ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-482/95-22

Operating License: NPF-42

Docket: 50-482

Licensee: Wolf Creek Nuclear Operating Corporation
P. O. Box 411
Burlington, Kansas 66839

Facility Name: Wolf Creek Generating Station

Inspection At: Coffey County, Burlington, Kansas

Inspection Conducted: August 26 through October 7, 1995

Inspectors: J. F. Ringwald, Senior Resident Inspector
J. L. Dixon-Herrity, Resident Inspector

Approved: D. F. Kirsch
D. F. Kirsch, Acting Chief, Project Branch B

10/26/95
Date

Inspection Summary

Areas Inspected: Routine, unannounced inspection including plant status, operational safety verification, maintenance observations, surveillance observations, onsite engineering, plant support activities, balance of plant, followup-maintenance, followup-engineering, and onsite review of a licensee event report.

Results:

Plant Operations

- Operators did not properly control the configuration of the Train A hydrogen recombiner when they failed to specify the restoration position of the power supply breaker per management's expectations during the restoration of a clearance order. Operators failed to notice this inappropriate configuration for approximately 10 days due to inattention to detail (Section 2.6).

- The inspector identified dim indications of motor-operated auxiliary feedwater pump flow control valves on the auxiliary shutdown panel caused by an operators' use of incorrect bulbs. The licensee identified ambiguities in the control room light bulb list (Section 2.4).

- The inspector found that operator response to simulator scenarios during the annual requalification examination process was effective (Section 2.5).

- Licensee response to emergency diesel generator (EDG) air intake leaks was conservative and appropriate (Section 2.3, 2.7).

- Control room personnel maintained good communications and control over the plant in response to a transient that resulted from a turbine control valve servo failure. The licensee's corrective actions in response to repeat servo failures were conservative, comprehensive, and expedient (Section 2.3).

Maintenance

- The inspector identified that the licensee did not initiate a performance improvement request (PIR) in response to the failure of the turbine-driven auxiliary feed water trip throttle valve to open when called upon during Valve Operation Testing Evaluation System (VOTES) testing, although the failure of the valve to operate was documented in the VOTES test procedure. As a result, the root cause of the failure of the valve to operate was not determined. This was identified as a noncited violation (Section 3.4.2).

- The troubleshooting that was performed following the failure of the turbine-driven auxiliary feed water trip throttle valve did not meet management expectations (Section 3.4.3).

- Three examples of maintenance personnel supporting or laying equipment on safety-related equipment were identified as a poor practice (Section 3.2).

- The changes being made to the valve packing program and the licensee's preventive maintenance approach to packing valves were identified as strengths (Section 3.3).

- The licensee's response to the identification of questionable limit switches was identified as conservative (Section 3.1).

Engineering

- The inspector identified that inaccurate information was used in an unanswered safety question evaluation completed to allow the

installation of a freeze seal in the fuel pool cooling system. This was identified as a noncited violation (Section 5.1).

Plant Support

- The compensatory actions taken and corrective actions planned as a result of the identification of a security concern were identified as conservative and appropriate (Section 6.1).

Summary of Inspection Findings:

- A noncited violation was identified (Section 3.4.2).
- A noncited violation was identified (Section 5.1).
- Violations 482/9505-01 and 482/9506-01 were closed (Sections 8.1 and 9).
- Inspection Followup Item 482/9506-02 was closed (Section 8.2).
- Licensee Event Report 95-004 was closed (Section 10).

Attachment:

- Persons Contacted and Exit Meeting

DETAILS

1 PLANT STATUS (71707)

The plant operated at 100 percent power until September 17, 1995, when power was reduced to approximately 75 percent power to allow work on offsite transmission lines. On September 20, 1995, power was reduced to approximately 65 percent power as a result of the failure of a servo on the turbine control Valve 2. Power was restored to 100 percent power on September 20, 1995. On September 21, 1995, a servo on the turbine stop Valve 2 failed, resulting in a power reduction to 92 percent power. Power was restored to 100 percent power on September 22, 1995. On September 23, 1995, power was reduced to approximately 75 percent power to replace the remaining servos and then restored to 100 percent power. The plant operated at 100 percent power during the remainder of the period.

2 OPERATIONAL SAFETY VERIFICATION (71707)

The inspectors performed this inspection to ensure that the licensee operated the facility safely and in conformance with license and regulatory requirements. The methods used to perform this inspection included direct observation of activities and equipment, observation of control room operations, tours of the facility, interviews and discussions with licensee personnel, independent verification of safety system status and Technical Specifications (TS) limiting conditions for operation, verification of corrective actions, and review of facility records.

2.1 Supervising Operator (SO) Attention to Detail

On August 26, 1995, the SO noted that the auto light on the steam dump steam pressure controller was not illuminated. The SO questioned this incorrect indication. Subsequent troubleshooting revealed that the power supply card failed. The inspector concluded that this represented excellent attention to detail and a very good display of a questioning attitude.

2.2 Atmospheric Steam Dump Controller

On September 5, 1995, the inspector noted that the controllers for the steam dumps to atmosphere on the auxiliary shutdown panel were in manual. The same controllers on the main control board were in automatic. The inspector reviewed Procedure CKL AB-120, "Main Steam System Lineup," Revision 17, to verify the correct position. The lineup indicated the controller should be closed. The inspector discussed the controller position and the procedure position with a control room operator who verified that manual was the correct position and explained that the off-normal procedure would require switching the controller to automatic when the auxiliary shutdown panel was manned. The question regarding the position called out in the checklist was referred to the operations procedure group who verified the position called out should

have been "Manual Zero Output" and had the procedure revised. The inspectors concluded that the actions taken addressed the concern.

2.3 Turbine Control Valve Servo Failure

On September 20, 1995, as the licensee was restoring from 75 to 100 percent power, the turbine controls failed to function as expected. Turbine load decreased when called upon to increase and the control room operators noted that Turbine Control Valve 2 slowly closed. Instrumentation and control personnel quickly diagnosed that the servo on Control Valve 2 had failed. The inspector observed operators stabilize the plant at approximately 65 percent power after the valve closed. The operators assigned to the relief crew that week augmented the operations crew on shift. Good communications and control were maintained throughout the transient.

After operators stabilized the plant, instrumentation and control personnel replaced the servo while an operator depressed the test button to maintain the control circuit in the test mode. When operators returned the servo to service, the valve began oscillating open and closed. This continued for several minutes until the operator released the test button. At this point, the valve opened fully, introducing a rapid power increase of 150 megawatts. The operators reduced turbine load in response to the transient and stabilized the plant. The inspector determined that the circuitry had operated as designed.

Two servos had failed earlier in this operating cycle on the turbine combined intercept valves. The servo replacement in both of these cases had gone without incident. The licensee received the root cause analysis completed for the first two servo failures on September 20, 1995. This indicated a varnish buildup from the oil in the servos was responsible for the failures. On September 21, 1995, the servo on Turbine Stop Valve 2 failed and the stop valve closed. The control room operators stabilized the plant at 95 percent power. As a result of these two most recent failures, the licensee determined that it would be prudent to replace the remaining four servos (three on control valves and one on a combined intercept valve), but that the work would have to be performed in a controlled manner. On September 23, 1995, operators decreased power to 75 percent. Maintenance personnel replaced the four servos that had not failed and also the first servo that had failed earlier in the cycle without incident. Engineering had requested replacement of the fifth servo to determine how quickly the servos were degrading. PIRs 95-2331, 95-2328, and 95-2367 were opened to address the failures. Additional corrective actions included changing the fuller-earth filter, revising the preventive maintenance requirement to change the fuller-earth filters from monthly to biweekly, and replacing the discharge filters on the EHC pumps. The inspector concluded that the operators maintained control of the plant and that actions taken in response to the servo failures were both conservative and appropriate.

2.4 Incorrect Auxiliary Shutdown Panel Bulbs

On September 25, 1995, the inspector identified dim indications on the valve position indications for the motor-driven auxiliary feedwater flow control valves on the auxiliary shutdown panel. The inspector questioned the shift supervisor (SS) regarding these dim indications. The SS directed the shift engineer to evaluate the indications. The shift engineer compared the bulbs on the main control board for these valve position indications with the bulbs on the auxiliary shutdown panel and determined that the wrong bulbs were installed in the auxiliary shutdown panel. The inspector questioned whether there was a list of bulbs that could have been used to make this verification. The licensee verified that there was and subsequently reviewed the bulb list in the control room and determined that the list contained two conflicting entries for bulbs in this application. The licensee initiated PIR 95-2360 to document and review this issue, and indicated that this PIR will address both the incorrect bulbs and the conflicting entries on the light bulb list. The inspector discussed this issue with the system engineer, and confirmed that the incorrect bulb in this application had no impact on the operability of the system.

2.5 Annual Operator Requalification Examination

On September 27, 1995, the inspector observed two staff crew requalification examination simulator scenarios. During both scenarios the operators effectively responded to the simulated problems, maintained their focus on reactor safety, and effectively utilized the emergency operating procedures. The evaluators properly evaluated the scenario and provided appropriately critical feedback to the operators regarding their performance. The operations manager observed scenarios and participated in the evaluation and critique. The inspector considered this level of participation by the operations manager to be a strength of the examination process. The inspector concluded that the examination effectively evaluated operator performance.

During one scenario the inspector noted one potentially confusing SO directive that was not identified by the evaluators, and once identified, not addressed by the evaluators. This directive was for the secondary operator to secure condensate and heater drain pumps following a feedwater line break prior to the operator completing the immediate actions of EMG E-0, "Reactor Trip or Safety Injection," Revision 7. During a discussion with the secondary operator, the inspector determined that the operator heard and understood the directive prior to completing the immediate action steps, and appropriately decided to complete the immediate action steps from EMG E-0 prior to securing the secondary pumps. The inspector concluded that while this particular directive did not confuse the secondary operator during the observed scenario, this sort of directive could introduce confusion in other circumstances. The inspector discussed this observation with the SO who gave the potentially confusing directive. The SO understood the comment and stated that there was a lesson to be learned from this observation to improve future performance. The operations manager acknowledged the inspector's comment, and surveyed several SSs and SOs regarding emergency operating procedure entry

expectations. The operations manager stated that based on this survey, the SSs and SOs understood the correct priorities for emergency operating procedure entry conditions.

2.6 Improperly Restored Hydrogen Recombiner

On September 28, 1995, a reactor operator noted the power available indication for Hydrogen Recombiner GS01A was not illuminated. After confirming that the cause was not a failed light bulb, the operator dispatched the nuclear station operator to Breaker NG0304, the power supply breaker to Recombiner GS01A. The nuclear station operator found the breaker racked in and open. The operator requested electricians to determine whether the breaker had tripped or was merely open. The electricians determined that the breaker had not tripped. The SS directed the electricians to reset and close the breaker. This illuminated the power available indication. The licensee initiated PIR 95-2420.

The SS initially declared Hydrogen Recombiner GS01A inoperable. A subsequent evaluation concluded that this was not necessary. At the point the emergency operating procedures direct operators to start up the hydrogen recombiners, operators would be referred to Procedure SYS GS-120, "Post LOCA [Loss of Coolant Accident] Containment Hydrogen Recombiner Operation," Revision 8. Step 3.1 of Procedure SYS GS-120 directs the operators to verify that Breaker NG0304 is closed. According to engineering, long-term operability of the hydrogen recombiner was not affected by the open breaker.

On September 18, 1995, operators restored a clearance order on Hydrogen Recombiner GS01A following maintenance. The SS specified the restoration position for Breaker NG0304 as racked in and open. Procedure AP 21E-001, "Clearance Orders," Revision 2, Step 6.5.3, required the SS to direct restoration of equipment as required by plant conditions. Checklist Procedure CKL GS-120, "Containment Hydrogen Control System Lineup," Revision 8, which specified the lineup of the hydrogen purge subsystem for normal plant operation, required that Breaker NG0304 be closed. The superintendent of operations stated that management expected the SS to direct restoration in accordance with Checklist Procedure CKL GS-120 in this case, and that in other cases, other restoration positions may be more appropriate. The inspector concluded that the failure of operations personnel to restore the hydrogen recombiner properly demonstrated a weakness in operations control of plant configuration and was without safety significance. The licensee, however, responded by expanding the scope of PIR 95-2420 to address generic issues beyond the hydrogen recombiner.

The inspector further noted that operators failed to notice the loss of the power available indication for approximately 10 days. While this indication is on a back panel behind the main control boards, the indication was readily observable. The inspector concluded that this represented inattention to detail during walkdowns of these control boards behind the main control boards.

2.7 EDG Intake Air Leaks

On October 4, 1995, during restoration from EDG B governor replacement work, maintenance personnel noted air leakage from the west intercooler inlet plenum flange and that some gasket material had blown out. Maintenance personnel immediately implemented corrective action to replace the damaged gasket on the outlet of the plenum. While performing this task, maintenance personnel replaced the inlet gasket to the plenum since both flanges needed to be disassembled to repair the damaged gasket. After replacing the gaskets, operators performed the EDG B retest successfully, and declared EDG B operable. Subsequent to declaring EDG B operable, operators performed an operability surveillance test on EDG A to determine whether the gasket problem identified on EDG B had generic applicability. Operators identified a similar leak on the east intercooler inlet plenum flange on EDG A and declared EDG A inoperable. Maintenance personnel replaced the two gaskets on the east plenum of EDG A. During the postmaintenance run of EDG A, the inspector identified a small leak on the west plenum of EDG A. Licensee management directed maintenance to replace the remaining gaskets on EDG A prior to operations testing and declaring EDG A operable. Following the replacement of the west plenum gaskets, operators successfully performed the operability surveillance test and declared EDG A operable. A subsequent engineering evaluation of the worst case leak determined that none of the leaks would have affected either EDG's ability to perform its safety function. While a root cause of failure evaluation was not complete at the end of the period, engineering stated that aging was the most likely cause and that the vendor stated that they recommended that these gaskets only be replaced as needed. The maintenance manager stated that generic applicability would be considered as part of the evaluation for PIR 95-2460, the significant PIR written to address this gasket failure. The inspector concluded that the licensee's actions were conservative and appropriate.

3 MAINTENANCE OBSERVATIONS (62703)

During this inspection period, the inspectors observed and reviewed the selected maintenance activities to verify that personnel complied with regulatory requirements including: (1) receiving permission to start; (2) requiring quality control department involvement; (3) proper use of safety tags; (4) proper equipment alignment; (5) use of jumpers and appropriate radiation worker practices; (6) use of calibrated tools and test equipment; (7) documenting the work performed; and (8) proper postmaintenance testing. Specifically, the inspectors witnessed portions of the following work packages:

- PM103116-001/003 Replacement of Limit Switches
- WP 100606-001 Verification of Cable Separation
- WP 101468-011 Retest AB UV-34

- CM 100546-001 Valve EF HV-0059 Packing Adjustment
- SU 100546-003 VOTES Testing of Valve EF HV-0059
- WP 104348-001 Hydro-Motor Removal
- WR 104315 Class 1E Air Conditioning Unit SGK05A Tubing Modification
- PM 103326-001 Class 1E Air Conditioning Unit SGK05A Cleaning
- WP 104336 Turbine Control Valve 2 Servo Replacement
- WP 105088-001 Troubleshoot Radiation Monitor O-GH-RE-10A
- WR 51734-94 Adjust Nitrogen Pressure in Feed Water Isolation Valve Accumulator

Selected observations from the activities witnessed are discussed below.

3.1 Environmental Qualification of Limit Switches

On September 7, 1995, the inspector observed the scheduled replacement of limit switches on main steam isolation b[illegible]s Valve AB HV0021 due to end of environmental qualified life concerns. Electricians performed the work in accordance with the work instructions in Package PM 103116. While performing the task, the electricians noted that the part they were to install was not identical to the one that had been removed. They appropriately contacted their supervisor and the planner who developed the task. The shaft that held the switch arm was shorter than the original and did not include a rubber boot.

The licensee appropriately stopped work on the valve and placed a hold on the parts in question in the warehouse. Engineering personnel investigated to determine which switches met environmental qualification requirements. The licensee initiated PIR 95-2251 to address corrective actions. The inspector examined similar limit switches in the field and noted that the short shafted switch had been used on Valves AB HV0018 and AB HV0010. The inspector provided this data to the personnel involved in the issue. Through research in procurement documentation and discussions with the manufacturer, the licensee determined that limit switches with the longer shaft and boot were environmentally qualified by the manufacturer. The switches with the shorter shaft were older stock that had not been environmentally qualified by the manufacturer, but may have been qualified by another manufacturer. The licensee could not locate the documentation to verify this. They appropriately removed the older switches with the shorter shaft from their stock and plan to replace the three switches used in the field at the next opportunity. The switches installed in the field were on safety-related valves, but the function, indication, was not safety-related.

The inspector concluded that the review that took place, after questions were raised over the qualifications of the switches, was comprehensive and thorough. The licensee's decisions to declare the two valves that used similar switches inoperable and to purge the questionable switches from inventory were found to be conservative.

3.2 Poor Maintenance Practices

While touring the plant on three separate occasions, the inspector noted that maintenance personnel stowed equipment or tied off an item to a safety-related piece of equipment. On September 18, 1995, while observing mechanics install insulation on essential service water piping in the Train A safety injection pump room, the inspector noted that a trash bag had been hung on the manual lever for the Train B safety injection system mini-flow valve. The inspector questioned the mechanics whether this was a good practice and the mechanics removed the bag. The inspector discussed the incident with the SS. The SS counselled the individuals and initiated PIR 95-2299. This incident was appropriately discussed at the morning meeting with plant management the next day to stress that this did not meet management's expectations.

On September 19, 1995, while observing painting preparation work in the Train A containment spray pump room, the inspector noted that a safety harness had been hung on the ground fastener on a safety-related cable tray. The inspector pointed the harness out to the operability monitor assigned to observe the work. He immediately had it removed. On September 27, 1995, while observing freeze seal preparation near the Train B fuel pool cooling heat exchanger, the inspector noted that the nitrogen line for the freeze seal had been taped to a safety-related conduit. The inspector discussed this practice with a mechanical maintenance supervisor. He had the tape removed and relocated the nitrogen line.

Although the safety significance in each of these cases was low, the inspector concluded that they were all examples of a poor practice. The action that management took to stress that the practice did not meet management expectations was appropriate. The inspector reviewed the corrective actions taken in response to the PIR and noted that the actions should prevent recurrence.

3.3 Packing Adjustment

On September 20, 1995, the inspector observed mechanics adjust the packing on Train A component cooling water heat exchanger outlet Valve EF HV0059. The work package contained a valve data sheet that provided all of the packing and torque data for the valve. The mechanics explained that the information was put together to ensure that the adequate torque was placed on the packing to stop the leak, but to prevent affecting the valve VOTES test.

The inspector discussed the program with the mechanic responsible for the program. The mechanic explained that part of the purpose of the program was to make better use of packing technology to improve their packing program. A

data base was in the process of being set up to provide the valve data sheets that the inspector had noted in the field. Packing leaks had not been identified as a problem onsite. For example, of approximately 335 valves scheduled to be repacked with upgraded packing during the next outage, only approximately 14 valves were corrective maintenance.

The inspector concluded that the efforts being made by the licensee to improve the valve packing program were conservative. The inspector determined that the program was a strength due to the low frequency of leaking valves on site and the preventive maintenance approach of the program.

3.4 Turbine-Driven Auxiliary Feed Pump Trip Throttle Valve Failure

3.4.1 Failure to Meet Valve Stroke-Time Limit

On September 28, 1995, the inspector noted that the turbine-driven auxiliary feed pump trip throttle Valve FC HV-312 had failed to stoke within the required time. The valve stroked in 10.4 seconds. The limiting value was 10 seconds. The licensee appropriately declared the turbine-driven auxiliary feed pump inoperable and entered the TS action statement. Later, they recalculated the ASME limiting value and declared the valve operable. The inspector discussed this practice with the in-service test engineer, who stated that there was no basis for the original limit. The body-to-bonnet gasket had been replaced in that valve on June 28, 1995. The valve stroke following the maintenance had been 9.7 seconds. After failing to meet the stroke time, the valve was stroked two more times to verify it was not degrading. Those times were 10.2 and 10.1 seconds. The inspector reviewed the calculation and the valve stroke history. The limit did not have a basis because the stroke history was not used in determining the limit. The average stroke time was 8.2 seconds. The inservice test engineer initiated PIR 95-2387 to address the problems identified with the basis for the trip throttle valves and to ensure that there were bases for the remainder of the valves in the program.

3.4.2 Failure During Previous Maintenance Outage

While reviewing the recent maintenance history for Valve FC HV-312, the inspector noted that the valve failed to stroke when called upon to do so during VOTES testing after maintenance was performed on June 28, 1995. The electrical maintenance engineer involved with the VOTES testing of the valve recalled lubrication problems with the valve. The failure to stroke was identified by the technicians in the VOTES test procedure.

The inspector reviewed Work Request 02774-95, the package used to perform the VOTES test. The package provided for determinating and reterminating the valve operator in support of the bonnet gasket replacement. The package required VOTES testing after it was reassembled. The electrical maintenance engineer involved with the VOTES testing noted that the valve exceeded the torque setpoint before it latched. The engineer recorded that there were possible lubrication problems with the sliding nut on the valve and that he

contacted mechanical maintenance and had them clean and lubricate the stem and cycle the valve to distribute the grease. The electricians repeated the VOTES test successfully. PIR 95-1695 was initiated to address the lubrication problem.

The inspector noted that the initiation of a PIR, to document the failure to stroke, was not accomplished, and that PIR 95-1695 did not address the unexpected failure of the valve to open. PIR 95-1695 identified that the valve stem lubrication was severely degraded. Specifically, it identified that the valve stem threads and the sliding nut were not cleaned or lubricated during the performance of Work Request 50234-95. By not writing a PIR to document the failure of the valve to operate during the performance of VOTES testing (the post maintenance test prior to returning the valve to operation following maintenance) the licensee missed an opportunity to determine the root cause of the failure of an important valve to operate. This valve performs a significant safety-related function, in that it has to open to allow the turbine-driven auxiliary feed pump to start. The inspector observed that the valve was reworked and successfully tested prior to returning the valve to service.

3.4.3 Troubleshooting

The inspector discussed the decision path used during the task with the engineer who had been responsible at the job site. The engineer explained that the work was performed during the night shift. When the valve seized and would not open, the engineer noted the condition of the grease on the valve stem and sliding nut and recalled that a preventive maintenance task had been scheduled earlier that day. The engineer requested that maintenance clean the valve stem threads and the sliding nut because the task had not been performed adequately during the preventive maintenance task. The engineer made the assumption that cleaning the stem and hand lubricating the sliding nut were part of the preventive maintenance task. After the maintenance was complete, the engineer noted that this maintenance was not included in the preventive maintenance and initiated PIR 95-1695 to add it.

The inspector reviewed preventive maintenance Work Request (WR) 50234-95. The instruction provided in the procedure require that the moving parts of the trip throttle valve be lubricated at nine provided grease fittings. The instructions did not address cleaning the valve stem or hand lubricating the sliding nut.

The inspector noted that the maintenance performed after the failure was identified was not documented in a work package. The inspector discussed this concern with the mechanical maintenance superintendent, who expressed the expectation that the work be performed using a troubleshoot/minor maintenance work package task form in the work package used for the VOTES testing. After reviewing the packages, the superintendent noted that the record in the WR 2774-95 fulfilled a portion of this expectation, but that a troubleshoot/minor maintenance work package task form still should have been

used. Procedure AP 16C-002, "Work Controls," Revision 1 required the use of this form and provided instructions for troubleshooting.

3.4.4 Manufacturer Suggested Grease

The inspector questioned whether the grease that was being used in the valve was that suggested by the manufacturer. The system engineer was not aware of a manufacturer suggested grease. The inspector reviewed the vendor manual and noted that the only grease prescribed was for the valve actuator. The section that dealt with the trip throttle valve only recommended that a high temperature grease be used in valves operating under a high degree of superheat. A vendor representative contacted by the system engineer claimed that the manufacturer preferred NGLI-2 or a high temperature lithium based grease. The advantage the vendor identified was that the carrier in the grease would evaporate when exposed to high temperatures. The licensee used a high temperature calcium based grease. The system engineer was not aware of any formal evaluation that had been done to explain the basis for not using the manufacturer suggested grease. The system engineer initiated PIR 95-2510.

3.4.5 Conclusions

The inspector concluded that valve operation had not shown further degradation and that the PIRs initiated by the licensee would adequately address the failure to include a basis for the limit calculations and which grease should be used. The inspector determined that the errors which resulted in maintenance personnel failing to properly document the troubleshooting were the same errors which contributed the failure to identify the unexpected failure of the VOTES post maintenance test. The failure to document and assess the root cause of the failure of Valve FC HV-312 to perform its safety related function when called upon during post maintenance VOTES testing is a violation of 10 CFR 50, Appendix B, Criterion XIV. However, because the valve was ultimately reworked and successfully tested prior to returning the valve to operation, this failure constitutes a violation of minor safety significance and is being treated as a Non-Cited violation, consistent with Section IV of the NRC Enforcement Policy.

4 SURVEILLANCE OBSERVATIONS (61726)

The inspectors sampled selected surveillance tests required by TS to verify that personnel performed the tests in accordance with TS, used technically adequate procedures and appropriate test equipment, and properly dispositioned any tests results which failed to meet the acceptance criteria. Specifically, the inspectors witnessed the following surveillance tests.

- STC IC-242 Instrument Power Range
- STS SE-001 Nuclear Instrumentation Calibration
- STS BG-002 Chemical and Volume Control System Vent and Valve Lineup
- STS AE-001 Main Feedwater Isolation Valve Accumulation Discharge Test

The inspectors concluded that the surveillance tests were performed as required.

5 ONSITE ENGINEERING (37551)

The inspectors reviewed and evaluated engineering performance as discussed below.

5.1 Freeze Seal on Fuel Pool Cooling Train B

On September 27, 1995, the inspector questioned the risk involved with placing a freeze seal on the Train B fuel pool cooling system downstream of the fuel pool cooling heat exchanger discharge valve. The shift supervisor explained that the failure of the freeze seal with no action taken would result in the fuel pool draining from the normal level of 2046 feet down to the anti-siphon vent at 2042 feet 11 inches. The inspector questioned whether this would place the plant in a TS action statement. The shift supervisor determined it would. TS 3.9.1.11 required that 23 feet be maintained over the top of the fuel (approximately 2043 feet 11 inches). The TS required action was to refill the pool immediately.

The inspector observed the setup of the freeze seal and reviewed the work package, Temporary Modification Order (TMO) 95-026-EC, and TMO 92-040-EC. The second document contained the screening for licensing basis changes. This screening referred to the 10 CFR 50.59, unreviewed safety question evaluation completed for TMO 92-040-EC. In the written justification for adding the freeze seal and thereby changing the fuel pool cooling system as described in the Updated Safety Analysis Report, the justification stated: "Furthermore, an anti-siphon hold is located in each return line, near the surface of the pool. This anti-siphon hole will prevent any possible draining of the spent fuel pool due to freeze seal failure." Per information reflected in Drawing M-12EC01(Q), "Piping and Instrumentation Diagram Fuel Pool Cooling and Clean-up System," this statement was not true. The spent fuel pool would drain down from 2046 feet down to 2043 feet one half inch before the anti-siphon vent stopped the drainage.

The inspector discussed the justification with the system engineer, who stated that the statement could have been worded better. After discussing the concern with the system engineering supervisor, the supervisor discussed the unreviewed safety question evaluation with management and they determined that the justification did not meet current management expectations and that it should be rewritten. Due to the low priority of the work, management directed maintenance to delay the work until a future date. The leaking valve, Fuel Pool Cooling Heat Exchanger B Discharge Valve EC V0018, was not visibly leaking, so delaying the work was not safety significant.

The inspector reviewed Revision 1 of the Unresolved Safety Question Determination. The licensee determined that although the spent fuel pool would drain to the anti-siphon vent, the level would not drop below the design basis level of the spent fuel pool without fuel movement, that is, 2040 feet.

This level is specified in TS 5.6.2. The inspector determined that the new revision satisfactorily addressed the concerns.

Two examples of inadequate unreviewed safety question evaluations were identified as a violation of 10 CFR 50.59 in NRC Report 50-432/95-07. The inspector noted that the corrective actions in response to that violation and the WCNOC Self-Assessment Report SE 95-001, "Engineering Change Process," dated March 24, 1995, were in place at the time that TMO 95-026-EC was developed and approved. TMO 95-026-EC was approved on August 30, 1995. Training to enhance personnel skills in implementing the design change process had not been provided to engineering personnel and Procedure AP 26A-003, "Screening and Evaluating Changes, Tests, and Experiments," Revision 0, was approved on August 30, 1995.

The inspector concluded that the original revision of the Unresolved Safety Question Determination was inadequate in that the justification did not provide an accurate description of the result of a freeze seal failure. The inspector noted that this was in violation of 10 CFR 50.59. This failure constitutes a violation of minor significance and is being treated as a Non-Cited violation, consistent with Section IV of the NRC Enforcement Policy.

6 PLANT SUPPORT ACTIVITIES (71750)

The inspectors sampled selected activities in the different areas of plant support and verified that they were implemented in conformance with licensee procedures and regulatory requirements.

6.1 Security Concern Identified at Callaway

The inspector reviewed the actions taken in response to security concerns identified at Callaway. The licensee immediately verified that the concerns were applicable at Wolf Creek and addressed several additional concerns that had not been previously identified. A security guard was appropriately stationed at the entrance to the area of concern as a compensatory measure until the problem could be assessed. The inspector reviewed the actions taken in response to the concerns and determined that they would address the concerns.

7 BALANCE OF PLANT (71500)

The systems that were selected to be reviewed included: heater drain, nonsafety 13.8 and 4.16 kV electrical, compressed air, and condenser air removal. The inspector reviewed system operating procedures and noted no significant problems. The inspector reviewed the work package history, modifications, and performance improvement request history for these systems. The inspector noted that problems identified were promptly addressed.

The only problem found that had not been addressed, was a steam leak at the base flange of the Train A heater drain pump, was the only repeat problem that was identified. The inspector discussed this with the system engineer. The

leak had been present for a number of years and had been sealed with furmanite numerous times. The system engineer explained the leak was a very small leak that was barely visible and that a package had been prepared to repair the leak during the last outage, but that it had been delayed until a later date. The inspector discussed the concern with the Vice President, Plant Operations. The Vice President explained that the loss of a heater drain pump would result in the loss of several megawatts, but would not affect the plant to a great extent. The inspector had noted that the area around the leak was appropriately marked off with safety flagging. The inspector concluded that the actions taken by the licensee to address the equipment were acceptable and that the leak had no effect on operation of safety-related systems.

Through discussions with the system engineer for the compressed air system, the inspector noted that there had been problems with the reliability of Air Compressor C. This compressor was not relied on for safety-related loads. Any combination of three compressors supply both service and instrument air. Air compressors A and B had previously been replaced with more reliable, higher capacity, oil-free air compressors. The cooling water source was changed from potable water to essential service water. During this report period, Air Compressor C was replaced with a unit similar to Air Compressors A and B. Due to past problems with the quality of the potable water, the licensee used the chilled water system, a non-safety clean water source, to cool the unit. The inspector concluded that the replacement of the compressor was conservative and exhibited a similar level of attention that would be expected for a safety-related system.

The inspector concluded that the licensee was conservatively maintaining the balance of plant systems reviewed that could affect safe operations. Management response to problems in the balance of plant was found to be prompt and appropriate.

8 FOLLOWUP-MAINTENANCE (92902)

8.1 (Closed) Violation 482/9505-01: Operator Surveillance Error for STS IC-618A and IC-500E

This violation addressed two incidents where licensee personnel failed to follow procedures during the performance of surveillance procedures. The licensee acknowledged the violations and determined that the root cause in both cases was cognitive personnel error. In the first example, where an operator failed to remove a fuse in accordance with the procedure, the contributing factors identified included the need to give more precise direction in the substeps of the procedure and to reinstall fuses before considering the procedure complete. In the second example, an instrumentation and control technician performed a step not required to be performed. The contributing factors identified in this case were inconsistency with respect to the standardization of partial procedure setup and administration, and inadequate written guidance with respect to the PIR initiation threshold within the instrumentation and control organization.

In both cases, the immediate corrective actions taken were to put the affected equipment in its appropriate lineup and initiate a PIR to address the error. Additional corrective actions to address the first example included: (1) operations management issued a letter addressing the need for continued attention to detail during slave relay testing, (2) the operations department reviewed and enhanced operations procedures to address the deficiencies discussed above, and (3) licensed operators received training on slave relay testing. The additional corrective actions to address the second example included: instrumentation and control personnel were required to read the PIR and Procedure AP 15C-002, "Procedure Use and Adherence;" the instrumentation and control department provided written guidance on the threshold for initiation of PIRs; and the assistant to the Vice President, Operations, conducted a meeting with instrumentation and control personnel to discuss management expectations, self-checking philosophy, and supervisory involvement.

The inspector reviewed the corrective actions taken and concluded that they were comprehensive and would prevent recurrence.

8.2 (Closed) Inspection Followup Item 482/9506-02: GE Magne-Blast Circuit Breakers Maintenance Followup

This item identified several tasks in Procedure MPE E009Q-02, "Inspection and Testing of 13.8 kV and 4.16 kV Circuit Breakers," Revision 21, that did not provide the detail contained in the vendor manual describing the methods for performing the task. The procedure could not be used without use of the vendor manual, but did not reference it. While observing the performance of the procedure on August 16, 1995, the inspector noted that the procedure had been revised (Revision 23), but that there were minor errors in the procedure and tasks that were not clear. For example, there were no instructions for setting up the timer to perform response-time tests. The added details and figures better described the tasks to be performed and allowed the procedure to be used more effectively. The figures that had been added appeared to aide in the performance of the tasks, but were not always clear. The inspector reviewed the most current revision (Revision 24) of the procedure and noted that the deficiencies had been corrected. Instructions for use of the timer for response-time testing had also been added. A comparison of the procedure and vendor manual verified that the detail added allowed the tasks to be performed more effectively and closer to the procedure identified in the manual. The inspector concluded that the changes made to the procedure effectively addressed the concerns related to lack of detail and failure to use vendor provided procedures in the development of the procedure.

9 FOLLOWUP-ENGINEERING (92903)

(Closed) Violation 482/9506-01: Transfer Switch Problem

This violation involved two examples where the licensee failed to assure that conditions adverse to quality were promptly identified and corrected. In the first example, the licensee failed to initiate a PIR in response to

information that indicated that safety-related valves were degraded. The second example dealt with inadequate corrective actions taken in response to a previous event where the reactor trip breaker hand switch failed to function as designed. The licensee's root cause evaluation identified the following common deficiencies: (1) the lack of sufficient personnel awareness and understanding of what constitutes a degraded/nonconforming condition; (2) the lack of adequate procedures to address the guidance provided in Generic Letter 91-18; and (3) the lack of effective management and supervisory oversight and guidance. In addition, the licensee noted that insufficient personnel awareness on the part of engineering resulted in the incorrect interpretation of the classification of "possibly susceptible" and the failure to initiate a PIR in the first example. The second example resulted from the failure of the licensee to implement all needed corrective actions.

The inspector reviewed the corrective actions taken in response to the violation. The engineering department implemented management changes. The reorganized department held informal meetings to express and clearly define the expectations for engineering personnel support and the use of the corrective action program. The new management established written management expectations and measures of excellence for engineering personnel. The licensee's industry information review program was revised to require that all incoming industry issues be documented in the corrective action program. Corrective action procedures were evaluated and revised to conform to the guidance provided in Generic Letter 91-18. In addition, in response to the first example, calculations were performed to provide a justification for continued operability of the effected valves and PIRs were initiated to track the long term corrective actions for valve problems that were identified. The specific corrective actions implemented in response to the second example included reviewing and revising all procedures that required the manipulation of the reactor trip breaker hand switch and providing an operator aide to prevent further use of the switch. Planned corrective actions include monitoring the industry resolution of the concern over pressure locking and thermal binding of valves and the replacement of the reactor trip breaker hand switch and possible modification of a number of valves during Refueling Outage VIII. The inspector concluded that the licensee addressed the violation appropriately and that the comprehensive corrective actions taken or planned will address the concerns and prevent recurrence.

10 ONSITE REVIEW OF AN LICENSEE EVENT REPORT (92700)

(Closed) Licensee Event Report 482/95-004: Failure to Comply with License Condition 2(c) Due to a Failed Pump

This report addressed the licensee's failure to comply with a license condition requiring that the emergency diesel generator lube oil keepwarm pumps be ASME Section III, Class 3 qualified. The licensee failed to comply due to their inability to procure an ASME Section III, Class 3, replacement pump or parts. On July 28, 1995, the licensee requested enforcement discretion to permit the installation of a non-ASME Section III, Class 3 keepwarm pump until an emergency license condition change could be approved by

the NRC. A non-ASME Section III, Class 3 replacement keepwarm pump was installed on July 31, 1995. Formal approval of the enforcement discretion was received on August 1, 1995, and approval of the emergency license change was received on August 3, 1995. The inspector concluded that the actions taken appropriately addressed the root cause and would prevent recurrence.

ATTACHMENT 1

1 PERSONS CONTACTED

G. D. Boyer, Manager, Training
T. A. Conley, Superintendent, Radiation Protection
T. D. Damashek, Supervisor, Regulatory Compliance
D. L. Erbe, Supervisor, Security Operations
R. B. Flannigan, Manager, Nuclear Engineering
T. J. Garrett, Manager, Design Engineering
R. C. Hagan, Vice President, Engineering
K. M. Harvey, Manager, Document Services
S. F. Hatch, Performance Assessment
N. W. Hoadley, Manager, Support Engineering
W. M. Lindsay, Manager, Performance Assessment
B. S. Loveless, Superintendent, Resource Protection
B. T. McKinney, Manager, Operations
G. D. Moore, Manager, Maintenance
W. B. Norton, Manager, System Engineering
J. M. Pippin, Manager, Integrated Plant Scheduling
C. A. Redding, Engineering Specialist III, Regulatory Compliance
K. L. Scherich, Supervisor, NSSS Systems
R. L. Sims, Supervisor, Operations Support
S. G. Wideman, Supervisor, Licensing
M. G. Williams, Manager, Plant Support
C. R. Younie, Superintendent, Operations

The above licensee personnel attended the exit meeting. In addition to the personnel listed above, the inspectors contacted other personnel during this inspection period.

2 EXIT MEETING

An exit meeting was conducted on October 11, 1995. During this meeting, the inspectors reviewed the scope and findings of the report. The licensee did not identify as proprietary any information provided to, or reviewed by, the inspectors.