ENCLOSURE 2

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No.:	50-482
License No.:	NPF-42
Report No.:	50-482/96-24
Licensee:	Wolf Creek Nuclear Operating Corporation
Facility:	Wolf Creek Generating Station
Location:	1550 Oxen Lane NE Burlington, Kansas
Dates:	December 1, 1996, through January 11, 1997
Inspectors:	J. F. Ringwald, Senior Resident Inspector M. S. Freeman, Reactor Engineer G. M. Good, Senior Emergency Preparedness Analyst L. E. Ellershaw, Reactor Inspector
Approved By:	W. D. Johnson, Chief, Reactor Projects Branch B

Attachment: Supplemental Information

EXECUTIVE SUMMARY

Wolf Creek Generating Station
NRC Inspection Report 50-482/96-24

Operations

- The licensee's initial plan to operate approximately 6 weeks with turbine-driven auxiliary feedwater pump turbine governor oil water contamination at 3915 ppm raised questions regarding the pump's continued operability. After the inspector raised questions and requested a conference call, the licensee's subsequent actions demonstrated pump operability (Section O1.1).

- The inspector identified a violation involving the failure of the shift supervisor to acknowledge or evaluate vendor requirements for the turbine-driven auxiliary feedwater pump turbine governor oil (Section O1.2).

- The shift supervisor showed a proper questioning attitude in response to an increase in lake water temperature indication after placing the essential service water warming lines in service (Section E1.1).

Maintenance

- The licensee identified a violation because maintenance workers failed to install the spindle nut cotter pin on a main steam safety valve (Section M1.1).

- One surveillance procedure step was vague in that it required technicians to verify that a printout was similar to information in the procedure without defining what constituted similarity (Section M3.1).

- The licensee responded in a very prompt and appropriate manner upon discovering water contamination of safety-related oil in the warehouse (Section M4.1).

Engineering

- The inspector identified an unresolved item associated with the control of design inputs during a review of the effect of essential service water warming line flow on the recently installed lake water temperature monitor (Section E1.1).

- The inspector identified a violation of 10 CFR 50.59 associated with inappropriate statements supporting the basis that a change to the Updated Safety Analysis Report did not involve an unreviewed safety question (Section E2.1).

Plant Support

- The inspector observed an example of a poor chemistry technician laboratory practice and found minimal guidance on when a technician could discard inconsistent analysis results during the analysis of moisture content in oil (Section R4.1).

- The commitment to perform onshift dose assessment was described in the emergency plan and implementing procedures (Section P3.1).

Report Details

Summary of Plant Status

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

I. Operations

O1 Conduct of Operations

O1.1 Moisture Intrusion into the Turbine-Driven Auxiliary Feedwater Pump Governor Oil

a. Inspection Scope (71707)

The inspector evaluated the circumstances surrounding the discovery of moisture intrusion into the auxiliary feedwater turbine governor oil.

b. Observations and Findings

During the past several months, the system engineer noticed a gradually increasing leak from the turbine casing. In November 1996, the engineer began trending the moisture content of the governor oil on a monthly basis using an improved analysis technique. Prior to November 1996, the oil had been sampled and analyzed every 6 months. On December 6, 1996, the system engineer coordinated the sampling and analysis of the oil to determine the intrusion rate during a pump run completed earlier that day. As discussed in Section O1.2 of this report, the oil sample results showed 3915 ppm moisture and an intrusion rate of approximately 700 ppm per hour during pump operation. After discussing the issue with an industry consultant, as of 4 p.m. on December 9, 1996, the licensee decided that it would be acceptable to consider the pump operable with no additional actions with that quantity of water in the oil until a scheduled pump outage near the end of January 1997.

At 5 p.m. on December 9, 1996, after discussing the issue with NRC Region IV management, the inspector requested a conference call with the licensee the following day. During this call, the inspector learned that on December 10, 1996, the system engineer discussed the moisture intrusion with the turbine vendor for the first time since receiving the sample results on December 6, 1996. The turbine vendor provided facsimile information which clarified the moisture specifications by stating that 0.5 percent (5000 ppm) moisture entrained in the oil was acceptable, greater than 1 percent moisture required immediate action, and 2 percent required an immediate shutdown of the turbine. With this information, the licensee decided to change the oil, perform another test run to reevaluate the moisture intrusion rate, and change the oil again so that the pump would sit idle with a minimum amount of moisture in the oil.

The oil change and subsequent testing occurred during the next several days and on December 12, 1996, engineering quantified the moisture intrusion rate at 620 ppm per hour. On December 20, 1996, maintenance disassembled the turbine to the

point that they could remove and reseal the turbine casing halves. After reassembly, the leak continued at a reduced rate, and on December 21, 1996, engineering quantified the moisture intrusion rate at 547 ppm per hour. According to a consultant, it appeared that the leak was the result of casing sealant curing prior to fully seating the turbine gland seal housings, thus preventing full engagement of the two casing halves. In addition, engineering identified a modification to enlarge the gland seal and casing drains to improve the condensation removal which engineering expected will further reduce the moisture intrusion rate. At the end of the inspection period, the licensee planned to implement the drains modification and evaluate the result. If the result suggests that it would be prudent to make further repairs to the turbine, the plant manager said that they would shut the unit down for repairs. If, however, the drains modification provides results that suggest adequate margin without having to make further repairs to the turbine, the licensee may decide to defer the repairs until the next scheduled outage.

c. Conclusions

The licensee's initial plan to operate approximately 6 weeks with governor oil water contamination at 3915 ppm raised questions regarding the pump's continued operability. After the inspector raised questions and requested a conference call to discuss these issues, the licensee's subsequent actions addressed many of these questions and demonstrated pump operability.

01.2 Turbine-Driven Auxiliary Feedwater Pump Operability Evaluation

a. Inspection Scope (71707)

The inspector reviewed the initial operability evaluation performed after the licensee discovered unexpectedly high levels of water in the auxiliary feedwater turbine governor oil.

b. Observations and Findings

On December 6, 1996, the backup system engineer informed the shift supervisor of sample results indicating the presence of 3915 ppm water in the auxiliary feedwater turbine oil. The backup system engineer informed the shift supervisor that this information had been discussed with the vendor (the discussion had actually been with an industry consultant) and that the vendor had indicated that an oil change could wait until a limiting condition for operation outage. Based on this conversation, the shift supervisor determined that the pump remained operable. The shift supervisor made a log entry that noted the results of the sample, noted that the backup system engineer had contacted the vendor, and documented a recommendation from the vendor to change the oil during a future planned limiting condition for operation outage. The log entry stated the conclusion of the backup system engineer that this was not an operability concern.

During subsequent discussions with engineering, the inspector learned that the moisture intrusion rate had been approximately 700 ppm per hour. The required operating time for the pump to perform its safety function was believed to be 4 hours; however, when the inspector attempted to confirm and understand the basis for this time, it took the licensee several days to confirm the time of 4 hours. The vendor technical manual included pages which stated a moisture limit for the governor oil at 0.5 percent or 5000 ppm.

On December 9, 1996, the inspector met with the shift supervisor, the system engineer, the backup system engineer, the system engineering supervisor, and the managers of operations and system engineering. During this meeting, the engineering and operations personnel described the information that contributed to the operability decision. These considerations included:

- The opinion of an industry consultant who stated that the pump would not be inoperable until the contamination reached the point that there was milky or creamy consistency in the sight glass;

- The lube oil section of the vendor technical manual which provided a limit of 5000 ppm;

- Concern over the impact of the outage time, due to maintenance rule considerations, and pump availability given the fact that the pump would be unavailable during the time necessary to change the oil; and

- A study performed by a bearing manufacturer on the impact of water intrusion into lubricating oil on roller bearings.

The inspector asked if the turbine vendor had been contacted between the time of the oil sample and this meeting. The system engineer and backup system engineers stated that attempts had been made, but that they had not been successful in reaching the turbine vendor. The inspector also asked if the turbine had roller bearings. The system engineer stated that the turbine had sleeve bearings and, after additional questions from the inspector, acknowledged that they had not performed and were not aware of anything that evaluated the applicability of the roller bearing oil moisture intrusion study results on the type of sleeve bearings installed in the turbine. At the conclusion of this meeting, the system engineer acknowledged that system engineering had no specified upper limit for moisture in the turbine governor oil. The system engineer stated that they would recommend that the oil be changed if any oil sample analysis result showed more than 5000 ppm water in the oil.

During the December 9, 1996, meeting, the shift supervisor stated that, after asking questions relating to these considerations just discussed, the operability decision was largely based on the recommendation by system engineering. The inspector noted that Administrative Procedure ADM 02-024, "Technical

Specification Operability," Revision 3, Step 5.3.2, required the shift supervisor to perform a number of actions associated with the operability determination to ensure sufficient scope of review. This step required the shift supervisor to determine the requirement or commitment established for the equipment and why the requirement or commitment may not be met. In cases where the operability determination was not straightforward, Procedure ADM 02-024 also required the shift supervisor to use the information available to make the determination and start the actions stated in Procedure AP 28-001, "Evaluation of Nonconforming Conditions of Installed Plant Equipment," Revision 4, to obtain sufficient information to totally answer all questions.

The inspector determined that the operability evaluation performed by the shift supervisor on December 6, 1996, failed to include all the required actions in that the shift supervisor did not evaluate the fact that the vendor provided an upper limit for moisture in the oil at 5000 ppm, which would have been exceeded during the mission time for the pump at the known moisture intrusion rate of approximately 700 ppm per hour. In addition, since engineering provided conflicting information in the form of a contractor's suggestion that the pump would be operable until the quantity of water caused the appearance of oil in the turbine sight glass to be milky or creamy, the shift supervisor failed to ask engineering to formally provide a specific upper limit for water in the oil. This is a violation of 10 CFR Part 50, Appendix B, Criterion V (482/9624-01).

Previous NRC concerns with operability determinations were discussed in NRC Inspection Reports 50-482/96-21, Section E2.4, and -96-23, Section O1.2. In response to previous concerns in this area, after this violation occurred, the operations manager changed the method that shift supervisors were to use to document operability evaluations.

c. Conclusions

The inspector identified a violation when the shift supervisor failed to comply with the licensee's procedure on operability determinations.

O8 Miscellaneous Operations Issues (71707)

O8.1 The inspectors conducted a survey of the licensee's Technical Specification interpretations and determined that the following document contained informal references to NRC review and/or approval without formal NRC documentation:

- Technical Specification Clarification 5-95, Technical Specification 3.3.2 functional units

The inspectors informed the licensee that this form of NRC involvement in Technical Specifications interpretations is not recognized by the Commission and is not an acceptable practice. The inspectors requested that the licensee remove any

informal references to NRC review and/or approval from their Technical Specification interpretations. The operations manager agreed with the Commission's position and stated that Technical Specification Clarification 5-95 would be revised to remove all references to informal NRC review and/or approval by February 28, 1997.

II. Maintenance

M1 Conduct of Maintenance

M1.1 Missing Main Steam Safety Valve Spindle Nut Cotter Pin

a. Inspection Scope (71707)

The inspector reviewed the circumstances surrounding the discovery of a missing spindle nut cotter pin on Valve AB UV0046, a code safety valve for Steam Generator D.

b. Observations and Findings

On November 6, 1996, in response to industry information, an engineer examined all main steam safety valves for the presence of cotter pins on the valve spindle nuts. The engineer observed cotter pins on all safety valves except Valve AB UV0046. Maintenance prepared a work package to remove the cap to facilitate the inspection. After removing the cap, the engineer found no cotter pin and no evidence that one had been installed.

The licensee immediately declared the valve inoperable, entered the applicable Technical Specification limiting conditions for operation, and replaced the cotter pin. The licensee initiated Performance Improvement Request 96-2895 on November 6, 1996, to evaluate the specifics of the missing cotter pin and Performance Improvement Request 96-3057 on November 25, 1996, to evaluate the generic implications.

A review of the maintenance records for this valve showed that the last documented maintenance occurred on March 3, 1993, when maintenance workers performed lift setpoint testing using Surveillance Procedure STS MT-008, "Main Steam Safety Valve Settings," Revision 5. Step 7.11.1 required the workers to install the spindle nut and spindle nut cotter pin. The workers initialed the block signifying the completion of Steps 7.11.1 through 7.11.5. Since the cotter pin was not present during the examination on November 6, 1996, and there was no evidence that it had been installed in 1993, the licensee concluded that it had not been installed. The failure of maintenance workers to install the cotter pin as required by the procedure is a violation of Technical Specification 6.8.1.a (482/9624-02).

The licensee also initiated Reportability Evaluation Report 96-042 on November 6, 1996, to evaluate whether the event was reportable. After engineering completed the evaluation, the plant safety review committee approved the reportability evaluation report on December 18, 1996. The evaluation concluded that, even with the cotter pin missing, the valve remained operable because the lift setpoint was not affected and, if the valve failed to reclose because of spindle nut movement, this condition was analyzed by the Updated Safety Analysis Report, Chapter 15, safety analysis.

c. Conclusions

The licensee identified a violation of Technical Specification 6.8.1.1.a, when a maintenance technician failed to install a main steam safety valve spindle nut cotter pin as required by the surveillance procedure.

M1.2 General Comments on Maintenance Activities

a. Inspection Scope (62707)

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

103032	Task 1	Repair a casing steam leak on the auxiliary feedwater turbine
103032	Task 9	Replace oil in the auxiliary feedwater turbine
INC S-0891	Revision 3	Radiation monitoring system data base verification
SYS AL-124	Revision 1	Venting the turbine-driven auxiliary feedwater pump oil

b. Observation and Findings

The inspectors found no concerns with the maintenance observed.

c. Conclusions

The inspectors concluded that the maintenance activities were being performed as required.

M1.3 General Comments on Surveillance Activities

a. Inspection Scope (61726)

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

STS AL-103, Revision 25	Turbine-driven auxiliary feedwater pump inservice pump test
STS GK-001B, Revision 19	Control room emergency vent system Train B operability test
STS IC-830, Revision 5	Vibration and loose parts monitor analog channel operational test
STS IC-894, Revision 14	Analog channel operational test and channel calibration of seismic monitor triax time history and response spectrum recording system

b. Observations and Findings

Except as noted in Section M3.1, the inspectors found no concerns with the surveillance tests observed.

c. Conclusions

Except as noted in Section M3.1, the inspectors concluded that the surveillance tests were being performed as required.

M3 Maintenance Procedures and Documentation

M3.1 Loose Parts Monitor System Surveillance Test

a. Inspection Scope (61726)

The inspector observed technicians perform surveillance testing of the loose parts monitoring system using Procedure STS IC-830, "Vibration and Loose Parts Monitor Analog Channel Operational Test," Revision 5.

b. Observations and Findings

The testing demonstrated the required operability of the loose parts monitoring system instrumentation loop. The technicians performed the test as required by the procedure and demonstrated good familiarity with the system.

The inspector noted that the recorder failed to start when the test signal actuated the alarms for the 12 channels, and the technicians noted a test discrepancy as required by procedures. The inspector noted that workers hung Action Request Tag 11254 on the cabinet on December 12, 1995. The inspector asked the technicians why the recorder remained out of service this long. The technicians referred the inspector to reactor engineers who stated that the equipment was obsolete and that their prior repair attempts had failed. Plant Modification Request 7017 had been approved and planned under Work Package 108067. Parts had been back ordered for this modification, but were expected to be received in time to enable the technicians to install the modification prior to the end of February 1997. The reactor engineer also stated that a contingency plan had been provided to operations on May 30, 1996. The system was still considered operable without having the capability to automatically start the recorder upon receipt of alarms. For detailed data analysis, it would be necessary to manually start the recorder.

The inspector also noted that Step 8.2.24 required the technicians to observe the printout from the loose parts locator tape and verify that the printout was "similar" to a table contained in the procedure. The inspector questioned what the word "similar" meant in this situation and what criteria defined this similarity. The technicians had not been provided with any criteria for this check and said that they had only been trained to verify that the same number of entries appeared on the tape as were provided in the procedure. The technicians subsequently initiated Performance Improvement Request 97-0047 to evaluate this vague wording.

c. Conclusions

Technicians performed the testing as required by the procedure. The wording of one procedure step was vague, yet workers had not questioned this wording until the inspector questioned it. While the recorder had been out of service since December 12, 1995, the licensee had plans to replace it with a new design prior to the end of February 1997.

M4 Maintenance Staff Knowledge and Performance

M4.1 Water Contamination of Safety-Related Oil in the Warehouse

a. Inspection Scope (62707)

The inspector evaluated the licensee's actions following the discovery of water in safety-related oil in the warehouse.

b. Observations and Findings

On January 6, 1997, oil sample analysis results showed approximately 50 percent water in a sample of oil taken from the bottom of a barrel of Mobil 797 oil in the warehouse. The licensee immediately prepared a plan to either sample or identify

recent samples for every safety-related component lubricated by that type of oil. During the next several hours, personnel from maintenance, engineering, integrated plant scheduling, chemistry, operations, and other groups completed a coordinated effort to take, analyze, and evaluate the samples. Within 11 hours, all safety-related components lubricated with Mobil 797 oil were either sampled with results less than 500 ppm water or demonstrated to have been sampled since the last oil addition with oil sample results of less than 500 ppm water.

The licensee initiated Performance Improvement Request 97-0039 on January 6, 1997, to address the generic issues associated with this discovery. The inspector will review the associated generic issues and the results of this performance improvement request when it is complete. This will be tracked as an inspection followup item (482/9624-03).

c. Conclusions

The inspector concluded that the licensee responded to the discovery of water in safety-related oil in a very prompt and appropriate manner.

M8 Miscellaneous Maintenance Issues (92902)

M8.1 (Closed) Inspection Followup Item 50-482/9514-01: review the licensee's Cycle 9 safety evaluation and 10 CFR 50.59 design change review regarding their use of standard fuel assemblies in peripheral core locations rather than the currently used Westinghouse Vantage 5H fuel assemblies with intermediate flow mixer grids. The licensee received information from Westinghouse Electric Corporation in a Nuclear Safety Advisory Letter dated August 22, 1994, that indicated use of Westinghouse 17x17 (Vantage 5H) fuel assemblies having intermediate flow mixer grids in peripheral core locations, in some cases, was found to cause vibration in the associated fuel assemblies.

The use of standard fuel assemblies in the same core with Vantage 5H fuel assemblies having intermediate flow mixer grids was evaluated in the Wolf Creek Generating Station Cycle 9 reload safety evaluation dated February 1996 and the 10 CFR 50.59, "Unreviewed Safety Question Determination for Configuration Change Package CCP 05672," Revision 0. Westinghouse Electric Corporation also conducted reviews which were documented in the following letters to the licensee:

- Westinghouse Letter 95SAP-G-0012, "Acceptability of Re-Inserting Region 1 (standard) Fuel in Cycle 9," dated February 24, 1995, and

- Westinghouse Letter 96SAP-G-0007, "Wolf Creek Cycle 9 Fuel," dated February 19, 1996.

These reviews concluded that there were no unreviewed safety questions or compatibility issues associated with the reuse of standard fuel assemblies with

Vantage 5H fuel assemblies having intermediate flow mixer grids. The reviews further concluded that there were no known fuel failure mechanisms that could be produced by placing the standard fuel assemblies in the same core as the Vantage 5H fuel assemblies having the intermediate flow mixer grids. Therefore, for Cycle 9, the licensee loaded 25 standard fuel assemblies (previously used in the Cycle 1 core) into peripheral core locations and the center core location, along with 168 Vantage 5H fuel assemblies having intermediate flow mixer grids.

The inspector considered both the Cycle 9 reload safety evaluation and the 10 CFR 50.59 review to have been appropriately performed and documented.

III. Engineering

E1 Conduct of Engineering

E1.1 Cooling Lake Temperature Monitoring

a. Inspection Scope (37551)

The inspector observed the implementation of essential service water cold weather operations.

b. Observations and Findings

On December 18, 1996, the licensee placed essential service water warming lines in service in accordance with Procedure SYS EF-205, "ESW/Circ Water Cold Weather Operations," Revision 2. The shift supervisor observed that warming line flow affected the temperature indicators at the essential service water structure and asked engineering for clarification as to which indicator should be used to implement the trigger points of Procedure SYS EF-205. Engineering replied that they had intended operators to use the lake water temperature indication for this purpose. The shift supervisor further questioned the intended function of the lake water temperature indicator, specifically, whether it was intended to monitor bulk lake water temperature or water temperature in the vicinity of the essential service water structure. Engineering stated they intended for operators to monitor bulk lake temperature. From these discussions, the shift supervisor clearly understood that the trigger points in Procedure SYS EF-205 were to be based on bulk lake water temperature.

The lake water temperature indicator was added as a result of commitments made by the licensee in response to Enforcement Action EA 96-124 following the formation of frazil ice in the essential service water structure in January 1996. In this response, the licensee committed to include the incorporation of lake water temperature into the Wolf Creek design basis.

Engineering personnel indicated that the initial method of monitoring lake water temperature was to install an indicator in the lake away from the essential service water structure. During the development of the design, it was decided to locate the indicator on the structure just upstream of the trash racks. During the cross-discipline design review, engineering identified that warming flow would affect the indicator at this location. Ultimately, engineering concluded that this would meet the commitment. The inspector questioned operations and system engineering personnel, including those who wrote Procedure SYS EF-205, and found that neither were aware of the change and its impact on lake water temperature monitoring. The licensee initiated Performance Improvement Request 97-0049 to document this concern.

Design Change Package 06447, "ESW Instrumentation," Revision 0, which added the lake water temperature indicator, classified it as a nonsafety-related instrument. The inspector questioned how a nonsafety-related instrument could be used to perform the safety-related function of indicating when to place the warming lines in service. At the end of this inspection period, engineering was not yet prepared to address this question.

The inspector reviewed Design Change Package 06447 to determine how the commitment to include lake water temperature into the design basis was identified, approved, documented, and controlled and how the change in location was identified, approved, documented, and controlled. It was not clear from the review how the licensee interpreted the commitment to include lake water temperature into the design basis nor was it clear how the design input process addressed the commitment.

This item will be tracked as an unresolved item (482/9624-04) pending an understanding by NRC of: (1) the acceptability of using a nonsafety-related temperature instrument to perform the safety-related function of indicating when to initiate the warming line flow; (2) what was meant by the licensee commitment to include lake water temperature in the design basis; and (3) how the licensee identifies, approves, documents, and controls design inputs.

c. Conclusions

The shift supervisor showed a proper questioning attitude in response to an increase in indicated lake water temperature after placing the essential service water warming lines in service.

E2 Engineering Support of Facilities and Equipment

E2.1 Review of Updated Safety Analysis Report Commitments

a. Inspection Scope (37551)

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

b. Observations and Findings

On January 9, 1997, the inspector noted that Updated Safety Analysis Report, Section 16.3.1.5, had been changed by Updated Safety Analysis Report Change Request 96-051. This change removed certain reporting requirements, including some associated with the loose parts monitoring system from the Updated Safety Analysis Report. During a review of that change request, the inspector noted that the preliminary information sections of the 10 CFR 50.59 screening and the unreviewed safety question determination performed in support of that change stated that "This change only deletes the reporting requirements to the NRC, which is not discussed elsewhere in the USAR," and "These reporting requirements are not regulatory requirements." The inspector questioned these statements because Regulatory Guide 1.133, Section 5.b, required a special report to the NRC if all channels of one or more collection regions were inoperable for more than 30 days. The licensee had committed to Regulatory Guide 1.133 in Updated Safety Analysis Report, Section 3A, with the exception that the Technical Specifications for the loose parts monitoring system were relocated to Updated Safety Analysis Report, Chapter 16.

The inspector determined that the preliminary information section provided the basis for the evaluation performed to answer the questions needed to determine if an unreviewed safety question would be involved in this change. Therefore, errors in the preliminary information affected the documented basis for why an unreviewed safety question was not involved in this change. This failure to provide an adequately documented basis for the unreviewed safety question determination is a violation of the requirements of 10 CFR 50.59 (482/9624-06).

c. Conclusions

The inspector identified a violation of 10 CFR 50.59 when the licensee failed to provide an adequate basis that an unreviewed safety question was not involved in a change to the Updated Safety Analysis Report. This failure involved statements in the unreviewed safety question determination that were not accurate and erroneously suggested that Regulatory Guide 1.133 requirements did not apply to this change.

E8 Miscellaneous Engineering Issues (92903)

E8.1 (Closed) Violation 50-482/9612-04: failure to procure safety-related material per the Updated Safety Analysis Report. The inspector verified the corrective actions described in licensee's response letter, dated September 4, 1996, to be reasonable and complete. No similar problems were identified.

E8.2 (Closed) Violation 50-482/9525-01: inappropriate containment spray pump test procedure. The inspector verified the corrective actions described in licensee's response letter, dated February 14, 1996, to be reasonable and complete. No similar problems were identified.

E8.3 (Closed) Violation 50-482/9609-01: auxiliary feedwater pump use prior to completing maintenance. The inspector verified the corrective actions described in the licensee's response letter, dated June 21, 1996, to be reasonable and complete. During the discussion of this item in NRC Inspection Report 50-482/96-18, Section M8.1, the inspector determined that the licensee had not identified all corrective actions necessary to prevent recurrence. The licensee subsequently implemented Revision 4 to Procedure 16C-003, "Work Package Task Planning," which added requirements for the work package planner to include specific steps requiring signatures associated with handoffs necessary for secondary tasks performed by other groups. This new requirement would clearly communicate the status of the work when all maintenance tasks were not complete and would, therefore, address the root cause of the violation. No similar problems were identified.

E8.4 (Closed) Violation 50-482/9611-02: failure to follow Procedure AP 24E-001, "Identification and Control of Materials, Parts, and Components," which resulted in the installation of nonsafety-related packing in Motor-Driven Auxiliary Feedwater Pump B. The inspector verified the corrective actions described in the licensee's response letter, dated August 16, 1996, to be reasonable and complete. No similar problems were identified.

E8.5 (Open) Inspection Followup Item 50-482/9603-13: auxiliary boiler reliability. This item originated from the icing event of January 1996, described in NRC Inspection Reports 50-482/96-03 and -96-05, when the auxiliary boiler tripped several times and operator interviews indicated it to be a recurring problem. The licensee

addressed a portion of this issue with two design change packages and one configuration change package. These three packages are expected to be complete prior to the start of the next refueling outage in September 1997. Operators removed one fuel oil transfer pump from service for corrective maintenance on October 31, 1996, and, as of the end of this inspection period, it was still out of service. This item remains open pending a complete understanding of the work scope and schedule for improving the reliability of the auxiliary boiler.

IV. Plant Support

R1 Radiological Protection and Chemistry Controls

R1.1 Chemistry Sampling

a. Inspection Scope (71750)

The inspector observed chemistry technicians draw samples and perform laboratory analysis of the reactor coolant system, the chemical and volume control system letdown line, and the condenser off gas.

b. Observations and Findings

Chemistry technicians drew a depressurized sample from the hot leg of Loop 1 of the reactor coolant system and a pressurized sample from the letdown line of the chemical and volume control system upstream of the demineralizer. One technician drew the sample while another made preparations in the hot lab for the sample analysis.

The inspector reviewed the procedure used to draw the samples, Procedure CHS SJ-143, "Sample Station Sampling Instructions," Revision 4. Step 6.1.12 stated that, when obtaining a depressurized reactor coolant system sample, the technician was to "Rinse the sample container and collect the sample using appropriate techniques." Chemistry management stated that technicians were expected to know which techniques to use based on their training.

The technicians analyzed the pressurized sample for gas activity using Procedure CHA RC-005, "Determination of Gas Activity," Revision 2, and analyzed the depressurized sample for boron using Procedure CHA WT-101, "Determination of Boron (Titration Method)," Revision 3.

A chemistry technician drew a sample of condenser off gas and analyzed it for Xenon activity using Procedure STN CH-020, "Primary to Secondary Leak Detection," Revision 4.

c. Conclusions

The inspector concluded that actions of the chemistry technicians were proper and that the appropriate procedures were followed. The inspector also concluded that use of the phrase "appropriate sampling techniques" in the procedure was vague and could lead to confusion of its meaning. Management indicated they would evaluate this wording.

R4 Staff Knowledge and Performance

R4.1 Oil Contamination Analysis

a. Inspection Scope (71750)

On December 21, 1996, the inspector observed a chemistry technician perform laboratory analysis for water contamination in three oil samples from the turbine-driven auxiliary feedwater pump.

b. Observations and Findings

The chemistry technician followed Procedure CHA DF-103, "Determination of Water in Oil," Revision 2, carefully. During the analysis, the procedure required the technician to inject a quantity of the sampled oil into the titration chamber and measure that quantity by weighing the syringe before and after injecting the sample fluid. During some of the analyses, the technician allowed some of the sample fluid to drop onto the titrator. Therefore, this small quantity of sample fluid was neither analyzed in the titration chamber, nor accounted for in the balance mass difference. This had the potential to have some effect on the calculated result. The significance of this observation was minimized by the fact that the procedure required the technician to analyze each sample either three times with results within one standard deviation or five times with results within two standard deviations of the mean sample value.

During the third sample analysis, the results deviated considerably from previous samples. The technician decided to discard that analysis result and reperform the analysis. The technician subsequently obtained additional analysis results Some were consistent with and others were inconsistent with previous analysis results. The technician initially planned to discard the inconsistent sample results and perform additional analyses until there were five consistent samples within two standard deviations of the mean sample value. With additional inconsistent analysis results, the technician determined that there was something wrong with the titrator and stopped to troubleshoot. The licensee procedures contained no guidance for discarding analysis results.

During the analysis, the technician prepared an informal worksheet using a pad of paper that was not retained after recording the analysis results. The technician

stated that this informal worksheet was an individual practice and that some technicians used no such tool. Following the analysis, the technician recorded the quantity of water in the oil on a single line of a data sheet as mean value and a tolerance. The technician did not record the individual analysis results and did not indicate how many analyses were involved. Consequently, management did not require the technician to record information necessary to evaluate the repeatability of the analysis or the occurrences of analysis results discarded by the technician.

c. Conclusions

The inspector concluded the technician's dropping of some sample fluid to be a poor laboratory practice that in this case had minimal effect on the documented analysis result. Management provided no guidance for when technicians could discard analysis results and did not require the technicians to record analysis results necessary to evaluate repeatability.

P3 EP Procedures and Documentation

P3.1 Licensee Onshift Dose Assessment Capabilities (TI 2515/134)

a. Inspection Scope

Using Temporary Instruction 2515/134, the inspectors gathered information regarding:

- Dose assessment commitment in emergency plan
- Onshift dose assessment emergency plan implementing procedure
- Onshift dose assessment training

b. Observations and Findings

On December 17, 1996, the inspectors conducted an in-office review of the emergency plan and implementing procedures to obtain the information requested by the temporary instruction. The inspectors also conducted a telephone interview with the licensee on December 17, 1996, to verify the results of the review. Based on the documentation review and licensee interview, the inspectors determined that the licensee had the capability to perform onshift dose assessments using real-time effluent monitor and meteorological data and that the commitment was described in the emergency plan and implementing procedures.

c. Conclusion

The commitment to perform onshift dose assessment was described in the emergency plan and implementing procedures. Further evaluation of the information obtained using the temporary instruction will be conducted by NRC Headquarters personnel.

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 January 10, 1997. 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
C. W. Fowler, Manager, Integrated Planning and Scheduling
O. L. Maynard, Chief Administrative 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 92902	Followup - Maintenance
IP 92903	Followup - Engineering
TI 2515/134	Licensee Onshift Dose Assessment Capabilities

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

9624-01	VIO	Turbine-driven auxiliary feedwater pump operability (Section O1.2)
9624-02	VIO	Missing main steam safety valve spindle nut cotter pin (Section M1.1)
9624-03	IFI	Water contamination of safety-related oil in the warehouse (Section M4.1)
9624-04	JRI	Cooling lake temperature monitoring (Section E1.1)
9624-05	VIO	Review of Updated Safety Analysis Report commitments (Section E2.1)

Closed

50-482/9514-01	IFI	Safety evaluation and 50.59 design change review (Section M8.1)
50-482/9525-01	VIO	Inappropriate containment spray pump test procedure (Section E8.2)
50-482/9609-01	VIO	Auxiliary feedwater pump use prior to completing maintenance (Section E8.3)
50-482/9611-02	VIO	Installation of nonsafety-related packing in motor-driven auxiliary feedwater Pump B (Section E8.4)
50-482/9612-04	VIO	Quality assurance program requirements (Section E8.1)

Discussed

50-482/9603-13	IFI	Auxiliary boiler reliability (Section E8.5)