ENCLOSURE 2

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-482/95-25

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: November 19 through December 30, 1995

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Approved: W. D. Johnson, Chief, Project Branch B — Date 1/10/96

Inspection Summary

Areas Inspected: Routine, unannounced inspection including plant status, operational safety verification, maintenance observations, surveillance observations, onsite engineering, plant support activities, Nuclear Safety Review Committee, and followup-engineering.

Results:

Plant Operations

- A violation occurred when operators used "not applicable" markups to alter the intent of a procedure, which when used resulted in overpressurization and damage to a containment spray pump suction pressure gauge (Section 2.1).

- While performing valve testing, operators established a flowpath that resulted in an inadvertent transfer of 200 gallons of water from the volume control tank to the refueling water storage tank (Section 2.2).

- Operators responded appropriately to an annunciator power supply failure, but did not recognize the need for alarm response procedure reviews of alarms that failed in the nonalarm condition until after the inspector raised the question (Section 2.3).

- A safety-related battery room temperature alarm was inappropriately set and reference documentation was uncoordinated (Section 2.4).

- There were nuisance alarms during a surveillance test (Section 4.1).

Maintenance

- Maintenance personnel exhibited excellent problem solving skills during the repair of a safety related air conditioning unit valve actuator (Section 3.1).

- A first-line supervisor was unaware of the management expectations associated with the documentation of completed work instruction steps (Section 3.2).

- A containment hydrogen analyzer surveillance test procedure had an inconsistent level of detail and minor inconsistencies (Section 4.2).

Engineering

- A noncited violation occurred when engineering failed to appropriately consider nuisance tripping during the preparation of a breaker design change (Section 8).

- Engineering failed to initiate a significant performance improvement request (PIR) in a timely manner. The lack of timeliness requirements for initiating performance improvement requests in Procedure AP 28A-001 was a weakness in the corrective action program (Section 5.1).

Plant Support

- An unresolved issue was identified when a radiographer failed to ensure that the area within the radiography boundary was cleared of personnel prior to initiating radiography (Section 6.1).

- A distraction (drawing on the white board) in the central alarm station (CAS) was created by the CAS operator. Security supervision did not tour the CAS frequently enough to recognize the implications of the distraction (Section 6.2).

- The inspector identified weak radiation worker and health physics practices (Section 6.3).

Management Overview

- An external Nuclear Safety Review Committee member led a very thorough and probing discussion of a proposed Technical Specification amendment, that resulted in the amendment being referred back to the licensee staff (Section 7).

Summary of Inspection Findings:

- Violation 482/9525-01 was opened (Section 2.1).
- Unresolved Item 482/9525-02 was opened (Section 6.1).
- A noncited violation was identified (Section 8).
- Inspection Followup Item 482/9524-02 was closed (Section 7).

Attachment:

- Persons Contacted and Exit Meeting

DETAILS

1 PLANT STATUS (71707)

The plant operated at essentially 100 percent power throughout the inspection 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 limiting conditions for operation, verification of corrective actions, and review of facility records.

2.1 Inappropriate Containment Spray Pump Test Procedure

On December 6. 1995, operators performed a test of Containment Spray Pump B, using Procedure STS EN-100B, "Containment Spray Pump B Inservice Pump Test," Revision 10. Operators marked numerous steps in the procedure "N/A" or not applicable in order to perform a more limited postmaintenance test, rather than the complete inservice test. One of the steps marked "N/A" required operators to open Valve EN V0025, Containment Spray Pump B test line to refueling water storage tank isolation. As a result, while the pump started with recirculation flow, the very short flowpath had no pressure relief path, and the heat added by the pump raised the pressure in the suction piping to more than 300 psig, damaging the 0-60 psig permanently installed suction pressure gauge. The initial scope of Procedure STS EN-100B was to satisfy several Technical Specification surveillance requirements associated with Containment Spray Pump B. The inspector concluded that the procedure used on December 6, 1995, was altered such that it no longer accomplished the original procedure scope.

The decision to perform the test with the lineup used was based on two factors. First, the test occurred late in the evening. In order to perform the complete surveillance test, operators would have had to call out test support workers to work overtime. The schedule specified a postmaintenance retest, but did not specify what retest to perform. The definition of the appropriate retest had been left for the operators to define. Since the complete surveillance test was scheduled for the following day, operators decided to perform the more limited retest in order to declare the pump operable following scheduled maintenance. Second, operators had aligned the spent fuel pool cooling system to recirculate to the refueling water storage tank, and decided that by not opening Valve EN V0025, they would not need to perform the additional evolutions of securing and reestablishing the existing refueling water storage tank recirculation lineup.

The inspector noted that Procedure AP 15C-004, "Preparation, Review, and Approval of Documents," Revision 7, Section 6.5, provided guidance for "On the spot changes" used for such activities as temporary document changes needed to address unique situations. This section provided limitations to the use of "On the spot changes" including a prohibition against their use to make a change to the intent of a procedure as defined in the purpose or scope. The inspector concluded that the changes made to Procedure STS EN-100B on December 6, 1995, utilizing "N/A" markings would not have been permitted by Procedure AP 15C-004. The inspector noted, however, that the use of "N/A" in Procedure STS EN-100B was done in a manner consistent with the guidance in Section 6.6, "Use of Not Applicable (N/A)," of Procedure AP 15C-002, "Procedure Use and Adherence," Revision 4. As such, the inspector noted that Procedure AP 15C-002 permitted the use of "N/A" on December 6, in a manner that resulted in the use of Procedure STS EN-100B inconsistent with the scope of the original procedure. The inspector concluded that Procedure AP 15C-002 permitted the use of "N/A" to make intent changes to procedures not permitted by Procedure AP 15C-004.

Engineering Design Document MS-01, "Piping Class Summary," Revision 33, specified the normal rating for the containment spray pump suction piping to be 50 psig at 275°F, with a design rating pressure of 75 psig; and the normal rating for the discharge piping at 230 psig, with a design rating pressure of 275 psig. The installed piping exceeded the design rating and provided considerable additional margin. The actual pressure at the discharge of the pump monitored by the plant computer increased to more than 300 psig within seconds of the pump start, and was estimated by the system engineer to have reached no more than 470 psig. While the pressure at the suction of the pipe was not monitored, it was also estimated by system engineering to have exceeded 300 psig. While the actual containment spray system piping pressures exceeded the design rating pressures, they remained well below the code allowables for the type of piping installed. Therefore, this pressure transient did not have any effect on system integrity. Had the pump run continued, system engineering believes that the pump seal may have failed and relieved the pressure increase prior to the pressure exceeding the code allowables for the installed piping. The inspector concluded that while the system pressures remained well below the maximum code allowable pressures, and did not impact system integrity, they did exceed the system design rating.

Operations management immediately directed all operating crews not to alter surveillance tests to accomplish limited retesting, but to perform the entire surveillance as written if it is to be used as a retest. Operations also initiated PIR 95-2902 to address the issues associate with this event, and Action Request 11229 to address the repair of the containment spray pump suction pressure gauge.

The use of Procedure STS EN-100B altered by the use of "N/A" such that it no longer met the original scope, represented inappropriate implementation of a procedure required by Technical Specification 6.8.1.a. This is a violation of Technical Specification 6.8.1.a (482/9525-01).

2.2 Inadvertent Water Transfer

On November 21, 1995, at 9:39 a.m., operators noted an unexpected automatic makeup to the volume control tank. A subsequent investigation revealed that concurrent Valve Operation Test and Evaluation System (VOTES) testing of Valve EM HV8807B, Residual Heat Removal Heat Exchanger A chemical and volume control system to Safety Injection Pump A downstream isolation, provided an unexpected flowpath from the volume control tank, through Valve EM HV8807B, Safety Injection Pump A, and the Safety Injection Pump A Recirculation Valve EM HV 8814A, to the refueling water storage tank. The shift supervisor had recognized the potential for flow from the volume control tank to the refueling water storage tank through the idle safety injection pumps. He did not expect actual flow through the idle pumps. During the 50-minute period when operators had Valve EM HV8807B open for VOTES testing, approximately 200 gallons of water transferred from the volume control tank to the refueling water storage tank. Operators promptly diagnosed and isolated the flowpath by shutting Valve EM HV8814A. After closing Valve EM HV8814A with Valve EM HV8807B still open, no water flowed through Safety Injection Pump B and its open Recirculation Valve EM HV8814B to the refueling water storage tank. The flow through Safety Injection Pump A but not Safety Injection Pump B apparently resulted from differences in the Train A and B safety injection pump internal clearances or pump rest configurations.

The Vice President Plant Operations immediately placed a hold on all in-plant VOTES testing pending the development of actions to prevent recurrence. Chemistry sampled the refueling water storage tank and the safety injection pump suction line, and verified that boric acid concentration changes were minimal and did not impact plant operations or safety analyses. Operators immediately initiated significant PIR 95-2808. Engineering evaluated the event and determined that the event resulted in no safety-significant consequences. The inspector agreed with this conclusion.

At the request of the NRC Office of Nuclear Reactor Regulation, a conference call occurred on November 27, 1995, with licensee personnel and representatives from the NRC Office of Nuclear Reactor Regulation, the NRC Office for Analysis and Evaluation of Operational Data, NRC Region IV, and the NRC senior resident inspector. During this call, the licensee acknowledged that while there were similarities between this event and the September 17, 1994, event discussed in NRC Inspection Report 50-482/94-18, there were also major differences, principally with regard to the difference in safety significance. A second major difference was the fact that the shift supervisor had the potential flowpath involved in this event, whereas in the September 17, 1994, event, operators failed to recognize the flowpath that caused the event. Nonetheless, the inspector concluded that this event and the event discussed in Section 2.1 of this report represent two additional events where inadvertent consequences resulted from infrequent system operation using system alignments determined by operating crews in response to maintenance needs just prior to the evolutions.

Operations concluded that the root cause was a breakdown in written communications. In reaching this conclusion, operations personnel determined that there was no written guidance which required operators to evaluate potential fluid/energy transfer paths and the possible impact to the plant that could result from component manipulation out of its normal position using guidance other than that specified by an approved procedure when the component is not completely isolated within a clearance order boundary. Corrective actions to address the root cause involved the issuance of new Procedure AP 21D-002, "Evaluation for Potential Energy/Fluid Transfer Paths," Revision 0. Additionally, six related procedures were revised to require personnel to use the new procedure. The inspector reviewed the corrective actions and concluded that they appropriately address the fluid/energy transfer concerns if they are consistently applied in a comprehensive manner.

2.3 Failed Annunciator Power Supply

On November 27, 1995, at 6:55 p.m., approximately 50 control room annunciators alarmed in several unrelated groups. After verifying that the alarms were not caused by an event in progress, and determining that the alarms were not valid, operators determined that the groups of alarming annunciators also did not correspond to any of the patterns of inoperable annunciators associated with power supply failures in the annunciator system documented in Off Normal Procedure OFN PK-29, "Loss of Non-Vital 125 VDC Bus PK01, PK02, PK03, PK04, and Annunciators," Revision 2. Operators initiated the generic compensatory actions required by Procedure OFN PK-29, and took actions as appropriate that were specified by the alarm response procedures for each illuminated annunciator. Approximately 1 hour after the initial event, troubleshooting actions by the shift engineer, members of the operating crew, and maintenance electricians, identified that the source of the problem was in the Annunciator RK045A panel. Based on this troubleshooting result, successful annunciator system tests, and normal unaffected annunciator activity from plant operation, operators determined that the affected annunciators represented far less than 75 percent of the total number of annunciators in the control room, the fraction that required an entry into the emergency plan. Additional troubleshooting identified that a power supply failed in Panel RK045A. This power supply provided power to optical isolators in Panel RK045A for approximately 75 annunciators. The optical isolators isolated safety-related field input circuits from the nonsafety-related annunciator circuitry. Without power to the optical isolators, approximately 50 of the 75 failed annunciators failed to the alarm state, while the remaining approximately 25 annunciators failed in a nonalarm state due to the circuit design.

The inspector responded to the control room after licensee personnel determined that the power supply had failed. By reviewing the applicable drawings, the inspector recognized that the failure of this power supply would cause some annunciators to fail in the nonalarm state, and determined that the operators had not yet made this determination. The inspector asked the shift supervisor whether specific compensatory actions had been taken for the affected annunciators. The shift supervisor described the generic corrective

actions from Procedure OFN PK-29, and the alarm response procedure, but acknowledged that the alarm response procedures had not been performed for the inoperable annunciators that failed in the nonalarm state. The shift supervisor immediately directed the operating crew to perform this review. No additional compensatory actions were identified, and the alarm response procedures did not identify any actions that the operators had failed to complete. On November 28, 1995, at approximately 2 a.m., electricians replaced the power supply, restoring the failed annunciators to an operable condition.

The inspector concluded that the operators' initial actions were appropriate. The inspector further concluded that operators had not recognized the need for a review of alarm response procedures associated with the inoperable annunciators that failed in the nonalarm stated until after the inspector questioned the need for this evaluation. Operators initiated PIR 95-2843 to track additional corrective actions. The operations manager stated that these corrective actions would include a revision to Procedure OFN PK-29 to add the pattern of inoperable annunciators associated with the failure of this power supply, review the need to add annunciator patterns for failures of other power supplies in the annunciator system, and a review of alarm response procedures to confirm that all necessary compensatory actions associated with annunciator failures were documented.

2.4 Inappropriate Alarm Setpoint

On December 14, 1995, the inspector accompanied a nonlicensed nuclear station operator on turbine plant rounds. During the tour, the inspector identified that the alarm setpoint for the control building battery switchgear room temperature thermostat, GK TIS-92, was set at 85°F, below its required setpoint which was not clearly established. The purpose of the setpoint was to provide an alarm in the control room if temperature increased to the point that continued operability of the batteries and associate equipment might be threatened. The inspector noted that the location of the setpoint dial, about waist high for the average person, may have lead to the dial being bumped as personnel traversed through the room. The inspector concluded that this represented inattention to detail on the part of the nuclear station operator.

The inspector also noted that operations had posted Operator Aid OA-92-43-2 above the thermostat, which stated that the setpoint should be 87°F, as required by Technical Specification 3.7.12. The inspector identified the condition to the nuclear station operator who immediately contacted the control room. After review of Technical Specification 3.7.12, the applicable alarm response procedure, the setpoint document (WCRE-01), and the piping and instrument drawing (M-02GK003), operators determined that the thermostat should be adjusted to 87°F in accordance with Technical Specification 3.7.12, Table 3.7-4. The supervising operator then directed the nuclear station operator to raise the setpoint to 87°F. During their review of the applicable reference documents, control room operators identified that the alarm response procedure and setpoint document required the thermostat to be set at 88°F. As

a result of the discrepancy, operators initiated PIR 95-2882 to address the potential for the thermostat to be set to 88°F and exceed the Technical Specification limit of 87°F.

The inspector subsequently determined that Technical Specification 3.7.12 requirement did not apply to the battery switchgear room. Specifically, the NB01 and NB02 engineered safety feature switchgear rooms were required to be below 87°F in accordance with Technical Specification 3.7.12, Table 3.7-4. The temperature limit for the battery switchgear room was 88°F as listed in the alarm response procedure and setpoint document. As a result, the inspector concluded that the operators had inappropriately interpreted Technical Specifications when they specified a battery switchgear room temperature limit of 87°F on Operator Aid OA-92-43-2.

During subsequent discussions, the operations superintendent stated that the scope of PIR 95-2882 had been expanded to address these additional concerns. The inspector concluded that this was 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, 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:

- WP 105155T1, NB00114 breaker inspection and testing
- WP 106646T1, Residual Heat Removal Pump A oil sample, oil change, and megger test
- WP 102982T1, Repair Centrifugal Charging Pump A oil leaks
- WP 107774T1, Repair Valve GK V0767 actuator

Selected observations from the activities witnessed are discussed below.

3.1 Emergency Air Condition Unit Cooling Supply Valve

On November 28, 1995, the inspector observed electricians perform corrective maintenance on the Electrical Equipment Air Conditioning Unit 5A, Condenser Outlet Isolation Valve GK V0767, in accordance with Work Package 107774. Operations initiated the maintenance after identifying that the air conditioning unit's dialtron controller read lower than the setpoint. The dialtron positions Valve GK V0767 based on the heat load on the air

conditioning unit to increase or decrease cooling water flow through the air conditioning unit. The engineer determined that this condition resulted in higher than normal cooling by the air conditioning unit because Valve GK V0767 valve could not close enough to keep temperature from decreasing below the optimum range. The engineer further determined that this occurred because an internal hydraulic leak in the hydromotor prevented sufficient actuation of the valve. Maintenance personnel replaced the actuator, and during the subsequent retest, the valve operated properly. The inspector observed maintenance supervision, maintenance planning, and system engineering personnel in the field during work activities. The inspector noted that maintenance personnel performed the activity properly, and adhered to program requirements. In addition, the inspector noted that problem solving skills exhibited by maintenance personnel to correct problems during reassembly of the coupling between the hydromotor and outlet isolation valve were excellent.

The engineer determined that the hydromotor had failed prematurely, and that this would be addressed with the vendor. During reassembly of the hydromotor stem to the valve stem, electricians determined that the torque required for the lock nuts to secure the actuator adapter was not sufficient to prevent loosening of the actuator adapter while stroking the valve open. The condition was of concern because engineering concluded that the actuator adapter could eventually separate from the hydromotor shaft, completely disconnecting the actuator from the valve stem. The inspector noted that this condition had actually occurred on November 18, 1995, and had been repaired under Work Package 107638, Task 2. Based on these problems with the hydromotor, and discussions with engineering, the inspector reviewed the operational and failure history of the hydromotors as described in Section 4.1.

Engineering personnel reviewed the condition and determined that the torque could be increased to secure the actuator adapter so that it would not rotate while the valve stroked open. The increased torque prevented the actuator adapter from rotating while the valve was stroked. The licensee also initiated PIR 95-2880 to address these hydromotor and stem separation issues. The inspector reviewed the methodology for increasing the torque and concluded it was adequate. The system engineer subsequently contacted the vendor, and determined that the increased torque was bounded by vendor's analysis.

3.2 First-Line Supervisor Unfamiliar With Work Control Expectations

On November 28, 1995, during the replacement of the power supply in Panel RK045A discussed in Section 2.3 of this report, the inspector asked the first-line supervisor whether workers were expected to sign for the completion of work steps as they were completed, or whether it was acceptable for workers to wait until the work was complete and then document the completion of the work. The first-line supervisor related several different work situations where it would be difficult for workers to document the step-by-step completion of work instructions, and that he did not know what the management expectations were for documenting the completion of work. The inspector concluded that this represented a weakness in work supervision. The

supervisor of electrical maintenance stated that this did not meet management expectations, and counselled the first-line supervisor.

3.3 Work Package Reference Inconsistency

During maintenance on Breaker NB00114, the inspector noted that Work Package 105155T1 referenced Procedure MGE E00P-05, "Insulation Resistance Testing," Revision 8, although Revision 9 was present in the field. The inspector questioned the electrician about this observation. The electrician made an on-the-spot change to have the work package reference the current revision. The inspector concluded that this represented a minor work package inconsistency.

4 SURVEILLANCE OBSERVATIONS (61726)

The inspectors sampled selected surveillance tests required by Technical Specifications to verify that personnel performed the tests in accordance with Technical Specifications, 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.

- STS HB-201, Liquid radwaste system inservice valve test
- STS IC-913, Containment hydrogen analyzer calibration test
- STS IC-615, Slave Relay Test K615 Train B safety injection
- STS KJ-005B, Automatic start test of Emergency Diesel Generator B

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

4.1 Slave Relay Test

On November 29, 1995, the inspector observed operators perform Surveillance Procedure STS IC-615, "Slave Relay Test K615 Train B Safety Injection," Revision 12. The inspector noted that the test adequately met the Technical Specification surveillance requirements, that operators completed the surveillance satisfactorily, that operators entered the appropriate Technical Specification limiting conditions for operation, and exhibited very good command and control.

The surveillance test was scheduled to start one of the diesel generators for its monthly surveillance run. During the test, several other components were also actuated. Actuation of the slave relay closed the component cooling water from reactor coolant system inner containment isolation valve. When the valve closed, flow from the reactor coolant pump seal cooler was increased through a parallel component cooling water valve and continually brought in the high-flow alarm. The flow increase was at or above the alarm setpoint such that it required the balance-of-plant operator to continually acknowledge the alarm, since the reactor operator was involved in the surveillance test.

The inspector concluded this resulted in a significant balance-of-plant operator distraction while the reactor operator was involved in performing the surveillance test. The system engineer noted that this condition had been previously recognized, and that operations added a precaution acknowledging this system characteristic. The system engineer stated that this system characteristic has been the topic of discussion within the industry, and that evaluations are ongoing to resolve these concerns. Operations management stated that while this does cause the potential for some operator distraction, it is a recognized characteristic of this system. Operations management further stated that this is one of several issues that operations would like to have corrected, and has classified it as routine priority. The inspector concluded that the licensee's corrective actions were adequate.

4.2 Containment Hydrogen Analyzer GS065B Calibration Test

On December 1, 1995, the inspector observed an instrumentation and control technician perform a monthly calibration verification of the Train B Containment Hydrogen Analyzer GS065B, in accordance with Surveillance Procedure STS IC-913, "Containment Hydrogen Analyzer GS065B Calibration Test," Revision 13. The inspector determined that the surveillance test satisfied the Technical Specification surveillance requirement.

The inspector noted two procedural weaknesses. The first weakness involved the need for the technician to press a reset button on the hydrogen analyzer panel which was not specified by the procedure, yet at other steps the procedure specifically required the technician to press the same reset button. In another case, the inspector observed the technician question supervision regarding the method to be used to document satisfactory completion of several calibration setpoints. The inspector questioned the technician regarding these observations, and in response the technician stated that the procedure contained unclear guidance. The inspector concluded that the procedure contained an inconsistent level of detail. Overall, the inspector concluded that these observations were all minor in nature, and did not detract from the abili[illegible] f the surveillance test to demonstrate operability of the hydrogen analyze[illegible]. The inspector discussed the specifics of the procedure issues with maintenance supervision. During these discussions, maintenance supervision stated that they would initiate a review of the procedure to evaluate the inspector's observations. Maintenance supervision informed the inspector soon after these discussions that an initial review had been completed, and that several changes would be initiated.

In an effort to provide a clear understanding of this surveillance testing activity, the technician provided operators with a one page summary sheet of expected control room alarms during the various sections of the surveillance test. The inspector considered this an excellent practice because operators did not have to rely on memory as to which alarms to expect, as discussed in the prejob briefing held by the technician. However, the inspector noted two minor weaknesses associated with this summary sheet. Specifically, the section numbers of the summary sheet did not match the corresponding sections in the surveillance procedure because the summary sheet had not been updated

during a recent procedure revision. In addition, the summary sheet did not note that alarms would be received during performance of Section 5.4 of the test, yet the inspector noted that this section did generate control room alarms. The inspector determined that there was no programmatic requirement to review the summary sheet when making revisions to the procedure, and concluded that this contributed to the second weakness. During discussions with maintenance supervision and the Vice President Plant Operations, management informed the inspector that they were evaluating ways to formally maintain the accuracy of the summary sheets.

5 ONSITE ENGINEERING (37551)

The inspectors reviewed and evaluated engineering performance as discussed below.

5.1 Emergency Air Cooling Unit Water Supply Valve Root Cause Evaluation

As a result of the maintenance performed on the control room emergency air conditioning Unit 5A Outlet Condenser Valve GK V0767, as described in Section 3.1 of this report, the inspector reviewed the operational and failure history of the hydromotors used to control the air conditioning unit condenser outlet valves.

The inspector noted that a root cause evaluation, Hardware Failure Analysis Request 00818-90, had been performed in 1990 as a result of a similar problem with the hydromotor on air conditioning Unit SGK04A . The licensee initiated the evaluation following a trip of the control room air conditioning unit because of high discharge pressure. Engineering identified problems with the hydromotor as the cause of the trip. Engineering attributed the root cause for this event to the stem adapter jam nut being too thin to adequately secure the actuator adaptor as the valve was stroked. This ultimately lead to the actuator adaptor completely unscrewing from the hydromotor shaft, leaving the actuator uncoupled from the valve stem. The engineer specified corrective actions to tighten, loosen, and retighten the jam nut several times to achieve sufficient thread engagement. Additional corrective actions included the use of thread sealant on the threads, and the installation of a second jam nut. The inspector concluded that the corrective actions established following the 1990 failure were effective for several years, but did not ultimately correct the problem.

The inspector noted that engineering did not immediately initiate a PIR for the failure discovered on November 17, 1995, when the actuator separated from valve stem. In fact, engineering initiated PIR 95-2876 on December 1, 1995, after subsequent problems with the same hydromotor on November 28, and after significant NRC inspection activity. The inspector reviewed Procedure AP 28A-001, "Performance Improvement Request," Revision 3, and determined that the problem discovered on November 18 met the criteria for a "significant" PIR. However, because the procedure did not contain programmatic requirements regarding timeliness of PIR initiation, the inspector also concluded that no program requirements were violated. During discussions, the system

engineering manager expressed the expectation that PIRs be initiated within 3 days of a component failure requiring a PIR. Consequently, the system engineer acknowledged that the initiation of PIR 95-2876, nearly 2 weeks after the component failed, did not meet management expectations. The inspector noted that the NRC identified a noncited violation in NRC Inspection Report 50-482/95-22, Section 3.4, associated with the failure of the licensee to initiate a PIR following a failure of the auxiliary feedwater system trip throttle valve. While the engineer ultimately initiated PIR 95-2976, the inspector concluded that the engineer's failure to initiate it promptly constituted an engineering weakness. The inspector further concluded that the failure of Procedure AP 28A-001 to specify timeliness requirements was a programmatic weakness.

5.2 Spent Fuel Pool Capability Review

As a result of the concerns discussed in NRC Information Notice 95-54, the inspector questioned whether the spent fuel pool analysis and the Updated Safety Analysis Report description had similar problems. Engineering personnel reviewed this question and identified that there were no concerns associated with the ability of the spent fuel pool to handle a full core offload provided the Updated Safety Analysis Report limitations were met. The inspector reviewed the engineering evaluation and agreed with the licensee's conclusion. During this review, engineering personnel discovered a deficiency in Fuel Handling Procedure FHP 02-011, "Fuel Shuffle and Position Verification," Revision 16. The deficiency involved the failure of the procedure to establish procedural limitations corresponding with the Updated Safety Analysis Report limitations of not completing a full core offload prior to 196 hours after achieving subcriticality. Engineering personnel initiated PIR 95-2838 to address this issue.

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 Radiography Area Not Cleared of Personnel

On December 21, 1995, an instrumentation and controls technician discovered that the electro-hydraulic room in the turbine building had been included inside a radiography in-progress boundary, while exiting the area. The technician had been working in the electro-hydraulic room for several hours and had heard the announcements that radiography was in progress at the north end of the turbine building. Since the electro-hydraulic room was at the south end of the turbine building, the technician understood that the room was outside the radiography boundary. Subsequently, the technician discovered that the instrumentation and controls work had been performed inside the radiography boundary and immediately contacted the control room. The shift supervisor contacted the radiographer, determined that the individual had not been in the radiography source radiation field and, therefore, there were no

immediate exposure issues. The Vice President Plant Operations suspended radiography until corrective action could be taken to prevent recurrence, and the licensee initiated PIR 95-3024. This is an unresolved issue pending further NRC review (Unresolved Item 482/9525-02).

6.2 CAS Distraction

On December 19, 1995, at approximately 12:30 p.m., the inspector noted detailed artwork on the white board in the security CAS. The inspector questioned security supervision who evaluated the situation and determined that the artwork was inappropriate for that location, and determined that the artwork had been drawn during the night shift. Security management also determined that the artwork had been drawn by the CAS operator. Since the day shift personnel had been in the CAS for approximately 5 and 1/2 hours, the inspector questioned whether security supervision had noted the artwork. Security management stated that the CAS operator's supervisor, the data management operations sergeant, had been busy in the secondary alarm station, and that the unit sergeant may have not come to the CAS frequently because of increased firewatch activity. The security manager also stated that if the CAS operators did not get a visit by their supervisor while on duty in the CAS, they would see their supervisor after their 4-hour watch in the secondary alarm station. During interviews, security officers informed the inspector that security supervision did not come to the CAS regularly, and that some supervisors may have toured the CAS as infrequently as every 2 months. The inspector concluded that the artwork could have been a significant distraction for the CAS operator. The inspector further concluded that it was inappropriate for the CAS operator to permit or engage in this activity. The inspector finally concluded that supervision failed to tour the CAS frequently enough to recognize the implications of the artwork. Security initiated PIR 95-2968 to address this issue.

6.3 Weak Radiation Worker Practice

On December 19, 1995, while observing preventive maintenance on Residual Heat Removal Pump B, the inspector observed a support person standing in an elevated radiological dose area. Health physics personnel had identified a low-dose area with a permanently installed sign. The inspector questioned the health physics technician covering the job concerning the issue. The technician stated that, since the maintenance was not in a high radiation area, there was no requirement for a formal prejob briefing. Although the technician had discussed radiological practices with most of the workers, the worker in question arrived at the work site after the briefing. Additionally, the health physics technician provided coverage for an additional task in a different room. After the discussion with the inspector, the health physics technician briefed the support person on the radiological conditions in the area. While the inspector recognized the significant success that has been achieved with low personnel exposure in 1995, this example suggested that some radiation worker and health physics support practices could be improved. The licensee responded by initiating PIR 95-3036.

7 NUCLEAR SAFETY REVIEW COMMITTEE

The inspector attended the Nuclear Safety Review Committee meeting on December 5, 1995. The meeting was properly attended and met Technical Specification requirements. The committee conducted a particularly effective discussion of a proposed Technical Specification amendment involving rod drop testing. An external member raised sound technical concerns, and led a very probing discussion of the issues with most other members actively participating in the discussion. The committee eventually chose not to approve the proposed Technical Specification amendment as submitted, and referred their concerns back to the plant staff. The inspector concluded that the meeting met Technical Specification requirements, and that it was particularly effective in the review of the rod drop test proposed Technical Specification amendment.

8 FOLLOWUP - ENGINEERING (92903)

(Closed) Inspection Followup Item 482/9524-02: Spurious Overcurrent Trip of a Safety-Related Breaker

This item involved the spurious opening of the breaker for the Residual Heat Removal Pump B room cooler on November 9, 1995. The inspector reviewed Plant Modification Package 03907, and noted that the package did not state that the engineer specifically considered the overlap of the breaker instantaneous overcurrent trip setpoint tolerance with the peak in-rush current. After the spurious trip, the licensee tested the breaker and found that it tripped within the specified tolerance, but did trip low within the band. The inspector concluded that the engineer failed to adequately consider this overlap. Engineering immediately initiated a modification to Plant Modification Package 03907 to raise the instantaneous overcurrent trip setpoints of breakers in similar applications. Action requests were also immediately initiated to raise the instantaneous overcurrent trip setpoints for breakers that had already been installed. The licensee initiated PIR 95-2694 to address this issue. Licensee Procedure KPN-E-302, "Design Inputs," Revision 5, required the engineer to consider electrical requirements. The failure of the engineer to adequately consider spurious tripping of the breaker is a violation of 10 CFR 50, Appendix B, Criterion V. This self-revealing and corrected violation is being treated as a noncited violation, consistent with Section VII of the NRC Enforcement Policy.

During the review of this issue, engineering discovered that the nameplate ratings for the residual heat removal room cooler motor did not correlate with the frame size of the motor, suggesting that a generic nameplate had been supplied by the vendor for the specified horsepower, with an increased motor frame size. Engineering believed that this had been done to meet the load sequencer start time requirements. Engineering initiated PIR 95-2789 to evaluate and resolve this concern. The inspector concluded that engineering missed an opportunity to identify this during the preparation of Plant Modification Package 03907.

The inspector reviewed the basis for the operability determination made regarding the room cooler for Residual Heat Removal Pump A. The system engineering supervisor stated that the shift supervisor's log entry did not fully document the basis for the operability determination made immediately following the spurious trip. The supervisor discussed operability with the shift supervisor, and together they considered the function of the room cooler, the excellent performance history the room cooler motor breakers have had prior to this trip, and the expectation that if a breaker spuriously tripped, it would likely not spuriously trip again after being reset. Based on these considerations, the supervisor and shift supervisor concluded that this single spurious trip did not clearly demonstrate that the similar room coolers were inoperable, and that the corrective actions would enhance the reliability of the room coolers. The inspector concluded that the operability determination was adequate, but that the documentation of this operability determination in the shift supervisor's log was weak.

ATTACHMENT

1 PERSONS CONTACTED

G. D. Boyer, Manager, Training
N. S. Carns, President and Chief Executive Officer
T. D. Damashek, Supervisor, Regulatory Compliance
T. J. Garrett, Manager, Design Engineering
M. A. Gayoso, Controller/Treasurer
B. A. Grieves, Superintendent, System Engineering
S. F. Hatch, Regulatory Compliance
N. W. Hoadley, Manager, Support Engineering
D. Jacobs, Assistant, Maintenance Manager
R. N. Johannes, Chief Administrative Officer
W. M. Lindsay, Manager, Performance Assessment
O. L. Maynard, Vice President Plant Operations
B. T. McKinney, Manager, Operations
T. S. Morrill, Manager, Plant Support
W. B. Norton, Manager, System Engineering
J. M. Pippin, Manager, Integrated Plant Scheduling
C. C. Reekie, Technical Specialist III, Regulatory Compliance
E. W. Schmotzer, Manager, Purchasing and Material Services
J. D. Stamm, Manager, Safety Analysis
J. D. Weeks, Manager, Emergency Planning
M. G. Williams, Assistant to Vice President Plant Operations
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 January 3, 1996. During this meeting, the inspectors reviewed the scope and findings of the report. Licensee management initially expressed disagreement with the violation described in Section 2.1. The disagreement was subsequently resolved during discussions with the inspector. The licensee did not identify as proprietary any information provided to, or reviewed by, the inspectors.