



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION IV
1600 E. LAMAR BLVD.
ARLINGTON, TX 76011-4511

February 11, 2016

EA-16-018

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 05000482/2015004 AND NOTICE OF VIOLATION**

Dear Mr. Heflin:

On December 31, 2015, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Wolf Creek Generating Station. On January 27, 2016, the NRC inspectors discussed the results of this inspection with Stephen Smith, Plant Manager, and other members of your staff. Inspectors documented the results of this inspection in the enclosed inspection report.

NRC inspectors documented two findings of very low safety significance (Green) in this report. Both of these findings involved violations of NRC requirements. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2.a of the NRC Enforcement Policy.

The enclosed inspection report also discusses a violation associated with a finding of very low safety significance (Green). The NRC evaluated this violation in accordance with Section 2.3.2.a of the NRC Enforcement Policy, which appears on the NRC's Web site at <http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html>. The violation is cited in the enclosed Notice of Violation (Notice) and the circumstances surrounding it are described in the subject inspection report. The violation is being cited because the licensee did not establish adequate measures to assure that the cause of train A Class 1E electrical equipment air-conditioning system (SGK05A unit) trips that occurred on October 18, 2013, was determined and corrective action taken to preclude repetition of SGK05A unit trips. The condition recurred twice on May 15, 2015. This violation was previously identified by the NRC as NCV 05000482/2013005-04, after which the licensee failed to restore compliance.

You are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. If you have additional information that you believe the NRC should consider, you may provide it in your response to the Notice. The NRC's review of your response to the Notice will also determine whether further enforcement action is necessary to ensure your compliance with regulatory requirements.

A. Heflin

-2-

If you contest the violations or significance of the 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, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; 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 Regional Administrator, Region IV; and the NRC resident inspector at the Wolf Creek Generating Station.

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390, "Public Inspections, Exemptions, Requests for Withholding," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC's Public Document Room or from the Publicly Available Records (PARS) component of the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

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

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

Enclosure 1: Notice of Violation
Enclosure 2: Inspection Report 05000482/2015004

w/ Attachment: Supplemental Information

cc w/ encl: Electronic Distribution

If you contest the violations or significance of the 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, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC resident inspector at the Wolf Creek Generating Station.

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Letter to Adam Heflin from Nicholas Taylor dated February 11, 2016

SUBJECT: WOLF CREEK GENERATING STATION – NRC INTEGRATED INSPECTION
REPORT 05000482/2015004

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NOTICE OF VIOLATION

Wolf Creek Nuclear Operating Company
Wolf Creek Generating Station

Docket No: 50-482
License No: NPF-42
EA-16-018

During an NRC inspection, conducted from September 27 through December 31, 2015, a violation of NRC requirements was identified. In accordance with the NRC Enforcement Policy, the violation is listed below:

Title 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requires, in part, in the case of significant conditions adverse to quality, that measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition.

Contrary to the above, from October 18, 2013, to May 16, 2015, the licensee failed, in the case of a significant condition adverse to quality, to assure that the cause of the condition was determined and corrective action taken to preclude repetition. Specifically, the licensee did not establish adequate measures to assure that the cause of train A Class 1E electrical equipment air-conditioning system (SGK05A) unit trips that occurred on October 18, 2013, was determined and corrective action taken to preclude repetition of the SGK05A unit trips. The condition recurred twice on May 15, 2015. This violation was previously identified by the NRC as non-cited violation 05000482/2013005-04, after which the licensee failed to restore compliance.

This violation is associated with a Green significance determination process finding.

Pursuant to the provisions of 10 CFR 2.201, Wolf Creek Nuclear Operating Company is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Regional Administrator, Region IV, 1600 East Lamar Blvd, Arlington, TX 76011, and a copy to the NRC Resident Inspector at the facility that is the subject of this Notice, within 30 days of the date of the letter transmitting this Notice of Violation. This reply should be clearly marked as a "Reply to Notice of Violation EA-16-018," and should include: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken, and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondence, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

If you contest this enforcement action, you should also provide a copy of your response, with the basis for your denial, to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because your response will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC website at www.nrc.gov/reading-rm/adams.html, to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the public without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the basis for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.390(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

In accordance with 10 CFR 19.11, you may be required to post this Notice within two working days of receipt.

Dated this 11th day of February, 2016.

U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 05000482

License: NPF-42

Report: 05000482/2015004

Licensee: Wolf Creek Nuclear Operating Corporation

Facility: Wolf Creek Generating Station

Location: 1550 Oxen Lane NE
Burlington, KS 66839

Dates: September 27 through December 31, 2015

Inspectors: D. Dodson, Senior Resident Inspector
F. Thomas, Resident Inspector
K. Clayton, Senior Operations Engineer
P. Elkmann, Senior Emergency Preparedness Inspector
G. Guerra, CHP, Emergency Preparedness Inspector
A. Meyen, Physical Security Inspector
G. Pick, Senior Reactor Inspector

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

SUMMARY

IR 05000482/2015004; 09/27/2015 - 12/31/2015; Wolf Creek Generating Station;
Problem Identification and Resolution

The inspection activities described in this report were performed between September 27 and December 31, 2015, by the resident inspectors at Wolf Creek Generating Station and inspectors from the NRC's Region IV office. Three findings of very low safety significance (Green) are documented in this report. All of these findings involved violations of NRC requirements. Additionally, NRC inspectors documented one licensee-identified violation of very low safety significance. The significance of inspection findings is indicated by their color (Green, White, Yellow, or Red), which is determined using Inspection Manual Chapter 0609, "Significance Determination Process," issued April 29, 2015. Their cross-cutting aspects are determined using Inspection Manual Chapter 0310, "Aspects within the Cross-Cutting Areas," Issued 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."

Cornerstone: Mitigating Systems

- Green. The inspectors identified a Green cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's inadequate measures to assure that corrective action was taken to preclude repetition of a significant condition adverse to quality. Specifically, measures to correct train A Class 1E electrical equipment air-conditioning system (SGK05A) issues following two trips of the unit on October 18, 2013, failed to preclude repetition, which resulted in the SGK05A unit tripping twice on May 15, 2015; the train A safety-related batteries, inverters, and alternating and direct current buses being declared inoperable due to the loss of area cooling; two separate Technical Specification 3.0.3 entries; and separate technical specification required reactor power reductions to 93 and 94.7 percent. The licensee's immediate corrective actions included troubleshooting to determine the direct cause of the compressor trips, stationing a dedicated operator following the second trip on May 15, 2015, and subsequently implementing Temporary Modification 15-013-GK-00, which restored compliance. Actions to prevent recurrence following the May 15, 2015, SGK05A trips, documented in apparent cause evaluation 96392, included conducting a seminar with station managers to review lessons learned from the event, completing a change package to replace the SGK05A compressor that has been the source of residual contamination that has led to numerous trips of the unit, and tracking of the timely replacement of the SGK05A compressor with a due date of December 15, 2016. Wolf Creek entered this issue into its corrective action program as Condition Reports 96392 and 96397.

This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affected the associated 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, the train A safety-related batteries, inverters, and alternating and direct current buses became inoperable and their capability to respond to initiating events to prevent undesirable consequences was impacted as a result of the SGK05A unit tripping. In accordance with Inspection Manual Chapter 0609.04, "Initial Characterization of Findings," and Exhibit 3 of Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," issued June 19, 2012, and April 29, 2015,

respectively, the performance deficiency affects a mitigating structure, system, and component. The performance deficiency does not affect the design or qualification of a mitigating structure, system, and component, and the structure, system, and component did not maintain its functionality. Additionally, 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 or two separate safety systems out-of-service for greater than their 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 in accordance with the licensee's maintenance rule program for greater than 24 hours. Therefore, the inspectors determined that this finding is of very low safety significance (Green). In accordance with Inspection Manual Chapter 0310, "Aspects Within The Cross-Cutting Areas," issued December 4, 2014, the finding has a cross-cutting aspect in the area of human performance, resources, because the licensee did not ensure that personnel, equipment, procedures, and other resources were available and adequate to support nuclear safety. Specifically, senior managers did not ensure successful completion of the replacement of the SGK05A compressor in Refueling Outage 20, which was a missed opportunity that resulted in the SGK05A unit tripping twice on May 15, 2015, as a result of the same direct cause [H.1]. (Section 4OA2)

- Green. The inspectors identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to establish measures to assure that applicable regulatory requirements and the design basis, for applicable structures, systems, and components, are correctly translated into specifications, drawings, procedures, and instructions. Specifically, the licensee failed to ensure that safety-related essential service water valves in the control building were adequately protected from external flooding hazards in the event of a design basis local intense precipitation event, which resulted in a reasonable doubt on the operability of safety-related essential service water valves. The station's immediate corrective actions included entering the condition into the corrective action program and performing a prompt operability evaluation that showed the essential service water valves remained operable. Additional corrective actions include accelerating three Fukushima project schedules that include a new sump pump in the turbine building area four cable vault, ground and surface water improvements for non-safety related electrical duct banks, and new sump pumps in electrical manholes near the turbine building. The violation was entered into the licensee's corrective action program as Condition Report 102250.

This finding is more than minor because it is associated with the design control attribute of the Mitigating Systems Cornerstone and affected the associated 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, during design basis local intense precipitation events, the safety-related essential service water train A and B service water cross-connect motor-operated valves EFHV0023, EFHV0024, EFHV0025, and EFHV0026, and the essential service water train A and B to service water system valves EFHV0039, EFHV0040, EFHV0041, and EFHV0042 were susceptible to external flooding hazards, and there was a reasonable doubt on the operability of these essential service water valves; however, subsequent evaluation determined that the essential service water valves would not have been impacted in the event of a design basis local intense precipitation event, and the valves were determined to be operable. In accordance with Inspection Manual Chapter 0609.04, "Initial Characterization of Findings," and Exhibit 2 of Inspection Manual Chapter 0609, Appendix A, "The Significance Determination

Process (SDP) for Findings At-Power,” issued June 19, 2012, and April 29, 2015, respectively, the performance deficiency affects mitigating structures, systems, and components. The finding is a deficiency affecting the design or qualification of mitigating structures, systems, and components, and the structures, systems, and components maintained their operability and functionality. Therefore, the inspectors determined that this finding is of very low safety significance (Green). In accordance with Inspection Manual Chapter 0310, “Aspects Within The Cross-Cutting Areas,” issued December 4, 2014, the finding has a cross cutting aspect in the area of human performance, challenge the unknown, because Wolf Creek individuals did not stop when faced with uncertain conditions. Specifically, the licensee did not maintain a questioning attitude during flooding walk-downs performed in accordance with NEI 12-07 or during evaluation of Condition Report 59257 to identify and resolve unexpected conditions like the floor drain pathway from the communication corridor to the control building basement (room 3101), which was an opportunity for the station to identify the open pathway from the exterior of the plant [H.11]. (Section 4OA2)

- Green. The inspectors identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” for the licensee’s failure to accomplish activities affecting quality in accordance with Procedure AP 26C-004, “Operability Determination and Functionality Assessment,” Revision 31. Specifically, the licensee failed to document an operability determination of sufficient scope to address the capability of safety-related essential service water valves in the control building to perform their specified safety functions in the event of a design basis local intense precipitation event. Immediate corrective actions included completing a prompt operability determination and performing analyses that determined the valves remained operable. Additional corrective actions include accelerating three Fukushima project schedules that include a new sump pump in the turbine building area four cable vault, ground and surface water improvements for non-safety related electrical duct banks, and new sump pumps in electrical manholes near the turbine building. The violation was entered into the licensee’s corrective action program as Condition Report 100299.

This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affected the associated 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, during design basis local intense precipitation events, the safety-related essential service water train A and B service water cross-connect motor-operated valves EFHV0023, EFHV0024, EFHV0025, and EFHV0026, and the essential service water train A and B to service water system valves EFHV0039, EFHV0040, EFHV0041, and EFHV0042 were susceptible to external flooding hazards, and there was a reasonable doubt on the operability of these essential service water valves; however, subsequent evaluation determined that the essential service water valves would not have been impacted in the event of a design basis local intense precipitation event, and the valves were determined to be operable. In accordance with Inspection Manual Chapter 0609.04, “Initial Characterization of Findings,” and Exhibit 2 of Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” issued June 19, 2012, and April 29, 2015, respectively, the performance deficiency affects mitigating structures, systems, and components. The finding is not a deficiency affecting the design or qualification of mitigating structures, systems, and components; 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 or two separate safety systems out-of-service for greater

than their allowed outage times; and the finding does not represent an actual loss of function of one or more non-technical specification trains of equipment. Therefore, the inspectors determined that this finding is of very low safety significance (Green). In accordance with Inspection Manual Chapter 0310, "Aspects Within The Cross-Cutting Areas," issued December 4, 2014, the finding has a cross-cutting aspect in the area of human performance, conservative bias, because Wolf Creek did not use decision making-practices that emphasize prudent choices over those that are simply allowable, and proposed action was not determined to be safe in order to proceed, rather than unsafe in order to stop. Specifically, the licensee did not consider long-term consequences or design basis events when determining how to resolve emergent concerns like the unexpected water in room 3101, which resulted in the licensee's failure to thoroughly evaluate and assess impacts to the plant when Condition Report 96404 was entered into the corrective action program on May 17, 2015 [H.14]. (Section 40A2)

PLANT STATUS

Wolf Creek began the inspection period at 100 percent power and remained at or near 100 percent power for the entire inspection period.

REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

Readiness for Seasonal Extreme Weather Conditions

a. Inspection Scope

On December 14, 2015, the inspectors completed an inspection of the station's readiness for seasonal extreme weather conditions. The inspectors reviewed the licensee's adverse weather procedures for extreme cold weather and evaluated the licensee's implementation of these procedures. The inspectors verified that prior to the onset of extreme cold weather, the licensee had corrected weather-related equipment deficiencies identified during the previous winter.

The inspectors selected two risk-significant systems that were required to be protected from cold weather conditions:

- Refueling water storage tank supply to emergency core cooling systems
- Essential service water system

The inspectors reviewed the licensee's procedures and design information to ensure the systems would remain functional when challenged by adverse cold weather. The inspectors verified that operator actions described in the licensee's procedures were adequate to maintain readiness of these systems. The inspectors walked down portions of these systems to verify the physical condition of the adverse weather protection features.

These activities constituted one sample of readiness for seasonal adverse weather, as defined in Inspection Procedure 71111.01.

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)

.1 Partial Walkdown

a. Inspection Scope

On October 21, 2015, the inspectors performed a partial system walk-down of the train A residual heat removal system, a risk-significant system.

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 system were correctly aligned for the existing plant configuration.

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

b. Findings

No findings were identified.

.2 Complete Walkdown

a. Inspection Scope

On November 16, 2015, the inspectors performed a complete system walk-down inspection of the B emergency diesel generator. The inspectors reviewed the licensee's procedures and system design information to determine the correct B emergency diesel generator lineup for the existing plant configuration. The inspectors also reviewed outstanding work orders, open condition reports, in-process design changes, 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 four plant areas important to safety:

- October 21, 2015, Fire Area A-2, auxiliary building A train safety-related pump rooms, elevation 1974 feet
- November 3, 2015, Fire Area C-10, engineered safety feature switchgear room number 2, elevation 2000 feet
- December 15, 2015, Fire Area A-3, boric acid tank rooms, elevations 1974 feet and 2026 feet

- December 15, 2015, Fire Area C-22, upper cable spreading room, elevation 2073 feet 6 inches

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 four quarterly inspection samples, as defined in Inspection Procedure 71111.05.

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 November 10, 2015, 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 in executing Requalification Simulator Exam Scenario LR4412801. The inspectors also assessed the modeling and performance of the simulator during the requalification activities.

These activities constitute 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 December 18, 2015, 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 activity due to the control room's response to a plant status control issue in the control room during the completion of Procedure STS IC-618B, "Slave Relay Test K618 Train B Safety Injection," Revision 22.

In addition, the inspectors assessed the operators' adherence to plant procedures, including AP 21-001, "Conduct of Operations," Revision 74, and other operations department policies.

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

b. Findings

No findings were identified.

.3 Annual Review of Requalification Examination Results

The licensed operator requalification program involves two training cycles that are conducted over a 2-year period. In the first cycle, the annual cycle, the operators are administered an operating test consisting of job performance measures and simulator scenarios. In the second part of the training cycle, the biennial cycle, operators are administered an operating test and a comprehensive written examination. For this annual inspection requirement, the licensee was in the first part of the training cycle.

a. Inspection Scope

The inspector conducted an in-office review of the annual requalification training program to determine the results of this program.

On December 2, 2015, the licensee informed the lead inspector of the following results:

- Of the 49 total licensed operators, 49 operators were tested
- 10 of 10 crews passed the simulator portion of the operating test
- 49 of 49 licensed operators passed the simulator portion of the operating test
- 48 of 49 licensed operators passed the job performance measure portion of the examination

The individual that failed the job performance measure portions of the operating test was remediated, retested, and passed his retake tests prior to returning to shift.

The inspector completed one inspection sample of the annual licensed operator requalification program.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors reviewed four instances of degraded performance or condition of structures, systems, and components (SSCs):

- December 9, 2015, condensate pump unplanned outages that occurred on April 26, 2014, November 15, 2014, and May 5, 2015

- December 29, 2015, B auxiliary feedwater pump trip on March 11, 2014, and turbine-driven auxiliary feedwater pump control power panel non-functional on April 4, 2015
- December 29, 2015, non-safety auxiliary feedwater pump trips on August 24, 2015, and September 13, 2015
- December 29, 2015, two A train Class 1E electrical equipment air-conditioning system (SGK05A) unit trips on May 15, 2015

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 four maintenance effectiveness samples, as defined in Inspection Procedure 71111.12.

b. Findings

No findings were identified.

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:

- October 6, 2015, extended motor-driven feedwater pump maintenance
- October 13 and 14, 2015, planned B centrifugal charging pump and residual heat removal pump maintenance, respectively
- November 3, 2015, planned B component cooling water pump breaker maintenance

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 results of the assessments.

Additionally, on November 9, 10, and 11, 2015, the inspectors observed emergent maintenance activities associated with the NB02 safety-related bus breakers for the B safety injection, B residual heat removal, and B containment spray pumps, which 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 constitute 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 three operability determinations that the licensee performed for degraded or nonconforming SSCs:

- October 19, 2015, Condition Report 100380, operability determination of the degraded breaker clip condition associated with the NB0111 B emergency diesel generator output breaker to the NB01 Class 1E electrical bus with degraded breaker clips
- October 21, 2015, Condition Report 100299, operability determination of the essential service water train A and B service water cross-connect valves EFHV0023, EFHV0024, EFHV0025, and EFHV0026, and the essential service water train A and B to service water system valves EFHV0039, EFHV0040, EFHV0041, and EFHV0042 with degraded turbine building area four cable vault penetrations
- November 9, 2015, Condition Report 100760, operability determination of the B essential service water system following a failed surveillance

The inspectors reviewed the timeliness and technical adequacy of the licensee's evaluations. Where the licensee determined the degraded SSCs 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 SSCs.

The inspectors reviewed operator actions taken or planned to compensate for degraded or nonconforming conditions. The inspectors verified that the licensee effectively managed these operator workarounds to prevent adverse effects on the function of mitigating systems and to minimize their impact on the operators' ability to implement abnormal and emergency operating procedures.

These activities constitute completion of four operability and functionality review samples, which included one operator work-around sample, 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 four post-maintenance testing activities that affected risk-significant SSCs:

- November 4, 2015, B emergency diesel generator and feeder breaker following planned maintenance
- November 5, 2015, B essential service water pump and feeder breaker following planned maintenance
- November 9, 2015, B safety injection pump and feeder breaker following planned maintenance
- November 10, 2015, B containment spray pump and feeder breaker following 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 constitute completion of four 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 two 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:

Other surveillance tests:

- October 7, 2015, STN RP-002E, "EDG B Control CKT and FO XFER Pump ISO Switch," Revision 2A
- December 21, 2015, STS BG-100A, "Centrifugal Charging System 'A' Train Inservice Pump Test," Revision 46

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 constitute completion of two 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 inspectors performed an on-site review of the following emergency plan documents:

- Procedure AP 06-002, "Radiological Emergency Response Plan," Revision 18
- Form APF 06-002-1, "Emergency Action Levels," Revision 17A

These revisions added a new figure, "Airborne Pathway Sampling Locations," added references to NRC Regulatory Guide 1.101, "Emergency Planning and Preparedness for Nuclear Power Reactors," changed the contamination limits for food and water to the ingestion pathway protective action guidelines implemented by the state of Kansas, added the Neosho Rapids Grade School as a reception center, implemented the chemistry shop laboratory as the environmental laboratory, changed the direct radiation pathway sampling locations to match those in the Offsite Dose Calculation Manual, and implemented several editorial changes.

These revisions were compared to their previous revisions, 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, to NEI 99-01, "Methodology for the Development of Emergency Action Levels," Revision 5, 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 inspectors verified that the revisions did not reduce 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, these revisions are subject to future inspection.

These activities constitute completion of two emergency action level and emergency plan change samples, as defined in Inspection Procedure 71114.04.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06)

Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors observed an emergency preparedness drill on November 3, 2015, to verify the adequacy and capability of the licensee's assessment of drill performance. The inspectors reviewed the drill scenario, observed the drill from the simulator, the emergency offsite facility, and alternate technical support center, and attended the post-drill critique. 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 licensee in the post-drill critique and entered into the corrective action program for resolution.

These activities constitute completion of one emergency preparedness drill observation sample, as defined in Inspection Procedure 71114.06.

b. Findings

No findings were identified.

1EP7 Exercise Evaluation – Hostile Action Event (71114.07)

a. Inspection Scope

The inspectors observed the December 8, 2015, biennial emergency plan exercise to verify the exercise acceptably tested the major elements of the emergency plan, provided opportunities for the emergency response organization to demonstrate key skills and functions, and demonstrated the licensee's ability to coordinate with offsite emergency responders. The scenario simulated:

- An assault on the station by waterborne and land-based adversaries
- Faults on two vital electrical buses
- An explosion and fire at a fuel oil storage tank
- Injured plant employees
- Damage to spent fuel pool cooling pumps and piping resulting in a lowering of the spent fuel pool level

The scenario was designed to demonstrate the licensee's capability to implement its emergency plan under conditions of uncertain physical security.

During the exercise the inspectors observed activities in the control room simulator and the following emergency response facilities:

- Alternate technical support center

- Alternate operations support center
- Emergency operations facility
- Central and/or secondary alarm stations
- Incident command post

The inspectors focused their evaluation of the licensee's performance on event classification, offsite notification, recognition of offsite dose consequences, development of protective action recommendations, staffing of alternate emergency response facilities, and the coordination between the licensee and offsite agencies to ensure reactor safety under conditions of uncertain physical security.

The inspectors also assessed recognition of, and response to, abnormal and emergency plant conditions, the transfer of decision-making authority and emergency function responsibilities between facilities, on-site and offsite communications, protection of plant employees and emergency workers in an uncertain physical security environment, emergency repair evaluation and capability, and the overall implementation of the emergency plan to protect public health and safety and the environment. The inspectors reviewed the current revision of the facility emergency plan, emergency plan implementing procedures associated with operation of the licensee's primary and alternate emergency response facilities, and procedures for the performance of associated emergency and security functions.

The inspectors attended the post-exercise critiques in each emergency response facility to evaluate the initial licensee self-assessment of exercise performance. The inspectors also attended a presentation of critique items to plant management conducted on December 15, 2015. The specific documents reviewed during this inspection are listed in the attachment.

The inspectors reviewed the scenarios of two previous biennial exercises and records of licensee drills and exercises, conducted between January 2014 and November 2015, to determine whether the December 8, 2015, exercise was independent and avoided participant preconditioning, in accordance with the requirements of 10 CFR Part 50, Appendix E, IV.F(2)(g). The inspectors also compared observed exercise performance with corrective action program entries and after-action reports for drills and exercises and events that occurred between January 2014 and November 2015 to determine whether previously identified weaknesses had been corrected in accordance with the requirements of 10 CFR 50.47(b)(14) and 10 CFR Part 50, Appendix E, IV.F.

These activities constituted completion of one exercise evaluation sample, as defined in Inspection Procedure 71114.07.

b. Findings

No findings were identified.

1EP8 Exercise Evaluation – Scenario Review (71114.08)

a. Inspection Scope

The licensee submitted the preliminary exercise scenario for the December 8, 2015, biennial exercise to the NRC on October 6, 2015, in accordance with the requirements of

10 CFR Part 50, Appendix E, IV.F(2)(b). The inspectors performed an in-office review of the proposed scenario to determine whether it would acceptably test the major elements of the licensee's emergency plan and provide opportunities for the emergency response organization to demonstrate key skills and functions.

These activities constituted completion of one exercise evaluation — scenario review sample, as defined in Inspection Procedure 71114.08.

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

40A1 Performance Indicator Verification (71151)

.1 Safety System Functional Failures (MS05)

a. Inspection Scope

For the period of October 1, 2014, through September 30, 2015, the inspectors reviewed licensee event reports, maintenance rule evaluations, and other records that could indicate whether safety system functional failures had occurred. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, and NUREG 1022, "Event Reporting Guidelines: 10 CFR 50.72 and 50.73," Revision 3, to determine the accuracy of the data reported.

These activities constituted verification of the safety system functional failures performance indicator, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.2 Mitigating Systems Performance Index: Heat Removal Systems (MS08)

a. Inspection Scope

The inspectors reviewed the licensee's mitigating system performance index data for the period of October 1, 2014, through September 30, 2015, to verify the accuracy and completeness of the reported data. 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 reported data.

These activities constituted verification of the mitigating system performance index for heat removal systems, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.3 Mitigating Systems Performance Index: Residual Heat Removal Systems (MS09)

a. Inspection Scope

The inspectors reviewed the licensee's mitigating system performance index data for the period of October 1, 2014, through September 30, 2015, to verify the accuracy and completeness of the reported data. 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 reported data.

These activities constituted verification of the mitigating system performance index for residual heat removal systems, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.4 Drill/Exercise Performance (EP01)

a. Inspection Scope

The inspectors reviewed the licensee's evaluated exercises, emergency plan implementations, and selected drill and training evolutions that occurred between October 2014 and September 2015 to verify the accuracy of the licensee's data for classification, notification, and protective action recommendation opportunities. The inspectors reviewed a sample of the licensee's completed classifications, notifications, and protective action recommendations to verify their timeliness and accuracy. The inspectors used Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the reported data. The specific documents reviewed are described in the attachment to this report.

These activities constituted verification of the drill/exercise performance indicator, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.5 Emergency Response Organization Readiness (EP02)

a. Inspection Scope

The inspectors reviewed the licensee's records for participation in drill and training evolutions between October 2014 and September 2015 to verify the accuracy of the licensee's data for drill participation opportunities. The inspectors verified that all members of the licensee's emergency response organization in the identified key

positions had been counted in the reported performance indicator data. The inspectors reviewed the licensee's basis for reporting the percentage of emergency response organization members who participated in a drill. The inspectors reviewed drill attendance records and verified a sample of those reported as participating. The inspectors used Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the reported data. The specific documents reviewed are described in the attachment to this report.

These activities constituted verification of the emergency response organization drill participation performance indicator, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.6 Alert and Notification System Reliability (EP03)

a. Inspection Scope

The inspectors reviewed the licensee's records of alert and notification system tests conducted between October 2014 and September 2015 to verify the accuracy of the licensee's data for siren system testing opportunities. The inspectors reviewed procedural guidance on assessing alert and notification system opportunities and the results of periodic alert and notification system operability tests. The inspectors used Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the reported data. The specific documents reviewed are described in the attachment to this report.

These activities constituted verification of the alert and notification system reliability performance indicator, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

40A2 Problem Identification and Resolution (71152)

.1 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.

.2 Semiannual Trend Review

a. Inspection Scope

The inspectors reviewed the licensee's corrective action program, performance indicators, station performance reports, and other documentation to identify trends that might indicate the existence of a more significant safety issue. The inspectors verified that the licensee was taking corrective actions to address identified adverse trends.

These activities constitute completion of one semiannual trend review sample, as defined in Inspection Procedure 71152.

b. Observations and Assessments

The inspectors evaluated a sample of issues and events that occurred over the course of the past two quarters to determine whether issues were appropriately considered as emerging or adverse trends. The inspectors verified that these issues were addressed within the scope of the corrective action program or through department review and documentation in the quarterly trend presentation for overall assessment. The inspectors noted NRC Inspection Report 05000482/2015002 documented a trend with respect to the licensee's procedure adherence. Apparent increases in the number of issues associated with following Procedure AP 10-104, "Breach Authorization," and Procedure AP 26C-004, "Operability Determination and Functionality Assessment," relate to the previously identified trend in procedure adherence.

The inspectors noted an apparent increase in the number of issues associated with following Procedure AP 10-104, "Breach Authorization":

- NRC Inspection Report 05000482/2015001 documents an inspector identified non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, Drawings," associated with the licensee's failure to follow the requirements of Procedure AP 10-104, "Breach Authorization," Revision 32. Specifically, on February 24, 2015, the licensee failed to initiate a breach permit and station a boundary watch when the auxiliary building emergency exhaust system boundary door 41015 was opened multiple times for transporting scaffolding from the turbine building to the auxiliary building; opening this door without compensatory measures rendered the auxiliary building emergency exhaust system inoperable. This issue was entered into the corrective action program for resolution as Condition Reports 92315 and 92630.
- NRC Inspection Report 05000482/2015003 documents an inspector identified NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, Drawings," associated with the licensee's inadequate implementation of Procedure AP 10-104, "Breach Authorization," Revision 34. Specifically, on August 28, 2015, control room door 36043, which is a fire, security, and control room ventilation isolation signal barrier, was fully opened prior to the breaching party obtaining written authorization in accordance with procedure. This issue

was entered into the corrective action program for resolution as Condition Report 99097.

- On October 19, 2015, the inspectors identified the A residual heat removal pump room door blocked open by a sign that had fallen between the door and the frame. This issue is associated with the licensee's failure to follow the requirements of Procedure AP 10-104, "Breach Authorization," Revision 34. Specifically, the licensee failed to initiate a breach permit when the A residual heat removal pump room door was blocked open. With the door blocked open, all functions of the boundary could still be met. The door was immediately closed and the issue was entered into the corrective action program as Condition Report 100385.
- The inspectors identified on November 3, 2015, that a halon boundary between the B train engineered safety feature switchgear room number 2 (room 3302) and a small electrical chase was breached prior to the breaching party obtaining required written authorization in accordance with Procedure AP 10-104, "Breach Authorization." Personnel were continuously posted at the breached boundary and the inspectors would not have expected additional actions to be performed had the breach authorization been obtained properly. Immediate corrective actions included restoring the breached halon boundary and delaying other ongoing work until the breached boundary was adequately sealed. The issue was entered into the licensee's correction action program as Condition Report 100700.

The inspectors discussed the apparent increase in the number of issues associated with following Procedure AP 10-104, "Breach Authorization," at the exit meeting on January 27, 2016. The licensee entered this apparent trend into the corrective action program as Condition Report 102289.

The inspectors also noted that licensee personnel had appropriately documented in the corrective action program an operations division performance report "operability determination quality focus area," on May 2, 2015, in Condition Report 96033. Similarly, the inspectors noted an apparent increase in the number of operability evaluation issues:

- NRC Inspection Report 05000482/2015001 documents an inspector identified NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, Drawings," associated with the licensee's failure to complete an adequate operability evaluation in accordance with Procedure AP 28-001, "Operability Evaluations," Revision 24, following the failure to meet a surveillance test acceptance criteria. Specifically, on February 25, 2015, the licensee did not have an accurate technical basis for declaring the train A control room air conditioning unit operable when the minimum air flow rate was not met. This issue was entered into the corrective action program for resolution as Condition Report 92274.
- The inspectors identified that Procedure AP 26C-004, "Determination and Functionality Assessment," Revision 32, states that functionality assessments should include "whether there is a reasonable expectation of functionality, including the basis for the assessment and any compensatory measures put in

place to establish or restore functionality.” This procedure was not adequately implemented on May 15, 2015, after the SGK05A unit tripped and the SGK05A unit was declared functional without documentation of compensatory actions to provide reasonable assurance that the SGK05A unit would operate reliably. Although the functionality assessment did not discuss compensatory actions, less formal actions to monitor SGK05A operation every 10 minutes and actions to reset the unit following an SGK05A trip were implemented. This issue was entered into the corrective action program as Condition Report 101790.

- As documented in NCV 05000482/2015004-03, “Failure to Perform an Adequate Operability Determination and Consider Design Basis Events,” the inspectors identified that the licensee failed to document an operability determination of sufficient scope to address the capability of safety-related essential service water valves in the control building to perform their specified safety functions in the event of a design basis local intense precipitation event, which resulted in a reasonable doubt on the operability of safety-related essential service water valves. Please see NCV 05000482/2015004-03 for additional details regarding this specific issue.
- The inspectors identified that Procedure AP 26C-004, “Determination and Functionality Assessment,” Revision 32, Section 6.7, “Surveillance Testing,” states, “During a test, anomalous data with no clear indication of the cause must be attributed to the equipment under test. In that case, a prompt determination of operability is appropriate with follow-on corrective action as necessary,” and this procedure was not adequately implemented on November 9, 2015, after the B essential service water pump failed surveillance testing in accordance with Procedure STS EF-100B, “ESW System Inservice Pump B & ESW B Check Valve Test,” Revision 46, and a prompt operability determination was not completed to justify continued operability. Although a prompt operability determination was not completed, the licensee’s immediate operability determination and subsequent revisions adequately justified operability. This issue was entered into the corrective action program for resolution as Condition Report 100968.

The licensee documented in the evaluation associated with Condition Report 96033, actions taken that included “Operability Evaluation Update and Focus Topic” training for operations during the training cycle ending on October 8, 2015, and plans to perform the training during subsequent cycles. The inspectors discussed the apparent increase in the number of issues associated with operability determinations and compensatory measures at the exit meeting on January 27, 2016.

c. Findings

No findings were identified.

.3 Annual Follow-up of Selected Issues

a. Inspection Scope

The inspectors selected three issues for an in-depth follow-up:

- On May 15, 2015, the SGK05A unit tripped twice, resulting in the train A safety-related batteries, inverters, and alternating and direct current buses being declared inoperable due to the loss of area cooling, two separate Technical Specification 3.0.3 entries, and separate reactor power reductions to 93 and 94.7 percent.

The inspectors assessed the licensee's problem identification threshold, cause analyses, extent of condition reviews and compensatory actions. The inspectors verified that the licensee appropriately prioritized the planned corrective actions and that these actions were adequate to correct the condition.

- On May 17, 2015, during a heavy rainstorm, Wolf Creek personnel identified water coming out of the ceiling in the hot chemistry lab (room 3228) of the communication corridor building, through penetration P322W0902, and the water began flooding the floor of the room. Water also began accumulating in the essential service water pipe chase at a lower level in the control building (room 3101).

The inspectors assessed the licensee's problem identification threshold, extent of condition reviews, and compensatory actions. The inspectors verified that the licensee appropriately prioritized the planned corrective actions and that these actions were adequate to correct the condition.

- On November 24, 2015, November 25, 2015, December 14, 2015, and December 19, 2015, the inspectors accompanied non-licensed operators during their rounds, which included tours of the turbine building and adjacent areas, the control building and adjacent areas, the auxiliary building and adjacent areas, and areas outside of the main protected area.

The inspectors assessed the licensee's problem identification threshold and response to identification of adverse conditions. The inspectors verified that the licensee appropriately prioritized the planned corrective actions, as applicable, and that these actions were adequate.

These activities constitute completion of three annual follow-up samples, as defined in Inspection Procedure 71152.

b. Findings

b.1 Inadequate Measures to Assure SGK05A Issues Were Promptly Corrected

Introduction. The inspectors identified a Green cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's inadequate measures to assure that corrective action was taken to preclude repetition of a significant condition adverse to quality. Specifically, measures to correct train A Class 1E electrical equipment air-conditioning system (SGK05A) issues following two trips of the unit on October 18, 2013, were inadequate, which resulted in the SGK05A unit tripping twice on May 15, 2015, the train A safety-related batteries, inverters, and alternating and direct current buses being declared inoperable due to the loss of area cooling, two separate Technical Specification 3.0.3 entries, and resulting technical specification required reactor power reductions to 93 and 94.7 percent.

Description. On May 15, 2015, at 4:36 a.m., the SGK05A unit (the train A Class 1E electrical equipment heating, ventilation, and air conditioning unit) tripped. A non-licensed operator identified that the SGK05A unit was tripped with the “Lube Oil Failure” indication in alarm. The train A safety-related batteries, inverters, and alternating and direct current buses were declared inoperable when the SGK05A unit tripped.

The SGK05A unit is a support system for the train A safety-related switchgears, batteries, and inverters, which are technical specification systems. Section 9.4.1.2.3, “System Operation,” of the Updated Safety Analysis Report (USAR) discusses the function of the Class 1E electrical equipment air-conditioning system, “The Class 1E electrical equipment air-conditioning system is operated in a continuous recirculation mode to maintain the engineered safety feature switchgear room, the battery rooms, and the direct current switchgear rooms at or below a temperature of 90 degrees Fahrenheit.” When the SGK05A unit is declared non-functional, the supported technical specification systems are subsequently declared inoperable.

After the SGK05A unit tripped on May 15, 2015, at 4:36 a.m., the licensee entered numerous technical specification conditions, including Technical Specification 3.0.3. Technical Specification 3.0.3 required the licensee to initiate actions within 1 hour to place the reactor in Mode 3 within 7 hours because the train A inverters were both declared inoperable. The licensee completed a power reduction to 93 percent and began returning power to 100 percent after restarting the SGK05A unit and exiting the applicable technical specifications at 7:33 a.m.

On May 15, 2015, at 9:48 p.m., the SGK05A unit tripped again with the same “Lube Oil Failure” indication in alarm. The licensee again entered Technical Specification 3.0.3 and others. The licensee completed a power reduction to 94.7 percent and began returning power to 100 percent after the licensee restarted the SGK05A unit and implemented additional compensatory measures. The licensee’s immediate corrective actions and compensatory measures to ensure operability included troubleshooting to determine the direct cause of the compressor trips, stationing a dedicated operator following the second trip on May 15, 2015, documenting the issues in the corrective action program as Condition Reports 96392 and 96397, and subsequently implementing Temporary Modification 15-013-GK-00, which removed the lube oil failure trip feature and restored compliance. Section 4OA2.2, “Semiannual Trend Review,” of this report, includes additional discussion concerning the compensatory measures associated with this issue.

In response to the two trips of the SGK05A unit on May 15, 2015, the licensee completed an apparent cause evaluation associated with Condition Report 96392. The “Failure Evaluation” section of the apparent cause evaluation concluded, “The failed component under evaluation was found to be [the] lube oil pressure sensor installed on the SGK05A compressor. Based on the analysis tools and evaluation...the most likely reason for failure was blockage of the lube oil pressure sensor inlet screen by residual contaminants found within [the] compressor.” The apparent cause is also described and states, “Senior managers failed to ensure supervisory and management oversight of work activities to ensure successful completion of the replacement of the SGK05A compressor in RF [(refueling outage)] 20. This missed opportunity allowed residual contaminants entrained within the compressor sump to migrate to the lube oil sensor inlet screen resulting in a false low lube oil signal.”

The inspectors reviewed a history of SGK05A equipment reliability issues. Prior to the issues identified on May 15, 2015, the SGK05A unit tripped twice on October 18, 2013. The direct cause of the October 18, 2013, SGK05A unit tripping twice was described in the root cause analysis for Condition Report 75337. It states, "The direct cause of this condition is attributed to the loss of lube oil pressure sensing to the pressure switch of the SGK05A compressor." To address the direct cause, the compressor was removed from the system and a gravity flush of the crankcase was performed. The root cause is also described and states, "The root cause of this condition is attributed to the lack of station awareness in relation to how Procedure AP 12-002 applies to the refrigerant side of the GK [(control building heating, ventilation, and air conditioning)] HVAC [(heating, ventilation, and air conditioning)] system." All actions associated with Condition Report 75337 were completed by March 5, 2015. These actions included generating specific guidance for flushing/restoring the control building heating, ventilation, and air conditioning systems back to operability, including developing criterion for the flushing and restoration processes; revising Procedure AP 12-002 to direct technicians to core work instructions on heating, ventilation, and air conditioning cleanliness; and incorporating the cause and actions into technician training.

Prior to the issues of 2013, the licensee began having issues with the SGK05A compressor when it tripped on low oil pressure on June 4, 2012. The evaluation associated with this issue and Condition Report 53709 stated, "Moisture degraded the compressor lube oil causing sludge and metal particulate to plug the internal oil screen and restrict flow to the compressor oil pump." The inspectors confirmed through interviews with licensee personnel that the direct cause of the trip on June 4, 2012, was the same direct cause that impacted the SGK05A unit on October 18, 2013, and again on May 15, 2015. The inspectors reviewed NRC Enforcement Manual Revision 9, Section 2.2.2, "Circumstances Resulting in Consideration of an NOV (vs. an NCV) for Licensees and Non-Licensees with an Approved Corrective Action Program," and the inspectors concluded that the licensee neither took appropriate action to restore compliance in a reasonable period of time after becoming aware of a violation, nor took compensatory measures until compliance was restored when compliance could not be reasonably restored within a reasonable period of time. Specifically, the licensee did not take appropriate action to restore compliance and correct the direct cause of SGK05A trips, contaminants found within the compressor, in a reasonable period of time after becoming aware of the violation as documented in NCV 05000482/2013005-04, "Failure to Preclude Repetition of a Significant Condition Adverse to Quality Affecting Class 1E Air Conditioning Unit," (ADAMS Accession Number ML14041A484). Compliance was restored on May 16, 2015, with the implementation of Temporary Modification 15-013-GK-00, which removed the lube oil failure trip feature being impacted by the contaminants found within the compressor.

NCV 05000482/2013005-04, "Failure to Preclude Repetition of a Significant Condition Adverse to Quality Affecting Class 1E Air Conditioning Unit," (ADAMS Accession Number ML14041A484), which details the licensee's "failure to preclude repetition of a significant condition adverse to quality." The NCV discusses SGK05A issues that occurred on May 6, June 17, September 11, and October 18, 2013, and resulted in Technical Specification 3.0.3 entries, plant shutdowns to complete repairs, and/or a request for a Notice of Enforcement Discretion to continue operating and complete repairs. NCV 05000482/2013005-04 concludes, "Between September 11 and October 18, 2013, the licensee failed to preclude repetition of a significant condition adverse to quality. Specifically, the train A Class 1E air conditioning unit had to be removed from

service due to internal debris on June 17, September 11, and October 18, 2013, before the cause was identified and corrected.” The root cause evaluation associated with Condition Report 75337 outlined the corrective actions to prevent recurrence and actions to address the direct cause, as previously discussed.

This issue is NRC-identified because the inspectors identified that the two trips of the SGK05A unit on May 15, 2015, were inappropriately characterized as a condition adverse to quality, and an apparent cause evaluation was not appropriate to address this issue in accordance with Procedure AI 28A-010, “Screening Condition Reports,” Revision 21, effective December 12, 2014. Wolf Creek entered this issue into its corrective action program as Condition Report 101788. The inspectors also identified that the licensee did not propose corrective actions in the Condition Report 96392 evaluation that addressed the failure of the Condition Report 75337 evaluation to identify adequate corrective actions. Specifically, the Condition Report 96392 evaluation discusses “a potential missed opportunity to prevent the event,” and states that the “timeliness of the compressor replacement was [identified to have contributed to this event],” but there are not any corrective actions that directly address this concern. The licensee entered this issue into its corrective action program as Condition Report 102331.

Actions to prevent recurrence following the May 15, 2015, SGK05A trips, documented in apparent cause evaluation 96392, included conducting a seminar with station managers to review lessons learned from the event, completing a change package to replace the SGK05A compressor that has been the source of residual contamination that has led to numerous trips of the unit, and tracking of the timely replacement of the SGK05A compressor with a due date of December 15, 2016.

Analysis. The inspectors determined that the licensee’s failure to take adequate corrective actions to preclude repetition of a significant condition adverse to quality in accordance with 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action,” was a performance deficiency. This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affected the associated 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, the train A safety-related batteries, inverters, and alternating and direct current buses became inoperable and their capability to respond to initiating events to prevent undesirable consequences was impacted as a result of the SGK05A unit tripping.

In accordance with Inspection Manual Chapter 0609.04, “Initial Characterization of Findings,” and Exhibit 3 of Inspection Manual Chapter 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At-Power,” issued June 19, 2012, and April 29, 2015, respectively, the performance deficiency affects a mitigating structure, system, and component. The performance deficiency does not affect the design or qualification of a mitigating SSC, and the SSC did not maintain its functionality. Additionally, the finding does not represent a loss of system and/or function, the finding does not represent an actual loss of function of a least a single train for greater than its technical specification allowed outage time or two separate safety systems out-of-service for greater than their 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 in accordance with

the licensee's maintenance rule program for greater than 24 hours. Therefore, the inspectors determined that this finding is of very low safety significance (Green).

In accordance with Inspection Manual Chapter 0310, "Aspects Within The Cross-Cutting Areas," issued December 4, 2014, the finding has a cross-cutting aspect in the area of human performance, resources, because the licensee did not ensure that personnel, equipment, procedures, and other resources were available and adequate to support nuclear safety. Specifically, the licensee did not ensure successful completion of the replacement of the SGK05A compressor in Refueling Outage 20, which was a missed opportunity that resulted in the SGK05A unit tripping twice on May 15, 2015, as a result of the same direct cause [H.1].

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requires, in part, that in the case of significant conditions adverse to quality, the measures shall assure that the cause of the condition is determined and corrective action taken to preclude repetition. Contrary to the above, from October 18, 2013, to May 16, 2015, in the case of a significant condition adverse to quality, measures did not to assure that the cause of the condition was determined and corrective action taken to preclude repetition. Specifically, the licensee did not establish adequate measures to assure that the cause of a significant condition adverse to quality, contaminants impacting the reliability of the SGK05A unit, were determined and corrective action taken to preclude repetition, and the same significant condition adverse to quality resulted in the train A safety-related batteries, inverters, and alternating and direct current buses becoming inoperable and their capability to respond to initiating events to prevent undesirable consequences being impacted on June 12, 2012, October 18, 2013, and May 15, 2015. The licensee's immediate corrective actions included troubleshooting to determine the direct cause of the compressor trips, stationing a dedicated operator following the second trip on May 15, 2015, and subsequently implementing Temporary Modification 15-013-GK-00, which restored compliance. This violation was of very low safety significance (Green), and the licensee entered this issue into its corrective action program as Condition Reports 96392, 96397, and 101788. This violation is being treated as a cited violation, consistent with Section 2.3.2 of the Enforcement Policy, because the licensee did not restore compliance (or demonstrate objective evidence of plans to restore compliance) within a reasonable period of time (i.e., in a timeframe commensurate with the significance of the violation) after a violation was identified. This is a violation of Title 10 of the *Code of Federal Regulations* Part 50, Appendix B, Criterion XVI, "Corrective Action." A Notice of Violation is attached: VIO 05000482/2015004-01, "Inadequate Measures to Assure SGK05A Issues Were Promptly Corrected."

b2. Failure to Ensure Essential Service Water Valves Were Adequately Protected From External Flooding Hazards

Introduction. The inspectors identified a Green NCV of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," for the licensee's failure to establish measures to assure that applicable regulatory requirements and the design basis, for applicable SSCs, are correctly translated into specifications, drawings, procedures, and instructions. Specifically, the licensee failed to ensure that safety-related essential service water valves in the control building were adequately protected from external flooding hazards in the event of a design basis local intense precipitation event, which resulted in a reasonable doubt on the operability of safety-related essential service water valves.

Description. Located on the lower level of the control building (room 3101) are the safety-related essential service water train A and B service water cross-connect motor-operated valves EFHV0023, EFHV0024, EFHV0025, and EFHV0026, and the essential service water train A and B to service water system valves EFHV0039, EFHV0040, EFHV0041, and EFHV0042. The safety-related function of these valves is to isolate the non-safety related service water system from the safety-related essential service water system. USAR Section 3.3.7.4, "Internal Flooding Results," describes the impact of water accumulating in room 3101, where the eight subject safety-related valves are located. It states, "Submersion of motor operated valves HV0023, HV0024, HV0025 and HV0026, which are located in this room, would occur, resulting in a loss of service water. Isolation of the flood and the non-essential service water (NESW) system from the essential service water (ESW) system would be impossible until the control building basement is drained."

With respect to external flood level hazards, Table 1.2-1, "Design Envelope," of the Wolf Creek USAR, states, "Flooding is precluded by the elevation of the plant and by the site drainage system...No special flood protection measures (such as external flood doors) are incorporated."

Section 3.4.1.1.1, "External Flood Protection," of the Wolf Creek USAR, states:

"All seismic Category I structures and the systems they house are designed to withstand the effects of natural phenomena, such as flooding and groundwater level (GDC-2). Flood elevations, including the probable maximum flood (PMF) and the maximum groundwater elevations used in the design of powerblock seismic Category I structures for buoyancy and hydrostatic pressure, are shown in Tables 1.2-1 and 3.4-1 and are discussed in Section 2.4... Safety-related systems located below grade are protected from groundwater inleakage by a combination of a waterproofing system for the structures and other features such as the location of safety-related systems in watertight compartments, sump pumps, alarms and other water level indications and administrative controls. Should groundwater inleakage occur, the design features and administrative controls would protect the safety related systems...Although not serving a safety-related function, additional waterproofing is provided below grade by means of waterstops and waterproofing materials to minimize inleakage. Waterstops are provided at expansion and construction joints and electrical duct bank penetrations located below grade."

Finally, Section 9.2.1.2.1.1, "Safety Design Basis," related to the essential service water system, describes the safety design bases and states, "The ESWS [(essential service water system)] is protected from the effects of natural phenomena, such as earthquakes, tornadoes, hurricanes, floods, and external missiles (GDC-2)."

On May 17, 2015, during a heavy rainstorm, Wolf Creek personnel identified water coming out of the ceiling in the hot chemistry lab (room 3228) of the communication corridor building, through penetration P322W0902, and the water began flooding the floor of the room. Water also began accumulating in room 3101. Wolf Creek documented the condition in Condition Report 96404.

The station determined that water entered the control building sumps room 3101 via floor drains in the hot chemistry lab of the communication corridor building. The floor drains in the hot chemistry lab of the communication corridor building are directly routed

to the control building sumps and room 3101. The station also determined that water entered the hot chemistry lab via conduits from the turbine building area four cable vault with degraded non-safety related conduit penetration seals.

Historical pictures of the turbine building area four cable vault, which were taken on April 13, 2009, May 22, 2011, June 15, 2011, and September 3, 2014, show a penetration seal in the turbine building area four cable vault that was not in place. Additionally, Wolf Creek personnel and the inspectors verified the configuration of the seals via tours of the turbine building area four cable vault on November 18, 2015.

The inspectors also noted that Condition Report 59257, which was entered into the corrective action program on October 29, 2012, and documented past leakage through electrical penetration P322W0902, was documented in response to flooding walk-downs performed in accordance with NEI 12-07, "Guidelines for Performing Verification Walkdowns of Plan Flood Protection Features and NTTF [(Near Term Task Force)] Recommendation 2.3 Flooding." Condition Report 59257 did not adequately consider the potential impact and implications of the leakage indication. Specifically, neither the source of the leakage nor the pathway into the chemistry lab were considered. Additionally, the flooding walk-downs included reviews of piping and instrumentation drawings, which included drawings showing the drain pathway from the communication corridor building to the control building basement. These concerns were entered into the station's corrective action program as Condition Report 102273.

The inspectors also questioned the station's immediate operability determination associated with Condition Report 96404; please see NCV 05000482/2015004-03, also documented in this report, for additional discussion concerning the inadequate operability determination. In response to the inspector's questions, the station entered Condition Report 100299 into its corrective action program, which documented the station's failure to adequately evaluate the concern with respect to design basis local intense precipitation conditions. On October 15, 2015, a prompt operability evaluation associated with Condition Report 100299 was completed that showed the essential service water valves remained operable.

To understand the significance of the concern, the inspectors noted that Calculation FL-05, "Control Building Flooding," Revision 2, calculates the maximum flood level in control building room 3101 due to the rupture of a service water pipe and also states that the essential service water to service water isolation valves begin to be impacted when water in the room reaches a height of 33 inches.

Considering observed flows into the hot chemical lab room on May 17, 2015, and inspections performed on November 18, 2015, and recognizing the elevation of postulated external flood waters during a design basis local intense precipitation event, the station estimated the peak probable maximum precipitation flood flow through the duct bank into the hot chemistry lab—and ultimately the control building basement—as 855 gallons per minute. Utilizing a hydrograph of the probable maximum flood flow to estimate the total volume of flood water that could enter control building room 3101, the total volume of the flood flow that would enter the room was estimated to be approximately 92,799 gallons, which equates to a water level of 26.94 inches in room 3101. Considering that safety-related equipment is at a height of 33 inches in the room, the safety-related essential service water equipment in room 3101 would not have been impacted by a design basis probable maximum precipitation event even though a

pathway existed for external flood waters from a local intense precipitation event to reach control building room 3101 containing safety related essential service water valves that must be protected from the effects of natural phenomena like floods. The licensee was able to show through extensive analysis and later inspection that the subject valves were shown to be operable even while the penetrations were degraded and a substantial loss of margin occurred. Additional corrective actions include accelerating three Fukushima project schedules that include a new sump pump in the turbine building area four cable vault, ground and surface water improvements for non-safety related electrical duct banks, and new sump pumps in electrical manholes (125 and 152) near the turbine building. Each of these additional corrective actions is expected to reduce the amount of water that would impact the turbine building area four cable vault during heavy and design basis precipitation and are currently expected to be completed December 2016.

However, considering the USAR, the non-safety related design of the conduit penetration seals, and the open drain pathway from the communication corridor building to control building room 3101, the inspectors determined that the licensee failed to ensure that safety-related essential service water valves in the control building were adequately protected from external flooding hazards in the event of a design basis local intense precipitation event.

Analysis. The inspectors determined that the licensee's failure to ensure that essential service water valves in the control building (room 3101) were adequately protected from external flooding hazards in the event of a design basis local intense precipitation event was a performance deficiency. This finding is more than minor because it is associated with the design control attribute of the Mitigating Systems Cornerstone and affected the associated 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, during design basis local intense precipitation events, the safety-related essential service water train A and B service water cross-connect motor-operated valves EFHV0023, EFHV0024, EFHV0025, and EFHV0026, and the essential service water train A and B to service water system valves EFHV0039, EFHV0040, EFHV0041, and EFHV0042 were susceptible to external flooding hazards, and there was a reasonable doubt on the operability of these essential service water valves; however, subsequent evaluation determined that the essential service water valves would not have been impacted in the event of a design basis local intense precipitation event, and the valves were determined to be operable.

In accordance with Inspection Manual Chapter 0609.04, "Initial Characterization of Findings," and Exhibit 2 of Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," issued June 19, 2012, and April 29, 2015, respectively, the performance deficiency affects mitigating SSCs. The finding is a deficiency affecting the design or qualification of mitigating SSCs, and the SSCs maintained their operability and functionality. Therefore, the inspectors determined that this finding is of very low safety significance (Green).

In accordance with Inspection Manual Chapter 0310, "Aspects Within The Cross-Cutting Areas," issued December 4, 2014, the finding has a cross-cutting aspect in the area of human performance, challenge the unknown, because Wolf Creek individuals did not stop when faced with uncertain conditions. Specifically, the licensee did not maintain a questioning attitude during flooding walk-downs performed in accordance with NEI 12-07 or during evaluation of Condition Report 59257 to identify and resolve unexpected

conditions like the floor drain pathway from the communication corridor to the control building basement (room 3101), which was an opportunity for the station to identify the open pathway from the exterior of the plant [H.11].

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," states, in part, that for those SSCs to which this appendix applies, measures shall be established to assure that applicable regulatory requirements and the design basis, are correctly translated into specifications, drawings, procedures, and instructions. Contrary to the above, since at least April 13, 2009, until October 15, 2015, for quality-related components associated with the essential service water system, to which 10 CFR Part 50, Appendix B applies, the licensee failed to assure that applicable regulatory requirements and the design basis, are correctly translated into specifications, drawings, procedures, and instructions. Specifically, the licensee failed to ensure that safety-related essential service water valves in the control building (room 3101) were adequately protected from external flooding hazards in the event of a design basis local intense precipitation event. The licensee evaluated the condition to ensure that a design basis local intense precipitation event would not cause inoperability or unavailability of essential service water valves. The station's immediate corrective actions included entering the condition into the corrective action program and performing a prompt operability evaluation that showed the essential service water valves remained operable. This violation is being treated as an NCV consistent with Section 2.3.2 of the Enforcement Policy. The violation was entered into the licensee's corrective action program as Condition Report 102250. (NCV 05000482/2015004-02: Failure to Ensure Essential Service Water Valves were Adequately Protected from External Flooding Hazards)

b3. Failure to Perform an Adequate Operability Determination and Consider Design Basis Events

Introduction. The inspectors identified a Green NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for the licensee's failure to accomplish activities affecting quality in accordance with Procedure AP 26C-004, "Operability Determination and Functionality Assessment," Revision 31. Specifically, the licensee failed to document an operability determination of sufficient scope to address the capability of safety-related essential service water valves in the control building (room 3101) to perform their specified safety functions in the event of a design basis local intense precipitation event, which resulted in a reasonable doubt on the operability of safety-related essential service water valves.

Description. On May 17, 2015, during a heavy rainstorm, Wolf Creek personnel identified water coming out of the ceiling in the hot chemistry lab (room 3228) of the communication corridor building, through penetration P322W0902, and the water began flooding the floor of the room. Water also began accumulating in a lower level in the control building (room 3101). Wolf Creek documented the condition in Condition Report 96404.

Located on the lower level of the control building (room 3101) are the safety-related essential service water train A and B service water cross-connect motor-operated valves EFHV0023, EFHV0024, EFHV0025, and EFHV0026, and the essential service water train A and B to service water system valves EFHV0039, EFHV0040, EFHV0041, and

EFHV0042. The safety-related function of these valves is to isolate the non-safety related service water system from the safety-related essential service water system.

Wolf Creek determined in its immediate operability screening for Condition Report 96404 that it would take about 36 hours for water to accumulate to a level of 33 inches in the control building room 3101, based on a rate of influent of approximately 50 gallons per minute from rain water through the hot chemistry lab. The immediate operability screening concludes, "Therefore, in the event the electrical duct bank overflows, there is sufficient time to deploy additional sump pumps to reduce the level and terminate the inleakage through the chemistry hot lab." Work Order 14-382942 was generated and the Condition Report 96404 closure notes stated, "Design Engineering will use three of the four Fukushima ground water intrusion mitigation projects to mitigate the flooding in the Hot Chemistry Lab. The three Fukushima projects schedules have been accelerated." These projects included design change packages for a new sump pump in the turbine building area four cable vault, ground and surface water improvements for non-safety related electrical duct banks, and new sump pumps in electrical manholes (125 and 152) near the turbine building. Each of these additional corrective actions is expected to reduce the amount of water that would impact the turbine building area four cable vault during heavy and design basis precipitation. Condition Report 96404 was closed to Condition Report Action 070319-01-03, which is currently planned to be completed December 2016.

USAR Section 3.3.7.4, "Internal Flooding Results," describes the impact of the design basis internal flooding hazard in the essential service water pipe chase level of the control building (room 3101). It states, "Submersion of motor operated valves HV0023, HV0024, HV0025 and HV0026, which are located in this room, would occur, resulting in a loss of service water. Isolation of the flood and the non-essential service water (NESW) system from the essential service water (ESW) system would be impossible until the control building basement [(room 3101)] is drained." Calculation FL-05, "Control Building Flooding," Revision 2, calculates the maximum flood level in control building room 3101 due to the rupture of a service water pipe and also states that the essential service water to service water isolation valves begin to be impacted when water in the room reaches a height of 33 inches.

After learning of an auxiliary operator action to "Pump out SE electrical cable pit when required (maintain level below cables)," which was being tracked on the "Turbine Building Operator Relief Checklist," the inspectors inquired about the action and toured applicable accessible portions of the plant. On September 15, 2015, the inspectors raised concerns with the station regarding cables that were submerged in the turbine building area four cable vault. Wolf Creek determined that the low voltage non-safety related wetted cables condition had been previously identified and documented in Condition Report 22210. In following up on this concern, the inspectors noted that Table 1.2-1, "Design Envelope," of the Wolf Creek USAR states, "Flooding is precluded by the elevation of the plant and by the site drainage system...No special flood protection measures (such as external flood doors) are incorporated."

The inspectors also noted that Section 3.4.1.1.1, "External Flood Protection," of the Wolf Creek USAR states:

"All seismic Category I structures and the systems they house are designed to withstand the effects of natural phenomena, such as flooding and groundwater

level (GDC-2). Flood elevations, including the probable maximum flood (PMF) and the maximum groundwater elevations used in the design of powerblock seismic Category I structures for buoyancy and hydrostatic pressure, are shown in Tables 1.2-1 and 3.4-1 and are discussed in Section 2.4... Safety-related systems located below grade are protected from groundwater leakage by a combination of a waterproofing system for the structures and other features such as the location of safety-related systems in watertight compartments, sump pumps, alarms and other water level indications and administrative controls. Should groundwater leakage occur, the design features and administrative controls would protect the safety related systems... Although not serving a safety-related function, additional waterproofing is provided below grade by means of waterstops and waterproofing materials to minimize leakage. Waterstops are provided at expansion and construction joints and electrical duct bank penetrations located below grade."

Finally, the inspectors noted that Section 9.2.1.2.1.1, "Safety Design Basis," related to the essential service water system, describes the safety design bases and states, "The ESWS [(essential service water system)] is protected from the effects of natural phenomena, such as earthquakes, tornadoes, hurricanes, floods, and external missiles (GDC-2)."

The inspectors identified on October 14, 2015, that Condition Report 96404, which documented the events of May 17, 2015, as previously described, did not address all design basis events. Specifically, the inspectors identified that the licensee failed to consider design basis local intense precipitation conditions in its evaluation of Condition Report 96404. Procedure AP 26C-004, "Operability Determination and Functionality Assessment," Revision 31, states:

"The scope of an operability determination must be sufficient to address the capability of SSCs [(structures, systems, and components)] to perform their specified safety functions. The operability decision may be based on analysis, a test or partial test, experience with operating events, engineering judgment, or a combination of these factors, considering SSC [(structure, system, and component)] functional requirements... The following things should be considered when performing operability determinations: Design basis events are plant-specific and plant-specific TS [(Technical Specification)], TS [(Technical Specification)] bases and safety evaluations may contain plant-specific considerations related to operability."

The inspectors determined that the licensee did not comply with Procedure AP 26C-004, a quality related procedure; specifically, the licensee's operability determination completed in response to Condition Report 96404 on May 17, 2015, was not of sufficient scope and did not consider design basis events. The inspectors determined that a reasonable doubt on the operability of the safety-related essential service water valves existed.

In response to the inspectors' questions, Wolf Creek documented Condition Report 100299 and completed a prompt operability determination to evaluate the design basis limiting case. On October 15, 2015, a prompt operability evaluation associated with Condition Report 100299 was completed that showed the essential service water valves remained operable.

To understand the significance of the concern, the inspectors noted that Calculation FL-05, "Control Building Flooding," Revision 2, calculates the maximum flood level in control building room 3101 due to the rupture of a service water pipe and also states that the essential service water to service water isolation valves begin to be impacted when water in the room reaches a height of 33 inches.

Considering observed flows into the hot chemical lab room on May 17, 2015, and inspections performed on November 18, 2015, and recognizing the elevation of postulated external flood waters during a design basis local intense precipitation event, the station estimated the peak probable maximum precipitation flood flow through the duct bank into the hot chemistry lab—and ultimately the control building basement (room 3101)—as 855 gallons per minute. Utilizing a hydrograph of the probable maximum flood flow to estimate the total volume of flood water that could enter control building room 3101, the total volume of the flood flow that would enter the room was estimated to be approximately 92,799 gallons, which equates to a water level of 26.94 inches in room 3101. Considering that safety-related equipment is at a height of 33 inches in the room, the safety-related essential service water equipment in room 3101 would not have been impacted by a design basis probable maximum precipitation event even though a pathway existed for external flood waters from a local intense precipitation event to reach control building room 3101 containing safety-related essential service water valves that must be protected from the effects of natural phenomena like floods. Therefore, the licensee was able to show through extensive analysis and later inspection that the subject valves were shown to be operable even while the penetrations were degraded and a substantial loss of margin occurred.

Analysis. The inspectors determined that the licensee's failure to document an adequate operability determination addressing design basis local intense precipitation events was a performance deficiency. This finding is more than minor because it is associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affected the associated 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, during design basis local intense precipitation events, the safety-related essential service water train A and B service water cross-connect motor-operated valves EFHV0023, EFHV0024, EFHV0025, and EFHV0026, and the essential service water train A and B to service water system valves EFHV0039, EFHV0040, EFHV0041, and EFHV0042 were susceptible to external flooding hazards, and there was a reasonable doubt on the operability of these essential service water valves; however, subsequent evaluation determined that the essential service water valves would not have been impacted in the event of a design basis local intense precipitation event, and the valves were determined to be operable.

In accordance with Inspection Manual Chapter 0609.04, "Initial Characterization of Findings," and Exhibit 2 of Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," issued June 19, 2012, and April 29, 2015, respectively, the performance deficiency affects mitigating SSCs. The finding is not a deficiency affecting the design or qualification of mitigating SSCs, 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 or two separate safety systems out-of-service for greater than their allowed outage times, and the finding does not represent an actual loss of function of one or more non-technical specification trains

of equipment. Therefore, the inspectors determined that this finding is of very low safety significance (Green).

In accordance with Inspection Manual Chapter 0310, "Aspects Within The Cross-Cutting Areas," issued December 4, 2014, the finding has a cross-cutting aspect in the area of human performance, conservative bias, because Wolf Creek did not use decision making-practices that emphasize prudent choices over those that are simply allowable, and proposed action was not determined to be safe in order to proceed, rather than unsafe in order to stop. Specifically, the licensee did not consider long-term consequences or design basis events when determining how to resolve emergent concerns like the unexpected water in room 3101, which resulted in the licensee's failure to thoroughly evaluate and assess impacts to the plant when Condition Report 96404 was entered into the corrective action program on May 17, 2015 [H.14].

Enforcement. 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. Licensee Procedure AP 26C-004, "Operability Determination and Functionality Assessment," Revision 31, an Appendix B quality related procedure, provides instructions for performing operability determinations. Procedure AP 26C-004, step 6.1.2.2, states, in part, that the scope of an operability determination must be sufficient to address the capability of SSCs to perform their specified safety functions. Contrary to the above, between May 17, 2015, and October 14, 2015, the scope of an operability determination was not sufficient to adequately address the capability of SSCs to perform their specified safety functions. Specifically, the licensee failed to sufficiently address susceptibility of safety-related essential service water train A and B service water cross-connect motor-operated valves EFHV0023, EFHV0024, EFHV0025, and EFHV0026, and essential service water train A and B to service water system valves EFHV0039, EFHV0040, EFHV0041, and EFHV0042 to external flooding hazards, which caused a reasonable doubt on the operability of these valves. Immediate corrective actions included completing a prompt operability determination and performing analyses that determined the valves remained operable. This violation is being treated as an NCV consistent with Section 2.3.2 of the Enforcement Policy. The violation was entered into the licensee's corrective action program as Condition Report 100299. (NCV 05000482/2015004-03: Failure to Perform an Adequate Operability Determination and Consider Design Basis Events)

40A6 Meetings, Including Exit

Exit Meeting Summary

On October 29, 2015, the inspectors discussed the in-office review of the preliminary scenario for the December 8, 2015, biennial exercise, submitted October 6, 2015, with Mr. T. East, Superintendent, Emergency Planning, 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.

The inspectors obtained the final annual examination results and telephonically exited with Mr. B. Lee, Licensed Operator Supervision Instructor, on December 2, 2015. The inspectors did not review any proprietary information during this inspection. On December 16, 2015, the inspectors presented the results of the on-site inspection of the biennial emergency

preparedness exercise conducted December 8, 2015, to Mr. C. Reasoner, Site Vice President, 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.

On January 27, 2016, the inspectors presented the inspection results to Stephen 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

T. Baban, Manager, System Engineering
W. Brown, Superintendent, Security Operations
A. Broyles, Manager, Information Systems
D. Campbell, Superintendent, Electrical Maintenance
T. East, Superintendent, Emergency Planning
J. Edwards, Manager, Operations
D. Erbe, Manager, Security
R. Flannigan, Manager, Nuclear Engineering
J. Fritton, Owner's Representative
B. Gagnon, Supervisor, Security
C. Hafenstine, Manager, Regulatory Affairs
A. Heflin, President and Chief Executive Officer
S. Henry, Manager, Integrated Plant Scheduling
T. Herring, Superintendent, Security
R. Hobby, Licensing Engineer
J. Isch, Operations Work Controls
B. Lee, Licensed Supervising Instructor
D. Mand, Manager, Design Engineering
J. McCoy, Vice President, Engineering
W. Muilenburg, Supervisor, Licensing
L. Ratzlaff, Manager, Maintenance
C. Reasoner, Site Vice President
R. Rietmann, Engineer
M. Skiles, Manager, Radiation Protection
T. Slenker, Supervisor, Operations Support
S. Smith, Plant Manager
M. Storts, Engineer
A. Stueve, Engineer
A. Stull, Vice President and Chief Administrative Officer
M. Tate, Superintendent, Security

NRC Personnel

C. Jewett, Physical Security Inspector
R. Lanfear, Physical Security Inspector

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000482/2015004-01	VIO	Inadequate Measures to Assure SGK05A Issues Were Promptly Corrected (4OA2)
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Opened and Closed

05000482/2015004-02	NCV	Failure to Ensure Essential Service Water Valves Were Adequately Protected from External Flooding Hazards (4OA2)
05000482/2015004-03	NCV	Failure to Perform an Adequate Operability Determination and Consider Design Basis Events (4OA2)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
CKL ZL-001	Auxiliary Building Reading Sheets	96
CKL ZL-004	Turbine Building Reading Sheets	141
SYS OPS-001	Weekly Equipment Rotation and Readings	70B
SYS OPS-008	Cold Weather Operations	0

Section 1R04: Equipment Alignment

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
CKL EJ-120	RHR System Lineup	44B
CKL KJ-121	Diesel Generator NE01 and NE02 Valve Checklist	39
CKL JE-120	Emergency Fuel Oil System Lineup	19
STS EJ-100B	RHR System Inservice Pump B Test	43A
STS NB-005	Breaker Alignment Verification	27
SYS KJ-121	Diesel Generator NE01 and NE02 Lineup for Automatic Operation	50C
SYS KJ-123	Post Maintenance Run of Emergency Diesel Generator A	61C

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
KD-7496	One Line Diagram, Sheet 1	58

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
M-12EJ01	Piping and Instrumentation Diagram Residual Heat Removal System, Sheet 1	51
M-12KJ05	Piping & Instrumentation Diagram Standby Diesel Generator "B" Intake Exhaust, F.O. & Start Air Sys. P&ID	17
M-12KJ06	Piping & Instrumentation Diagram Standby Diesel Generator "B" Lube Oil System	21

Condition Reports

100380	100384	100386	100425	100445
100449	100452	100457	100464	100475
100476	100478			

Section 1R05: Fire Protection

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AP 10-102	Control of Combustible Materials	19
AP 10-103	Fire Protection Impairment Control	29
AP 10-104	Breach Authorization	35
AP 10-106	Fire Preplans	16

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
E-1F9905	Wolf Creek Nuclear Operating Corporation Fire Hazard Analysis	6

Condition Reports

100700

Jobs

13-375530-169 15-408281-018

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Date</u>
2015-516	Breach Permit: Room 3302 into Electrical Chase (Door 33024) (1-3" Core North Wall) (1-3" Core South Wall)	November 3, 2015

Section 1R11: Licensed Operator Requalification Program

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AI 21D-006	Response to Plant Status Control Problems	13
AP 15C-002	Procedure Use and Adherence	41
AP 19E-002	Reactivity Management Program	19
AP 21-001	Conduct of Operations	74
AP 22-001	Conduct of Pre-Job and Post-Job Briefs	19
STS IC-618B	Slave Relay Test K618 Train B Safety Injection	22

Condition Reports

101672

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
LR4412801	INPO Crew Performance Evaluation Scenario #3 Operating Test Results	0 December 2, 2015

Section 1R12: Maintenance Effectiveness

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AI 23M-003	Maintenance Rule Expert Panel Duties and Responsibilities	10
AI 28A-023	Evaluation of Maintenance Rule Function Failure CRs	3
AP 16B-003	Planning and Scheduling Preventive Maintenance	6
AP 23M-001	WCGS Maintenance Rule Program	11
AP 28A-100	Corrective Action Program	22
EMG C-0	Loss of All AC Power	36
EMG E-1	Loss of Reactor or Secondary Coolant	26
EMG E-2	Faulted Steam Generator Isolation	21

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
EMG E-3	Steam Generator Tube Rupture	34
EMG ES-02	Reactor Trip Response	33
EMG FR-H1	Response to Loss of Secondary Heat Sink	32

Condition Reports

45333	53709	66967	68816	70482
75337	79534	79568	79840	80586
81478	82385	83400	84045	84939
85609	85895	89669	95196	96127
96392	96397	100092	101656	94792
99741				

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
75337	Functional Failure Determination Checklist	February 26, 2014
75523	Functional Failure Determination Checklist	November 25, 2013
762795	Purchase Order	0
79534	Functional Failure Determination Checklist	February 26, 2014
80586	Functional Failure Determination Checklist	November 6, 2014
80586	MSPI Failure Determination	October 9, 2014
80603	Functional Failure Determination Checklist	May 14, 2014
80758	Functional Failure Determination Checklist	April 24, 2014
81478	Functional Failure Determination Checklist	May 13, 2014
81705	Functional Failure Determination Checklist	May 20, 2014
81711	Functional Failure Determination Checklist	May 20, 2014
82239	Functional Failure Determination Checklist	May 22, 2014
84045	Functional Failure Determination Checklist	September 16, 2014
84939	Functional Failure Determination Checklist	September 16, 2014
85936	Functional Failure Determination Checklist	November 6, 2014
86131	Functional Failure Determination Checklist	December 8, 2014
87772	Functional Failure Determination Checklist	December 3, 2014

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
94792	Functional Failure Determination Checklist	May 1, 2015
94914	Functional Failure Determination Checklist	May 1, 2015
94961	Functional Failure Determination Checklist	April 28, 2015
94986	Functional Failure Determination Checklist	April 28, 2015
95055	Functional Failure Determination Checklist	May 1, 2015
95133	Functional Failure Determination Checklist	May 1, 2015
95196	Functional Failure Determination Checklist	April 28, 2015
95874	Functional Failure Determination Checklist	June 24, 2015
96397	Functional Failure Determination Checklist	July 7, 2015
98949	Functional Failure Determination Checklist	October 1, 2015
99470	Functional Failure Determination Checklist	October 29, 2015
AIF 28A-017-04	Wolf Creek Generating Station Effectiveness Followup, CR number 4533	0
AL, AP, FC-1	System Health Report	July 1, 2015 through September 30, 2015
AL-01	Maintenance Rule Expert Panel Meeting Minutes AL-01	December 29, 2015
AL-01	Maintenance Rule Final Scope Evaluation	December 8, 2015
AL-02	Maintenance Rule Final Scope Evaluation	December 8, 2015
AL-03	Maintenance Rule Final Scope Evaluation	December 8, 2015
AL-04	Maintenance Rule Final Scope Evaluation	December 8, 2015
AL-05	Maintenance Rule Final Scope Evaluation	December 8, 2015
AL-06	Maintenance Rule Final Scope Evaluation	December 8, 2015
AL-07	Maintenance Rule Final Scope Evaluation	December 8, 2015
AL-08	Maintenance Rule Final Scope Evaluation	December 8, 2015
AP-05	Maintenance Rule Expert Panel Meeting Minutes AP-05	October 15, 2015
APF 15A-003-05	Record Supplemental/Correction Sheet, File Number K01 33	June 14, 2013

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
EDI 23M-050	Engineering Desktop Instruction Monitoring Performance to Criteria and Goals, PRI 45333	3
EDI 23M-050	Engineering Desktop Instruction Monitoring Performance to Criteria and Goals, PRI 89669	3
GK	System Health Report	July 1, 2015 through September 30, 2015
GK-01	(a)(1) Action Plan	December 10, 2013
GK-01	Maintenance Rule Expert Panel Meeting Minutes GK-01	December 29, 2015
GK-01	Maintenance Rule Final Scope Evaluation	December 29, 2015

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	16
AP 10-103	Fire Protection Impairment Control	29
AP 10-104	Breach Authorization	35
AP 22C-007	Risk Management and Contingency Planning	11
STS IC-208B	4KV Loss of Voltage & Degraded Voltage TADOT NB02 Bus – SEP GRP 4	4E
STS IC-211B	Actuation Logic Test Train B Solid State Protection System	37A
STS IC-241	Channel Operational Test Nuclear Instrumentation System Power Range N41 Protection Set 1	15
SYS OQT-001B	Operations B Train Quarterly Tasks	11

Condition Reports

100700

Jobs

13-375530-169 15-408281-018

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Date</u>
15-402	Control Room Risk Assessment Log/Work Schedule; Risk Assessment Dates – October 5, 2015, through October 11, 2015	October 4, 2015
15-402	Control Room Risk Assessment Log/Work Schedule; Risk Assessment Dates – October 5, 2015, through October 11, 2015	October 6, 2015
15-403	Control Room Risk Assessment Log/Work Schedule; Risk Assessment Dates – October 12, 2015, through October 18, 2015	October 12, 2015
15-403	Control Room Risk Assessment Log/Work Schedule; Risk Assessment Dates – October 12, 2015, through October 18, 2015	October 15, 2015
15-406	Control Room Risk Assessment Log/Work Schedule; Risk Assessment Dates – November 2, 2015, through November 8, 2015	November 3, 2015
2015-516	Breach Permit: Room 3302 into Electrical Chase (Door 33024) (1-3” Core North Wall) (1-3” Core South Wall)	November 3, 2015

Section 1R15: Operability Evaluations

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AI 22A-001	Operator Work Arounds/Operator Burdens/Control Room Deficiencies	12
AI 26C-004	Technical Specification Application for Containment Isolation Valves	6B
AP 22A-001	Screening, Prioritization and Pre-Approval	18
AP 26C-004	Operability Determination and Functionality Assessment	31
AP 26C-004	Operability Determination and Functionality Assessment	32
AP 28-001	Operability Evaluations	24
MPE E009Q-03	Inspection and Testing of Siemens Vacuum Circuit Breakers	9
STS EF-100B	ESW System Inservice Pump B & ESW B Check Valve Test	46

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
KD-7496	One Line Diagram, Sheet 1	15

Drawings

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

Condition Reports

96392	96397	96404	98582	98587
99349	99376	99504	100299	100447
100478	100760	101535	101536	101537

Work Orders

14-392848-003	14-394551-003	15-405701000
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Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
577992R10	Vendor Qualification Report	August 31, 2010
FL-02	Flooding of Auxiliary Building Rooms 1107-1114	1
FL-05	Control Building Flooding	2
OE EF-15-014	Operability Evaluation for Condition Report 100299	0
OE EF-15-014	Operability Evaluation for Condition Report 100299	1
Various	Operational Issues Database	December 12, 2015
	Control Room WR/WO Log	December 12, 2015

Section 1R19: Post-Maintenance Testing

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AP 26C-004	Operability Determination and Functionality Assessment	31
MPE E009Q-03	Inspection and Testing of Siemens Vacuum Circuit Breakers	9
STN NB-001B	'B' Train Breaker Operability and ECCS Pump Recirc	8A
STN PE-037B	ESW Train B Heat Exchanger Flow and DP Trending	20A
STS EF-100B	ESW System Inservice Pump B & ESW B Check Valve Test	45A
STS KJ-005B	Manual/Auto Start, Sync & Loading of EDG NE02 –	61

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
E-009B-00013	List of Materials, Fastener Location – Operator	August 1, 2000
KD-7496	One Line Diagram, Sheet 1	58
M-12EF01	Piping & Instrumentation Diagram Essential SVC Water System	29
M-12EF02	Piping & Instrumentation Diagram Essential Service Water System	40
M-K2EF01	Piping & Instrumentation Diagram Essential Service Water Sys.	66

Condition Reports

88168	89788	100757	100758	100760
100763				

Work Orders

15-408281-002	15-408281-015	15-408281-016	15-408281-020
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Section 1R22: Surveillance Testing

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AI 29B-003	Guidance to Prevent Unacceptable Preconditioning Prior to Testing	2
AP 15C-002	Procedure Use and Adherence	41
AP 19E-002	Reactivity Management Program	19
AP 21-001	Conduct of Operations	74
AP 22-001	Conduct of Pre-Job and Post-Job Briefs	19
OFN RP-017	Control Room Evacuation	47
STN RP-002E	EDG B Control CKT and FO XFER Pump ISO Switch	2A
STS BG-100A	Centrifugal Charging System “A” Train Inservice Pump Test	46
STS KJ-005B	Manual/Auto Start, Sync & Loading of EDG NE02	60A
SYS BG-201	Shifting Charging Pumps	65

Section 1EP4: Emergency Action Level and Emergency Plan Changes

No additional documents were reviewed.

Section 1EP6: Drill Evaluation

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
EPP 06-001	Control Room Operations	23
EPP 06-005	Emergency Classification	7
OFN SK-039	Security Event	22

Condition Reports

100676	100681	100682	100683	100684
100686	100687	100688	100689	100690
100691	100692	100702	100703	100708
100732	100733			

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision</u>
APF 06-002-01	Emergency Action Levels	17

Section 1EP7: Force-on-Force Exercise Evaluation

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
AP 06-002	Radiological Emergency Response Plan	18
EPP 06-01	Control Room Operations	23
EPP 06-03	Emergency Operations Facility Operations	23
EPP 06-05	Emergency Classification	7
EPP 06-06	Protective Action Recommendations	9
EPP 06-07	Emergency Notifications	24
EPP 06-09	Drill and Exercise Requirements	10
EPP 06-11	Emergency Team Formation and Control	10
HAG-01	Hostile Action Guideline, Off-Site Response Organization Coordination, Revision 0	November 30, 2015
ICPG-01	Incident Command Post Guidelines, Revision 0	November 30, 2015

Condition Reports

85338	101387	101389	101391	101396
101398	101403	101404	101457	101472
101484	101485	101487	101490	101492
101512				

Miscellaneous

Title

- After-Action Evaluation Report for the Drill conducted June 18, 2014
- After-Action Evaluation Report for the Drill conducted August 20, 2014
- After-Action Evaluation Report for the Drill conducted August 27, 2014
- After-Action Evaluation Report the for Drill conducted September 10, 2014
- After-Action Evaluation Report the for Drill conducted May 5, 2015
- After-Action Evaluation Report the for Drill conducted June 24, 2015
- After-Action Evaluation Report the for Drill conducted July 28, 2015
- After-Action Evaluation Report the for Drill conducted August 11, 2015
- Event Report: Alert Classification, October 6, 2014 dated October 22, 2014

1EP8 Exercise Evaluation – Scenario Review (71114.08)

No additional documents were reviewed.

Section 4OA1: Performance Indicator Verification

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AI 26A-004	Emergency Planning Performance Indicators	7
AI 26A-006	Mitigating System Performance Index	7
AP 26A-007	NRC Performance Indicators	10
EPP-06-19	Alert and Notification System Sirens	8

Condition Reports

73743	80586	82385	101874
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Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
75236	MSPI Failure Determination	November 26, 2013
75795	MSPI Failure Determination	November 26, 2013
80586	Functional Failure Determination Checklist	November 6, 2014
80586	MSPI Failure Determination	October 9, 2014
80603	MSPI Failure Determination	April 8, 2014
81349	MSPI Failure Determination	April 8, 2014
81187	MSPI Failure Determination	April 8, 2014
91331	MSPI Failure Determination	February 4, 2015
91331	Functional Failure Determination Checklist	March 14, 2015
93748	Functional Failure Determination Checklist	April 26, 2015
94785	Functional Failure Determination Checklist	May 13, 2015
AL, AP, FC-1	System Health Report	July 1, 2015 through September 30, 2015
Consolidated Data Entry 4.0	MSPI Derivation Report, MSPI Heat Removal System Unavailability Index (UAI)	October 2015
Consolidated Data Entry 4.0	MSPI Derivation Report, MSPI Heat Removal System Unavailability Index (URI)	October 2015
Consolidated Data Entry 4.0	MSPI Derivation Report, MSPI Residual Heat Removal System Unavailability Index (UAI)	September 2015
Consolidated Data Entry 4.0	MSPI Derivation Report, MSPI Residual Heat Removal System Unreliability Index (URI)	September 2015
EJ	System Health Report	October 1, 2015 through December 31, 2015
LER 2015-001-00	Personnel Error Causes Two inoperable Residual Heat Removal Trains	March 25, 2015
LER 2015-002-01	Two Control Room Air Conditioning Trains Inoperable Due to Failure to Meet Surveillance Requirement	August 26, 2015
LER 2015-003-00	Manual Reactor Trip Due to High Steam Generator Level Transient at Low Power	July 1, 2015
LER 2015-004-01	Incorrect Decision Results in Two Containment Isolation Valves Being in a Condition Prohibited by Technical Specifications	September 14, 2015
NEI 99-02	Regulatory Assessment Performance Indicator Guideline	Revision 7

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
WCNOC-163	Mitigating System Performance Index (MSPI) Basis Document	10

Section 40A2: Problem Identification and Resolution

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AI 14-001	Confined Space Entry	15A
AI 28A-010	Screening Condition Reports	20
AI 28A-010	Screening Condition Reports	21
AI 28A-010	Screening Condition Reports	22
AI 28A-100	Condition Report Resolution	9
AP 10-103	Fire Protection Impairment Control	29
AP 10-104	Breach Authorization	35
AP 21D-006	Safety Function Determination Program	7A
AP 22A-001	Screening, Prioritization and Pre-Approval	18
AP 23-008	Equipment Reliability Program	6
AP 26C-004	Operability Determination and Functionality Assessment	31
AP 26C-004	Operability Determination and Functionality Assessment	32
AP 28-001	Operability Evaluations	24
AP 28A-100	Corrective Action Program	22
CKL ZL-001	Auxiliary Building Reading Sheets	96
I-ENG-003	Vibration Monitoring and Analysis	9
I-ENG-004	Lubricating Oil Analysis	8
STS GK-002B	Control Room A/C Unit Operability Test	0

Condition Reports

22210	59257	66967	70319	70482
73410	73863	75337	92274	92630
94604	96392	96397	96404	96657
97743	98123	98877	99077	99504
100299	100385	100700	100968	101674

Condition Reports

101680	101788	101790	101887	102250
102273	102331			

Jobs

04-261206-005	12-360502-000	13-375530-169	13-378942-003	13-380760
14-382942	14-390223-003	15-408281-018		

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
10466-A-1102	Turbine Building Floor Plan – El. 2000'-0"	3
10466-A-1324	Control, D.G. & Comm. Corridor Floor Plans @ El. 1974'-0" & 1984'-0"	4
C-1C3911	Communication Corridor Area 2 Conc. Neat Lines & Reinf. Wall Elevators	1
C-1C4311	Turbine Building Area 1 Neat Line & Reinforcing Plan-Grade Slab At El. 2000'-0"	5
C-1C4341	Turbine Building Area 4 Neat Line & Reinforcing Plan-Grade Slab At El. 2000'-0"	0
C-OC3121	Communication Corridor Area 2 Concrete Neat Line Plan Floor El. 1974'-0" & 1984'-0"	14
C-OC3913	Communication Corridor Bldg. Area 2 Conc. Neat Line & Reinf. Column Foundation	6
C-OC4914	Turbine Building –Area 4 Conic. Neat Line & Reinforcing Cable Vault Details	5
E-0002	Outdoor Electrical Ductruns & Grounding North Area – Plan	27
E-0003	Outdoor Electrical Ductruns & Grounding South Area – Plan	35
E-0019	Electrical Manholes & Handholes Details	11
E-1R3221	Raceway Plan Communication Corridor Area-2 El. 1974'-0" & El. 1984'-0"	0
E-1R4341	Raceway Plan Turbine Building Area-4 El. 2000'-0"	1
E-OR4311	Raceway Plan Turbine Building Area – 1 El.-2000'-0"	13
M-12HB02	Piping and Instrumentation Diagram Liquid Radwaste System	22
M-12LF01	Piping and Instrumentation Diagram Auxiliary Building Floor and Equipment Drain System	3

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
M-12LF03	Piping and Instrumentation Diagram Auxiliary Building Floor and Equipment Drain System	5
M-12LF07	Piping and Instrumentation Diagram Radwaste Building Floor and equipment Drain System	3
M-12LF08	Piping and Instrumentation Diagram Control and Fuel Bldgs. Floor and Equipment Drain System	4
M-1P3121	Drainage Systems (LD, LE, LF) Communications Corridor El. 1974'-0" & El. 1984'-0" Area-2	1
M-1X3911	Communication Corridor Area 2 Penetration Closure Wall Elevations	0

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
15-OB103	Operational Burdens	October 14, 2015
2015-516	Breach Permit: Room 3302 into Electrical Chase (Door 33024) (1-3" Core North Wall) (1-3" Core South Wall)	November 3, 2015
AIF 28A-100-014	RCA Standard	4
AIF 28A-100-015	ACE Standard	5
AIF 28A-100-017	Basic Trend Analysis	0
APF 21-001-05	Turbine Building Operator Relief Checklist	October 14, 2015
Change Package 14506	PLC03 Pump Replacement Design	0
FL-02	Flooding of Auxiliary Building Rooms 1107-1114	1
FL-05	Control Building Flooding	2
OE EF-15-014	Operability Evaluation for Condition Report 100299	0
OE EF-15-014	Operability Evaluation for Condition Report 100299	1
OE GK-15-012	Operability Evaluation for Condition Report 96392	0
OE GK-15-012	Operability Evaluation for Condition Report 96392	1
P322W0902	Walkdown Record Form	September 30, 2012
TMO 15-013-GK-00	SGK05A/ "A" Class 1E Air Conditioning Unit	May 16, 2015
	Station Performance Report 2 nd Quarter 2015	July 29, 2015
	Station Performance Report 3 rd Quarter 2015	December 7, 2015