

APPENDIX B

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-482/88-11

Operating License: NPF-42

Docket: 50-482

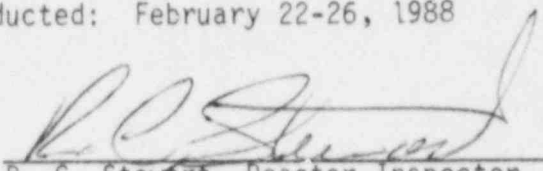
Licensee: Wolf Creek Nuclear Operating Corporation (WCNOC)
P.O. Box 411
Burlington, Kansas 66839

Facility Name: Wolf Creek Generating Station (WCGS)

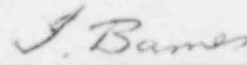
Inspection At: Burlington, Kansas

Inspection Conducted: February 22-26, 1988

Inspectors:

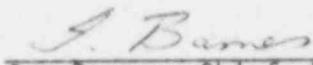

R. C. Stewart, Reactor Inspector, Materials
and Quality Programs Section, Division of
Reactor Safety

3/15/88
Date


for W. M. McNeill, Reactor Inspector, Materials
and Quality Programs Section, Division of
Reactor Safety

3/15/88
Date

Approved:


Ian Barnes, Chief, Materials and Quality
Programs Section, Division of Reactor Safety

3/15/88
Date

Inspection Summary

Inspection Conducted February 22-26, 1988 (Report 50-482/88-11)

Areas Inspected: Routine, unannounced inspection of inservice testing of pumps and valves. Subjects addressed in this area of inspection included program and organization, procedure and records, test witness, and personnel qualification and training.

Results: Within the one area inspected, one violation was identified (failure to make pertinent pump status entries in pump and valve events log, paragraph 5).

DETAILS1. Persons ContactedWCNOC

- *F. T. Rhodes, Vice President, Nuclear Operations
- *R. M. Grant, Vice President, Quality
- G. D. Boyer, Plant Manager
- *M. G. Williams, Superintendent, Regulatory, Quality and Administrative Services
- C. E. Parry, Superintendent, Quality Engineering
- *K. Peterson, Supervisor, Licensing
- *C. J. Hoch, Quality Assurance (QA) Technician
- *C. G. Patrick, Supervisor, Quality Systems
- *B. McKinney, Manager, Technical Support
- *G. Lawson, Engineering Specialist
- *D. Walsh, Inservice Testing Engineer
- *S. Austin, Operations Support Supervisor
- *J. C. Goode, Licensing
- *J. Pippin, Manager, Nuclear Plant Engineering
- *R. O'Neill, Nuclear Plant Engineering
- G. Lawson, Operations Support Specialist
- R. Miller, Surveillance Coordinator

Kemper Group

J. Winkel, Authorized Nuclear Inservice Inspector

NRC

- i. Barnes, Section Chief
- R. C. Stewart, Reactor Inspector
- W. M. McNeill, Reactor Inspector

*Denotes attendance at an exit interview held on February 26, 1988.

The NRC inspectors also contacted other plant personnel, including operators, technicians, and administrative personnel.

2. Inservice Testing (IST) of Pumps and Valves

The objectives of this inspection were to determine whether the IST regulatory requirements and licensee commitments are being met. In this regard, the Updated Safety Analysis Report (USAR), Technical Specifications (TS), and the following were reviewed by the NRC inspectors:

- ° IST Program for Pumps and Valves, Revision 6, dated February 1987.

- ° NRC letter from J. A. Calvo to B. D. Withers, dated January 15, 1988, First 10-Year Interval IST Program and Requests for Relief from Certain Requirements for Wolf Creek Generating Station.
- ° Licensee letter from B. D. Withers to NRC, dated April 24, 1987, additional information concerning the Wolf Creek Generating Station IST Program for Pumps and Valves, WM 87-0070.
- ° Licensee letter from B. D. Withers to NRC, dated September 11, 1987, additional information concerning Wolf Creek Generating Station IST of Pumps, WM 87-0233.
- ° ASME Code Testing of Pumps and Valves, ADM 02-301, Revision 3, dated October 14, 1986, with temporary procedure change MA 86-0853.
- ° Work Request, ADM 01-52, Revision 12, dated September 8, 1987, with temporary procedure change MA 87-349.
- ° Containment Purge System Inservice Valve Test, STS GT-205, Revision 3, dated June 24, 1986.
- ° ECCS Inservice Check Valve Test, STS CV-210, Revision 4, dated September 8, 1986.
- ° Chemical and Volume Control System Relief Valve Testing, STS MT-039, Revision 2, dated September 17, 1986.
- ° ESW System Inservice Pump B Test, STS EF-100B, Revision 3, dated December 29, 1987.
- ° Accumulator Safety Injection System Inservice Valve Test, STS EP-205, Revision 4, dated February 2, 1987.
- ° Local Leak Rate Test, STS PE-017, Revision 12, dated August 22, 1987.

3. IST Program and Organization

The Wolf Creek IST Program began in 1985 with baseline testing. The program presently includes 621 valves and 23 pumps. The pumps are all centrifugal and tested quarterly with the exception of three which are tested monthly. The valve types, frequencies, and type tests are as follows:

Valve Type

Angle	6
Ball	2
Butterfly	59
Check	167
Diaphragm	8
Gate	130

Globe	170
Relief	54
Safety	23
Three-way	2

Frequency

Quarterly	377
Monthly	13
Cold Shutdown	148
Refuel	55
1.5 Years	38
2 Years	363
5 Years	80

Test Type

Type C Leaktest	115
Pressure Isolation	39
Accumulator Check Valve	8
Full Stroke Open	158
Full Stroke Close	282
Partial Stroke	26
Check Valve Open	167
Check Valve Close	90
Partial Check Valve	28
Relief Set Point	82
Fail Safe Test	168
Position Indication Check	339

The IST program is performed as part of the surveillance testing program. A surveillance coordinator schedules and tracks surveillances. At WCGS there is one IST engineer who is required by a general administrative procedure to be responsible to maintain the IST program, review test results, maintain test results, review Code, issue surveillance procedures and their changes as necessary, maintain a list of valves and pumps to be addressed in the program, establish reference values as necessary, and initiate corrective actions and change test frequencies as necessary after review of test results. An Authorized Nuclear Inservice Inspector is based on site; he has reviewed the program and its procedures and also audited the program.

4. Procedures and Records

A sample of 10 items in the IST program was reviewed by the NRC inspectors. This sample included pumps numbered PAL01A (auxiliary feedwater), PEG01A (component cooling), PEJ01A (residual heat removal) and PEN01A (containment spray), and valves numbered GT HZ 06, BB 8949D, BG V525, EF V242, EP HV 8808D, and KC HV253. The procedures and the test results since the beginning of the program were reviewed. In some cases this covered a history of some 15 test cycles. This review included the

surveillance reports as well as the test results. The NRC inspectors verified that current procedures were used and that the acceptance criteria used were those in the approved program. During this review, it was noted that some check valves were verified to be operable by flow. In the case of valve BB 8949D, the licensee could not readily demonstrate how the flow value of 232 gpm delineated in Procedure CV-210 was established. Some design calculations were found which established a flow at 400 gpm to fully open the valve, and other design calculations established a system minimum flow of 116 gpm. This is an unresolved item to verify that appropriate acceptance criteria are established in test procedures for this type of testing (482/8811-01). It was observed that the testing followed the frequencies in the approved program and that test frequencies were increased as required. Retests after maintenance were confirmed to be performed. It was noted that timely evaluation was generally performed on test results and corrective actions taken as required. On several occasions, it was found that increased test frequencies and corrective actions were taken as a result of IST. However, it was noted in regard to very short (under 10 seconds) stroke time testing that seven times in the last 3 months test frequencies were reduced to normal after an engineering evaluation of previous test cycles. The observed pattern, an example of which is valve GT HZ 06, was that after several quarterly test with about 5-second stroke times, one test was performed with a 2-second stroke time result. A subsequent test at 5 seconds resulted in the Code required increased frequency to monthly testing (IKV-3417). Then after several monthly tests with stroke times of 5 seconds, the IST engineer evaluated the test data and determined that personnel error had occurred on the 2-second test. With that disposition, the frequency would be returned to quarterly. The pump and valve events log narrative did not adequately support the disposition or "Personnel Error" as stated. The NRC inspector concluded that this matter was a weakness in the evaluation process.

5. Pump and Valve Events Log

The licensee's IST engineer, in addition to other responsibilities, maintains a pump and valve events log (Administrative Procedure ADM-02-301, Section 4.1.5.6). The log is to be maintained in narrative format and entries made when a pump (or valve) has results in the action or alert range. The log is also used to record other pertinent information concerning IST.

The NRC inspector reviewed the entries made during the period January 1987 through January 1988, in conjunction with a review of pump test results recorded on "Pump Test Summary Data Forms" (Attachment 1 of Procedure ADM-02-301) for pumps PAL01A, PEN01A, PET01A, and PEG01A as noted above.

During the review, the NRC inspectors observed that the pump test summary data form entries for test run results for pump PEN01A (containment spray) on March 31 and June 30, 1987, respectively, reflected an alert status.

The pump testing frequency was increased accordingly for each instance; however, the pump and valve events log did not contain a narrative entry, as required indicating the pump alert status on the above dates. Although the IST program was being implemented, this item is a violation for failure to document test run results for pump PEN01A that reflected an alert status as required (482/8811-03).

6. Test Witness

The performance of surveillance test STS GT-205 was witnessed on February 24, 1988. Four valves were tested and the testing was uneventful.

7. Qualification and Training

The NRC inspectors verified that a "Standing Order" was issued for the personnel qualifications for the selected pump and valve sample and for the witnessed tests.

8. Unresolved Item

An unresolved item is one about which more information is required in order to determine if the item is acceptable, a violation, or a deviation. There is an unresolved item in paragraph 4 of this report; it concerns flow calculations.

9. Exit Interview

The NRC inspectors met with the licensee representatives (denoted in paragraph 1) at the conclusion of the inspection on February 26, 1988. The NRC inspectors summarized the purpose, scope, and findings of the inspection.