ENCLOSURE 2

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Inspection Report: 50-482/96-04

License: NPF-42

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

Facility Name: Wolf Creek Generating Station

Inspection At: Coffey County, Burlington, Kansas

Inspection Conducted: February 11 through March 23, 1996

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

Approved: W. D. Johnson
W. D. Johnson, Chief, Project Branch B

4/10/96
Date

Inspection Summary

Areas Inspected: Routine, announced inspection including plant status, operational safety verification, maintenance observations, surveillance observations, onsite engineering, plant support activities, and a licensee event report (LER) review - onsite.

Results:

Plant Operations

- The failure of the scaffolding program to consider the outage schedule prior to approving the construction of nonseismic scaffolding, and the failure of management to provide some tracking mechanism to ensure that safety related systems would not become affected as the outage progressed were identified by the inspector as a weakness (Section 2.1).

- The shift supervisor demonstrated good oversight by stopping surveillance activities on Emergency Diesel Generator A when problems with the surveillance procedure introduced confusion (Section 2.2).

- The failure to store a compressed gas cylinder in accordance with the site procedures was identified by the inspector as a noncited violation (Section 2.3).

- The control room operators' actions were well controlled, and operators maintained a good questioning attitude during the approach to mid-loop operations (Section 2.4).

- Operations personnel stopped and initiated on-the-spot changes when plant evolutions could not be performed with existing procedural guidance (Section 2.5).

Maintenance

- The attention to detail and questioning attitude of a maintenance worker in stopping work on a scaffold being constructed next to Component Cooling Water Pump C was identified as a strength (Section 2.1).

- The inspector identified two examples in which quality evaluations personnel did not review work activities in sufficient detail to identify issues raised by the inspector (Section 3.3).

- The inspector identified that electricians obtained inaccurate specific gravity readings on the NK11 and NK13 batteries due to improper use and inadequate training in the use of a new type of hydrometer (Section 4.1).

Engineering

- The licensee appropriately and conservatively addressed concerns over the corrosion buildup on the vortex breaker fasteners in the containment sump (Section 4.4).

- The practices used by nuclear engineering personnel for handling items such as tool boxes in the foreign material exclusion zone around the spent fuel pool were not accurately specified in the procedure for foreign material exclusion. This was identified as a weakness (Section 5.1).

- Reactor engineers demonstrated good ownership by verifying contract refueling equipment operators' qualifications before permitting them to move fuel (Section 5.3).

- The inspector identified that the system engineer was unfamiliar with operating practices on the emergency diesel generator, and that vendor recommended practices were not being implemented (Section 5.4).

- An inspection followup item was initiated to address questions regarding the licensee's evaluation of industry failures of AT&T Round Cell batteries associated with the replacement of safety related batteries (Section 5.5).

- The inspector's questions during the review of LER 95-003 resulted in engineering identifying additional examples where separation and isolation requirements had not been met, and a subsequent revision of the LER to document these examples and clarify corrective actions (Section 7.1).

Plant Support

- The inspector noted several poor radiological posting practices early in Refueling Outage VIII (Section 6.1.1).

- The inspector identified an example of a violation associated with a poorly secured highly contaminated area posting that fell down off the rod cluster control assembly vertical riser duct opening (Section 6.1.2).

- The inspector identified a second example of a violation associated with a posting attached to one side of a scaffold rather than on the valve itself (Section 6.1.2).

- The inspector identified a third example of a violation associated with the failure of personnel to restore the barrier and posting for a high radiation/contaminated area in the Residual Heat Removal Pump B room. A blank sign on the door to this room was identified as an additional concern due to the confusion it could have caused (Section 6.1.3).

- The inspector identified a minor noncited violation when a health physics technician failed to verify that a frisker had been source checked prior to use (Section 6.2).

- The inspector identified the failure of a health physics technician and two workers to wear face shields as required by the radiation work permit. This was a violation. (Section 6.3).

Summary of Inspection Findings:

- Violation 482/9604-01 was opened (Sections 6.1.2 and 6.1.3).
- Violation 482/9604-02 was opened (Section 6.3).
- Inspection Followup Item 482/9604-03 was opened (Section 5.5).
- Noncited violations were identified (Sections 2.3, 6.2, and 7.1).
- Closed LER 95-003-00/01 (Section 7.1).

Attachment:

- Persons Contacted and Exit Meeting

DETAILS

1 PLANT STATUS (71707)

The plant remained in Refueling Outage VIII throughout the inspection period.

2 OPERATIONAL SAFETY VERIFICATION (71707)

The inspectors reviewed plant activities using Inspection Procedure 71707.

2.1 Control of Scaffolding

On February 9, 1996, the inspector noted that Scaffold 96-S0066 was built within the zone of influence (height of scaffold plus 24 inches) of Motor Control Center MCC NG02B in the south electrical penetration room. The scaffold tag indicated that workers had not built a seismically qualified scaffold. The inspector contacted the site scaffold coordinator and questioned why the scaffold was not seismically qualified. The coordinator explained that the bus was not required to be operable in the current plant mode. The inspector verified that one bus was required to be operable by Technical Specifications for the mode of operation at the time (Mode 5) and that both buses were considered operable at the time. The Train A bus was scheduled to be taken out of service for maintenance later that day or early the next day.

The inspector discussed whether a scaffold not constructed to seismic standards should be installed within the zone of influence of operable safety-related equipment with the operations representative in the outage control center. The operations representative contacted the site scaffold coordinator, found that the required scaffold work had been completed, and had the scaffold removed prior to the Train A bus outage.

The inspector reviewed Administrative Procedure AP 14A-003, "Scaffold Construction and Use," Revision 2, and the scaffolding request form used to request the scaffold. The seismically qualified scaffold checklist contained errors that led to the conclusion that a nonseismic scaffold could be built. In this case, the safety-related motor control center was operable, but not required by Technical Specifications when the scaffold was built. However, the scaffold request stated that the scaffold would be needed until March 1, 1996, yet this coincided with the scheduled time window for the Train A bus outage. Once operators took the Train A bus out of service, Technical Specification 3.8.3.2 required Motor Control Center MCC NG02B to be operable. The presence of a nonseismic scaffold within the zone of influence could have affected its operation during a seismic event.

On February 13, 1996, the inspector noted a partially constructed scaffold being built within the zone of influence of Component Cooling Pump C, which was operating at the time. The inspector questioned why they were not

building this scaffold to seismic standards. The site scaffold coordinator explained that they halted construction of this scaffold after a worker constructing the scaffold raised the same question, and that the scaffold design was being modified to meet seismic standards.

The inspector discussed the concern with design engineers. They explained that nonseismic scaffolds could be built if they did not affect the operability of safety-related equipment. Procedure AP 14A-003 directed the site scaffold coordinator to complete the seismically qualified scaffold checklist to determine whether they could build a nonseismic scaffold or not. The inspector noted that the seismically qualified scaffold checklist required the site scaffold coordinator to consider whether the scaffold would be removed prior to mode changes requiring the operability of safety related or special scope equipment in the zone of influence of nonseismic scaffolding. However, the checklist did not require the site scaffold coordinator to verify, prior to construction, that scaffolding built in the plant would not affect the operability of equipment required later in the outage schedule. The procedure also did not require personnel to verify that existing scaffolding did not affect operability of equipment as plant conditions changed. The engineers initiated Performance Improvement Request (PIR) 96-0435 to address the concern. In response to the PIR, the licensee implemented a requirement for outage control center personnel to screen all scaffold requests prior to shift supervisor approval, for the scaffolding coordinator to start maintaining a scaffolding log, and for operations personnel to review existing scaffolding affecting an out-of-service train with the scaffolding coordinator prior to any change in train status.

The inspector concluded that the failure of the program to consider scaffolding plans in relation to the outage schedule to be a weakness in the program that could have increased the risk of damage to safety-related equipment. The licensee's corrective actions appropriately addressed the concerns. The safety significance of the construction of Scaffold 96-S0066 was minimal because the Train A bus was operable at the time and only one bus was required. The questions raised by the scaffolding constructor were found to be appropriate and indicated a good questioning attitude.

2.2 Good Shift Supervisor Oversight of Maintenance Activities

On February 29, 1996, the shift supervisor stopped work on Attachment A of Procedure STS MT-016, "Standby Diesel Generator Inspection," Revision 13, due to confusion with the procedure. Operators raised questions regarding what the procedure was trying to accomplish, and found nomenclature errors that directed the manipulation of components on the wrong emergency diesel generator. The inspector concluded that the shift supervisor responded appropriately by stopping the work until the procedural issues could be resolved. After, discussions with the inspector, the system engineer initiated PIR 96-0682 to address long-term corrective actions.

2.3 Improperly Secured Compressed Gas Cylinder

On March 18, 1996, the inspector noted a compressed gas cylinder without a safety cap tied with rope vertically inside a support on the 2000 foot level of containment. The inspector informed the containment coordinator of the inappropriately secured cylinder. Administrative Procedure AP 12-001, "Housekeeping Control," Revision 0, required compressed gas cylinders to be stored with the safety cap installed when not in use. The Wolf Creek Safety Manual required personnel to secure compressed gas cylinders with chain or other suitable noncombustible material. The inspector noted that personnel had stored the bottle in a location where it was not likely to damage safety-related equipment. The containment coordinator directed personnel to secure the cylinder, which contained argon, with wire while they searched for the safety cap. When they could not find the safety cap, they removed the cylinder from containment. The licensee initiated PIR 96-0906 to document the concern.

The inspector observed a quality evaluations engineer deal with a similar issue on March 14, 1996. The engineer identified a compressed gas cylinder that had been stored on its side next to the spent fuel pool. The engineer appropriately contacted safety personnel who ensured proper storage of the bottle. The inspector reviewed the history of PIRs the licensee initiated during Refueling Outage VIII relating to the storage of compressed gas cylinders. PIR 96-0786 documented one other compressed gas cylinder that was not properly secured. The licensee recognized the safety concern, and management provided training for supervisors during the plan-of-the-day meetings on March 20-21, 1996.

The inspector concluded that the failure to properly store the gas cylinder was a violation of plant procedures. However, because the gas cylinder was not located where it could damage safety-related equipment, this failure constitutes a violation of minor safety significance and is being treated as a noncited violation, consistent with Section IV of the NRC Enforcement Policy.

2.4 Mid-Loop Operations

The inspector observed control room operators lower the level in the reactor coolant system down to mid-loop operation on March 19, 1996. Operators used Procedure GEN 00-008, "Reduced Inventory Operations," Revision 3, to control level. Supervisors limited activity within the control room, and the inspector noted that this resulted in no distractions. The control room personnel demonstrated good familiarity with the procedure, and good control of plant parameters. When operators questioned their ability to stay within the procedure limits, the shift engineer raised a concern with the level reduction rate. The shift supervisor appropriately stopped the drain down, contacted the outage control center, and arranged for additional personnel to assist in addressing the concern.

The procedure required that the difference between the level on the control board narrow range meters and the tygon tube in containment be three-quarters

of an inch or less. Instrumentation and controls technicians could only calibrate the level gauges to plus or minus one inch. Operators could therefore not meet the limits specified in the procedure. As a result of the concerns, the licensee initiated an on-the-spot-change to the procedure to allow the operators to use the plant computer, in addition to the control board gauges and the tygon tube, to track the level in the reactor coolant system. Operators were also directed to terminate the vessel draining if the plant computer failed, or if they had any uncertainty regarding the actual vessel level.

The inspector concluded that operators carefully controlled the approach to mid-loop operations, that the control room staff maintained a good questioning attitude, and that actions taken were appropriate.

2.5 Good Operations Procedure Use

During Refueling Outage VIII, operators encountered abnormal situations where plant procedures could not be used as written. Examples include venting the pressurizer in preparation for solid plant operations and valve problems while adding hydrogen peroxide to initiate a crud burst. An additional example occurred during mid-loop operation as discussed in Section 2.4 of this report. In each case, the inspectors noted that operators appropriately stopped the evolution, evaluated the condition, and initiated an on-the-spot change to address the procedural issues prior to proceeding. The inspectors concluded that this represented appropriate operator action.

3 MAINTENANCE OBSERVATIONS (62703)

The inspectors witnessed portions of the following work activities using Inspection Procedure 62703.

- 100945T2 Replace Valve BG V0457
- 106775T1 Inspect/Test NK21 battery charger
- 102643T1 NB01 bus outage
- 102654T1 Preventive Maintenance Breaker NG00106
- 102003T2 Post maintenance test for Magne-Blast Breaker NB0112
- 100238T28 Safety Injection Pump B casing measurement, Task 28
- 100238T38 Safety Injection Pump A casing measurement, Task 32
- 100238T18 Safety Injection Pump B mechanical seal installation
- 106540T1 Steam Generator A chemical cleaning

- 100929T3 Reterm Essential Service Water A Self-Cleaning Strainer 1DEF02A operator
- 102045T1 Preventive maintenance on Magne-Blast Breaker NB00213
- 104466T3 Preventive maintenance on Emergency Diesel Generator B
- 101219T1 Component Cooling Water Heat Exchanger EEG01B eddy current testing
- 110325T3 Troubleshoot Emergency Diesel Generator B auxiliary lube oil system
- 110415T3 Replacement of component cooling water Foxboro relay card
- 100499T1 Feedwater Regulation Valve AE FCV540 rebuild
- 100102T2 Rework valve seat Residual Heat Removal Valve 8818B

Selected observations from the activities witnessed are discussed below.

3.1 Centrifugal Charging Pump A High Speed Pinion Gear Bearing Failure

On March 11, 1996, the auxiliary building watch informed the control room operators that Charging Pump A had a significant oil leak. Control room operators deenergized the pump and ordered reactor engineering to stop fuel movement due to the loss of the only operable boration flowpath. Maintenance personnel found that approximately 50 of the 75 gallons of oil from the pump's oil sump had been pumped through a rupture in the flexible hose connector downstream of the lube oil pump discharge into the pump's skid. Mechanics replaced the hose and refilled the oil sump. The shift supervisor discussed operability with a mechanical design engineer. They determined that the oil temperature remained within the normal range, and that the operator present during the hose failure noted no unusual noise while the pump was running and coasting down. A mechanical maintenance supervisor present during the coastdown noted that the speed increaser and pump bearing housings did not appear to be excessively warm to the touch. Based on this information, the shift supervisor determined that the pump run surveillance test would confirm operability.

Operators started the pump using Surveillance Procedure STS BG-100A, "Centrifugal Charging System A Train Inservice Pump Test," Revision 17. After 42 minutes of apparently normal operation, an operator noted smoke and control room operators promptly stopped the pump. The licensee later found that the speed increaser high speed pinion bearings failed. Workers found metal filings in system oil filter.

The inspector observed the disassembly of the speed increaser, and the installation and alignment of a spare from the warehouse. The inspector

examined the forward and aft bearings on the pump after the mechanics disassembled them and noted no noticeable damage. The licensee and the vendor representative determined that the pump bearings had not been damaged. The inspector reviewed the work package and the vendor manual. The inspector noted that the mechanics performing the task were knowledgeable and following the procedures.

The inspector questioned whether the initial evaluation of the pump was thorough, in that, the oil system was simply refilled. Neither the condition of the oil nor the bearings were addressed. The Vice President Operations explained that the actions taken were all that appeared necessary at the time.

3.2 Turbine-Driven Auxiliary Feedwater Pump Trip Throttle Valve

On March 15, 1995, the inspector observed a mechanic disassemble the turbine-driven auxiliary feedwater pump trip throttle valve, Valve FC HV-0312. The inspector and licensee personnel observing the work noted that the inside of the sliding nut was dry and the grease on the shaft, nut, and in the grease fittings had hardened. Mechanics disassembled the valve in response to concerns identified in NRC Inspection Report 50-482/95-22. In that report, the inspector had questioned whether the grease that was being used in the trip linkage was lithium-based grease as suggested by the manufacturer. The licensee determined that while the grease had not been what the manufacturer recommended, it had functioned adequately at the normal operating temperature.

Licensee management initiated an Incident Investigation Team to investigate the problems with the trip throttle valve after the valve failed to open on January 25, 1996. This failure was discussed in NRC Inspection Report 50-482/96-02. Incident Investigation Team Report 96-001 concluded that the root cause of the trip and throttle valve retest failure was inadequate overview of the valve's performance by maintenance and engineering. The lack of overview contributed to degraded lubrication in the area of the linkage assembly, specifically in the area of the sliding nut/screw spindle and the split coupling.

During the inspection of the split coupling, the team identified a clogged grease fitting on the split coupling and a lack of grease inside the coupling. Mechanics disassembled the valve linkage assembly, as discussed above, and cleaned and relubricated it with the manufacturer suggested grease. In addition to this corrective action, the system engineer indicated plans to coordinate with the preventive maintenance group to schedule periodic disassembly, cleaning, and relubrication of the linkage assembly. The engineer also indicated plans to start trending the time that the valve takes to travel from the 10 percent open, to the fully closed position during stroke testing of the valve. Lastly, one of the steam supply valves for the turbine, Valve AB HV-006, was repaired during the outage to repair a seat leakage problem. The system engineer expected this repair to result in reduced standby temperatures for the trip throttle valve, and thereby improve the life of the valve lubricant.

The inspector concluded that the maintenance was performed appropriately in accordance with the work instruction. The investigation performed by the licensee was thorough, and the corrective actions identified should appropriately address the problem.

3.3 Quality Evaluators Not Thorough

During the inspection of the battery hydrometer use, as discussed in Section 4.1 of this report, and the welding in Work Package 100945T2, the inspector noted concerns that the quality evaluators did not identify.

As discussed in Section 4.1, the inspector identified that the electricians were not familiar with the use of the hydrometer. The quality evaluator did not observe the specific gravity measurement closely enough to identify the inappropriate use of the hydrometer.

During the welding per Work Package 100945T2, the inspector noted that Step 5.16 had been signed as complete prior to performing Weld MW0009, yet Step 5.16 stated that this check was to be performed after the valve was welded in place. Weld MW0009 was listed in the work package in a step prior to Step 5.16. After a quality evaluator finished reviewing the work package, the inspector asked the evaluator if any concerns had been noted. The quality evaluator stated that the review had not been detailed, but that no concerns had been noted. The inspector subsequently noted that a post-maintenance test duplicated the check in Step 5.16, and also noted that Weld MW0009 was not likely to have affected the check already completed.

The inspector concluded that the quality evaluators did not review the work in sufficient detail to identify the issues identified by the inspector. During followup discussions with the quality evaluations supervisors, the supervisors stated that they initiated PIR 96-0676 to address these concerns.

4 SURVEILLANCE OBSERVATIONS (61726)

Using Inspection Procedure 61726, the inspectors observed portions of the following surveillance tests:

- STS MT-018 Weekly inspection 125 VDC Lead Calcium Battery
- STS EM-003 Emergency core cooling system flow balance
- STS IC-565 Channel calibration auxiliary feedwater pump suction pressure indication for remote shutdown
- STS MT-027 Snubber functional testing
- STS PE-300 Reactor vessel inservice inspection

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

4.1 Electricians Unfamiliar With a New Hydrometer

On February 26, 1996, during the performance of Surveillance Procedure STS MT-018, "Weekly Inspection 125 VDC Lead Calcium Battery," Revision 12, the inspector noted that the electricians used the hydrometer improperly, thus obtaining inappropriate specific gravity readings. The electricians used a new hydrometer, a Hydrostik DSG Series 30, rather than the traditional squeeze bulb and float hydrometer. While measuring specific gravity, the inspector noted that the new hydrometer displayed the message "Press Null" which the technician ignored. The inspector reviewed the operator's manual and noted that it directed the electrician to withdraw the probe, hold it in free air, and depress the null button, whenever the instrument displayed the "Press Null" message.

During the initial measurement of the specific gravity, the electrician read and documented an uncorrected value of 1.232. After the inspector questioned the use of the instrument, the electrician reviewed the manual and repeated the measurement in accordance with the manual. The subsequent readings consistently read 1.218. The inspector reviewed STS MT-018, and noted that it specified an acceptance criterion for a minimum specific gravity reading, but had no maximum limit.

A quality evaluations representative observed this activity, but did not note this misuse of the new hydrometer. After the inspector raised the question, the evaluator began questioning the electricians regarding the training they had received for the use of the new hydrometer. The electricians stated that the system engineer and the planner gave a shop briefing, and one of the electricians had been designated as the "shop expert" on the use of the new hydrometer. The inspector questioned this electrician, and noted that this subtlety had not been noticed.

After reviewing this issue, the system engineer directed the electricians to repeat all specific gravity measurements associated with the applicable surveillance tests prior to declaring the batteries operable. The electricians did not find any unacceptable readings during this subsequent test.

The inspector concluded that the electricians had been inadequately trained in the use of the new hydrometer, and that they had recorded inaccurate specific gravity readings. The inspector also concluded that since this was discovered and corrected while the battery was inoperable, no operability concerns were identified.

4.2 Ten-Year Vessel Inservice Inspection

On February 28, 1996, the inspector observed contractors perform the remote portions of the ten-year vessel inservice inspection. The personnel performing the inspection were knowledgeable of the task to be performed and the plan approved by the licensee. The inspector reviewed the programs being used to perform the test and to review the data collected. The inspector concluded that the inspection was being performed as described in the plan and that the personnel involved were knowledgeable of the task and the equipment being used.

4.3 Weak Maintenance Technical Knowledge

During the observation of STS MT-027, "Snubber Functional Testing," Revision 5, the inspector noted that neither the maintenance technician nor the quality control inspector were able to answer very basic questions regarding the snubber test data being obtained. They did not understand the meaning of the slope of the velocity versus displacement curve which they were comparing to a preprinted standard. The technician and quality control inspector were able to complete the surveillance and obtain the required data per the procedure. The inspector concluded that this surveillance activity demonstrated snubber performance as required by Technical Specifications. However, the inspectors have previously found maintenance technicians and quality control inspectors to be considerably more familiar with plant components during prior inspections.

4.4 Containment Sump Inspection

On March 18, 1996, the inspector observed as a nuclear plant operator inspected the containment sumps in accordance with Surveillance Procedure STS EJ-002, "Containment Pump Inspection," Revision 7. The operator was knowledgeable of the task to be performed. The inspector and the operator found a very small amount of dirt in both sumps, a small nut in the Train A sump, and some dried paint shreds in the Train B sump. The inspector noted that the fasteners used to attach the vortex breaker to the containment spray and residual heat removal system pipes in the sump were badly corroded with rust buildup between the pipe and vortex breaker flange. The operator identified each of these concerns and initiated Action Requests 13625 and 13626 to address the corrosion buildup.

The sumps had been filled with borated water in response to concerns about pressure locking of containment sump suction valves as discussed in NRC Inspection Report 50-482/95-04. The wet environment caused the corrosion. The inspector contacted the system engineer for the residual heat removal system and questioned whether the fasteners were of the correct material, and what effect the corrosion might have on the system. The engineer found that the fasteners were made of ferritic stainless steel and that this material is susceptible to corrosion. The engineer explained that a modification of the valve bonnets of the containment sump suction valves had been implemented during Refueling Outage VIII to eliminate the pressure locking concern. As a

result, the licensee planned to maintain the sumps in a dry condition. Since the fasteners would no longer be under water continuously, the corrosion would no longer be a concern. The system engineer evaluated the extent of the corrosion, and whether it could flake off and be washed into the system during an accident. As part of this evaluation, the system engineer re-examined the Train A sump to check the extent of the corrosion and to clean up the fasteners, if necessary. The system engineer found that the corrosion rinsed off and dissolved with demineralized water. As a result, the system engineer determined that no further action was required.

The inspector concluded that the sumps were clean and that the operator inspecting them performed a thorough inspection. The licensee addressed the corrosion concern appropriately and took the necessary corrective actions.

5 ONSITE ENGINEERING (37551)

The inspectors reviewed and evaluated engineering activities using Inspection Procedure 37551.

5.1 Control of Foreign Material Around the Spent Fuel Pool

On February 13, 1996, the inspector noted a number of cases and tool boxes inside the foreign material exclusion zone around the spent fuel pool. The inspector checked the log maintained at the pool, noted that none of these items had been logged in, and that the log sheets from the newly approved Administrative Procedure AP 12-003, "Foreign Material Exclusion," Revision 0, were being used. The inspector contacted the nuclear engineering supervisor and questioned why none of the material had been logged in. The supervisor explained that the new procedure only required the logging of materials smaller than a pre-defined size, and the boxes and cases exceeded this pre-defined size. The inspector questioned whether any of the equipment in the boxes were small enough to require logging. The supervisor stated that the boxes did contain material small enough to require logging, but explained that it was their practice to log that equipment after the cases were opened.

The inspector discussed the concerns with the individual responsible for the procedure, and with a quality evaluations engineer. The procedure contained no requirement to log equipment as tool boxes were opened in the foreign material exclusion zone and did not address the practice of allowing closed containers to be brought into the area without logging the contents. As a result of this discussion, the engineer initiated PIR 96-0527 to document the concern. The licensee changed Procedure AP 12-003 to allow storage containers to be brought into the area as long as they remained latched shut, and to require the items inside to be logged as they were removed from the containers.

The inspector concluded that the practice of bringing cases containing small items into the area without clear logging requirements was a poor practice, in that the procedure did not clearly require the logging of these small items

upon removal from the case. The inspector also concluded that the licensee's corrective actions were appropriate.

5.2 Engineering Evaluations Involving Safety Injection System

5.2.1 Rotating Assembly Replacement

As a result of a 10 CFR 21 notification from Westinghouse, which identified possible substandard material in the safety injection pump spacer sleeves and split rings, the licensee replaced the rotating assemblies in both safety injection pumps during Refueling Outage VIII. During the Train A rotating assembly replacement, the mechanics discovered that the internal casing bore appeared to be undersized and did not meet the 12.5 inch plus or minus .001-inch specification. The inspector observed the formal measurements to verify the concern and to verify that the concern did not exist on the Train B pump. The inspector questioned whether this condition could affect the operability of the pump during an accident. The system engineer explained that this question was being evaluated using a Reportability Evaluation Request.

The inspector reviewed Reportability Evaluation Request 96-011, dated March 11, 1996. Both the casing and the rotating assembly had been machined undersized as a matched pair in the manufacturing process. During discussions with the vendor, the engineers found that the pump's thermal growth at design operating temperatures would be negligible, and that the coefficient of expansion was higher on the outer casing than on the intermediate covers, which would cause the clearance between the two to increase. The engineers determined that the undersized casing bore did not affect the capability of the safety injection pump to perform its design basis functions.

The licensee reviewed the options of machining the casing in place or replacing the entire pump with a safety injection pump stored in the warehouse. After discussing the options with the vendor, the licensee replaced the pump. The inspector observed portions of the replacement of the pump, noted that the work progressed well.

5.2.2 Use of the Safety Injection Train A as an Alternate Boration Flow Path

As a result of the charging pump failure on March 11, 1996, the licensee completed Unreviewed Safety Question Determination 59 96-0038. This document reviewed the possibility of using the safety injection system as an operable emergency boration flow path in Mode 6 with the reactor vessel head removed. The inspector reviewed the evaluation of this alternative and identified no safety concerns. The inspector attended the plant safety review committee meeting called to review and approve this document. The Vice President Operations also attended this meeting and asked whether this change was actually a viable alternative, or a quick way to resolve the problem to put a critical path activity back on schedule. The response was that it was a viable alternative as long as the reactor head was not in place and one residual heat removal system was in operation to provide adequate mixing of

the cooler refueling water storage tank water being pumped into the reactor coolant system. The inspector verified that the changes to the Updated Safety Analysis Report, Operational Requirements Manual, and the site procedures were appropriate.

5.2.3 Balancing Drum Bushing to Casing Clearance

The inspector reviewed the engineering evaluation completed in response to the identification of incorrect clearances documented in the work package during the replacement of Safety Injection Pump A. The system engineer contacted the manufacturer and Callaway Plant (the original purchaser). As a result of these conversations, the engineer verified that the clearances had been proper when the pump was manufactured, and that the casing had not been opened until it was disassembled at Wolf Creek. The only way to change the clearance would be to machine the casing or rotating assembly, or to assemble the rotating assembly incorrectly. The casing had not been machined, and the rotating assembly had not been disassembled or machined. The system engineer used this information to determine that the clearances could not have changed, and therefore did not affect the operability of the pump. The system engineer later determined that the clearances were measured twice. Once while the vendor representative was present to instruct workers on the technique, and again during the next shift without the vendor representative present. No acceptability limits were provided in the work package, and the instructions in the vendor manual were not clear as to how the clearances should be measured. PIR 96-0989 was written to document the problems identified.

5.2.4 Conclusions

The inspector concluded that the engineering evaluations completed in response to safety injection pump concerns were thorough and appropriately addressed the concerns.

5.3 Good Checking of Refueling Equipment Operator Qualifications

During fuel movement, reactor engineers independently verified the qualifications of contract refueling equipment operators at each contract operator relief. This check identified two examples of contract workers who attempted to operate equipment they were not qualified to operate, and the engineers initiated PIRs 96-0825 and 96-0852 as a result. The inspector concluded that this represented good ownership by reactor engineering.

5.4 Emergency Diesel Generator Fuel Rack Exercising

While questioning the system engineer regarding station practices for exercising the emergency diesel generator fuel racks, the inspector noted that the system engineer was not familiar with actual field practices. Consequently, the system engineer determined that nothing assured that personnel consistently exercised the fuel racks weekly as recommended by the vendor. The system engineer consequently initiated PIR 96-795. The inspector concluded that the system engineer had not ensured implementation of a vendor

recommendation, but that this omission had minor safety consequences because the performance history of the emergency diesel generators showed no operational problems as a result of a lack of fuel rack exercising.

5.5 Safety Related Battery Replacement with AT&T Round Cells

During Refueling Outage VIII, the licensee implemented Design Change Package 5846 to replace the Gould safety related NK11, 12, 13, and 14 batteries with AT&T Lineage 2000 Round Cells along with their associated racks and accessories. The batteries selected were Model KS-20472, Low Specific Gravity, List 1S for NK11 and 14, and List 2S for NK 12 and 13.

The inspector questioned whether the licensee was familiar with all the problems other nuclear utilities had experienced with AT&T Round Cell batteries. Licensee engineering personnel responded by stating that they were aware of the problems, had compared the root causes with the Wolf Creek installation plan, and had concluded that the problems were not applicable to the planned Wolf Creek installation. Specifically, they noted that the root causes identified at another nuclear plant in Region IV were inadequate vendor baking of the positive plates, problems with the battery charging process, and the selection of high specific gravity type AT&T Round Cells rather than low specific gravity type cells selected for use at Wolf Creek. The inspector asked why these differences would prevent Wolf Creek from experiencing similar problems. Discussions to answer these questions were not complete prior to the end of the inspection period. The inspector will track closure of this question in inspection followup item (482/9604-03).

The inspector observed battery installation and testing activities, and noted that during the testing, the vendor performed the capacity discharge test offsite. The inspector confirmed that this was acceptable per IEEE 450-1975. The inspector noted that post-installation testing included individual cell voltage, electrolyte temperature, electrolyte specific gravity, and electrolyte level measurements. Electricians also visually examined each cell for lead sulfate crystals, and measured cell to cell resistance, as well as overall battery voltage.

The inspector reviewed the installation and testing documents including the design change package, the qualification report, the certificate of compliance, and the surveillance test procedures. The inspector concluded that the installation and testing met licensee procedural and Final Safety Analysis Report requirements and commitments.

6 PLANT SUPPORT ACTIVITIES (71750)

The inspectors reviewed and evaluated plant support activities using Inspection Procedure 71750.

6.1 Radiation Posting

6.1.1 Auxiliary Building Postings

On February 9, 1996, the inspector noted several radiological postings on the 2000 foot elevation in the auxiliary building that did not meet the licensee's normal posting standards. Examples included a high radiation area sign that slipped down so it was only 1 foot above the floor in the south piping penetration room, a sign located behind a pipe, and a contaminated area posting sign on the seal injection filter door inside a contaminated area, rather than at the contaminated area boundary a few feet away. The inspector discussed these posting concerns with a health physics technician at the health physics control point. The technician acknowledged the concerns and said the areas would be checked and reposted, if necessary. The next day the inspector noted that technicians either properly posted the areas, or removed the postings.

6.1.2 Containment Building Postings

On February 26, 1996, the inspector noted that a highly contaminated area posting had fallen off the herculite covering a duct opening in a ventilation riser which provides cooling for rod cluster control assembly operating mechanisms on the 2068 foot level of containment. The inspector informed the health physics technician at the control point and the technicians replaced the sign. On the 2000 foot level of containment, workers built a scaffold to allow work on the residual heat removal to accumulator injection line Valve EP 8818B. A highly contaminated area posting was hung on one side of the scaffold rather than on the valve. There was no other posting on the scaffold or the valve, and the scaffold could be accessed without workers seeing the posting. The inspector discussed the posting with a health physics technician in the area. The technician explained that the posting should have been placed on the valve and that it would be moved. The inspector reviewed Radiation Protection Procedure 02-215, "Posting of Radiological Controlled Areas," Revision 11. Step 9.1.2 of the procedure required that posted areas be clearly and conspicuously marked at all accessible sides and entrances. The inspector verified that both areas were reposted. These are being identified as two examples of failure to follow the procedure for posting radiological controlled areas (482/9604-01).

6.1.3 High Radiation Area Posting

On February 28, 1996, while touring the auxiliary building, the inspector noted that there was a step-off pad outside Residual Heat Removal Pump B room, but that the sign posted on the open door was blank. Upon closer examination, the inspector noted that the radiological barrier rope that had been across the door with a sign had not been replaced after the last person exited the area. The inspector replaced the rope and informed the health physics technician at the control point that the posting had been down. The inspector

also described the potential for confusion as a result of the blank sign posted on the door. The licensee initiated PIR 96-0654 to address the concern.

The inspector discussed these issues with the operations health physics supervisor. The supervisor acknowledged the failure of personnel to replace the posting and the additional need for attention to detail with postings in the plant.

The inspector concluded that the postings noted were placed using poor health physics work practices and inattention to detail. The failure to replace the posting on February 28, 1996, is identified as a third example of a violation involving failure to follow a radiation protection procedure (482/9604-01).

6.1.4 Corrective Actions

The inspector reviewed the corrective actions the licensee took in response to three examples of deficient postings. The response to PIR 96-0654 and discussions with the radiation protection superintendent identified the root cause as human engineering. Personnel were trained to properly post areas and to rehang radiological postings. However, in this case, the individuals failed to follow the training they had received. The personnel informed of the deficiencies corrected the problems, but did not report the concern on a PIR in all cases. Further investigation of the posting at the Residual Heat Removal Pump B room door identified that an inadequate posting had been identified there the day before by licensee management. The door had been breached to allow valve testing in the room. Because of the breach, the door was inadequately posted per Procedure RPP 02-215.

The licensee changed Form RPF 20-205-1(N), "Daily Radiological Survey Checklist-Outage Periods," Revision 5, to require health physics technicians to check radiological postings once each shift in containment and in the remainder of the radiologically controlled area. The inspector noted improvement. For example, on March 8, 1996, the inspector noted a leak at the suction of Safety Injection Pump A during the fill and vent of the system. The inspector informed the health physics technician working the next room. The technician found contamination and called another technician to have it posted. The technician initially posted the area adequately, but not consistently with the licensee's posting standards. Before the inspector could question this, another health physics technician recognized the deficiency and promptly posted the area per the licensee's procedures and practices. In addition to this corrective action, health physics personnel have been directed to post high radiation doors in a manner to permit workers to enter and exit the area without having to remove the posting.

Planned corrective actions included a memorandum from the health physics supervisor to all health physics personnel to clearly define and reinforce management's expectations for radiological postings at Wolf Creek; and a radiation protection superintendent discussion with health physics technicians to discuss these expectations, and the expectation for technicians to initiate

a PIR whenever health physics supervision identify a deficiency. Procedure AP 10-104, "Breach Authorization," Revision 3, was to be reviewed and revised to reflect a new listing of doors that require health physics authorization to breach. The radiation protection superintendent expected to complete these corrective actions by May 31, 1996.

Due to observations in the field, the inspector concluded that the completed corrective actions should prevent recurrence of the concerns. The planned corrective actions planned should further aid in preventing future concerns.

6.2 Frisker Source Check Not Verified

On February 21, 1996, the inspector observed a health physics technician check scaffolding in a circulating water system valve vault for contamination. As the technician frisked the smears, the inspector noted that technicians had not initialed the frisker source check sticker on Wolf Creek Frisker 11272 since February 17, 1996. The inspector questioned whether the frisker had been source checked or not. The health physics technician stopped the frisking activity, informed the workers that they could not enter the vault yet, and returned the smears and frisker to health physics access control. The health physics technician then checked a survey form and found that Wolf Creek Frisker 11272 had been listed as having had a source check the previous evening. Based on this survey form, the technician initialed the frisker source check sticker, documenting a current source check, and permitted the workers to enter the vault.

The inspector reviewed Radiation Protection Procedure 05-121, "Ludlum 177 Operation," Revision 1, and noted that Step 9.2.6, required the technician to check the source check sticker and ensure that the frisker had a current source check as a pre-operational check. The health physics technician's use of the frisker without verifying a current source check was not in compliance with the procedure.

The inspector questioned whether licensee procedures permitted the technician to document the current source check solely based on the survey. Radiation Protection Procedure 05-121, Step 9.2.7, stated: "IF the source check sticker has NOT been initialed for the day, THEN source check the instrument as follows:" Therefore, the technician's initialing of the source check sticker based on the survey was not permitted by the procedure. The inspector asked the health physics supervisor which procedures governed the use of the survey form to document source checking. The supervisor stated that there were no procedures governing this particular use of the survey form.

The health physics technician initiated PIR 96-0533 which addressed three issues. First, it addressed the technician's failure to ensure that the frisker had a current source check prior to use. Second, it addressed the failure of the technician who performed the daily source check to initial the source check sticker. Third, it addressed the use of the survey form for documenting source checks without procedural guidance on its use.

The inspector concluded that these represent procedural noncompliances. These failures constitute a violation of minor significance which is being treated as a noncited violation, consistent with Section IV of the NRC Enforcement Policy.

6.3 Failure to Follow Radiation Work Permit

While observing the final inspection of the Train A containment sump on March 18, 1996, the inspector noted that the health physics technician did not wear a face shield as required by Radiation Work Permit 96-2050. The radiation work permit required that health physics, full-face shields be worn in highly contaminated areas. Health physics technicians posted the sumps as highly contaminated. When questioned, the technician stated that the face shield had been forgotten. Later, the technician entered the Train B containment sump without a face shield. The inspector asked the technician about the need for a face shield. The technician expressed uncertainty, but after reviewing the requirements, acknowledged the need for a face shield. Later, two mechanics entered the Train B sump without face shields. The health physics technician had to remind them to enter the sump with face shields.

The inspector reviewed Administrative Procedure AP 25B-300, "RWP Program," Revision 4. The procedure required that all workers follow the provisions set forth on their radiation work permit. The inspector concluded that the failure of the health physics technician and the workers to wear the required face shield into the posted highly contaminated area as required by the radiation work permit were two examples a violation involving failure to follow the requirements of a radiation work permit (482/9604-02).

7 LER REVIEW - ONSITE (92700)

7.1 (Closed) LER 482/95-003-00/01: Failure to Implement Proper Isolation and Separation of Temporary Cables

This item involved the discovery of temporary power cables that were installed without meeting the electrical isolation and separation requirements of IEEE 384-1974 or Regulatory Guide 1.75-1978, Revision 2. During the review of the initial LER, the inspector questioned the corrective actions, and the review for generic applicability. As a result of these questions, engineering expanded their review and identified additional examples where the required isolation and separation were not provided. Revision 1 of LER 95-003 discussed these additional examples and provided clarification of corrective actions. These corrective actions included a revision to the procedure used for temporary power, and the establishment of a qualified reviewer program to provide for cross-disciplinary reviews of procedure development and revisions to ensure that personnel knowledgeable of applicable requirements will be involved in the review. The inspector concluded that the corrective actions were appropriate. The identification of a noncompliance with Technical

Specification 3.8.3.2 is a violation. This licensee-identified and corrected violation is being treated as a noncited violation, consistent with Section VII of the NRC Enforcement Policy.

8 REVIEW OF UPDATED SAFETY ANALYSIS REPORT COMMITMENTS

A recent discovery of a licensee operating their facility in a manner contrary to the Updated Safety Analysis Report (USAR) description highlighted the need for a special focused review that compares plant practices, procedures, and/or parameters to the USAR descriptions. While performing the inspections discussed in this report, the inspectors reviewed the applicable portions of the USAR that related to the areas inspected. The inspectors verified that the USAR wording was consistent with the observed plant practices, procedures and/or parameters.

ATTACHMENT

1 PERSONS CONTACTED

1.1 Licensee Personnel

M. A. Blow, Superintendent, Chemistry
N. S. Carns, President and Chief Executive Officer
T. A. Conley, Superintendent, Radiation Protection
T. D. Damashek, Supervisor, Regulatory Compliance
M. E. Dingler, 2010 Today Project Coordinator
R. B. Flannigan, Manager, Nuclear Engineering
S. F. Hatch, Technical Staff Specialist, Regulatory Compliance
D. Jacobs, Assistant Maintenance Manager
R. Johannes, Chief Administrative Officer
S. R. Koenig, Supervisor, Quality Evaluation
W. M. Lindsay, Manager, Performance Assessment
R. L. Logsdon, Manager, Chemistry
B. S. Loveless, Superintendent, Resource Protection
O. L. Maynard, Vice President Plant Operations
B. T. McKinney, Manager, Operations
T. S. Morrill, Manager, Plant Support
W. B. Norton, Vice President Engineering
E. M. Peterson, Superintendent, Quality Evaluations
L. D. Ratzlaff, Supervisor Engineering, System Engineering
C. C. Reekie, Technical Specialist III, Regulatory Compliance
R. L. Sims, Supervisor, Operations Support

1.2 NRC Personnel

W. D. Johnson, Chief, Project Branch B

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 March 25, 1996. During this meeting, the inspectors reviewed the scope and findings of the report. The licensee acknowledged the findings presented. The licensee did not identify as proprietary any information provided to, or reviewed by, the inspectors.