

WOLF CREEK

NUCLEAR OPERATING CORPORATION

Neil S. "Buzz" Carns
Chairman, President and
Chief Executive Officer

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U. S. Nuclear Regulatory Commission
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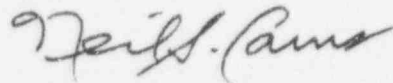
Reference: Letter dated December 13, 1996, from
J. E. Dyer, NRC, to N. S. Carns, WCNOC
Subject: Docket No. 50-482: Response to Notice of
Violations 50-482/9623-01, and -03

Gentlemen:

This letter transmits Wolf Creek Nuclear Operating Corporation's (WCNOC) response to Notice of Violations 50-482/9623-01, and -03. Violation 9623-01 describes an operability recommendation being provided to the shift supervisor for the turbine-driven auxiliary feedwater pump based on an evaluation of an oil leak from the turbine governor system without properly identifying the leaking governor equipment and properly evaluating the effect of the leak on this governor equipment. Violation 9623-03 concerns the failure to properly establish and maintain Procedure STN FP-204, "Fire Protection System Flow and Sequential Pump Start Test."

WCNOC's responses to these violations are in the attachment. If you have any questions regarding this response, please contact me at (316) 364-8831, extension 4100, or Mr. Richard D. Flannigan at extension 4500.

Very truly yours,



Neil S. Carns

NSC/jad

Attachment

210113

IEDI/1

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Reply to Notice of Violations 50-482/9623-01 and -03

Violation 50-482/9623-01: The failure to include all the required actions to perform an operability evaluation, in that the licensee did not properly identify the affected component and, therefore, did not determine the impact of the leak on this component.

- "A. Criterion V of Appendix B to 10 CFR Part 50 requires, in part, that activities affecting quality shall be prescribed by documented instructions, procedures, and drawings appropriate to the circumstances, and shall be accomplished in accordance with these instructions, procedures, or drawings.

Procedure ADM 02-024, "Technical Specification Operability," requires operability determinations to include a determination of the requirement or commitment established for the equipment.

Contrary to the above, on November 11, 1996, the system engineer provided an operability recommendation to the shift supervisor for the turbine-driven auxiliary feedwater pump based on an evaluation of an oil leak from the turbine governor system without properly identifying the leaking governor equipment and properly evaluating the effect of the leak on this governor equipment."

Denial of Violation:

Wolf Creek Nuclear Operating Corporation (WCNOC) denies that a violation of Criterion V of Appendix B to 10 CFR Part 50 occurred on November 11, 1996, when the system engineer provided an operability recommendation to the shift supervisor on the turbine oil system. The operability evaluation, as performed, was consistent with procedural requirements of ADM 02-024, "Technical Specification Operability."

Background:

Operability of the oil system was noted in the control room/Shift Supervisor logs on three separate occasions on November 11, 1996, all with the same conclusion that the equipment remained operable. The first mention of the oil leak was at 0230. The Shift Supervisor 0230 log entry stated "TB [Turbine Building] watch identified oil on TDAFWP governor pilot assembly and down on pump pedestal. Oil level in sump is sat. The leak appears to have occurred at a compression fitting on the governor pilot assembly. AR #18526 written and this will be an SS concern in the morning. The pump was run on 11/7/96 and I believe that is when the leakage occurred as no active leakage is currently occurring. The pump remains operable as I feel the leakage occurring when the pump runs is very small and oil level in the sump is within operable range."

The control room log entry at 0230 stated "Turbine building operator noted oil on the TDAFWP governor pilot assembly and pooling on pump pedestal directly underneath the oil pump and pilot assembly. The pump run for operability was

completed November 7, 1996, at 0119. Oil level in the turbine oil sump is adequate. Oil leaks appear to be at compression fittings on the governor pilot assembly. AR #18526 written. There does not appear to be an operability concern at this time."

At approximately 0930 on November 11, 1996, the system engineer was informed and asked to look at the leak on the Terry Turbine. The system engineer went with Management and Instrumentation and Control personnel to visually verify the quantity, location, and if appropriate, to correct the leak. The system engineer observed the leak location at two pipe thread connections. It was conservatively estimated that the leak rate was approximately one ounce per hour while the system was in operation and it was noted that the leak was not active when the system was static. Observations revealed that oil system connections would have to be removed and thread sealant added to completely seal the leak. Performance of such a rework evolution would require the Terry Turbine to be removed from service.

At approximately 1045 on November 11, 1996, the system engineer updated the control room and stated that he did not have any concern at that time, but that he would continue to look into the issue. The control room logs at 1045 indicate "[System engineer, name omitted] reported to SS on TDAFW Pump. Fitting that is leaking oil can not be tightened without CO [Clearance Order] on pump. No operability concern exists." The Shift Supervisor logs at 1057 indicate "[Name omitted] System Engineer (TDAFWP) did local evaluation on oil leak (0230 entry) and found oil seepage at piping connections. His evaluation was that the connections could not be tightened without plant support. Contact with Work Week Manager to schedule a meeting at 1300 today in the Integrated Plant Scheduling Conference Room to plan and evaluate maintenance approach to TDAFWP."

The meeting at the Integrated Plant Scheduling Conference Room was held, operability was reviewed, and a plan to evaluate a maintenance approach was discussed. Members attending were from Operations Management, Control Room personnel, Instrumentation and Control Supervision, Instrumentation and Control personnel, Plant Management, Integrated Planning and Scheduling, System Engineering Supervision, and the System Engineer.

One of the considerations at the meeting on November 7, 1996, was that the Terry Turbine Pump successfully completed STS AL-103, "TDAFWP Pump Inservice Pump Test," which monitors oil pressure. Had the oil pressure not been sufficient, the pump would have failed STS AL-103. The oil leak was estimated at one ounce per hour, with the Terry Turbine being required to run for four hours in an emergency situation. The loss of the estimated four ounces of oil from the total capacity of approximately seven gallons is considered insignificant. Even if the oil level in the Terry Turbine were at the low mark (where an Action Request is generated to restore level), there is considerably more oil that can be lost before the Turbine is declared inoperable.

The final determination was made by the involved personnel that the Turbine and its associated oil system would be able to perform its safety function. The 1450 Shift Supervisor log entry stated "TDAFWP meeting (see 1057 entry) with [names omitted] attending evaluated that the leak rate is minimal enough that the pump will be able to perform its safety function. It is planned that the leaking fittings will be sealed and tightened during the next LCO."

On November 12, 1996, the following morning, the system engineer showed the Resident Inspector the physical location of the leak while touring the Terry Turbine room. The Resident Inspector asked the name of the particular oil system sub-component and the system engineer identified it as the Electronic Governor-Remote Servo (EG-R) when, in fact, it was the auxiliary oil sump for the EG-R. The identification of the sub-component by its proper name was not the basis for and did not alter the basis for the determination of operability.

Discussion:

Further explanation is provided below on the conclusions reached during the system engineer's evaluation. These were the facts that the system engineer considered before giving a recommendation on operability. Documentation of the facts were not required since procedure AP 28-001, "Evaluation of Nonconforming Conditions of Installed Plant Equipment," was not invoked by the Shift Supervisor.

The italicized words below are from procedure ADM 02-024, "Technical Specification Operability". The responses are the facts that the system engineer considered before giving a recommendation on operability and provides substantiation that requirements of procedure ADM 02-024 were met. The system engineer did identify the nature of the oil leak and evaluated the effect of the leak on the Terry Turbine oil system.

1. *Determine what equipment is degraded or potentially nonconforming.*

The equipment observed was the oil system for the Terry Turbine. Therefore, the nature and quantity of the leak with respect to the oil system was the focus for the system engineer.

2. *Determine the safety function(s) performed by the equipment.*

The oil system supports the Terry Turbine by providing oil for Turbine lubrication and Turbine speed control. The Terry Turbine provides cooling water to the Steam Generator used to cool the Reactor Coolant System.

3. *Determine the circumstances of the potential nonconformance, including the possible failure mechanism.*

The oil leaked from two pipe fittings on the Terry Turbine Oil System at approximately one ounce per hour while the turbine was running. The possible failure mechanism would have been the loss of the Terry Turbine oil pressure and the failure of the pump to perform its safety function.

4. *Determine the requirement or commitment established for the equipment, and why the requirement or commitment may not be met.*

The equipment is required to meet a mission of four hours. The commitment may not be met if oil pressure cannot be maintained.

5. *Determine by what means and when the potentially nonconforming equipment was first discovered.*

The leak was discovered on November 11, 1996. The leak was not active and the leak was discovered as a result of residual oil from a surveillance performed on November 7, 1996.

6. Determine the safest plant configuration including the effect of transitional action.

The safest configuration was to keep the Terry Turbine on standby, ready to perform its safety function in accordance with the Maintenance Rule, based on the minor nature of the leak.

7. Determine the basis for declaring the affected system operable, through:

A. Analysis--Based on the location and the amount of the oil leakage from the oil system, the system engineer determined that the Terry Turbine would lose only an estimated four ounces in a four hour period of time, if the oil system were pressurized. The amount of remaining oil would enable the pump to perform its safety function.

B. Test or partial test--The Terry Turbine had passed the surveillance (STS AL-103, "TDAFW Pump Inservice Pump Test") on November 6, 1996. In accordance with ADM 02-024, if a system or component fails while being tested, the system is to be declared inoperable or the appropriate LCO must be entered. Therefore, testing had already indicated that the system was capable of performing its safety function.

C Operating Experience--The leak rate of one ounce per hour (which only occurred at operating pressure), with a mission of the Terry Turbine being four hours, would not have made the Terry Turbine inoperable.

D. Engineering Judgment--Based on the system engineer's evaluation of the condition, the Terry Turbine was considered able to perform its safety function.

Conclusion:

The effect of this oil leak on the operability of this component was adequately evaluated in accordance with procedures, and that the equipment would have performed its safety function. WCNOG concludes that there has been no violation of Criterion V of Appendix B to 10 CFR 50.

Violation 50-482/9623-03: The failure to adequately establish and maintain Procedure STS FP-204 as required by the fire protection program.

- "B. Technical Specification 6.8.1.h requires, in part, that procedures shall be established, implemented, and maintained covering the fire protection program implementation.

Procedure AP 10-100, "Fire Protection," Revision 1, requires Procedure STS FP-204, "Fire Protection System Flow and Sequential Pump Start," Revision 10, to perform a flow test in accordance with Chapter 5, Section 11 of the National Fire Protection Association (NFPA) Fire Protection Handbook, 14th Edition.

Contrary to the above, on October 24, 1996, fire protection personnel failed to properly establish and maintain Procedure STS FP-204 as evidenced by the following examples:

- 1) The NFPA Fire Protection Handbook provided instructions to take pitot tube readings in the center of the flow stream at a distance equal to one half of the diameter of the nozzle opening. Procedure STS FP-204 contained no such instructions, which resulted in different personnel using different methods to take readings during the test.
- 2) The NFPA Fire Protection Handbook also provided a caution that pitot tube readings less than 10 psi or greater than 30 psi at any open hydrant should be avoided. Procedure STS FP-204 contained no such limits and readings taken on 24 October exceeded 30 psi. While the readings were taken on a test header and not an open hydrant, the handbook provided limits because of reduced accuracy at higher pressures.
- 3) Procedure AP 10-100 required Procedure STN FP-204 to perform a flow test in accordance with the NFPA Fire Protection Handbook, 14th edition. However, the scope statement for Procedure STN FP-204 stated that the test was in accordance with NFPA Standard 20 and American Nuclear Insurers requirements."

Admission of Violation:

WCNOC acknowledges and agrees that a violation of Technical Specification 6.8.1.h occurred on October 24, 1996, when flow results indicated that Procedure STN FP-204 had not been maintained in accordance with the NFPA.

Reason for Violation:

Root Cause:

The root cause of this violation is that the Fire Protection Program relied too heavily upon "skill of the craft" which led to Procedure STN FP-204, "Fire Protection System Flow and Sequential Pump Start Test," not providing guidance as referenced in the NFPA Handbook. AP 10-100, "Fire Protection,"

incorporated the NFPA Handbook as part of the testing requirements in the body of the procedure when the NFPA Handbook should have been considered reference material only. As a result, procedural inconsistency existed in that AP 10-100 and STN FP-204 did not reference the NFPA Handbook or its contents uniformly.

A great deal of credit was given for professional judgment and experience; this led to a procedure that lacked both detail and clarity. Certain fundamental skills, such as pitot tube readings, were "assumed" to be understood with no detailed steps being put into the procedure for the user to follow. This assumption has been proven to be false, as flow data collected while running STN FP-204 proved to be variable. This was realized during performance of the test when two users questioned the comparability of results. However, differences in the positioning of these tubes during tests has been found to lead to more conservative results.

Corrective Steps Taken and Results Achieved:

Based on these questions, testing using procedure STN FP-204 was suspended to allow an evaluation of the test results.

All procedures under the control of Fire Protection have been reviewed to determine if additional examples of inadequate procedural guidance and clarity existed. This review was completed on December 23, 1996; no further examples were discovered.

Corrective Steps to Be Taken:

Procedure AP 10-100, "Fire Protection," will be revised to relocate the reference to the NFPA Handbook from the body of the procedure to the reference section. This revision will be completed by January 17, 1997.

Procedure STN FP-204, "Fire Protection System Flow and Sequential Pump Start Test," will be revised to ensure that requirements agree with AP 10-100. This revision will be completed by January 17, 1997.

New flow measuring devices are being purchased to replace the hand-held pitot tubes currently in use. The existing hand held pitot tube will be replaced with a fixed flow measuring device that will eliminate positioning variables and be ranged such that the flows established by STN FP-204 for test purposes will be consistent. Procurement, testing and accepting of these new devices will be complete by June 30, 1997.

Training will be provided to all Fire Protection personnel on the WCNOG standards for procedures through Qualified Reviewer training. The Fire Protection Specialist and Fire Protection Technician have previously received Qualified Reviewer training; however, attendance of this training again will reinforce requirements for Qualified Review. This training will be completed by March 4, 1997.