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

August 6, 2015

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 05000482/2015002

Dear Mr. Heflin:

On June 27, 2015, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Wolf Creek Generating Station. On July 8, 2015, the NRC inspectors discussed the results of this inspection with Mr. C. Reasoner, Site Vice President, and other members of your staff. Inspectors documented the results of this inspection in the enclosed inspection report.

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

If you disagree with the 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.

This inspection report also documents the completion of the NRC's focused baseline inspection of the Emergency Service Water System Water Hammer Modification. The full scope of the focused baseline inspection activities are described in a memorandum to the Regional Administrator, NRC Region IV, dated January 8, 2015 (NRC's Agencywide Documents Access and Management System (ADAMS) Accession Number ML15015A171). The modification is described in ADAMS Accession Number ML 13219A193 dated August 7, 2013. The results of this inspection are documented in Section 1R19.2 of this report.

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 D. Proulx for/

Andrew A. Rosebrook, Acting Branch Chief
Project Branch B
Division of Reactor Projects

Docket Nos. 50-482
License Nos. NPF-42

Enclosure:
Inspection Report 05000482/2015002
w/ Attachment: Supplemental Information

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Letter to Adam C. Heflin from Andrew A. Rosebrook dated August 6, 2015

SUBJECT: WOLF CREEK GENERATING STATION – NRC INTEGRATED INSPECTION REPORT 05000482/2015002

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket:	05000482
License:	NPF-42
Report:	05000482/2015002
Licensee:	Wolf Creek Nuclear Operating Corporation
Facility:	Wolf Creek Generating Station
Location:	1550 Oxen Lane NE Burlington, KS 66839
Dates:	March 29 through June 27, 2015
Inspectors:	C. Henderson, Acting Senior Resident Inspector C. Speer, Acting Senior Resident Inspector R. Stroble, Resident Inspector G. Guerra, CHP, Emergency Preparedness Inspector P. Hernandez, Health Physicist R. Kopriva, Senior Reactor Inspector J. O'Donnell, Health Physicist C. Peabody, Senior Resident Inspector, Palo Verde W. Sifre, Senior Reactor Inspector C. Smith, Reactor Inspector M. Williams, Reactor Inspector
Approved By:	Andrew A. Rosebrook Acting Chief, Project Branch B Division of Reactor Projects

SUMMARY

IR 05000482/2015002; 03/29/2014 – 06/27/2015; WOLF CREEK GENERATING STATION; Integrated Resident and Regional Report; Other Activities.

The inspection activities described in this report were performed between March 29 and June 27, 2015, by the resident inspectors at Wolf Creek Generating Station and inspectors from the NRC's Region IV office. One finding of very low safety significance (Green) is documented in this report. This finding involved a violation of NRC requirements. The significance of inspection findings is indicated by their color (Green, White, Yellow, or Red), which is determined using Inspection Manual Chapter 0609, "Significance Determination Process." Their cross-cutting aspects are determined using Inspection Manual Chapter 0310, "Aspects within the Cross-Cutting Areas." 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, non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, for not installing the current transformer wiring in the Class 1E 4kV alternate feeder breaker cubicles from the station blackout diesel generators per the design drawings. As a result, testing performed seven months after the system was declared operational identified that the connections were unable to power the safety-related buses due to incorrect wiring of the current transformers. The licensee entered this issue into the corrective action program as Condition Report 83379.

  This finding was more than minor because it was associated with the Mitigating Systems Cornerstone to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, due to the incorrect wiring of the current transformers, the SBO diesel generators were unable to power safety related buses as they were designed. The inspectors performed the initial significance determination for the finding using NRC Inspection Manual 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated June 19, 2012. The finding required a detailed evaluation because it had the potential to degrade at least one train of a system that supports a risk significant system or function. Therefore, a senior reactor analyst performed a bounding detailed risk evaluation. The finding was of very low safety significance (Green) because the risk assessment programs quantified the change in core damage frequency less than 1.0×10^{-6}.

  The inspectors determined that the finding had a teamwork cross-cutting aspect in the area of human performance. The licensee individuals and work groups did not communicate and coordinate their activities within and across organizational boundaries. Specifically a drawing revision was not properly attached to the work order which resulted in the incorrect wiring of both trains, and because different groups were completing different components, parts of the wiring were incorrectly installed per a superseded revision [H.4]. (Section 4OA5)

PLANT STATUS

Wolf Creek Nuclear Station began the inspection period shutdown for Refueling Outage 20. On May 3, 2015, operators commenced a reactor startup. During the reactor startup, the unit experienced a trip and returned to a shutdown condition for a forced outage. On May 4, 2015, the reactor was restarted. The unit reached full power on May 8, 2014. The unit commenced a downpower to 90% on May 18, 2015, to work on condensate pump A and returned to full power the same day. The unit operated at full power for the remainder of the inspection period.

REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

.1 Readiness for Seasonal Extreme Weather Conditions

a. Inspection Scope

On April 8, 2015, the inspectors completed an inspection of the station's readiness for seasonal extreme weather conditions. The inspectors reviewed the licensee's severe weather procedures for thunderstorm and tornado operations and evaluated the licensee's implementation of these procedures. The inspectors verified that prior to the onset of severe weather, the licensee had corrected weather-related equipment deficiencies identified during the previous severe weather season.

The inspectors selected three risk-significant systems that were required to be protected from hot weather:

- Essential service water
- Offsite power distribution
- Class 1 electrical distribution

The inspectors reviewed the licensee's procedures and design information to ensure the systems would remain functional when challenged by adverse 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.

.2 Readiness for Impending Adverse Weather Conditions

a. Inspection Scope

On April 8, 2015, the inspectors completed an inspection of the station's readiness for impending adverse weather conditions. The inspectors reviewed plant design features, the licensee's procedures to respond to thunderstorms and high winds, and the licensee's implementation of these procedures. The inspectors evaluated operator staffing and accessibility of controls and indications for those systems required to control the plant.

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

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)

.1 Partial Walkdown

a. Inspection Scope

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

- April 30, 2015, component cooling water train A with train B out of service for maintenance
- May 27, 2015, station blackout diesel temporary power while normal power was not available
- May 27, 2015, ultimate heat sink train A following an extended system outage for modifications
- June 16, 2015, safety injection train A with train B out of service for maintenance

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 systems or trains were correctly aligned for the existing plant configuration.

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

b. Findings

No findings were identified.

.2 Complete Walkdown

a. Inspection Scope

On May 27, 2015, the inspectors performed a complete system walk-down inspection of the essential service water system. The inspectors reviewed the licensee's procedures and system design information to determine the correct system lineup for the existing plant configuration. The inspectors also reviewed outstanding 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 samples, as defined in Inspection Procedure 71111.04.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

.1 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 six plant areas important to safety:

- April 15, 2015, fire area ESW-2, essential service water pump house B
- May 1, 2015, fire area A-15, turbine driven auxiliary feedwater pump room
- May 1, 2015, fire area A-33, auxiliary feedwater pipechase room
- May 14, 2015, fire area A-13, auxiliary feedwater pump room B
- May 19, 2015, fire area A-28, auxiliary shutdown panel room
- May 19, 2015, fire area C-13, Class IE air conditioning equipment, room 1

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

b. Findings

No findings were identified.

.2 Annual Inspection

a. Inspection Scope

On June 15, 2015, the inspectors completed their annual evaluation of the licensee's fire brigade performance. This evaluation included observation of an unannounced fire drill for a fire in an auxiliary building ventilation unit on June 12, 2015.

During this drill, the inspectors evaluated the capability of the fire brigade members, the leadership ability of the brigade leader, the brigade's use of turnout gear and fire-fighting equipment, and the effectiveness of the fire brigade's team operation. The inspectors also reviewed whether the licensee's fire brigade met NRC requirements for training, dedicated size and membership, and equipment.

These activities constituted one annual inspection sample, as defined in Inspection Procedure 71111.05.

b. Findings

No findings were identified.

1R07 Heat Sink Performance (71111.07)

a. Inspection Scope

On April 28, 2015, the inspectors completed an inspection of the readiness and availability of risk-significant essential service water heat exchangers. The inspectors observed the licensee's inspection of the heat exchanger and the material condition of the heat exchanger internals. Additionally, the inspectors walked down the heat exchanger to observe its performance and material condition and verified that the heat exchanger was correctly categorized under the Maintenance Rule and was receiving the required maintenance.

These activities constitute completion of one heat sink performance annual review sample, as defined in Inspection Procedure 71111.07

b. Findings

No findings were identified.

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

.1 Review of Licensed Operator Requalification

a. Inspection Scope

On June 8, 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. The inspectors also assessed and the modeling and performance of the simulator during the scenario.

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 May 4, 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 reactor startup and power ascension. The inspectors observed the operators' performance of the following activities:

- Placing main feedwater regulating valves in service, including the pre-job brief
- Isolating main feedwater regulating valve bypass valves
- Manual steam generator level control
- Annunciator response
- Turbine load changes

In addition, the inspectors assessed the operators' adherence to plant procedures, including conduct of operations procedure 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.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors reviewed three instances of degraded performance or condition of safety-related SSCs:

- April 28, 2015, containment coolers
- May 26, 2015, essential service water
- May 26, 2015, radiation monitors

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 three 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:

- April 15, 2015, maintenance risk associated with essential service water
- May 21, 2015, maintenance risk associated with component cooling water pump vibration
- June 10, 2015, maintenance risk associated with pressurizer relief header drain valve BBV0090

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

The inspectors also observed portions of one emergent work activity that had the potential to affect the functional capability of mitigating systems, or to impact barrier integrity:

- May 29, 2015, emergent work related to letdown relief to pressurizer relief valve BG8117

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 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 five operability determinations and functionality assessments that the licensee performed for degraded or nonconforming SSCs:

- April 10, 2015, functionality assessment associated with NK02/04 and NN12/14
- May 6, 2015, operability determination associated with auxiliary feedwater pump suction line check valves AL-V001, AL-V002, and AL-V003
- May 16, 2015, operability determination associated with train A Class IE air conditioning unit SGK05A
- May 21, 2015, functionality assessment associated with wide range reactor coolant system level indication
- May 27, 2015, operability determination associated with train A and B motor driven auxiliary feedwater pump piping

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

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 five 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.

1R18 Plant Modifications (71111.18)

.1 Permanent Modifications

a. Inspection Scope

The inspectors reviewed two permanent plant modifications that affected risk-significant SSCs:

- March 31, 2015, component cooling water to radwaste restricting orifice
- April 30, 2015, essential service water to address water hammer issues

The inspectors reviewed the design and implementation of the modifications. The inspectors verified that work activities involved in implementing the modifications did not adversely impact operator actions that may be required in response to an emergency or other unplanned event. The inspectors verified that post-modification testing was adequate to establish the operability of the SSCs as modified.

These activities constitute completion of two samples of permanent modifications, as defined in Inspection Procedure 71111.18.

b. Findings

No findings were identified.

.2 Focused Baseline Inspection for a Major Essential Service Water Modification

a. Inspection Scope

From December 16, 2014 through April 24, 2015, the team performed in-office and on-site reviews of a permanent modification to both A and B trains of the essential service water system. The modification was intended to mitigate a long-standing water hammer condition by installing a "loop seal." The modification involved the installation of approximately 100 feet of additional service water piping, most of which was enclosed in a building addition attached to the existing safety related auxiliary building. Additional information associated with the review of this modification is documented in Inspection Report 05000482/2015007.

The full scope of the focused baseline inspection activities are described in a memorandum to the Regional Administrator, NRC Region IV, dated January 8, 2015 (ADAMS Accession No. ML15015A171).

These activities constitute completion of one sample of permanent modifications, as defined in Inspection Procedure 71111.18.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

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

- April 9, 2015, emergency diesel generator train B governor
- April 13, 2015, component cooling water valves
- April 30, 2015, essential service water pump A
- April 30, 2015, emergency diesel generator train A governor

- June 16, 2015, safety injection pump B
- June 17, 2015, containment spray B additive supply valve

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 six post-maintenance testing inspection samples, as defined in Inspection Procedure 71111.19.

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope

During the station's refueling outage that concluded on May 3, 2015, the inspectors evaluated the licensee's outage activities. The inspectors verified that the licensee considered risk in developing and implementing the outage plan, appropriately managed personnel fatigue, and developed mitigation strategies for losses of key safety functions. This verification included the following:

- Review of the licensee's outage plan prior to the outage
- Review and verification of the licensee's fatigue management activities
- Monitoring of shut-down and cool-down activities
- Verification that the licensee maintained defense-in-depth during outage activities
- Observation and review of reduced-inventory and mid-loop activities
- Observation and review of fuel handling activities
- Monitoring of heat-up and startup activities

These activities constitute completion of one refueling outage sample as defined in Inspection Procedure 71111.20.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

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

In-service tests:

- May 14, 2015, motor driven auxiliary feedwater pump B

Other surveillance tests:

- April 10, 2015, residual heat removal full flow testing
- April 20, 2015, station blackout diesel generator B
- April 30, 2015, emergency safety feature actuation system trains A and B
- May 5, 2015, core axial flux mapping
- May 20, 2015, essential service water pump A

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 six surveillance testing inspection samples, as defined in Inspection Procedure 71111.22.

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

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

a. Inspection Scope

The inspector performed an in-office review of Wolf Creek Procedure AP 06-002, "Radiological Emergency Response Plan (RERP)," Revision 17. This revision documents a reference to a commitment made in Condition Report 00086036 to specific training requirements described in the licensee's emergency implementing procedures for on-shift staffing.

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

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

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06)

.1 Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors observed an emergency preparedness drill on May 12, 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, technical support center, and emergency operations facility, 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.

2. RADIATION SAFETY

Cornerstones: Public Radiation Safety and Occupational Radiation Safety

2RS2 Occupational ALARA Planning and Controls (71124.02)

a. Inspection Scope

The inspectors assessed licensee performance with respect to maintaining occupational individual and collective radiation exposures as low as is reasonably achievable (ALARA). During the inspection, the inspectors interviewed licensee personnel and reviewed licensee performance in the following areas:

- Site-specific ALARA procedures and collective exposure history, including the current 3-year rolling average, site-specific trends in collective exposures, and source-term measurements

- ALARA work activity evaluations/post-job reviews, exposure estimates, and exposure mitigation requirements

- The methodology for estimating work activity exposures, the intended dose outcome, the accuracy of dose rate and man-hour estimates, and intended versus actual work activity doses and the reasons for any inconsistencies

- Records detailing the historical trends and current status of tracked plant source terms and contingency plans for expected changes in the source term due to changes in plant fuel performance issues or changes in plant primary chemistry

- Radiation worker and radiation protection technician performance during work activities in radiation areas, airborne radioactivity areas, or high radiation areas

- Audits, self-assessments, and corrective action documents related to ALARA planning and controls since the last inspection

These activities constitute completion of one sample of occupational ALARA planning and controls as defined in Inspection Procedure 71124.02.

b. Findings

No findings were identified.

2RS4 Occupational Dose Assessment (71124.04)

a. Inspection Scope

The inspectors evaluated the accuracy and operability of the licensee's personnel monitoring equipment, verified the accuracy and effectiveness of the licensee's methods for determining total effective dose equivalent, and verified that the licensee was appropriately monitoring occupational dose. The inspectors interviewed licensee personnel, walked down various portions of the plant, and reviewed licensee performance in the following areas:

- External dosimetry accreditation, storage, issue, use, and processing of active and passive dosimeters

- The technical competency and adequacy of the licensee's internal dosimetry program

- Adequacy of the dosimetry program for special dosimetry situations such as declared pregnant workers, multiple dosimetry placement, and neutron dose assessment

- Audits, self-assessments, and corrective action documents related to dose assessment since the last inspection

These activities constitute completion of one sample of occupational dose assessment as defined in Inspection Procedure 71124.04.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

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

4OA1 Performance Indicator Verification (71151)

.1 Reactor Coolant System Specific Activity (BI01)

a. Inspection Scope

The inspectors reviewed the licensee's reactor coolant system chemistry sample analyses for the period of April 1, 2014 through March 31, 2015, to verify the accuracy and completeness of the reported data. The inspectors observed a chemistry technician obtain and analyze a reactor coolant system sample on April 23, 2015. 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 reactor coolant system specific activity performance indicator, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.2 Reactor Coolant System Identified Leakage (BI02)

a. Inspection Scope

The inspectors reviewed the licensee's records of reactor coolant system identified leakage for the period of April 1, 2014 through March 31, 2015, to verify the accuracy and completeness of the reported data. The inspectors observed the performance of STS BB-006 "RCS Water Inventory Balance" on May 18, 2015. 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 reactor coolant system leakage performance indicator, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

4OA2 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, system health reports, operability evaluations, 50.59 documentation, 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 observed a trend with respect to the licensee's procedural adherence. Though they did not rise to the level of findings, the inspectors noted multiple instances where engineering and operations personnel failed to follow site procedures. Examples include the licensee failing to perform a 50.59 review prior to implementing compensatory measures as required by the site operability determination procedure and the failure to identify required training for operations personnel related to the implementation of a plant modification as required by the site plant modification procedures.

The inspectors noted that this observation tended to occur when Operations personnel needed to rely on other organizational groups, such as Engineering or Training. The inspectors observed that ownership of activities within the Operations department appeared to decrease when Operations personnel were faced with procedural requirements that relied on other groups for completion.

The inspectors communicated this trend to the licensee.

c. Findings

No findings were identified.

.3 Annual Follow-up of Selected Issues

a. Inspection Scope

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

- On May 28, 2015, control building water intrusion

  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 immediate and planned corrective actions and that these actions were adequate to address the condition.

  The inspectors noted that the licensee has repeatedly needed to address rain water intrusion into the control building, in which water drains along electrical conduit pathways to flood internal areas such as the Hot Chemistry Laboratory. Although the licensee took action to address the room flooding, the inspectors had to challenge the licensee to verify that the flooded conduits themselves contained no safety-related electrical cabling that would be adversely affected by water intrusion.

- On June 11, 2015, reactor coolant system identified leakage

  The inspectors noted that after startup of the unit on May 4, 2015, the licensee has experienced higher than usual reactor coolant system leakage. To address this, the licensee has performed extensive on-line valve repairs, including to a safety injection test line as well as a pressurizer relief header drain valve and to a letdown relief to pressurizer relief valve documented in section 1R13 of this report.

  The inspectors reviewed the work activities during the previous outage, which included work on several of the valves requiring repair. However, the inspectors were not able to identify an underlying cause for the elevated leakage.

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

b. Findings

No findings were identified.

The inspectors assessed the licensee's problem identification threshold, cause analyses, extent of condition reviews, planned and emergent maintenance, testing, and compensatory actions for each of these issues. The inspectors verified that the licensee appropriately prioritized the planned corrective actions and that these actions were adequate to address the conditions.

4OA3 Follow-Up of Events and Notices of Enforcement Discretion

.1 Plant Events

a. Inspection Scope

For the plant events listed below, the inspectors reviewed and/or observed plant parameters, reviewed personnel performance, and evaluated performance of mitigating systems. The inspectors communicated the plant event to appropriate regional personnel, and compared the event details with criteria contained in IMC 0309, "Reactive Inspection Decision Basis for Reactors," issued October 28, 2011, for consideration of potential reactive inspection activities. As applicable, the inspectors verified that Wolf Creek staff made appropriate emergency classification assessments and properly reported the event in accordance with 10 CFR Parts 50.72 and 50.73. The inspectors reviewed Wolf Creek's follow-up actions related to the events to assure that Wolf Creek implemented appropriate corrective actions commensurate with their safety significance.

- Manual Reactor Trip, Turbine Trip, and Forced Outage on May 3, 2015 due to high steam generator water level during plant startup. (Event Notification (EN) 51036)

- Two Trips of Class 1E Air Conditioning Unit SGK05A, resulting in commencement Technical Specification Required shutdowns on May 15, 2015 (EN 51071 and EN 51074)

b. Findings

No findings were identified.

The licensee's performance during the May 3, 2015 plant trip and forced outage is still under review, with results to be documented in a later report.

4OA5 Other Activities

a. Inspection Scope

As documented in NRC Inspection Report 05000482/2014003, the inspectors observed a functional testing of the station blackout diesels on April 25 to April 28, 2015. Upon further review of the testing results, the inspectors identified a non-cited violation documented below.

b. Findings

Class 1E 4kV Feeder Breakers from Station Blackout Diesel Generators Current Transformer Wiring not Installed per Design Drawings

Introduction. The inspectors identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, for not installing the current transformer wiring in the of the Class 1E 4kV alternate feeder breaker cubicles from the station blackout diesel generators per the design drawings. As a result, testing performed seven months after

the system was declared operational identified that the connections were unable to power the safety-related buses due to incorrect wiring of the current transformers.

Description. In mid-2012, the licensee decided to add station blackout (SBO) diesel generators in order to gain margin for the Mitigating Systems Performance Index (MSPI). The SBO diesel generators were originally expected to be completed during the spring 2013 Refueling Outage, however construction fell behind schedule. In April 2013, the licensee opted to finish the SBO diesel generator installation online. The licensee acknowledged that it could not energize a safety related bus from the SBO diesel generators at power without rendering the bus inoperable, and that testing to fully demonstrate capability could not be performed until the spring 2014 mid-cycle outage.

In August 2013, the licensee announced their plans to revise the station Probabilistic Risk Assessment (PRA) and, by extension, the MSPI to include credit for the SBO diesel generator system effective October 1, 2013. The inspectors expressed concerns that it was not appropriate to take the credit for the equipment without performing all testing necessary to verify the equipment's capability to perform its required function.

The licensee documented the testing of each of the components under Work Order 12-354257-205. The disposition credited the load bank testing of the engines, the successful racking of the breakers, and the continuity checks of the associated cables as sufficient to have high confidence that the equipment would perform its required function. The licensee declared the system operational on September 26, 2013 and the revised MSPI PRA inputs were submitted to the NRC to be effective for the 4th quarter performance indicator data.

On April 25, 2014, the licensee attempted testing on the NB01 train A Class 1E 4kV bus to show the safety related bus could be powered by the SBO diesel generators. While attempting to load the bus from the SBO diesel generators, feeder breaker PB0508 opened unexpectedly, which de-energized NB01. Troubleshooting identified the cause of PB0508 opening was due to incorrect wiring of a current transformer inside the NB0114 breaker cubicle. An extent of condition also identified the same wiring performed incorrectly inside NB0214 breaker cubicle on the NB02 train B Class 1E 4kV bus. Neither safety related 4kV bus could have been powered from the SBO diesel generators for the time the system was credited as being functional, from September 26, 2013, to April 25, 2014. The wiring was corrected and the test was performed satisfactorily prior to restarting the reactor.

The licensee wrote Condition Report 83370 and performed an apparent cause evaluation. The licensee found that Design Change Package 14117 removed the existing current transformers (CT) and wiring in the NB0114 and NB0214 cabinets, because the existing CTs did not have the correct turns ratio required by the new design. When installing new CTs, the licensee found that they would not fit as designed. The licensee stopped work on the new CT installation but continued work on the wiring installation. The licensee decided to re-orient the CTs so that they would fit into the NB0114 and NB0214 cabinets. Wiring drawing WIP E-009-00132-W08-A-1 was revised, but the terminations that were already completed on terminal block "N" inside the cabinet were not changed to match the drawing.

When the modification completed the current transformers were installed per revision 2 of the drawing, and the wiring was installed per revision 1. This went unnoticed because

the work was performed under separate sub-work orders. After the work was completed, the instrument meter relay team tested the cabling from terminal block N to the SBO diesel generators, but they did not test the cabling from terminal block N to the current transformers because it was not specified in the work order. If it had been, this wiring error could have been detected even without a full functional system test.

Analysis. The inspectors concluded that the failure to ensure that the Class 1E feeder breakers from the SBO diesel generators to the Class 1E 4kv buses NB01 and NB02 were installed in accordance with the final design was a performance deficiency. The inspectors determined that the performance deficiency was reasonably within the licensee's ability to foresee and correct. The performance deficiency was more than minor, and therefore a finding, because it affected the design control attribute of the Mitigating Systems Cornerstone to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, due to the incorrect wiring of the current transformers, the SBO diesel generators were unable to power safety related buses as they were designed.

Using Manual Chapter 0609, Attachment 4, "Initial Characterization of Findings," the team determined that the finding could be evaluated using the significance determination process. In accordance with Table 3, "SDP Appendix Router," the team determined that the subject finding should be processed through Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012. The finding required a detailed evaluation because it had the potential to degrade at least one train of a system that supports a risk significant system or function. Therefore, a senior reactor analyst performed a bounding detailed risk evaluation.

A Region IV senior reactor analyst performed a detailed risk evaluation in accordance with Appendix A, Section 6.0, "Detailed Risk Evaluation." The senior reactor analyst made the following assumptions and adjustments to the Wolf Creek SPAR Model Version 8.26

- Sharpe Station should be credited for Plant-Centered, Switchyard-Centered and Grid-Related loss of offsite power events consistent with Technical Specification Amendment 163. The SPAR Model was updated to reflect this.

- Sharpe Station should not be credited for any condition where core-damage is estimated to occur in 2 hours or less.

- Sharpe Station should not be credited for Weather-Related or externally-induced loss of offsite power events.

- The condition of the SBO diesel generator breakers NB-0114 and NB-0214 was such that it could not be repaired prior to core damage.

- The appropriate exposure period for the performance deficiency is from September 28, 2013 when the licensee first took credit for the SBO diesel generators in the respective performance indicators until March 8, 2014 when the plant was placed in Mode 4 and the SBO diesel generators were no longer relied on (161 days).

- All seismically-induced loss of offsite power events would be nonrecoverable over a 24 hour period.

- All category EF-2 or stronger tornados would result in a nonrecoverable loss of offsite power event.

- Given the design and layout of the Wolf Creek Station, there are no fire areas where a single fire scenario can result in a loss of offsite power.

The results of this conservative bounding analysis were as follows:

- The internal events risk related to the failure of Breakers NB-0114 and NB-0214 was quantified as 6.95 x 10-7 over the exposure period, using the ECA module of the modified SPAR model.

- Using the methods described in the RASP manual, and as documented in the attached spreadsheet, the change in core damage frequency caused by the finding related to a seismic initiator was 1.41 x 10-8.

- Using the tornado frequency for Wolf Creek published in the Risk Assessment Standardization Project Tool Box, the calculated bounding change in core damage frequency related to high winds was 2.77 x 10-7.

- The total change in core damage frequency caused by the subject performance deficiency was the sum of the internal and external risk (9.86 x 10-7).

The detailed risk evaluation result is a finding of very low safety significance (Green). The calculated change in core damage frequency of 9.86 x 10-7 was dominated by an unrecovered station blackout beyond battery depletion and by an unrecoverable seismically-induced loss of offsite power. The analyst determined that the finding did not involve a significant increase in the risk of a large, early release of radiation.

The inspectors determined that the finding had a teamwork cross-cutting aspect in the area of human performance. The licensee individuals and work groups did not communicate and coordinate their activities within and across organizational boundaries. Specifically a drawing revision was not properly attached to the work order which resulted in the incorrect wiring of both trains, and because different groups were completing different components, parts of the wiring were incorrectly installed per a superseded revision [H.4].

Enforcement. Title 10 of the *Code of Federal Regulations*, Part 50, Appendix B, Criterion III, requires, in part, that "design control measures shall provide for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program."

Contrary to the above, on September 26, 2013, the licensee did not use design control measures to provide for verifying or checking the adequacy of design, such as by the performance of design reviews, by the use of alternate or simplified calculational methods, or by the performance of a suitable testing program. Specifically, the licensee completed modifications to Class 1E 4kV alternate A/C generator feeder breaker

cabinets without performing adequate post-modification testing to demonstrate the capability of feeder breaker to support the associated 4kV buses. When a test was performed on April 25, 2014, the cabinets were found to be unable to perform their safety related function due to incorrect wiring.

Because the violation was of very low safety significance (Green) and was entered into the licensee's corrective action program as Condition Report 83379, it is being treated as a non-cited violation in accordance with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000482/2015002-01, "Class 1E 4kV Feeder Breakers from Station Blackout Diesel Generators Current Transformer Wiring not Installed per Design Drawings."

4OA6 Meetings, Including Exit

Exit Meeting Summary

On June 16, 2015, the inspector conducted a telephonic exit meeting to present the results of the in-office inspection of changes to the licensee's emergency plan and emergency action levels to Mr. T. East, Supervisor, Emergency Planning, and other members of the licensee staff. The licensee acknowledged the issues presented.

On June 25, 2015, the inspectors presented the radiation safety inspection results 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 July 8, 2015, the inspectors presented the inspection results 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.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

L. Aiken, Health Physicist III
R. Audano, Superintendent, Maintenance Support
T. Baban, Manager, Systems Engineering
T. Berland, Lead Project Engineer
M. Boyce, Manager, Strategic Projects
D. Chandler, Health Physicist II
R. Clemens, Director, Project Engineering
J. Cuffe, Supervisor, Radiation Protection
G. Curten, Supervisor, Mechanical/Civil Design Engineering
T. East, Supervisor, Emergency Planning
L. Fure, Master HP Technician
N. Good, Licensing Engineer
R. Hobby, Licensing Engineer
J. Knust, Licensing Engineer
T. Patten, Master Health Physics Technician, Radiation Protection
D. Mand, Manager, Design Engineering
W. Muilenburg, Supervisor, Licensing
C. Reasoner, Site Vice President
L. Rockers, Licensing Engineer, Regulatory Affairs
J. Schepers, Supervisor, Radiation Protection
M. Skiles, Manager, Radiation Protection
T. Slenker, Operations Tech Coordinator
L. Stevens, Licensing Engineer
M. Van Erdewyk, Systems Engineering

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000482/2015002-01	NCV	Class 1E 4kV Feeder Breakers from Station Blackout Diesel Generators Current Transformer Wiring not Installed per Design Drawings (Section 4OA5)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures

Number	Title	Revision
AI 14-006	Severe Weather	16

Procedures

Number	Title	Revision
GP-010	Hot Weather Operations	5

Section 1R04: Equipment Alignment

Procedures

Number	Title	Revision
ALR 00-127B	ESW Valve to AFW Opening	8
EF-M-014	UHS Thermal Analysis – Review for Power Rerate	1
EF-M-046	UHS Analysis with Initial Lake Temperature Up to 94 Degrees F	0
EF-M-046	UHS Analysis with Initial Lake Temperature Up to 94 Degrees F	0
EF-M-076	Hydraulic Analysis for Essential Service Water System Following a Loss of Offsite Power	2
M-10EF	Essential Service Water System	9
M-10EG	Wolf Creek System Description Component Cooling Water	5
M-12AL01	Auxiliary Feedwater System	27
M-12EC01	Fuel Pool Cooling and Clean-Up System	21
M-12EF01	Essential Service Water System	29
M-12EF02	Essential Service Water System	40
M-12EG01	Component Cooling Water System	24
M-12EG01	Piping and Instrumentation Diagram Component Cooling Water System	24
M-12EG03	Piping and Instrumentation Diagram Component Cooling Water System	17
M-EF01	PI&D Essential Service Water	29
OFN EG-004	CCW System Malfunction	18
OFN SG-003	Natural Events	28
STN PE-040	ESW Crosstie Valve Leak Test	10
SYS EF-210	Operation of ESW Vertical Loop Vacuum Breakers Isolations	0
SYS EG-203	Chemical Addition to Component Cooling Water System	22

Condition Reports

28474 95411

Section 1R05: Fire Protection

Procedures

Number	Title	Revision
AP 10-106	Fire Preplans	15

Section 1R07: Heat Sink Performance

Procedures

Number	Title	Revision
STN EF-022A	ESW Train A Post-LOCA Flow Balance	7
STN EF-022B	ESW Train B Post LOCA Flow Balance	

Work Orders

14-390646 14-390647 14-388659

Design Change Packages

14744 14743 14746 13424

Section 1R11: Licensed Operator Requalification Program and Licensed Operator Performance

Procedures

Number	Title	Revision
AP 21-001	Conduct of Operations	72
GEN 00-003	Hot Standby to Minimum Load	96B

Section 1R12: Maintenance Effectiveness

Procedures

Number	Title	Revision
EF-M-014	UHS Thermal Analysis-Review for Power Rerate	
STN PE-040	ESW Crosstie Valve Leak Test	10
STN PE-056	ESW Emergency Make-up Piping Flow Test	10
STS EF-100A	ESW System Inservice Pump A & ESW A Check Valve Test	43

Procedures

Number	Title	Revision
STS EF-210A	ESW System Inservice Check Valve Test	11
STS EF-210B	ESW System Inservice Check Valve Test	12
STS PE-049C	A Train Underground Essential Service Water System Piping Leakage Test	10A
STS PE-053C	Essential Service Water to Auxiliary Feedwater Pressure Test	9
STS PE-053F	Essential Service Water to MDAFP A Pressure Test	0A
STS PE-053H	Essential Service Water to TDAFP Pressure Test	0A
STN SP-122	Channel Calibration Containment Purge System Radiation Monitor GT RE-0033	13C

Condition Reports

28474 96370 95700

Work Orders

15-112350

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

Number	Title	Revision
	Online Nuclear Safety and Generation Risk Assessment Schedule Week 15	
AP 22C-003	On-Line Nuclear Safety and Generation Risk Assessment	21
AP 22C-008	On-Line Qualitative Risk Management	3
GEN 00-004	Power Operation	85
MCP 014928	Furmanite Leak sealant on BBV0090	0
MPM LR-001	Leak Sealant Injection	9
N-2015092	Valve Kill Procedure Drill Component For Injection	A

Condition Reports

96660	96661	96663	96669	96673
96674				

Work Orders

15-401588-000

Section 1R15: Operability Determinations and Functionality Assessments

Procedures

Number	Title	Revision
AP 26C-004	Operability Determination and Functionality Assessment	31
M-622.1A-00089	Instruction Manual for SGK04A, SGK04B, SGK05A, and SGK05B Air Conditioning Condensers	W11
GK-M-014	Cooling and Heating Load for Control Building Class 1E Electrical Equipment Areas Turing Accident conditions Train A	0
GEN 00-008	RCS Level Less Than Reactor Vessel Flange Operations	27
AP 28-001	Operability Evaluations	24
AL-15-008	Operability Evaluation ‘B’ Train Motor Driven Auxiliary Feedwater Pump PAL01B Suction and Discharge Piping	0
CKL BB-110	Reactor Coolant System Lineup	37
GEN 00-008	RCS Level Less Than Reactor Vessel Flange Operations	26
STN PE-040	ESW Crosstie Valve Leak Test	10

Condition Reports

96392	96397	70482	95053	95133
94976				

Work Orders

13-363015

Section 1R18: Plant Modifications

Procedures

Number	Title	Revision
A15125-LR-002	Analysis of ESW Test Data from 4/21/2015 and 4/26/2015 under a Simulated LOOP	1
AP 05-001	Change Package Planning and Implementation	9
AP 05-002	Dispositions and Change Packages	30
AP 05-005	Design, Implementation and Configuration Control of Modifications	21
AP 05-007	Determination of Safety Classification	13
DCP 013540	Install New CCW/RW Flow Restriction Device	12
DCP 13424	ESW Water Hammer Mitigation – Hydraulic Analysis	1
EG-M-046	Hydraulic Analysis of the Component Cooling Water System for Break Flow Determination and Orifice Sizing	3
SYS EF-210	Operation of ESW Vertical Loop Vacuum Breakers Isolations	0

Drawings

Number	Title	Revision
ESWS-BG-01	ESW Pipe Water Hammer Mitigation Tower Below Grade Structural Plan, Sections, and Details	6
ESWVLC-C-001	ESW Pipe Water Hammer Mitigation Tower Base Plate Drawing and Details	W01
ESWVLC-S-001	ESW Pipe Water Hammer Mitigation Tower	W01
ESWVLC-S-002	ESW Pipe Water Hammer Mitigation Tower Elevations Sections and Details	W01
ESWVLC-S-003	ESW Pipe Water Hammer Mitigation Tower Typical Details	W04
ESWVLC-S-004	ESW Pipe Water Hammer Mitigation Tower Platform Framing Details	W04
ESWVLC-S-005	ESW Pipe Water Hammer Mitigation Tower Lower Module Plan and Sections Views	W01
ESWVLC-S-006	ESW Pipe Water Hammer Mitigation Tower Lower Module Section and Details	W01
ESWVLC-S-007	ESW Pipe Water Hammer Mitigation Tower Middle Module – East Stair Plan and Section Views	W01

Procedures

Number	Title	Revision
ESWVLC-S-010	ESW Pipe Water Hammer Mitigation Tower Below Grade Structure Plan, Sections, and Details	W01
ESWVLC-S-011	ESW Pipe Water Hammer Mitigation Tower Below Grade Structure Section and Details	W01
ESWVLC-S-012	ESW Pipe Water Hammer Mitigation Tower Below Grade Structure Duct Bank Details	6
WIP-10466-A-1361-002-A-1	CMU Wall Penetrations Control Building and Communication Corridor	00
WIP-8025-C-KG1202-048-A-1	Site Plan	00
WIP-E-11PG20-164-A-1	Low Voltage System Non-Class 1E Motor Control Center Summary	00
WIP-E-13GF15-000-A-1	Schematic Diagram ESW Vertical Loop Chase GF Circuits	00
WIP-E-13KC11-002-A-1	Schematic Diagram System alarm Bells and Horns	00
WIP-E-13KC18-006-A-1	Schematic Diagram Detector and Pull Station Inputs to Multiplexers	00
WIP-E-13PG17-000-A-1	Schematic Diagram ESW Vertical Loop Chase PG Circuits	00
WIP-E-13QA03-000-A-1	Schematic Diagram ESW Vertical Loop Chase QA Circuits	00
WIP-E-1F8001-000-A-1	Fire Detection/Protection System ESW Vertical Loop Chase	00
WIP-E-1G8900-002-A-1	ESW Vertical loop Chase Foundation Grounding Detail	00
WIP-E-1R3112-010-B-1	Exposed Conduit, Control building Area-1 EL.1974’-0”	00
WIP-E-1R8901-030-C-1	Terminal Boxes	00
WIP-M-1X8001-000-A-1	ESW Vertical Loop Chase Penetration Closure Plan and Section Details	00
WIP-M-1X8001-000-C-1	ESW Vertical Loop Chase Penetration Closure Plan and Section Details	00

Condition Reports

28474	90818	90370	90369	90701
90702	90680	89899	90138	90751
90848	28237	95411S	90583	92064
93039	93151	93696	94031	94342
95146	95177	95190	95208	91009
95262	95290	95294	95330	95423
95482	95483	95484	90702	89801
95497	95515	95541	95543	95547
95566	95658	95705	95870	93636
91066	91125	94306	91109	94126
93205	91729	91264	90369	90370
90537	90560	91074	91009	91022
91035	90846	90847	90848	90751
90849	90583	90701		

Calculations

Number	Title	Revision
FL-05	Control Building Flooding	2
EF-M-076	Hydraulic Analysis for Essential Service Water (ESW) System following a Loss of Offsite Power (LOOP)	02
P-011AB	ESW Return Line, Train “A” in Aux Building	6
P-009A	Piping Reanalysis for Essential Service Water System, Train “B” Return Line	9
020544.14.01-C-002	Evaluation of Concrete Foundation and Substructure Walls	03
020544.14.01-C-001	Validation for the Use of the Refined “As-Built” FRS Curves of the ESW Water Hammer Mitigation Pipe Chase	1
020544.14.01-C-003	Tornado Missile Impact Analysis of ESW Piping System Steel Tower Enclosure	1
020544.14.01-C-005	Structural Analysis of ESW Piping System Steel Tower Enclosure	4

Calculations

Number	Title	Revision
020544.14.01-C-006	Evaluation of Control Building CF Wall for Pipe Penetrations and Steel Tower Enclosure	2

Design Change Packages

Number	Title	Revision
13424	Incorporation of ESW Water Hammer Concurrent Modification 13-373168-24, 13-373167-031, 13-373168-026, 13-373167-016, and 13-373168-016	00
14743	ESW Water Hammer Mitigation – Vertical Loop Chase	0

Miscellaneous

Number	Title	Revision/Date
13424	50.59 Screen - Incorporation of ESW Water Hammer Concurrent Modification 13-373168-24	00
14744	50.59 Screen - ESW Water Hammer Mitigation – Vertical Loop Chase Structural Enclosure	3
2014-003	50.59 Evaluation - ESW Water Hammer Mitigation – Hydraulic Analysis	0
SCA-14-0071	Safety Classification Analysis – ESW Vertical Loop Chase	0
STD-EA-141	Grounding Specification, Using Conductors to Building Steel for Equipment Grounds	April 5, 1974

Section 1R19: Post-Maintenance Testing

Procedures

Number	Title	Revision
STN EN-205	Containment Spray System Valve Test	3
STN KAT-001	Technical Support Diesel Generator Operation	30A
STS EM-100B	Safety Injection Pump B Inservice Pump Test	31
STS KJ-005B	Manual/Auto Start, Sync & Loading of EDG NE02	60
STS KJ-011B	DG NE02 24 Hour Run	35
STS PE-175	LLRT Valve Lineup for Penetration 75	15

Condition Reports

95135	95480	95563	95473	95466
95480				

Work Orders

14-389665	13-370028	13-372181	15-399166	15-396811
13-365806	12-361798	14-389687	14-390911	

Section 1R20: Refueling and Other Outage Activities

Procedures

Number	Title	Revision
AP 22B-001	Outage Risk Management	18
GEN 00-003	Hot Standby to Minimum Load	93
GEN 00-004	Power Operation	84

Section 1R22: Surveillance Testing

Procedures

Number	Title	Revision
AP 21G-001	Control of Locked Component Status	66B
STS AL-102	MDAFW Pump B Inservice Pump Test	43
STS EF-100A	ESW System Inservice Pump A & ESW A Check Valve Test	43
STS IC-447	Channel Calibration Nuclear Instrumentation System Power Range Incore-Excore	33
STS PE-049A	Essential Service Water System A Train Pressure Test	7
STS RE-013B	Multi-Point Incore-Excore Detector Axial Flux Difference Calibration	18

Work Orders

13-378565-000

Section 1EP4: Emergency Action Level and Emergency Plan Changes

No additional documents were reviewed.

Section 1EP6: Drill Evaluation

Procedures

Number	Title	Revision
AP 06-002	Radiological Emergency Response Plan (RERP)	17
APF 06-002-01	Emergency Action Levels	17
BD-OFN BB-07A	Steam Generator Tube Leakage	7
EMG E-0	Reactor Trip or Safety Injection	26A
EMG ES-03	SI Termination	15
EPP 06-001	Control Room Operations	22
EPP 06-002	Technical Support Center Operations	36
EPP 06-003	Emergency Operations Facility Operations	22
EPP 06-005	Emergency Classification	7
EPP 06-006	Protective Action Recommendations	9
EPP 06-011	Emergency Team Formation and Control	8B

Condition Reports

96288	96289	96292	63293

Section 2RS2: Occupational ALARA Planning and Controls

Procedures

Number	Title	Revision
AP 25A-401	ALARA Program	24
AP 25B-300	RWP Program	24
AP 05-009	ALARA Design Guidelines	2A
AP 25A-410	ALARA Committees	22

Condition Reports (CRs)

00081661	00081718	00082247	00085929	00088308
00089141	00090272	00092620	00093237	00093290
00093806	00093882	00095099	00095107	

Audits and Self-Assessments

Number	Title	Date
QH-2015-1062	Quick Hit Assessment: Pre-NRC Radiological Assessment	June 17, 2015

Radiation Work Permits

Number	Title	Revision
144095	Strategic Projects ESW / GN Piping Replacement MC20	0 - 3
144420	Scaffolding Erection/Removal Activities Pre-MC20 and MC20	0 - 4
155001	Reactor Decon Activities	0, 2, 3
154462	Air Operated Valve (AOV) and Dampers testing, repair, replacement, and maintenance activities	0 - 6

ALARA Review Packages, In-Progress Reviews, and Post-Job Reviews

RWP Number	Title	Date
144095	ALARA Review Package	August 30, 2013
144095	In-Progress Review (50%)	April 4, 2014
144095	In-Progress Review (80%)	April 24, 2014
144095	Post-Job ALARA Review	August 20, 2014
144420	ALARA Review Package	August 30, 2013
144420	In-Progress Review (25%)	March 17, 2014
144420	In-Progress Review (50%)	April 4, 2014
144420	Post-Job ALARA Review	August 20, 2014
155001	ALARA Review Package	March 22, 2015
155001	In-Progress Review (Other)	April 12, 2015
155001	Post-Job ALARA Review	As of May 5, 2015
154462	ALARA Review Package	January 15, 2015
154462	In-Progress Review (50%)	March 9, 2015
154462	In-Progress Review (80%)	March 18, 2015
154462	Post-Job ALARA Review	June 16, 2015

Miscellaneous Documents

Title	Date
ALARA Report – Mid Cycle 20 Outage	May 20, 2015
2013-2017 Five Year Exposure Reduction Plan	December 30, 2013
2015-2019 Five Year Exposure Reduction Plan (Draft)	February 1, 2015

Section 2RS4: Occupational Dose Assessment

Procedures

Number	Title	Revision
RPP 02-215	Posting of Radiological Controlled Areas	32
RPP 02-205	Radiological Survey Frequency Requirements	13A
RPP 03-121	Determination of Neutron Dose	8
RPP 03-122	Skin Dose Calculations	13
RPP 03-205	DAC-Hour Tracking	17
RPP 03-215	Collection of Bioassay Samples	8
RPP 03-406	HP Dosimetry – Records	10
RPP 03-407	Testing of Portal Monitors as Passive Whole Body Counters	1A
RPP 08-105	Underwater Dive Operations	10A
RPP 03-210	Internal Exposure Calculations and Evaluations	15
RPP 02-210	Radiation Survey Methods	45

Condition Reports (CRs)

00065925	00070146	00072179	00077116	00078179
00078179	00079504	00081481	00081808	00082196
00082615	00083047	00083414	00083855	00084698
00086087	00093961	00095062	00096076	

Audits and Self-Assessments

Number	Title	Date
14-01-RP/PC	Radiation Protection/Solid Radwaste Process Control Programs	April 22, 2014
SA-2013-0070	Evaluate Health Physics Alpha Program Controls	February 24, 2014

Miscellaneous Documents

Number	Title	Revision/Date
RPF 03-205-01	DAC-HOUR Calculations sheet	7
RPF 02-105-06	RWP Stay Time Calculation Sheet	3
RPF 02-105-06	RWP Stay Time Calculation Sheet	2
	Health Physics Desktop Instruction Remote Monitoring Instructions and Guidelines	2
	RWP Budget vs. Actuals	May 13, 2015
RPF 02-105-07	RWP Electronic Dosimetry Alarm Report	9
RPF 03-121-01	Neutron Dose Calculation Sheet	5

Section 4OA1: Performance Indicator Verification

Procedures

Number	Title	Revision
BB-06	RCS Water Inventory Balance	14

Section 4OA2: Problem Identification and Resolution

Procedures

Number	Title	Revision
M-12EP01	Accumulator Safety Injection	15

Condition Reports

96370 95945 95944

Section 4OA5: Other Activities

Procedures

Number	Title
WIP E-009-00132-W08-A-1	Wire Drawing

Condition Reports

83370

Work Orders

12-354257-205

Design Change Package

14117

The following items are requested for the
Occupational Radiation Safety Inspection
at Wolf Creek
June 22 – 26, 2015
Integrated Report 2015002

Inspection areas are listed in the attachments below.

Please provide the requested information on or before **June 1, 2015**.

Please submit this information using the same lettering system as below. For example, all contacts and phone numbers for Inspection Procedure 71124.02 should be in a file/folder titled "**2**- A," applicable organization charts in file/folder "**2**- B," etc.

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

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

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

If you have any questions or comments, please contact John O'Donnell at (817) 200-1441 or john.odonnell@nrc.gov.

PAPERWORK REDUCTION ACT STATEMENT

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

2. Occupational ALARA Planning and Controls (71124.02)
Date of Last Inspection: May 20, 2013

A. List of contacts and telephone numbers for ALARA program personnel

B. Applicable organization charts

C. Copies of audits, self-assessments, and LERs, written since date of last inspection, focusing on ALARA

D. Procedure index for ALARA Program

E. Please provide specific procedures related to the following areas noted below. Additional Specific Procedures may be requested by number after the inspectors reviews the procedure indexes.
1. ALARA Program
2. ALARA Committee
3. Radiation Work Permit Preparation

F. A summary list of corrective action documents (including corporate and sub-tiered systems) written since date of last inspection, related to the ALARA program. In addition to ALARA, the summary should also address Radiation Work Permit violations, Electronic Dosimeter Alarms, and RWP Dose Estimates

NOTE: The lists should indicate the significance level of each issue and the search criteria used. Please provide in document formats which are "searchable" so that the inspectors can perform word searches.

G. List of work activities greater than 1 rem, since date of last inspection
Include original dose estimate and actual dose.

H. Site dose totals and 3-year rolling averages for the past 3 years (based on dose of record)

I. Outline of source term reduction strategy

J. If available, provide a copy of the ALARA outage report for the *most recently* completed outages for each unit

K. Please provide your most recent Annual ALARA Report.

4. Occupational Dose Assessment (Inspection Procedure 71124.04)

Date of Last Inspection: May 20, 2013

A. List of contacts and telephone numbers for the following areas:
   1. Dose Assessment personnel

B. Applicable organization charts

C. Audits, self-assessments, vendor or NUPIC audits of contractor support, and LERs written since date of last inspection, related to:
   1. Occupational Dose Assessment

D. Procedure indexes for the following areas
   1. Occupational Dose Assessment

E. Please provide specific procedures related to the following areas noted below. Additional Specific Procedures will be requested by number after the inspectors reviews the procedure indexes.
   1. Radiation Protection Program
   2. Radiation Protection Conduct of Operations
   3. Personnel Dosimetry Program
   4. Radiological Posting and Warning Devices
   5. Air Sample Analysis
   6. Performance of High Exposure Work
   7. Declared Pregnant Worker
   8. Bioassay Program

F. List of corrective action documents (including corporate and sub-tiered systems) written since date of last inspection, associated with:
   1. National Voluntary Laboratory Accreditation Program (NVLAP)
   2. Dosimetry (TLD/OSL, etc.) problems
   3. Electronic alarming dosimeters
   4. Bioassays or internally deposited radionuclides or internal dose
   5. Neutron dose

   NOTE: The lists should indicate the significance level of each issue and the search criteria used. Please provide in document formats which are “searchable” so that the inspectors can perform word searches.

G. List of positive whole body counts since date of last inspection, names redacted if desired

H. Part 61 analyses/scaling factors

I. The most recent National Voluntary Laboratory Accreditation Program (NVLAP) accreditation report or, if dosimetry is provided by a vendor, the vendor’s most recent results