



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

August 12, 2018

Mr. Adam C. Heflin, President
and Chief Executive Officer
Wolf Creek Nuclear Operating Corporation
P.O. Box 411
Burlington, KS 66839

**SUBJECT: WOLF CREEK GENERATING STATION – NRC INTEGRATED INSPECTION
REPORT 05000482/2018002 AND ASSESSMENT FOLLOW-UP LETTER**

Dear Mr. Heflin:

On June 30, 2018, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Wolf Creek Generating Station. On July 17, 2018, the NRC inspectors discussed the results of this inspection with Mr. C. Reasoner, Chief Nuclear Officer and Senior Vice President, and other members of your staff. The results of this inspection are documented in the enclosed report.

NRC inspectors documented two findings of very low safety significance (Green) in this report. Both of these findings involved violations of NRC requirements. Additionally, NRC inspectors documented one Severity Level IV violation with no associated finding. The NRC is treating these violations as non-cited violations (NCV) consistent with Section 2.3.2 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 U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region IV; the Director, Office of Enforcement; and the NRC resident inspector at the Wolf Creek Generating 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 IV; and the NRC resident inspector at the Wolf Creek Generating Station.

In the 2017 Annual Assessment Letter for Wolf Creek Generating Station (Report 05000482/2017006, Agencywide Documents Access and Management System (ADAMS) ML18052A345), the NRC identified a cross-cutting theme in the safety conscious work environment (SCWE) area. On August 8, 2018, the NRC documented an assessment of the licensee's progress in addressing the SCWE theme in NRC Inspection Report 05000482/2018007 (ADAMS ML18218A265). The inspectors determined that while the licensee had taken some corrective actions to address the work environment challenges on site,

these actions had not yet been effective to improve the SCWE in the maintenance support group.

Based on this conclusion and the previously documented finding with a cross-cutting aspect related to the inconsistent implementation of SCWE policy (S.1), as discussed in NRC Inspection Report 05000482/2017004 (ADAMS ML18043A114), the NRC determined that a theme in the SCWE area continues to exist. The NRC will continue to monitor your staff's progress in implementing corrective actions for this theme.

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/

Nicholas H. Taylor, Chief
Project Branch B
Division of Reactor Projects

Docket No. 50-482
License No. NPF-42

Enclosure:
Inspection Report 05000482/2018002
w/Attachments:

1. Documents Reviewed
2. Request for Information Inservice Inspection
3. Request for Information Occupational Radiation Safety Inspection
4. Request for Information Quarterly Baseline Inspection

U.S. NUCLEAR REGULATORY COMMISSION
Inspection Report

Docket Number: 05000482

License Number: NPF-42

Report Number: 05000482/2018002

Enterprise Identifier: I-2018-002-0012

Licensee: Wolf Creek Nuclear Operating Corporation

Facility: Wolf Creek Generating Station

Location: Burlington, Kansas

Inspection Dates: April 1, 2018 to June 30, 2018

Inspectors: D. Dodson, Senior Resident Inspector
F. Thomas, Resident Inspector
C. Alldredge, Health Physicist
I. Anchondo, Reactor Inspector
J. Melfi, Project Engineer
J. O'Donnell, CHP, Health Physicist

Approved By: N. Taylor
Chief, Project Branch B
Division of Reactor Projects

SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring the licensee's performance by conducting an Integrated Inspection at Wolf Creek 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. NRC-identified and self-revealed findings, violations, and additional items are summarized in the table below.

List of Findings and Violations

Announcement of an NRC Inspector's Presence by Station Personnel			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Not Applicable	Severity Level IV NCV 05000482/2018002-01 Closed	Not Applicable	71111.20 – Refueling and Other Outage Activities
<p>The inspectors identified a Severity Level IV non-cited violation (NCV) of 10 CFR 50.70(b)(4), "Inspections," associated with the licensee's failure to ensure the arrival and presence of NRC Inspectors, who had been properly authorized facility access as described in 10 CFR 50.70(b)(3), were not announced or otherwise communicated by its employees or contractors to other persons at the facility without a specific request by the NRC inspector. Specifically, a contract radiation protection technician entered the spent fuel pool building where the resident inspector was present and observing core offload activities, and the technician informed members of a work crew of the whereabouts of an NRC radiation protection inspection team without being requested to do so; this impacts the NRC's ability to regulate and perform unannounced inspections.</p>			

Failure to Maintain Adequate Pressurization of the Control Room Envelope			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000482/2018002-02 Closed	[H.3] – Human Performance, Change Management	71152 – Problem Identification and Resolution
<p>A self-revealed Green NCV of 10 CFR Part 50, Criterion III, "Design Control," was identified when the licensee failed to adequately recognize that the cable spreading room floor was a control building ventilation isolation boundary. Specifically, the licensee cut openings in the floor/ceiling between the 2,032 foot and 2,016 foot elevations of the control building and the impact on the control room envelope's ability to pressurize was not recognized. This was a primary contributor to the train B control room emergency ventilation system being unable to maintain the appropriate pressure in the control room envelope.</p>			

Failure to Adequately Implement Instrumentation and Controls Surveillance Procedures			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Initiating Events	Green NCV 05000482/2018002-03 Closed	[H.2] – Human Performance, Field Presence	71152 – Problem Identification and Resolution
A self-revealed Green NCV of 10 CFR Part 50, Criterion V, “Instructions, Procedures, and Drawings,” was identified when the licensee failed to adequately implement surveillance procedures that affected safety-related equipment and plant stability. Specifically, the licensee failed to adequately implement testing and calibration procedures for pressurizer level instrumentation. This resulted in two letdown isolation signals, securing of pressurizer heaters, and a pressurizer level transient on March 29, 2018.			

PLANT STATUS

Wolf Creek Generating Station began the inspection period shutdown for Refueling Outage 22. The reactor was restarted on May 17, 2018, and power ascension was commenced. The unit was returned to approximately rated thermal power on May 21, 2018, 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 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors performed plant status activities described in Inspection Manual Chapter 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

Summer Readiness (1 Sample)

The inspectors evaluated summer readiness of offsite and alternate alternating current (AC) power systems.

71111.04—Equipment Alignment

Partial Walkdown (2 Samples)

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

- (1) Essential service water train B on June 20, 2018
- (2) Auxiliary feedwater train B on June 26, 2018.

Complete Walkdown (1 Sample)

The inspectors evaluated system configurations during a complete walkdown of the spent fuel pool cooling system April 8 through April 15, 2018.

71111.05AQ—Fire Protection Annual/Quarterly

Quarterly Inspection (6 Samples)

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

- (1) Volume control tank and volume control tank valve compartment, fire area A-8 on April 21, 2018
- (2) Reactor building, elevation 2,000 feet, fire areas RB-1 and RB-2 on May 16, 2018
- (3) Reactor building, elevation 2,026 feet, fire areas RB-2, RB-3, RB-4, RB-7, and RB-8 on May 16, 2018
- (4) Reactor building, elevation 2,047 feet, fire areas RB-5 and RB-10 on May 16, 2018
- (5) Reactor building, elevation 2,068 feet 8 inches, fire areas RB-6 and RB-10 on May 16, 2018
- (6) Fuel pool heat exchanger rooms and general area, elevation 2,000 feet, fire areas F-1, F-2, and F-3 on May 31, 2018.

71111.06—Flood Protection Measures

Cables (Partial Sample)

The inspectors evaluated cable submergence protection in essential service water electrical manhole MHE1A on June 18, 2018.

71111.08—Inservice Inspection Activities (1 Sample)

(1) Nondestructive Examination Activities and Welding Activities

The inspector directly observed the following nondestructive examinations:

<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>EXAMINATION TYPE</u>
Reactor Vessel Head	Control Rod Drive Mechanism Penetration Numbers 1, 2, 3, 4, 10, 14, 17, 18, 24, 25, 26, 27, 30, 32, 33, 35, 38, 43, 54, 66, 71, and 74.	Visual (VE)

The inspector reviewed records for the following nondestructive examinations:

<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>EXAMINATION TYPE</u>
Feedwater System	Weld Number AE-04-F015 and AE-04-S010-C (Data Sheet Number AGF_012)	Ultrasonic

<u>SYSTEM</u>	<u>WELD IDENTIFICATION</u>	<u>EXAMINATION TYPE</u>
Feedwater System	Steam Generator "A" Inner Radius – Weld Number EBB01A-11-IR (Data Sheet Number AJS_010)	Ultrasonic
Steam Generator	Steam Weld Number EBB01A-STEAM-3-W (Data Sheet Number RAL_002)	Ultrasonic
Steam Generator	Steam Weld Number EBB01A-STEAM-6-W (Data Sheet Number RAL_003)	Ultrasonic
Steam Generator	Weld Number EBB01A-11-W (Data Sheet Number RAL_004)	Ultrasonic
Steam Generator	Steam Weld Number EBB01A-STEAM-2-W (Data Sheet Number RAL_005)	Ultrasonic

(2) Vessel Upper Head Penetration Inspection Activities

The inspector reviewed the results of the licensee's bare metal visual inspection of the reactor vessel upper head penetrations. The inspector also reviewed whether the required inspection coverage was achieved and whether limitations were properly recorded. The inspector reviewed whether the personnel performing the inspection were certified examiners to their respective nondestructive examination method.

On May 10, 2018, the licensee was granted verbal approval for performing an alternative volumetric examination and leak path assessment in lieu of the visual examination requirements of Note 1 of Table 1, American Society of Mechanical Engineers Code Case N-729-4. Although not indicative of possible nozzle leakage, the licensee was not able to perform the required visual examination of penetration number one due to a hard substance obstructing the annulus. At the time of the inspection, the licensee had satisfactorily completed the ultrasonic inspection and leak path assessment. The licensee had also cleaned the annulus of penetration number one.

(3) Boric Acid Corrosion Control Inspection Activities

The Inspector evaluated the licensee's boric acid control program performance.

(4) Steam Generator (SG) Tube Inspection Activities

The inspector reviewed the SG tube eddy current examination scope and expansion criteria to determine whether these criteria met technical specification requirements, Electric Power Research Institute (EPRI) guidelines, and commitments made to the NRC. The inspector also reviewed whether the eddy current inspection scope included areas of degradations that were known to represent potential eddy current test challenges such as the top of tube sheet, tube support plates, and U-bends. The inspector confirmed that no repairs were required at the time of the inspection and that the licensee's inspection scope was appropriate.

(5) Identification and Resolution of Problems (71111.08-02.05)

The inspector reviewed 14 condition reports, which dealt with inservice inspection activities, and found the corrective actions for inservice inspection issues were appropriate.

71111.11—Licensed Operator Requalification Program and Licensed Operator Performance

Operator Requalification (1 Sample)

The inspectors observed and evaluated licensed operator simulator requalification exams on May 31, 2018.

Operator Performance (1 Sample)

The inspectors observed and evaluated operator performance during energization of the XNB01 transformer and NB01 safety-related bus on May 2, 2018, and performance of STS AE-211, “Main Feed Reg Valve Inservice Valve Test,” during startup activities on May 17, 2018.

71111.12—Maintenance Effectiveness

Routine Maintenance Effectiveness (1 Sample)

The inspectors evaluated the effectiveness of routine maintenance activities associated with the spent fuel pool cooling and cleanup system level instrumentation reading erratically on May 24, 2017.

71111.13—Maintenance Risk Assessments and Emergent Work Control (3 Samples)

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

- (1) Elevated risk during lowered inventory and preparations for reactor head lift on April 6, 2018, and refueling water storage tank unavailability on April 7, 2018
- (2) Elevated spent fuel pool cooling risk while defueled on April 19 and April 21, 2018
- (3) Elevated risk during Mode 5 while implementing low temperature overpressure protection controls and emergency core cooling pump testing on May 8 and 9, 2018.

71111.15—Operability Determinations and Functionality Assessments (4 Samples)

The inspectors evaluated the following operability determinations and functionality assessments:

- (1) Operability evaluation of safety injection and accumulator to loop 1 check valve bonnet bolting issues on April 22, 2018
- (2) Operability evaluation of start-up transformer XMR01 power factor testing on April 25, 2018

- (3) Operability evaluation of thermal sleeve inspection results on May 8, 2018
- (4) Operability evaluation of train A safety injection pump for motor current reading higher than name plate rating on May 11, 2018.

71111.18—Plant Modifications (1 Sample)

The inspectors evaluated the spent fuel pool alternate decay heat removal permanent modification.

71111.19—Post Maintenance Testing (6 Samples)

The inspectors evaluated the following post maintenance tests:

- (1) Start-up transformer XMR01 testing after switchyard modification and transmission line modification on April 27, 2018
- (2) Emergency diesel generator train B 24-hour testing following outage maintenance on May 1, 2018
- (3) Centrifugal charging pump train A testing after completion of seal maintenance on May 9, 2018
- (4) STS EM-100A, "Safety Injection Pump 'A' Inservice Pump Test," following A safety injection pump replacement work on May 11, 2018
- (5) Train B spent fuel pool cooling pump testing after boric acid cleaning and oil sample on May 31, 2018
- (6) STS IC-503B, "Channel Calibration Pressurizer Level," following emergent bistable card replacement on June 19, 2018.

71111.20—Refueling and Other Outage Activities (1 Sample)

The inspectors evaluated Refueling Outage 22 activities from April 1 to May 18, 2018.

The inspectors completed inspection procedure Sections 03.01.d and 03.01.e.

71111.22—Surveillance Testing

The inspectors evaluated the following surveillance tests:

Routine (1 Sample)

- (1) STS KJ-001B, "Integrated D/G and Safeguard Actuation Test – Train B," on May 11, 2018

In-service (1 Sample)

- (1) STS EM-003A, "ECCS (CCP) Flow Balance and CCP Comprehensive Test," on May 2, 2018

Reactor Coolant System Leak Detection (1 Sample)

- (1) STS BB-006, "RCS Water Inventory Balance Using the NPIS Computer," on June 27, 2018

Containment Isolation Valve (1 Sample)

- (1) STS PE-128, "Local Leak Rate Test (LLRT) of Penetration P-29," on April 24, 2018.

RADIATION SAFETY

71124.01—Radiological Hazard Assessment and Exposure Controls

Radiological Hazard Assessment (1 Sample)

The inspectors evaluated radiological hazards assessments and controls.

Instructions to Workers (1 Sample)

The inspectors evaluated worker instructions.

Contamination and Radioactive Material Control (1 Sample)

The inspectors evaluated contamination and radioactive material controls.

Radiological Hazards Control and Work Coverage (1 Sample)

The inspectors evaluated radiological hazards control and work coverage.

High Radiation Area and Very High Radiation Area Controls (1 Sample)

The inspectors evaluated risk-significant high radiation area and very high radiation area controls.

Radiation Worker Performance and Radiation Protection Technician Proficiency (1 Sample)

The inspectors evaluated radiation worker performance and radiation protection technician proficiency.

71124.02—Occupational As Low As Reasonably Achievable (ALARA) Planning and Controls

Implementation of ALARA and Radiological Work Controls (1 Sample)

The inspectors reviewed ALARA practices and radiological work controls by reviewing the following activities:

- (1) RWP 180021, "Cartridge Filter Change-Out in Aux and RW Buildings"
- (2) RWP 182601, "Routine Outage Access (No Locked High Radiation Areas)"
- (3) RWP 182300, "Maintenance Support"

- (4) RWP 183220, "Primary S/G Eddy Current RWP"
- (5) RWP 184207, "RCP Team Seal Replacement on C & D RCP's"
- (6) RWP 184420, "Scaffolding Activities RF22"
- (7) RWP 184482, "Canopy Seal Clamp Activities Disassembly"

Radiation Worker Performance (1 Sample)

The inspectors evaluated radiation worker and radiation protection technician performance.

OTHER ACTIVITIES – BASELINE

71151—Performance Indicator Verification (4 Samples)

The inspectors verified licensee performance indicators submittals listed below:

- (1) BI01: Reactor Coolant System (RCS) Specific Activity Sample (04/01/2017–03/31/2018)
- (2) BI02: RCS Leak Rate Sample (04/01/2017–03/31/2018)
- (3) OR01: Occupational Exposure Control Effectiveness Sample (04/01/2017–3/30/2018)
- (4) PR01: Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual Radiological Effluent Occurrences (RETS/ODCM) Radiological Effluent Occurrences Sample (04/01/2017–03/30/2018).

71152—Problem Identification and Resolution

Semiannual Trend Review (1 Sample)

The inspectors reviewed the licensee's corrective action program for trends that might be indicative of a more significant safety issue.

Annual Follow-up of Selected Issues (2 Samples)

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

- (1) On March 5, 2018, Condition Report 120056 documented that the required control room pressurization could not be developed.
- (2) On March 29, 2018, Condition Report 120807 documented that incorrect test switches were operated during a performance of STS IC-503B, "Channel Calibration Pressurizer Level."

INSPECTION RESULTS

Announcement of an NRC Inspector's Presence by Station Personnel			
Cornerstone	Severity	Cross-cutting Aspect	Report Section
Not Applicable	Severity Level IV NCV 05000482/2018002-01 Closed	Not Applicable	71111.20 – Refueling and Other Outage Activities
<p>The inspectors identified a Severity Level IV NCV of 10 CFR 50.70(b)(4), "Inspections," associated with the licensee's failure to ensure the arrival and presence of NRC Inspectors, who had been properly authorized facility access as described in 10 CFR 50.70(b)(3), were not announced or otherwise communicated by its employees or contractors to other persons at the facility without a specific request by the NRC inspector. Specifically, a contract radiation protection technician entered the spent fuel pool building where the resident inspector was present and observing core offload activities, and the technician informed members of a work crew of the whereabouts of an NRC radiation protection inspection team without being requested to do so; this impacted the NRC's ability to regulate and perform unannounced inspections.</p>			
<p><u>Description:</u> On April 10, 2018, the resident inspector was in the spent fuel pool building observing fuel movement activities in support of core off-load for Refueling Outage 22. NRC radiation protection inspectors were also onsite conducting inspection activities. At approximately 11:00 a.m., the resident inspector observed a BHI contractor enter the spent fuel pool building and announce to members of a work crew that NRC inspectors had entered the radiologically controlled area (containment) and to be "mindful and careful."</p> <p>The resident inspector spoke with the visiting NRC radiation protection inspectors later that afternoon and confirmed they had entered containment at approximately 10:30 a.m. on April 10, 2018, and had not requested that their presence be announced. The resident inspector noted that his location in the spent fuel pool building, where the announcement of NRC inspectors had occurred, was in close proximity to where the other NRC inspectors were entering containment.</p> <p>Corrective Actions: On April 25, 2018, the licensee entered this issue into the corrective action program. Additional corrective actions included the performance of a stand down with all BHI employees to inform them that conduct that alerts workers to the presence of the NRC, or any oversight group, is prohibited; the licensee also published an article in a site newsletter explaining the requirements of 10 CFR 50.70. The article informed site personnel that a violation had occurred and described site management expectations regarding appropriate conduct.</p> <p>Corrective Action References: Condition Reports 122359 and 122375.</p>			
<p><u>Performance Assessment:</u> The inspectors determined this violation was associated with a minor performance deficiency.</p>			
<p><u>Enforcement:</u> The Reactor Oversight Process'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.</p>			

Severity: The finding was evaluated in accordance with the NRC's Enforcement Policy. The finding was reviewed by NRC management and because the violation was of very low safety significance, was not repetitive or willful, and was entered into the corrective action program, this violation is being treated as a Severity Level IV NCV, consistent with the NRC Enforcement Policy.

Violation: Title 10 CFR 50.70(b)(4), "Inspections," requires, in part, that the licensee shall ensure that the arrival and presence of an NRC inspector, who has been properly authorized facility access as described in 10 CFR 50.70(b)(3), is not announced or otherwise communicated by its employees or contractors to other persons at the facility unless specifically requested by the NRC inspector.

Contrary to the above, on April 10, 2018, the licensee failed to ensure that the arrival and presence of NRC inspectors, who had been properly authorized facility access as described in 10 CFR 50.70(b)(3), were not announced or otherwise communicated by its employees or contractors to other persons at the facility unless specifically requested by the NRC inspectors. Specifically, a radiation protection technician entered the spent fuel pool building and informed members of a work crew of the whereabouts of NRC radiation protection inspectors without being requested to do so.

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

Observation	71152 – Problem Identification and Resolution
<p>The inspectors reviewed the licensee's progress in addressing the cross-cutting theme in the SCWE area, as discussed in the 2017 Annual Assessment Letter for Wolf Creek Generating Station (Report 05000482/2017006, ADAMS ML18052A345). The NRC's review of the licensee's progress in addressing the SCWE theme was accomplished within the scope of the biennial problem identification and resolution inspection, which was completed on June 28, 2018. NRC Inspection Report 05000482/2018007 (ADAMS ML18218A265), dated August 8, 2018, discusses the results of this inspection, which concluded that actions taken to address the work environment challenges in the maintenance support group had not yet been effective.</p> <p>The inspectors also considered whether there was an emerging trend associated with impacting the regulatory process. The inspectors noted NCV 05000482/2018002-01, as documented in this report, which involved announcement of an NRC inspector's presence by station personnel. The inspectors also noted that the announcement of an inspector's presence was not an isolated event. Specifically, the presence of an NRC inspector was announced by a Wolf Creek employee to a state official during a drill on February 27, 2018. However, the inspectors determined that no violation occurred in this case because the announcement, which was not requested by the inspector, was not made to licensee personnel and was thereby outside the NRC's regulatory authority. These issues and other reportability questions being evaluated by ongoing inspections were considered, and no emerging trend has been identified at this time.</p>	

The inspectors noted that four NCVs that occurred within an approximate 1 year time period relate to the licensee's understanding of the design basis and design basis implementing documents. Specifically:

- NCV 05000482/2018002-02, "Failure to Maintain Adequate Pressurization of the Control Room Envelope," involved a failure to ensure an implementing document—the boundary matrix—identified all boundary functions; this led to a failure to control a boundary and was a primary contributor to the failure to pressurize the control room envelope.
- NCV 05000482/2018001-01, "Inadequate Functionality Assessment Associated with the Emergency Excess Letdown Flowpath," involved discrepancies between the Technical Specification Bases, procedures, and the updated safety analysis report; these discrepancies contributed to an inadequate functionality assessment.
- NCV 05000482/2017003-02, "Failure to Ensure the Design Basis was Adequately Represented in the Technical Specification Bases," involved discrepancies between the auxiliary feedwater Technical Specification Bases and the updated safety analysis report; as a result, inoperability of an auxiliary feedwater train was not recognized.
- NCV 05000482/2017002-02, "Failure to Declare Train A Component Cooling Water Inoperable," related to the Technical Specification Bases not specifically identifying specific valves' importance to the safety-related design functions as outlined in the updated safety analysis report; as a result, inoperability of safety-related equipment was not recognized.

In each of these cases the inspectors observed that the updated safety analysis report was not consistently being referenced when questions about the adequacy or completeness of the Technical Specification Bases were identified. The inspectors also observed that each of these NCVs represented some organizational knowledge gap concerning the design basis as outlined in the updated safety analysis report.

Failure to Maintain Adequate Pressurization of the Control Room Envelope			
Cornerstone	Significance	Cross-cutting Aspect	Report Section
Mitigating Systems	Green NCV 05000482/2018002-02 Closed	[H.3] – Human Performance, Change Management	71152 – Problem Identification and Resolution
A self-revealed Green NCV of 10 CFR Part 50, Criterion III, "Design Control," was identified when the licensee failed to adequately recognize that the cable spreading room floor was a control building ventilation isolation boundary. Specifically, the licensee cut openings in the floor/ceiling between the 2,032 foot and 2,016 foot elevations of the control building and the impact on the control room envelope's ability to pressurize was not recognized. This was a primary contributor to the train B control room emergency ventilation system being unable to maintain the appropriate pressure in the control room envelope.			
<u>Description:</u> On March 5, 2018, the licensee performed Procedure STS PE-004, "Aux Building and Control Room Pressure Test," Revision 16, and the train B control room emergency ventilation system's ability to pressurize the control room envelope and maintain pressure greater than or equal to 0.25 inches water gauge failed. Readings varied from			

nearly no measurable differential pressure—relative to outside air—to approximately 0.15 inches water gauge. During this test, control building doors were not controlled.

Later tests on March 5, 2018, which maintained control of control building doors, had results that varied between 0.18 and 0.26 inches water gauge, with an average of 0.2258 inches water gauge. Troubleshooting was performed and, on March 6, 2018, an interim configuration associated with Design Change Package 14269, “SGK05 Tech Spec Addition and Compensatory Modifications,” was found to be impacting readings. Specifically, between September 17, 2017, and January 17, 2018, four approximately 2 foot by 2 foot openings were cut in the floor/ceiling between the 2,032 foot and 2,016 foot elevations of the control building to support ongoing ductwork installation.

On January 17, 2018, after penetrations for the modification were completed, compensatory measures consisting of steel plates covering the four floor openings were in place until ductwork installation began on February 19, 2018. These compensatory measures were put in place for fire, flood, and other functional concerns. On February 12, 2018, while the compensatory measures were in place, the train A control room emergency ventilation system successfully pressurized the control room envelope to 0.38 inches water gauge, demonstrating that the compensatory measures were adequate for maintaining control room envelope pressurization capability when in place.

Surveillance testing was performed for trains A and B of the control room emergency ventilation system on March 15, 2018, and the control room envelope was pressurized to 0.3448 and 0.3695 inches water gauge, respectively, which met surveillance requirements. The system was restored to operable on March 16, 2018.

The inspectors reviewed the licensee’s cause evaluation, which determined that the probable causes of the issue were inadequate identification of control building ventilation isolation boundaries in WCRE-35, “Boundary Matrix,” Revision 0, and control of conditions during STS PE-004. Specifically, the inspectors also determined that the 2,016 foot to 2,032 foot elevation breaches were a primary contributor to the failure of the control room emergency ventilation system to maintain adequate control room envelope pressure. The inspectors noted that WCRE-35, which was referenced during modification work for Design Change Package 14269, did not identify the barriers between the 2,016 and 2,032 foot elevations of the control building as control building ventilation isolation boundaries. WCRE-35 was a new document that was first approved on November 30, 2016, and was created from Attachment A, “Boundary Matrix,” of AP 10-104, “Breach Authorization,” Revision 35. WCRE-35 notes, “The information in the attachment has been copied directly from the procedure Attachment A, but when there were discrepancies identified the information has been verified and updated.” The inspectors determined that the creation of the new WCRE-35 document was an opportunity for the licensee to recognize the subject boundary’s importance and categorize the barrier as a control building ventilation isolation boundary.

Corrective Actions: The licensee completed Revision 3 of WCRE-35 on April 16, 2018, which reflects additional control building ventilation isolation boundaries, essential reading was issued, and other actions were performed to improve control room envelope pressurization margin.

Corrective Action Reference: Condition Report 120056.

Performance Assessment:

Performance Deficiency: The failure to recognize control building ventilation isolation boundaries and meet the requirements of 10 CFR Part 50, Criterion III, "Design Control," is a performance deficiency.

Screening: The inspectors determined the performance deficiency was more than minor because it adversely affected the design control attribute of the Barrier Integrity Cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents or events. Specifically, the control room emergency ventilation system's ability to maintain adequate pressurization of the control room envelope was adversely impacted after an ongoing ventilation modification breached the floor without compensatory measures in place.

Significance: The inspectors assessed the significance of the finding using Exhibit 3, "Barrier Integrity Screening Questions," of Inspection Manual Chapter 0609, Appendix A, "Significance Determination Process (SDP) for Findings At-Power," issued June 19, 2012, and determined this finding represents a degradation of the radiological barrier function provided for the control room and represents a degradation of the barrier function of the control room against smoke or a toxic atmosphere. Thus, a detailed risk evaluation is required.

The senior reactor analyst evaluated the subject performance deficiency and resulting plant conditions to determine the risk impact on the plant. The analyst identified that the control room emergency ventilation system is not a significant risk contributor, because it does not directly affect the core damage frequency, provided operators have a habitable environment. Although the control room boundary was significantly degraded in the as-found condition, either train of the control room emergency ventilation system was capable of maintaining the control room envelope with some level of pressurization, based on multiple test results. Therefore, while some deterioration of the control room environment could be expected, the control room emergency ventilation system appeared to be capable of maintaining a habitable environment throughout the relatively limited exposure period of the performance deficiency. As a result, the increase in risk caused by the degraded condition of the control room envelope was negligible, and the finding was of very low safety significance (Green).

Cross-cutting Aspect: The inspectors determined that the finding has a human performance cross-cutting aspect in the area of change management in that leaders did not use a systematic process for evaluating and implementing change so that nuclear safety remains the overriding priority. Specifically, managers did not ensure that individuals understood the importance of, and their role in, the change management process when WCRE-35 was recently revised and implemented. As a result, WCRE-35 did not identify all control building ventilation isolation boundaries.

Enforcement:

Violation: Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that for those structures, systems, and components to which this appendix applies, measures shall be established to assure that applicable regulatory requirements and the design basis, as defined in 50.2 and as specified in the license application, are correctly translated into specifications, drawings, procedures, and instructions.

Contrary to the above, until April 16, 2018, for quality-related components associated with the control building, to which 10 CFR Part 50, Appendix B, applies, the licensee failed to assure that applicable regulatory requirements and the design basis, as defined in 50.2 and as specified in the license application, are correctly translated into specifications, drawings, procedures, and instructions. Specifically, the licensee failed to ensure that all control building ventilation isolation boundaries were adequately identified in WCRE-35, “Boundary Matrix,” which the station uses to identify boundary functions, such that the control room envelope could be adequately pressurized in accordance with design basis requirements.

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

Failure to Adequately Implement Instrumentation and Controls Surveillance Procedures

Cornerstone	Significance	Cross-cutting Aspect	Report Section
Initiating Events	Green NCV 05000482/2018002-03 Closed	[H.2] – Human Performance, Field Presence	71152 – Problem Identification and Resolution

A self-revealed Green NCV of 10 CFR Part 50, Criterion V, “Instructions, Procedures, and Drawings,” was identified when the licensee failed to adequately implement surveillance procedures that affected safety-related equipment and plant stability. Specifically, the licensee failed to adequately implement testing and calibration procedures for pressurizer level instrumentation. This resulted in two letdown isolation signals, securing of pressurizer heaters, and a pressurizer level transient on March 29, 2018.

Description: On March 29, 2018, the licensee was performing Procedure STS IC-503B, “Pressurizer Level Instrumentation Channel Calibration,” Revision 12. This surveillance procedure performs calibration and testing activities associated with three pressurizer level channels, one-at-a-time. To perform calibration of each channel, a control room operator selects away from the channel to be tested, which ensures the controlling pressurizer level channels are not being tested. This allows maintenance technicians to perform calibration and testing activities associated with the desired channel. Following calibration and testing of each channel, the channel is restored and actions are taken to select away from the next desired channel to be tested, which again ensures the controlling pressurizer level channels are not being tested.

During the testing on March 29, 2018, station personnel successfully completed the calibration of channel 459, which is located in the SB038 cabinet. The technicians then informed the control room operator they were moving to the next section of the procedure associated with channel 460, and the operator selected away from channel 460 in accordance with procedure. The technicians had flagged a switch to be manipulated in cabinet SB038, but had incorrectly flagged the switch for channel 459. As a result, channel 459 was again taken to the test position, but this channel was now a controlling pressurizer level channel since channel 460 was to be tested next. The instrument failed low, which resulted in an actual pressurizer level transient—level got as high as approximately 63 percent from a normal level of approximately 56.6 percent—isolation of letdown, and automatic de-energization of the pressurizer back-up heaters.

Step 8.3.3 of Procedure STS IC-503B stated, "At C2-0847 (LS/460), PLACE BS-1 (LS/460A) to TEST position." This procedure step was not followed and the technicians did not adequately use human performance tools to ensure they were in the appropriate cabinet and flagging the appropriate channel, and supervision was not present when the inappropriate cabinet was flagged.

Operators responded to the transient using Off-Normal Procedure OFN SB-008, "Instrument Malfunctions," Revision 45, reselected channel 460 as the controlling pressurizer level channel in accordance with the off-normal procedure, and an operator stated to the technician that they had received the 459 loop alarms. The technician then restored channel 459 from the test position without supervision and proceeded on in Procedure STS IC-503B.

Procedure OFN SB-008 had ensured that the alternate pressurizer level channel on the pressurizer level control selector switch was selected. The technician did not re-perform Step 8.3.1.b, which states, "Place BB LS-459D, PZR LEV CRTL SEL switch to L459/L461 position," before proceeding with channel 460 testing. Thus, when channel 460 was taken to the test position, this caused a second actual pressurizer level transient—level got as high as 63 percent—a second letdown isolation signal (though it had not yet been restored), and a second automatic de-energization of the back-up heaters signal was received. Operators again responded to the transient and stabilized the plant. Additionally, following the second actual pressurizer level transient operators provided the order to the technician to, "stop work."

The licensee's evaluation determined that because of the risk associated with this task, supervisory oversight was required. Specifically, the qualitative risk screening performed for the task identified the need for "leadership team member implementation oversight" as a risk mitigating action. However, the oversight had not yet made it to the control room. The inspectors agreed with the licensee's conclusions that the lack of oversight was the most significant contributor to both failures to follow procedures.

Corrective Actions: The transient was stabilized, work was stopped following the second event, an event review was conducted, a stand-down was initiated, technician qualifications were removed, communications were made to operations and the site, and an interim action was created to have an operations individual present during two-minute drills for any work performed in the cabinets in the back of the control room.

Corrective Action Reference: Condition Report 120807.

Performance Assessment:

Performance Deficiency: The failure to adequately implement the testing and calibration procedure for pressurizer level instrumentation on two occasions and meet the requirements of 10 CFR Part 50, Criterion V, "Instructions, Procedures, and Drawings," was a performance deficiency. Specifically, procedures for pressurizer level instrumentation calibration were not followed on two occasions: (1) when an instrumentation and control technician failed to take the appropriate channel to test in accordance with procedure; and (2) when the individual failed to adequately verify the appropriate channels were selected in accordance with procedure on March 29, 2018. These actions failed the 459 level transmitter channel low inappropriately and then subsequently failed the 460 level transmitter channel low inappropriately, respectively.

Screening: The inspectors determined the performance deficiency was more than minor because it affected the human performance attribute of the Initiating Events Cornerstone and

adversely affected the cornerstone objective to limit the likelihood of events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the performance deficiency resulted in two separate actual pressurizer level transients, letdown isolation signals, and signals for automatic de-energization of the pressurizer back-up heaters.

Significance: The inspectors assessed the significance of the finding using Exhibit 1, "Initiating Events Screening Questions," of Inspection Manual Chapter 0609, Appendix A, "Significance Determination Process (SDP) for Findings At-Power," issued June 19, 2012, and determined this finding was not a deficiency that caused a plant trip and did not cause the loss of mitigation equipment relied upon to transition the plant from the onset of a trip to stable plant shutdown (e.g. loss of condenser, loss of feedwater). Furthermore, there were no other events such as a high energy line break, internal flooding, or fire. Therefore, the inspectors determined the finding was of very low safety significance (Green).

Cross-cutting Aspect: The inspectors determined that the finding has a human performance cross-cutting aspect in the area of field presence in that senior managers did not ensure supervisory and management oversight of work activities. Specifically, managers and supervisors did not practice visible leadership in the field and during safety significant evolutions like performance of Procedure STS IC-503B by placing "eyes on the problem," coaching, mentoring, reinforcing standards and reinforcing positive decision making practices and behaviors, which led to the multiple examples of failure to follow procedures.

Enforcement:

Violation: Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be accomplished in accordance with documented instructions, procedures, or drawings of a type appropriate to the circumstances.

- (1) Procedure STS IC-503B, "Pressurizer Level Instrumentation Channel Calibration," Revision 12, an Appendix B quality related procedure, provides instructions for performing pressurizer level instrument calibration testing. Procedure STS IC-503B, Step 8.3.3, requires that BS-1 (LS/460A) be placed in the test position. Contrary to the above, on March 29, 2018, BS-1 (LS/460A) was not placed in the test position. Specifically, the 459 channel was placed in the test position inappropriately.
- (2) Procedure STS IC-503B, Step 8.3.1.b, requires, in part, verification that BB LS-459D, the pressurizer level control selector switch, be placed in the L459/L461 position for channel 460 testing and calibration. Contrary to the above, on March 29, 2018, verification that BB LS-459D, the pressurizer level control selector switch, was placed in the L459/L461 position for channel 460 testing and calibration was not performed. Specifically, testing and calibration of channel 460 occurred while channel 460 was selected as the controlling channel.

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

EXIT MEETINGS AND DEBRIEFS

On April 13, 2018, the inspector presented the occupational radiation safety inspection results to Mr. C. Reasoner, Chief Nuclear Officer and Senior Vice President, and other members of the licensee staff.

On May 8, 2018, the inspector presented the inservice inspection results to Mr. C. Reasoner, Chief Nuclear Officer and Senior Vice President, and other members of the licensee staff.

On July 17, 2018, the inspector presented the quarterly resident inspector inspection results to Mr. C. Reasoner, Chief Nuclear Officer and Senior Vice President, and other members of the licensee staff.

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

DOCUMENTS REVIEWED

71111.01—Adverse Weather Protection

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
OFN AF-025	Unit Limitations	55

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
KD-7496	One Line Diagram	67

Condition Reports

123867	123954	123955	123956	123957
123958	123959	123961	123962	123963
123968	123969			

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Date</u>
Temporary Operating Guide	Waverly-LaCygne 345 kV line outages	Expires December 31, 2018
Transmission Operating Directive 0300	Outage of the Wolf Creek-Benton 345 kV Line	February 28, 2018
Transmission Operating Directive 0301	Outage of the Wolf Creek-Rose Hill 345 kV Line	February 28, 2018
Transmission Operating Directive 0306	Outage of Wolf Creek 345 kV Breaker 345-40 or 345-60	February 28, 2018
Transmission Operating Directive 0307	Outage of the Wolf Creek-Waverly 345 kV Line	February 28, 2018
Transmission Operating Directive 0308	Outage of the Waverly-LaCygne 345 kV Line	February 28, 2018

71111.04—Equipment Alignment

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
CKL AL-120	Auxiliary Feedwater Normal Lineup	42
CKL EC-120	Fuel Pool Cooling and Cleanup System Normal Valve Lineup/Breaker Checklist	17
CKL EF-120	Essential Service Water Valve, Breaker and Switch Lineup	54

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
E-13EC09	Schematic Diagram Spent Fuel Pool Alternate Power Supply Motor Controller	1
E-13GG02	Schematic Diagram Spent Fuel Pool Pump Room Coolers	3
KD-7496	One-Line Diagram	61
M-12AL01	Piping & Instrumentation Diagram Auxiliary Feedwater System	28
M-12EC01	Piping & Instrumentation Diagram Fuel Pool Cooling and Clean-up System	23
M-12EC02	Piping & Instrumentation Diagram Fuel Pool Cooling and Clean-up System	7
M-12EF01	Piping & Instrumentation Diagram Essential SVC Water System	29
M-12EF02	Piping & Instrumentation Diagram Essential Service Water System	42
M-K2EF01	Piping & Instrumentation Diagram Essential Service Water System	70
M-K2EF01A	Abandoned ESW Equipment	2
M-K2EF03	Piping & Instrumentation Diagram Essential Service Water System	19
M-K2EF03A	Abandoned ESW Equipment	1

Condition Reports

112669	121872	122213	122233	124453
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71111.05AQ—Fire Protection Annual/Quarterly

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AP 10-106	Fire Preplans	18A

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
E-1F9905	Fire Hazard Analysis	8

Condition Reports

121946	122915	122944	123429	123446
123920	123921			

71111.06—Flood Protection Measures

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
C-K201	E.S.W.S. Yard Pipelines & Elect. Duct Banks Plan, Sections & Schedules SHT.1	10
C-K201	E.S.W.S. Yard Pipelines & Elect. Duct Banks Plan, Sections & Schedules SHT.1	12
C-K202	E.S.W.S. Yard Pipelines & Electrical Duct Banks Plan, Sections & Schedules SHT.-2	10
C-K202	E.S.W.S. Yard Pipelines & Electrical Duct Banks Plan, Sections & Schedules SHT.-2	11
C-K209	E.S.W.S. Electrical Manholes Plans Sections & Details	9
C-K212	E.S.W.S Yard Pipelines & Elec. Duct Banks Plan & Sections	4

Condition Reports

124380	124381	124382	124383	124397
124409				

71111.08—Inservice Inspection Activities

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
54-ISI-603-009	Automated Ultrasonic Examination of Reactor Pressure Vessel Closure Head Penetration Containing Thermal Sleeves	9
AP-16F-001	Boric Acid Corrosion Control Program	9
I-ENG-023	Steam Generator Data Analysis Guidelines	16
LMT-08-PDI-UT-1	Ultrasonic Examination of Ferritic Piping Welds	0
LMT-08-PDI-UT-11	Ultrasonic Examination of Nozzle Inner Radius Area at Wolf Creek Generating Station	0
LMT-08-UT-004	Ultrasonic Examination of Vessel Welds and Adjacent Base Material > 2.0" in Thickness	0
SG-SGMP-15-4	Wolf Creek Generating Station RF20 Condition Monitoring and Operational Assessment	0
SG-SGMP-16-18	Wolf Creek Generating Station RF21 Condition Monitoring and Operational Assessment	0
SG-SGMP-18-9	Wolf Creek Generating Station RF22 Condition Monitoring and Operational Assessment for Cycle 23 and Cycle 24	0
STS PE-040E	Reactor Pressure Vessel Head Visual Inspection	7
WCRE-30	Inservice Inspection Program Plan Wolf Creek Generating Station Interval 4	2

Condition Reports

<u>93748</u>	<u>93749</u>	<u>107686</u>	<u>108888</u>	<u>109175</u>
111055	112584	113666	114073	117639
117827	121438	121439		

71111.11—Licensed Operator Requalification Program and Licensed Operator Performance

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
STS AE-211	Main Feed Reg Valve Inservice Valve Test	3
SYS NB-201	Transferring NB01 Power Sources	61
SYS NB-320	Deenergizing and Energizing ESF Transformers	12

Condition Reports

123853	123950	123951
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Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision/ Date</u>
17-01 (IC342)	2018 Biennial Requalification Exam Scenario	1
18-01 (340)	2018 Annual Requalification Exam	0
STS AE-211	Main Feed Reg Valve Inservice Valve Test	Completed May 17, 2018
SYS NB-201	Transferring NB01 Power Sources	Completed May 2, 2018
SYS NB-320	Deenergizing and Energizing ESF Transformers	Completed May 2, 2018

71111.12—Maintenance EffectivenessCondition Reports

113227	122957
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Work Orders

17-428387-001

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Date</u>
	System Health Report: Fuel Pool Cooling	April 1, 2015 through June 30, 2015
	System Health Report: Fuel Pool Cooling	October 1, 2015 through December 31, 2015
	System Health Report: Fuel Pool Cooling	April 1, 2016 through December, 2016
	System Health Report: Fuel Pool Cooling	July 1, 2016 through June 30, 2017
	System Health Report: Fuel Pool Cooling	January 1, 2017 through June 30, 2017

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Date</u>
	System Health Report: Fuel Pool Cooling	July 1, 2017 through December 31, 2017
EC	Maintenance Rule Final Scope Evaluation: Spent Fuel Pool Cooling and Cleanup – EC-01	
EC	Maintenance Rule Final Scope Evaluation: Spent Fuel Pool Cooling and Cleanup – EC-02	
EC	Maintenance Rule Final Scope Evaluation: Spent Fuel Pool Cooling and Cleanup – EC-03	
EC	Maintenance Rule Final Scope Evaluation: Spent Fuel Pool Cooling and Cleanup – EC-04	
EC	Maintenance Rule Final Scope Evaluation: Spent Fuel Pool Cooling and Cleanup – EC-05	
EC	Maintenance Rule Final Scope Evaluation: Fuel Pool Cooling and Cleanup – EC-06	
EC	Maintenance Rule Final Scope Evaluation: Spent Fuel Pool Cooling and Cleanup – EC-07	

71111.13—Maintenance Risk Assessments and Emergent Work Control

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AP 21C-001	Wolf Creek Substation	20
AP 21D-004	Control of Containment Penetrations During Shutdown Operations	11A
AP 22C-008	Qualitative Risk Management	4B
FHP 02-001	Refueling Operations	46
FHP 02-007A	Reactor Vessel Closure Head Removal	12A
FHP 05-001	Equipment Hatch Operations	0
GEN 00-008	RCS Level Less Than Reactor Vessel Flange Operations	32
STS GP-001	Containment Purge Valves Actuation Test	27
STS GP-006	CTMT Closure Verification	14
STS GP-006	CTMT Closure Verification	24A
SYS BB-215	RCS Drain Down With Fuel In Reactor	48

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
M-12BB01	Piping and Instrumentation Diagram Reactor Coolant System	36
M-12BB02	Piping and Instrumentation Diagram Reactor Coolant System	28
M-12BB04	Piping and Instrumentation Diagram Reactor Coolant System	23
M-12EJ01	Piping and Instrumentation Diagram Residual Heat Removal System	54
M-12EM01	Piping and Instrumentation Diagram High Pressure Coolant Injection System	44
M-12EM02	Piping and Instrumentation Diagram High Pressure Coolant Injection System	22
M-12EM03	Piping and Instrumentation Diagram High Pressure Coolant Injection System Test Line	3

Condition Reports

121353

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Date</u>
APF 22B-001-10	Shutdown Safety Function Status & Assessment Summary Shift: Nights, Mode: 5	April 5, 2018
APF 22B-001-10	Shutdown Safety Function Status & Assessment Summary Shift: Days, Mode 6	April 6, 2018
APF 22B-001-10	Shutdown Safety Function Status & Assessment Summary Shift: Nights, Mode 6	April 7, 2018
APF 22B-001-10	Shutdown Safety Function Status & Assessment Summary Shift: Nights, Defueled	April 12, 2018
APF 22B-001-10	Shutdown Safety Function Status & Assessment Summary Shift: Nights, Defueled	April 19, 2018
APF 22B-001-10	Shutdown Safety Function Status & Assessment Summary Shift: Days, Defueled	April 24, 2018
APF 22B-001-10	Shutdown Safety Function Status & Assessment Summary Shift: Nights, Mode: 6	May 8, 2018
ET 88-0193	Docket No. 50-482: Generic Letter 88-17 – Loss of Decay Heat Removal	December 23, 1988

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Date</u>
ET 92-0001	Docket No. 50-482: Change in Commitment Associated with Generic Letter 88-17	January 2, 1992
STS CR-002	Shift Log for Modes 4, 5, and 6	Completed May 9, 2018
WM 89-0041	Docket No. 50-482: Generic Letter 88-17 – Loss of Decay Heat Removal	February 2, 1989

71111.15—Operability Determinations and Functionality AssessmentsProcedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AP 22A-001	Screening, Prioritization and Pre-Approval	21
AP 26C-004	Operability Determination and Functionality Assessment	35
AP 28-001	Operability Evaluations	25

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
	Westinghouse Drawing 1464F11	
M-703-00055	Closure Head (SAP) General Assembly	W02
M-709-00099	Control Rod Mechanism Housing Details – Sheet 1	W01

Condition Reports

122207	122351	122581	123083	123084
123567	123902	123903	123905	123906
123907	123908	123914		

Work Orders

18-438919-000	18-438984-000	18-439282-000
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Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
APF 05-013-01	M-721-00096 – Instruction Manual for Safety Injection Pump	W25

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
APF 05C-004-01	WCNOC - Basic Engineering Disposition – DPEM01A Current Reading Higher Than Name Plate Rating – CR 122518	May 1, 2018
APF 05C-004-01	WCNOC - Basic Engineering Disposition – DPEM01A Current Reading Higher Than Name Plate Rating – CR 122581	May 3, 2018
APF 05C-004-01	WCNOC - Basic Engineering Disposition – PEM01A RF22 Rework Hydraulic Performance Impact	May 9, 2018
MRP 2018-010	Electric Power Research Institute – Notification of Recent PWR CRDM Thermal Sleeve Flange Wear and Control Rod Motion Stoppage Operating Experience and Recommended Plant Actions	April 20, 2018
XX-E-006	Calculation XX-E-006 AC System Analysis Rev. 7 – Appendix 31 – Scenario L1 (LOCA) Motor Starting Analysis – Output Report	7

71111.18—Plant Modifications

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
E-13GG02	Schematic Diagram Spent Fuel Pool Pump Room Coolers	3
E-13EC09	Schematic Diagram Spent Fuel Pool Alternate Power Supply Motor Controller	1
M-084A-00010	8539 SGG45 Wiring Diagram	January 31, 2018
WIP-E-12EC09- 000-A-1	Schematic Diagram Spent Fuel Pool Alternate Power Supply Motor Controller	1
WIP-E-IR0211A- 002B-1	Raceway Plan Plant Site Southwest Quadrant Underground Duct Bank EL. [Elevation] 2000'-0"	00
WIP-M-1X6906- 000-A-1	Fuel Building Penetration Closure Wall Elevations	00
WIP-M-1X6906- 001-A-1	Fuel Building Penetration Closure Wall Elevations	00
WIP-M-13EG29- 000-A-1	Piping Isometric Drawing Alternate Spent Fuel Pool Cooling Fuel Building	00

Condition Reports

122629	122684	122959	123060	123146
123193	123195	123259	123584	123592

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Date</u>
14403	Field Change Notice: Spent Fuel Pool Instrumentation System	April 30, 2015
14496	Field Change Notice: Fukushima Spent Fuel Pool Makeup	August 30, 2016
15241	Change Package Engineering Disposition: Spent Fuel Pool Alternate Cooling Modification	November 29, 2017
15273	Field Change Notice: Spent Fuel Pool Alternate Cooling Electrical	March 3, 2018

71111.19—Post Maintenance Testing

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
STN EC-201	Fuel Pool Cooling and Clean-Up System Valve Test	2
STN XMR-001	XMR01 Control Alarm and Trip Circuit Verification	3
STS BG-100A	Centrifugal Charging System “A” Train Inservice Pump	48
STS CR-002	Shift Log for Modes 4, 5, and 6	84
STS EM-100A	Safety Injection Pump “A” Inservice Pump Test	41
STS IC-503B	Channel Calibration pressurizer Level	12
STS IC-503B	Channel Calibration pressurizer Level	12A
STS KJ-015B	Manual/Auto Fast Start, Sync & Loading of EDG NE02	44
SYS EC-120	Fuel Pool Cooling and Cleanup System Startup	56

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
E-0033.3-009-03	Power Transformer, Class, OA/FA/FOA, Shell Form, Outdoor, Three Phase, KVA 60000/80000/100000, H. V. 345000, L.V. 13800, Y. Y., 13800, 60 Hertz	3
E-003.3-00008	CA/FA/FOA Transformer Control Schematic Wiring Diagram	W10

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
E-003.3-00022	Power Transformer, Class OA/FA/FOA, Shell Form, Outdoor, Three Phase, KVA 60000/80000/100000, H. V. 345000, L V. 13800, Y. Y. 13800, 60 Hertz	W09
E-11MR01	Startup Transformer Single Line Metering and Relaying Diagram	7
M-12EM01	Piping and Instrumentation Diagram High Pressure Coolant Injection System	45
M-761-00076-06	Process Control Block Diagram SNUPPS	6

Condition Reports

122520	122524	122526	122527	122784
122954	124387	124400	124405	

Work Orders

13-366290-005	15-403582-002	17-427200-023	17-432721-000	17-432722-000
18-438909-000	18-438919-001	18-438923-001		

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Date</u>
APF 29B-003-01	Surveillance Test Routing Sheet (STRS) – Fuel Pool Cooling and Cleanup System Valve Test	April 23, 2018
STN EM-100A	SI Pump A Reference Pump	Completed April 29, 2018
STS EM-100A	Safety Injection Pump “A” Inservice Pump Test	Completed May 11, 2018
STS KJ-015B	Manual/Auto Fast Start, Sync & Loading of EDG NE02	Completed May 1, 2018

71111.20—Refueling and Other Outage Activities

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AI-07B-024	Instructions For Containment Purge Permits	18
FHP 05-001	Equipment Hatch Operations	0
GEN 00-002	Cold Shutdown to Hot Standby	101

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
GEN 00-003	Hot Standby to Minimum Load	101
GEN 00-008	RCS Level Less Than Reactor Vessel Flange Operations	32
INC C-0044	Functional Check of 7300 Process Power Supply	7
RXE 01-002	Reload Low Power Physics Testing	26
STS CR-002	Shift Log for Modes 4, 5, and 6	84
STS GP-006	CTMT Closure Verification	24A
SYS BB-112	Vacuum Fill of the RCS	43
SYS BB-215	RCS Drain Down With Fuel In Reactor	47A
SYS BB-215	RCS Drain Down With Fuel In Reactor	48
SYS SB-300	Deenergizing SB Protection Sets	5

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
E-13NN01	Class IE Instrument AC Schematic	9
E-13SB09	Schematic Diagram Process Protection Cabinets 1,2,3,4 Safeguards Test Cabinets and Fire Isolation Cabinets	00
M-12BB01	Piping and Instrumentation Diagram Reactor Coolant System	36
M-12BB02	Piping and Instrumentation Diagram Reactor Coolant System	28
M-12BB04	Piping and Instrumentation Diagram Reactor Coolant System	23
M-12EJ01	Piping and Instrumentation Diagram Residual Heat Removal System	54
M-12EM01	Piping and Instrumentation Diagram High Pressure Coolant Injection System	44
M-12EM01	Piping and Instrumentation Diagram High Pressure Coolant Injection System	45
M-12EM02	Piping and Instrumentation Diagram High Pressure Coolant Injection System	22
M-12EM03	Piping and Instrumentation Diagram High Pressure Coolant Injection System Test Line	3

Condition Reports

120865	120906	120917	120934	120963
121467	121469	121507	121575	121710
121779	121825	121881	121901	121938
121953	122359	122375	122571	122593
122787	122798	122837	123075	123087
123221	123429	123434	123440	123444
123446	123448	123488	123500	123517
123752	123767			

Work Orders

17-426098-000 18-437026-000

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
	Foreign Material Inspections During Wolf Creek RF 22 Failed Fuel Mitigation – Presenter Daljit Mand	
	OPS RF-22 Rotation Schedule	
	Refuel 22: Failed Fuel Action Matrix for Completion Core Testing	January 4, 2018
	RF22 OCC Shift Update - Nights	April 6, 2018
	RF22 OCC Shift Update - Days	April 11, 2018
	RF22 OCC Shift Update - Nights	April 11, 2018
	RF22 OCC Shift Update – Nights	April 12, 2018
	RF22 OCC Shift Update - Nights	April 13, 2018
	RF22 OCC Shift Update - Days	April 15, 2018
	RF22 OCC Shift Update - Nights	April 16, 2018
	RF22 OCC Shift Update - Days	April 17, 2018
	RF22 OCC Shift Update - Nights	April 18, 2018
	RF22 OCC Shift Update - Nights	April 19, 2018
	RF22 OCC Shift Update - Days	April 25, 2018
	RF22 OCC Shift Update - Nights	April 26, 2018
	RF22 OCC Shift Update - Days	April 29, 2018
	RF22 OCC Shift Update - Nights	April 29, 2018

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
	RF22 OCC Shift Update - Days	April 30, 2018
	RF22 OCC Shift Update - Nights	April 30, 2018
	RF22 OCC Shift Update - Days	May 1, 2018
	RF22 OCC Shift Update - Nights	May 1, 2018
	RF22 OCC Shift Update - Days	May 2, 2018
	RF22 OCC Shift Update - Nights	May 2, 2018
	RF22 OCC Shift Update - Days	May 3, 2018
	RF22 OCC Shift Update - Nights	May 4, 2018
	RF22 OCC Shift Update - Nights	May 4, 2018
	RF22 OCC Shift Update - Days	May 6, 2018
	RF22 OCC Shift Update - Days	May 7, 2018
	RF22 OCC Shift Update - Nights	May 7, 2018
	RF22 OCC Shift Update - Days	May 8, 2018
	RF22 OCC Shift Update - Nights	May 8, 2018
	RF22 OCC Shift Update - Days	May 9, 2018
	RF22 OCC Shift Update - Nights	May 9, 2018
	RF22 OCC Shift Update - Nights	May 10, 2018
	RF22 OCC Shift Update - Days	May 13, 2018
	RF22 OCC Shift Update - Days	May 14, 2018
	RF22 OCC Shift Update - Nights	May 14, 2018
	RF22 OCC Shift Update - Days	May 15, 2018
	RF22 OCC Shift Update - Nights	May 15, 2018
	RF22 OCC Shift Update - Days	May 16, 2018
	RF22 OCC Shift Update - Days	May 17, 2018
	RF22 OCC Shift Update - Nights	May 17, 2018
	RF2[2] FIN Team Schedule	
AIF 21-016-02	Time Verification Form – Days - Credited	April 3, 2018
AIF 21-016-02	Time Verification Form – Nights - Credited	April 3, 2018
AIF 21-016-02	Time Verification Form – Nights – No Credit Taken	April 3, 2018
AIF 22D-008-02	Mode 2 (M2U)/Mode 1 (M1U) Restart Checklist	Completed May 17, 2108

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
APF 15C-002-01	Procedure Cover Sheet – Vacuum Fill of the RCS	Completed May 11, 2018
APF 21-001-02	Control Room Turnover Checklist – On-Coming CRS/WC SRO/RO/BOP Review	May 7, 2018
APF 22B-001-08	Shutdown Risk Assessment Mode 6 Refueling Operations ≥23 Ft. Above Vessel Flange	12
APF 22B-001-09	Shutdown Risk Assessment No Mode - Defueled	April 4, 2018
APF 22B-001-09	Shutdown Risk Assessment No Mode - Defueled	April 7, 2018
APF 22B-001-09	Shutdown Risk Assessment No Mode - Defueled	April 11, 2018
APF 22B-001-09	Shutdown Risk Assessment No Mode - Defueled	April 14, 2018
APF 22B-001-09	Shutdown Risk Assessment No Mode - Defueled	April 15, 2018
APF 22B-001-09	Shutdown Risk Assessment No Mode - Defueled	April 17, 2018
APF 22B-001-10	Shutdown Safety Function Status & Assessment Summary – Shift: Days, Mode 5	April 1, 2018
APF 22B-001-10	Shutdown Safety Function Status & Assessment Summary – Shift: Days, Mode 5	April 3, 2018
APF 22B-001-10	Shutdown Safety Function Status & Assessment Summary – Shift: Days, Mode 5	April 4, 2018
APF 22B-001-10	Shutdown Safety Function Status & Assessment Summary – Shift: Nights, Mode: 5	April 5, 2018
APF 22B-001-10	Shutdown Safety Function Status & Assessment Summary – Shift Days, Mode 6	April 6, 2018
APF 22B-001-10	Shutdown Safety Function Status & Assessment Summary – Shift: Days, Mode: 6	April 7, 2018
APF 22B-001-10	Shutdown Safety Function Status & Assessment Summary – Shift: Nights, Mode: 6	April 7, 2018
APF 22B-001-10	Shutdown Safety Function Status & Assessment Summary – Shift: Nights, Mode: 6	May 8, 2018
APF 22B-001-10	Shutdown Safety Function Status & Assessment Summary – Shift: Days, Mode: Defueled	April 11, 2018
APF 22B-001-10	Shutdown Safety Function Status & Assessment Summary – Shift: Nights, Mode: Defueled	April 14, 2018
APF 22B-001-10	Shutdown Safety Function Status & Assessment Summary – Shift: Days, Mode: Defueled	April 15, 2018
APF 22B-001-10	Shutdown Safety Function Status & Assessment Summary – Shift: Nights, Mode: Defueled	April 15, 2018

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
APF 22B-001-10	Shutdown Safety Function Status & Assessment Summary – Shift: Days, Mode: Defueled	April 17, 2018
APF 22B-001-10	Shutdown Safety Function Status & Assessment Summary – Shift: Days, Mode: Defueled	May 8, 2018
APF 25A-401-01	ALARA Review Package – RWP Number 181102	January 18, 2018
APF 25A-401-01	ALARA Review Package – RWP Number 182602	15
APF 25A-401-01	ALARA Review Package – RWP Number 183000	March 7, 2018
APF 25A-401-01	ALARA Review Package – RWP Number 182602	March 8, 2018
APF 25A-401-04	Pre-Job Briefing Form – RWP Number: 182601	10A
BGV0365	Mixed Bed Demins Inlet Line Upstrm Drain	20
C22: R-EN-A-002A	Clearance Order	April 2, 2018
C22: R-EN-B-002A	Clearance Order	March 31, 2018
C22: R-OP-S-001B	Clearance Order	May 4, 2018
C22: R-OP-S-002A	Clearance Order	May 9, 2018
C22: R-OP-S-002B	Clearance Order	May 11, 2018
C22: R-OP-S-003A	Clearance Order	May 6, 2018
ET 88-0193	Docket No. 50-482: Generic Letter 88-17 – Loss of Decay Heat Removal	December 23, 1988
ET 92-0001	Docket No. 50-482: Change in Commitment Associated with Generic Letter 88-17	January 2, 1992
GTRE 32	Wolf Creek Generating Station Chemistry Department Radiochemistry Lab	Report Created April 18, 2018, 02:36
GTRE 32	Wolf Creek Generating Station Chemistry Department Radiochemistry Lab	Report Created April 18, 2018, 08:43
GTRE 32 Char	Wolf Creek Generating Station Chemistry Department Radiochemistry Lab	Report Created April 15, 2018, 14:59

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
GTRE 33	Wolf Creek Generating Station Chemistry Department Radiochemistry Lab	Report Created April 18, 2018, 07:04
GTRE 33	Wolf Creek Generating Station Chemistry Department Radiochemistry Lab	Report Created April 18, 2018, 07:05
K04-013	Gas Effluent Release Report	April 16, 2018
RA 18-0032	Minor Corrections to Refuel 22 Risk Assessment Team Report RA 18-0021 – Schedule Level 1 Rev. C 2/1/2018	March 20, 2018
RPF 02-105-01	Radiation Work Permit – 181102	000
RPF 02-105-01	Radiation Work Permit - 182601	000
RPF 02-105-01	Radiation Work Permit – 182602	000
RPF 02-105-01	Radiation Work Permit – 182602	002
RFP 02-105-01	Radiation Work Permit – 184206	000
RPF 02-210-01	WCGS Radiological Survey Map – Survey M-20180225-3	February 25, 2018
RPF 02-210-01	WCGS Radiological Survey Map – Survey M-20180320-15	March 20, 2018
RPF 02-210-01	WCGS Radiological Survey Map – Survey M-20180405-26	April 5, 2018
RPF 02-210-01	WCGS Radiological Survey Map – Survey M-20180416-1	April 16, 2018
RPF 02-210-01	WCGS Radiological Survey Map – Survey M-20180407-6	April 7, 2018
RPF 02-210-01	WCGS Radiological Survey Map – Survey M-20180421-21	April 21, 2018
RPF 02-210-01	WCGS Radiological Survey Map – Survey M-20180406-27	April 6, 2018
RXE 01-002	Reload Low Power Physics Testing	Completed May 17, 2018
STS CR-002	Shift Log for Modes 4, 5, and 6	Completed May 11, 2018
STS GP-006	Containment Closure Verification	Completed April 6, 2018
WM 26-0034	Docket No. 50-482: Foreign Ownership, Control or Influence (FOCI) Information – Change to Lists of Owners, Officers, Directors and Executive Personnel	April 26, 2018

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
WM 89-0041	Docket No. 50-482: Generic Letter 88-17 – Loss of Decay Heat Removal	February 2, 1989

71111.22—Surveillance Testing

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
STS BB-004	RCS Water Inventory Balance	49
STS BB-006	RCS Water Inventory Balance Using the NPIS Computer	19
STS BB-010	Manual RCS Water Inventory Balance	2
STS CV-210A	ECCS SI Pump Comprehensive and Inservice Check Valve Test	27
STS EM-003A	ECCS (CCP) Flow Balance and CCP Comprehensive Test	23
STS KJ-001B	Integrated D/G and Safeguard Actuation Test – Train B	61
STS PE-128	LLRT [Local Leak Rate Test] Valve Lineup for Penetrations 28 and 29	6

Condition Reports

122451	122757	122783	123223
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Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
STS CV-210A	ECCS SI Pump Comprehensive and Inservice Check Valve Test	Completed April 29, 2018
STS CV-210A	ECCS SI Pump Comprehensive and Inservice Check Valve Test	Completed May 1, 2018
STS EM-003A	ECCS (CCP) Flow Balance and CCP Comprehensive Test	Completed May 2, 2018
WCRE-03	Wolf Creek Tank Document	22

71124.01—Radiological Hazard Assessment and Exposure Controls

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AP 19D-100	Radioactive Source Program	5

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AP 25A-001	Radiation Protection Manual	17B
AP 25A-100	Access to Locked High or Very High Rad Areas	29
AP 25A-100	Containment Entry	18A
AP 25B-100	Radiation Worker Guidelines	51
AP 25B-300	RWP Program	24A
RPP 01-105	Radiation Protection Organization, Responsibilities and Code of Conduct	21
RPP 02-105	Radiation Work Permit	48
RPP 02-215	Posting of Radiological Controlled Areas	34A
RPP 02-405	RCA Access Control	20
RPP 02-515	Release of Material from the RCA	34
RPP 02-605	Control and Inventory of Radioactive Sources	18

Condition Reports

112244	112935	112973	113053	113055
113627	113631	114261	116377	116509
116510	117296	119183	119223	120975
121159	121171	121281	121282	121568

Radiation Work Permits

<u>Number</u>	<u>Title</u>	<u>Revision</u>
180021	Cartridge Filter Change-Out in Aux and RW Buildings	0
182601	Routine Outage Access (No LHRA Access)	0
183220	Primary S/G Eddy Current Testing	1
184199	Secondary Side S/G FOSAR	0
184200	Secondary Side S/G Sludge Lance	0
184420	Scaffolding	0
184482	RV Head Disassembly – Canopy Seal Clamp Activities	0
184483	RV Head Reassembly – Canopy Seal Clamp Activities	0
186020	Reactor Vessel Head Preparation	1

Radiation Surveys

<u>Number</u>	<u>Title</u>	<u>Date</u>
M-20180305-17	1306 and 1308C	March 5, 2018
M-20180305-4	Resin Bed, Demin Alley, Filter Pit	March 4, 2018
M-20180307-16	Seal Water HX & VCT Valve Room	March 7, 2018
M-20180307-2	B RHR HX Room	March 7, 2018
M-20180308-12	North and South Pipe Pen	March 8, 2018
M-20180324-6	SJ 143 Sample Panel	March 24, 2018
M-20180329-1	B RHR Pump	March 29, 2018
M-20180402-20	S/G A&D Secondary	April 2, 2018
M-20180403-2	S/G A&D Secondary	April 3, 2018
M-20180409-19	2000 Aux South	April 9, 2018
M-20180411-11	S/G A&D Secondary	April 11, 2018
M-20180411-21	2047 Containment	April 11, 2018

Air Sample Surveys

<u>Number</u>	<u>Title</u>	<u>Date</u>
18-0129	Containment RX Cavity	April 1, 2018
18-0131	CTMT 2000' O/S Bio-shield	April 1, 2018
18-0147	Fuel Building 2047' & above	April 2, 2018
18-0154	CTMT 2047'	April 3, 2018
18-0181	CTMT 2047 (Marinelli Grab Sample)	April 4, 2018
18-0182	CTMT 2047 (Follow-up West of Cavity)	April 4, 2018
18-0182	CTMT 2047 (Follow-up West of Cavity)	April 4, 2018

Audits and Self-Assessments

<u>Number</u>	<u>Title</u>	<u>Date</u>
18-01-RP/PC	QA Audit Report: Radiation Protection And Process Control	March 12, 2018
QH-2017-1476	Self-Assessment: Radiation Protection Procedures and Radiation Worker Behavior Observations	May 4, 2017
QH-2017-1481	Radiation Protection Programmatic Review as delineated in NRC Inspection Procedures 71124.01, 71124.03, and 71151.OR01	April 24, 2017

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Date</u>
18-0181	Skin Dose From Noble Gas Calculation Sheet	April 4, 2018
K 03-70	Air Sample Log	April 4, 2018
RPF 02-605-03	Sealed Source Inventory	January 29, 2018
STS HP-001	Sealed Source Contamination Surveillance Test	January 29, 2018

71124.02—Occupational As Low As Reasonably Achievable (ALARA) Planning and Controls

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AP 25A-401	ALARA Program	25
AP 25A-410	ALARA Committee	23
AP 25B-300	RWP Program	24A
APF 25A-401-01	ALARA Review Package	15
APF 25A-401-04	Pre-Job Briefing Form	10A
APF 25A-401-07	In-Progress ALARA Review	1
APF 25A-401-08	Post-Job ALARA Review	1
RPF 02-105-05	RWP Risk Assessment	16A
RPP 02-105	RWP	48
RPP 02-605	Control & Inventory of Radioactive Sources	18

Condition Reports

112973	113052	113056	113057	113058
113627	113631	113708	113736	113762
114261	114915	115344	115564	115795
116952	117296	118610	119253	119743
119745	120919	120921	121089	121091
121099	121197	121217	121266	121270
121341	121375	121420	121422	121447
121482				

Audits and Self-Assessments

<u>Number</u>	<u>Title</u>	<u>Date</u>
18-01-RP/PC	Quality Assurance Audit Report Radiation Protection and Process Control	March 12, 2018
QH-2017-1481	Radiation Protection Programmatic Review as delineated in NRC Inspection Procedures 71124.01, 71124.03, and 71151.OR01	April 24, 2017
QH-2017-1505	NRC Inspection Procedure 71124.04, Occupational Dose Assessment and NRC 71124.02 Occupational ALARA Planning and Controls	May 22, 2017

Radiation Work Permit Packages

<u>Number</u>	<u>Title</u>	<u>Revision</u>
180021	Cartridge Filter Change-Out in Aux and RW Buildings	A
182300	Maintenance Support	0
182601	Routine Outage Access (No Locked High Radiation Areas)	0
183220	Primary S/G Eddy Current RWP	1
184207	RCP Team Seal Replacement on C & D RCP's	0
184207	RCP Team Seal Replacement on C & D RCP's	1
184207	RCP Team Seal Replacement on C & D RCP's	2
184420	Scaffolding Activities RF22	0
184482	Canopy Seal Clamp Activities Disassembly	0

Miscellaneous Documents

<u>Title</u>	<u>Date</u>
RF 21 & Pre RF21 Forced Outage Radiation Protection Summary	January 9, 2017

71151—Performance Indicator Verification

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AP 02A-001	Primary Chemistry Control	21
CHS SJ-143B	RCS/CVCS/RHR Sampling at SJ-143 Panel	2
STS BB-006	RCS Water Inventory Balance Using the NPIS Computer	18

Condition Reports

123874	123885	124426	124427
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Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Date</u>
RCS Measurement Reports	June 2017 through June 2018	Printed June 20, 2018
STS PE-019B	RHR Suction Valve Leak Test	Completed November 18, 2016
STS PE-109E	RCS Isolation Check Valve Leak Test	Completed November 19, 2016

71152—Problem Identification and ResolutionProcedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AP 10-104	Breach Authorization	35
AP 10-104	Breach Authorization	37A
AP 23-009	Control Room Envelope Habitability Program	2
OFN SB-008	Instrument Malfunctions	45
STS IC-503B	Pressurizer Level Instrumentation Channel Calibration	12
STS PE-004	Aux Building and Control Room Pressure Test	16

Condition Reports

120056	120807	122587	123642	123823
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Work Orders

18-437033-006

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/ Date</u>
QA-2018-0421	Oversight of Operations During the First Quarter of 2018 from 12/21/17 to 3/29/18	April 20, 2018

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/ Date</u>
QA-2018-0425	QA Assessment of the Maintenance 2018 First Quarter FAO Report on 4/2/19	April 22, 2018
QA-2018-0426	Provide QA Oversight of Engineering for the First Quarter of 2018	April 20, 2018
QA-2018-0434	RF22 QA Assessment of Refuel Pool Overfill on 4-7-18	April 29, 2018
QH-2018-1628	FME Quick Hit Self-Assessment	May 23, 2018
QS-2018-2504	QA Surveillance of Clearance Order Removal	February 5, 2018
QS-2018-2510	Surveillance of CARB Meeting 1-17-18	February 5, 2018
QS-2018-2517	QA Observation of Question About Compensatory Measure Fire Watch on 1/22/18	February 5, 2018
QS-2018-2530	Power Block Roof Leaks	February 7, 2018
QS-2018-2587	Attended and Observed Meeting on Effects of Modifications 14269	March 26, 2018
QS-2018-2597	QA Walkdown of Turbine and Control Buildings	March 28, 2018
QS-2018-2601	RF22 Observation of Operations Just In Time Training for Plant Cooledown	April 2, 2018
QS-2018-2646	RF22 QA Observation of Holes Being Drilled for SGK05 Modification Work on 4/8/18	April 8, 2018
QS-2018-2649	RF 22 QA Review of FME Monitor Logs in Containment on 4/8/18	April 9, 2018
QS-2018-2679	RF22 QA Observation of BHI Workers 4-12-18	April 13, 2018
RA 18-0054	Docket No. 50-482: Wolf Creek Generating Station Cycle 22 and Cycle 23 Core Operating Limits Report	April 29, 2018
STS PE-004	Aux Building and Control Room Pressure Test	Completed March 7, 2018
STS PE-004	Aux Building and Control Room Pressure Test	Completed March 15, 2018
WCRE-35	Boundary Matrix	0

Miscellaneous

Number

Title

Revision/
Date

WCRE-35

Boundary Matrix

3

PAPERWORK REDUCTION ACT STATEMENT

This letter does not contain new or amended information collection requirements subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). Existing information collection requirements were approved by the Office of Management and Budget, Control Number 31500011. The NRC may not conduct or sponsor, and a person is not required to respond to, a request for information or an information collection requirement unless the requesting document displays a currently valid Office of Management and Budget control number.

This letter and its enclosure 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, and Requests for Withholding."

**Information Request
January 24, 2018
Notification of Inspection and Request for Information
Wolf Creek Nuclear Operating Station
NRC Inspection Report 05000482/2018002**

INSERVICE INSPECTION DOCUMENT REQUEST

A. Information Requested for the In-Office Preparation Week

The following information should be sent to the Region IV office in hard copy or electronic format (ims.certrec.com preferred), in care of Isaac Anchondo, by March 26, 2018, to facilitate the selection of specific items that will be reviewed during the onsite inspection week. The inspector will select specific items from the information requested below and then request from your staff additional documents needed during the onsite inspection week (Section B of this enclosure). We ask that the specific items selected from the lists be available and ready for review on the first day of inspection. Please provide requested documentation electronically if possible. If requested documents are large and only hard copy formats are available, please inform the inspector(s), and provide subject documentation during the first day of the onsite inspection.

If you have any questions regarding this information request, please call the inspector as soon as possible.

On April 16, 2018, a reactor inspector from the Nuclear Regulatory Commission's (NRC) Region IV office will perform the baseline inservice inspection at Wolf Creek Nuclear Operating Station, using NRC Inspection Procedure 71111.08, "Inservice Inspection Activities." Experience has shown that this inspection is a resource intensive inspection both for the NRC inspector and your staff. The date of this inspection may change dependent on the outage schedule you provide. In order to minimize the impact to your onsite resources and to ensure a productive inspection, we have enclosed a request for documents needed for this inspection. These documents have been divided into two groups. The first group (Section A of the enclosure) identified information to be provided prior to the inspection to ensure that the inspector is adequately prepared. The second group (Section B of the enclosure) identifies the information the inspector will need upon

arrival at the site. It is important that all of these documents are up to date and complete in order to minimize the number of additional documents requested during the preparation and/or the onsite portions of the inspection.

We have discussed the schedule for these inspection activities with your staff and understand that our regulatory contact for this inspection will be William Muilenburg of your licensing organization. The tentative inspection schedule is as follows:

Preparation week: March 26, 2018

Onsite weeks: April 16-27, 2018

Our inspection dates are subject to change based on your updated schedule of outage activities. If there are any questions about this inspection or the material requested, please contact Isaac Anchondo at (817) 200-1152. (email to: Isaac.Anchondo@nrc.gov).

A.1 ISI/Welding Programs and Schedule Information

1. A detailed schedule (including preliminary dates) of:
 - 1.1. Nondestructive examinations planned for ASME Code Class Components performed as part of your ASME Section XI, risk informed (if applicable), and augmented inservice inspection programs during the upcoming outage.
 - 1.2. Examinations planned for Alloy 82/182/600 components that are not included in the Section XI scope (If applicable)
 - 1.3. Examinations planned as part of your boric acid corrosion control program (Mode 3 walkdowns, bolted connection walkdowns, etc.)
 - 1.4. Welding activities that are scheduled to be completed during the upcoming outage (ASME Class 1, 2, or 3 structures, systems, or components)
2. A copy of ASME Section XI Code Relief Requests and associated NRC safety evaluations applicable to the examinations identified above.
 - 2.1. A list of ASME Code Cases currently being used to include the system and/or component the Code Case is being applied to.
3. A list of nondestructive examination reports which have identified recordable or rejectable indications on any ASME Code Class components since the beginning of the last refueling outage. This should include the previous Section XI pressure test(s) conducted during start up and any evaluations associated with the results of the pressure tests.
4. A list including a brief description (e.g., system, code class, weld category, nondestructive examination performed) associated with the repair/replacement activities of any ASME Code Class component since the beginning of the last outage and/or planned this refueling outage.
5. If reactor vessel weld examinations required by the ASME Code are scheduled to occur during the upcoming outage, provide a detailed description of the welds to be

examined and the extent of the planned examination. Please also provide reference numbers for applicable procedures that will be used to conduct these examinations.

6. Copy of any 10 CFR Part 21 reports applicable to structures, systems, or components within the scope of Section XI of the ASME Code that have been identified since the beginning of the last refueling outage.
7. A list of any temporary non-code repairs in service (e.g., pinhole leaks).
8. Please provide copies of the most recent self-assessments for the inservice inspection, welding, and Alloy 600 programs.
9. Copy of the procedures for welding techniques, and NDE that will be used during the outage.

A.2 Reactor Pressure Vessel Head

1. Provide a detailed scope of the planned bare metal visual examinations (e.g., volume coverage, limitations, etc.) of the vessel upper head penetrations and/or any nonvisual nondestructive examination of the reactor vessel head including the examination procedures to be used.

A.3 Boric Acid Corrosion Control Program

1. Copy of the procedures that govern the scope, equipment and implementation of the inspections required to identify boric acid leakage and the procedures for boric acid leakage/corrosion evaluation.
2. Please provide a list of leaks (including code class of the components) that have been identified since the last refueling outage and associated corrective action documentation. If during the last cycle, the unit was shutdown, please provide documentation of containment walkdown inspections performed as part of the boric acid corrosion control program.

A.4 Steam Generator Tube Inspections

1. A detailed schedule of:
 - Steam generator tube inspection, data analyses, and repair activities for the upcoming outage.
 - Steam generator secondary side inspection activities for the upcoming outage (if occurring).
2. Copy of SG history documentation given to vendors performing eddy current (ET) testing of the SGs during the upcoming outage.
3. Copy of procedure containing screening criteria used for selecting tubes for in-situ pressure testing and the procedure to be used for in-situ pressure testing.

4. Copy of previous outage SG tube operational assessment. Also include a copy of the following documents as they become available:
 - Degradation assessment
 - Condition monitoring assessment
5. Copy of the document defining the planned SG ET scope (e.g., 100 percent of unrepaired tubes with bobbin probe and 20 percent sample of hot leg expansion transition regions with rotating probe) and identify the scope expansion criteria, which will be applied. Also identify and describe any deviations in this scope or expansion criteria from the EPRI Guidelines.
6. Copy of the document describing the ET acquisition equipment to be applied including ET probe types. Also identify the extent of planned tube examination coverage with each probe type (e.g. rotating probe -0.080 inches, 0.115 inches pancake coils and mid-range +point coil applied at the top-of-tube-sheet plus 3 inches to minus 12 inches).
7. Identify and quantify any SG tube leakage experienced during the previous operating cycle. Also provide documentation identifying which SG was leaking and corrective actions completed and planned for this condition.
8. Copy of steam generator eddy current data analyst guidelines and site validated eddy current technique specification sheets. Additionally, please provide a copy of EPRI Appendix H, "Examination Technique Specification Sheets," qualification records.
9. Provide past history of the condition and issues pertaining to the secondary side of the steam generators (including items such as loose parts, fouling, top of tube sheet condition, crud removal amounts, etc.).

Indicate where the primary, secondary, and resolution analyses are scheduled to take place.

A.5 Additional Information Related to all Inservice Inspection Activities

1. A list with a brief description of inservice inspection, and boric acid corrosion control program related issues (e.g., CR) entered into your corrective action program since the beginning of the last refueling outage. For example, a list based upon data base searches using key words related to piping such as: inservice inspection, ASME Code, Section XI, NDE, cracks, wear, thinning, leakage, rust, corrosion, boric acid, or errors in piping examinations.
2. Provide training (e.g. Scaffolding, Fall Protection, FME, Confined Space) if they are required for the activities described in A.1 through A.3.
3. Please provide names and phone numbers for the following program leads:

Inservice inspection (examination, planning)
Containment exams

Reactor pressure vessel head exams
Snubbers and supports
Repair and replacement program
Licensing
Site welding engineer
Boric acid corrosion control program
Steam generator inspection activities (site lead and vendor contact)

B. Information to be Provided Onsite to the Inspector(s) at the Entrance Meeting (April 16, 2018):

B.1 Inservice Inspection / Welding Programs and Schedule Information

1. Updated schedules for inservice inspection/nondestructive examination activities, including planned welding activities, and schedule showing contingency repair plans, if available.
2. For ASME Code Class welds selected by the inspector from the lists provided from section A of this enclosure, please provide copies of the following documentation for each subject weld:
 - Weld data sheet (traveler).
 - Weld configuration and system location.
 - Applicable Code Edition and Addenda for weldment.
 - Applicable Code Edition and Addenda for welding procedures.
 - Applicable welding procedures used to fabricate the welds.
 - Copies of procedure qualification records (PQRs) supporting the weld procedures from B.1.b.v.
 - Copies of welder's performance qualification records (WPQ).
 - Copies of the nonconformance reports for the selected welds (If applicable).
 - Radiographs of the selected welds and access to equipment to allow viewing radiographs (if radiographic testing was performed).
 - Copies of the preservice examination records for the selected welds.
 - Readily accessible copies of nondestructive examination personnel qualifications records for reviewing.
3. For the inservice inspection related corrective action issues selected by the inspector from section A of this enclosure, provide a copy of the corrective actions and supporting documentation.

4. For the nondestructive examination reports with relevant conditions on an ASME Code Class components selected by the inspector from Section A above, provide a copy of the examination records, examiner qualification records, and associated corrective action documents.
5. A copy of (or ready access to) most current revision of the inservice inspection program manual and plan for the current interval.
6. For the nondestructive examinations selected by the inspector from section A of this enclosure, provide a copy of the nondestructive examination procedures used to perform the examinations (including calibration and flaw characterization/sizing procedures). For ultrasonic examination procedures qualified in accordance with ASME Code, Section XI, Appendix VIII, provide documentation supporting the procedure qualification (e.g. the EPRI performance demonstration qualification summary sheets). Also, include qualification documentation of the specific equipment to be used (e.g., ultrasonic unit, cables, and transducers including serial numbers) and nondestructive examination personnel qualification records.

B.2 Reactor Pressure Vessel Head

1. Provide the nondestructive personnel qualification records for the examiners who will perform examinations of the reactor pressure vessel head replacement.
2. Provide drawings showing the following:
 - Reactor pressure vessel head and control rod drive mechanism nozzle configurations
 - Reactor pressure vessel head insulation configuration

Note: The drawings listed above should include fabrication drawings for the nozzle attachment welds as applicable.

B.3 Boric Acid Corrosion Control Program

1. Please provide boric acid walk down inspection results, an updated list of boric acid leaks identified so far this outage, associated corrective action documentation, and overall status of planned boric acid inspections.
2. Please provide any engineering evaluations completed for boric acid leaks identified since the end of the last refueling outage. Please include a status of corrective actions to repair and/or clean these boric acid leaks. Please identify specifically which known leaks, if any, have remained in service or will remain in service as active leaks.

B.4 Steam Generator Tube Inspections

1. Copies of the Examination Technique Specification Sheets and associated justification for any revisions.
2. Please provide a copy of the eddy current testing procedures used to perform the steam generator tube inspections (specifically calibration and flaw characterization/sizing procedures, etc.).
3. Copy of the guidance to be followed if a loose part or foreign material is identified in the steam generators.
4. Identify the types of SG tube repair processes which will be implemented for defective SG tubes (including any NRC reviews/evaluations/approvals of this repair process). Provide the flaw depth sizing criteria to be applied for ET indications identified in the SG tubes.
5. Copy of documents describing actions to be taken if a new SG tube degradation mechanism is identified.
6. Provide procedures with guidance/instructions for identifying (e.g. physically locating the tubes that require plugging) and plugging SG tubes.
7. List of corrective action documents generated by the vendor and/or site with respect to steam generator inspection activities.

B.5 Codes and Standards

1. Ready access to (i.e., copies provided to the inspector(s) for use during the inspection at the onsite inspection location, or room number and location where available):
 - Applicable Editions of the ASME Code (Sections V, IX, and XI) for the inservice inspection program and the repair/replacement program.
2. Copy of the performance demonstration initiative (PDI) generic procedures with the latest applicable revisions that support site qualified ultrasonic examinations of piping welds and components (e.g., PDI-UT-1, PDI-UT-2, PDI-UT-3, PDI-UT-10, etc.).
3. Boric Acid Corrosion Guidebook Revision 1 – EPRI Technical Report 1000975.

**The following items are requested for the
Occupational Radiation Safety Inspection
Wolf Creek
April 9-13, 2018
Integrated Report 2018002**

Inspection areas are listed in the attachments below.

Please provide the requested information on or before **March 22, 2018**.

Please submit this information using the same lettering system as below. For example, all contacts and phone numbers for Inspection Procedure 71124.01 should be in a file/folder titled "1- A," applicable organization charts in file/folder "1- B," etc.

If information is placed on *ims.certrec.com*, please ensure the inspection exit date entered is at least 30 days later than the onsite inspection dates, so the inspectors will have access to the information while writing the report.

In addition to the corrective action document lists provided for each inspection procedure listed below, please provide updated lists of corrective action documents at the entrance meeting. The dates for these lists should range from the end dates of the original lists to the day of the entrance meeting.

If more than one inspection procedure is to be conducted and the information requests appear to be redundant, there is no need to provide duplicate copies. Enter a note explaining in which file the information can be found.

If you have any questions or comments, please contact Natasha Greene at (817) 200-1154 or natasha.greene@nrc.gov.

PAPERWORK REDUCTION ACT STATEMENT

This letter does not contain new or amended information collection requirements subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). Existing information collection requirements were approved by the Office of Management and Budget, control number 3150-0011.

1. Radiological Hazard Assessment and Exposure Controls (71124.01) and Performance Indicator Verification (71151)

Date of Last Inspection: **May 8, 2017**

- A. List of contacts and telephone numbers for the Radiation Protection Organization Staff and Technicians
 - B. Applicable organization charts
 - C. Audits, self-assessments, and LERs written since date of last inspection, related to this inspection area
 - D. Procedure indexes for the radiation protection procedures
 - E. Please provide specific procedures related to the following areas noted below. Additional Specific Procedures may be requested by number after the inspector reviews the procedure indexes.
 - 1. Radiation Protection Program Description
 - 2. Radiation Protection Conduct of Operations
 - 3. Personnel Dosimetry Program
 - 4. Posting of Radiological Areas
 - 5. High Radiation Area Controls
 - 6. RCA Access Controls and Radiation Worker Instructions
 - 7. Conduct of Radiological Surveys
 - 8. Radioactive Source Inventory and Control
 - 9. Declared Pregnant Worker Program
 - F. List of corrective action documents (including corporate and sub-tiered systems) since date of last inspection
 - a. Initiated by the radiation protection organization
 - b. Assigned to the radiation protection organization
- NOTE: The lists should indicate the significance level of each issue and the search criteria used. Please provide in document formats which are “searchable” so that the inspector can perform word searches.
- If not covered above, a summary of corrective action documents since date of last inspection involving unmonitored releases, unplanned releases, or releases in which any dose limit or administrative dose limit was exceeded (for Public Radiation Safety Performance Indicator verification in accordance with IP 71151)
- G. List of radiologically significant work activities scheduled to be conducted during the inspection period (If the inspection is scheduled during an outage, please also include a list of work activities greater than 1 rem, scheduled during the outage with the dose estimate for the work activity.)
 - H. List of active radiation work permits
 - I. Radioactive source inventory list
 - a. All radioactive sources that are required to be leak tested
 - b. All radioactive sources that meet the 10 CFR Part 20, Appendix E, Category 2 and above threshold. Please indicate the radioisotope, initial and current activity (w/assay date), and storage location for each applicable source.

- J. The last two leak test results for the radioactive sources inventoried and required to be leak tested. If applicable, specifically provide a list of all radioactive source(s) that have failed its leak test within the last two years
- K. A current listing of any non-fuel items stored within your pools, and if available, their appropriate dose rates (Contact / @ 30cm)
- L. Computer printout of radiological controlled area entries greater than 100 millirem since the previous inspection to the current inspection entrance date. The printout should include the date of entry, some form of worker identification, the radiation work permit used by the worker, dose accrued by the worker, and the electronic dosimeter dose alarm set-point used during the entry (for Occupational Radiation Safety Performance Indicator verification in accordance with IP 71151).

**Initial Request for Information
Integrated Inspection
Wolf Creek Nuclear Generating Station**

Inspection Report: 05000482/2018002

Inspection Dates: April 1 – June 30, 2018

Inspection Procedure: Integrated Inspection Procedures

Lead Inspector: Douglas Dodson, Senior Resident Inspector

I. Information Requested Prior to March 22, 2018

The following information should be provided in electronic format (Certrec IMS preferred), to the attention of Douglas Dodson by March 22, 2018, to facilitate the reduction in the items to be selected for a final list during inspection preparation. The inspection team will finalize its sample selections and will provide an additional information request with specific items. This information shall be made available by March 22, 2018. The specific items selected from the lists shall be available and ready for review on the day indicated in this request. *Please provide requested documentation electronically in "pdf" files, Excel, or other searchable formats, if possible. The information should contain descriptive names, and be indexed and hyperlinked to facilitate ease of use. Information in "lists" should contain enough information to be easily understood by someone who has knowledge of pressurized water reactor technology. If requested documents are large and/or only hard copy formats are available, please inform the inspector(s), and provide subject documentation.

1. Any pre-existing evaluation or list of spent fuel pool cooling and cleanup system components and associated calculations with low design margins.
2. A list of high risk spent fuel pool cooling and cleanup system maintenance rule components and functions based on engineering or expert panel judgment.
3. A list of spent fuel pool cooling and cleanup system related operating experience evaluations for the last 3 years.
4. A list of all spent fuel pool cooling and cleanup system time-critical operator actions in procedures.
5. A list of permanent and temporary modifications related to spent fuel pool cooling and cleanup system sorted by component.
6. A list of current spent fuel pool cooling and cleanup system related "operator work arounds/burdens."
7. A list of the spent fuel pool cooling and cleanup system design calculations, which provide the design margin information for components.

8. List of spent fuel pool cooling and cleanup system root cause evaluations associated with component failures or design issues initiated/completed in the last 5 years.
9. A list of any spent fuel pool cooling and cleanup system common-cause failures of components in the last 3 years.
10. An electronic copy of the spent fuel pool cooling and cleanup system design bases documents and any open, pending, or recently completed changes. Although not an exhaustive list, please include any open, pending, or recently completed (last 3 years) changes to temporary modifications, permanent modifications, engineering change packages, and/or procedure change packages. Specifically, please include any open, pending, or recently completed changes to emergency operating, abnormal operating, normal operating, alarm response, system alignment, surveillance, or other procedure.
11. An electronic copy of the spent fuel pool cooling and cleanup system System Health notebook.
12. A copy of spent fuel pool cooling and cleanup system related audits completed in the last 2 years.
13. A list of spent fuel pool cooling and cleanup system motor operated valves (MOVs) in the program, design margin and risk ranking.
14. A list of spent fuel pool cooling and cleanup system air operated valves (AOVs) in the valve program, design margin and risk ranking.
15. Spent fuel pool cooling and cleanup system structure, system, and components' maintenance rule category, scoping, unavailability data, unreliability data, functional failure evaluations, (a)(1) determinations, (a)(1) goals, and any supporting basis documentation.
16. A list of spent fuel pool cooling and cleanup system licensee contacts for the inspection team with pager or phone numbers.
17. An excel spreadsheet of spent fuel pool cooling and cleanup system related PRA human action basic events or risk ranking of operator actions from your site specific PSA sorted by RAW and FV. Provide copies of your human reliability worksheets for these items.
18. In so far as there are recent or pending changes, please provide an Excel spreadsheet of spent fuel pool cooling and cleanup system related equipment basic events (with definitions) including importance measures sorted by risk achievement worth (RAW) and Fussell-Vesely (FV) from your internal events probabilistic risk assessment (PRA). Include basic events with RAW value of 1.3 or greater.
19. In so far as there are recent or pending changes, please provide a list of the top 50 cut-sets from your PRA.

20. In so far as there are recent or pending changes, please provide copies of PRA "system notebooks," and the latest PRA summary document.
21. In so far as there are recent or pending changes, and if you have an external events or fire PSA model, provide the information requested in items 17-19 for external events and fire, as it relates to the spent fuel pool cooling and cleanup system.
22. In so far as there are recent or pending changes, please provide a copy of the Wolf Creek Nuclear Generating Station IPEEE changes, if available electronically.

WOLF CREEK GENERATING STATION – NRC INTEGRATED INSPECTION
REPORT 05000482/2018002 AND ASSESSMENT FOLLOW-UP LETTER - August 12, 2018

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