ENCLOSURE 2

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No.:	50-482
License No.:	NPF-42
Report No.:	50-482/96-18
Licensee:	Wolf Creek Nuclear Operating Corporation
Facility:	Wolf Creek Generating Station
Location:	1550 Oxen Lane, NE Burlington, Kansas
Dates:	September 8 through October 19, 1996
Inspectors:	J. F. Ringwald, Senior Resident Inspector J. L. Dixon-Herrity, Resident Inspector
Approved By:	W. D. Johnson, Chief, Reactor Projects Branch B

Attachment: Supplemental Information

EXECUTIVE SUMMARY

Wolf Creek Generating Station
NRC Inspection Report 50-482/96-18

Executive Summary

Operations:

- An unresolved item was opened to review the operability determination made by operations personnel and the failure to generate a performance improvement request (PIR) in response to the failure of Containment Isolation Valve EF HV-34 to close on demand (Section O2.1).

- Licensee Event Report (LER) 96-004 reported a licensee-identified violation associated with the failure to remove power from the discharge valve breaker prior to racking up the Safety Injection Pump A breaker as required by Technical Specification 3.5.4. The inspector noted that the corrective actions identified in the LER were inadequate to address the identified root cause of the failure and that the root cause evaluation did not address a failure to understand the Technical Specification (Section O8.1).

- LER 96-005 reported a licensee-identified violation associated with the failure to maintain containment closure during fuel movement in accordance with Technical Specification 3.9.4. The inspector found that the corrective actions taken were too narrow, in that they failed to address two procedures which would allow a similar problem to occur (Section O8.2).

- The inspector identified a violation when the licensee performed testing at approximately 100% power when Technical Specification Surveillance Requirement 4.8.1.1.2.g.6.c required that the testing be performed while shutdown (Section O8.3).

Maintenance:

- The inspector found that maintenance personnel have yet to establish a motor-driven auxiliary feedwater pump packing adjustment technique that maintains the pump leakoff flow between the extremes of inadequate flow that can lead to packing damage, and excessive flow which can lead to bearing damage (Section M2.1).

- The inspector identified that licensee corrective actions described in their response to a violation associated with operations use of an auxiliary feedwater pump prior to maintenance personnel completing the postmaintenance testing were not sufficiently broad to prevent recurrence. Consequently, the inspector was not able to close this item (Section M8.1).

Engineering:

- The review in response to Deviation 50-482/9602-01 was inadequate in that the review failed to identify the minimum room temperature required in Updated Safety Analysis Report (USAR) 9.3.6.2.1 (Section E2.1).

- A noncited violation was identified for the failure to provide procedural guidance to maintain the charging pump room temperature above 55°F as required by USAR 9.3.6.2.1 (Section E2.1).

- LER 96-007 reported a licensee-identified violation associated with the failure to perform appropriate postmodification testing. The inspector determined that the licensee's immediate corrective action was inappropriate in that it resulted in an additional violation of Technical Specification 4.8.1.1.2.g.6.c (Section E8.1).

Plant Support:

- A noncited violation occurred when the licensee identified that an engineer moved a locked high radiation area posting without notifying or getting permission from radiation protection personnel (Section R1.1).

Report Details

Summary of Plant Status

The plant operated at 100 percent power throughout the inspection period.

I. Operations

O2 Operational Status of Facilities and Equipment

O2.1 Operability of Valve EF HV-34

a. Inspection Scope (71707)

On October 9, 1996, during a morning tour of the control room, the inspectors learned that the licensee had identified operability problems with Containment Isolation Valve EF HV-34 during a surveillance test earlier that morning. The inspectors reviewed the impact of the valve inoperability and the history of problems with the valve and discussed the review with operations and maintenance personnel.

b. Observations and Findings

Valve EF HV-34 is the essential service water supply valve for Train B containment air coolers. The valve has two safety functions: (1) the valve opens upon receipt of a safety injection signal and (2) the valve is a remote manual containment isolation valve.

On October 9, 1996, during the performance of Surveillance STS EF-210B, "Essential Service Water System Inservice Check Valve Test," the valve failed to close on demand. The control room operators noted dual indication on the valve switch. The operators opened the valve again and closed it. It failed to close the second time, giving dual indication in the control room. Through troubleshooting, maintenance personnel found that one of the torque switch connections was not making an adequate electrical connection with the contact arm. The cause was inadequate pretensioning of the contact arm. As a result, the actuator stopped when the close direction torque switch bypass opened.

Licensee management noted that there was a history of problems with this valve during the morning meeting on October 9. The inspector reviewed the history and found that a similar problem with dual indication had been identified with similar valves in this system in July and October 1995, and July 1996. Licensee personnel initiated a work package for Valve EF HV-34 on July 29, 1996, to evaluate the problem. Licensee management noted that no PIR was written to document this occurrence. The licensee initiated Reportability Evaluation Request 96-077 to determine if this was reportable. The inspector noted that the control room logs did not identify the problem as an operability concern or enter Technical Specification 3.6.3. The inspector determined that an unresolved item would be

opened to follow up on the two issues identified and the licensee's corrective actions (482/9618-01).

O2.2 PIR Operability Evaluations

a. Inspection Scope (71707)

By observing discussions of PIRs during daily management meetings and reviewing the PIR reports prepared for management, the inspector reviewed most of the approximately 440 PIRs initiated by licensee personnel during this inspection period.

b. Observations and Findings

The inspector questioned the operability evaluations for two of these PIRs. During subsequent discussions, engineering personnel demonstrated that the issues did not challenge operability. However, significant engineering effort was required subsequent to the inspector's questions in order to demonstrate that the PIR issues did not challenge equipment operability.

b.1 Auxiliary Feedwater Flow

On August 27, 1996, engineers initiated PIR 96-2173 to document a concern noted with auxiliary feedwater flow testing. The PIR stated that the Emergency Management Guideline Procedure EMG E-0, "Reactor Trip or Safety Injection," Revision 9, Step 17, required auxiliary feedwater flow greater than 260,000 lbm/hr (approximately 470 gpm, plus instrument and fluid density error with 90 percent confidence). The relevant Surveillance Procedure STS AL-005, "Auxiliary Feedwater Auto Pump Start and Valve Actuation," Revision 11, required verification of auxiliary feedwater flow greater than or equal to 235,000 lbm/hr (approximately 470 gpm with no allowance for instrument or fluid density error), with flow to any single steam generator less than or equal to 160,000 lbm/hr. Consequently, depending upon instrument and density error, the surveillance acceptance criteria would permit auxiliary feedwater flow that was less than the assumptions provided in the accident analysis. The PIR went on to state that the flows recorded during the most recent performance of this surveillance test were 66,000 lbm/hr greater than the minimum value, but only 7,000 lbm/hr below the maximum value permitted by the surveillance test. The PIR then asserted:

> "As long as the instrument and density error is less than these margins, the actual flow will be well within the required range under all operating scenarios. There does not appear to be an immediate operability concern at this time. It could potentially become an operability issue or TS [Technical Specification] violation if the instrument and density error is found to be larger than the margins available."

As such, the PIR stated that the absence of an operability concern relied on the 7,000 lbm/hr margin actually being less than the instrument and density error without questioning the magnitude of these errors. The inspector questioned whether the 7,000 lbm/hr margin to the maximum flow to a single steam generator actually bounded the instrument and density error. In addition, the inspector questioned whether the 260,000 lbm/hr really included a margin for instrument and density error. After additional review, engineering personnel provided calculations that demonstrated operability, and demonstrated that the emergency management guideline assumption had indeed properly accounted for instrument and density error.

b.2 Auxiliary Feedwater Pump Room Heat Load

On September 11, 1996, engineers initiated PIR 96-2250 which appropriately criticized aspects of Calculation GF-01-W which determined the cooling load for the motor-driven auxiliary feedwater pump rooms. The PIR stated that "this is not expected to result in an operability issue due to the conservatisms taken in the calculation and due to the cooler capacity margin and limited length of time heat would be added during the accident."

The inspector questioned the PIR statement regarding operability. After additional review, engineers were able to demonstrate that cooler capacity provided ample margin for the postulated heat input from this line.

b.3 Corrective Action Program Change

After these two PIRs were initiated, licensee management revised the corrective action program in response to a number of concerns and observations. One notable revision was to change the responsibility for performing operability reviews of PIRs. Previously, PIRs were reviewed for operability concerns the morning following initiation by individuals from the Independent Safety Engineering Group. The new program required PIRs to be screened for operability by either the shift supervisor or the central work authority following initiation of the PIR.

c. Conclusions

The inspector concluded that the operability evaluations performed for two PIRs were not well supported, in that, in each case additional engineering work was necessary to verify or confirm the initial engineering judgment that the described problems did not constitute an operability concern. The change to the corrective action process to designate either the shift supervisor or the central work authority as the individual responsible for performing operability determinations for all PIRs appeared to be appropriate.

O8 Miscellaneous Operations Issues (71707, 92700, 92901)

O8.1 (Closed) Licensee Event Report 482/96-004: Violation of Technical Specification 3.5.4 (power remained available to Safety Injection Pump A discharge valves). This event involved the failure of the licensee to remove power from the closed Safety Injection Pump A isolation valve actuators prior to racking the pump breaker up. Technical Specification 3.5.4 required that the safety injection pumps be rendered inoperable during Modes 5 and 6. Specifically, the pump's motor circuit breaker was to be opened so that the pump was rendered inoperable. The Technical Specification provided the option to close the discharge valves and remove power from the discharge valve actuators to allow testing of the safety injection pumps or to use the pump to fill accumulators.

The inspector reviewed the licensee's root cause evaluation for this event and the corrective actions taken. The licensee identified the root cause as a cognitive personnel error. The operations personnel responsible for test implementation did not recognize how the clearance order requiring closed discharge valves affected the need for cold over-pressure protection. Also, operations personnel restored both trains of safety injection pumps. The surveillance being performed, Procedure STS KJ-001B, "Integrated D/G and Safeguards Actuation Test - Train B," Revision 14, only required that Train B be restored. The root cause evaluation did not address the failure of licensee personnel to recognize that Technical Specification 3.5.4 requires that the safety injection pump be rendered inoperable by opening the pump breaker unless the pump is being tested or used to fill accumulators. The method of rendering Safety Injection Pump A inoperable should not have been changed until the pump was to be tested.

The corrective actions taken to prevent recurrence were to add the caution statement: "The following alignment is for B(A) Train only[.] if[If] A(B) train clearance order is being changed ensure the change complies with Technical Specification 4.5.4.1," to Procedures STS KJ-001A and -B and to more clearly identify the valves to be closed and breakers to be opened in the body of the procedures. The inspector determined that the corrective action taken did not appropriately address the root cause identified. The procedure, as written at the time of the event, prevented the problem in the train that was being tested. The caution statement was intended to prevent changes to a clearance order on the other train. The proposed corrective actions were inadequate in that during the initial event, the clearance order was not changed until after the actions that violated the technical specification had been performed, thus the corrective actions would not prevent recurrence.

The inspector concluded that the root cause identified was not complete and that the corrective actions failed to address the root cause. The failure to maintain Safety Injection Pump A inoperable during Mode 5 is a violation of Technical Specification 3.5.4 (482/9618-02).

O8.2 (Closed) Licensee Event Report 482/96-005: Violation of Technical Specification 3.9.4 (containment penetration open during core alterations). Technical Specification 3.9.4 required that each penetration providing direct access from the containment atmosphere to the outside atmosphere be closed by an isolation valve, blind flange, manual valve, or be capable of being closed by an automatic containment purge isolation valve during core alterations. During core alterations, operators directed the opening of Containment Isolation Valve BM-V046 to allow draining of Steam Generators B and C, providing direct access from the containment atmosphere to the outside atmosphere.

The inspector reviewed the root cause identified and corrective actions taken. The root cause was cognitive personnel error. Operations personnel incorrectly interpreted the requirements of Technical Specification 3.9.4 and determined that the containment isolation valve could be opened during core alterations if a dedicated individual was stationed at the valve. The personnel involved were counselled. Procedure SYS BM-201, "Steam Generator Draining," Revision 7, was revised to state that the procedure could not be performed while core alterations were in progress and the affected steam generators were open to the containment atmosphere.

The inspector questioned whether other procedures had been reviewed to verify that the event could not be repeated. The operations support supervisor found that Procedure SYS EF-420, "Draining ESW Trains," Revision 4, allowed opening containment isolation valves after containment closure was established as long as a dedicated operator was used. The inspector and licensee concurrently discovered that Procedure SYS EG-401, "Component Cooling Water System Drain Procedure," Revision 4, provided similar guidance.

The inspector concluded that the corrective actions taken would not prevent recurrence of a similar event on other systems. The failure to maintain containment closure while core alterations were in progress is identified as a violation of Technical Specification 3.9.4 (482/9618-03).

O8.3 (Closed) Unresolved Item 50-482/9612-02: Postmodification testing inadequacy. This item involved the failure of licensee personnel to adequately test a modification to the emergency diesel generators protection circuits. After discovering the failure to adequately test this modification, the licensee performed testing as described in NRC Inspection Report 50-482/96-12, Section E1.1. The inspector reviewed this testing and determined that it adequately tested the circuit as required by the surveillance test requirement. However, Technical Specification 4.8.1.1.2.g.6.c required the licensee to perform this testing while shutdown. Since this testing was performed with the reactor at approximately 100 percent power, this was a violation of Technical Specification requirements (482/9618-04).

O8.4 (Closed) Violation 50-482/9611-03: Failure to contact shift supervisor with operability concern. Personnel failed to immediately contact the shift supervisor after identifying that nonsafety packing had been installed in Motor-Driven Auxiliary Feedwater Pump B and that the oil level in Component Cooling Water Pump D was lower than required. The licensee determined that the procedural guidance was not effective and that personnel were not aware of the requirement. The licensee revised the requirement to contact the shift supervisor in Procedures AP 16C-001, "Action Request," Revision 2, and AP 28A-001, "Performance Improvement Requests," Revision 5, to provide consistency. The plant manager conveyed these procedure requirements to site personnel in Memorandum WO 96-0126, "Notifying the Shift Supervisor when Plant Problems are Discovered," dated August 14, 1996. A self-assessment was to be conducted and completed by November 11, 1996, to confirm that the requirement was effectively communicated. This assessment will be reviewed during the review of Violation 50-482/9614-03.

O8.5 Review of INPO Evaluations

The inspector reviewed the Accreditation Evaluation Report for Instrument and Control Technician, Electrical Maintenance Personnel, Mechanical Maintenance Personnel and Supervisor, Chemistry Technician, Radiological Protection Technician, and Engineering Support Personnel training programs dated August 1996. The inspector did not identify the need for additional NRC followup as a result of these reviews.

II. Maintenance

M1 Conduct of Maintenance

M1.1 General Comments on Maintenance Activities

a. Inspection Scope (62707)

The inspector observed all or portions of the following work activities.

107931	Task 1	Spent Fuel Pool Cooling Pump B mechanical seal replacement
108442	Task 3	Unit vent radiation monitor heat trace determination
112717	Task 2	Motor-Driven Auxiliary Feedwater Pump A balance drum adjustment
115979	Task 1	Lift leads from damaged Control Board Handswitch SBH552A
116284	Task 1	Postmaintenance test of Valve EF HV-34

b. Observations and Findings

Except as noted in Section M2.1, the inspectors found no concerns with the maintenance observed.

c. Conclusions

Except as noted in Section M2.1, the inspectors concluded that the maintenance activities were being performed as required.

M1.2 General Comments on Surveillance Activities

a. Inspection Scope (61726)

The inspectors observed all or portions of the following surveillance activities.

STS IC-201, Revision 16	ACOT Process 7300 Inst P-11 white
STS IC-454A, Revision 7	Channel calibration fuel pool bridge crane area Criticality Monitor SDRE37
STS IC-636A. Revision 9	Slave Relay Test K636 Train A safety injection

b. Observations and Findings

The inspectors found no concerns with the surveillances observed.

c. Conclusions

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

M2 Maintenance and Material Condition of Facilities and Equipment

M2.1 Motor-Driven Auxiliary Feedwater Pump Packing

a. Inspection Scope

The inspector reviewed the circumstances surrounding the large pump packing leakoff flow for motor-driven Auxiliary Feedwater Pump A following maintenance.

b. Observations and Findings

Following maintenance on motor-driven Auxiliary Feedwater Pump A, the packing adjustment left the pump leakoff flow rate high enough on the outboard bearing such that leakoff water impinged on the bearing housing. At approximately 7 a.m.,

on September 16, 1996, after hearing that the leakoff flow rate had increased since September 13, 1996, the inspector questioned whether this flow rate was excessive. At approximately 3:30 p.m., on September 16, 1996, the system engineer responded by attempting to explain how excessive leakoff flow could not enter the bearing housing and contaminate the bearing oil. The inspector reviewed the engineer's description and could not agree that it was not possible for the flow to enter the bearing housing. The system engineer and the inspector then walked down the pump together, and the inspector noted the formation of corrosion products between the shaft and a bearing housing component that was attached to the shaft. The system engineer stated that the formation of corrosion particles in this area was not desirable because of the potential for the particles to eventually interfere with the oil seal. Following this discussion, the inspector observed a meeting in the work control center where this issue was discussed further by representatives from operations, engineering, maintenance, and integrated plant scheduling. The principal concern was whether it was necessary for the oil in the outboard bearing to be sampled that day or whether it could be performed the next day. During this meeting, the system engineer acknowledged that one could not know with certainty whether this leakoff flow was actually entering the bearing oil. At that point, integrated plant scheduling personnel declared the oil sampling task an emergent task, established contingency plans, and the oil sample was taken. Since the moisture analysis showed that no water intrusion had occurred, the licensee followed their contingency plan to perform a maintenance run of the pump the following day to adjust the packing to achieve a lower leakoff flow rate.

c. Conclusions

The inspector concluded that in this case, the packing leakoff flow rate did not contaminate the outboard bearing oil. However, the inspector also concluded that despite the experiences with auxiliary feedwater pump packing near the end of Refueling Outage VIII, maintenance personnel have yet to establish a pump packing technique that maintains the pump leakoff flow between the extremes of inadequate flow which can lead to packing damage, and excessive flow which can lead to bearing damage. This issue will be reviewed further in conjunction with followup on Escalated Enforcement Item 96-124-03013.

M8 Miscellaneous Maintenance Issues (92902)

M8.1 (Open) Violation 50-482/9609-01: Auxiliary feedwater pump use prior to completing maintenance. This item involved operators starting a motor-driven auxiliary feedwater pump to fill steam generators prior to maintenance personnel completing the postmaintenance test on the pump following maintenance. The response to the violation stated that corrective action would be to utilize either a team leader or an outage window manager, to coordinate activities between operations and maintenance for safety-related pumps removed from service. Additional corrective actions included clearly identifying management's expectations for the team leader or outage window manager, and providing training to team

leaders and outage window managers. The inspector questioned whether this adequately addressed the root cause of this violation since it only applied to safety-related pumps. Maintenance personnel explained that they also recognized the narrow scope of the response, and actually revised Administrative Procedure (AP) 16C-002 to require the use of a team leader or outage window manager for all safety-related systems that require major equipment to be removed from service. The inspector still questioned whether this fully addressed the root cause, since it still provided for subjective judgment in determining whether the planned maintenance was major or not. The response also described plans for more detailed procedural changes following implementation of these immediate corrective actions. When the inspector raised questions regarding the adequacy of the corrective actions completed, the plant manager stated that additional corrective actions would be taken as indicated in the response. Since the licensee's corrective actions were not complete, this item will remain open until the licensee identifies all corrective actions for the violation.

III. Engineering

E2 Engineering Support of Facilities and Equipment

E2.1 Review of Updated Safety Analysis Report (USAR) Commitments

a. Inspection Scope (37551)

A recent discovery of a licensee operating their facility in a manner contrary to the USAR description highlighted the need for a special focused review that compares plant practices, procedures and/or parameters to the USAR description. While performing the inspections discussed in this report, the inspectors reviewed the applicable portions of the USAR that related to the areas inspected. The following inconsistencies were noted between the wording in the USAR and the plant practices observed by the inspectors.

b. Observations and Findings

NRC Inspection Report 50-482/96-02 identified a deviation for the failure of the licensee to address minimum room temperatures identified in the USAR. The deviation was closed in NRC Inspection Report 50-482/96-11 in response to the licensee verification that the minimum temperatures were for human comfort, not equipment operability concerns. The actual minimum temperatures were determined to be lower. The licensee changed the USAR to reflect that the minimum temperatures identified were for human comfort, not equipment operability. The licensee planned to evaluate the remaining rooms to determine minimum acceptable room temperatures.

Personnel at Callaway contacted engineering personnel at Wolf Creek after reviewing the USAR change. They informed the engineers that USAR Section 9.3.6.2.1 requires that systems containing a four weight percent boric acid solution be maintained at a minimum temperature of 55°F to ensure the boron stays in solution. This requirement applies to the Charging Pump B room, one of the rooms found at 52°F in the deviation referred to above. Engineering personnel contacted the control room to ensure that the auxiliary building would be maintained above a minimum temperature of 60°F until the reevaluation of minimum temperatures was complete. The licensee initiated PIR 96-2440 to address the issue. The USAR and documentation for the evaluation completed in response to the deviation were to be revised to reflect this information.

c. Conclusion

The inspector concluded that the review conducted by engineering personnel in response to Deviation 50-482/9602-01 was inadequate in that the review failed to identify the minimum room temperature required in USAR Section 9.3.6.2.1. The failure to provide a procedure or guidance to maintain the charging pump room at or above 55° F as required by USAR Section 9.3.6.2.1 was a violation of 10 CFR 50, Appendix B, Criterion V. This licensee-identified and corrected violation is being treated as a noncited violation, consistent with Section VII.B.1 of the Enforcement Policy (482/9618-05).

E2.2 Fuel Building Concrete Degradation

a. Inspection Scope (37551)

The inspectors reviewed PIR 96-2286 from September 11, 1996.

b. Observation and Findings

On September 6, 1996, during a routine walkdown of the fuel building, a reactor engineer noted a small piece of concrete located on the cover over the new fuel storage racks. PIR 96-2286 was not written until September 11, 1996, after the reactor engineer discussed the issue with design engineering. The PIR suggested that no further actions appeared necessary.

On September 17, 1996, the inspector asked the shift supervisor about the piece of concrete. The shift supervisor had not heard about the observation, and expressed concern regarding the structural adequacy of the fuel building and cask handling crane, and also expressed concerns regarding the potential for pieces of concrete to fall into the spent fuel pool. The shift supervisor directed engineering to address these concerns during resolution of the PIR.

At the end of the inspection period, this PIR had yet to be closed. Engineering personnel conducted additional walkdowns in the fuel building and found a second

piece of concrete located on the roof of the stairwell adjacent to the new fuel storage area. This piece of concrete fit the first piece, and evidently came from a location adjacent to the first piece. According to design engineering personnel, the concrete appeared to come from concrete corbels used to support the cask loading crane. According to reactor engineering personnel, the cask loading crane had some roughness when stopping at the end of the crane rail, imparting vibration into the concrete corbels.

c. Conclusions

The inspector will complete the review of this issue when this PIR is closed. This item will be tracked as an inspection follow-up item and will be reviewed during a future inspection (482/9618-06).

E8 Miscellaneous Engineering Issues (92700)

E8.1 (Closed) LER 482/96-007: Failure to perform required postmodification testing. As discussed in Section O8.3 of this report, the licensee failed to perform required postmodification testing of the emergency diesel generators protection circuits. The event and licensee corrective actions were properly documented in LER 482/96-007. Licensee corrective actions included revising the administrative procedure governing modification planning and implementation to require engineering definition of all actions required to be complete prior to system restoration, including postmodification testing. In addition, training on the procedure changes was provided to engineering and maintenance personnel on the new procedural controls for modifications, and management placed PIR 96-1864 into required reading for design engineers and modification/implementation coordinators to emphasize the importance of this issue. While these corrective actions were appropriate to address the root cause of the problem that caused this violation, the immediate corrective action involving the testing described in Section O8.3 of this report violated Technical Specifications and was, therefore, not appropriate. The failure to perform appropriate postmodification testing resulted in a violation of Technical Specification 4.8.1.1.2.g.6.c (482/9618-07).

IV. Plant Support

R1 Radiological Protection and Chemistry (RP&C) Controls

R1.1 Locked High Radiation Area Posting Moved

a. Inspection Scope (71750)

The inspector reviewed the circumstances surrounding an engineer moving a locked high radiation area posting without the permission or knowledge of health physics personnel.

b. Observations and Findings

On September 16, 1996, the contract maintenance technicians were performing work inside the containment building. In lieu of full coverage by radiation protection personnel, the area had been surveyed by radiation protection personnel and the area had been posted to permit technicians to work outside of a posted locked high radiation area. This was discussed during the prejob briefing.

At the end of the work day, an engineer directing the work asked a radiation protection technician if it would be possible for them to move the locked high radiation boundary approximately one foot again the next day because it had been very helpful for workers to use a step on a stairway that had been inside the posted locked high radiation area as a work platform. Earlier that day, the engineer relocated the boundary for this reason without asking or informing radiation protection personnel.

The radiation protection technician immediately informed the engineer that it had not been appropriate for the engineer to move the posting without notifying radiation protection personnel, and that this action could have had serious consequences. Neither the engineer nor the radiation protection technician initiated a PIR that day, and did not inform management. The radiation protection technician did not return to work until September 18, 1996, due to illness, and initiated PIR 96-2343 on September 18, 1996 upon returning to work. According to the radiation protection supervisor, the radiation protection technician did not meet management's expectations, and management had specifically informed all technicians that they would be willing to pay overtime after the end of the shift, if needed, for radiation protection technicians to initiate PIRs.

A subsequent survey showed that there were no dose consequences from this event. No unexpected radiation exposures occurred and the dose rates at the boundary were within procedural requirements. However, licensee procedures do not permit personnel other than radiation protection technicians to relocate or change radiological postings.

Licensee management disciplined the engineer for violating radiation protection procedures, and the radiation protection technician for not informing management of the issue prior to leaving the site. Management took additional steps to ensure that every worker onsite was aware that certain actions such as moving a radiation protection posting without informing radiation protection personnel were subject to severe disciplinary measures.

c. Conclusions

The failure of the radiation protection technician to inform management of the event in a timely manner delayed management's investigation, and had the potential for causing the investigation to not identify important details. The failure of the

engineer to follow the licensee's radiation protection procedures is a violation of Technical Specification 6.11. This licensee-identified and corrected violation is being treated as a noncited violation, consistent with Section VII.B.1 of the NRC Enforcement Policy (482/9618-08).

R2 Status of RP&C Facilities and Equipment

R2.1 Tour of Radiologically Controlled Area

a. Inspection Scope (71750)

The inspectors toured the radiologically controlled area a number of times during the inspection period.

b. Observations and Findings

On September 6, 1996, during a tour of the yard in the radiologically controlled area, the inspector noted that the gate behind the condensate storage tank was unlocked. The inspector contacted the shift supervisor, who made arrangements to have the gate locked. The piece of metal used to secure the gate had broken off and was found on the ground. The gate was posted to prevent entry into the area, but was not posted to prevent exit. Other possible exits from the radiologically controlled area onsite were posted to indicate that they were not exits and to exit at access control. The inspector reviewed site procedures and found no requirement to post exits from the radiologically controlled area.

During other tours of the radiologically controlled area, housekeeping, radiological conditions, and equipment material condition were satisfactory.

c. Conclusion

With the exception of one noted concern, material condition and housekeeping throughout the radiologically controlled area were good. The unlocked gate created a potential access control concern. Personnel could exit the radiologically controlled area by accident and potentially spread contamination. The corrective actions taken were appropriate.

R8 Miscellaneous RP&C Issues (92904)

R8.1 (Closed) Violation 50-482/9604-01: Posting of radiologically controlled area. This item documented three examples of failure to meet the licensee's procedures for posting requirements. The licensee identified two additional examples while researching this violation and implementing the corrective actions. The licensee found that the high radiation area boundary the inspector found down had been broken on February 27, when a breach permit was posted, and the door to the room was opened (the door was the posted barricade at that time). A PIR was not

generated to document this problem or the issues identified by the inspector. Quality evaluations personnel found a radiation area barrier rope left down on March 26, 1996. The licensee identified the root cause for the failures as human engineering. Causal factors included: (1) a failure of Procedure AP 10-104, "Breach Authorization," Revision 2, to require health physics approval to breach doors that were part of a posted area, (2) placement of a barrier in such a manner that requires personnel to handle the ropes, and (3) supervision's failure to initiate corrective action documentation.

Radiation protection management directed Memorandum PS 96-0114, "Professional Postings Expectations," dated March 28, 1996, to all health physics technicians to address the violations that occurred and to provide guidance on posting breached doors. This memorandum directed technicians to post doorways so that the postings would not have to be removed during entry into the area. Areas not requiring a barricade were not to be barricaded (for example, a contaminated area was to be provided with a step-off pad with postings on each side, rather than a rope across the entry). To ensure the maintenance of posted areas, the licensee revised Radiation Protection Form 20-205-1, "Daily Radiological Survey Checklist - Outage Periods," Revision 5, to require that health physics technicians check radiological postings in the radiological controlled area once each shift. The licensee revised Procedure AP 10-104 to require a radiation protection technician's approval prior to breaching doors used as a barrier for radiological postings. The radiation protection superintendent discussed management expectations regarding posting and generation of PIRs with health physics supervision on March 21, 1996. Management counselled the individual who left the posting down on March 26, 1996. These corrective actions appropriately addressed the main root cause and the causal factors and should prevent recurrence.

R8.2 (Closed) Violation 50-482/9604-02: Failure to follow Radiation Work Permit 96-2050. During final closeout of the containment sumps, a health physics technician and two maintenance workers failed to wear face shields into the highly contaminated area in accordance with the radiation work permit. The inspector reviewed the licensee response to this violation immediately upon receipt of a signed copy onsite. The response dealt with the health physics technician, but did not address the maintenance workers. The licensee acknowledged this concern and was able to retrieve the response. The response was revised to address the maintenance workers.

The root cause of the incident was identified as human engineering. Due to having little outage experience, the health physics technician neglected to wear the required face shield. The maintenance workers were aware that the highly contaminated area was down in the sump, not above it, where they were replacing the grating. This knowledge caused them to be less attentive to the requirements of the radiation work permit.

Radiation protection management reviewed the health physics technician's qualification for health physics job coverage using Qualification Card HS6115719, Revision 2. The technician completed the card on April 2, 1996. Health physics personnel discussed the radiation work permit requirements with the maintenance workers. The inspector concluded that the corrective actions were appropriate.

V. Management Meetings

X1 Exit Meeting Summary

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on October 18, 1996. The licensee acknowledged the findings presented.

The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

ATTACHMENT

SUPPLEMENTAL INFORMATION

PARTIAL LIST OF PERSONS CONTACTED

Licensee

G. D. Boyer, Director of Site Support
N. S. Carns, President and Chief Executive Officer
O. L. Maynard, Chief Administrative Officer
B. T. McKinney, Plant Manager
R. Muench, Vice President Engineering
D. J. Neufeld, Acting Manager, Integrated Planning and Scheduling
W. B. Norton, Manager, Performance Improvement and Assessment
C. C. Warren, Chief Operating Officer

INSPECTION PROCEDURES USED

IP 37551	Onsite Engineering
IP 61726	Surveillance Observations
IP 62707	Maintenance Observations
IP 71707	Plant Operations
IP 71750	Plant Support Activities
IP 92901	Followup - Operations
IP 92902	Followup - Maintenance
IP 92904	Followup - Plant Support
IP 92700	Onsite Licensee Event Report Review

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

9618-01	URI	Operability of Containment Isolation Valve EF HV-34 (Section 02.1).
9618-02	NOV	TS 3.5.4 violation, power available to Safety Injection A (Section 08.1).
9618-03	NOV	TS 3.9.4 violation, Core alterations in progress (Section 08.2).
9618-04	NOV	TS violation, postmodification testing (Section 08.3).

9618-06	IFI	Fuel Building Concrete Degradation (Section E2.2).
9618-07	NOV	Inadequate Postmodification Test (Section E8.1).

Closed

50-482/9604-01	NOV	Posting of Radiologically Controlled Area (Section R8.1).
50-482/9604-02	NOV	Failure to Follow Radiation Work Permit 96-2050 (Section R8.2)
50-482/9611-03	NOV	Fail to Contact Shift Supervisor with Operability Concern (Section 08.4).
50-482/9612-02	URI	Postmodification Testing Inadequacy (Section 08.3).
50-482/96-004	LER	Violation of Technical Specification 3.5.4 (Power Remained Available to Safety Injection Pump A Discharge Valves (Section 08.1).
50-482/96-005	LER	Violation of Technical Specification 3.9.4 (Containment Penetration Open During Core Alterations (Section 08.2).
50-482/96-007	LER	Failure to Perform Required Postmodification Testing (Section E8.1).

Discussed

50-482/9609-01	NOV	Auxiliary Feedwater Pump Use Prior to Completing Maintenance (Section M8.1).

Opened and Closed

50-482/9618-05	NCV	Charging Pump B Room Temperature (Section E2.1).
50-482/9618-08	NCV	Movement of Locked High Radiation Posting (Section R1.1).