

APPENDIX B

U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-267/87-21

License: DPR-34

Docket: 50-267

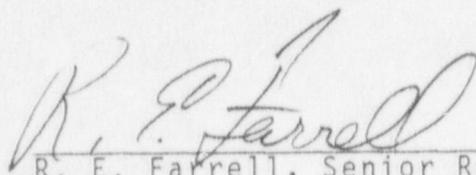
Licensee: Public Service Company of Colorado (PSC)

Facility Name: Fort St. Vrain Nuclear Generating Station

Inspection At: Fort St. Vrain (FSV) Nuclear Generating Station,
Platteville, Colorado and PSC Offices, Denver,
Colorado

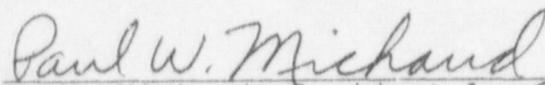
Inspection Conducted: August 1-31, 1987

Inspectors:



R. E. Farrell, Senior Resident Inspector (SRI)

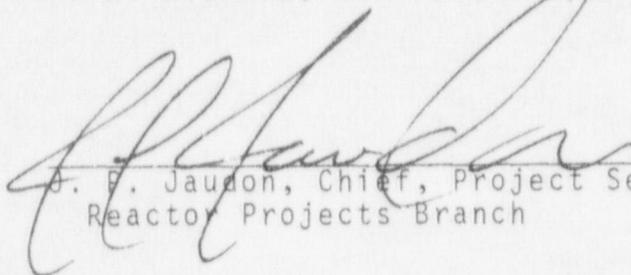
9-9-87
Date



P. W. Michaud, Resident Inspector (RI)

9-9-87
Date

Approved:



P. P. Jaudon, Chief, Project Section A
Reactor Projects Branch

9/21/87
Date

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Inspection SummaryInspection Conducted August 1-31, 1987 (Report 50-267/87-21)

Areas Inspected: Routine, unannounced inspection of licensee action on previous inspection findings, operational safety verification, monthly surveillance observation, monthly maintenance observation, region peaking factor surveillance, security, and radiological protection.

Results: Within the seven areas inspected, one violation was identified (inadequate procedures for control of radioactivity, paragraph 8).

DETAILS1. Persons ContactedPrincipal Licensee Employees

- D. Alps, Supervisor, Security
- L. Bishard, Supervisor, Reactor Maintenance
- *F. Borst, Manager, Support Services/Radiation Protection
- L. Brey, Manager, Nuclear Licensing and Fuels
- *J. Capone, Licensing Engineer, NLO
- R. Craun, Manager, Nuclear Site Engineering
- D. Evans, Superintendent, Operations
- *M. Ferris, Manager, QA Operations
- W. Franek, Superintendent, Planning/Scheduling and Stores
- *C. Fuller, Station Manager
- J. Gramling, Supervisor, Nuclear Licensing Operations
- *M. Holmes, Manager, Nuclear Licensing
- M. Joseph, Supervisor, Technical Services
- F. Novachek, Manager, Technical/Administrative Services
- G. Redmond, Supervisor, Maintenance QC
- T. Schleiger, Supervisor, Health Physics
- N. Snyder, Superintendent, Maintenance
- *P. Tomlinson, Manager, QA
- R. Walker, Chairman of the Board and CEO
- *D. Warembourg, Manager, Nuclear Engineering
- *R. Williams Jr., Vice President, Nuclear Operations

The NRC inspectors also contacted other licensee and contractor personnel during the inspection.

*Denotes those attending the exit interview conducted September 1, 1987.

2. Followup of Licensee Action on Previously Identified Findings

(CLOSED) Violation (267/8430-02): Portions of the Licensee's QA Program Were Not Documented. The final safety analysis report (FSAR) applied certain portions of the licensee's QA program to the ACM equipment, fire protection equipment, and plant security system. This was not documented by written policies, procedures, or instructions. The ACM components have been incorporated into the plant component data base as safety-related items. Fire protection and security components have been assigned a special identifier in the plant component data base. Administrative Procedure Q-2, Quality Assurance Program, was revised to include ACM, fire protection, and security equipment in the licensee's QA program. This item is closed.

(CLOSED) Unresolved Item (267/8430-03): Inadequate Safety-Related List. This issue concerned a change notice (CN), CN 1469, which had been initiated on October 2, 1982, to classify components as safety-related Classes 1 and 2. This CN had not been issued as of December 1984, and the

question of whether some safety-related components were not included on the safety-related components list was considered unresolved. CN 1469 was never issued because of difficulties in using its proposed method of equipment classification. The safety-related components list has been revised to include Non-Class 1 equipment (alternate cooling method, fire protection, and security) and Administrative Procedure Q-2, Quality Assurance (QA) Program, was revised to also include this equipment in the QA program. These actions sufficiently address this issue and this item is considered closed.

(CLOSED) Deviation (267/8430-04): Failure to Meet Commitment Date. The licensee committed in Letter Serial P-84194 of July 6, 1984, to complete CN 846C, installation of six zones of fire detection equipment and an oil mist detection system, during October 1984. This CN was not completed as of December 1984, and was considered a deviation. CN 846C has been completed and closed, and no other failures to notify the NRC of delays in commitment dates has been identified. This item is closed.

(CLOSED) Deviation (267/8415-06): Failure to Perform Independent Checks of Plant Operations Shift Turnover Activities. In a revised response to this deviation, Letter Serial P-86387, dated May 23, 1986, the licensee committed to evaluate shift turnover activities on at least a semi-annual basis through QA monitoring activities. The NRC inspectors verified that monitoring of plant operations shift turnover activities had been performed on a quarterly basis by QA since January 1985, which is more frequent than required by the licensee's commitment. This item is closed.

3. Operational Safety Verification

The NRC inspectors reviewed licensee activities to ascertain that the facility is being operated safely and in conformance with regulatory requirements and that the licensee's management control system is effectively discharging its responsibilities for continued safe operation.

The review was conducted by direct observation of activities, tours of the facility, interviews and discussions with licensee personnel, independent verifications of safety system status and limiting conditions for operation, and review of facility records.

Logs and records reviewed included:

- . Shift supervisor logs
- . Reactor operator logs
- . Equipment operator logs
- . Auxiliary operator logs
- . Technical Specification compliance logs
- . Operations order book
- . Operations deviations reports
- . Clearance log
- . Temporary configuration reports
- . Station service requests (SSR)

The NRC inspectors observed proper control room staffing and attentiveness by the operators to their assigned duties. The status of control room annunciators was checked to ensure the control room operators were aware of the reasons certain annunciators are lit. Instrumentation operability was verified by the NRC inspectors and different channels of instrumentation for the same parameter were compared to check their agreement. Several shift turnovers were observed by the NRC inspectors to ensure a proper briefing on plant status was presented.

During tours of accessible areas, particular attention was directed to the following:

- . Monitoring instrumentation
- . Radiation controls
- . Housekeeping
- . Fluid leaks
- . Piping vibrations
- . Hanger/seismic restraints
- . Clearance tags
- . Fire hazards

No violations or deviations were identified.

4. Monthly Surveillance Observation

The NRC inspectors observed the performance of Surveillance Test SR-OP-26-W, PCRV Liner Cooling System Flow and Temperature Checks. This weekly surveillance assures the accuracy of the system remote flow and temperature instrumentation. No discrepancies were noted during the performance of this surveillance.

Surveillance Test SR-EL-8-A, Annual Station Battery Check, was performed on both the "A" and "B" station batteries. The "A" battery had one of the 58 cells (Cell 40) out-of-service prior to this test. The discharge test was performed satisfactorily, but the extended recharge showed Cell 12 to have failed (voltage decreased during charging, got hot, and stopped bubbling). This resulted in only 56 operable cells in the "A" battery, a condition for which no operability data (i.e., load tests) was available. The licensee decided to remove two cells from the "B" station battery and perform the surveillance test with 56 cells. This was completed successfully and provides assurance that 56 cells can meet the requirements for 1 battery. One of the cells disconnected from the "B" battery was reconnected prior to the extended recharge. The other cell from the "B" battery will be used to replace the failed cell 12 in the "A" battery. Thus, the licensee will have 2 operable station batteries with 57 cells each and assurance that 56 cells are capable of meeting capacity requirements. The licensee is making plans to replace both batteries.

No violations or deviations were identified in this inspection area.

5. Monthly Maintenance Observation

The NRC resident inspectors closely monitored activities associated with the replacement of "D" helium circulator, including planning and scheduling, mechanical work, tests, supervision and management involvement, and evaluation of the failed circulator.

The schedule for replacement of the circulator, based on previous experience, was estimated to 6 weeks, with 4 weeks estimated as the shortest possible time. The changeout was completed in 18 days for all mechanical work. This included a 2-day delay to replace a damaged pelton wheel on the new circulator. The NRC inspectors concluded that this was the result of good planning and material control; specifically, it was noted that having the individual dedicated to supervising only the circulator replacement effort made that task visible and controlled.

The damaged circulator was shipped offsite for analysis and evaluation after removal. The licensee's engineering staff kept the NRC informed on the status of this evaluation on a regular basis. At the end of this report period, a root cause had not been established, although several damaged parts had been identified. It should be noted that the damage was on the secondary (steam turbine) side of the circulator and although fairly extensive, the circulator continued to run until shut down by the operators.

The NRC inspectors observed preparations on the new circulator, including cleaning of the primary and secondary seals, lapping of the lower seal, and replacement of the new circulator into the PCRV. Hydraulic ram operation was monitored by the NRC inspectors. During the insertion of the internals assembly (steam supply and pelton wheel supply and return), the pelton wheel on the new circulator was damaged. The internals assembly had been initially aligned but was inserted without ensuring it remained in alignment. As the assembly reached the top of the penetration, the internals assembly slipped out of alignment and contacted the pelton wheel. Two buckets on the pelton wheel were bent. The pelton wheel was removed and replaced with the one from the damaged circulator.

After completion of the circulator replacement, all piping was flushed and instrumentation calibrated. The new circulator was self-turbining but had not yet been operationally tested at the end of this report period.

No violations or deviations were identified in this inspection area.

6. Region Peaking Factor Surveillance

The NRC resident inspectors reviewed Surveillances SR-5.1.7.a-X, "Calculated Region Peaking Factors," and SR-5.1.7.b-X, "Region Peaking Factor Discrepancies," performed on July 31, 1987. The purpose of this review was to ensure that region peaking factors (RPFs) are being maintained in conformance with regulatory requirements and that a satisfactory management system exists for control of RPFs. The NRC

inspectors reviewed Technical Specifications 4.1.7 and 5.1.7 and FSAR Section 3.6.6 to determine the requirements for periodic review of RPFs and for calculation of individual RPFs and per cent discrepancies.

The input data for both the calculated and measured RPFs was reviewed by the NRC inspectors to verify the accuracy of the calculated RPFs and per cent discrepancies. A check of the calculations for all per cent RPF discrepancies and correction factors by the NRC inspectors showed no significant differences in the results. The calculations were performed in accordance with the Technical Specifications and corrected RPFs were generated for five of the comparison regions (21, 22, 23, 29, and 31). The licensee is performing this surveillance more frequently than required by Technical Specification 5.1.7.

No violations or deviations were identified in this inspection area.

7. Security

The NRC inspectors verified that there was a lead security officer (LSO) on duty authorized by the facility security plan to direct security activities onsite for each shift. The LSO did not have duties that would interfere with the direction of security activities.

The NRC inspectors verified, randomly and on the backshift, that the minimum number of armed guards required by the facility's security plan were present. Search equipment, including the x-ray machine, metal detector, and explosive detector, were operational or a 100 percent hands on search was being utilized.

The protected area barrier was surveyed by the NRC inspectors. The barrier was properly maintained and was not compromised by erosion, openings in the fence fabric, or walls, or proximity of vehicles, crates or other objects that could be used to scale the barrier. The NRC inspectors observed the vital area barriers were well maintained and not compromised by obvious breaches or weaknesses. The NRC inspectors observed that persons granted access to the site are badged indicating whether they had unescorted or escorted access authorization.

No violations or deviations were identified in this inspection area.

8. Radiological Protection

The NRC inspectors observed health physics professionals on duty on all shifts. Supervisors and managers were observed taking an active part in activities involving radiological concerns. Health physics technicians were observed checking area radiation monitors and air samplers, and performing surveys for radioactive contamination.

The NRC inspectors reviewed licensee Procedure G-20, the licensee's new ALARA implementation procedure, which became effective August 4, 1987. This procedure specifies responsibilities, training goals, audits, and

establishes an ALARA committee to provide assistance on design reviews, job planning, and evaluation of exposures, policy, and suggestions. Health physics personnel were very aware of the need for ALARA and actively demonstrated compliance with the ALARA program during the circulator replacement effort.

The NRC inspectors examined one radiation work permit (RWP) during the circulator replacement task. The RWP contained the required information concerning the job description, radiation and contamination levels, protective clothing and dosimetry requirements, and the appropriate signatures. The NRC inspector entered the radiological controlled area (RCA) and observed the proper implementation of the RWP requirements. Personnel were observed exiting the RCA and properly removed their protective clothing and frisked themselves. The licensee's health physics organization maintained a high degree of controls and coverage during the entire circulator replacement.

The NRC inspectors observed the preparation and shipment of the damaged helium circulator. Licensee Procedure HPP-30, Standard Radioactive Material Shipment Checkoff List - Low Specific Activity, was reviewed and found complete and acceptable. The NRC inspectors witnessed loading and securing of the shipping cask, surveys of the cask and truck, posting of radiation placards, and instruction of the driver. Also reviewed were the bill of lading and the licensee's radioactive material removal record. No discrepancies in the shipment or associated paperwork were noted.

During a review of plant logs on August 20, 1987, the NRC inspectors noted an entry in the shift supervisor's log for August 18, 1987, that an individual had set off the portal monitor when exiting the site without returning to walk through again or be checked by health physics personnel. The NRC inspectors contacted the radiation protection manager and health physics supervisor, who explained that a security guard had observed the portal monitor alarm and had allegedly yelled at the individual to stop without success. The licensee was unable to reach the individual at home for over two hours. After contacting the individual at home, the licensee instructed him to bag all clothing he had worn and return to work the next morning with the clothes and in the same vehicle. This action was based on the fact that the individual had showered and changed clothes at the plant prior to exiting the protective area and health physics having performed a survey of the security building. Surveys of the individual's clothing and vehicle the next day showed no detectable activity.

The NRC inspector interviewed the individual who had set off the portal monitor and the security guard who allegedly yelled at him to stop. The individual claimed he did not hear the portal monitor alarm nor anyone having yelled at him to stop. The security guard claimed the individual was at the turnstile, which is out of sight of the guard, when the portal monitor alarm sounded and that he yelled at the individual to stop as the turnstile was moving as evidenced by a clicking noise. The NRC inspectors had health physics set off the portal monitor with a check source to determine: if a person could make it out the door before the portal

monitor alarm sounded, and whether the alarm was of sufficient volume for a person inside the door to hear it. After setting off the portal monitor numerous times it was not possible to make it to the turnstile before the alarm sounded. However, a number of people interviewed claimed that spurious alarms occasionally occur where the person has made it to the turnstile. The volume of the portal monitor alarm was marginally acceptable. Anyone who is aware of and sensitive to the importance of the portal monitor would be likely to hear it. It may be possible, though unlikely, that a person who is not paying attention would not hear the alarm. A change request has been issued by the licensee to make the portal monitor alarm louder.

The NRC inspector questioned why the individual, whether he heard the alarm or not, was allowed to leave the site when security personnel had heard the alarm. The licensee stated that it was the individual's responsibility and not in the security plan and thus not the security organization's responsibility. Further questioning determined that no responsibility is assigned nor is any contingency plan in existence to deal with control of contamination at the protective area boundary should an individual willfully or mistakenly avoid proper response to a portal monitor alarm. Technical Specifications require that there be procedures to control radioactivity. The failure to have such a procedure in this case is an apparent violation (267/8721-01). Interim measures were taken to require security to take a more active role in preventing a potentially contaminated individual from exiting the protected area.

No other violations or deviations were identified in this inspection area.

9. Exit Meeting

An exit meeting was conducted on September 1, 1987, attended by those identified in paragraph 1. At this time the NRC inspectors reviewed the scope and findings of the inspection.