APPENDIX B

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-482/89-05 Operating License: NPF-42

Docket: 50-482

Licensee: Wolf Creek Nuclear Operating Corporation (WCNOC)
P.O. Box 411
Burlington, Kansas 66839

Facility Name: Wolf Creek Generating Station (WCGS)

Inspection At: WCGS, Coffey County, Burlington, Kansas

Inspection Conducted: February 1-28, 1989

Inspectors: E Holler for 4/21/89
B. L. Bartlett, Senior Resident Inspector Date
Project Section D, Division of Reactor Projects

E Holler for 4/21/89
M. E. Skow, Resident Inspector, Project Date
Section D, Division of Reactor Projects

Approved: E J Holler 4/21/89
E. J. Holler, Chief, Project Section D Date
Division of Reactor Projects

Inspection Summary

Inspection Conducted February 1-28, 1989 (Report 50-482/89-05)

Areas Inspected: Routine, unannounced inspection including plant status, followup on previously identified NRC items, operational safety verification, monthly surveillance observation, monthly maintenance observation, review of licensee event reports, onsite followup of events at operating power reactors, and installation and testing of modifications.

Results: Within the areas inspected, three apparent violations, one unresolved item, and one open item were identified. The violations dealt directly or indirectly with the auxiliary feedwater system. One violation resulted from not lockwiring a valve in the neutral position (paragraph 4.b), another violation resulted from an inoperable fire barrier through one of the walls enclosing Auxiliary Feedwater Pump "A" (paragraph 4.a), and the third violation resulted from a failure to have control room drawings reflect as-built plant equipment (paragraph 9.a). The unresolved item concerned engineering followup to an air bubble in the auxiliary feedwater pump suction (paragraph 5.b). The open item concerned updating the Safety Analysis Report (USAR) to reflect site conditions (paragraph 9.b).

This inspection identified an example of a 2-year old minor modification made to a safety-system which was not reflected in permanent plant drawings. In October 1988, the quality assurance (QA) organization identified similar problems with "redlining" (color coding) control room drawings. The licensee appears to be implementing corrective actions to the findings identified in the QA audit; however the licensee does not appear to be giving adequate resources to this corrective action. In addition, the inspector understands that it could be 3 1/2 years before the drawings are permanently changed. This practice is discussed in paragraph 9.

DETAILS

1. Persons Contacted

Principal Licensee Personnel

*R. M. Grant, Vice President, QA
*J. A. Bailey, Vice President, Operations
*G. D. Boyer, Plant Manager
*R. W. Holloway, Manager, Maintenance and Modifications
*O. L. Maynard, Manager, Licensing
*B. McKinney, Manager, Operations
*M. G. Williams, Manager, Plant Support
*C. E. Parry, Manager, QA, WCGS
*A. A. Freitag, Manager, Nuclear Plant Engineering (NPE), WCGS
*W. M. Lindsay, Supervisor, QA
*C. J. Hoch, QA Technologist
*J. Pippin, Manager, NPE
*S. Wideman, Licensing Specialist III
*C. W. [illegible]ler, Manager, I&C
*T. L. [illegible]ster, Manager, Facilities & Modification
*R. S. Benedict, Manager, Quality Control (QC)
*R. Flannigan, Manager, Nuclear Safety Engineering
*J. L. Houghton, Operations Supervisor
*J. A. Weeks, Shift Supervisor
*C. Sprout, Section Manager, NPE Systems
*S. F. Hatch, Supervisor, Quality Systems

The NRC inspectors also contacted other members of the licensee's staff during the inspection period to discuss identified issues.

*Denotes those personnel in attendance at the exit meeting held on March 7, 1989.

2. Plant Status

The plant operated in Mode 1 (100 percent power) during this inspection period. On February 2, 1989, the plant tripped from 100 percent power. The cause of the trip and the licensee's followup activity is discussed in paragraph 8. The licensee returned the plant to 100 percent power on February 5, 1989.

3. Followup on Previously Identified NRC Items (92702)

(Open) Violation (482/88200-01): Failure to Take Adequate Corrective Actions - Part three of this item concerned the chlorine monitors in the control room ventilation system. The monitors have been replaced and this part of the violation is resolved. The overall violation remains open until all parts of the violation can be closed.

4. Operational Safety Verification (71707)

The purpose of this inspection area was to ensure that the facility was being operated safely and in conformance with license and regulatory requirements. It also was to ensure that the licensee's management control system was effectively discharging its responsibilities for continued safe operation. The methods used to perform this inspection area included direct observation of activities and equipment, tours of the facility, interviews and discussions with licensee personnel, independent verification of safety system status and limiting conditions for operation, corrective actions, and review of facility records.

Areas reviewed during this inspection included, but were not limited to, control room activities, routine surveillances, engineered safety feature operability, radiation protection controls, fire protection, security, plant cleanliness, instrumentation and alarms, deficiency reports, and corrective actions.

Routine surveillance and operating activities witnessed and/or reviewed by the NRC inspectors are listed below:

a. On February 25, 1989, during a routine tour of the auxiliary feedwater (AFW) pump rooms, the NRC inspector observed an unsealed 3/4-inch penetration. The penetration was through the wall separating Motor Driven (MDAFW) Pump "A" from a hallway. The MDAFW pump "A" is located in Room 1326 (Fire Area A-14) and the hallway is Room 1329 (Fire Area A-33). Upon notifying the control room, the shift supervisor initiated Work Request (WR) 01066-89 and dispatched an operator to temporarily plug both ends of the penetration.

   Discussions with licensee personnel and review of fire hazards analysis showed that if a fire had migrated between Rooms 1326 and 1329, through this inoperable barrier, the safe shutdown of the unit would not have been affected.

   At the conclusion of the inspection period, the licensee had not determined the origin of the inoperable fire barrier, but had assumed the penetration was abandoned during construction. Failure to seal the abandoned penetration or prepare a fire protector impairment control permit form in accordance with plant procedures is an apparent violation (482/8905-01) of TS 6.8.1.

b. On February 8, 1989, during a routine tour of the AFW pump and valve rooms, the NRC inspectors determined that Valve AL HV-12 (TDAFW pump discharge to steam generator (S/G) "C") was not lockwired in neutral as required by Procedure CKL AL-120, Revision 11, "Auxiliary Feedwater Normal Lineup," and Drawing M-13AL05(Q), Revision 2, "Piping Isometric Auxiliary Feedwater Pumps Recirculation Piping." The NRC inspector also found Valve AL V037 (MDAFW Pump "B" discharge to S/G "D") locked as required by procedure, but the lock could be

easily removed. When the shift supervisor was notified, operators were dispatched and corrected the identified problems. Failure to lock Valve AL HV-12 as required by licensee procedure is a violation (482/8905-02).

c. On February 15, 1989, during a routine tour of the auxiliary building, the NRC inspectors identified Valve EG LV-2 (component cooling water surge Tank "B" fill) as not being properly lockwired in neutral. The valve did have a lockwire, but it did not prevent the locking yoke from being moved. This valve type is the same as identified in Violation 482/8905-02.

NRC inspectors have identified a previous example of the discharge valves to the TDAFW pumps not being properly lockwired. This was documented in Violation 482/8618-02.

The three examples of the violation listed in NRC Inspection Report 50-482/86-18 and the examples in paragraphs b and c above indicate a licensee problem in properly locking and maintaining locked valves of this type. All of the valves identified in the above examples were in their required positions.

5. Monthly Surveillance Observation (61726)

The purpose of this inspection area was to ascertain whether surveillance of safety-significant systems and components were being conducted in accordance with TS requirements. Methods used to perform this inspection included direct observation of licensee activities and review of records.

Items in this inspection area included, but were not limited to, verification that:

- Testing was accomplished by qualified personnel in accordance with an approved test procedure.
- The surveillance procedure was in conformance with TS requirements.
- The operating system and test instrumentation calibration was within its current calibration cycle.
- Required administrative approvals and clearances were obtained prior to initiating the test.
- Limiting conditions for operation were met and the system was properly returned to service.
- The test data was accurate and complete and the test results met TS requirements.

Surveillances witnessed and/or reviewed by the NRC inspectors are listed below:

- o STS SE-001, Revision 8, "Power Range Adjustment to Calorimetric," performed February 15, 1989.
- o STS IC-255B, Revision 5, "Analog Channel Operational Test Control Room Air Intake Radiation Monitor GK RE-04," performed February 15, 1989.
- o STS IC-255A, Revision 5, "Analog Channel Operational Test Control Room Air Intake Radiation Monitor GK RE-05," performed February 15, 1989.
- o STS AL-103, Revision 8, "Turbine Driven Auxiliary Feedwater Pump Inservice Pump Test," performed February 28, 1989.
- o STS IC-203, Revision 5, "Analog Channel Operational Test 7300 Process Instrumentation Protection Set III (Blue)," performed February 21, 1989.
- o STS GG-001B, Revision 7, "Emergency Exhaust Filtration System Train 'B' 10 Hour Operability Test," performed February 28, 1989.

Selected NRC inspector observations are discussed below:

a. The NRC inspectors reviewed Design/Deficiency Report 89-008 concerning errors in surveillance tests performed on two circuit breakers in 1986. Procedure STS MT-024, "Functional Test of 480, 240, and 120 Volt Molded Case Circuit Breakers," contained acceptance criteria errors for Breakers NG01BEF3 (ENHV-1, Containment Spray Pump "A" suction isolation valve) and PG2108 (Pressurizer Heater Coils 5, 6, and 27). The Surveillance Technical Specification (STS) testing sequence required a preliminary test to measure the instantaneous single-phase trip current. If the results of this test were outside the acceptance criteria, the test was to be performed on two phases in series. (The two-phases-in-series test is utilized to conclusively determine operability of the circuit breakers.) The single-phase tests for the two breakers in question were considered acceptable when, in fact, they were not. Because incorrect acceptance criteria for the single-phase test was used in 1986, the final two-phases-in-series tests for the two breakers were not performed.

   As a collateral issue, the NRC inspectors observed that, in response to Violation 482/8632-01, the licensee had implemented a directive for maintenance engineering to review completed maintenance surveillances. This corrective action, which was implemented after the 1986 surveillances discussed above, should catch errors such as using incorrect acceptance criteria. However, the directive

discussing the maintenance engineering review was not circulated to personnel outside the maintenance organization. Thus, maintenance engineering depends upon the surveillance coordinator to ensure that maintenance engineering receives all of the surveillances that they are supposed to review.

In January 1989, the licensee discovered the acceptance criteria error regarding the 1986 surveillance tests while entering the data into a computer data base to be used for trending breaker performance. The licensee decided to repeat the surveillance tests for the two breakers. Breaker NG01BEF3 passed the single phase test and was declared operable. ANSI/IEEE Standard 338-1977, "IEEE Standard Criteria for the Periodic Testing of Nuclear Power Generating Station Safety Systems," states that results of a failed test cannot be negated by a simple successful repetition. Because of the time interval since the failed test, this action may not have been inappropriate in this case.

Breaker PG2108 did not pass the single phase portion of the repeated surveillance test. STS MT-024 required the performance of the two-phase-in-series test if the one-phase test failed; however, this requirement was missed by the test performer who initiated a WR to repair the breaker, rather than performing the required two-phase-in-series test. Subsequent to the repair, the breaker was retested and passed. This apparent violation of the requirements of STS MT-024 has not not been cited because it meets the NRC Enforcement Policy criteria for exercisising discretion in that it was a self-identified, nonwillful, less significant violation for which corrective action was taken. The licensee issued a change to STS MT-024 to clarify the requirement for its two-phase-in-series test.

b. During the performance of STS AL-103, the NRC inspector observed that one of the suction lines for the TDAFW pump was below room temperature. The other suction lines were at room temperature. Some flow was observed coming from the high point vent line on the cold suction line. The cold pipe was one of the essential service water (ESW) supply lines and was downstream of Valve AL HV-33. The licensee later determined that Valve AL HV-33 was leaking by and issued a corrective WR. The licensee explained that after a surveillance is performed to stroke test AL HV-33, the pipe from Valve AL HV-33 to the down stream check valve (AL V015) is drained and the high point vent valve (AL V139) is left open. Thus, that section of pipe is left filled with air. This also applies to the other ESW line for the TDAFW pump and to the ESW lines to the MDAFW pumps. If the AFW pumps are running and a signal occurs to shift suction to ESW from the condensate storage tank (CST), there is a possibility that the entrained air may bind the pumps or cause a waterhammer. This portion of suction pipe was the subject of a

letter from the constructor to SNUPPS on March 16, 1981. The letter proposed to SNUPPS that the section of pipe between the isolation valve and the check valve be left filled with CST water, leakage from the continuous drain line be monitored, and this leakage be periodically sampled. The licensee stated that they were looking into this issue and that corrective action was initiated. The licensee determined that the other three similar ESW supply lines were filled with CST grade water. They also stated that the surveillance procedure would be changed to leave the suction lines filled with water. Pending review of the licensee's evaluation of pump operability, this is considered an unresolved item (482/8905-04). The licensee later discovered that S/G water chemistry and condenser hotwell chemistry were out of specifications and trending up. Investigation revealed that Valve AL HV-033 had leaked by enough to overcome the continuous vent and flow through the AFW recirculating line to the CST. The licensee adjusted Valve AL HV-033 to lower its leak rate and commenced cleanup of the CST.

6. Monthly Maintenance Observation (62703)

The purpose of this inspection area was to ascertain that maintenance activities of safety-related systems and components were conducted in accordance with approved procedures and TS. Methods used in this inspection area included direct observation, personnel interview, and record review.

Items verified in this inspection area, where appropriate, included:

- Activities did not violate limiting conditions for operation and that redundant components were operable.
- Required administrative approvals and clearances were obtained before initiating work.
- Radiological controls were properly implemented.
- Fire prevention controls were implemented.
- Required alignments and surveillances to verify postmaintenance operability were performed.
- Replacement parts and materials used were properly certified.
- Craftsmen were qualified to accomplish the designated task and additional technical expertise was made available when needed.
- Quality control hold points and/or checklists were used and quality control personnel observed designated work activities.

o Procedures used were adequate, approved, and up to date.

Portions of the selected maintenance activities were observed on the WRs listed below and related documents were reviewed by the NRC inspectors:

No.	Activity
WR 50246-89	Monthly maintenance on DC emergency lights
WR 05444-88	Repair Condenser Relief Valve SG K04A
WR 01089-89	GK V765 hydro motor for SGK04A, repair oil leak under terminal block
WR 50011-89	Control Room Air Conditioning Unit SGK04A - 5-year replacement of contactor
WR 50212-89	Turbine building supply fans - semiannual fan inspection
WR 50213-89	Turbine building supply fans - perform 2-month maintenance

Selected NRC inspector observations are discussed below:

o During the performance of WR 50011-89, the maintenance workers observed that the replacement contactor was slightly different from the old contactor. The workers reverified that they had the correct part and then commenced the replacement. When the workers attempted to reland the center lug, they discovered that it would not fit. The workers suspended the replacement and contacted maintenance engineering. Later, the lug was trimmed slightly in accordance with plant procedures and the contactor replacement was completed. The workers were observed to perform their associated tasks in a professional manner and to request assistance as needed.

o The workers performing WR 50212-89 and WR 50213-89 made use of temporary scaffolding. The temporary scaffolding had been in place for several years and, to date, there are no plans to install permanent scaffolding. The licensee informed the NRC inspectors that an engineering evaluation request (EER) had been issued to install permanent scaffolding. The EER was issued on November 30, 1988.

No violations or deviations were identified.

7. Review of Licensee Event Reports (LERs) (92700)

During this inspection period, the NRC inspectors performed followup on WCGS LERs. The LERs were reviewed to ensure:

- o Corrective action stated in the report has been properly completed or work is in progress.
- o Response to the event was adequate.
- o Response to the event met license conditions, commitments, or other applicable regulatory requirements.
- o The information contained in the report satisfied applicable reporting requirements.
- o Generic issues were identified.

The following LER was reviewed and closed:

- o 89-004, "Loose Terminal Connections Cause Main Steam Isolation Valve Closure Resulting in Reactor Trip." This LER is discussed in paragraph 8 and is closed.

During the refueling outage in 1988, the licensee replaced the chlorine monitors in the control room ventilation system. These chlorine monitors have been the subject of several LERs reporting engineered safety feature actuations/control room ventilation isolation signals. In most cases, the problems were because of chlorine sensitive paper tape malfunctions. The paper tape would break or bunch giving false indications. Frequently, no specific root cause of the paper problem was found and the licensee decided to replace the chlorine monitors. The new monitors have been in service for approximately 2 months and have not caused any false actuation signals. The chlorine monitor issue was also discussed in NRC Inspection Report 50-482/88-17, although no specific inspection finding was issued. The following LERs all relate to the replaced chlorine monitors and are closed:

- o 87-032, "Engineered Safety Features Actuation - Control Room Ventilation Isolation Signal Caused By Paper Tape Breaking On Chlorine Monitor"
- o 87-035, "Engineered Safety Features Actuation - Control Room Ventilation Isolation Signals - Two Events - Caused By Malfunctions Of The Chlorine Monitors"
- o 87-053, "Engineered Safety Features Actuation - Control Room Ventilation Isolation Signal Caused By Paper Tape Bunching Up On Chlorine Monitor"
- o 88-003, "Engineered Safety Features Actuation - Control Room Ventilation Isolation Signal Caused By Paper Tape Spurious Spike On Chlorine Monitor"

- o 88-005, "Engineered Safety Features Actuation - Two Control Room Ventilation Isolation Signals Caused By Malfunctions Of The Chlorine Monitors"

- o 88-006, "Engineered Safety Features Actuation - Control Room Ventilation Isolation Signal Caused By Paper Tape Spurious Spike Of A Chlorine Monitor"

- o 88-008, "Engineered Safety Features Actuation - Control Room Ventilation Isolation Signal Caused By Paper Tape Breaking On Chlorine Monitor"

- o 88-010, "Engineered Safety Features Actuation - Control Room Ventilation Isolation Signal Caused By Loss Of Power To Chlorine Monitor"

- o 88-011, "Engineered Safety Features Actuation - Control Room Ventilation Isolation Signal Caused By Paper Tape Breaking On Chlorine Monitor"

- o 88-012, "Engineered Safety Features Actuation - Control Room Ventilation Isolation Signal Caused By Failed Photocell On Chlorine Monitor"

- o 88-013, "Engineered Safety Features Actuation - Control Room Ventilation Isolation Signal Caused By Paper Tape Bunched Up On Chlorine Monitor"

- o 88-022, "Engineered Safety Features Actuation - Control Room Ventilation Isolation Signal Caused By Loss Of Power To Chlorine Monitor"

- o 88-026, "Engineered Safety Features Actuation - Control Room Ventilation Isolation Signal Caused By Paper Tape Bunched Up On Chlorine Monitors"

8. Onsite Followup of Events at Operating Power Reactors (93702)

The purpose of this inspection activity was to provide onsite inspection of events at operating power reactors. Specific inspection activities included:

- o Observing plant status.

- o Evaluating the significance of the events, performance of safety systems, and actions taken by the licensee.

- o Confirming that the licensee had made proper notification of the events and of any new developments or significant changes in plant conditions.

- Evaluating the need for further or continued NRC response to the events.

The following items were considered during the followup:

- Details regarding the cause of the event.
- Event chronology.
- Functioning of safety systems as required by plant conditions.
- Radiological consequences and personnel exposure.
- Proposed licensee actions to correct the cause of the event.
- Corrective actions taken or planned prior to resumption of facility operations.

The event that occurred during this report period is listed in the table below:

Date	Event	Plant Status	Cause
02/02/89	Reactor Trip	Mode 1 (100% power)	Loose screw

Selected NRC inspector observations are discussed below:

- On February 2, 1989, at 1:22 p.m. (CDT) the plant tripped on low-low water level in Steam Generator "C". The cause of the low level was a pressure spike resulting from the fast closure of "C" main steam isolation valve (MSIV).

  An instrumentation and control technician was performing work inside one of the solid state protection system (SSPS) cabinets and apparently contacted a plastic cable raceway housing the wiring for the actuation logic for "C" MSIV. Loose screws inside the housing caused a single train fast closure signal to be generated. All equipment functioned as designed with two exceptions:

  a. Immediately following the reactor trip, control room instrumentation indicated that MSIV "C" had not fully closed. A senior reactor operator (SRO) dispatched to the MSIV observed what he thought was MSIV "C" going slow closed. Licensee troubleshooting efforts identified indications that the valve did fast close and the SRO had seen normal valve pulsations. The MSIV passed surveillance testing and was returned to service.

  b. As would be expected for an MSIV closure at full power, the licensee observed two main steam code safety valves lift and

reseat. One valve, however, was observed to have some slight seat leakage. After evaluation of appropriate accident scenarios, the licensee concluded that this slight leakage did not endanger public health and safety and was acceptable for a plant restart. The leakage has since stopped.

The licensee was unable to determine the root cause of the loose screw. However, the licensee did perform a check of all other vendor connections in the SSPS cabinets, balance of plant engineered safety features cabinets, process/control cabinets, reactor trip breaker cubicles, main control boards, and other control room cabinets. Overall, the number of loose screws was less than 1 percent. Generally, the licensee considered as loose any screw which could be tightened by a technician more than 25 percent of a turn. Most of the SSPS cabinet connections were loose; however, there have been no surveillance failures attributable to these loose screws. A check of these screws will be added to the preventative maintenance program. LER 482/89-004 is closed.

No violations or deviations were identified.

9. Installation and Testing of Modifications (37828)

The purpose of this inspection was to evaluate onsite activities and hardware associated with the installation of plant modifications and to ascertain that related modification activities, which are not submitted for approval to the NRC, are in conformance with NRC requirements. The NRC inspectors examined installed hardware to selectively verify that the modifications conformed to licensee drawings. This included confirmation of equipment model or serial numbers, dimensions, materials, sizes, heat numbers, and lot numbers.

Two plant modification requests (PMRs) were selected for review. One PMR required field installation work and one PMR required documentation change.

Selected NRC inspector observations are discussed below:

a. PMR 00264/KN84-088, "Aux Feedwater Pump Recirculation Flow Indication" - TSSR 4.7.1.2.1.a requires that, at least once per 31 days, one of the AFW pumps be tested on recirculation flow for proper discharge pressure. The original system design had a flow orifice and connection points for a differential pressure gauge in each recirculating line; however, test instrumentation (flow-indicators) had to be installed and removed for each test. PMR 00264, Revision 1, installed permanent flow indicators (actual field work was done under WR 05000-86 and WR Package 01359-86) during the Fall 1986 refueling outage.

The NRC inspector's field walkdown identified one discrepancy. Installation Drawing PMP CS-545-W-J-14AL26(Q), Revision 0, for Flow

Indicator AL FI-49, and Drawing PMP CS-545-W-J-14AL28(Q), Revision 0, for AL FI-51, both specify that the instrument tubing slope be at least 1 inch per foot (i.e., greater than or equal to 0.083). The NRC inspector's measurements showed that for AL FI-49 the high side tubing had a slope of 0.058 and the low side tubing had a slope of 0.044 and that for AL FI-51 the high side tubing had a slope of 0.057 and the low side tubing had a slope of 0.058. Procedure CNT-700, Revision 0, "Fabrication and Installation of Instrumentation," Step 4.8.1.1.c states that a horizontal and/or vertical roll of up to (+ or -) 1 1/2 inches can be used and that the vertical roll shall not violate the minimum slope criteria specified on the instrument isometric drawings. In addition, Step 5.8.1.1.5 on QC has the QC inspe[illegible] verify that tubing is sloped per design drawings. However, the g[illegible]try of the tubing run is such that changes to the slope could occur because of maintenance or other activity in the vicinity of the tubing after installation.

Upon notification of the NRC inspector's findings, the licensee dispatched QC and construction personnel to evaluate the tubing. Using more accurate methods, the licensee determined that the tubing for AL FI-49 did meet acceptance criteria and that the tubing for AL FI-51 was sloped at 0.9 inches per foot and 0.6 inches per foot. Licensee personnel stated that the slight deviation did not invalidate the design purpose of the pipe slope. The licensee issued WR 01217-89 to ask for an engineering disposition of this condition and issued Programmatic Deficiency Report PQ 89-02 to address programmatic concerns.

During the procurement phase of PMR 00264, the licensee identified inconsistencies between the measured monthly surveillance flowrates and the design flowrates. This became readily apparent during attempts to use the new instrumentation. Using design flowrates, the flow instruments that were installed had a range of 0 to 100 gallons per minute (gpm). Flow rates during surveillances are up to 135 gpm. The new flow indicators for the MDAFW pumps were unusable and test instruments had to be used again. The flow indicator for the TDAFW pump was 0 to 200 gpm, and was not overranged. The licensee identified three issues:

(1) The new instruments were unusable;

(2) Too much flow might be going through the recirculating line during normal injection lineups and preventing a proper amount of flow from being injected into the steam generators; and

(3) The high recirculating flows could be causing erosion/corrosion of the recirculating lines.

The licensee's engineering evaluation of Issue No. 2 showed that, at present, the AFW pumps were supplying the required flow to the S/Gs. However, over time, normal wear of the pumps would cause flows to be reduced. Issue No. 3 and the long-term portion of Issue No. 2 caused the licensee to consider adding throttle valves in the recirculating

line. This would reduce the flow rate through the recirculating line and, thus, the erosion/corrosion rate. It would also reduce the flow rate to a point within the range of the newly installed instrumentation.

This new design was identified as PMR 00264, Revision 2, and was originally planned to be implemented during Refueling Outage III. However, the modification was not performed and engineering failed to realize this until the NRC inspector asked for a copy of Request For Engineering/Design Assistance (REDA) N-P-8136-AL, Revision 1. Block 3 of the REDA states, in part, that the existing design is not an acceptable long-term solution. Block 5, required date of completion states, that the design is to be implemented by Refuel III. Upon realizing that a recommended modification was not completed on time, the licensee analyzed the existing flows to ensure that all AFW pumps still met their required flows and performed ultrasonic inspection of critical areas of the AFW recirculating piping. No erosion/corrosion areas were found. The licensee currently plans to perform PMR 00264, Revision 2, during Refueling Outage IV, scheduled to start in March of 1990.

PMR 00264, Revision 1, had been completed in December 1986, however, as of the date of this inspection, plant drawings still had not been updated to show this modification. When questioned, the licensee stated that because the PMR was still being implemented, the drawings had not been "as-built." Because Revision 2 may not be completed until mid-1990, this could mean that control room drawings would be "redlined" for 3 1/2 years, before having Revision 1 incorporated. In addition, upon checking the control room drawings to ensure that they had been properly "redlined," the NRC inspector determined that the "redlining" was missing. When the licensee was notified, the drawings were promptly "redlined." Failure to color code ("redline") drawings to reflect changes in accordance with licensee procedures is an apparent violation (482/8905-03).

In October of 1988, licensee QA Surveillance TE: 53359 S-1659, "Redlining Control Room Drawings," identified licensee failures to keep control room drawings up to date. QA issued violations and the licensee initiated corrective actions. While the "redlining" of drawings has improved dramatically, the results of this inspection show that there are problems that still remain to be corrected. In addition, the NRC inspectors believe that the practice of not updating drawings in a timely fashion contributes to "redlining" problems such as cluttered or, in the worst case, illegible drawings. The NRC inspectors informed the licensee that having modifications made to the plant for 3 1/2 years before drawings were updated was not, in their view, a good practice. The licensee is encouraged to review its policy regarding this practice.

Licensee documentation reviewed during the performance of this part of the inspection is listed in Attachment 1.

b. The NRC inspectors reviewed PMR 2736 which revised the surveillance test of the ultimate heat sink (UHS). This, in turn, led to a review of the surveillance test and test results. The surveillance includes checks for movement of the UHS dam, sedimentation of the UHS, and sedimentation of the intake channel to the ESW intake structure. The surveillance was compared with TS surveillance requirements and the USAR. In the "Periodic Inspection Report for Ultimate Heat Sink and Associated Safety Related Structures" approved April 5, 1988, the licensee discussed an approximately 23 acre-feet (A-ft) sedimentation. USAR Section 2.4.11.6 states that the maximum estimated sedimentation is 33 A-ft/square mile over 40 years. The UHS was sized for two units and the licensee had a study performed on this issue. The new study, according to the April 5, 1988 inspection report, showed that only 24 A-ft could be lost to sedimentation and still support a two-unit shutdown; however, 129 A-ft could be lost and still support one unit shutdown. The results of this study have not been reflected in the USAR. This is considered an open item pending the licensee's revision of the USAR (482/8905-05).

10. Exit Meeting

The NRC inspectors met with licensee representatives (denoted in paragraph 1) on March 7, 1989. The NRC inspectors summarized the scope and findings of the inspection. The licensee did not identify as proprietary any of the information provided to, or reviewed by, the NRC inspectors.

ATTACHMENT 1

PMP-CS-545-W-J-14AL26(Q), Revision 0, "Turbine Driven Auxiliary Feedwater Pump Flow-Instrument Isometric Drawing"

PMP-CS-545-W-J-14AL27(Q), Revision 0, "Motor Driven Auxiliary Feedwater Pump "A" Flow-Instrument Isometric Drawing"

PMP-CS-545-W-J-14AL28(Q), Revision 0, "Motor Driven Auxiliary Feedwater Pump "B" Flow-Instrument Isometric Drawing"

J-07G37(Q), Revision 2, "Instrument Tubing Clamp Mounting Q Instrument Installation"

J-07G17(Q), Revision 7, "Instrument Tubing Support"

J-07D12(Q), Revision 3, "Instrument Mounting Detail D.P. Indicator (Barton) Packless Manifold"

J-07G05(Q), Revision 6, "Five Valve Manifold Auxiliary Mounting Brackets"

J-07G01(Q), Revision 10, "Instrument Mounting Structure Floor Stand"

M-13AL05(Q), Revision 2, "Piping Isometric Auxiliary Feedwater Pumps Recirculation Piping"

J-07G22(Q), Sheets 1 and 2, Revision 11, "Bill of Materials "Q" Instr. Installations"

C-1037(Q), Revision 0, "Civil Structural Standard Details Sheet No. 34"

M-12AL01, Revision 0, "Piping & Instr. Diag. Aux. Feedwater System"

KGP-1131, Revision 6, "Plant Modification Process"

CNT-700, Revision 0, "Fabrication and Installation of Instrumentation"

ADM 01-042, Revision 12, "Plant Modification Request Implementation"

Work Request 05000-86, Install Flow Indicators AL FI-49, -50, and -51

Work Request Package 03159-86, Install Flow Indicators AL FI-49, -50, and -51

Field Change Request KN84-088-I-002

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Nonconformance Report M-1318, Revision 0, "Items received built to a different code edition"

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QA Surveillance TE: 53359 S-1659, "Redlining Control Room Drawings"

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