375957
374476	390732	391347	391337	391352

Work Orders

02118830	02138131	29155963	29147704

Procedures

Number	Title	Revision
4.603.A7	603.A7 Annunciator Panel Alarms	054
ABN-BKR-FAULT	Failure of MOC Switch Activation for Safety Related Breakers	002
ABN-FSG-002	Water Makeup Strategies for RPV, SFP, DW, WW During an Extended Loss of AC Power or Other Beyond Design Basis Event	005
ABN-FSG-002	Water Makeup Strategies for RPV, SFP, DW, WW During an Extended Loss of AC Power or Other Beyond Design Basis Event	006
ABN-FSG-002	Water Makeup Strategies for RPV, SFP, DW, WW During an	007

Procedures Number	Title	Revision
	Extended Loss of AC Power or Other Beyond Design Basis Event	
ABN-SW	Service Water Trouble	015

Drawings Number	Title	Revision
EWD-15E-045	Electrical Wiring Diagram Reactor Protection System CRD-LT-12C & MS-LT-61C	003
EWD-15E-017	Electrical Wiring Diagram Reactor Protection System Scram Discharge Volume High Water Level	000
EWD-15E-47C	Electrical Wiring Diagram Reactor Protection System Power Panel RPS-PP-C72/P001 Circuit Detail	001

71111.18 – Plant Modifications

Action Reports	
391305	391308

Procedures Number	Title	Revision
13.1.1a	Classifying the Emergency – Technical Bases	034
13.14.11	EP Equipment	013
ABN-EARTHQUAKE	Earthquake	013
ABN-EARTHQUAKE	Earthquake	014
ISP-SEIS-X308	Seismic System Channel Calibration	002

Miscellaneous Documents Number	Title	Revision
EC 15891	Seismic System Replacement	001
LCS 1.3.7.2	Seismic Monitoring Instrumentation	073

71111.19 – Post Maintenance Testing

Action Reports				
390045	390058	389996	391347	391337
391352				

Work Orders						
02136285	02117702	02117263	02129637	02129644	02136433	02139024
02138999	02109071					

Procedures Number	Title	Revision
ISP-IRM-X306	Intermediate Range Monitor Channel F Calibration	012
OSP-LPCS-A702	Low Pressure Core Spray Keep Fill Integrity Test	003
OSP-SW/IST-Q702	Standby Service Water Loop B Operability	034

71111.22 – Surveillance Testing

Work Orders				
02129604	02129646	02136285	02130187	02117438

71114.02 – Alert and Notification Systems Testing

Action Reports				
360339	360457	366785	368711	369725
371570	372186	372307	373723	384925
385894	388026			

Procedures	Title	Revision
EPIP 13.14.4	Emergency Equipment Maintenance and Testing	054
EPI-14	Actions in the event of an Automated Notification System Failure	008

Miscellaneous Documents	Title	Date
	Columbia Generating Station Alert and Notification System Design Report, Revision 2	11/15/2016
	Preventative Maintenance Records for Alert and Notification System Sirens	2018

71114.03 – Emergency Response Organization Staffing and Augmentation

Action Reports		
371855	371856	371868

Procedures Number	Title	Revision
EPIP 13.4.1	Emergency Notifications	042, 043
EPIP 13.14.9	Emergency Program Maintenance	029
EPI-11	ERO Administration Program	008

Miscellaneous Documents	Title	Date
	Quarterly Autodialer and Pager Notification Drill Results for the drill conducted March 11, 2017	
	Quarterly Autodialer and Pager Notification Drill Results for the drill conducted May 2, 2017	
	Quarterly Autodialer and Pager Notification Drill Results for the drill conducted September 27, 2017	
	Quarterly Autodialer and Pager Notification Drill Results for the drill conducted December 12, 2017	
	Quarterly Autodialer and Pager Notification Drill Results for the drill conducted March 30, 2018	
	Quarterly Autodialer and Pager Notification Drill Results for the drill conducted June 20, 2018	
	Quarterly Autodialer and Pager Notification Drill Results for the drill conducted August 21, 2018	
	Quarterly Autodialer and Pager Notification Drill Results for the drill conducted December 18, 2018	
	After Action Report/Improvement Plan for ERO Team B, Report for the January 17, 2017, Exercise	02/07/2017
	After Action Report/Improvement Plan for ERO Team D, Report for the March 14, 2017, Exercise	04/24/2017
	After Action Report/Improvement Plan for ERO Team A, Report for the July 18, 2017, Exercise	08/15/2017
	After Action Report/Improvement Plan for ERO Team C, Report for the October 31, 2017, Exercise	11/31/2017
	After Action Report/Improvement Plan for ERO Team C, Report for the February 27, 2018, Exercise	
	After Action Report/Improvement Plan for ERO Team C, Report for the March 27, 2018, Exercise	04/24/2018
	After Action Report/Improvement Plan for ERO Team A, Report for the May 15, 2018, Exercise	
	After Action Report/Improvement Plan for ERO Team B, Report for the July 10, 2018, Exercise	
	After Action Report/Improvement Plan for ERO Team D, Report for the September 25, 2018, Exercise	

71114.04 – Emergency Plan and Emergency Action Level Changes

No additional documents were reviewed.

71114.05 – Maintenance of Emergency Preparedness

Action Reports				
360252	360335	360588	361134	361135

Action Reports

361174	361195	363014	366094	366567
366884	367907	369130	369258	369531
370195	372372	373237	374115	375545
375759	375786	377563	381009	381736
382375	382707	362053	371979	375287
380821	362180	370962	374425	380971
359611				

Work Orders

02107621	02083554	02096734	02096731	02103436	02109006	02105740
02121618	02113624	02106177	02098392	02110759	02110805	

Procedures Number	Title	Revision
EPIP 13.13.2	Emergency Event Termination and Recovery Operations	018
	After-Action Reporting	010
	Emergency Equipment Maintenance and Testing	018
EPIP 13.14.8	Drill and Exercise Program	018
EPIP 13.14.9	Emergency Program Maintenance	029
EPI-08	Emergency Preparedness Sign Maintenance	005
EPI-11	ERO Administration Program	008
EPI-16	50.54(Q) Change Evaluation	015
EPI-17	After-Action Report/Improvement Plan Formatting, Distribution, and Retention	008
EPI-21	Drill and Exercise Development and Implementation	018
SWP-ASI-01	Evaluation of Programs, Processes and Suppliers	031
1.3.10	Plant Fire Protection Program Implementation	34-1

Miscellaneous Documents	Title	Revision/ Date
	Columbia Generating Station Emergency Plan	066
	After Action Report/Improvement Plan for ERO Team B, Report for the January 17, 2017, Exercise	02/07/2017
	After Action Report/Improvement Plan for ERO Team D, Report for the March 14, 2017, Exercise	04/24/2017
	After Action Report/Improvement Plan for ERO Team A, Report for the July 18, 2017, Exercise	08/15/2017
	After Action Report/Improvement Plan for ERO Team C, Report for the October 31, 2017, Exercise	11/31/2017
	After Action Report/Improvement Plan for ERO Team C, Report for the February 27, 2018, Exercise	
	After Action Report/Improvement Plan for ERO Team C, Report for the March 27, 2018, Exercise	04/24/2018

Miscellaneous Documents	Title	Revision/ Date
	After Action Report/Improvement Plan for ERO Team A, Report for the May 15, 2018, Exercise	
	After Action Report/Improvement Plan for ERO Team B, Report for the July 10, 2018, Exercise	
	After Action Report/Improvement Plan for ERO Team D, Report for the September 25, 2018, Exercise	
	After Action Report for the November 28, 2018, First Responder Drill (Contaminated/Injured Man)	
AU-EP-17	Quality Services Audit Report: Emergency Preparedness Program	02/23/2017
AU-EP-18	Quality Services Audit Report: Emergency Preparedness Program	03/12/2018
AU-EP-7	Checklist #8, Offsite Agency Interfaces	
	2018 Emergency Preparedness Program 12-month Audit Frequency Evaluation	02/05/2018
	Continuous Monitoring Report SR-18-02, Revision 1, January through May 2018	07/05/2018
	Continuous Monitoring Report SR-18-03, June through September 2018	10/23/2018
2017-03	50.54(q) Screening and Evaluation, , TSC Administrative Manager Checklist, Revision 5	02/28/2017
2017-16	50.54(q) Screening and Evaluation, EPC 26532, Revision 3	05/02/2017
2017-20	50.54(q) Screening and Evaluation, SWP-EPP-01, Revision 22	02/06/2018
2017-24	50.54(q) Screening and Evaluation, Cassadian AirBus VESTA Communications System Version 5,	08/02/2017
2017-25	50.54(q) Screening and Evaluation, EPI-27, Revision 2	09/07/2017
2017-27	50.54(q) Screening and Evaluation, PPM 13.9.1, Revision 45 and PPM 13.95, Revision 17	09/27/2017
2017-31	50.54(q) Screening and Evaluation, EP Siren Site Inspections, Revision 1	
2018-03	50.54(q) Screening and Evaluation, PPM 13.14.11, Revision 13	01/09/2018
2018-04	50.54(q) Screening and Evaluation, NRC Liaison Checklist, Revision 3, RPM Checklist, Revision 5, and HPN Communicator Checklist, Revision 1	01/31/2018
2018-17	50.54(q) Screening and Evaluation, EAL Technical Bases, Revision 34, Emergency Plan 66, and Emergency Event Termination and Recovery Operations, Revision 18	08/14/2018
2018-21	50.54(q) Screening and Evaluation, EOF Manager Checklist, Revision 9	06/05/2018
2018-32	50.54(q) Screening and Evaluation, EP 2.003, Onshift	06/27/2018

Miscellaneous Documents	Title	Revision/ Date
	Staffing Analysis Report	
2018-39	50.54(q) Screening and Evaluation, Plant Administrative Manager Checklist, Revision 6	08/28/2018
2018-42	50.54(q) Screening and Evaluation, Dose Projection Health Physics Checklist, Revision 4	11/13/2018
2018-45	50.54(q) Screening and Evaluation, PPM 13.4.1, Emergency Notifications, Revision 43-5	10/08/2018
2018-46	50.54(q) Screening and Evaluation, PPM 13.8.1, Emergency Dose Projection System Operations, Revision 39-1	10/09/2018
2018-50	50.54(q) Screening and Evaluation, PPM 13.14.11, Revision 1	11/08/2018
	URI-RASCAL Practice Cases (Draft): January 2019, April 2019, August 2019, October 2019, December 2019	
	Just In Time Training Lesson Plan, URI Pathway JITT	08/15/2018
SA370464	Snapshot Self Assessment	
SA340626	Focused Self Assessment, Emergency Preparedness Exercise Year Self Assessment	
SA371464	Snapshot Self Assessment	10/25/2018

71114.06 – Drill Evaluation

Procedures Number	Title	Revision
13.1.1	Classifying the Emergency	049
13.1.1A	Classifying the Emergency-Technical Bases	034
13.10.1	035 004 2/14/2017 Control Room Operation and Shift Manager Duties	035
13.10.14	Maintenance Manager Duties	009
13.10.16	Chemistry/Effluent Manager Duties	003
13.10.17	TSC Ventilation Radiation Monitor System Operations	005
13.10.2	TSC Manager Duties	035
13.10.3	Technical Manager and Staff Duties	023
13.10.4	Radiation Protection Manager Duties	033
13.10.5	15 Operations Manager Duties	012
13.10.6	Plant / NRC Liaison Duties	025
13.10.7	Plant Administrative Manager Duties	024
13.10.8	Security Lieutenant and Security Force Duties	025
13.10.9	Operations Support Center Manager and Staff Duties	049
13.11.1	EOF Manager Duties	044

Procedures Number	Title	Revision
13.11.10	Security Manager Duties	022
13.11.12	EOF Engineering Manager and Staff Duties	031
13.11.2	Assistant EOF Manager Duties	010
13.11.3	Site Support Manager and Staff Duties	032
13.11.7	Radiological Emergency Manager Duties	037
13.12.19	JIC Management	024
13.13.1	Reentry Operations	010
13.13.2	Emergency Event Termination and Recovery Operations	018

71151 – Performance Indicator Verification

Procedures Number	Title	Revision
EPIP 13.14.4	Emergency Equipment Maintenance and Testing	054
EPI-18	Emergency Preparedness Performance Indicators	026
EPI-21	Drill and Exercise Development and Implementation	018

71152 – Problem Identification and Resolution

Action Reports				
386750	386956	387833	387990	380257
380412	380341	380427	387479	

Work Orders						
29146086	29146159	29146182	29146189	02049828	02137070	02105341
02128700						

Procedures Number	Title	Revision
1.3.5	Reactor Trip Report	026
3.3.1	Reactor Scram	064
ABN-RRC-LOSS	Loss of Reactor Recirculation Flow	013
ABN-SRV	Safety Relief Valve Opening	006
ABN-TRANSFORMER	Transformer Abnormal Operation	022
ESP-MOVTOL-B301	MOV Thermal Overload Testing – CC	022
OSP-RCIC/ IST-Q701	RCIC Operability Test	062

Drawings Number	Title	Revision
250-00.47.1	Valve Assembly, 2 inch. Y Type, Globe Valve, Motor Operated, C.S	000
1205-00.17	Generator Step-up Transformer Schematic Diagram	001

Miscellaneous Documents Number	Title	Revision
776-00.1.1	Stack Monitoring System Equipment, Instrumentation, Dual Sum, Amplifier, Power Supply, Modular System and Coaxicon Vendor Manual	002
RCIC-MO-19	MOV Master Data Sheet	013

Modifications Number	Title	Revision
EC 11288	Replace Stack Monitors	008

Calculations Number	Title	Revision
NE-02-09-12	CGS Emergency Action Levels (EALs) Technical Bases	004
NE-02-13-10	Determination of Low Range Stack Monitor Xe-133 Equivalent Efficiency	000
NE-02-15-07	Setpoint Calculation for Reactor Building Elevated Discharge Radiation Monitor (Stack Monitor)	000

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

Action Reports			
380257	380412	380341	380427

Work Orders
02128700

Procedures Number	Title	Revision
1.3.5	Reactor Trip Report	026
3.3.1	Reactor Scram	064
ABN-RRC-LOSS	Loss of Reactor Recirculation Flow	013
ABN-SRV	Safety Relief Valve Opening	006
ABN-TRANSFORMER	Transformer Abnormal Operation	022

Drawings Number	Title	Revision
1205-00.17	Generator Step-up Transformer Schematic Diagram	001

COLUMBIA GENERATING STATION – NRC INTEGRATED INSPECTION
REPORT 05000397/2019001 – May 6, 2019

DISTRIBUTION
SMorris, RA
MShaffer, DRA
AVegel, DRP
MHay, DRP
RLantz, DRS
GMiller, DRS
DCylkowski, RC
MHaire, DRP
MMcCoppin, RIV/OEDO
VDricks, ORA
JWeil, OCA
JKlos, NRR
AMoreno, RIV/CAO
BMaier, RSLO
RKellar, IPAT
GKolcum, DRP
LMerker, DRP
MBennett, DRP
RAlexander, DRP
AAthar, DRP
JVera, DRP
PJayroe, IPAT
MHerrera, DRMA
R4Enforcement
ROP Reports

Electronic Distribution for Columbia Generating Station

ADAMS ACCESSION NUMBER: ML19126A291

☒ SUNSI Review By:	ADAMS: ☒ Yes ☐ No	☐ Non-Publicly Available ☒ Publicly Available	☒ Non-Sensitive ☐ Sensitive	Keyword: NRC-002

OFFICE	SRI:DRP/A	RI:DRP/C	ARI:DRP/A	DRS/IPAT	DRS/EB1	DRS/EB2
NAME	GKolcum	LMerker	ECombs	RKellar	VGaddy	GPick
SIGNATURE	*/RA/*	*/RA/*	*/RA/*	*/RA/*	*/RA/*	*/RA/*
DATE	04/25/2019	4/22/2019	5/1/2019	04/25/2019	4/26/19	4/25/2019
OFFICE	DRS/RCB	DNMS/RIB	DRS/OB	SPE:DRP/A	BC:DRP/A	
NAME	NMakris	GWarnick	GWerner	RAlexander	MHaire	
SIGNATURE	*/RA/*	*/RA/ JKatanic for*	*/RA/*	*/RA/*	*/RA/*	
DATE	04/25/2019	05/01/2019	04/25/2019	04/25/2019	05/6/19	

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