U. S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT
REGION IV

IE Inspection Report No. 50-267/78-16

Docket No. 50-267 License No. DPR-34

Licensee: Public Service Company of Colorado
P. O. Box 840
Denver, Colorado 80201

Facility Name: Fort St. Vrain Nuclear Generating Station

Inspection At: Fort St. Vrain Site, Platteville, Colorado

Inspection Conducted: October 16-20, 1978

Inspectors: G L Madsen for 11/3/78
M. W. Dickerson, Reactor Inspector Date

E A Cupp 11/3/78
E. A. Cupp, Reactor Inspector (Training) Date

Approved By: G L Madsen 11/3/78
G. L. Madsen, Chief, Reactor Operations and Nuclear Support Branch Date

Inspection Summary

Inspection on October 16-20, 1978 (Report No. 50-267/78-16)
Areas Inspected: Routine, unannounced inspection of organization and administration; QA program review; 70% power level data review; review of startup report; review of event reports; review of IE Bulletins and Circulars; followup on inspector identified and unresolved problems; and followup on items of noncompliance. The inspection involved seventy-two (72) inspector-hours onsite by two (2) NRC inspectors.
Results: No items of noncompliance or deviations were identified.

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DETAILS

1. Persons Contacted

Public Service Company of Colorado

M. Block, Senior Results Engineer
*L. Brey, Manager, QA
W. Franek, Results Supervisor
*J. Gamm, Supervisor, Technical Services
E. Hill, Supervisor Operations
*W. Hillyard, Superintendent, Administrative Services
F. Mathie, Superintendent, Operations
M. McBride, Engineering Coordinator
H. Revie, Senior QA Technician
J. Solakiewicz, QA Engineer
*C. Tracy, Superintendent, Operations QA
R. Wadas, Training Supervisor
*D. Warembourg, Nuclear Production Manager

*Attended exit interview.

2. Licensee Action on Previous Inspection Findings

(Closed) Inspector Followup Item (50-267/77-10): Surveillance of pipe supports and restraints. The licensee approved surveillance procedure SR 5.3.8.d-R, "Hydraulic Snubber Functional Test," on October 16, 1978 for inspection and testing of snubbers.

(Closed) Unresolved Item (50-267/78-06): Completion of CN 763. Change Notice 763 has been completed and functional testing of Level Switches 21385, 21440, 21441, 21451, 21452, 21453, 2498-1, 2498-2, 21499-1, 21499-2, 21500-1, 21500-2, 21501-1 and 21501-2 has been completed.

(Closed) Item of Noncompliance - Infraction (50-267/78-13): Failure to follow procedure. The adherence to Administrative Procedure ADM-28 has been discussed by the licensee with the Operating Supervisor and Shift Supervisor who were instructed to ensure that all requirements are being met on a continuing basis.

3. Review of Quality Assurance Program

The inspector reviewed the licensee's QA Program for changes that had been made since the previous QA Program inspection and verified that any changes made were in conformance with 10 CFR 50, Appendix B, and applicable codes, standards and regulatory guides. Any changes were reviewed with personnel having responsibilities for implementing the changes and any procedures which required changes were also reviewed.

During the inspection, it was noted that temporary changes to the Quality Assurance Inspections (QAI) and Quality Assurance Procedures (QAP) were not being utilized in accordance with the requirements of QAI-1, "Guidelines for Preparation and Issuance of Quality Assurance Documents and

General QA Department Administrative Controls." These requirements included bi-monthly review of changes and incorporation within 30 days of any changes determined to be permanent. A change to QAI-1 was procured and approved during the inspection which now requires that temporary changes be reviewed quarterly and those changes that are to be made permanent be incorporated into the documents.

No items of noncompliance or deviations were identified.

4. Organization and Administration

The inspector reviewed records, shift schedules, the FSAR, Technical Specifications and conducted discussions with representatives of the licensee to verify that:

a. The licensee's on-site organization structure is as described in the Technical Specifications.

b. Personnel qualification levels, authorities and responsibilities are in conformance with applicable codes and the Technical Specifications.

c. Minimum shift crew composition and licensed personnel requirements are as required by the Technical Specifications.

d. The Plant Operations Review Committee and the Nuclear Facility Safety Committee are as described in the Technical Specifications.

Recent organizational changes have resulted in the preparation of a Technical Specification change which is in the process of being submitted to the NRC. The change will reflect appropriate modifications to the Plant Operations Review Committee (PORC) and the Nuclear Facility Safety Committee (NFSC).

The changes included the elimination of the position of Superintendent of Maintenance and the creation of the positions of Superintendent Administrative Services, Scheduling/QC Supervisor, and Senior Maintenance Supervisor.

The Superintendent Administrative Services will be responsible for the scheduling QC, training, security, stores and clerical areas. Now included in the Superintendent of Operations responsibilities is maintenance. This is accomplished through the Senior Maintenance Supervisor who reports directly to the Superintendent of Operations.

No items of noncompliance or deviations were identified.

5. Power Acension Program

a. Scope of Inspection

The inspector reviewed selected test data associated with the power ascension program. Specifically reviewed was the test data developed at 70% power level (Sequence 61, 65 and 68).

Included in the reviews were the licensee's evaluation of the data, test changes, test deficiencies, data sheets, QA audits, and test data approval.

Reviewed were sequences 53, 61, 65, 68, the approval for deletion of sequences 47-52, 54-60, 62-64 and 66-67, Technical Review Committee Meeting Minutes for meeting Nos. 18 and 19 and the records for QA surveillance conducted in accordance with QA Surveillance Procedures 201, 401 and 601:

b. Inspection Findings

(1) QA Surveillance

QA surveillance of the test data is being conducted on a 100% basis. While some administrative problems are being identified, timely corrective action is generally resolving the problems.

(2) Steam Generator Performance

Steam generator performance at 70% power was considered acceptable. During the sequence 61, 65 and 68 tests (70% power), an average reheat temperature of approximately 1011°F was achieved with an average main steam temperature of 980°F. Maximum measured crossover tube temperature was 849°F.

(3) Helium Purification System

Detectable levels of nitrogen continue to be observed at the discharge of the purification system.

(4) Gas Chromatograph Calibration

Calibration of gas chromatograph continues to exceed acceptance valves of ± 30.

(5) PCRV Heat Loads

Based upon the PCRV heat load data taken during the test, the heat load experienced in the lower barrel section was 107% of the specified acceptance criteria.

(6) PCRV Liner Cooling

PCRV liner cooling tubes continue to run at delta T's greater than expected. Tube delta T's of 33°F and 42°F were experienced in the core support floor and 25°F in the bottom barrel. The high PCRV liner cooling tube delta T's will be followed closely during future testing.

(7) Helium Leak Rate

The helium leak rate continues to be higher than desired. The average helium loss during this test (at 70% power) was 63 pounds per day. Excessive helium flow to the PCRV interspace was indicated. Subsequent investigation indicated the primary closure seal on C circulator was the prime source.

(8) Nuclear Instrument Decalibration

Decalibration of the nuclear instrumentation as a function of the control rod positions continue to be observed.

(9) Temperature Coefficient/Temperature Defect

The temperature coefficient was measured during sequence 61 (70% power) over a load change from 69% of rated to 32% of rated and back to 69% of rated. During the temperature decrease, the measured temperature coefficient at 1235°F was $-4.01 \times 10^{-5}$ $\Delta\rho/°F$ compared to the predicted value of $-3.93 \times 10^{-5}$ $\Delta\rho/°F$. During the return of 69% power, the measured temperature coefficient at 1225°F was $-4.10 \times 10^{-5}$ $\Delta\rho/°F$ compared to the predicted $-3.95 \times 10^{-5}$ $\Delta\rho/°F$. The temperature defect from 80°F to 1300°F was 0.062 $\Delta\rho$ vice the predicted value of 0.067 $\Delta\rho$.

(10) Iodine Probe Analysis

The measured circulating I-133 level was 5.1% of anticipated and circulating I-135 level was 1.4% of anticipated. The results were considered acceptable.

(11) Circulator Trip

The comparison between the predicted and measured plant performance following a circulator trip (sequence 65) was considered acceptable.

(12) Loop Shutdown

The loop shutdown test was performed during sequence 68 (4/14/78) at which time the main steam temperature control was not in full automatic and the automatic adjustment of the

main steam and reheat steam temperature set points with load were not in use. Following the shutdown, the throttle pressure experienced a transient of 28 psi and -314 psi. A droop in throttle pressure resulted from latch up of the feedwater flow controller at $\leq$50% flow. This resulted in loss of throttle pressure control.

Data available from a loop shutdown which occurred on June 6, 1978, when the main steam temperature controller was in full automatic and with automatic adjustment of the main steam and hot reheat steam temperature set points with load, indicated an initial overshoot in throttle pressure of 86 psi. It then returned to its original value under automatic control of the operating loop feedwater flow. At this time the feedwater flow had dropped to 50% of rated and the feedwater controller latched. This resulted in a 314 psi droop similar to that experienced on April 14, 1978.

The predicted variation in main steam temperature following a loop shutdown was +18°F and -20°F. During the test on April 14, 1978 a +46°F was experienced while following the loop shutdown on June 6, 1978 a 25°F increase followed by a 70°F decrease in main steam temperature occurred. Thus, it appears that during a loop shutdown that using the first stage pressure to adjust the reheat steam temperature set points results in excessive adjustments. Additionally, the feedwater flow controller latch up results in loss of control of the main steam pressure.

No items of noncompliance or deviations were identified.

6. Startup Reports

The inspector reviewed the seventh Fort St. Vrain Startup Report. The report covering the period February 22, 1978 through May 22, 1978, was reviewed in the Region IV office.

No items of noncompliance or deviations were identified.

7. Review of Bulletins/Circulars

The inspector verified by record review, observation and discussion with representatives of the licensee, the action taken in response to IE Circular 78-13, Limitorque Valve Actuators.

No items of noncompliance or deviations were identified.

8. Review of Licensee Event Reports

The inspector verified that licensee event reporting activities were in accordance with Technical Specification, Section 7, including identification of details, corrective action, review and evaluation, aspects of operations and accuracy of reporting.

The following reports were reviewed by the inspector:

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| RO 77-22A | RO 78-23 |
| RO 78-03 | RO 78-24 |
| RO 78-15 | RO 78-26 |
| RO 78-21 | |

No items of noncompliance or deviations were identified.

9. Exit Interview

An exit interview was conducted on October 20, 1978. At the interview the inspectors discussed the findings indicated in the previous paragraphs. The licensee acknowledged these findings.