



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION IV  
1600 E. LAMAR BLVD  
ARLINGTON, TX 76011-4511

May 12, 2017

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 05000482/2017001

Dear Mr. Heflin:

On March 31, 2017, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Wolf Creek Generating Station. On May 2, 2017, the NRC inspectors discussed the results of this inspection with Mr. Stephen Smith, Plant Manager, and other members of your staff. The results of this inspection are documented in the enclosed report.

NRC inspectors documented one finding of very low safety significance (Green) in this report. This finding involved a violation of NRC requirements. The NRC is treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2.a of the Enforcement Policy.

If you contest the violation or significance of the NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region 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.

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/*

John L. Dixon, Branch Chief  
Project Branch B  
Division of Reactor Projects

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

Enclosure:  
Inspection Report 05000482/2017001  
w/ Attachment: Supplemental Information

WOLF CREEK GENERATING STATION – NRC INTEGRATED INSPECTION  
 REPORT 05000482/2017001

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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION IV**

Docket: 05000482  
License: NPF-42  
Report: 05000482/2017001  
Licensee: Wolf Creek Nuclear Operating Corporation  
Facility: Wolf Creek Generating Station  
Location: 1550 Oxen Lane NE  
Burlington, KS 66839  
Dates: January 1, 2017, through March 31, 2017  
Inspectors: D. Dodson, Senior Resident Inspector  
M. Langelier, P.E., Acting Senior Resident Inspector  
F. Thomas, Resident Inspector  
J. Drake, Senior Reactor Engineer  
P. Elkmann, Senior Emergency Preparedness Inspector  
D. Proulx, Senior Project Engineer  
P. Voss, Senior Resident Inspector, Cooper  
Approved By: John L. Dixon  
Chief, Project Branch B  
Division of Reactor Projects

Enclosure

## SUMMARY

IR 05000482/2017001; 01/01/2017 – 03/31/2017; Wolf Creek Generating Station; Maintenance Effectiveness

The inspection activities described in this report were performed between January 1 and March 31, 2017, by the resident inspectors at Wolf Creek Generating Station and inspectors from the NRC's Region IV office. One finding of very low safety significance (Green) is documented in this report. This finding involved a violation of NRC requirements. The significance of inspection findings is indicated by their color (i.e., Green, greater than Green, White, Yellow, or Red), determined using Inspection Manual Chapter 0609, "Significance Determination Process," dated April 29, 2015. Their cross-cutting aspects are determined using Inspection Manual Chapter 0310, "Aspects within the Cross-Cutting Areas," dated December 4, 2014. Violations of NRC requirements are dispositioned in accordance with the NRC Enforcement Policy. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," dated July 2016.

### Cornerstone: Mitigating Systems

- Green. The inspectors reviewed a Green, self-revealed non-cited violation of Technical Specification 5.4.1.a and Regulatory Guide 1.33 for the licensee's failure to provide adequate work instructions for preventive maintenance on safety-related equipment. Specifically, work instructions to inspect and clean the condensate drain lines on the class 1E air conditioner air handling units lacked guidance for adequately cleaning the drain line. This caused the unit to become non-functional. The licensee took the immediate corrective action to clear the clogged condensate drain line on SGK05B, and entered the issue in the corrective action program as Condition Report 106416.

The failure to provide adequate work instructions for preventive maintenance on safety-related equipment is a performance deficiency. This performance deficiency is more than minor, and therefore a finding, because it is associated with the procedure quality attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). In accordance with NRC Inspection Manual Chapter 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," the inspectors determined this finding screened to Green. The inspectors determined that the finding has a problem identification and resolution cross-cutting aspect of resolution because the organization did not take effective corrective actions to address issues in a timely manner commensurate with their safety significance. This issue is indicative of current performance because neither the preventive maintenance change process was substantively changed nor were human performance errors associated with the preventive maintenance change corrected, and the same resolution inadequacies that resulted in the inadequate preventive maintenance instructions would be expected to occur [P.3]. (Section 1R12)

## PLANT STATUS

Wolf Creek Generating Station began the inspection period operating at full power. On February 9, 2017, operators reduced power to approximately 82 percent to complete planned main turbine valve cycle testing. Plant power was restored to approximately full power on February 10, 2017, and the plant operated at, or near, full power for the rest of the period.

## REPORT DETAILS

### 1. REACTOR SAFETY

#### Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

#### 1R01 Adverse Weather Protection (71111.01)

##### Summer Readiness for Offsite and Alternate AC Power Systems

##### a. Inspection Scope

On March 10, 2017, the inspectors completed an inspection of the station's off-site and alternate-alternating current (AC) power systems. The inspectors inspected the material condition of these systems, including transformers and other switchyard equipment to verify that plant features and procedures were appropriate for operation and continued availability of off-site and alternate-AC power systems. The inspectors reviewed outstanding and open condition reports for these systems. The inspectors walked down the switchyard to observe the material condition of equipment providing off-site power sources.

The inspectors verified that the licensee's procedures included appropriate measures to monitor and maintain availability and reliability of the off-site and alternate-AC power systems.

These activities constituted one sample of summer readiness of off-site and alternate-AC power systems, as defined in Inspection Procedure 71111.01.

##### b. Findings

No findings were identified.

#### 1R04 Equipment Alignment (71111.04)

##### .1 Partial Walk-Down

##### a. Inspection Scope

The inspectors performed partial system walk-downs of the following risk-significant systems:

- January 24, 2017, safety injection pump B
- February 22, 2017, emergency diesel generator B

The inspectors reviewed the licensee's procedures and system design information to determine the correct lineup for the systems. They visually verified that critical portions of the trains were correctly aligned for the existing plant configuration.

These activities constituted two partial system walk-down samples as defined in Inspection Procedure 71111.04.

b. Findings

No findings were identified.

.2 Complete Walk-Down

a. Inspection Scope

On January 24, 2017, the inspectors performed a complete system walk-down inspection of the residual heat removal pump B. The inspectors reviewed the licensee's procedures and system design information to determine the correct system lineup for the existing plant configuration. The inspectors also reviewed outstanding, open condition reports, temporary modifications, and other open items tracked by the licensee's operations and engineering departments. The inspectors then visually verified that the system was correctly aligned for the existing plant configuration.

These activities constituted one complete system walk-down sample, as defined in Inspection Procedure 71111.04.

b. Findings

No findings were identified.

**1R05 Fire Protection (71111.05)**

Quarterly Inspection

a. Inspection Scope

The inspectors evaluated the licensee's fire protection program for operational status and material condition. The inspectors focused their inspection on seven plant areas important to safety:

- January 23, 2017, fire areas A-21 and A-22, control room air-conditioning and filtration units, elevation 2,047 feet
- February 24, 2017, fire areas ESWA and ESWB, essential service water pump house, elevation 2,000 feet
- February 28, 2017, fire area A-33, auxiliary feedwater piping, valves, and instrumentation room, elevation 1,989 feet
- March 6, 2017, circulating water screen house floor area, elevation 2,000 feet

- March 9, 2017, station blackout diesel generator enclosure floor area, elevation 2,000 feet
- March 15, 2017, fire areas A-17 and A-18, electrical penetration rooms A and B, elevation 2,026 feet
- March 29, 2017, fire area A-23, main steam and feedwater valve compartment, elevation 2,047 feet

For each area, the inspectors evaluated the fire plan against defined hazards and defense-in-depth features in the licensee's fire protection program. The inspectors evaluated control of transient combustibles and ignition sources, fire detection and suppression systems, manual firefighting equipment and capability, passive fire protection features, and compensatory measures for degraded conditions.

These activities constituted seven quarterly inspection samples, as defined in Inspection Procedure 71111.05.

b. Findings

No findings were identified.

**1R07 Heat Sink Performance (71111.07)**

a. Inspection Scope

On January 25, 2017, and February 22, 2017, respectively, the inspectors completed an inspection of the readiness and availability of risk-significant heat exchangers. The inspectors observed performance tests, reviewed the data from the performance tests, verified the licensee used the industry standard periodic maintenance method outlined in EPRI NP-7552, and verified the material condition for the train A spent fuel pool pump room cooler and train A emergency diesel generator jacket water heat exchanger.

The inspectors also verified that both the train A spent fuel pool pump room cooler and train A emergency diesel generator jacket water heat exchangers were correctly categorized under the Maintenance Rule and were receiving the required maintenance.

These activities constituted completion of two heat sink performance annual review samples, as defined in Inspection Procedure 71111.07.

b. Findings

No findings were identified.



## **1R11 Licensed Operator Requalification Program and Licensed Operator Performance (71111.11)**

### **.1 Review of Licensed Operator Requalification**

#### **a. Inspection Scope**

On March 1, 2017, the inspectors observed an evaluated simulator scenario performed by an operating crew. The inspectors assessed the performance of the operators and the evaluators' critique of their performance. The inspectors also assessed the modeling and performance of the simulator during the evaluated simulator scenario.

These activities constituted completion of one quarterly licensed operator requalification program sample, as defined in Inspection Procedure 71111.11.

#### **b. Findings**

No findings were identified.

### **.2 Review of Licensed Operator Performance**

#### **a. Inspection Scope**

On March 20, 2017, the inspectors observed the performance of on-shift licensed operators in the plant's main control room. At the time of the observations, the plant was in a period of heightened risk due to chemical and volume control system inservice check valve testing and associated reactivity manipulations.

In addition, the inspectors assessed the operators' adherence to plant procedures, including AP 21-001, "Conduct of Operations," Revision 79, and other operations department policies.

These activities constituted completion of one quarterly licensed operator performance sample, as defined in Inspection Procedure 71111.11.

#### **b. Findings**

No findings were identified.

## **1R12 Maintenance Effectiveness (71111.12)**

### **Routine Maintenance Effectiveness**

#### **a. Inspection Scope**

The inspectors reviewed two instances of degraded performance or condition of safety-significant structures, systems, and components (SSCs):

- January 30, 2017, NF039B load shedding and emergency load sequencing cabinet, undervoltage power supplies found out of tolerance on ripple voltage checks

- February 1, 2017, containment cooler fan D motor control circuit, failed contactor

The inspectors reviewed the extent of condition of possible common cause SSC failures and evaluated the adequacy of the licensee's corrective actions. The inspectors reviewed the licensee's work practices to evaluate whether these may have played a role in the degradation of the SSCs. The inspectors assessed the licensee's characterization of the degradation in accordance with 10 CFR 50.65 (the Maintenance Rule), and verified that the licensee was appropriately tracking degraded performance and conditions in accordance with the Maintenance Rule.

These activities constituted completion of two maintenance effectiveness samples, as defined in Inspection Procedure 71111.12.

b. Findings

Introduction. The inspectors reviewed a Green, self-revealed non-cited violation of Technical Specification 5.4.1.a and Regulatory Guide 1.33 for the licensee's failure to provide adequate work instructions for preventive maintenance on safety-related equipment. Specifically, work instructions to inspect and clean the condensate drain line on the train B class 1E air conditioner air handling unit lacked adequate guidance to clean the drain line. This resulted in the train B class 1E air conditioning unit becoming non-functional.

Description. On August 15, 2016, at 4:33 a.m., the train B class 1E air conditioning unit (SGK05B) was declared non-functional when an operator discovered water on the floor near the air handling unit where one would not normally expect such a condition. This water was determined to be from condensate that had accumulated within the air handling unit and was leaking out of an access door seal. The condensate within the air handling unit had accumulated enough to wet the bottom of the fan motor within the unit. The direct cause of the accumulation of condensation in this air handling unit was determined to be a clogged condensate drain line. This line was cleared using pressurized water, the station started the unit for post maintenance testing on August 15, 2016, at 10:59 p.m., and the unit was declared functional at 11:35 a.m., on August 16, 2016.

Prior to this occurrence, on August 7, 2016, at 3:52 a.m., the train A control room air conditioning unit (SGK04A) was declared inoperable due to the discovery of condensation accumulating inside the air handling unit for this air conditioner. This issue was initially found by the operator on rounds when the operator noted the absence of water dripping from the condensate drain line as it normally does during operation. The condensation within the air handling unit had accumulated enough to wet the bottom of the fan motor. The direct cause of the accumulation of condensate within the air handling unit was determined to be a partially clogged condensate drain line. During operation, a small vacuum is created within the air handling unit and this vacuum, coincident with a partially clogged drain line, prevented condensate from draining from the unit. This line was partially cleared using pressurized water and the unit was declared operable at 5:50 p.m. on August 7, 2016. Inspectors challenged the licensee on their assessment that the unit was operable and not degraded due to only partially clearing the drain line. The licensee agreed, and revised their operability determination to operable but degraded.

As part of a basic cause evaluation completed in September 2016, the licensee determined that the condensate drain lines had clogged on these units several times in the past and had also occurred on the train B control room air conditioning unit (SGK04B). A total of twelve incidents since 1998 were reported. Initial corrective actions in 1998, implemented a preventive maintenance strategy for the control room air conditioning units and the class 1E air conditioning units for their condensate drain lines. This preventive maintenance activity did not initially provide guidance to check the drain lines for obstructions. In July 2000, after the train A control room air conditioning unit experienced a clogged condensate drain line, the preventive maintenance instructions were updated to request maintenance personnel to pour one gallon of water down the drain line to verify adequate drainage flow. However, these instructions did not include guidance on what was an acceptable flow rate.

In 2008, after continuing to have issues with clogging condensate drain lines, the preventive maintenance instructions were updated to require disassembly of the drain lines by maintenance personnel to inspect and thoroughly clean the drain lines. The ability to disassemble the condensate drain line was only possible on SGK05A due to a threaded union being present in the drain line. The other three units; SGK05B, SGK04A, and SGK04B, did not have a threaded union in the drain line. Because of this, a recommendation was made in 2012 to change the preventive maintenance instructions. The preventive maintenance instructions for the other three units were subsequently essentially reverted to the previous instructions that utilized the flushing water technique and did not require the lines to always be cleaned, even though the preventive maintenance tasks had previously been changed in 2008 to resolve ongoing issues. The licensee's basic cause evaluation determined that the most probable cause of the collection of debris in the condensate drain lines was lack of guidance in the preventive maintenance work instructions to adequately clean the drain lines to determine if blockages exist and to remove them.

The inspectors questioned whether any substantive changes to the preventive maintenance change process had occurred subsequent to 2012 or if any new actions were planned, and the inspectors questioned whether any corrective actions had been taken or were planned related to any human performance issues associated with the inadequate preventive maintenance change in 2012. The licensee confirmed that neither previous nor planned actions addressed the programmatic or human performance issues that resulted in inadequate resolution of the inadequate preventive maintenance task issue. As a result, the issue is indicative of current performance, and the licensee documented Condition Report 112754 to address the inspectors' concerns.

The licensee entered this issue into its corrective action program as Condition Reports 106262, 106416, and 112754. Condition Report 106416 documented completion of actions to improve the preventive maintenance work instructions to require the use of pressure (air and/or water) to clean/purge the condensate drain lines.

Analysis. The failure to provide adequate work instructions for preventive maintenance on safety-related equipment is a performance deficiency. This performance deficiency is more than minor, and therefore a finding, because it is associated with the procedure quality attribute of the Mitigating Systems cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). Specifically, work instructions for preventive maintenance on the condensate drain line

for SGK05B were inadequate, and as a result, SGK05B condensate drain lines became clogged and SGK05B was declared non-functional.

The inspectors evaluated the finding using Exhibit 2, "Mitigating Systems 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 is not a deficiency affecting the design or qualification of a mitigating SSC that maintained its operability or functionality; the finding does not represent a loss of system and/or function; the finding does not represent an actual loss of function of at least a single train for greater than its technical specification-allowed outage time; and the finding does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant for greater than 24 hours. Therefore, the inspectors determined the finding was of very low safety significance (Green).

The inspectors determined that the finding has a problem identification and resolution cross-cutting aspect in the area of resolution because the organization did not take effective corrective actions to address issues in a timely manner commensurate with their safety significance. Specifically, in 2012 the preventive maintenance instructions for the SGK05B, SGK04A, and SGK04B units, which were created in 2008 to address continuing condensate drain line clogging issues, were essentially reverted back to the previous inadequate instructions. This issue is indicative of current performance because neither the preventive maintenance change process was substantively changed nor were human performance errors associated with the preventive maintenance change corrected, and the same resolution inadequacies that resulted in the inadequate preventive maintenance instructions would be expected to occur [P.3].

Enforcement. Technical Specification 5.4.1.a requires, in part, that procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Appendix A of Regulatory Guide 1.33, Revision 2. Section 9.a of Appendix A to Regulatory Guide 1.33, Revision 2, requires, in part, that "maintenance that can affect the performance of safety-related equipment should be properly pre-planned and performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances." The licensee established Procedure AP 16B-003, "Planning and Scheduling Preventive Maintenance," which provides direction for implementing the preventive maintenance program to meet the Regulatory Guide 1.33 requirement. Section 6.2 of Procedure AP 16B-003 requires, in part, that preventive maintenance activities be developed by considering, in part, equipment history, operating experience, and component functional importance. Contrary to the above, until December 15, 2016, preventive maintenance activities were not developed by adequately considering equipment history, operating experience, and component functional importance. Specifically, preventive maintenance activity 28380 for cleaning and inspecting the drain line on SGK05B, an activity affecting quality, was not appropriate to the circumstances. As a result, the train B class 1E air conditioning unit (SGK05B) was declared non-functional on August 15, 2016. The licensee took the immediate corrective action to clear the clogged condensate drain line on SGK05B and has completed corrective actions to improve the preventive maintenance instructions. The licensee entered this issue into the corrective action program as Condition Reports 106262, 106416, and 112754. This violation is being treated as an NCV, consistent with Section 2.3.2.a of the Enforcement Policy: NCV 05000482/2017001-01, "Failure to Provide Adequate Work Instructions for Preventive Maintenance."

## **1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)**

### a. Inspection Scope

The inspectors reviewed three risk assessments performed by the licensee prior to changes in plant configuration and the risk management actions taken by the licensee in response to elevated risk:

- January 23, 2017, planned maintenance for train A control room air-conditioning unit and train A safety injection pump
- January 31, 2017, planned maintenance for train B essential service water pump and train B emergency diesel generator
- February 21 and 22, 2017, planned 7-day maintenance window for train A emergency diesel generator

The inspectors verified that these risk assessments were performed timely and in accordance with the requirements of 10 CFR 50.65 (the Maintenance Rule) and plant procedures. The inspectors reviewed the accuracy and completeness of the licensee's risk assessments and verified that the licensee implemented appropriate risk management actions based on the result of the assessments.

Additionally, on January 17, 2017, the inspectors also observed portions of steam generator atmospheric relief valve A controller replacement emergent work activities that had the potential to affect the functional capability of mitigating systems. The inspectors verified that the licensee appropriately developed and followed a work plan for these activities. The inspectors verified that the licensee took precautions to minimize the impact of the work activities on unaffected SSCs.

These activities constituted completion of four maintenance risk assessments and emergent work control inspection samples, as defined in Inspection Procedure 71111.13.

### b. Findings

No findings were identified.

## **1R15 Operability Determinations and Functionality Assessments (71111.15)**

### a. Inspection Scope

The inspectors reviewed five operability determinations and evaluations that the licensee performed for degraded or nonconforming SSCs:

- December 22, 2016, evaluation of train A hydrogen analyzer containment isolation valves in an abnormal line-up
- January 11, 2017, evaluation of unit vent planned maintenance
- February 27, 2017, operability determination of increased reactor coolant system xenon ratio and total noble gas activity

- February 27, 2017, operability determination of B motor-driven auxiliary feedwater pump inboard bearing oil sample results with increased phosphorus
- March 14, 2017, operability determination of postulated tornado generated missile impact on A and B train emergency diesel generator truck connections

The inspectors reviewed the timeliness and technical adequacy of the licensee's evaluations. Where the licensee determined the degraded SSC to be operable, the inspectors verified that the licensee's compensatory measures were appropriate to provide reasonable assurance of operability. The inspectors verified that the licensee had considered the effect of other degraded conditions on the operability of the degraded SSC.

These activities constituted completion of five operability and functionality review samples, as defined in Inspection Procedure 71111.15.

b. Findings

No findings were identified.

**1R19 Post-Maintenance Testing (71111.19)**

a. Inspection Scope

The inspectors reviewed six post-maintenance testing activities that affected risk-significant SSCs:

- January 23, 2017, train A control room air conditioning unit planned maintenance
- February 2, 2017, train B containment cooler fan D motor contactor replacement
- February 7, 2017, train B motor-driven auxiliary feedwater pump planned maintenance
- February 22, 2017, train B emergency diesel generator planned maintenance
- February 28, 2017, turbine-driven auxiliary feedwater pump planned maintenance
- March 28, 2017, train A motor-driven auxiliary feedwater pump and valve planned maintenance

The inspectors reviewed licensing- and design-basis documents for the SSCs and the maintenance and post-maintenance test procedures. The inspectors observed the performance of the post-maintenance tests to verify that the licensee performed the tests in accordance with approved procedures, satisfied the established acceptance criteria, and restored the operability of the affected SSCs.

These activities constituted completion of six post-maintenance testing inspection samples, as defined in Inspection Procedure 71111.19.

b. Findings

No findings were identified.

**1R22 Surveillance Testing (71111.22)**

a. Inspection Scope

The inspectors observed seven risk-significant surveillance tests and reviewed test results to verify that these tests adequately demonstrated that the SSCs were capable of performing their safety functions:

In-service tests:

- January 19, 2017, STS MT-079, "A [Essential Service Water] Vacuum Breaker Valve Inservice Test," Revision 1
- February 16, 2017, STS EF-100A, "[Essential Service Water] System Inservice Pump A & [Essential Service Water] A Check Valve Test," Revision 46B
- March 27, 2017, STS EN-101A, "Containment Spray Pump A Comprehensive Pump Test," Revision 14

Other surveillance tests:

- February 10, 2017, STS AC-001, "Main Turbine Cycle Test," Revision 53
- February 15, 2017, STS IC-530D, "Wide Range Temperature and Wide Range Pressure Instrumentation Protection Set 1 Channel Calibration," Revision 28
- February 24, 2017, STS JE-001A, "Emergency Diesel Generator Fuel Oil System Train A Test," Revision 12
- March 16, 2017, STS EN-101B, "Containment Spray Pump B Comprehensive Pump Test," Revision 14

The inspectors verified that these tests met technical specification requirements, that the licensee performed the tests in accordance with their procedures, and that the results of the test satisfied appropriate acceptance criteria. The inspectors verified that the licensee restored the operability of the affected SSCs following testing.

These activities constituted completion of seven surveillance testing inspection samples, as defined in Inspection Procedure 71111.22.

b. Findings

No findings were identified.

## **Cornerstone: Emergency Preparedness**

### **1EP4 Emergency Action Level and Emergency Plan Changes (71114.04)**

#### a. Inspection Scope

The inspector performed an in-office review of AP-06-002, "Radiological Emergency Response Plan," Revision 18A, implemented November 29, 2016. This revision:

- Revised the definitions and descriptions of radiation dosimetry throughout the Plan
- Corrected minor typographical and administrative errors

This revision was compared to its previous revision, to the criteria of NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, and to the standards in 10 CFR 50.47(b) to determine if the revision adequately implemented the requirements of 10 CFR 50.54(q)(3) and 50.54(q)(4). The inspector verified that the revision did not decrease the effectiveness of the emergency plan. This review was not documented in a safety evaluation report and did not constitute approval of licensee-generated changes; therefore, this revision is subject to future inspection.

These activities constitute completion of one emergency action level and emergency plan changes sample as defined in Inspection Procedure 71114.04.

#### b. Findings

No findings were identified.

### **1EP6 Drill Evaluation (71114.06)**

#### Training Evolution Observation

#### a. Inspection Scope

On March 1 and 9, 2017, the inspectors observed simulator-based licensed operator requalification training that included implementation of the licensee's emergency plan. The inspectors verified that the licensee's emergency classifications, off-site notifications, and protective action recommendations were appropriate and timely. The inspectors verified that any emergency preparedness weaknesses were appropriately identified by the evaluators and entered into the corrective action program for resolution.

These activities constituted completion of one training observation sample, as defined in Inspection Procedure 71114.06.

#### b. Findings

No findings were identified.



#### 4. OTHER ACTIVITIES

##### **Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, Emergency Preparedness, Public Radiation Safety, Occupational Radiation Safety, and Security**

#### 4OA1 Performance Indicator Verification (71151)

##### .1 Unplanned Scrams per 7000 Critical Hours (IE01)

###### a. Inspection Scope

The inspectors reviewed licensee event reports (LERs) for the period of January 1, 2016, through December 31, 2016, to determine the number of scrams that occurred. The inspectors compared the number of scrams reported in these LERs to the number reported for the performance indicator. Additionally, the inspectors sampled operating logs to verify the number of critical hours during the period. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the data reported.

These activities constituted verification of the unplanned scrams per 7000 critical hours performance indicator, as defined in Inspection Procedure 71151.

###### b. Findings

No findings were identified.

##### .2 Unplanned Power Changes per 7000 Critical Hours (IE03)

###### a. Inspection Scope

The inspectors reviewed operating logs and corrective action program records for the period of January 1, 2016, through December 31, 2016, to determine the number of unplanned power changes that occurred. The inspectors compared the number of unplanned power changes documented to the number reported for the performance indicator. Additionally, the inspectors sampled operating logs to verify the number of critical hours during the period. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the data reported.

These activities constituted verification of the unplanned power changes per 7000 critical hours performance indicator, as defined in Inspection Procedure 71151.

###### b. Findings

No findings were identified.

.3 Unplanned Scrams with Complications (IE04)

a. Inspection Scope

The inspectors reviewed the licensee's basis for including or excluding in this performance indicator each scram that occurred between January 1, 2016, through December 31, 2016. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the data reported.

These activities constituted verification of the unplanned scrams with complications performance indicator, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

**40A2 Problem Identification and Resolution (71152)**

Routine Review

a. Inspection Scope

Throughout the inspection period, the inspectors performed daily reviews of items entered into the licensee's corrective action program and periodically attended the licensee's condition report screening meetings. The inspectors verified that licensee personnel were identifying problems at an appropriate threshold and entering these problems into the corrective action program for resolution. The inspectors verified that the licensee developed and implemented corrective actions commensurate with the significance of the problems identified. The inspectors also reviewed the licensee's problem identification and resolution activities during the performance of the other inspection activities documented in this report.

b. Findings

No findings were identified.

**40A5 Other Activities**

Temporary Instruction 2515/192, "Inspection of the Licensee's Interim Compensatory Measures Associated with the Open Phase Condition Design Vulnerabilities in Electric Power Systems."

a. Inspection Scope

The objective of this performance based Temporary Instruction was to verify implementation of interim compensatory measures associated with an open phase condition design vulnerability in electric power systems for operating reactors. The inspectors conducted an inspection to determine if the licensee implemented the following interim compensatory measures. These compensatory measures are to remain in place until permanent automatic detection and protection schemes are

installed and declared operable for the open phase condition design vulnerability. The inspectors verified the following:

- The licensee identified and discussed with plant staff the lessons-learned from the open phase condition events at the U.S. operating plants including the Byron Station open phase condition and its consequences. This included conducting operator training for promptly diagnosing, recognizing consequences, and responding to an open phase condition.
- The licensee updated plant operating procedures to help operators promptly diagnose and respond to open phase conditions on off-site power sources credited for safe shutdown of the plant.
- The licensee established and implemented periodic walkdown activities to inspect switchyard equipment such as insulators, disconnect switches, and transmission line and transformer connections associated with the off-site power circuits to detect a visible open phase condition.
- The licensee ensured that routine maintenance and testing activities on switchyard components have been implemented and maintained. As part of the maintenance and testing activities, the licensee assessed and managed plant risk in accordance with 10 CFR 50.65(a)(4) requirements.

b. Findings

No findings were identified.

**40A6 Meetings, Including Exit**

Exit Meeting Summary

On March 22, 2017, the inspector conducted a telephonic exit meeting to present the results of the in-office inspection of changes to the licensee's emergency plan to Mr. T. East, Superintendent, Emergency Planning, and other members of the licensee staff. The licensee acknowledged the issues presented.

On March 23, 2017, the inspectors presented the final inspection results to Mr. C. Reasoner, Site Vice President, and other members of the licensee staff. The licensee acknowledged the issues presented. No proprietary information was identified.

On May 2, 2017, the inspectors presented the inspection results to Mr. S. Smith, Plant Manager, and other members of the licensee staff. The licensee acknowledged the issues presented. The licensee confirmed that any proprietary information reviewed by the inspectors had been returned or destroyed.

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### **Licensee Personnel**

J. Ashley, Supervisor, System Engineering  
R. Audano, Superintendent, Maintenance  
R. Ayers, Supervisor, Radiation Protection  
T. Baban, Manager, System Engineering  
W. Brandt, Shift Manager  
J. Cuffe, Supervisor, Radiation Protection  
T. East, Superintendent, Emergency Planning  
J. Edwards, Manager, Operations  
R. Fincher, Manager, Quality  
R. French, Supervisor, Radiation Protection  
J. Fritton, Oversight  
G. Fugate, Director, Plant Support  
N. Good, Licensing Engineer  
C. Gross, Manager, Chemistry  
C. Hafenstine, Manager, Regulatory Affairs  
D. Hall, Manager, Strategic Projects  
A. Heflin, President and Chief Executive Officer  
P. Herrman, Manager, Design Engineering  
R. Hobby, Licensing Engineer  
J. Isch, Superintendent, Operations Work Controls  
J. Knust, Licensing Engineer  
R. Lane, Manager, Corrective Action Program  
B. Lee, Licensed Supervising Instructor  
D. Mand, Manager, System Engineering  
J. McCoy, Vice President, Engineering  
W. Muilenburg, Supervisor Licensing  
L. Ratzlaff, Manager, Maintenance  
C. Reasoner, Site Vice President  
M. Skiles, Manager, Security  
T. Slenker, Supervisor, Operations Support  
S. Smith, Plant Manager  
L. Stone, Licensing Engineer  
A. Stull, Vice President and Chief Administrative Officer  
J. Suter, Supervisor, Fire Protection  
M. Tate, Superintendent, Security Operations  
J. Yunk, Manager, Training

#### **NRC Personnel**

D. Loveless, Senior Reactor Analyst  
C. Smith, Reactor Inspector, Engineering Branch 1

## LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

### Opened and Closed

05000482/2017001-01    NCV    Failure to Provide Adequate Work Instructions for Preventive Maintenance (Section 1R12)

### Closed

2515/192                    TI                    Inspection of the Licensee's Interim Compensatory Measures Associated with the Open Phase Condition Design Vulnerabilities in Electric Power Systems (Section 4OA5)

## LIST OF DOCUMENTS REVIEWED

### Section 1R01: Adverse Weather Protection

#### Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
OFN AF-025	Unit Limitations	50
SYS SY-120	Sharpe Diesel Operation and Alignment to Site	12

#### Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
KD-7496	One Line Diagram	61
SK7458_AC05	Wolf Creek 345KV Substation No. 7 Transformer Diff. [Differential] Currents Diagram	0

#### Condition Reports

46940	102586	108547	109469	111538
111636				

#### Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Date</u>
2017-005	Wolf Creek Substation Work Authorization; TX7 OPD [Open Phase Detection] PMT [Post Maintenance Test] Troubleshooting (energized)	March 9, 2017
2017-007	Wolf Creek Substation Work Authorization; OPD [Open Phase Detection] A/C [Air-Conditioner] replacement	March 9, 2017
2017-008	Wolf Creek Substation Work Authorization; OPD [Open Phase Detection] Data Recorder	March 9, 2017

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Date</u>
2017-0111	Control Room Risk Assessment Log/Work Schedule; Risk Assessment Dates – March 6, 2017, through March 12, 2017	February 13, 2017

**Section 1R04: Equipment Alignment**

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AI 16F-001	Evaluation of Boric Acid Leakage	10
AI 16F-002	Boric Acid Leakage Management	10
CKL EM-120	Safety Injection System Lineup Check Lists	31
CKL JE-120	Emergency Fuel Oil System Lineup	19
CKL KJ-121	Diesel Generator NE01 and NE02 Valve Checklist	39
STS EJ-100A	RHR [Residual Heat Removal] System Inservice Pump A Test	52
STS PE-007	Periodic Verification of Motor Operated Valves	4
STS VT-001	Verification of OMN-1, MOV Exercise Requirements	5
SYS EJ-320	Placing RHR System in Safety Injection Standby Condition	43

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
EID-0018	P&ID System Composite System BG, BN, EM, EJ, EP	1
M-12EJ01	Piping and Instrumentation Diagram Residual Heat Removal System	53
M-12EM01	Piping & Instrumentation Diagram High Pressure Coolant Injection System	43
M-12JE01	Piping & Instrumentation Diagram Emergency Fuel Oil System	19
M-12KJ04	Piping & Instrumentation Diagram Standby Diesel Generator “B” Cooling Water System, Sheet 1	18
M-12KJ05	Piping & Instrumentation Diagram Standby Diesel Generator “B” Intake Exhaust, F.O. & Start Air Sys.	17
M-12KJ06	Piping & Instrumentation Diagram Standby Diesel Generator “B” Lube Oil System	21

Condition Reports

57026	97111	99337	103970	109541
111208	111237	111357		

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Date</u>
AIF 16F-001	Boric Acid Leakage Screening/Evaluation – PEJ01B	November 14, 2009
APF 25A-700-01	Temporary Shielding Request (TSR# 13-086)	January 14, 2013
APF 25A-700-01	Temporary Shielding Request (TSR# 14-086)	February 19, 2014
APF 25A-700-01	Temporary Shielding Request (TSR# 15-086)	February 10, 2015
APF 25A-700-01	Temporary Shielding Request (TSR# 16-086)	September 12, 2016
EJ	System Health Report, Residual Heat Removal	July 1, 2016, through December 31, 2016

**Section 1R05: Fire Protection**

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AP 10-102	Control of Combustible Materials	20
AP 10-103	Fire Protection Impairment Control	32
AP 10-106	Fire PrePlans	17
AP 14A-003	Scaffold Construction and Use	24

Drawings

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

Condition Reports

71910	111332	111427	111489	111539
111546	111693	111708		

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
2017-008	Transient Combustible Materials Permit	February 23, 2017
APF 10-103-01	Fire Protection Impairment Control Permit	14
APF 10-103-04	Hourly Fire Watch Permit Log; February 23, 2017 through March 6, 2017	9
XX-X-004	Calculation Number XX-X-004 Engineering Evaluation	4

**Section 1R07: Heat Sink Performance**

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
STS EF-100A	ESW System Inservice Pump A and ESW A Check Valve Test	46B
SYS EF-200	Operation of the ESW System	43

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
M-12KJ01	Piping & Instrumentation Diagram Standby Diesel Generator "A" Cooling Water System	13
M-612C-00025	Aerofin Maintenance Instructions for Aerofin Coils	W02
M-612C-00028	Type "R" Coil, 13 Tube Face – Carrier Replacement, 6 Row – 4 Pass, Left Hand	W03

Condition Reports

110613

Work Orders

16-412518-000      16-413219-007

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Date</u>
	Balance of Plant Eddy Current Examination – EKJ06A	February 21, 2017
EPRI NP-7552	Heat Exchanger Performance Monitoring Guidelines	December 1991



Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Date</u>
GG-01	Maintenance Rule Final Scope Evaluation, Fuel Building HVAC System – GG-01	

**Section 1R11: Licensed Operator Requalification Program**

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AP 21-001	Conduct of Operations	79
SYS BG-201	Shifting Charging Pumps	69A
STS BG-210	CVCS Inservice Check Valve Test	34

Condition Reports

110940	111365	111764
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**Section 1R12: Maintenance Effectiveness**

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AI 28A-023	Evaluation of Maintenance Rule Functional Failure CRs	4
AP 16B-003	Planning and Scheduling Preventive Maintenance	
STS IC-208B	4KV Loss of Voltage & Degraded Voltage TADOT NB02 BUS – SEP GRP 4	4E

Condition Reports

106262	106416	111360	112754
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Work Orders

16-415474-000

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Date</u>
GN-01	Maintenance Rule Final Scope Evaluation, Containment Cooling System – GN-01	
GN-02	Maintenance Rule Final Scope Evaluation, Containment Cooling System – GN-02	

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Date</u>
GN-03	Maintenance Rule Final Scope Evaluation, Containment Cooling System – GN-03	
GN-04	Maintenance Rule Final Scope Evaluation, Containment Cooling System – GN-04	
GN-05	Maintenance Rule Final Scope Evaluation, Containment Cooling System – GN-05	
GN-06	Maintenance Rule Final Scope Evaluation, Containment Cooling System – GN-06	
GN-07	Maintenance Rule Final Scope Evaluation, Containment Cooling System – GN-07	
GN-08	Maintenance Rule Final Scope Evaluation, Containment Cooling System – GN-08	
NF	System Health Report, Load Shedding & Emergency Load Sequencing	July 1, 2016, through December 31, 2016
NF-01	Maintenance Rule Final Scope Evaluation, Load Shedding & Emergency Load Sequencing System – NF-01	
NF-02	Maintenance Rule Final Scope Evaluation, Load Shedding & Emergency Load Sequencing System – NF-02	
NF-03	Maintenance Rule Final Scope Evaluation, Load Shedding & Emergency Load Sequencing System – NF-03	
PIR 77552	Functional Failure Determination Checklist	January 15, 2014
PIR 77555	Functional Failure Determination Checklist	February 25, 2014
PIR 77901	Functional Failure Determination Checklist	February 26, 2014
PIR 80710	Functional Failure Determination Checklist	May 13, 2014
PIR 80711	Functional Failure Determination Checklist	May 13, 2014
PIR 80746	Functional Failure Determination Checklist	May 13, 2014
PIR 81809	Functional Failure Determination Checklist	November 6, 2014
PIR 82231	Functional Failure Determination Checklist	May 15, 2014
PIR 82989	Functional Failure Determination Checklist	May 14, 2014

### Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Date</u>
PIR 89850	Functional Failure Determination Checklist	January 7, 2015
PIR 91851	Functional Failure Determination Checklist	March 21, 2015
PIR 94058	Functional Failure Determination Checklist	May 1, 2015
PIR 95765	Functional Failure Determination Checklist	May 19, 2015
PIR 95845	Functional Failure Determination Checklist	May 4, 2015
PIR 110725	Functional Failure Determination Checklist	March 9, 2017

### **Section 1R13: Maintenance Risk Assessment and Emergent Work Controls**

#### Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AI 22C-013	Protected Equipment Program	19
AI 22C-014	TSEO [Technical Specification Equipment Outage] Management	3
AP 10-106	Fire Preplans	17
AP 14A-003	Scaffold Construction and Use	24
AP 22C-003	On-Line Nuclear Safety and Generation Risk Assessment	22
AP 22C-007	Risk Management and Contingency Planning	11
AP 22C-008	Qualitative Risk Management	4
STS IC-616A	Slave Relay Test K616 Train A Safety Injection	20
STS IC-616B	Slave Relay Test K616 Train B Safety Injection	19
STS NB-005	Breaker Alignment Verification	31
SYS SY-120	Sharpe Diesel Operation and Alignment To Site	12

#### Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
M-12EF01	Piping & Instrumentation Diagram Essential SVC [Service] Water System	29
M-12EF02	Piping & Instrumentation Diagram Essential Service Water System	42

### Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
M-12EG01	Piping & Instrumentation Diagram Component Cooling Water System	24
M-12EG02	Piping & Instrumentation Diagram Component Cooling Water System	27
M-12KJ04	Piping & Instrumentation Diagram Standby Diesel Generator "B" Cooling Water System	18

### Condition Reports

110469	110470	111205	111234	111235
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### Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Date</u>
13-S0041	WCGS Scaffolding Request	February 28, 2013
2017-0104	On-Line Nuclear Safety and Generation Risk Assessment; Risk Assessment Dates – January 16, 2017, through January 22, 2017	January 17, 2017
2017-0105	On-Line Nuclear Safety and Generation Risk Assessment; Risk Assessment Dates – January 23, 2017, through January 29, 2017	January 5, 2017
2017-0106	On-Line Nuclear Safety and Generation Risk Assessment; Risk Assessment Dates – January 30, 2017, through February 5, 2017	December 20, 2016
2017-0109	On-Line Nuclear Safety and Generation Risk Assessment; Risk Assessment Dates – February 20 to February 26, 2017	January 31, 2017

## **Section 1R15: Operability Evaluations**

### Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AI 26C-004	Technical Specification Application for Containment Isolation Valves	6C
AP 16-003	Master Lubrication List and Control of Lubricants	5
AP 19B-001	Failed Fuel Action Plan	7
AP 26C-004	Operability Determination and Functionality Assessment	33
AP 26C-004	Operability Determination and Functionality Assessment	34

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AP 28-001	Operability Evaluations	24
I-ENG-004	Lubricating Oil Analysis	8
STS AL-212	MD AFP Comprehensive Pump Testing, Flow Path Verification & CV Testing	31
STS GG-001A	Emergency Exhaust Filtration System Train A Operability Test	23
STS GS-201A	Containment H <sub>2</sub> System Train A Inservice Valve Test	6A
STS GS-201B	Containment H <sub>2</sub> System Train B Inservice Valve Test	6
STS GS-202	Containment H <sub>2</sub> System Position Indication Test	14
SYS GG-200	Fuel Building Emergency Exhaust Operations	32

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
J-02GS03(Q)	Control Logic Diagram Hydrogen Analyzer Containment Isolation Valves	3
M-12GG01	Piping and Instrumentation Diagram Fuel Building HVAC	8
M-12GS01	Piping and Instrumentation Diagram Containment Hydrogen Control System	13
M-12JE01	Piping & Instrumentation Diagram Emergency Fuel Oil System	19

Condition Reports

PIR 00-0804	PIR 01-0683	PIR 05-0063	PIR 99-1978	111233
111259	111261	111366	111419	111624
111625	111795	111974	112131	

Work Orders

11-346333-000	15-402258-000	16-410322-000	16-411630-000
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## Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
	PAL01B Vibe Data 11-28-16 and 2-7-17.txt	November 28, 2016, to March 6, 2017
2017-02	Condition Report 00111419 ODM Documentation Form	March 7, 2017
7052	Fyrquel EHC Safety Data Sheet	5
C21 D-GT-N-007	Clearance Order for Outside Air Inlet Tornado Damper	
C21 D-GT-N-008	Clearance Order for Containment Purge HVAC System	
C22 D-GS-B-002	Clearance Order for Hydrogen Analyzer	
C22 D-GS-B-002A	Clearance Order for Hydrogen Analyzer	
CGD 002-E0011	Fyrquel EHC Electro-Hydraulic Control Fluid	3
CGD 002-P0041	Exxon Mobil DTE 732 Lubricating Oil	1
Excel File	Weekly Trends Cycle 22.xlsx	Various Dates
PAL01B	Aux Feedwater Pump-B Outboard Predictive Maintenance Lab Report	August 24, 2016
UIN 012AD8A	Aux Feedwater Pump B-Out Tribology Report	February 21, 2017
UIN 039D50C	New Oil Baseline for Mobil DTE 73	March 7, 2017
UIN 03F220F	SHC 824 New Oil	August 26, 2014
UIN 05B7B75	New Oil Fryquel	March 2, 2017

## **Section 1R19: Post-Maintenance Testing**

### Procedures

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
AI-23D-003	MOV Trending and Periodic Verification Program	2
MPE NE-003	Governor Adjustments for Emergency Diesel Generator NE01	13
STN AL-201	Auxiliary Feedwater System Valve Test	6
STS AL-101	MDAFW Pump A Inservice Pump Test	44A

## Procedures

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
AI-23D-003	MOV Trending and Periodic Verification Program	2
STS GK-002A	Control Room A/C [Air-Conditioning] Unit Operability Test	2
STS GN-001	Containment Cooling Fans Operability Test	10
STS PE-007	Periodic Verification of MOVs (ALHV0011)	December 30, 2013
STS PE-007	Periodic Verification of MOVs (ALHV0011)	July 29, 2015
STS PE-007	Periodic Verification of MOVs (ALHV0011)	March 28, 2017
STS PE-007	Periodic Verification of MOVs (ALHV0031)	March 28, 2017
SYS GN-120	Containment Cooling System Operation	42
SYS KJ-123	Post Maintenance Run of Emergency Diesel Generator A	65
SYS KJ-125	EDG Starting Air Compressor Operation	19

## Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
E-13GN02	Schematic Diagrams Containment Cooler Fans A & C	16
E-13GN02A	Schematic Diagrams Containment Cooler Fans B & D	17
E-018-00852	SZ. 5 2SP – 1WD Schematic MCC Cubicles: NG02TAF1, NG04TAF1	W12
E-018-00853	Wiring Diagram 2SP 1WD (Size 5) MCC Cubicles NG02TAF1, NG04TAF1	W13
M-1H1521	Heating, Ventilating, & Air Cond. Auxiliary Building EL. 2047'-6" AREA 2	9
M-12AL01	P&ID Auxiliary Feedwater System	28
M-12GK01	Piping & Instrumentation Diagram Control Building H.V.A.C [Heating, Ventilation, and Air-Conditioning]	13
M-12GK02	Piping & Instrumentation Diagram Control Building HVAC	22
M-12GK03	Piping & Instrumentation Diagram Control Building H.V.A.C	20
M-13GK01	Small Piping Isometric Room Coolers and Compressors Vents and Drains – Aux. [Auxiliary] Bldg. [Building]	14

## Condition Reports

106416	107185	110725	110763	110885
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### Condition Reports

110927                    111173                    111956                    112026

### Work Orders

15-405362-000    15-405970-000    15-409029-007    16-411723-020    16-414721-000  
16-418029-001    16-418068-001    16-418068-002    17-422333-000    17-422333-002  
17-422333-003

### Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
	Online Nuclear Safety and Generation Risk Assessment Protected Equipment List – Motor Driven Auxiliary Feedwater Pump A TSEO	March 28, 2017
AL-M-007	Thrust/Torque Calculation for Valves ALHV0005, ALHV0007, ALHV0009, and ALHV00011	6
SYS KJ-123	Post Maintenance Run of Emergency Diesel Generator A	Completed on February 22, 2017

### **Section 1R22: Surveillance Testing**

#### Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
ALR 00-089C	DG NE01 Day TK LEV LO	10
AP 15C-004	Preparation, Review and Approval of Procedures, Instructions and Forms	51
AP 21-001	Conduct of Operations	79
STN AP-102	NSAFP Full Flow Test	8
STN IC-467A	Channel Calibration Emergency Fuel Oil Day Tank, TJE02A, Level Loop JE LPL-0001	2A
STS AC-001	Main Turbine Valve Cycle Test	53
STS EF-100A	EWS System Inservice Pump A & ESW A Check Valve Test	46B
STS EN-101A	Containment Spray Pump A Comprehensive Pump	14
STS EN-101B	Containment Spray Pump B Comprehensive Pump Test	14
STS IC-447	Channel Calibration Nuclear Instrumentation System Power Range Incore-Excore	42
STS IC-530D	Channel Calibration Wide Range Temperature and Wide Range Pressure Instrumentation Protection Set One	27



Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
STS IC-530D	Wide Range Temperature and Wide Range Pressure Instrumentation Protection Set 1 Channel Calibration	28
STS JE 001A	Emergency Diesel Generator fuel Oil System Train A Test	12
STS JE-003A	Diesel Generator NE01 Day Tank Water Removal	15A
STS JE-004A	Emergency Fuel Oil Storage Tank Water Check/Removal	20
STS MT-079	ESW System Water Hammer Inservice Check Valve Test	1
SYS OMT-001	Operations Monthly Tasks	16

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
10466-M-761-2025-04	Interconnecting Wiring Diagram Cabinet 01 SNUPPS Nuclear Power Plant Controls	W04
10466-M-761-2026	Interconnecting Wiring Diagram Cabinet 01 SNUPPS Nuclear Power Plant Controls	W06
10466-M-761-2275	Interconnecting Wiring Diagram Cab. 01 SNUPPS Nuclear Power Plant Controls	W05
M-12JE01	Piping & Instrumentation Diagram Emergency Fuel Oil System	19
M-12JE01	Piping & Instrumentation Diagram Standby Diesel Generator "A" Intake Exhaust. F. O. & Start. Air Sys.	22
M-761-02322	Interconnection Wiring Diagram Cab 01 SNUPPS Nuclear Power Plant Controls	W02
M-761-02029	Interconnecting Wiring Diagram Cabinet 01 SNUPPS Nuclear Power Plant Controls	W07

Condition Reports

101760	101943	110568	111000	111044
111045	111168			

Work Orders

15-407404-000	15-407404-008	16-414579-000	16-415563-000	16-415563-001
16-415907-000				

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
	OPS Archive Log	February 14, 2017, through February 16, 2017
APF 05-013-01	M-223F-00003 Crispin Model VR-41 Relief Check Valve Flanged Ends Size 4 Fig. 150-VR	December 29, 2016
APF 05-024-01	Minor Change Package – ESW Water Hammer Vacuum Breaker Valves Spring Replacement	0
APF 15C-004-09	Administrative Correction – Wide Range Temperature and Wide Range Pressure Instrumentation Protection Set 1 Channel Calibration	February 16, 2017
APF 21-001-02	On-Coming CRS/WC SRO/RO/BOP Review	February 9, 2017
APF 22C-008-01	Qualitative Risk Screening – STS IC-447	December 28, 2016
APF 22C-008-01	Qualitative Risk Screening – STS IC-530D	December 29, 2016
APF 29B-003-01	Surveillance Test Routing Sheet – Channel Calibration Nuclear Instrumentation System Power Range Incore-Excore	February 14, 2017
APF 29B-003-01	Surveillance Test Routing Sheet – Channel Calibration Wide Range Temperature and Wide Range Pressure Instrumentation Protection Set One	February 15, 2017
APF 29B-003-01	Surveillance Test Routing Sheet – Containment Spray Pump B Comprehensive Pump Test	March 16, 2017
APF 29B-003-01	Surveillance Test Routing Sheet – Diesel Generator NE01 Day Tank Water Removal	February 23, 2017
APF 29B-003-01	Surveillance Test Routing Sheet – Emergency Diesel Fuel Oil System Train A Test	February 23, 2017
APF 29B-003-01	Surveillance Test Routing Sheet – Emergency Fuel Oil Storage Tank Water Check/Removal	February 23, 2017
APF 29B-003-01	Surveillance Test Routing Sheet – ESW System Inservice Pump A & ESW A Check Valve	February 16, 2017
APF 29B-003-01	Surveillance Test Routing Sheet – ESW Vacuum Relief Valve Test	January 17, 2017
APF 29B-003-01	Surveillance Test Routing Sheet – ESW Vacuum Relief Valve Test	January 30, 2017

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
APF 29B-003-01	Surveillance Test Routing Sheet – ESW Vacuum Relief Valve Test	January 31, 2017
APF-29B-003-01	Surveillance Test Routing Sheet – Main Turbine Valve	February 9, 2017
APF 29B-003-01	Surveillance Test Routing Sheet – Slave Relay Test K603 Train B Safety Injection – Pre-Test Time 0915	February 16, 2017
APF 29B-003-01	Surveillance Test Routing Sheet – Slave Relay Test K603 Train B Safety Injection – Pre-Test Time 1519	February 16, 2017
WCRE-34	WCNOC Fourth 10-Year Interval Inservice Testing Bases Document	4

**Section 1EP4: Emergency Action Level and Emergency Plan Changes**

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AP-06-002	Radiological emergency response Plan	18A

**Section 1EP6: Drill Evaluation**

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
	Sim Difference List	Printed January 10, 2017
AIF 30B-015-11	E-Plan Simulator Performance Evaluation Summary Sheet (T-Zero 1339)	Completed March 1, 2017
AIF 30B-015-11	E-Plan Simulator Performance Evaluation Summary Sheet (T-Zero 1347)	Completed March 1, 2017
CR-001	Wolf Creek Generating Station Emergency Notification (Drill)	March 1, 2017
CR-002	Wolf Creek Generating Station Emergency Notification (Drill)	March 1, 2017
EFP 06-007-001	Wolf Creek Generating Station Emergency Notification	13
LR4412801	17-3 Crew Performance Evaluation (CPE) Evaluated Scenario	1

## Section 4OA1: Performance Indicator Verification

### Condition Reports

105625            105677            105722

### Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
0307	Westar Energy Transmission Operating Directive	September 12, 2016
NEI 99-02	Regulatory Assessment Performance Indicator Guideline	7

## Section 4OA5: Other Activities

### Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
ALR 00-015D	PA01/02 Ø Imbalance	5
CKL ZL-009	Site Readings Sheets	79
SYS OPS-001	Weekly Equipment Rotation And Readings	77A

### Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
KD-7496	One Line Diagram	41

### Condition Reports

49388            50182            55453            77870

### Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
14936	Install Open Phase Detection on Transformer #7	0
APF 20E-001-04	Implementation Plan INPO Event Report L2-12-14 (Design Vulnerability in the 4.16-kV Bus Under Voltage Protection Scheme)	1
E-13NB01	Lower Medium Voltage System Class 1E 4.16 KV Three Line Meter and Relay Diagram	4
E-13NB03	Lower Medium Voltage System Class 1E 4.16 KV Three Line Meter and Relay Diagram	5
E-13NB04	Lower Medium Voltage System Class 1E 4.16 KV Three Line Meter and Relay Diagram	2

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
E-13NB06	Lower Medium Voltage System Class 1E 4.16 KV Three Line Meter and Relay Diagram	3
ET 14-0005	Wolf Creek Nuclear Operating Corporation's Response to Request for Additional Information Regarding Response to Bulletin 2012-01, "Design Vulnerability in Electric Power System"	February 3, 2014
NRC BULLETIN 2012-01	Design Vulnerability In Electric Power System	July 27, 2012