



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

August 9, 2016

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

**SUBJECT: WOLF CREEK GENERATING STATION – NRC PROBLEM IDENTIFICATION
AND RESOLUTION INSPECTION REPORT 05000482/2016009**

Dear Mr. Heflin

On June 30, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed a problem identification and resolution biennial inspection at your Wolf Creek Generating Station and discussed the results of this inspection with Mr. C. Reasoner, Site Vice President, and other members of your staff. The inspection team documented the results of this inspection in the enclosed inspection report.

Based on the inspection sample, the inspection team determined that Wolf Creek Generating Station's corrective action program, and your staff's implementation of the corrective action program, were adequate to support nuclear safety.

In reviewing your corrective action program, the team assessed how well your staff identified problems at a low threshold, your staff's implementation of the station's process for prioritizing and evaluating these problems, and the effectiveness of corrective actions taken by the station to resolve these problems. The team also evaluated other processes your staff used to identify issues for resolution. These included your use of audits and self-assessments to identify latent problems and your incorporation of lessons learned from industry operating experience into station programs, processes, and procedures. The team determined that your station's performance in each of these areas supported nuclear safety. However, the team identified a significant performance gap in your staff's evaluations of repeat events or of events that occurred due to causes similar to prior events. Your staff's evaluation of these repeat events failed to evaluate why previous corrective actions had not been effective in eliminating the safety culture or organizational performance gaps that allowed these events to occur.

Finally, the team determined that your station's management in most departments maintains a safety-conscious work environment in which employees are willing to raise nuclear safety concerns through at least one of the several means available. However, the team identified that individuals in some groups within the security department may not feel free to raise concerns, or may fear retaliation for doing so. All individuals interviewed by the team stated that they would raise concerns despite these fears, but several indicated that their willingness to do so was declining.

NRC inspectors documented two findings of very low safety significance (Green) in this report. One of these findings involved violation of NRC requirements.

If you contest the violation or its significance, 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 or a finding not associated with a regulatory requirement in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the 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/

Thomas R. Hipschman, Team Leader
Inspection Programs and Assessments Team
Division of Reactor Safety

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

Enclosure:
Inspection Report 05000482/2016009

w/ Attachments:

1. Supplemental Information
2. Information Request
3. Supplemental Information Request

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Letter to Adam C. Heflin from Thomas R. Hipschman, dated August 9, 2016

SUBJECT: WOLF CREEK GENERATING STATION – NRC PROBLEM IDENTIFICATION
AND RESOLUTION INSPECTION REPORT 05000482/2016009

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket(s): 05000482

License: NPF-42

Report: 05000482/2016009

Licensee: Wolf Creek Nuclear Operating Corporation

Facility: Wolf Creek Generating Station

Location: 1550 Oxen Lane NE
Burlington, Kansas

Dates: June 13 through June 30, 2016

Inspectors: E. Ruesch, J.D., Sr. Reactor Inspector (Team Lead)
P. Jayroe, Reactor Engineer
C. Stott, Reactor Inspector
F. Thomas, Resident Inspector, Wolf Creek

Approved by: T. Hipschman, Team Leader
Inspection Programs and Assessment Team
Division of Reactor Safety

Enclosure

SUMMARY

IR 05000482/2016009; 06/13/2016 – 06/30/2016; WOLF CREEK GENERATING STATION;
Problem Identification and Resolution (Biennial)

The inspection activities described in this report were performed between June 13 and June 30, 2016, by three inspectors from the NRC's Region IV office and the resident inspector at Wolf Creek Generating Station. The report documents two findings of very low safety significance (Green). One of these findings 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."

Assessment of Problem Identification and Resolution

Based on its inspection sample, the team concluded that the licensee maintained a corrective action program in which individuals generally identified issues at an appropriately low threshold. Once entered into the corrective action program, the licensee generally evaluated and addressed these issues appropriately and timely, commensurate with their safety significance. The licensee's corrective actions were generally effective, addressing the causes and extents of condition of problems. However, the team identified a significant performance gap in the licensee's evaluation of repeat events and of events that occurred due to similar programmatic or organizational-behavior causes. In evaluations of these repeat events or repeat causes, the licensee failed to evaluate why previous corrective actions had been ineffective in eliminating organizational or programmatic causes.

The licensee appropriately evaluated industry operating experience for relevance to the facility and entered applicable items in the corrective action program. The licensee generally incorporated industry and internal operating experience in its root cause and apparent cause evaluations. However, the licensee's use of internal operating experience to identify and correct programmatic contributing causes to events was ineffective. The licensee performed effective and self-critical nuclear oversight audits and self-assessments. The licensee maintained an effective process to ensure significant findings from these audits and self-assessments were addressed.

In most groups in its organization, the licensee maintained a safety-conscious work environment in which personnel were willing to raise nuclear safety concerns without fear of retaliation. Individuals in some groups within the security department stated that they did not feel free to raise concerns, or feared retaliation for doing so. However, all individuals interviewed by the team stated that they were currently willing to raise concerns, despite any fears of retaliation.

Cornerstone: Initiating Events

- Green. The team identified several examples in which multiple station events had occurred due to similar programmatic or organizational-behavior causes (i.e., potential gaps in nuclear safety culture). The licensee's evaluations for these repeat events and issues having similar causes to previous events do not effectively evaluate why corrective actions for the earlier events had failed to eliminate the safety culture or organizational performance gaps that allowed the events to occur, despite requirements in the licensee's corrective action program procedures to perform such evaluations.

The licensee's failure to determine and correct the causes of previous events when evaluating subsequent events for cause and corrective actions, as required by corrective action program procedures, was a performance deficiency. This performance deficiency was more than minor because if left uncorrected, it had the potential to lead to a more significant safety concern. Specifically, the licensee's continued failure to ensure causes of conditions are effectively corrected has the potential to lead to a preventable initiating event. Therefore, this finding is associated with the Initiating Events cornerstone. Using the transient initiators and support system initiators screening questions from Exhibit 1 of Inspection Manual Chapter 0609 Appendix A, the team determined that this finding was of very low safety significance (Green) because the finding did not cause a reactor trip or the complete or partial loss of a support system that contributed to the likelihood of an initiating event. This was a programmatic failure within the corrective action program that contributed to, but did not directly cause, the individual events; each individual event that evidenced this programmatic failure had been previously evaluated by the NRC to determine if a performance deficiency existed and, if so, separately screened. This finding has an evaluation cross-cutting aspect in the problem identification and resolution cross-cutting area because the organization failed to thoroughly evaluate issues to ensure that resolutions addressed causes and extents of condition commensurate with their safety significance (P.2). Specifically, underlying organizational and safety culture contributors to issues were not thoroughly evaluated and given the necessary time and resources to be clearly understood, and managers failed to effectively conduct effectiveness reviews of significant corrective actions to ensure that the resolution effectively addressed the causes.

Cornerstone: Mitigating Systems

- Green. The team identified a non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," associated with the licensee's failure to identify and correct a condition adverse to quality. Specifically, between October 2012 and June 2016, the licensee identified 15 instances of individuals failing to properly issue or use breach permits per the licensee's procedures, yet failed to identify or address this site-wide adverse trend.

The failure to identify and correct a negative trend in the proper issuance and use of breach permits was a performance deficiency. This performance deficiency was more than minor because it negatively affected the protection against external factors attribute of the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events. Using Inspection Manual Chapter 0609, Appendix A, the team determined that this finding was of very low safety significance (Green) because it did not result in the loss of operability or functionality of the system,

structure, or component. This finding has a trending cross-cutting aspect in the problem identification and resolution cross-cutting area because the licensee failed to periodically analyze information from the corrective action program and other assessments in the aggregate to identify programmatic and common cause issues (P.4). Specifically, the licensee did not address numerous site-wide breach permit issues concerning the corrective actions, only addressing the individuals involved.

REPORT DETAILS

4. OTHER ACTIVITIES (OA)

4OA2 Problem Identification and Resolution (71152)

The team based the following conclusions on a sample of corrective action documents that were open during the assessment period, which ranged from June 6, 2014, to the end of the on-site portion of this inspection on June 30, 2016.

.1 Assessment of the Corrective Action Program Effectiveness

a. Inspection Scope

The team reviewed approximately 200 condition reports (CRs), including associated root cause analyses and apparent cause evaluations, from approximately 20,000 that the licensee had initiated or closed between June 2014 and June 2016. The licensee classified roughly half of all condition reports generated as not conditions adverse to quality (NCAQs), meaning the conditions documented did not affect quality-related equipment or procedures, or other equipment or procedures important to safety or security, and therefore were handled outside the corrective action program. The majority of those that the licensee classified as conditions adverse to quality or adverse-conditions-plus (all but about 300) were determined not to require cause evaluations. The inspection sample focused on higher-significance condition reports for which the licensee evaluated and took actions to address the cause of the condition. In performing its review, the team evaluated whether the licensee had properly identified, characterized, and entered issues into the corrective action program, and whether the licensee had appropriately evaluated and resolved the issues in accordance with established programs, processes, and procedures. The team also reviewed these programs, processes, and procedures to determine if any issues existed that may impair their effectiveness.

The team reviewed a sample of performance metrics, system health reports, operability determinations, self-assessments, trending reports and metrics, and various other documents related to the licensee's corrective action program. The team evaluated the licensee's efforts in determining the scope of problems by reviewing selected logs, work orders, self-assessment results, audits, system health reports, action plans, and results from surveillance tests and preventive maintenance tasks. The team reviewed daily condition reports and attended the licensee's screening review team (SRT), senior leadership review team, people solving problems, corrective action program challenge board, corrective action review board, and maintenance rule expert panel meetings to assess the reporting threshold and prioritization efforts, and to observe the corrective action program's interfaces with the operability assessment, work control, and other processes. The team's review included an evaluation of whether the licensee considered the full extent of cause and extent of condition for problems, as well as a review of how the licensee assessed generic implications and previous occurrences of issues. The team assessed the timeliness and effectiveness of corrective actions, completed or planned, and looked for additional examples of problems similar to those

the licensee had previously addressed. The team conducted interviews with plant personnel to identify other processes that may exist where problems may be identified and addressed outside the corrective action program.

The team reviewed corrective action documents that addressed past NRC-identified violations to evaluate whether corrective actions addressed the issues described in the inspection reports. The team reviewed a sample of corrective actions closed to other corrective action documents to ensure that the ultimate corrective actions remained appropriate and timely.

The team considered risk insights from both the NRC's and Wolf Creek's risk models to focus the sample selection and plant tours on risk-significant systems and components. The team focused a portion of its sample on the 4160 Vac Class 1E electrical system, which the team selected for a five-year in-depth review. The team conducted walk-downs of this system and other plant areas to assess whether licensee personnel identified problems at a low threshold and entered them into the corrective action program.

b. Assessments

1. Effectiveness of Problem Identification

During the 25-month inspection period, licensee staff generated approximately 20,000 condition reports. The team determined that most conditions that required generation of a condition report by AP 28A-100, "Corrective Action Program," and associated corrective action program procedures had been appropriately entered into the corrective action program.

However, the team noted that the licensee had no formal corrective action program or CAP-like process for documenting and tracking issues that require documentation of safeguards information or other sensitive security-related information. The station's practice was to write a condition report as required by procedure, and to have the security-department evaluator contact the initiator for any sensitive information. This was an informal workaround developed by station personnel because the corrective action program lacked a formal method for tracking such issues. The team noted that because of delays inherent to the screening process, the inability of the initiator to document observations when they are made could lead to the loss of important details.

Further, the team identified gaps in the licensee's processes for trending low-level issues to identify potential programmatic conditions adverse to quality. Any "cognitive trending" performed by corrective action program oversight bodies, such as senior leadership review team or corrective action review board, was of limited effectiveness. This is further discussed in Section 4OA2.5.b below, in the context of an adverse trend in the use (or non-use) of breach permits to track and manage nonconforming openings in barriers designed to protect against consequences of fire, flooding, or high-energy line breaks. Any "cognitive trending" performed by

corrective action program oversight bodies, such as senior leadership review team or corrective action review board, was of limited effectiveness.

Overall, the team concluded that the licensee generally maintained a low threshold for the formal identification of problems and entry into the corrective action program for evaluation. Licensee personnel initiated roughly 600-800 condition reports per non-outage month during the inspection period. Most of the personnel interviewed by the team understood the requirements for condition report initiation; most expressed a willingness to enter newly identified issues into the corrective action program at a very low threshold.

2. Effectiveness of Prioritization and Evaluation of Issues

The sample of condition reports reviewed by the team focused primarily on issues screened by the licensee as having higher-level significance, including those that received cause evaluations, those classified as significant conditions adverse to quality, and those that required engineering evaluations. The team also reviewed a number of condition reports that included or should have included immediate operability determinations to assess the quality, timeliness, and prioritization of these determinations. Generally, the team determined that the licensee effectively prioritized and evaluated issues once identified, with the exception of internal operating experience and extent of cause. This exception is further discussed as a Green finding in Section 4OA2.5.a below.

The team identified a gap in the licensee's issue screening process whereby some condition reports screened by the screening review team did not get management review by the senior leadership review team at its people solving problems meeting. By the licensee's process, governed by AP 28A-100, "Corrective Action Program," after a condition report is written, it goes to the SRT to be assigned a severity level and an action level, and assigned to the individual or group for evaluation or resolution. The senior leadership review team then reviews the SRT's assignments the next business day. The inspection team noted that one condition report screened by the SRT on June 13, 2016, was not included in the June 14 senior leadership review team package. In response to the team's questions regarding this missed condition report, the licensee identified 135 other condition reports classified by SRT as adverse-condition-plus or higher over the last two years that had not received review from the senior leadership review team. Additionally, the licensee identified approximately 400 NCAQ condition reports that had not been reviewed by senior leadership review team. After reviewing a sample of the unreviewed condition reports, the team determined that this performance deficiency was minor because no actions were missed that adversely affected a safety or security cornerstone.

Overall, the team determined that the licensee's process for screening and prioritizing issues that had been entered into the corrective action program supported nuclear safety. However, there were some significant programmatic gaps in the licensee's ability to identify and address instances where corrective actions, which should have been barriers to prevent subsequent events or issues, failed or were too narrowly scoped to be effective.

3. Effectiveness of Corrective Actions

In general, the corrective actions identified by the licensee to address adverse conditions were effective. However, the team noted a number of instances in which corrective actions had been untimely or incompletely accomplished.

Inspectors noted two examples where the licensee added operator workarounds to procedures instead of repairing or correcting underlying adverse equipment conditions. After a loss of offsite power in 2009, the licensee discovered that one of the source range nuclear instruments (SRNI) had divergent readings. It was later determined that a loss of cavity cooling, necessary to prevent overheating of the instrument, had caused the failure. Subsequent losses of cavity cooling resulting in SRNI count deviation occurred in 2011 and 2012. The licensee is still attempting to understand the complicated airflow issues that cause this SRNI to overheat. This condition has been a control room deficiency since 2012. In August 2012, procedures were revised after an operational decision-making instruction resulted in adding procedural controls to maintain the operability of the affected SRNI in the event of a controlled shutdown or reactor trip.

In a second example, in 2009 the licensee discovered that running the turbine driven auxiliary feedwater pump results in steam issuing from floor drains. This steam has an adverse effect on smoke detectors in adjacent rooms due to condensation accumulation on the detectors. This resulted in the loss of all detection devices in one fire zone in 2009. A redesign of turbine driven auxiliary feedwater floor drain piping and steam drains has been proposed but not implemented. Installation of fire detection devices suitable for a steam environment has also been proposed but not yet carried out. Instead, procedural workarounds are in place to require operators to isolate steam drains when turbine driven auxiliary feedwater pump operation exceeds 30 minutes, and logs track instances when the temperature exceeds a threshold that may adversely affect the equipment life of currently installed fire detectors. This has been tracked as an operator burden since May 2014.

The use of procedural workarounds for extended periods of time in lieu of correcting conditions adverse to quality was determined to be a performance deficiency. The performance deficiency was determined to be minor, and not subject to enforcement action in accordance with the NRC's enforcement policy, because the performance deficiency could not reasonably be viewed as a precursor to a significant event, does not have the potential to lead to a more significant safety concern, would not cause a performance indicator to exceed a threshold, and does not adversely affect a cornerstone objective.

Despite this gap, the team concluded that the licensee generally identified effective corrective actions for the problems evaluated in the corrective action program. The licensee generally implemented these corrective actions in a timely manner, commensurate with their safety significance, and reviewed the effectiveness of the corrective actions appropriately.

.2 Assessment of the Use of Operating Experience

a. Inspection Scope

The team examined the licensee's program for reviewing industry operating experience, including reviewing the governing procedures. The team reviewed a sample of industry operating experience communications and the associated site evaluations to assess whether the licensee had appropriately assessed the communications for relevance to the facility. The team also reviewed assigned actions to determine whether they were appropriate.

b. Assessment

Overall, the team determined that the licensee appropriately evaluated industry operating experience for its relevance to the facility. Operating experience information was incorporated into plant procedures and processes as appropriate.

Inspectors reviewed three instances where operations personnel authorized work without understanding the impact of the work on plant conditions. Two of those events occurred in 2014 and resulted in a loss of pressure control on a solid plant. (They also resulted in two NRC non-cited violations.) In the first event, which occurred in March 2014, operators authorized work requiring the swapping of power supplies for a motor control center, resulting in the momentary loss of power to the normal charging pump motor controller. The controller failed to a 100-percent-output condition, resulting in a charging flow increase and a rapid increase in reactor coolant system (RCS) pressure. In the second event, which occurred in April 2014, an operator authorized work on the residual-heat-removal-to-centrifugal-charging-pump isolation valve. The resulting valve manipulations induced an unanticipated pressure transient (drop in RCS pressure). Separate apparent cause evaluations were performed for each of these events. In a third event in 2015, a clearance order was authorized that put the then-operating plant into Technical Specification limiting condition for operation (LCO) 3.0.3 after two of four required cold leg injection flow paths were isolated, rendering both trains of the residual heat removal system inoperable. A root cause evaluation for this event determined that licensed operators involved with the preparation and implementation of the clearance order did not recognize that the plant conditions could not support the activity. While the corrective actions taken for the individual events were reasonable and specifically oriented to certain failures, the latter cause evaluation did not acknowledge the other previous events in operating experience searches or in the extent of cause evaluation and did not address the potential broader trend of operators authorizing work without appreciation of the impact to the plant. This is one example of the finding documented in Section 4OA2.5.a below.

Additionally, the licensee performed a root cause analysis under Condition Report 102322 to review the trip of the SGK05A Class 1E A/C compressor on May 15, 2015, a significant condition adverse to quality. This was a repeat occurrence from trips that occurred on June 12, 2012, and on October 18, 2013. The tripped SGK05A compressor caused the licensee to enter LCO 3.0.3 and ultimately trip the plant. In the root cause analysis, the licensee did not address the failure of the licensee's interim

actions to preclude repetition while the final corrective actions of compressor replacement could be finished. The licensee failed to adequately address the cause of the trips from previous internal operating experience. This was the second of four examples of a finding, documented in Section 4OA2.5.a below.

The team further determined that the licensee appropriately evaluated industry operating experience when performing root cause analysis and apparent cause evaluations. The licensee appropriately incorporated external operating experience into lessons learned for training and pre-job briefs. However, the team identified some significant programmatic gaps in the licensee's ability to identify and address internal operating experience during cause evaluations.

.3 Assessment of Self-Assessments and Audits

a. Inspection Scope

The team reviewed a sample of licensee self-assessments and audits to assess whether the licensee was regularly identifying performance trends and effectively addressing them. The team also reviewed audit reports to assess the effectiveness of assessments in specific areas.

b. Assessment

Overall, the team concluded that the licensee had an effective self-assessment and audit process. The team determined that self-assessments were self-critical and thorough enough to identify deficiencies. The team did not identify any performance deficiencies or programmatic challenges in this area.

.4 Assessment of Safety-Conscious Work Environment

a. Inspection Scope

The team interviewed 45 individuals in six focus groups. The purpose of these interviews was (1) to evaluate the willingness of licensee staff to raise nuclear safety issues, either by initiating a condition report or by another method, (2) to evaluate the perceived effectiveness of the corrective action program at resolving identified problems, and (3) to evaluate the licensee's safety-conscious work environment. The focus group participants included personnel from security, radiation protection, chemistry, engineering, operations, and maintenance. At the team's request, the licensee's regulatory affairs and employee concerns staff selected the participants blindly from these work groups, based partially on availability. To supplement these focus group discussions, the team interviewed the station ombudsman (the employee concerns program manager) to assess his perception of the site employees' willingness to raise nuclear safety concerns. The team reviewed the employee concerns program case log and select case files. The team also reviewed the minutes from the licensee's most recent safety culture monitoring panel meetings.

b. Assessment

1. Willingness to Raise Nuclear Safety Issues

All individuals interviewed indicated that they would raise nuclear safety concerns. Most felt that their management was receptive to nuclear safety concerns and was willing to address them promptly. Most of the interviewees further stated that if they were not satisfied with the response from their immediate supervisor, they had the ability to escalate the concern to a higher organizational level. Most expressed positive experiences after raising issues to their supervisors. Most expressed positive experiences documenting most issues in condition reports.

However, the team identified that individuals in some groups within the security department may not feel free to raise concerns, or may fear retaliation if they were to raise concerns. No individual affirmatively indicated that he or she would not raise a nuclear safety or security concern; however, at least one individual stated that the work environment was “headed that way.” The results of a safety-conscious work environment survey administered by the station ombudsman in late 2015 provided further evidence of this lack of a strong safety-conscious work environment within the security department. Though the licensee had initiated some actions in response to that survey in an attempt to mitigate this weakness, the team determined that these actions had yet to be effective.

2. Employee Concerns Program

All interviewees were aware of the employee concerns program. Most explained that they had heard about the program through various means, such as posters, training, presentations, and discussion by supervisors or management at meetings. Many interviewees stated that they would use Employee Concerns if they felt it was necessary. All expressed confidence that their confidentiality would be maintained if they brought issues to Employee Concerns.

Some individuals stated that they were unable to use the employee concerns program if their concern was related to safeguards information because they incorrectly believed that the ombudsman was not allowed to handle such information. The licensee documented this in Condition Report 105306, and took immediate corrective actions to correct this misunderstanding by communicating the station’s policy to affected personnel.

3. Preventing or Mitigating Perceptions of Retaliation

When asked if there have been any instances where individuals experienced retaliation or other negative reactions for raising issues, all interviewed individuals outside the security department stated that they had neither experienced nor heard of an instance of retaliation, harassment, intimidation, or discrimination at the site.

The team determined that with the exception of the groups within the security department discussed above, the station's policies for preventing or mitigating perceptions of retaliation had been effective.

.5 Findings

a. Failure to Evaluate and Address Failures of Prior Corrective Actions to Prevent Repeat Events

Introduction. The team identified several examples in which multiple station events had occurred due to similar programmatic or organizational-behavior causes (i.e., potential gaps in nuclear safety culture). The licensee's evaluations for these repeat events and issues having similar causes to previous events do not effectively evaluate why corrective actions for the earlier events had failed to eliminate the safety culture or organizational performance gaps that allowed the events to occur, despite requirements in the licensee's corrective action program procedures to perform such evaluations.

Description. The licensee's corrective action program contains provisions to ensure that when multiple events or conditions occur due to similar causes, cause evaluators evaluate why corrective actions from earlier conditions failed to mitigate the causes and thus allowed later conditions to occur for similar reasons. These provisions are contained in the Internal Operating Experience and Extent of Cause sections of AI 28-A-100, "Condition Report Resolution."

In paragraph 6.5.1 of the Operating Experience section of Revision 10 to this procedure,¹ cause evaluators are directed to, "Assess if there were previous opportunities to have identified the condition being investigated and if any of these assessments were flawed." Paragraph 6.9.2 of the Extent of Cause section directs, "Reviewing internal OE documents (CRs, etc.) may indicate the event being investigated is the most recent in a series of related equipment problems or performance errors. Ensure consideration of potential common causes and safety culture weaknesses." Though procedures do not require that both of these sections be applied to every cause evaluation, the team determined that on at least four occasions during the inspection period, the licensee failed to appropriately apply these program requirements:

- A root cause evaluation for a January 2015 clearance-order related event, performed under Condition Report 91331, determined that licensed operators involved with the preparation and implementation of the clearance order did not recognize that the plant conditions could not support the proposed activity. This was the third loss-of-configuration-control event in less than two years, in which operators had authorized hanging of a clearance order inappropriate for plant conditions. The individual events are discussed in section 4OA2.2 above. While the corrective actions taken for the individual events were reasonable and

¹ Revisions 8, 9, and 10 of this procedure were in effect at various times during the inspection period. Revision 9 changed the title from "Cause Analysis" to "Condition Report Resolution," concurrent with the licensee's December 2014 implementation of the industry's Conduct of Performance Improvement initiative. These requirements existed in assorted forms in all three versions of the procedure.

specifically oriented to certain failures, the latter cause evaluation did not acknowledge the previous events in operating experience searches or in the extent of cause evaluation and did not address the potential broader trend of operations authorizing work without awareness of impact to the plant.

- Under Condition Report 102322, the licensee performed a root cause analysis that reviewed a trip of the SGK05A Class 1E air conditioning compressor on May 15, 2015. This was a repeat occurrence of a significant condition adverse to quality—similar trips had occurred due to similar causes in June and October of 2013. The tripped SGK05A compressor resulted in the licensee entering Technical Specification LCO 3.0.3 and ultimately tripping the plant. In this root cause analysis, the licensee did not address the failure of its interim actions to preclude repetition while the final corrective actions of compressor replacement could be finished. The licensee failed to adequately address the cause of the trips from previous internal operating experience.
- During another inspection conducted in 2016, NRC inspectors identified that the licensee had failed to adequately evaluate why prior corrective actions did not prevent the failure of the power potential transformer in the emergency diesel generator control circuitry, or the resulting fire, after the power potential transformer was identified as smoking approximately four months earlier. The inspectors noted that neither the root cause evaluation associated with Condition Report 88665 nor the evaluation associated with Condition Report 85125 identified corrective actions that adequately addressed the station's failure to promptly identify and correct the failed power rectifier bridge diode. Specifically, no corrective actions directly addressed the adverse human performance behaviors—acceptance of a smoking power potential transformer (Condition Report 85125) and a failure to adequately consider operating experience (Condition Report 88665).
- During the corrective action review board meeting on June 29, 2016, which the inspection team observed, the corrective action board approved an apparent cause evaluation performed under Condition Report 104552 for the mishandling of safeguards information by contractor personnel. During the corrective action review board discussion, the evaluator noted that the station has “had this similar type of event for years.” The cause evaluation noted that a computer-based training module had been developed as a corrective action from a prior event, but had never been implemented. The security manager stated to the corrective action review board that based on the investigation and determined causes, this training module probably would have precluded the event being evaluated. However, in the cause evaluation the ineffectiveness of this and other prior corrective actions was not identified as a contributing cause. Despite a discussion following a question from the training manager, who was one of the voting corrective action review board members, asking what the prior corrective actions had been and why had they been ineffective, the cause evaluation was approved with no corrective actions to evaluate why prior corrective actions had failed to be effectively implemented.

The team determined that these failures collectively evidenced a significant programmatic gap in the effectiveness of the licensee's processes to ensure that corrective actions addressed underlying problems and not just issues symptomatic of those problems. The licensee failed to analyze repeat events, or multiple events due to uncorrected causes, to evaluate gaps in nuclear safety culture or opportunities for organizational learning, as required by the station's corrective action program.

Analysis. The licensee's failure to determine and correct the causes of previous events when evaluating subsequent events for cause and corrective actions, as required by corrective action program procedures, was a performance deficiency. This performance deficiency was more than minor because if left uncorrected, it had the potential to lead to a more significant safety concern. Specifically, the licensee's continued failure to ensure causes of conditions are effectively corrected has the potential to lead to a preventable initiating event. Therefore, this finding is associated with the initiating events cornerstone. Using the transient initiators and support system initiators screening questions from Exhibit 1 of Inspection Manual Chapter 0609, Appendix A, the team determined that this finding was of very low safety significance (Green) because the finding did not cause a reactor trip or the complete or partial loss of a support system that contributed to the likelihood of an initiating event. This was a programmatic failure within the corrective action program that contributed to, but did not directly cause, the individual events; each individual event that evidenced this programmatic failure had been previously evaluated by the NRC to determine if a performance deficiency existed, and if so, separately screened. This finding has an evaluation cross-cutting aspect in the problem identification and resolution cross-cutting area because the organization failed to thoroughly evaluate issues to ensure that resolutions addressed causes and extents of condition commensurate with their safety significance (P.2). Specifically, underlying organizational and safety culture contributors to issues were not thoroughly evaluated and given the necessary time and resources to be clearly understood, and managers failed to effectively conduct effectiveness reviews of significant corrective actions to ensure that the resolution effectively addressed the causes.

Enforcement. Inspectors did not identify a violation of regulatory requirements associated with this finding: FIN 05000482/2016009-01, "Failure to Evaluate and Address Failures of Prior Corrective Actions to Prevent Repeat Events."

b. Failure to Identify and Correct Negative Trend in Breach Permit Corrective Actions

Introduction. The team identified a Green, non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," associated with the licensee's failure to identify and correct a condition adverse to quality. Specifically, between October 2012 and June 2016, the licensee identified fifteen instances of individuals failing to properly issue or use breach permits per the licensee's procedures, yet failed to identify or address this site-wide adverse trend.

Description. In Procedure AP 10-104, "Breach Authorization," the licensee lists all the barriers in the plant and what protection they afford. These protections include barriers to flood, radiation protection, security, fire, equipment train separation, air pressure,

environmentally qualified equipment, and natural events. Many barriers provide protection from multiple sources; it is important that the licensee knows when barriers need to be breached for maintenance activities and for how long in order to manage the aggregate risk of these activities.

On February 26, 2015, the licensee initiated Condition Report 92630 in response to NRC inspectors' questions concerning door 41015 in the auxiliary building, which provides a barrier to multiple hazard sources and was found open. This door is normally required to remain shut except while traveling through it unless a breach permit has been specifically authorized for it to remain open. The NRC inspectors found that door 41015 had been inappropriately chocked open without an authorized breach permit.

In the apparent cause evaluation performed in response to this condition report, the licensee noted that this was a repeat event. The licensee also noted that the corrective actions from the previous events would not have influenced the actions of the involved individuals in Condition Report 92630 because the corrective actions from the previous instances only focused on coaching the affected individuals involved in the previous failures of the breach permit procedure. The inspectors noted that the corrective actions for Condition Report 92630 were focused on coaching the affected personnel. However, these actions also included discussions with the departments of the affiliated individuals and added an extra sign-off for the plant operator to ensure that they have read the appropriate section of the breach permit procedure explaining the aggregate effect against opening the hazard barrier in question.

After the corrective actions from Condition Report 92630 were completed, there were at least four more condition reports written concerning separate failures of individuals to properly implement the breach permit procedure when needed. These additional failures occurred in other departments than the ones involved in Condition Report 92630. The corrective actions for these subsequent condition reports included the licensee continuing to coach individuals when they improperly implemented or failed to use the breach permit program.

Analysis. The failure to identify and correct a negative trend in the proper issuance and use of breach permits was a performance deficiency. This performance deficiency was more than minor because it negatively affected the protection against external factors attribute of the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events. Using Inspection Manual Chapter 0609, Appendix A, the team determined that this finding was of very low safety significance (Green) because it did not result in the loss of operability or functionality of the system, structure, or component. This finding has a trending cross-cutting aspect in the problem identification and resolution cross-cutting area because the licensee failed to periodically analyze information from the corrective action program and other assessments in the aggregate to identify programmatic and common cause issues (P.4). Specifically, the licensee did not address numerous site-wide breach permit issues concerning the corrective actions, only addressing the individuals involved.

Enforcement. Title 10 of the *Code of Federal Regulations*, Part 50, Appendix B, Criterion XVI, "Corrective Actions," provides in part that measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected. Contrary to this requirement, from October 2012 to June 2016 the licensee failed to establish measures to ensure that a condition adverse to quality was promptly identified and corrected. Specifically, the licensee failed to identify and correct an adverse trend in the proper issuance and use of breach permits, which was a condition adverse to quality. Because the licensee entered this performance deficiency into its corrective action program as Condition Report 105186, this violation is being treated as a non-cited violation consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000482/2016009-02, "Failure to Identify and Correct Negative Trend in Proper Issuance and Use of Breach Permits."

40A5 Other Activities

.1 (Closed) VIO 05000482/2012007-03, "Failure to Take Timely Corrective Action to Preclude Repetition"

The NRC issued this violation because the licensee failed to take corrective action to preclude repetition of essential service water (ESW) leaks caused by internal corrosion and water hammer. The NRC had previously issued two non-cited violations in 2009 and 2010 for the failure to evaluate the ESW system for the effects of corrosion and water hammer.

The licensee addressed the equipment-related aspect of this violation by implementing a major modification to the ESW system to mitigate column-closure water hammer. The licensee also implemented a major modification to replace the station's underground ESW piping, implemented a lake water piping integrity program, and began replacement of above ground ESW piping beginning with the most susceptible areas. Inspectors walked down the physical modification, reviewed documentation of acceptance testing, related procedures and programs, and discussed the corrective actions with responsible personnel.

The licensee addressed the programmatic aspect of this violation (i.e., the failure to take timely corrective actions for regulatory issues) by institutionalizing a periodic meeting to review and prioritize regulatory matters. This meeting is attended by licensing, engineering, operations, maintenance, and other departments as necessary. The effectiveness of this action was demonstrated by a reduction in the total number of open NCV-related condition reports from 81 in 2012 (with an average age of 873 days) to 23 in June 2016 (with an average age of 568 days). Inspectors discussed the effectiveness of this action with licensing personnel and reviewed open items tied to NRC violations. At the time of this review, inspectors determined that open corrective actions were either related to new issues or that the timeframes for corrective actions were reasonable. The team determined that the licensee has restored compliance and has taken appropriate corrective actions to address the cause of this violation.

VIO 05000482/2012007-03 is closed.

.2 (Closed) VIO 05000482/2012007-06, "Failure to Implement Corrective Actions to Test Safety-Related Equipment"

The NRC issued this violation in 2012 because the licensee failed to take corrective action to test safety-related spring-loaded tornado dampers in the emergency diesel generator and essential service water rooms after identifying the need to perform this testing in 2008 and receiving a non-cited violation from the NRC for not performing the testing as of 2010.

The licensee addressed the testing aspect of this violation by developing the required test procedures and performing the necessary testing of the tornado ventilation dampers on a periodic basis. Inspectors reviewed corrective action, procedural, and work documentation of the required testing. The licensee addressed the programmatic aspect of this violation by implementing the regulatory issues meeting described above. The team determined that the licensee has restored compliance and has taken appropriate corrective actions to address the cause of this violation.

VIO 05000482/2012007-06 is closed.

.3 (Discussed) VIO 05000482/2015004-01, "Inadequate Measures to Assure SGK05A Issues Were Promptly Corrected"

On February 11, 2016, the NRC issued VIO 05000482/2015004-01 for the licensee's inadequate measures to assure that corrective actions were taken to preclude repetition of a significant condition adverse to quality. Specifically, the licensee failed to establish adequate measures to assure that the cause of a significant condition adverse to quality, contaminants impacting the reliability of the SGK05A compressor, were determined and corrective action taken to preclude repetition. This was a repeat of the same significant condition adverse to quality that resulted in 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.

In response to this violation, the licensee performed a root cause analysis, which determined that the SGK05A compressor tripped due to a false lube oil differential pressure alarm. An operator stationed in the area after the first compressor trip noted during the second that the low lube oil pressure alarm came in while the rest of the pressure readings were in their normal operating band. The licensee adopted interim measures to jumper out the low lube pressure trip function so the alarm will still come in, but the trip that normally occurs 120 seconds after the alarm is bypassed. To make sure the SGK05A compressor continues to function with proper oil pressure, the licensee has implemented monitoring of the operating parameters of the compressors as part of normal operator rounds. The operator obtains the actual oil differential pressure from subtracting the suction pressure from the oil pressure in order to compare to the normal operating band for the differential pressure of the lube oil.

The licensee created four trigger points, so if the differential pressure of the lube oil drops to certain levels, then actions will be taken by operators to increase the frequency of operator rounds at the first trigger point to ultimately compressor trip at the final trigger point.

To preclude a single compressor trip from causing the licensee to be forced to trip the plant again, the licensee incorporated procedure SYS GK-200, "Non-Functional Class 1E A/C Unit," which allows installation of temporary fans to continue to cool the Class 1E equipment rooms by circulating the chilled air across all Class 1E equipment. The temporary fans run off of 4.16 kV safety-related power and have been analyzed to allow the chilled air from one operating Class 1E A/C unit to keep the affected rooms within their operating temperature band.

To permanently fix the underlying issue, the licensee plans to replace the affected SGK05A Class 1E equipment room compressor. This replacement is scheduled for the upcoming fall outage in 2016.

VIO 05000482/2015004-01 remains open pending further NRC review of the licensee's implementation of final corrective actions.

40A6 Meetings, Including Exit

Exit Meeting Summary

On June 30, 2016, 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.

ATTACHMENTS:

1. Supplemental Information
2. Information Request
3. Supplemental Information Request

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

M. Birk, Evaluation Specialist
B. Brown, Superintendent, Security Operations
D. Erbe, Manager, Security
D. Ferrara, Supervisor, Quality Assurance
R. Fincher, Manager, Quality
S. Jones, Evaluation Specialist
R. Lane, Manager, Performance Improvement
R. Ludlum, Evaluation Specialist
S. McKenzie, Engineer
W. Muilenburg, Supervisor, Licensing
E. Peterson, Employee Concerns Coordinator
T. Slenker, Supervisor, Operations Support
A. Stueve, Engineer
R. Thompson, Supervisor, Performance Improvement
T. Wilson, Supervisor, Corrective Action

NRC Personnel

D. Dodson, Senior Resident Inspector
J. Rollins, Senior Allegations Coordinator

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000482/2016009-01	FIN	Failure to Evaluate and Address Failures of Prior Corrective Actions to Prevent Repeat Events (Section 4OA2)
05000482/2016009-02	NCV	Failure to Identify and Correct Negative Trend in Breach Permit Corrective Actions (Section 4OA2)

Closed

05000482/2012007-03	VIO	Failure to Take Timely Corrective Action to Preclude Repetition (Section 4OA5)
05000482/2012007-06	VIO	Failure to Implement Corrective Actions to Test Safety-Related Equipment (Section 4OA5)

Discussed

05000482/2015004-01	VIO	Inadequate Measures to Assure SGK05A Issues Were Promptly Corrected (Section 4OA5)
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LIST OF DOCUMENTS REVIEWED

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AI 22A-001	Operator Workarounds / Operator Burdens / Control Room Deficiencies	12
AI 23L-005	Lake Water Piping Integrity	4
AI 28A-010	Screening Condition Reports	22
AI 28A-010	Screening Condition Reports	23
AI 28A-017	Effectiveness Follow Up	4
AI 28A-017	Effectiveness Follow-Up	4
AI 28A-023	Evaluation of Maintenance Rule Functional Failure CRs	4
AI 28A-100	Cause Evaluation	8
AI 28A-100	Condition Report Resolution	9
AI 28A-100	Condition Report Resolution	9
AI 28A-100	Condition Report Resolution	10A
AI 28A-100	Condition Report Resolution	10
AI 28D-003	Informal Assessment Process	2A
AI 28E-009	Division/Station Performance Report	17,18
AIF 28A-100-08	Equipment Performance Evaluation	3
AP 10-104	Breach Authorization	35
AP 10-104	Breach Authorization	35
AP 12-001	Housekeeping Control	13
AP 20A-003	QA Audit Requirements, Frequencies, and Scheduling	26
AP 20A-004	Conduction of Internal Audits	20
AP 20A-008	QA Surveillance and Station Monitoring Program	16
AP 20A-010	Conduct of Performance Assessment	2
AP 21-001	Conduct of Operations	77
AP 21-200	Operational Decision Making	8
AP 21D-002	Evaluation for Potential Energy/Fluid Transfer Paths	12a
AP 21I-001	Temporary Configuration Changes	12
AP 23M-001	Maintenance Rule Program	12

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
AP 26A-004	Communications with the NRC	20
AP 26C-004	Operability Determination and Functionality Assessment	32
AP 26C-004	Operability Determination and Functionality Assessment	32
AP 28A-100	Corrective Action Program	22
AP 28D-001	Self-Assessment Process	19
GEN 00-003	Hot Standby to Minimum Load	98
MPE E009-01	Siemens Breaker Cubicle Maintenance, Testing and Swapping	5
MPE E009Q-01	13.8 KV and 4.16 KV Switchgear Inspection and Testing	33A
MPE E009Q-01	13.8 KV and 4.16 KV Switchgear Inspection and Testing	34A
MPE E009Q-03	Inspection and Testing of Siemens Vacuum Circuit Breakers	8
MPE VD-001	M627A Ventilation Damper Maintenance	3
OFN NB-030	Loss of AC Emergency Bus NB01 (NB02)	33A
OFN NN-021	Loss of Vital 120 VAC Instrument Bus	27
STN IC-280A	Calibration of 'A' Train Safety-Related Bus Voltage Indication	0A
STN IC-281A	Calibration of Safety-Related Bus NB01 Current Indication Instrumentation	0A
STS EF-100A	ESW System Inservice Pump A and ESW A Check Valve Test	44
STS IC-208A	4KV Loss of Voltage & Degraded Voltage TADOT NB01 Bus – SEP GRP 1	5C
STS IC-208B	4KV Loss of Voltage & Degraded Voltage TADOT NB02 Bus – SEP GRP 4	4E
STS IC-802A	4KV Loss of Voltage and Loss of Offsite Power Channel Calibration Train A	8A
STS IC-802B	4KV Loss of Voltage and Loss of Offsite Power Channel Calibration Train B	10
STS IC-803A	4KV Undervoltage – Grid Degraded Voltage Channel Calibration NB01 Bus	5A
STS IC-803B	4KV Undervoltage – Grid Degraded Voltage Channel Calibration NB02 Bus	5A
STS IC-805A	Channel Calibration of NB01 Grid Degraded Voltage, Time Delay Trip	13

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
STS IC-805B	Channel Calibration of NB02 Grid Degraded Voltage, Time Delay Trip	15
STS IC-806A	4KV Undervoltage – Loss of Voltage – Channel Calibration of 1 Second Time Delay Circuit NB01	5B
STS IC-806A	4KV Undervoltage – Loss of Voltage – Channel Calibration of 1 Second Time Delay Circuit NB02	5
STS KJ-001A	Integrated D/G and Safeguards Actuation Test – Train A	59
STS KJ-001B	Integrated D/G and Safeguards Actuation Test – Train B	57
SYS GK-200	Non-Functional Class 1E A/C Unit	35
SYS KJ-124	Post Maintenance Run of Emergency Diesel Generator B	63A
TMP 13-025	ESW Train A Change Package 14746 Water Hammer Mitigation PMT	2
TMP 13-026	ESW Train B Change Package 14746 Water Hammer Mitigation PMT	2

Other Documents

<u>Number</u>	<u>Title</u>	<u>Revision</u>
	Corrective Action Challenge Board Charter	March 16, 2016
	ODM Index #2015-06	2
03/31/16	System Health Report (01/01/2016 – 03/31/2016); Low Medium Voltage System 4.16 KV (NB) and High Medium Voltage System 13.8 KV (PA)	
06/13/16	Condition Reports for Daily SRT Meeting	
06/14/16	Daily Operation Focus – Senior Leadership Review Team – People Solving problems	Work Week 212
06/27/16	Condition Reports for Daily SRT Meeting	
06/29/16	Corrective Action Review Board – Agenda and Meeting Package	
2015-016	RER Reportability Determination (CR 93357)	March 17, 2015
2016-001	RER Reportability Determination (CR 10167)	January 7, 2016
A15125-LR-002	Analysis of ESW Test Data from 4/21/2015 and 4/26/2015 Under a simulated LOOP	1

Other Documents

<u>Number</u>	<u>Title</u>	<u>Revision</u>
DCP 014503	Evaluation of Fans in Class 1E Equipment Rooms	09
E-13GK34	Schematic Diagram GK HVAC Temporary Fan Power	01
E-13NF01	Schematic Diagram Load Shedder/Emergency Load Sequencer	03
E-15000	Electrical Cable, Termination and Raceway List	67
GK-06-W	SGK05A/B Class 1E Electrical Equipment Rooms A/C Units, Single Unit Operation Capability	7
M-126M01	P&ID Diesel Generator Building	3
M-622.1A-00001	SGK05A & SGK05B Air Conditioner Refrigeration Schematic	W12
M-622.1A-00061	SGK05A Condenser Layout	W05
M-K26D01	P&ID ESW Pump House	12
QH-2016-1250	Quick Hit Self-Assessment: 2015 Wolf Creek Safety Conscious Work Environment Survey	March 14, 2016
SA-16-001	Engineering Evaluation – Cycle 22 Specific Analyses for an Inadvertent Boron Dilution Event (BDE)	June 9, 2016
SA-2016-0114	Self-Assessment: Wolf Creek Employee Concerns Program	June 9, 2016

Condition Reports (CRs)

14788	55829	74985	87667	93323	97132	100361
18217	55830	78117	87668	93357	97769	100521
19248	55851	80714	87670	93368	97927	100596
20373	56504	80870	88227	93799	98039	100602
21127	57403	80948	88253	94082	98101	100632
26466	59011	81407	88448	94604	98843	100663
27288	59117	81433	88535	94605	98844	100859
28474	60331	81437	89013	94738	98966	100870
29128	64870	81981	89355	95378	99124	101041
29602	65230	83074	89488	95547	99376	101156
35122	65232	83379	89788	95700	99535	101169
43664	65301	84365	90187	95776	99804	101176
43719	65854	84848	90516	95904	99956	101248
44106	65998	84968	90732	95914	99965	101706
44851	66102	84971	91328	96009	100015	101743
46700	68788	84972	91331	96064	100017	101862
47652	69590	85033	91500	96371	100093	101867
47654	69639	85648	91501	96392	100096	101874
53363	70156	85976	92100	96397	100306	102031
53433	71528	86127	92274	96495	100317	102037
53443	73428	87666	92630	96720	100328	102181

102205	102477	102924	103511	104266	105004	105185
102211	102518	102975	103515	104267	105046	105328
102252	102519	102988	103675	104268	105064	105430
102322	102691	103174	103790	104269	105103	
102323	102728	103185	103838	104420	105112	
102325	102751	103228	103876	104782	105123	
102360	102915	103311	104049	104816	105167	
102454	102921	103367	104184	104869	105184	

Work Orders

14-386517-001	13-376822-000	14-392766-000	15-401787-000
14-388251-000	13-381466-000	14-395044-000	15-402115-000
14-388267-000	14-382170-000	14-395184-000	15-402633-000
15-402445-001	14-382256-000	14-395270-000	15-403511-000
14-392959-000	14-382589-000	14-395570-000	15-403885-000
14-394877-001	14-383367-000	14-395864-000	15-404891-000
15-397723-000	14-383867-000	14-396323-000	15-405454-000
16-414924-000	14-387420-000	15-396487-000	15-405833-000
15-405419-000	14-388329-000	15-396779-000	15-407814-000
14-388642-001	14-388805-000	15-396811-000	15-408220-000
14-388507-000	14-389333-000	15-396805-000	15-408598-000
12-357275-000	14-389836-000	15-397009-000	15-408942-000
12-357275-001	14-389340-000	15-397600-000	15-409186-000
15-401745-000	14-390591-000	15-398191-001	15-409696-000
12-359850-000	14-390908-000	15-398424-000	15-404508-000
13-364581-000	14-390982-000	15-400944-000	16-115988-000
13-374109-000	14-392475-000	15-401380-000	

**Information Request
Biennial Problem Identification and Resolution Inspection
Wolf Creek Generating Station
April 26, 2016**

Inspection Report: 50-482/2016009
On-site Inspection Dates: June 13-17 & June 27-July 1, 2016

This inspection will cover the period from June 6, 2014, through July 1, 2016. All requested information is limited to this period or to the date of this request unless otherwise specified. To the extent possible, the requested information should be provided electronically in word-searchable Adobe PDF (preferred) or Microsoft Office format. Any sensitive information should be provided in hard copy during the team's first week on site; do not provide any sensitive or proprietary information electronically.

Lists of documents ("summary lists") should be provided in Microsoft Excel or a similar sortable format. Please be prepared to provide any significant updates to this information during the team's first week of on-site inspection. As used in this request, "corrective action documents" refers to condition reports, notifications, action requests, cause evaluations, and/or other similar documents, as applicable to Wolf Creek.

Please provide the following information no later than May 25, 2016:

1. Document Lists

Note: For these summary lists, please include the document/reference number, the document title, initiation date, current status, and long-text description of the issue.

- a. Summary list of all corrective action documents related to significant conditions adverse to quality that were opened, closed, or evaluated during the period
- b. Summary list of all corrective action documents related to conditions adverse to quality that were opened or closed during the period
- c. Summary lists of all corrective action documents that were upgraded or downgraded in priority/significance during the period (these may be limited to those downgraded from, or upgraded to, apparent-cause level or higher)
- d. Summary list of all corrective action documents initiated during the period that "roll up" multiple similar or related issues, or that identify a trend
- e. Summary lists of operator workarounds, operator burdens, temporary modifications, and control room deficiencies (1) currently open and (2) that were evaluated and/or closed during the period
- f. Summary list of safety system deficiencies that required prompt operability determinations (or other engineering evaluations) to provide reasonable assurance of operability
- g. Summary list of plant safety issues raised or addressed by the Employee Concerns Program (or equivalent) (sensitive information should be made available during the team's first week on site—do not provide electronically)

- h. Summary list of all Apparent Cause Evaluations completed during the period
2. Full Documents with Attachments
- a. Root Cause Evaluations completed during the period; include a list of any planned or in progress
 - b. Quality Assurance audits performed during the period
 - c. Audits/surveillances performed during the period on the Corrective Action Program, of individual corrective actions, or of cause evaluations
 - d. Functional area self-assessments and non-NRC third-party assessments (e.g., peer assessments performed as part of routine or focused station self- and independent assessment activities; do not include INPO assessments) that were performed or completed during the period; include a list of those that are currently in progress
 - e. Any assessments of the safety-conscious work environment at Wolf Creek
 - f. Corrective action documents generated during the period associated with the following:
 - i. NRC findings and/or violations issued to Wolf Creek
 - ii. Licensee Event Reports issued by Wolf Creek
 - g. Corrective action documents generated for the following, if they were determined to be applicable to Wolf Creek (for those that were evaluated but determined not to be applicable, provide a summary list):
 - i. NRC Information Notices, Bulletins, and Generic Letters issued or evaluated during the period
 - ii. Part 21 reports issued or evaluated during the period
 - iii. Vendor safety information letters (or equivalent) issued or evaluated during the period
 - iv. Other external events and/or Operating Experience evaluated for applicability during the period
 - h. Corrective action documents generated for the following:
 - i. Emergency planning drills and tabletop exercises performed during the period
 - ii. Maintenance preventable functional failures that occurred or were evaluated during the period

- iii. Adverse trends in equipment, processes, procedures, or programs that were evaluated during the period
- iv. Action items generated or addressed by offsite review committees during the period

3. Logs and Reports

- a. Corrective action performance trending/tracking information generated during the period and broken down by functional organization (if this information is fully included in item 3.c, it need not be provided separately)
- b. Corrective action effectiveness review reports generated during the period
- c. Current system health reports, Management Review Meeting package, or similar information; provide past reports as necessary to include ≥ 12 months of metric/trending data
- d. Radiation protection event logs during the period
- e. Security event logs and security incidents during the period (sensitive information should be made available during the team's first week on site—do not provide electronically)
- f. List of training deficiencies, requests for training improvements, and simulator deficiencies for the period

Note: For items 3.d–3.f, if there is no log or report maintained separate from the corrective action program, please provide a summary list of corrective action program items for the category described.

4. Procedures

Note: For these procedures, please include all revisions that were in effect at any time during the period.

- a. Corrective action program procedures, to include initiation and evaluation procedures, operability determination procedures, apparent and root cause evaluation/determination procedures, and any other procedures that implement the corrective action program at Wolf Creek
- b. Quality Assurance program procedures (specific audit procedures are not necessary)
- c. Employee Concerns Program (or equivalent) procedures
- d. Procedures which implement/maintain a Safety Conscious Work Environment

5. Other

- a. List of risk-significant components and systems, ranked by risk worth

- b. Organization charts for plant staff and long-term/permanent contractors
- c. Electronic copies of the UFSAR (or equivalent), technical specifications, and technical specification bases, if available
- d. Table showing the number of corrective action documents (or equivalent) initiated during each month of the inspection period, by screened significance
- e. For each day the team is on site,
 - i. Planned work/maintenance schedule for the station
 - ii. Schedule of management or corrective action review meetings (e.g. operations focus meetings, condition report screening meetings, CARBs, MRMs, challenge meetings for cause evaluations, etc.)
 - iii. Agendas for these meetings

Note: The items listed in 5.e may be provided on a weekly or daily basis after the team arrives on site.

All requested documents should be provided electronically where possible. Regardless of whether they are uploaded to an internet-based file library (e.g., Certrec's IMS), please provide copies on CD or DVD. One copy of the CD or DVD should be provided to the resident inspector at Wolf Creek; three additional copies should be provided to the team lead, to arrive no later than May 25, 2016:

Eric Ruesch
U.S. NRC Region IV
1600 E. Lamar
Arlington, TX 76011

PAPERWORK REDUCTION ACT STATEMENT

This request 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.

Supplemental Information Request
Biennial Problem Identification and Resolution Inspection
Wolf Creek Generating Station
June 8, 2016

Inspection Report: 50-482/2016009
On-site Inspection Dates: June 13-17 & June 27-July 1, 2016

This request supplements the original information request. Where possible, the information should be available to the inspection team immediately following the entrance meeting. This inspection will cover the period from June 6, 2014, through July 1, 2016. The scope of the requested information is limited to this period unless otherwise noted.

Please provide the following:

1. As part of the inspection, the team will do a five-year in-depth review of issues and corrective actions related to safety-related 4160Vac switchgear. The following documents are to support this review:
 - Copies of all root and apparent cause evaluations performed on safety-related 4160Vac switchgear within the last 5 years, including root cause evaluations not already provided
 - Summary list of all condition reports written on safety-related 4160Vac switchgear in the last 5 years
 - List of all surveillances performed on safety-related 4160Vac switchgear within the last five years, sortable by component if possible, and including acceptance criteria (this can be limited to LOP/degraded-voltage testing, load-shed/sequencer/etc. surveillances, and other surveillances specifically designed to test relaying and breaker operation).
 - List of all corrective maintenance work orders performed on safety-related 4160Vac switchgear within the last 5 years
 - List of maintenance rule functional failure assessments—regardless of the result—performed on safety-related 4160Vac switchgear within the last 5 years
 - System training manual(s) for safety-related 4160Vac switchgear
 - Engineering forms/logs (including the engineer's notes), if any, from the last two engineering walk-downs/inspections of safety-related 4160Vac loadcenters and/or buswork; if these logs and notes are not in controlled documents, please provide governing procedures and arrange an interview with the engineer(s)
2. The team will also review the station's actions over the last several years to identify and correct the causes of water hammer in the ESW system. The following documents and lists support this review:
 - Summary list of all CRs associated with ESW water hammer and ESW leaks from 2010 to present.
 - Summary list of all CRs associated with increased failure rates of ESW vacuum breakers since installation of the ESW system modification in 2014.
 - Complete copies of all cause evaluations associated with the above topics, including attachments and associated CRs, from 2010 to present.
3. Procedures (please provide hard copy and electronic):
 - Conduct of Operations procedure (or equivalent) and any other procedures

- governing control room conduct, operator burdens and workarounds, etc.
- Operating Experience (OE) program procedures and any other procedures or guidance documents that describe the site's use of OE information
4. All CRs and other corrective action documents written in response to comments and assessments documented in the 2014 PI&R inspection report (full documents with attachments).
 5. List of structures, systems, and components and/or functions that were in maintenance rule (a)(1) status at any time during the inspection period; include dates and results of expert panel reviews and dates of status changes

In addition to the list above, please provide any additional updates to the information previously provided in response to the April 26, 2016, information request.

PAPERWORK REDUCTION ACT STATEMENT

This request 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.