

ENCLOSURE 2

**U.S. NUCLEAR REGULATORY COMMISSION
REGION IV**

Docket No.: 50-482
NPF-42
Report No.: 50-482/98-04
Licensee: Wolf Creek Nuclear Operating Corporation
Facility: Wolf Creek Generating Station
Location: 1550 Oxen Lane, NE
Burlington, Kansas
Dates: January 25 through March 7, 1998
Inspectors: J. F. Ringwald, Senior Resident Inspector
B. A. Smalidridge, Resident Inspector
Approved By: W. D. Johnson, Chief, Project Branch B

ATTACHMENT: Supplemental Information

EXECUTIVE SUMMARY

Wolf Creek Generating Station NRC Inspection Report 50-482/98-04

Operations

- Operators did not recognize that, during surveillance testing, inserting shutdown control rods below the rod insertion limit required them to enter into Technical Specification Action Statement 3.1.3.5. The surveillance procedure also failed to prompt operators to recognize the applicability of the Technical Specification. The operations department had to overcome the mind set that the exception contained in the action statement precluded the need to comply with the limiting conditions for operation during the surveillance test (Section 04.1).
- Appropriate questions in late 1997 resulted in the identification of an historical failure of operations and engineering personnel to set refueling machine load settings as required by Technical Specifications between 1988 and 1994 due to an inappropriate procedure and a mind set that failed to question the setting methodology (Section 08.9).
- When appropriate questions in 1996 resulted in the identification of surveillance tests on the auxiliary feedwater pumps that were not being performed on a staggered test basis, the initial corrective action to identify additional examples was not effective. The licensee event report (LER) supplement reported a similar failure for the emergency diesel generators (Section 08.12).

Maintenance

- The material condition of those plant systems and components evaluated during this inspection period were good, with few equipment deficiencies. Effective coordination between operations, maintenance, engineering, and other groups resulted in the licensee achieving a condition where no annunciators were illuminated with very few instrument out-of-service tags on annunciators (Section M2.1).

Engineering

- A 10 CFR 50.59 evaluation was not performed during preparations to filter the emergency diesel fuel oil storage tank contents without declaring the emergency diesel generators inoperable. While the plant manager and operations manager raised questions regarding the operability of the diesel generator during this planned work activity, personnel involved in the preparation of this work failed to recognize the need for the 10 CFR 50.59 evaluation until prompted by the inspector and the Chief Operating Officer (Section E1.1).
- The procurement of replacement seals for the control room door in accordance with Revision 1 of Specification 16577-A-075A, "Technical Specification for Bullet-Resisting

Door for the Standardized Nuclear Power Plant System," and the failure to revise the Updated Safety Analysis Report coincident with the revision to this specification in 1991, was a violation of 10 CFR 50.71(e) (Section E8.3).

Plant Support

- A quality control inspector performed a boroscope examination of a containment spray pump room cooler within 18 inches of two posted hot spots without adequate cognizance of the radiological conditions in the room and without dosimetry adequate to monitor the highest whole-body dose. The radiation protection program did not require, the quality control inspector did not request, and radiation protection personnel did not provide start-of-the-job coverage and, therefore, the quality control inspector did not receive guidance on job specific ALARA (as low as reasonably achievable) practices or the intermittent job coverage required by the radiation work permit. (Section R1.1).
- Progressively more aggressive corrective actions to address 11 licensee-identified instances where radiation workers entered the radiologically controlled area without required dosimetry over an 8-month period have resulted in more than 4 months without recurrence (Section R8.1).

Report Details

Summary of Plant Status

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

I. Operations

O4 Operator Knowledge and Performance

O4.1 Procedures and Documentation

a. Inspection Scope (71707)

The inspector observed the conduct of Procedure STS SF-001, "Control and Shutdown Rod Operability Verification," Revision 14, pursuant to surveillance testing required by Technical Specification 4.1.3.1.2.

b. Observations and Findings

On February 18, 1998, the inspector observed the conduct of Procedure STS SF-001, "Control and Shutdown Rod Operability Verification," Revision 14. During the conduct of this test, shutdown control rods were inserted beyond the limits specified in the core operating limits report in accordance with the surveillance test procedure. The core operating limits report limits shutdown rod insertion to no less than 222 steps.

On February 23, 1998, the inspectors contacted operations management personnel and inquired whether the limiting conditions for operation requirements of Technical Specification 3.1.3.5 were met during the conduct of control and shutdown rod operability testing. The operations department responded that the exception for surveillance testing pursuant to Technical Specification 4.1.3.1.2 contained in the action statement precluded the need to enter into the limiting conditions for operation; therefore, they did not consider entry into the Technical Specification Action Statement necessary.

Technical Specification 3.1.3.5 states that "All shutdown rods shall be limited in physical insertion as specified in the core operating limits report" in Modes 1 and 2. The action statement associated with Technical Specification 3.1.3.5 limited the number of shutdown rods inserted beyond the insertion limit to a maximum of one rod, except for surveillance testing pursuant to Technical Specification 4.1.3.1.2. The action statement required that rods be restored to above the rod insertion limit within 1 hour. The inspectors noted that any time the limiting conditions for operation requirements were not met, the Technical Specification Action Statement applied. Therefore, the 1-hour limit for rods inserted below the limits of the core operating limits report remained in effect during surveillance testing.

The inspectors identified that the operations department had to overcome the mind set that the exception contained in the action statement precluded the need to comply with the limiting conditions for operation during the surveillance test. The surveillance

procedure failed to prompt operators to recognize the applicability of the Technical Specification. The operations manager agreed that the applicable Technical Specification Action Statement should have been entered at the time the surveillance was conducted. Operations personnel initiated PIR 98-0486 to address this issue. Procedure AP 21-001, "Operations Watch Standing Practices," Revision 8, required that all entries into short-term limiting conditions for operation be logged in and out of the control room log. The operators' failure to log entry into Technical Specification 3.1.3.5 when shutdown rods were inserted beyond the rod insertion limits is a violation of Technical Specification 6.8.1.1.a. (50-482/9804-01).

c. Conclusion

Operators did not recognize that, during surveillance testing, inserting shutdown control rods below the rod insertion limit required them to enter into Technical Specification Action Statement 3.1.3.5. The surveillance procedure failed to prompt operators to recognize the applicability of the Technical Specification. The operations department had to overcome the mind set that the exception contained in the action statement precluded the need to comply with the limiting conditions for operation during the surveillance test.

O8 Miscellaneous Operations Issues (92901)

- O8.1 (Closed) Violation 50-482/9708-01: Radwaste operators not following procedure. The inspector verified the corrective actions described in the licensee's response letter, dated May 23, 1997, to be reasonable and complete. No similar problems were identified.
- O8.2 (Closed) Violation 50-482/9709-01: Failure to identify and remove loose debris from the containment. The inspector verified the corrective actions described in the licensee's response letter, dated July 7, 1997, to be reasonable and complete. No similar problems were identified.
- O8.3 (Closed) Violation 50-482/9709-03: Failure to properly document an operability determination for debris and other material in the containment. The inspectors reviewed the corrective actions described in the licensee's response letter, dated July 7, 1997. The licensee's response stated that Administrative Procedure AP 26C-004, "Technical Specification Operability," Revision 0, would be revised to provide improved guidance on when Form APF 26C-004-01, "Technical Specification Screening Checklist," should be used.

Procedure AP 26C-004, Revision 1, stated that, if the shift supervisor cannot "expediently" resolve an operability concern, then the checklist should be used. The inspectors did not identify a definitive statement in the procedure stating when the checklist was required. The inspectors questioned the licensee's definition of the term "expediently." The licensee stated that the length of time to "expediently resolve an operability concern" was at the discretion of each of the shift supervisors. However, the

licensee also stated that the time for a shift supervisor to resolve a concern without using a checklist should be less than an hour. The inspectors did not identify any additional concerns.

- O8.4 (Closed) Violation 50-482/9710-02: Overtime controls. The inspector verified the corrective actions described in the licensee's response letter, dated August 8, 1997, to be reasonable and complete. No similar problems were identified.
- O8.5 (Closed) Violation 50-482/9710-03: Failure to perform inspection of the containment building prior to establishing containment integrity. The inspector verified the corrective actions described in the licensee's response letter, dated August 8, 1997, to be reasonable and complete. No similar problems were identified.
- O8.6 (Closed) Violation 50-482/9722-01: Midloop procedure not followed regarding the containment personnel access hatch. The inspector verified the corrective actions described in the licensee's response letter, dated January 30, 1998, to be reasonable and complete. No similar problems were identified.
- O8.7 (Closed) Violation 50-482/9722-02: Posttrip review package error. The inspector verified the corrective actions described in the licensee's response letter, dated January 30, 1998, to be reasonable and complete. No similar problems were identified.
- O8.8 (Closed) Violation 50-482/9723-01: Operations procedure use with field operators. The inspector verified the corrective actions described in the licensee's response letter, dated February 27, 1998, to be reasonable and complete. No similar problems were identified.
- O8.9 (Closed) LER 50-482/94014-00: Refueling machine Technical Specification limiting conditions for operation requirements not met in past outages. This item involved the discovery that the under and overload setpoints for the refueling machine failed to meet Technical Specification 3/4.9.6 requirements during Refueling Outages 3, 6, and 7, between October 7, 1988, and November 2, 1994. The cause of this event was an inadequate procedure that required the overload setpoint to be 250 pounds above the weight of the heaviest fuel assembly, the automatic load reduction trip to be 250 pounds less than the weight of the lightest fuel assembly, and a mind set that failed to question the procedural guidance. When the licensee modified the refueling machine in 1996, several refueling machine weight settings were then available so operators and engineers could select appropriate overload and automatic load reduction setpoints that met the Technical Specification requirements. While procedural guidance directed engineering and operations personnel to select the appropriate setting for the fuel assembly being moved, it relied on skill of the craft to ensure that operators selected the proper setting. The report stated that the licensee planned to further review and enhance this process, and the manager of nuclear engineering said that this review will also address this skill-of-the-craft question. The failure of the licensee to ensure that the refueling machine setpoints met Technical Specification requirements is a violation. This

nonrepetitive, licensee-identified and corrected violation is being treated as a noncited violation, consistent with Section VII.B.1 of the NRC Enforcement Policy (50-482/9804-02).

- O8.10 (Closed) LER 50-482/96001-01: Loss of circulating water due to icing on traveling screens. This report corrected information provided in the initial report regarding the cause of the circulating water system failure. The root cause was determined to be plugged air release valves in the circulating water system. The described corrective actions appear to be appropriate to address the plugged valves. Additional corrective actions were also described regarding the operators' failure to meet the Technical Specification Action Statement 3.7.1.2.b. requirements to achieve Mode 4 within 3 hours of reaching Mode 3. No other new information was provided.
- O8.11 (Closed) LER 50-482/96004-01: Violation of Technical Specification 3.5.4 for power remaining available to Safety Injection Pump A discharge valves in Mode 5. This supplement to the LER provided additional corrective actions not discussed in the original LER. No other new information was provided.
- O8.12 (Closed) LER 50-482/96009-00/01: Failure to perform Technical Specification surveillance requirements on a staggered test basis. On September 20, 1996, LER 96-009-00 reported the licensee's failure to perform surveillance testing on the auxiliary feedwater pumps on a staggered test basis. Corrective actions included a comparison of the surveillance testing computer database with Technical Specification requirements which found no similar occurrences. On January 7, 1997, the licensee issued Supplement 1 to report that a similar failure was identified associated with the emergency diesel generators. Since the corrective actions described in the initial report were demonstrated to have been inadequate as discussed in the supplement, the licensee's response to the initial violation did not meet the criterion described in the NRC's Enforcement Policy, Section VII.B.1, for enforcement discretion. The failure of the licensee to perform these surveillance tests on a staggered test basis is a violation of Technical Specifications 4.7.1.2.1.a and 4.8.1.1.2 (50-482/9804-03). Since the corrective actions described in the supplement ultimately appeared to be adequate, no response to this violation is required.

O8.13 Conclusions

Appropriate questions in late 1997 resulted in the identification of an historical failure of operations and engineering personnel to set refueling machine load settings as required by Technical Specifications between 1988 and 1994 due to an inappropriate procedure and a mind set that failed to question the setting methodology.

When appropriate questions in 1996 resulted in the identification of surveillance tests on the auxiliary feedwater pumps that were not being performed on a staggered test basis, the initial corrective action to identify additional examples was not effective. The LER supplement reported a similar failure for the emergency diesel generators.

II. Maintenance

M1 Conduct of Maintenance

M1.1 General Comments on Maintenance Activities

a. Inspection Scope (62707)

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

| | | |
|--------|----------------|--|
| 119703 | Task 1 | As-Found Valve Operation Test and Evaluation System test on Valve BN HV8806A |
| 126429 | Tasks 1 and 11 | Remove cover and inspect containment sump |
| 126921 | Task 2 | Clean and inspect Containment Spray Pump A room cooler |
| 127623 | Task 0 | Test failure troubleshooting |

b. Observation and Findings

Except as noted in Sections R1.1 and M2.1, the inspectors found no concerns with the maintenance observed.

c. Conclusions

Except as noted in Sections R1.1 and 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 AL-103, Revision 31 | Turbine-driven auxiliary feedwater pump inservice pump test |
| STS EN-100A, Revision 11 | Containment Spray Pump A inservice pump test |
| STS KA-010, Revision 10 | Nitrogen accumulator inservice check valve test |
| STS SF-001, Revision 14 | Control and shutdown rod operability verification |

b. Observations and Findings

Except as noted in Sections O4.1 and M2.1, the inspectors found no concerns with the surveillances observed.

c. Conclusions

Except as noted in Sections O4.1 and M2.1, the inspectors concluded that the surveillance activities were being performed as required.

M2 Maintenance and Material Condition of Facilities and Equipment

M2.1 Review of Material Condition During Plant Tours

a. Inspection Scope (61726)

During this inspection period, routine plant tours were conducted to evaluate plant material condition.

b. Observations and Findings

In general, where equipment deficiencies existed, the deficiencies had been identified for corrective action.

- During an at-power containment entry on January 28, 1998, the inspector noted that the containment sump area was free of debris. Additionally, an inspection of containment, including the adherent condition of paint and sealants on containment walls and components, revealed no notable debris with the potential to collect in the containment sump.
- During the inspection period, the licensee achieved a condition where no control board annunciators were illuminated. In this condition, four annunciators had instrument out-of-service tags indicating that these annunciators had some problem associated with them. Two of the four were removed from service by procedure in that these annunciators were only meaningful when the plant operated in a shutdown condition. One annunciator was disabled because the equipment was no longer used and a design change was pending to remove the annunciator from service. The remaining instrument out-of-service tag represented an annunciator which continued to have an active material condition concern.
- On February 2, 1998, during surveillance testing of the turbine-driven auxiliary feedwater pump, the inspector observed that the auxiliary feedwater turbine casing continued to exhibit some leakage during operation. Subsequent inspection activities determined that this leakage did not adversely affect the turbine operability nor the moisture content of the turbine oil.

- On January 30, 1998, system engineering personnel identified that the grab sample capability that they relied on to measure the postaccident reactor coolant system dissolved hydrogen concentration could not be performed within 3 hours because the analysis would have to be performed offsite. The inline analyzer failed in 1992, and the licensee has relied on a grab sample to meet the Updated Safety Analysis Report (USAR) requirements since that time. After identifying this issue, the licensee initiated Performance Improvement Request 98-0276 and preliminarily determined that this did not constitute an immediate safety concern because the reactor vessel head vents and reactor vessel level indicating systems are operational to mitigate the consequences of postaccident hydrogen production on reactor vessel flow. This issue will be unresolved pending the completion of the licensee's evaluation and additional inspection to more fully understand associated issues (50-482/9804-04).
- On February 18, 1998, the inspector noted that the body of Valve GS HV0037, containment atmosphere radiation monitor outside containment isolation, was not insulated and the insulation for the valve body appeared to be on the floor a few feet from the valve. No tags hung from the valve to identify an open work package to reinstall the insulation. A search of the work control database revealed no open work documents tracking the reinstallation of this insulation. A valve label inappropriately described the valve as an inside containment valve. The licensee initiated Performance Improvement Request 98-0440, Action Request 27537, to reinstall the insulation and an engraving request to correct the labeling error.

c. Conclusion

The material condition of those plant systems and components evaluated during this inspection period were good, with few equipment deficiencies. Effective coordination between operations, maintenance, engineering, and other groups resulted in the licensee achieving a condition where no annunciators were illuminated, with very few instrument out-of-service tags on annunciators.

M8 Miscellaneous Maintenance Issues (92902)

- M8.1 (Closed) Violation 50-482/9708-02: Failure to update risk assessment. The inspector verified the corrective actions described in the licensee's response letter, dated May 23, 1997, to be reasonable and complete. No similar problems were identified.
- M8.2 (Closed) Violation 50-482/9708-03: Failure to perform surveillance testing with essential service water inoperable. The inspector verified the corrective actions described in the licensee's response letter, dated May 23, 1997, to be reasonable and complete. No similar problems were identified.
- M8.3 (Closed) Violation 50-482/9723-02: Surveillance test procedure not followed. The

inspector verified the corrective actions described in the licensee's response letter, dated February 27, 1998, to be reasonable and complete. No similar problems were identified.

III. Engineering

E1 Conduct of Engineering

E1.1 Failure to Consider 10 CFR 50.59 in Work Planning

a. Inspection Scope (35571)

The inspector reviewed the licensee's plan to filter an emergency diesel generator fuel oil tank without declaring the diesel generator inoperable.

b. Observations and Findings

On January 27, 1998, during the 8:30 a.m. management meeting, the inspector noted that the licensee planned to filter the emergency diesel generator Fuel Oil Storage Tank B without declaring Emergency Diesel Generator B inoperable. The plant manager and operations manager questioned whether all appropriate considerations had been made to ensure that the operability determination was appropriate. At approximately 10:30 a.m., the operations superintendent informed the inspector that, while all the appropriate questions had been asked and answered to support the operability decision, the information had not been documented. In response to the questions from the plant manager and operations manager, licensee staff personnel planned to document the basis for considering the diesel generators operable during this filtration evolution in the work package. The inspector asked to see this documentation when it was complete and also asked to see the 10 CFR 50.59 screening/evaluation in support of the evolution. The inspector subsequently learned that no plans had been made to perform a 10 CFR 50.59 screening or evaluation. The Chief Operating Officer also asked engineering personnel whether a temporary modification would be used for this evolution about the same time that the inspector asked to see the 10 CFR 50.59 evaluation. After attempting to complete a 10 CFR 50.59 screening, the licensee decided to declare the emergency diesel generators inoperable during the filtration evolution. The inspector subsequently determined that, while the work planning process required appropriate considerations for evaluating operability, it did not specifically require consideration for the applicability of 10 CFR 50.59. The licensee noted that most maintenance activities which would require a 10 CFR 50.59 evaluation would be associated with a process which would trigger the need for a 10 CFR 50.59 evaluation, including modifications, temporary modifications, procedures, etc. Since this activity did not have an associated activity which triggered the 10 CFR 50.59 evaluation, engineering personnel did not consider the need for the evaluation until prompted by the inspector and Chief Operating Officer.

c. Conclusions

A 10 CFR 50.59 evaluation was not performed during preparations to filter the emergency diesel fuel oil storage tank contents without declaring the emergency diesel generators inoperable. While the plant manager and operations manager raised questions regarding the operability of the diesel generator during this planned work activity, personnel involved in the preparation of this work also failed to recognize the need for the 10 CFR 50.59 evaluation until prompted by the inspector and the Chief Operating Officer.

E8 Miscellaneous Engineering Issues (92903)

- E8.1 (Closed) Violation 50-482/9708-05: USAR discrepancies. The inspector verified the corrective actions described in the licensee's response letter, dated May 23, 1997, to be reasonable and complete. No similar problems were identified.
- E8.2 (Closed) Violation 50-482/9709-06: Procedure allowed normal charging pump operation at 325°F. The inspector verified the corrective actions described in the licensee's response letter, dated July 7, 1997, to be reasonable and complete. No similar problems were identified.
- E8.3 (Closed) Unresolved Item 50-482/9714-02: Control room door leaktightness. This item involved the discovery that the engineering specification used to procure the control room door did not require the same leaktightness as described in the USAR description. During the subsequent inspection, engineering personnel explained that, while the current revision of Specification 16577-A-075A, "Technical Specification for Bullet-Resisting Door for the Standardized Nuclear Unit Power Plant System," Revision 1, did not correspond to the USAR, the original revision did require the same leaktightness as described in the USAR. The procurement documentation available at the end of the inspection period did not clearly demonstrate that the door actually met this specification. In addition, engineering personnel stated that they planned to prepare a revision to the USAR that would delete the leakage criteria because they believed that the differential pressure requirement bounded the leakage criteria. Procurement of replacement seals for this door in accordance with Revision 1 of Specification 16577-A-075A and the failure to update the USAR coincident with the revision to this specification in 1991 are a violation of 10 CFR 50.71(e). This NRC-identified violation is not being cited because the NRC is exercising discretion in accordance with Section VII.B.3 of the Enforcement Policy (50-482/9804-05). This violation would likely have been identified by the licensee in its comprehensive program to review and update the USAR as described in Letter ET97-0010 of February 7, 1997.

The proposed USAR change and procurement documentation issues will be reviewed during a future inspection and will be tracked as an inspection followup item (50-482/9804-06).

IV. Plant Support

R1 Radiological Protection and Chemistry Controls

R1.1 Radiation Protection Work Planning

a. Inspection Scope (71750)

The inspector reviewed the radiation protection personnel involvement associated with work on the Containment Spray Pump A room cooler which occurred on February 18, 1998.

b. Observations and Findings

A quality control inspector performed a boroscope examination of a sample of the cooler tubes following cleaning. The inspector noted that the quality control inspector sat near two posted hot spots on the containment spray piping adjacent to the cooler. One hot spot was posted at 100 millirem per hour on contact and 15 millirem per hour at a distance of 12 inches. The other hot spot was posted at 140 millirem per hour on contact and 15 millirem per hour at a distance of 12 inches. The quality control inspector's head was approximately 12-18 inches from the hot spots during the work. When the quality control inspector engaged in activities that did not directly involve the examination of the tubes, such as cleaning the boroscope probe, the quality control inspector remained near the hot spot rather than moving to a lower dose area. When the inspector asked the quality control inspector what guidance had been provided regarding the performance of this work with regard to keeping the radiation exposure ALARA, the quality control inspector said that no job specific guidance had been provided.

The inspector asked radiation protection personnel for the ALARA review documentation associated with this work. The manager of chemistry and radiation protection responded that since the total expected dose for this job was less than 1 person-rem, the radiation protection program required no job-specific ALARA planning.

When the mechanics began work, the lead radiation protection technician provided start-of-job coverage. The work was performed under Radiation Work Permit 98009, Revision 0, which required intermittent health physics coverage. Since the quality control inspector did not discuss the work with the lead radiation protection technician, no health physics coverage was provided during the 3 hours the before the inspector questioned the quality control inspector's radiation work practices and guidance.

After the inspector raised these questions, radiation protection personnel interviewed the mechanics and the quality control inspector. They found that while the mechanics were very knowledgeable of the radiological conditions in the containment spray pump room, the quality control inspector was not. Since this did not meet the radiation protection standard for radiation worker knowledge, radiation protection personnel suspended the quality control inspector's access to the radiological control area pending the completion

of corrective actions. Radiation protection personnel also initiated Performance Improvement Requests 98-0446, -0447, and -0452.

Radiation protection personnel also determined that, while the mechanics did stop at access control and discuss the planned work with the lead radiation protection technician, the quality control inspector did not. Radiation Work Permit 980009 did not require a pre-job briefing, although a discussion with the lead radiation protection technician would have been an appropriate and prudent measure.

The inspector asked if the quality control inspector's dosimetry, located near the quality control inspector's chest, appropriately monitored the whole-body dose. Radiation protection personnel evaluated this and determined that the dosimetry did not measure the highest whole-body dose. A survey performed on February 20, 1998, immediately following the inspector's questions, revealed that while dosimetry at the chest would have recorded 1.2 millirem, the quality control inspector's back and neck would have received from 3 to 8 millirem as a result of the hot spots.

Administrative Procedure AP 25B-100, Radiation Worker Guidelines, Revision 5, required radiation workers to comply with radiation work permit requirements. Radiation Work Permit 98009, Revision 0, required the worker to avoid all posted hot spot locations, and required intermittent health physics coverage. The failure of the worker to avoid the posted hot spot location, and the failure of radiation protection personnel and the worker to ensure that the work received intermittent health physics coverage, is a violation of Technical Specification 6.11 (50-482/9804-07).

c. Conclusions

A quality control inspector performed a boroscope examination of a containment spray pump room cooler within 18 inches of two posted hot spots without adequate cognizance of the radiological conditions in the room and without dosimetry adequate to monitor the highest whole-body dose. The radiation protection program did not require, the quality control inspector did not request, and radiation protection personnel did not provide start-of-the-job coverage and, therefore, the quality control inspector did not receive guidance on job specific ALARA practices or the intermittent job coverage required by the radiation work permit.

R4 Staff Knowledge and Performance in Radiological Protection and Chemistry

R4.1 Knowledge and Performance

a. Inspection Scope (71750)

The inspectors observed health physics technician performance during a containment entry.

b. Observations and Findings

On January 28, 1998, the inspector noted that the health physics technician supplied by the fix-it-now team maintained positive control over each member of his assigned work group during a containment entry at-power. The technician continually monitored the radiation survey instrument, looking for possible locations of gamma streaming and general area radiation levels. The technician ensured that those individuals not directly involved with a specific task at any point during the evolution positioned themselves in the area of lowest background radiation within eyesight.

c. Conclusion

The health physics technician supplied by the fix-it-now team demonstrated strong ownership and skilled use of radiation protection principles to ensure doses to the work group were ALARA during containment entry at power.

R8 Miscellaneous Radiological Protection and Chemistry Issues (92904)

R8.1 (Closed) Violations 50-482/9710-06, /9711-06, /9714-05, and /9719-05: Radiation worker in the radiologically controlled area without required dosimetry. The inspector verified the corrective actions described in the licensee's response letters, dated August 8, September 19, October 31, and December 23, 1997, to be reasonable and complete. The initial corrective actions which included additional communication of expectations, personnel accountability, and radiation protection technicians' monitoring and challenging of radiation workers were initially ineffective. However, subsequent actions which included "just-in-time training" on radiation worker expectations for all outage workers just prior to the outage, establishing a "no-talk zone" in the vicinity of access control except for radiation protection discussions with the lead radiation protection technician, standards for radiation protection personnel to quiz radiation workers on radiation protection fundamentals, and mandatory meetings between the new radiation protection manager and individuals barred from the radiologically controlled area prior to their reentry have resulted in more than 4 months without recurrence. No similar problems were identified.

R8.2 Conclusions

Progressively more aggressive corrective actions to address 11 licensee identified instances in which radiation workers entered the radiologically controlled area without required dosimetry over an 8-month period have resulted in more than 4 months without recurrence.

P8 Miscellaneous Emergency Planning Issues (29204)

P8.1 (Closed) Violation 50-482/9711-07: Emergency preparedness sirens inoperable. The inspector verified the corrective actions described in the licensee's response letter, dated September 19, 1997, to be reasonable and complete. No similar problems were identified.

S8 Miscellaneous Security and Safeguards Issues

- S8.1 ~~Used~~ Violation 50-482/9709-07: Vital area escort ratio. The inspector verified the corrective actions described in the licensee's response letter, dated July 7, 1997, to be reasonable and complete. No similar problems were identified.

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 March 10, 1998. 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

PARTIAL LIST OF PERSONS CONTACTED

Licensee

M. J. Angus, Manager, Licensing and Corrective Action
G. D. Boyer, Chief Administrative Officer
J. W. Johnson, Manager, Resource Protection
O. L. Maynard, President and Chief Executive Officer
B. T. McKinney, Plant Manager
R. Muench, Vice President Engineering
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 92903 | Followup - Engineering |
| IP 92904 | Followup - Plant Support |

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

| | | |
|----------------|-----|--|
| 50-482/9804-01 | VIO | Procedure and documentation (Section 04.1). |
| 50-482/9804-02 | NCV | Refueling machine Technical Specifications limiting conditions for operation requirements not met in past outages (Section 08.9) |
| 50-482/9804-03 | VIO | Failure to perform Technical Specifications surveillance requirements on a staggered test basis (Section 08.12) |

| | | |
|----------------|-----|--|
| 50-482/9804-04 | URI | Review of material condition during plant tours (Section M2.1) |
| 50-482/9804-05 | NCV | Control room door leaktightness (Section E8.3) |
| 50-482/9804-06 | IFI | Control room door leaktightness (Section E8.3) |
| 50-482/9804-07 | VIO | Radiation work permit noncompliance (Section R1.1) |

Closed

| | | |
|--------------------|-----|--|
| 50-482/94014-00 | LER | Refueling machine Technical Specification limiting conditions for operation requirements not met in past outages (Section O8.9) |
| 50-482/96001-01 | LER | Loss of circulating water due to icing on traveling screens (Section O8.10) |
| 50-482/96004-01 | LER | Violation of Technical Specification 3.5.4 for power remaining available to safety injection Pump A discharge valves in Mode 5 (Section O8.11) |
| 50-482/96009-00/01 | LER | Failure to perform Technical Specification surveillance requirements on a staggered test basis (Section O8.12) |
| 50-482/9708-01 | VIO | Radwaste operators not following procedure (Section O8.1) |
| 50-482/9708-02 | VIO | Failure to update risk assessment (Section M8.1) |
| 50-482/9708-03 | VIO | Failure to perform STS with essential service water inoperable (Section M8.2) |
| 50-482/9708-05 | VIO | Updated Safety Analysis Report discrepancies (Section E8.1) |
| 50-482/9709-01 | VIO | Failure to identify and remove loose debris from the containment (Section O8.2) |
| 50-482/9709-03 | VIO | Failure to properly document an operability determination for debris and other material in the containment (Section O8.3) |
| 50-482/9709-06 | VIO | Procedure allowed normal charging pump operations at 325°F (Section E8.2) |
| 50-482/9709-07 | VIO | Vital area escort ratio (Section S8.1) |
| 50-482/9710-02 | VIO | Overtime controls (Section O8.4) |

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| 50-482/9710-03 | VIO | Failure to perform inspection of the containment building prior to establishing containment integrity (Section 08.5) |
| 50-482/9710-06 | VIO | Radiation worker in the radiologically controlled area without required dosimetry (Section R8.1) |
| 50-482/9711-06 | VIO | Radiation worker in the radiologically controlled area without required dosimetry (Section R8.1) |
| 50-482/9711-07 | VIO | Emergency Preparedness sirens inoperable (Section P8.1) |
| 50-482/9714-02 | URI | Control room door leaktightness (Section E8.3) |
| 50-482/9714-05 | VIO | Radiation worker in the radiologically controlled area without required dosimetry (Section R8.1) |
| 50-482/9719-05 | VIO | Radiation worker in the radiologically controlled area without required dosimetry (Section R8.1) |
| 50-482/9722-01 | VIO | Midloop procedure not followed regarding the containment personnel access hatch (Section 08.6) |
| 50-482/9722-02 | VIO | Posttrip review package error (Section 08.7) |
| 50-482/9723-01 | VIO | Operations procedure use with field operators (Section 08.8) |
| 50-482/9723-02 | VIO | Surveillance test procedure not followed (Section M8.3) |
| 50-482/9804-02 | NCV | Refueling machine Technical Specifications limiting conditions for operation requirements not met in past outages (Section 08.9) |
| 50-482/9804-05 | NCV | Control room door leaktightness (Section E8.3) |