

WOLF CREEK

NUCLEAR OPERATING CORPORATION

John A. Bailey
Vice President
Operations

March 27, 1992

NO 92-0101

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Station P1-137
Washington, D. C. 20555

Reference: Letter dated February 26, 1992 from A. B. Beach, NRC
to B. D. Withers, WCNOC
Subject: Docket No. 50-482: Response to Violations 482/9136-01,
9136-02 and 9136-03

Gentlemen:

Attached is Wolf Creek Nuclear Operating Corporation's (WCNOC) response to violations 482/9136-01, 9136-02 and 9136-03 which were documented in the Reference. Violation 482/9136-01 and 02 involve multiple examples of inappropriate procedures or failures to follow procedures. The responses to these violations provide the specific causes and corrective actions applicable to the cited examples. In addition, the response to these violations contain a discussion of more comprehensive corrective actions which are being taken or planned to improve the quality of WCNOC procedures and to ensure full compliance with these procedures.

Violation 9136-03 involves inadequate corrective actions. The attached response addresses the actions being taken in response to this specific violation. WCNOC is also pursuing a more comprehensive program to achieve improvements in the WCNOC corrective action. These efforts have previously been described in WM 92-0040, reply to Notice of Violation (EA 91-161).

9204010111 920327
PDR ADDCK 05000482
Q PDR

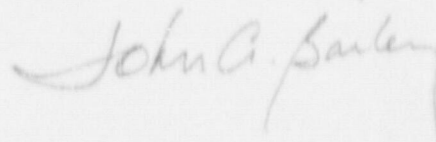
P. Box 411 / Burlington, KS 66839 / Phone: (316) 364-8831

An Equal Opportunity Employer M/F/H/VET

TEO

If you have any questions concerning this matter, please contact me or Mr. S. G. Wideman of my staff.

Very truly yours,

A handwritten signature in cursive script, reading "John A. Bailey". The signature is written in dark ink and is positioned above the typed name and title.

John A. Bailey
Vice President
Operations

JAB/jra

Attachment

cc: A. T. Howell (NRC), w/a
R. D. Martin (NRC), w/a
G. A. Pick (NRC), w/a
W. D. Ruckley (NRC), w/a

REPLY TO A NOTICE OF VIOLATION

Violation (482/9136-01): Failure To Have Appropriate Procedures

Finding:

Technical Specification (TS) 6.8.1.a requires that written procedures be established, implemented, and maintained covering the applicable procedures recommended in Appendix A of Regulatory Guide (RG) 1.33, Revision 2, February 1978. 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be prescribed by procedures of a type appropriate to the circumstances. Three examples of violating this requirement are stated below:

1. RG 1.33, Appendix A, Item 2.j, requires general operating procedures for going from HOT STANDBY to COLD SHUTDOWN, Mode 3 to Mode 5, respectively. This is accomplished by GEN 00-006, Revision 17, "Hot Standby to Cold Shutdown."

Step 4.21.2 of GEN 00-006 requires the determination of which centrifugal charging pump (CCP) is to remain operable with the plant operating in Mode 4, and requires that the breakers for the remaining CCP and the positive displacement pump be racked out.

Contrary to the above, on January 6, 1992, with the plant operating in Mode 4, Step 4.2.1.2 was inappropriate to the circumstances because it did not explicitly prevent placing a CCP control switch in the pull-to-lock position. The control switch for CCP A was placed in the pull-to-lock position, which rendered the pump inoperable. CCP B breaker was racked out, and the positive displacement pump was left in operation.

2. RG 1.33, Appendix A, Item 8.b(1)(1), requires procedures for surveillance tests, inspections, and calibrations of the reactor protection system. This is accomplished, in part, by STS IC-235, "Analog Channel Operational Test Nuclear Instrumentation System Intermediate Range N-35 Protection Set I," and STS IC-236, "Analog Channel Operational Test Nuclear Instrumentation System Intermediate Range N-36 Protection Set II."

Section 5.2.4 of STS IC-235 and STS IC-236 provides for the establishment of the intermediate range high level reactor trip setpoints.

Contrary to the above, on January 11, 1992, Section 5.2.4 of STS IC-235 and STS IC-236 was inappropriate to the circumstances because licensee personnel failed to incorporate an approved procedure change into Section 5.2.4. This resulted in the improper establishment of high level reactor trip setpoints for both channels of intermediate range monitors.

3. RG 1.33, Appendix A, Item 8.b, requires specific implementing procedures for each surveillance test, inspection, and calibration listed in the Technical Specifications. This is accomplished, in part, by Procedure STS PE-019E, Revision 6, "RCS Isolation Check Valve Leak Test."

Step 2.16 of STS PE-019E requires that the motor-operated safety injection accumulator isolation valves be manually lifted off of their seat to equalize pressure across the valves, after completion of the respective accumulator discharge check valve test.

Contrary to the above, safety injection accumulator isolation valves could not be lifted off of their closed seats without the potential for motor operator damage because procedure step 2.16 was inappropriate to the circumstances. Step 2.16 failed to specify that the control switch seal-in circuit be placed in "normal", rather than the "maintain closed" position. As a result, on January 8, 1992, motor operator damage associated with Safety Injection Accumulator Isolation Valve EP HV-8808B occurred when technicians lifted the valve off of its closed seat with its control switch in the "maintain closed" position.

Reason For Violation:

1. On January 6, 1992, at 0230 hours with the unit in Mode 4, Hot Shutdown, the positive displacement pump (PDP) was started and Centrifugal Charging Pump (CCP) A was secured because of low flow cavitation concerns with the CCP. CCP A was placed in the "normal-after-stop" position. CCP B had been previously removed from service. At 0359 hours the unit entered Mode 3, Hot Standby, and the handswitch for CCP B was placed in the "normal-after-stop" position. At 0427 hours, CCP B and safety injection pumps A and B were restored to operable status. On January 6, 1992, at approximately 1958 hours, the unit commenced a cooldown to Mode 4 to repair a leaking relief valve. At 2126 hours the unit entered Mode 4. The CCP B breaker was racked out to comply with procedure GEN 00-006 "Hot Standby to Cold Shutdown". On January 7, 1992, at 0749 hours, it was discovered that the CCP A handswitch had been inadvertently placed in the "pull-to-lock" position at approximately 1958 hours on January 6, 1992. CCP A was then started and the PDP secured following the discovery that both CCPs were inoperable while in Mode 4.

At the time of discovery, the allowed outage time specified in the Technical Specification had not been exceeded, therefore, no violation of the Technical Specification had occurred.

The operators failed to recognize that a CCP had to be operable as required by the Technical Specifications for operation in Modes 4, 5, Cold Shutdown, and 6, Refueling. However, a temporary procedure change was initiated to allow the described condition for Modes 5 and 6 in response to the low flow cavitation concerns. This failure to recognize the requirements is attributed to inadequate procedural guidance which did not provide clear and consistent precautions or limitations to assist in understanding CCP operability during the discussed evolutions. A contributing factor was the infrequent amount of time the unit is operated in Mode 4.

2. Review of this event identified several factors which contributed to the failure to properly perform the surveillance test procedures. As allowed by procedure, temporary procedure changes to surveillance test procedures STS IC-235 and STS IC-236 were not issued as permanent changes to avoid incorporating the newly calculated setpoint values into the permanent revision process before the final setpoint values were obtained at 100 percent power. Instead, temporary procedure changes were written and approved as valid through January 11, 1992. On January 11, 1992, at approximately 1715 hours, copies of STS IC-235 and STS IC-236 were issued in anticipation of performing the procedures within twelve hours prior to physics testing as required by T/S Surveillance Requirement 4.10.3.2. The temporary procedure changes were issued with the procedures. Administrative procedure ADM 07-100, "Preparation, Review, Approval And Distribution of WCGS Procedures," requires that temporary changes to be used in the performance of surveillance testing shall be referenced at the applicable procedure step prior to procedure usage. Since it was possible that the surveillance test procedures would not be performed prior to expiration of the temporary changes, requiring new temporary procedure changes to be processed, the temporary procedure changes were not referenced at the applicable procedure steps at the time the procedures were issued for use.

The temporary procedure changes were verified to be valid and attached to the surveillance procedures. The Surveillance Test Routing Sheets, which are attached to the front of the surveillance test procedures to be performed and includes a verification that the procedure is the current revision with all temporary changes attached, was initialed and dated. During shift turnover on the night of January 11, it was identified that the temporary procedure changes had not yet been referenced and incorporated at the applicable procedure steps. The Instrumentation and Control (I&C) Technician who was to perform the test was assigned responsibility of updating the procedure. However, when it came time to perform the test, the I&C Technician was involved in other activities and the surveillance test procedures were assigned to other qualified I&C personnel. Seeing that the Surveillance Test Routing Sheet verification had been signed, the I&C test performers assumed that the temporary procedure changes had been properly incorporated. Therefore, I&C personnel failed to follow procedures when the temporary procedure changes were not referenced at the applicable procedure step prior to procedure usage.

3. On January 8, 1992, because of concerns about piping movement during the performance of surveillance procedure STS PE-019E, "RCS Isolation Check Valve Leak Test," a procedure change was issued to manually crack open, and subsequently energize open, Safety Injection (SI) Accumulator Isolation Valves EP HV8808A, B, C, & D. The procedure was performed that same day by the day shift for valves EP HV8808C & D without experiencing any problems. After shift turnover, the engineering personnel responsible for the testing reported to the Control Room and were told to manually crack open valve EP 8808B. While turning the handwheel, a grinding noise was heard. Investigation into the cause

revealed that the control switch was not removed from the "maintained closed" position to the "normal" position. After unlocking the valve - placement of switch to "normal" - it was declutched and manually removed from its seat. The valve was then energized to its open position without experiencing any problems. Upon closing, a grinding noise was again heard. After disassembly of the valve actuator, it was determined that the gears had been damaged by the engaged clutch during the initial attempts to operate the valve.

As a result of the electrical logic while the control switch was in "maintained closed", the valve motor operator drove the valve closed while it was being opened manually. Test personnel and operators were not fully aware that this would happen with these motor operated valves. Therefore, this event is being attributed to an inadequate procedure in that the procedure revision did not specify that the switch should be placed in the "normal" position prior to manually lifting the valve from its seat. A contributing cause was the lack of knowledge that certain MOVs will attempt to reclose, if manually opened, unless the handswitch is placed in "normal".

Corrective Actions That Have Been Taken And Results Achieved:

1. On January 7, 1992, upon discovery that the CCP A handswitch was in the pull-to-lock position, CCP A was immediately started and the PDP secured. Procedures GEN 00-006 and GEN 00-002, "Cold Shutdown to Hot Standby", will be revised to provide better instructional guidance in relation to this event.
2. Upon notification from I&C personnel, Control Room operators halted the low power physics testing. I&C personnel estimated that the values used in the January 11, 1992, calibration had resulted in the setpoints being set at approximately 36 percent rather than less than or equal to 25 percent of Reactor Thermal Power (RTP) based on the prestart-up estimates. Technical Specification 2.2.1, applicable in Mode 2, Start-up, and Mode 1, Power Operations, below the low setpoint power range neutron flux interlock setpoint, requires the immediate range trip setpoint to be set at less than or equal to 25 percent with an allowable value of less than or equal to 35.3 percent. Technical Specification 2.2.1, action statement b, requires that with the Reactor Trip System instrumentation or interlock setpoint less conservative than the allowable value, either adjust the setpoint consistent with the trip setpoint value of less than or equal to 25 percent of RTP and determine within twelve hours that the as-measured value of the setpoint error of the affected channel is less than the total allowance provided in Table 2.2-1 when the calculation provided in T/S 2.2.1 is applied, or declare the channel inoperable and apply the applicable action statement requirement of T/S 3.3.1 until the channel is restored to operable status with its setpoint adjusted consistent with the trip setpoint value. Because it was estimated that the setpoints exceeded the calculated value for the T/S allowable value of 35.3 percent of RTP, and more than twelve hours had already lapsed since the plant had entered Mode 2, Control Room operators declared both Intermediate Range Channels inoperable. Technical Specification 3.3.1 requires two operable Intermediate Range Channels. The action statement for T/S 3.3.1 states that with the number of the channels

operable one less than the minimum channels operable requirement and with the thermal power level below the intermediate range neutron flux interlock setpoint, restore the inoperable channel to operable status prior to increasing thermal power above the interlock setpoint; or with thermal power above the interlock setpoint but below 10 percent of RTP, restore the inoperable channel to operable status prior to increasing thermal power above 10 percent of RTP. Technical Specification 3.3.1 does not provide an action statement for inoperability of more than one channel. Consequently, Control Room operators entered T/S 3.0.3 on January 13, 1992, at 0735 hours, and I&C personnel were instructed to reperform STS IC-235 and STS IC-236.

On January 13, 1992, at 0805 hours, Control Room operators began to bring Shutdown Bank "B" to its full-out position, while inserting Control Banks in normal overlap to compensate for the positive reactivity addition. At 0817 hours, Shutdown Bank "B" rods were positioned in their full-out position in accordance with T/S 3.1.3.5 and the action statement was exited. At 0835 hours, I&C personnel commenced reperformance of partial surveillance test procedures to properly calibrate the intermediate range trip setpoint as less than or equal to 25 percent of RTP. At 0919 hours, I&C notified Control Room operators that the partial surveillance test STS IC-235 had been successfully completed, thus restoring Channel N-35 to operable status and T/S 3.0.3 was exited and the appropriate action statement for T/S 3.3.1 was entered. At 0936 hours, the partial surveillance test STS IC-236 was successfully completed, thus restoring Channel N-36 to operable status and the action statement for T/S 3.3.1 was exited.

Using actual intermediate range current data taken during the performance of STS RE-011, "RCS Total Flow Rate Measurement," on January 24, 1992, an evaluation of the January 11, 1992 setpoints concluded that these setpoints did not exceed the actual values for the T/S allowable values. Therefore, the Intermediate Range Channels were operable.

3. Following observance of the noise, the breaker for the valve was racked out with the valve in its normal position. A work request was issued to troubleshoot and/or repair valve EP HV8808B. Some actuator components were discovered to be damaged. The valve was repaired, tested, and returned to service.

Corrective Action That Will Be Taken To Avoid Further Violations:

1. All GEN and SYS procedures will be reviewed by December 31, 1992 to ensure appropriate precautions/limitations are clearly incorporated.
2. To prevent recurrence of this event, a step was added to RXE 01-002, "Reload Low Power Physics Testing," that requires Reactor Engineering personnel to verify that the surveillance test procedures used to adjust and test the Intermediate and Power Range Channels within twelve hours of physics testing use the setpoint values based on the correction factors determined for the current core load. Because this verification will be performed by persons not involved in the testing of the Intermediate and Power Range Channels, this independent verification should prevent this event's recurrence. Additionally, the

details of this event were issued as required reading for applicable I&C personnel to emphasize the importance of ensuring that all aspects of proper procedure performance have been completed prior to procedure performance and during the post-test review.

3. To prevent recurrence of this event, STS PE-019E has been revised to require placing the handswitches to valves EP HV8808A, B, C, & D in the "normal" position prior to manually opening the valve. Also, a list of all motor operated valves with a similar logic has been prepared and provided to the Operations, Maintenance and Modifications, Instrumentation and Controls, and Training groups.

Comprehensive Corrective Actions:

Wolf Creek Nuclear Operating Corporation is aggressively addressing performance and program improvement issues based upon a review of Quality Assurance Audits and Surveillances, Licensee Event Reports, NRC Inspection Reports, and INPO Assessments. These issues formed the initial basis for the Management Action Plan (MAP) which was discussed in the Reply to Notice of Violation EA 91-161 (letter WM 92-0040 dated March 20, 1992). In addition to the items discussed in WM 92-0040, the MAP also specifically addresses improvements in procedural guidance. The objective of this effort is, in part, to enhance procedure usability and ensure compliance. WCNOG has scheduled a meeting on April 17, 1992, to provide the Nuclear Regulatory Commission a more comprehensive description of this program.

Date When Full Compliance Will Be Achieved:

Full compliance will be achieved on December 31, 1992, upon completion of the review of GEN and SYS procedures

Violation (482/9136-02): Failure To Follow Procedures

Finding:

TS 6.8.1.a requires that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Appendix A of RG 1.33, Revision 2, February 1978. Two examples of violating this requirement are stated below:

1. RG 1.33, Appendix A, Item 8.b(1)(k), requires specific procedures for surveillance tests on control rod operability and scram time tests. This is accomplished by Surveillance Procedure STS RE-007, Revision 5, "Rod Drop Time Measurement."

Step 5.4.22.10 of STS RE-007 requires personnel to reconnect all control rod drive mechanism lift coils in the bank being tested using the lift coil disconnect switches.

Contrary to the above, on January 10, 1992, the lift coil disconnect switches for seven rods in Control Bank B were not reconnected. This resulted in a rod control urgent failure alarm during rod withdrawal on January 12, 1992.

2. RG 1.33, Appendix A, Item 8.b91)(1), requires procedures for surveillance tests, inspections, and calibrations of the reactor protection system. This is accomplished, in part, by STS IC-507A, Revision 5, "Calibration Steam Line Pressure Transmitters."

Step 5.10.4 of STS IC-507A requires the isolation of Main Steam Pressure Transmitter AB PT-526.

Contrary to the above, on January 18, 1992, instrumentation and control technicians isolated AB PT-525 instead of AB PT-526. This resulted in a steam generator level transient.

Reason For The Violation:

1. On January 12, 1992, while manually withdrawing control banks in overlap for the approach to criticality, a rod control urgent failure alarm was received in the Control Room when withdrawal commenced in control bank B. Investigation identified that all rods on control bank B, with the exception of Rod K-14, were found to have their lift coil disconnect switches in the disconnect position. It was determined that these switches were not returned to the connected position during performance of surveillance procedure STS RE-007, "Rod Drop Time Measurement," as required by step 5.4.22.10. This event is attributed to failing to follow procedures resulting from ineffective communications. The ineffective communications resulted from the failure of test personnel on one end of a communication link to confirm the completion of certain steps by test personnel on the other end of the link.
2. On January 18, 1992, while performing STS IC-507A, Revision 5, "Calibration Steam Line Pressure Transmitters," an Instrumentation & Control (I&C) technician mistakenly isolated Main Steam Pressure Transmitter AB PT-525 rather than AB PT-526. This resulted in a loss of pressure compensation of the Steam Flow Channel for Feedwater Control Valve AE FV520 which caused it to throttle down and decrease the level in Steam Generator (S/G) "B".

As in the first example, this communication was also taking place through a communication link. An interview with the personnel involved revealed that the field technicians were not communicating with each other in a fashion conducive to stimulate and enhance self checking attributes. Review of the procedure determined that when followed, the procedure is accurate, clear, and concise. Therefore, this event is being attributed to a failure to follow procedures which resulted from ineffective communication.

Corrective Actions That Have Been Taken And Results Achieved:

1. Control Room operators inserted the control rods in bank A to 113 steps to ensure proper overlap when withdrawal recommenced. The lift coil disconnect switches for bank B were reconnected and the rod control urgent failure alarm was reset. Rod withdrawal was recommenced.

The individual responsible for failing to follow the procedure was counseled on the need to follow procedures and to receive confirmation of completed steps when instructions are given over a communication link.

2. Upon receipt of the S/G "B" flow mismatch alarm, the operators selected manual on the feedwater control valve and opened it to return feed flow above steam flow. All test signals and isolated instruments were returned to normal.

Corrective Actions That Will Be Taken To Avoid Further Violations:

1. To preclude recurrence of this event, surveillance procedure STS RE-007 was revised to incorporate a final verification step 5.7 that the lift coil disconnect switches for all control and drive mechanisms are in the connected position.
2. I&C technicians have been counseled on the necessity and benefit of proper communication and its relation to "self-checking". A shop policy has been developed which addresses proper communication techniques when communication links are used for field activities that are controlled by a remote authority, e.g., the Control Room.

Comprehensive Corrective Actions:

Wolf Creek Nuclear Operating Corporation is aggressively addressing performance and program improvement issues based upon a review of Quality Assurance Audits and Surveillances, Licensee Event Reports, NRC Inspection Reports, and INPO Assessments. These issues formed the initial basis for the Management Action Plan (MAP) discussed in WM 92-0040, Reply to Notice of Violation (EA 91-161). In addition to the items discussed in WM 92-0040, the MAP also specifically addresses improvements in procedural guidance and communications. The objective of this effort is, in part, to enhance procedure usability and ensure compliance. WCNOC has scheduled a meeting on April 17, 1992, to provide the Nuclear Regulatory Commission a more comprehensive description of this program.

Date When Full Compliance Will Be Achieved:

Full compliance has been achieved.

Violation (482/9136-03): Inadequate Corrective Actions

Finding:

Title 10 CFR, Part 50, Appendix B, Criterion B, Criterion XVI, "Corrective Action," requires, in part, that measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected.

Contrary to the above, in November 1988, a water hammer event that occurred in the essential service water system piping that supplies the containment coolers was identified but not corrected. Engineering Evaluation Request 88-EF-08 was initiated, but the significance of the event was not determined, nor were any corrective actions taken. The water hammer event recurred during the 1991-1992 refueling outage.

Reason For The Violation:

The water hammer event was identified as occurring when Essential Service Water (ESW) Pump "A" was stopped then restarted to verify EDG load rejection capability during performance of surveillance procedure STS KJ-001A, "Integrated D/G and Safeguards Actuation Test - Train A". The water hammer was caused by draining of the ESW piping to the containment coolers through the common header to components on lower elevations and out to the lake. Draining stopped when vapor pressure equaled the water column height drop. Upon pump restart, the surge of water flow through the drained piping caused the abrupt pressure transient and resulting water hammer.

After the 1989 occurrence, Nuclear Plant Engineering (NPE) personnel made an incorrect assumption during the initial review of the document which resulted in a low priority assignment. This assumption was that only an enhancement was needed and that all other associated actions were corrected by others. A second review noted that additional information was required in order to properly address the document. The document was then returned for more information in July 1991.

This event is being attributed to an inadequate review resulting from an incorrect assumption. This assumption was based on conflicting definitions of Engineering Evaluation Requests (EER) - the subject document - in NPE procedures and ADM 01-053, "Engineering Evaluation Requests." NPE procedures denote EERs as being used as a request for information only. This is contrary to administrative procedure ADM 01-053 which denotes EERs as addressing technical concerns.

Corrective Actions That Have Been Taken And Results Achieved:

Corrective action has been taken to eliminate the water hammer during performance of surveillance procedure STS KJ-001A & B. An initial evaluation of the effects the water hammer had on the Essential Service Water System (ESW) piping did not identify any damage. A thorough design review of the water hammer event has been initiated to confirm that a significant condition adverse to safety does not exist. Completion of this review will occur by June 30, 1992.

Corrective Action That Will Be Taken To Avoid Further Violations:

To ensure that a similar condition does not exist at the Wolf Creek Generating Station, a review of all open EERs within NPE responsibility will be completed by June 30, 1992. The review will also prioritize these EERs. Additionally, the discrepancy between the NPE procedures and ADM 01-053 will also be resolved by June 30, 1992.

Date When Full Compliance Will Be Achieved:

Full compliance will be achieved by June 30, 1992, upon completion of the thorough design review of the water hammer event, the review of open EERs within NPE's responsibility, and resolution of the procedure discrepancy.