

APPENDIX B

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-267/88-07

Operating License: DPR-34

Docket: 50-267

Licensee: Public Service Company of Colorado (PSC)
2420 West 26th Avenue, Suite 15c
Denver, Colorado 80211

Facility Name: Fort St. Vrain Nuclear Generating Station (FSV)

Inspection At: FSV, Platteville, Colorado

Inspection Conducted: March 1-31, 1988

Inspectors: *R.P. Mullikin* 5/12/88
for R. E. Farrell, Senior Resident Inspector
Reactor Project Section B Date

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R. P. Mullikin, Reactor Inspector, Plant
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T.F. Westerman for 5/12/88
K. L. Heitner, NRR Project Manager Date

Approved: *T.F. Westerman* 5/12/88
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Section B, Division of Reactor Projects Date

Inspection SummaryInspection Conducted March 1-31, 1988 (Report 50-267/88-07)

Areas Inspected: Routine, unannounced inspection including followup of licensee action on previously identified findings, operational safety verification, review of 10 CFR Part 21 reports, licensee action on licensee event reports, engineered safety features (ESF) walkdown, region peaking factor surveillance, 10 CFR 50.59 safety evaluations, monthly surveillance observation, monthly maintenance observation, radiological protection, and monthly security observation.

Results: Within the 11 areas inspected, 3 violations were identified (failure to adhere to approved procedures and drawings, deficient procedure, and failure to comply with repair procedure, paragraphs 3, 6, and 10).

DETAILS1. Persons ContactedPrincipal Licensee Employees

- D. Alps, Supervisor, Security
- *L. Brey, Manager, Nuclear Licensing and Fuels
- *F. Borst, Manager, Nuclear Training
- R. Craun, Manager, Nuclear Site Engineering
- D. Evans, Superintendent, Operations
- *M. Ferris, Manager, QA Operations
- *C. Fuller, Station Manager
- *D. Goss, Coordinator, Nuclear Licensing
- *J. Gramling, Supervisor, Nuclear Licensing Operations
- *M. Holmes, Manager, Nuclear Licensing
- *M. Lehr, Supervisor, QA Engineering
- *L. McBride, Manager, Nuclear Fuels and Analysis
- M. Niehoff, Manager, Nuclear Design
- *F. Novachek, Manager, Technical/Administrative Services
- *J. Reesy, Staff Assistant, Nuclear Engineering
- *L. Scott, Manager, QA Services
- *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 April 7, 1987.

2. Followup of Licensee Action on Previously Identified Findings

(Closed) Deviation 267/8520-01: Failure of Electrical Power Supply to Conform to FSAR. A technical review conducted by the NRC staff determined that the automatic closure of one emergency diesel generator (EDG) breaker was dependent on the operation of components associated with the other EDG. Upon further review, additional concerns relative to EDG independence were discovered. The NRC inspectors confirmed modifications had been completed to the EDG circuitry to meet single failure criteria as documented in NRC Inspection Report 50-267/86-32. In a letter dated March 12, 1987, the NRC staff concluded that all major concerns about the electrical independence of the EDGs and their manual and automatic control systems have been resolved. This item is closed.

(Open) Open Item 267/8722-02: Instructions to Shift Breathable Air Compressor Suction Not in Emergency Procedures. The licensee has revised procedure EP-I, "Discussion of Fire," to include Step 3.19, which

instructs personnel to swap the suction of the breathable air compressors following a report of a fire or smoke in the area. However, Procedure EP-H2, "Abnormal Radioactive Gas Release From Plant," was not revised to include similar instructions. This item will remain open pending the inclusion of instructions to shift the suction of the breathable air compressors following a radioactive gas release in Procedure EP-H2.

3. Operational Safety Verification

The NRC resident 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 NRC inspectors toured the control room on a daily basis during normal working hours and at least twice weekly during backshift hours. The reactor operator and shift supervisor logs and Technical Specification compliance logs were reviewed daily. The NRC inspectors observed proper control room staffing at all times and verified operators were attentive and adhered to approved procedures. Control room instrumentation was observed by the NRC inspectors and the operability of the plant protective system and nuclear instrumentation system were verified by the NRC inspectors on each control room tour. Operator awareness and understanding of abnormal or alarm conditions were verified. The NRC inspectors reviewed the operations order book, operations deviation report (ODR) log, clearance log, and temporary configuration report (TCR) log to note any out-of-service safety-related systems and to verify compliance with Technical Specification requirements.

The licensee's station manager and superintendent of operations were observed in the control room on a daily basis, with the superintendent of operations in the control room during any abnormal evolutions.

The NRC inspectors verified the operability of a safety-related system on a weekly basis. The emergency diesel generators air starting and cooling water systems, firewater system, emergency feedwater system, and helium circulator emergency bearing water system were verified operable by the NRC inspectors during this report period. During plant tours, particular attention was paid to components of these systems to verify valve positions, power supplies, and instrumentation were correct for current plant conditions. General plant condition and housekeeping was acceptable, but certain areas required additional effort for housekeeping cleanliness. This was discussed with the licensee's management and corrective action has been initiated.

Shift turnovers were observed at least weekly by the NRC inspectors. The information flow appeared to be good, with the shift supervisors routinely soliciting comments or concerns from reactor operators, equipment operators, and auxiliary tenders.

While performing a walkdown of the emergency diesel generators air starting systems on March 21, 1988, the NRC inspector found two valves open which should have been shut. Valves V-9216, "B" diesel generator starting air cross-connect isolation, and V-92130, "B" diesel generator air compressors cross tie to "A" diesel generator starting air receivers, are shown as normally shut on Drawing PI-92-2, Issue J. Procedure IVL-92-04, Issue 1, "Integrated System Valve Lineup and Checklist for Emergency Diesel Generators," also requires both of these valves to be shut. This procedure provides the necessary valve configuration for system startup and provides an independent check of valve positions.

The NRC inspector verified the "A" emergency diesel generator air system cross-connect isolation valves were, in fact, shut, which verified that the "A" and "B" equipment were not cross-connected. Upon notification of this finding by the NRC inspector, the licensee immediately performed a valve lineup check in accordance with Procedure IVL-92-04. The licensee completed this valve lineup the same evening, and no additional valves were found out of position. The last previous time this valve lineup had been performed was on March 14, 1987.

Some confusion existed immediately after the licensee completed the valve lineup procedure, due to an erroneous report that all four cross-connect isolation valves were found open. This was resolved and verified to be incorrect after discussions with the licensee personnel who performed the lineup verification. The NRC inspectors also reviewed the equipment operator's log sheets for the prior 3 weeks and found a 5 to 10 psi difference in the "A" and "B" air receiver pressures on an almost daily basis. This indicated they were not cross-connected. The licensee, at NRC inspector request, purposefully opened all the cross-connect isolation valves on March 22, 1988, to determine whether the pressures in the "A" and "B" air receivers would equalize, which they did. This verified that the previously observed differences in receiver pressure were real and not just gauge differences.

The licensee was unable to determine when, or for what reason, Valves V-9216 and V-92130 were placed in the open position. Because of the potentially serious safety significance which could be associated with the "A" and "B" diesel generator air systems cross-connected, the NRC inspectors met with licensee management to discuss the implications of this finding. The licensee recognized the importance of maintaining these systems separate and independent. As a result of this event, the four cross-connect isolation valves and two additional valves in the diesel generator air start system have been sealed shut and placed on the licensee's sealed and critical valve checklist.

The licensee was informed that the failure to adhere to approved procedures and drawings is an apparent violation of NRC requirements (267/8807-01).

On March 30, 1988, at 2:29 p.m. (MST), the NRC inspectors entered the control room and observed the door between the control room and the control room locker room in Building 10 wide open with the automatic door closer disconnected. The NRC inspectors examined the door and door latch, found both fully functional and inquired of licensee personnel why the door was open. (Note: this is not a security door but does constitute a control room ventilation system boundary.) The licensee stated that the door closer was broken and undergoing maintenance. There was no maintenance in progress, however, when the NRC inspectors found the door open. The control room ventilation system is designed to keep the control room atmosphere at a positive pressure relative to other parts of the plant. The control room ventilation system cannot keep the control room at positive differential pressure with respect to other plant areas if it is open to other plant areas and ventilation zones. Licensee operations management cautioned all control room personnel on all shifts of the importance of keeping this door closed.

The NRC inspectors routinely toured the facility throughout the inspection period. During these tours, several minor deficiencies were noted in both safety-related and non-nuclear safety areas as follows:

- o Compressed gas bottle safety caps, made of steel and weighing several pounds, were stored loose on top of electrical junction boxes above the reserve shutdown system compressed bottle racks. This entire assembly is safety-related and seismically designed.
- o A meter used either for maintenance or calibration, estimated by the NRC inspectors to weigh between 5 and 10 pounds, was found hanging by a strap from the stem of an unnumbered hand valve on the engine driven firewater pump engine cooling water line. This line supplies cooling water to the diesel driven firewater pump, which supplies safe shutdown cooling water to the plant.
- o A clipboard was found resting on the motor mount of the engine driven firewater pump and directly above the starting batteries and battery leads for this engine.
- o A leather pouch of tools weighing several pounds was found hanging from a 1/4-inch tubing sample tap. This sample tap was at FSH-1128, a flow switch in the reactor pressure vessel auxiliary piping. This equipment is safety-related and Seismic Category 1.
- o The fire door constituting a fire area boundary between the computer room and the auxiliary electric room on Level 6 of the turbine building was found unlatched.
- o Valve V-4509 had a Deficiency Report Tag (DRT) NO. 010169 identifying the valve as leaking. The DRT tag was lying on the ground near the valve and partially destroyed. Another partially destroyed DRT tag whose number the NRC inspector was unable to read was lying on the ground in the same area.

- o A valve labeled Z-711, "Instrument air to service water and circulating water house," located in the north maintenance shop room was missing its handwheel.
- o East of the cooling water tower near the south end of the tower are two groups of valve stems and handwheels coming out of the ground. A group of three included V-41277, V-41278, and an unidentified valve.
- o Valve V-4653 has a remote manual manipulator. The label for this manipulator was painted over and illegible.
- o Roof drain on turbine building roof, elevation 4888, was filled with cigarette butts.
- o Electrical junction box at ground level at the safety rail on the south end of the circulatory water pump pit was missing its cover and all cables were determined. This box was apparently abandoned in place.
- o In the east room of the switchgear area on Level 5 of the turbine building in the southeast corner across from the stairs to the ice jacket storage are two breaker boxes, one large and one small. The small box was observed to be open.

The licensee corrected, or initiated actions, to correct these deficiencies when informed by the NRC inspectors. One violation was identified in the review of this program area.

4. Review Of The 10 CFR Part 21 Reports

The NRC inspector reviewed evaluations performed by the licensee for deviations, conditions, or circumstances identified by users, vendors, or suppliers. The evaluations were performed to determine the applicability of the identified problem to the safe operation of the facility. The evaluations reviewed by the NRC inspector are listed below:

<u>No.</u>	<u>User, Vendor, or Supplies</u>	<u>Subject</u>
86-07	Validyne	Potential transducer failures
86-09	Valcor Valves	Failure of valve springs
86-13	Foxboro	N-E11 and N-E13 transmitter deficiencies
87-02	Inland Steel	Steel lamination defects
87-03	Foxboro	Electrolytic capacitor age degradation
87-04	Airco	Defective weld electrodes

87-06	Atwood and Morrill	Defective stationary sleeve on main steam isolation valves
87-11	General Electric	HFA armature binding
87-20	Automatic Sprinkler Company	Model C valves and Mercury check devices failed to open
87-28	General Electric	Agastat GP series relays improper sealing
87-29	Limatorque	Instructions to maintain torque switch balancing inadequate
87-35	Foxboro	Defective current-to-voltage cards
87-36	Limatorque	Limatorque limit switch rotors warped
87-46	Isomedix	Measurement tolerance concerns on dose and dose rates for qualification tests

No violations or deviations were identified in the review of this program area.

5. Licensee Action On Licensee Event Reports (LERs)

The following LERs were reviewed by the NRC inspectors to verify the specified corrective actions had been completed and to ensure they were effective in preventing a recurrence:

- o LER 85-06 reported that a surveillance test was not performed on fire barrier penetration seals following maintenance. The licensee's work package preparation procedures did not identify the need for the surveillance to be performed following maintenance activities. The required surveillance test was performed on the affected penetration seals following the discovery of this discrepancy. Administrative Procedure G-9, "Controlled Work Procedures," and the Controlled Work Procedure manual now includes the requirement for a technical service engineer to include required technical specification surveillances in controlled work procedures and to notify the shift supervisor of any actions taken to assure compliance with technical specification surveillance requirements. These actions sufficiently address the problem identified in this LER as well as concerns associated with this LER expressed in NRC Inspection Report 50-267/85-07. This LER is considered closed.
- o LER 87-02 identified a single failure point in the EDG control circuitry, which under specific conditions, could cause a loss of

both EDGs. Administrative controls were established to prevent this occurrence until a permanent modification was made. Change Notice 2529 removed contacts in the 480 VAC bus tie breakers control circuitry, eliminating the potential single failure point, and was completed on March 2, 1987. The NRC inspectors verified these modifications were completed satisfactorily as documented in paragraph 8 of NRC Inspection Report 50-267/87-05. This LER is considered closed.

- o LER 87-03 reported an automatic reactor scram signal while shut down due to a loss of 480 VAC Bus 2 and 3 during testing. Personnel error allowed a wire, which had been disconnected for performance of the test, to momentarily contact the terminal, resulting in loss of power to Bus 2 and 3. As a result of this action, the 1B diesel generator received an auto start signal, but the "C" engine failed to start. The 480 VAC Bus 2 and 3 remained de-energized for greater than 30 seconds, which resulted in an automatic scram signal. Corrective actions, which were verified by the NRC inspectors included instruction of personnel to prevent inadvertent circuit actuations during tests involving lifted leads by taping the ends of any lifted leads, and was completed on February 23, 1987. The 1B diesel generator was repaired and recertified as operable following seven consecutive successful daily load surveillance tests ending on March 28, 1987. No further problems of this nature have been observed, and this LER is considered closed.
- o LER 87-09 reported that during an investigation of mechanical snubber classification, the licensee identified seven mechanical snubbers as Class I, which had been previously Class II. These seven mechanical snubbers were replaced on March 18, 1987. A visual inspection of the piping associated with these seven snubbers was performed on March 23, 1987, with no discrepancies noted. The licensee completed a review of all Class I/IA isometric drawings for instrument lines, the entire helium circulator and auxiliary systems, and the steam generating system on May 20, 1987. This review verified all snubbers were identified as Class I, which they were required to be. One new hydraulic snubber was added to Procedure SR 5.3.8.a-X, "Hydraulic Snubbers Visual Inspection," Issue 33, June 2, 1987. The NRC inspectors verified the above actions were completed satisfactorily. This LER is considered closed.

No violations or deviations were identified in the review of this program area.

6. Engineered Safety Features (ESF) Walkdown

The NRC inspectors performed a walkdown of the firewater system and firewater pumps during the inspection period. Although this system is not listed as an ESF in the licensee's updated safety analysis

report (USAR), the firewater system functions as the ultimate heat sink in the event of a design basis accident.

During the inspection period, the NRC inspectors reviewed the pertinent portions of the following documents:

- o USAR Table 1.4-2, "List of Structures, Systems, and Components Required for a Safe Shutdown of the Plant"
- o USAR Sections 4.2.2, 10.3.9, 14.4
- o Technical Specification Limiting Condition of Operation (LCO) 4.2.6
- o System Operating Procedure (SOP) 45-01, Issue 21, "Fire Protection System"
- o Integrated Valve Lineup (IVL) 45-01, Issue 1, "Integrated System Valve Lineup and Checklist for SOP 45-01"
- o Piping and Instrumentation Drawing PI-45, Issue BK, "Fire Protection System"

The NRC inspectors walked down all portions of the firewater system associated with emergency cooling of the reactor and most of the balance of the firewater system.

The system was aligned properly and the diesel driven firewater pump was properly in the auto-start mode. During the walkdown, the NRC inspectors noted a procedural deficiency, which if uncorrected, could cause the diesel driven firewater pump to fail.

Specifically, there is a line approximately 1 1/2-inch diameter from the diesel driven firewater pump discharge to the water pump of the diesel engine. This line provides a continuous flow of cooling water to the diesel engine when it is running. There is an isolation valve, V-45803, "P-45015 (diesel firewater pump) engine cooling isolation," on this line. IVL-45-01 lists this valve and requires that this valve be open. Downstream of V-45803 the cooling water line divides into two parallel lines, one containing an inline filter and the other comprising a bypass to the filter. There are isolation valves upstream and downstream of the filter, and the bypass line also has an isolation valve. Downstream of the filter and the isolation valves, the two parallel lines again join in one line delivering cooling water to the diesel engine driving the firewater pump. None of the three isolation valves, the filter isolation valves nor the filter bypass isolation valve, are identified by valve number either in Procedure IVL 45-01 or on the valves.

Section 4.1.2.4 of SOP 45-01 listed the local inspections required to assure the engine driven firewater pump is standby ready. Item c) of the list states, "Check radiator (full)." The NRC inspectors could not find

a radiator. The procedure was silent regarding the unnumbered engine cooling water isolation valves.

The NRC inspectors verified that the unnumbered valves were in a configuration that provided cooling water to the engine. When the licensee operations management was made aware of the situation, the licensee promptly verified the correctness of the valve positions and tagged the valves to prevent the valves positions from being changed.

This deficiency in the procedure addressing the diesel engine driven firewater pump, which could lead to engine failure, is an apparent violation of NRC regulations. (267/8807-02)

The NRC inspectors had several other observations while walking down the firewater system:

- o Many valves in this system are unnumbered. Every hose station has two valves with only one at each station numbered. Additionally, many small valves associated with deluge valve stations do not have valve numbers. These valves are not addressed in the valve lineup or SOP.
- o Several valves in the firewater system were found missing nuts or screws to hold the handwheel to the valve stem. These are:
 - V-4506
 - V-4579
 - V-45222
 - V-45865
 - V-45866
 - V-45871
 - V-45874
- o Valve V-45823, a line drain is listed as normally closed in IVL-45-01. The NRC inspectors found this valve open. The licensee determined that this valve should be open and advised the inspectors that IVL-45-01 would be corrected.

The licensee corrected, or initiated actions, to correct these deficiencies when informed by the NRC inspectors. One violation was identified in the review of this program area.

7. Region Peaking Factor (RPF) Surveillance

The NRC inspectors reviewed Surveillance Procedures SR 5.1.7.a-X, "Calculated Region Peaking Factors," performed on January 29, 1988, and February 26, 1988, and SR 5.1.7.b-X, "Region Peaking Factor Discrepancies," performed on January 29, 1988, and March 1, 1988. The purpose of this review was to ensure that RPFs are being maintained in conformance with regulatory requirements and that a satisfactory management system exists for control of RPFs. Technical

Specifications 4.1.7 and 5.1.7 and FSAR Section 3.6.6 were reviewed by the NRC inspectors prior to this inspection to verify the requirements for periodic review of RPFs and calculation of individual RPFs and percent discrepancies.

The input data for both the calculated and measured RPFs was reviewed to verify the accuracy of the calculated values. The NRC inspectors independently calculated and verified all percent RPF discrepancy values and correction factors. Corrected values of RPFs for Regions 21, 22, and 29 were generated by the January 29, 1988, surveillance. Regions 21, 22, 23, 29, and 31 had corrected RPFs generated by the March 1, 1988, surveillance. The NRC inspectors verified the licensee is performing these surveillance procedures and controlling RPFs in accordance with the requirements of the Technical Specifications and FSAR.

No violations or deviations were identified in the review of this program area.

8. 10 CFR 50.59 Evaluations

The NRC inspectors reviewed selected 10 CFR 50.59 safety evaluations of changes made to the plant in the last several months. The results of this review are listed below:

- o Change Notice (CN) -1958: Installation of Pneumatic Positioners on High Pressure Separator Drain Valves. This modification concerns the circulator auxiliaries, which must function correctly for safe shutdown of the reactor. This change provides pneumatic positioners for the high pressure separator drain valves. The valves had been modified in an earlier CN (1707). The new positioners provided control over a wider range of flow rates. These valves are safety-related and are part of the circulator auxiliaries required for plant shutdown. Since only the positioner was changed, there are no new safety questions or Technical Specifications involved. The system continues to receive a safety grade air supply from the instrument air systems. The licensee's safety evaluation was acceptable.

- o CN-2056: Removal of the Feedwater Latch Circuit so Feedwater Runback Will Follow High Hot Reheat Temperature Scram. This change concerned automatic control functions in response to abnormal conditions. It could have an effect on the reactor's response in the safety analyses. This change removes a latch circuit which allows a feedwater runback to occur instantaneously upon a high hot reheat temperature scram. This change is safety-related, because it changes the automatic response of the plant to an abnormal condition. This change was properly reviewed by the licensee to determine that it did not result in an unreviewed safety question. A new analysis was done for wet reheat steam, which is not fully described in the FSAR. The CN also contains a new analysis on reheater tube collapse. As a result of reviewing this CN, several open issues were initially identified. First, there appeared to be

a conflict between the CN and the supporting documentation. This concerned the need to modify the reheat steam attemperation flow. At the time of the CN, this was already performed. Yet the CN provided no discussion of this issue. Review of the CN was also hampered by lack of references and discussion of the attemperation system.

The NRC inspectors concluded that the licensee's evaluation was acceptable. However, the licensee's documentation of this CN was not thorough. Internal conflicts existed between the final change and the supporting documents. These conflicts were not resolved or explained in the CN. It was the inspector's observation that other related changes, which had been completed, were not referenced and summarized in this CN description.

- o CN-2136: Pre-Fabrication Installation of Steam Leak Detection System. The new steam leak detection system had an important part in the FSV equipment qualification program. This change allowed the installation of pre-fabricated portions of the new steam line rupture detection and isolation system (SLRDIS). This change only covered pre-fabrication work, and not final installation. This change is safety-related because it involves a new system which will interface with the plant protective system. This change alone did not have the potential to cause an unreviewed safety question. There was no connection to the plant protective system. However, the CN did allow the connection of the SLRDIS panel to non-interruptible instrument Bus 2. As reported in LER 87-026, this led to a system current overload, which was, in retrospect, not properly evaluated. Thus, the CN did not properly evaluate safety significance. There were no technical specifications involved. This case demonstrated to the licensee limitations in the CN process, as noted in LER 87-026.

- o CN-2178: Modification of Helium Circulator Brake and Seal Valves. The helium circulators and their auxiliary systems are required for safe shutdown of the reactor.

The solenoid valve seal and seal materials for the circulator brake and seal systems were changed. The new materials were environmentally qualified to enhance system reliability following a high energy line break. The system was reclassified as Class 1, for safe shutdown. This change is safety-related because the helium circulators are used for safe shutdown. There was no unreviewed safety question. The licensee leak tested the valves and seals with the new materials to assure they were acceptable. There are no Technical Specifications involving these particular components. The licensee's evaluation was complete and acceptable.

- o CN-2396: Removal of Certain Relay Contacts from Auto-Start Circuitry of Emergency Diesel Generators. The operation of the emergency diesel generators is important to safe operation of the reactor. Staff concerns about the automatic control system for the

emergency diesel generators had led to extensive review of this system. This change disconnected two types of relays which provided anticipatory start signals to the emergency diesel generators. The anticipatory start signals are no longer required because a separate undervoltage relay system protects the essential buses. These relays could have contributed to potential system failures. This change was safety-related because it concerned the control system for the emergency diesel generators, which are required for plant shutdown when offsite power is lost. There was no unreviewed safety question involved with this change. This change was actually discussed with and reviewed by the NRC Office of Nuclear Reactor Regulation (NRR). The NRR staff concurred in this action. No Technical Specification changes were associated with this change. Automatic start of the emergency diesel generators as required by the Technical Specifications is provided by the undervoltage relays. The licensee's evaluation was acceptable, but the evaluation did not contain specific references to correspondence or meeting summaries involving the NRC. The CN would have been more complete if these references had been included.

During this review, as described above, several weaknesses were identified involving the processing of CNs. In addition, the NRC inspectors noted that PSC was not initially able to explain fully the changes associated with CN-2056. Clear reference was not provided by the CN to the associated modifications of the attemperation system. It was only at a second meeting that these findings were clarified. Incomplete references were also noted for CN-2396. Complete references to other CNs which support a particular CN should be included in the evaluation.

Further, it was also noted that the FSAR has not been updated to include a description of the reheat steam attemperation system. This FSAR section does not discuss the influence on plant safety considerations of the attemperation system. It was NRC inspectors' observation that while there is no safety issue involved, PSC should consider reviewing the CN development process.

No violations or deviations were identified in the review of this program area.

9. Monthly Surveillance Observation

On March 16, 1988, the NRC inspectors observed the calibration of ZX-2327, Purified Helium Sample Line Pressure Switches, in accordance with Procedure RP-8, "Calibration and Maintenance of Mercoïd Pressure Switches," Issue 3, and Station Service Request (SSR) 88500394, dated March 10, 1988. Two separate Mercoïd switches make up this instrument, and the NRC inspectors observed their proper isolation and removal-from-service, calibration, and return-to-service. No discrepancies were noted.

On March 18, 1988, the NRC inspectors observed the performance of monthly wide range nuclear instrumentation calibration in accordance with Procedure SR 5.4.1.5.c-M, Issue 24, "Wide Range Channel Heat Balance Calibration." Step 5.3.11 of this procedure calls for the technician to "rotate the operate/calibrate switch to position 4 to record bias voltage." While passing through position 1, startup channel 2 became energized. The results department technician immediately recognized this as improper and returned the switch to operate. After a review of the situation with a results engineer and the department supervisor, the step was performed for a second time, which also caused startup channel 2 to become energized. The operate/calibrate switch was then placed in position 2, which caused startup channel 2 to return to a de-energized condition.

An evaluation was made by the licensee, which indicated a startup channel is supposed to remain de-energized under all positions of the operate/calibrate switch when actual reactor power is greater than $10^{-2}\%$ on the corresponding wide range instrument. This apparently was not occurring since the test signal was controlling the state of the startup channel cutout relay. The licensee issued SSR 88501859 and a nonconformance report, which required the testing and repair of the startup channel cutout circuitry at the next unscheduled or scheduled shutdown. A special instruction was issued in the interim to require the technician performing this surveillance test to pass through position 1 rapidly in order to minimize the time the startup channels may be energized while at power.

The safety significance of this action is minimal since there is little probability of damage to the startup channel detectors on momentary energization, although longer periods would have the potential to do damage. At the end of this report period, the plant had not experienced a shutdown. The next scheduled performance of the surveillance test is during the week of April 11, 1988, and the next scheduled shutdown is on July 5, 1988. The NRC inspectors will closely monitor the licensee's actions concerning these instruments.

During the inspection period, the NRC inspectors also reviewed the documentation and observed performance of portions of the following surveillances:

- o SR-FP-Gb-SA, Issue 1, "Yard Fire Hydrant Inspection," verifies the operability of fire hydrants should they be required in the event of a fire.
- o SR-5.F.1a-W, Issue 44, "Standby Diesel Generator Test," is the weekly load test of the emergency diesel generators.

No violations or deviations were identified in the review of this program area.

10. Monthly Maintenance Observation

The NRC inspectors observed portions of quarterly preventive maintenance on Emergency Diesel Generator 1A on March 8, 1988. Work performed included inspection of hoses, fuel lines, temperature switches, drain plugs, lubrication, and coolant sample analysis. Also included was an annual cooling water check valve inspection, which is a licensee commitment in response to IE Bulletin 83-03. These activities were performed in accordance with SSRs 88501554 and 88501552, and Procedure MP-7090, Issue 2. Post maintenance testing was observed by the NRC inspectors and was performed satisfactorily.

On March 13, 1988, Valve V-31199, "B" feed pump discharge check valve, began leaking through its cover seal. Two attempts had been made previously to repair the leak with the plant operating using an outside contractor's services. The contractor informed the licensee that further attempts to seal the valve in the same manner would not work, and that a large yoke furnished by the contractor would have to be utilized in order for "on-line" repairs to work. This yoke weighs 1200 pounds and a calculation was performed by the licensee's engineers to determine the effect of adding this weight to the seismically supported pipeline. The NRC inspectors reviewed the licensee's calculation in detail, and independently verified calculations of deadweight, thermal, dynamic, and seismic loads. The calculation showed the existing supports can withstand the additional loads, with one spring hanger requiring adjustment.

The temporary yoke was installed on March 11, 1988, under TCR 88-03-02. This TCR was approved by PORC on March 10, 1988, and was reviewed by the NRC inspectors. The TCR includes analysis, safety evaluation, approvals, and instructions for installation and removal. SSR 88501656 provided controlled work instructions for adjusting the spring hanger when the TCR was installed. As-found settings were recorded in order to allow returning the spring hanger to its previous position when the TCR is removed. As-left settings were also recorded. SSR 88501702 will provide controlled work instructions for re-adjustment of the spring hanger when the TCR is removed. The NRC inspectors reviewed these SSRs and found them acceptable.

The NRC inspectors observed the fuel handlers working on SSR 86509136, which dispositioned Nonconformance Report (NCR) 86-218. This NCR was against new control rod elements, which had been bent. (Note: the control elements at Fort St. Vrain are an articulated string of boron carbide filled canisters. Consequently, some bending is normal and excessive bending is correctable.)

The NRC inspectors noted that the workers were handling the control elements with bare hands. The workers' supervisor and a QC inspector were present. The NRC inspectors asked if there were procedures for

handling the control elements. The licensee supervisor informed the inspectors that the only instructions they had were the SSR and NCR. The NRC inspectors noted that in a section titled, "guidelines," of the disposition to NCR 86-218, Item 1 read, "Avoid touching the control rod with uncovered hands to minimize the amount of foreign materials deposited on the surface." This failure to follow procedures is an apparent violation of NRC regulations. (267/8807-03)

One violation was identified in the review of this program area.

11. Radiological Protection

The NRC inspectors verified that required area surveys of exposure rates were made and posted at entrances to radiation areas and in other appropriate areas. The NRC inspectors observed health physics professionals on duty on all shifts including the backshift. The NRC inspectors observed the health physics technicians checking area radiation monitors, air samplers, and doing area surveys for radioactive contamination.

The NRC inspectors observed that when workers are required to enter areas where radiation exposure is probable or contamination possible the health physics technicians are present and available to provide assistance.

On one occasion, the NRC inspectors noted that towards the end of the midnight shift, the radiological conditions posted throughout the plant were being updated, but the plastic map outside the health physics office, updated daily with grease pencil, had not been updated for several days. The NRC inspectors inquired of the licensee shift supervisor on duty why the map outside the health physics office had not been updated in several days. The shift supervisor informed the NRC inspectors that a recently hired health physics technician was on the midnight shift that week and would immediately be made aware of the map that had been neglected. As the shift supervisor was talking the new health physics technician entered the office with the daily update of plant radiological conditions. The shift supervisor inquired about the update of the map outside the health physics office. The technician responded that she had not been made aware of this requirement and that this was the first week she had been on duty alone following a training period working with others. The technician promptly updated the map outside the health physics office. This map is redundant to the daily information posted in the same location and throughout the plant.

No violations or deviations were identified in the review of this program area.

12. Monthly Security Observation

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% 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 were badged indicating whether they had unescorted or escorted access authorization.

No violations or deviations were identified in the review of this program area.

13. Exit Meeting

An exit meeting was conducted on April 7, 1988, attended by those identified in paragraph 1. At this time the NRC inspectors reviewed the scope and findings of the inspection.