

APPENDIX C

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-267/88-14

Operating License: DPR-34

Docket: 50-267

License: Public Service Company of Colorado (PSC)
2420 W. 26th Avenue, Suite 15c
Denver, Colorado 80211

Facility Name: Fort St. Vrain (FSV)

Inspection At: FSV Site, Weld County, Colorado

Inspection Conducted: July 25 through August 5, 1988

Team Members: R. E. Ireland, Technical Assistant
J. R. Boardman, Reactor Inspector
M. E. Murphy, Reactor Inspector
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Approved:


J. L. Milhoan, Director, Division of Reactor
Safety

9/2/88
Date

Inspection Summary

Inspection Conducted July 25 through August 5, 1988 (Report 50-267/88-14)

Areas Inspected: Routine, announced inspection of followup of previous inspection findings, status of Regulatory Guide 1.97 implementation, status of Generic Letter 83-28 implementation, followup of licensee event reports, and Part 21 followup.

Results: Within the five areas inspected, one violation (failure to independently verify activities, paragraph 2.4.6) and one deviation were identified (failure to meet record storage commitments, paragraph 2.2.1).

DETAILS

1. Persons Contacted

PSC

- *R. O. Williams, Jr., Vice President, Nuclear Operations
- *H. L. Brey, Manager, Nuclear Licensing and Resources Management
- *P. F. Tomlinson, Manager, Quality Assurance (QA)
- *D. Warembourg, Manager, Nuclear Engineering
- *C. H. Fuller, Manager, Nuclear Production
- *M. J. Ferris, QA Operations Manager
- *L. D. Scott, QA Services Manager
- *J. M. Williams, Nuclear Licensing Coordinator
- *R. Gunnerson, Supervisor, Nuclear Projects
- *M. E. Deniston, Superintendent of Operations
- *I. LeBlanc, Configuration Administration Manager
- R. L. Craun, Manager, Site Engineering

NRC

- *J. P. Jaudon, Deputy Director, Division of Reactor Safety
- *R. E. Farrell, Senior Resident Inspector

*Attended exit interview on July 29, 1988.

2.0 Followup of Previous Inspection Findings

2.1 Violations (92702)

- 2.1.1 (Closed) Violation (267/8102-04): Failure of Licensee Purchase Order N3222 to Contain the Applicable Paragraphs From FSV-STD-1 - This violation was denied by the licensee. During this inspection, the NRC inspectors reviewed the licensee's logic for denial. The logic was that all necessary requirements were included in order N3222 without specific reference to FSV-STD-1. The NRC inspectors accepted the licensee's logic. This item is considered closed.
- 2.1.2 (Closed) Violation (267/8507-01): Failure to Sign-Off QC Hold Points Before Work Was Allowed to Continue - During control rod drive refurbishment work in 1985, the NRC inspectors determined that work on the control rod drive mechanisms (CRDMs) was allowed to continue even though Quality Control (QC) hold points had not been signed off. At that time, the licensee issued a memorandum (QAC-85-0346) to make it clear to QC personnel that "nonapplicable" hold points must be signed off, with an explanation of why they could be disregarded. Also at that time, the FHPWP-100 series of procedures, governing work on the CRDMs, were revised. The revisions delineated subtasks subject to hold points so that work could continue on other tasks

without stopping the entire job while waiting for a QC inspector to witness work on the subtask. At the time this work was in progress, all 37 CRDMs were being refurbished. The NRC inspectors were present on an essentially daily basis and noted no similar problems.

During this inspection, the NRC inspectors determined from review of MQCIM-1 Issue 7 "Maintenance Quality Control Inspection Program" dated December 15, 1987, that responsibilities and instructions with regard to maintenance QC hold and witness points are now clearly established. This item is considered closed.

- 2.1.3 (Closed) Violation (267/8507-03): Failure to Identify QC Requirements and Responsibilities for Repair of Nonconforming Items - The NRC inspectors had identified a concern regarding disposition of NCRs associated with CRDM refurbishment in that QC requirements for repairs were not identified on the NCRs.

During this inspection, the NRC inspectors determined that the QA Services Manager must denote appropriate inspections and responsibilities on NCRs in accordance with Administrative Procedure Q-15. From a sample of NCRs, the NRC inspectors identified no discrepancies with regard to such inspection requirements. This item is considered closed.

- 2.1.4 (Closed) Violation (267/8507-04): An NCR Was Not Initiated for A Nonconforming Item - During CRDM refurbishment work in 1985, the NRC inspectors determined that Nonconformance Report (NCR) was not issued for a nonconforming CRDM potentiometer drive shaft. A Station Service Request (SSR) had been utilized for rework, and to dispose of unacceptable shafts in lieu of using the required NCR. The shafts had been accepted by QC, but without direct dimensional measurement.

The NRC inspectors confirmed that the corrective measures committed to had been completed. SSRs will not be used in lieu of NCRs for disposition of nonconforming items. In addition, MQCIM-1 Issue 7, referred to in paragraph 2.1.2, now contains requirements for QC dimensional inspections. Review of MQCIM-7 Issue 2, "QC Dimensional Qualification Training," dated November 7, 1986, confirms that an adequate basis for training of QC inspectors in dimensional measurements has been established. This item is considered closed.

- 2.1.5 (Closed) Violation (267/8507-09): Failure To Restore Equipment to Normal After Surveillance Test - The inspector had determined that after completion of Surveillance Procedure SR 5.51b-SA "Loss of Offsite Power," certain equipment had not been returned to normal and/or that records were deficient:

- o The 480V bus 1 to bus 2 tie breaker was still closed;
- o Helium circulator restoration was not recorded;

- o Time for equipment return was not recorded; and
- o Handswitch positions were not recorded.

All equipment was returned to normal on the following shift. The licensee issued a formal reprimand to the personnel involved, and all operations personnel were informed of the correct procedures. In addition, Procedure SMAF-1, was revised to assure that operators know how to correctly fill out surveillance procedures.

After review of the circumstances pertaining to this violation, the NRC inspectors concluded during this inspection that the licensee had taken adequate corrective action, and that further action was unnecessary. This item is considered closed.

- 2.1.6 (Closed) Violation (267/8507-08): Failure to Follow Maintenance Procedures - During repair of two Valves (HV-2253 and HV-2254), the NRC inspectors had observed that contrary to Maintenance Procedure MP-22, the work package did not contain a welder qualification record, cleanliness was not maintained, an approved solvent was not used, flammable liquids were not in safety containers, and a fire extinguisher was not available. The licensee took immediate corrective actions and the remainder of the work was done in accordance with applicable procedures.

During this inspection, the NRC inspectors concluded that measures taken by the licensee to strengthen the supervision and training of contract maintenance personnel are adequate. Also, fire protection and cleanliness controls have been significantly strengthened. These corrective actions are considered adequate. This item is considered to be closed.

- 2.1.7 (Closed) Violation (267/8609-001): Failure to Have Document Control of Safety-Related Instrument Setpoints - Corrective action for this violation to place all safety-related setpoints under document control was extensive, involving over 2400 documents. Licensee Letter P-86634, dated November 14, 1986, Subject: "Commitments Related to Safety-Related Relays and Breakers," committed to the inclusion of all relays and breakers in the Master Set Point List (MSPL). A corrective action completion date of July 1, 1988, was committed. Licensee Letter P-88032 dated February 11, 1988, extended the completion date to October 31, 1988.

This violation was closed on program completion at the time of this inspection, and on actions to complete as defined in licensee memorandum (NFG-88-0346) dated July 28, 1988; Subject: Setpoint Update Program.

2.1.8 (Closed) Violation (267/8623-02): Failure to Have and to Review Examinations for Lead Auditors - During this inspection, the NRC inspectors reviewed licensee documentation of examinations for lead auditors. This documentation is now satisfactory. This violation is considered closed.

2.1.9 (Closed) Violation (267/8623-03): Failure to Have a Records Checklist for Designating Required Records to Be Retained - In response to this violation, the licensee committed to revisions to the following procedures to institute necessary controls to ensure retention of required records:

- o Administrative Procedure Q-17, "Quality Records"; and
- o Records Center Procedure RCM-2, "Receipt, Review and Control of Records."

During this inspection, the NRC inspectors confirmed that these procedures were revised as committed. RCM-2 had subsequently been incorporated into licensee Procedure RCM-1, "Records Management." The NRC inspectors reviewed the currently effective revision of RCM-1 (Issue 7 dated July 15, 1988). This revision contains the commitment in Section 4.1.5. This violation is considered closed.

2.1.10 (Closed) Violation (267/8625-01): Violation of Shift Turnover Procedure - Key Control - As previously identified, the SRI identified a failure of the off-going and oncoming shift supervisors to transfer vital area and critical valve keys. The completed shift turnover procedure indicated that the keys had been received by the oncoming shift supervisor, yet the keys had not been transferred.

During this inspection, the NRC inspectors determined that the corrective action was implemented. The physical control of vital area and critical valve keys had been established at the Central Key Repository. Security Administrative Procedure (SAP) -09, "Security Key Issue," had been revised and was in effect. The procedure had provisions to allow security related keys to be issued to an authorized individual for 8 hours plus a reasonable amount of time to allow for shift briefings. Guidance was provided for determination of compromised keys. A log was kept in the Central Key Repository to account for issuance and return of keys. Station Operating Administrative Procedure (SOAP)-4, "Plant Operations Shift Turnover Procedure," was revised to require the shift supervisor and auxiliary operator to pick up vital area and critical valve keys upon entry, and to return them upon leaving the site. This was to be accomplished in accordance with SAP-9. This item is considered closed.

2.1.11 (Closed) Violation (267/8625-02): Plant Operations Review Committee (PORC) Failed to Review Procedures Affecting Quality - As identified in Inspection Report 50-267/86-25, during review of the

licensees design change and modification program, the NRC inspectors identified procedures affecting quality which had not been reviewed by the onsite review committee. The specific procedures were ENG-1, "Control of Modifications and Documentation Changes;" ED-100, "Change Notice Preparations and Document Control;" and the Controlled Work Procedure Manual. Technical Specification 7.4.b requires that general procedures and administrative policies for control of modification work be reviewed by the onsite review committee. The licensee committed in their response to review ENG-1 and to revise Administrative Procedure G-2, "Fort St. Vrain Procedure Systems," to require that all future revisions to ENG-1 be reviewed by the onsite review committee.

During this inspection, the NRC inspectors verified that ENG-1 was reviewed on May 12, 1987, in PORC meeting No. 725 in order to meet NRC commitments. Procedure G-2, step 2.3.2 required in part, that procedures requiring PORC approval be identified on the PORC Approval Procedure List. The NRC inspectors verified that ENG-1 had been added to the PORC Approved Procedure List. This item is considered closed.

- 2.1.12 (Closed) Violation (267/8625-03): Failure to Sufficiently Document Design Verification - As identified in Inspection
Report 50-267/86-25, the NRC inspectors had determined from the review of Change Notice (CN) 1876 that the person performing the design verification process did not document the effort in sufficient detail. There was not an adequate record of the work as required by Procedure ENG-1, "Control of Modification and Documentation Changes." The NRC inspectors had determined that a required checklist was signed and dated on one date, and was initiated and dated on three subsequent dates, with no details as to what was verified on each date.

During this inspection, the NRC inspectors verified that the licensees corrective action as stated in their response was implemented. The NRC inspectors confirmed that the Nuclear Engineering Division had issued an instructional memorandum (NDG-86-1647) reiterating the independent design verification process, including procedural requirements. The NRC inspectors also reviewed the new form created to provide better control over any changes which occur during the independent design verification process. The "Coordination Sheet Addenda" form was required in Procedure ENG-1, step 4.9.1, to document the review of changes to "Coordination Sheet for Change Notice Design Output Packages." The form is required if changes to the Change Notice occur after any of the signatures are obtained, but before final approval of the Change Notice. The form documents the subsequent review, the page number of the change, the change itself, and the reason for the change. This appeared to be sufficient corrective action. This item is considered closed.

- 2.1.13 (Closed) Violation (267/8625-04): Failure to Periodically Test Flow Orifice Valve Limit - As previously identified, the NRC inspectors found that no provision had been made for periodic testing of the limit trip feature of the orifice valves. The safety evaluation for CN 1876 stated that such a test was required on a periodic basis to verify that the valves meet their design function.

During this inspection, the NRC inspectors determined that a surveillance procedure had been developed by the licensee as committed. The Surveillance Test SR-RE-160-SA, "Functional Test of CRDOA Orifice Limit Switches," had been written. It was approved by the onsite safety committee on December 23, 1986. The surveillance was scheduled on a semiannual basis and was technically adequate. This item is considered closed.

- 2.1.14 (Closed) Violation (267/8625-05): Failure to Implement Corrective Action - As identified in Inspection Report 50-267/86-25, the installation instructions for CN 1876 noted that numerous discrepancies existed in the vendor drawing. These discrepancies were corrected as they were identified. However, no corrective action was initiated to review other areas of Panel I-9327 which could have been affected, but were outside the scope of CN 1876. In response to the Notice of Violation, the licensee committed to a field verification of terminal connections associated with orifice valve relays in Panel I-9327.

During this inspection, the NRC inspectors determined that a memorandum (NDG-87-0540) to engineering division personnel was issued detailing the contents of the Notice of Violation and reiterating that when one sees something wrong it should be identified. The NRC inspectors verified that CN 1876B was issued. This CN required corrections of discrepancies between the installed equipment and the vendor drawings. This item is considered closed.

- 2.1.15 (Closed) Violation (267/8720-01): Results Packages for CWPs Filed in Records Center Prior to Closeout Reviews - The NRC inspector had determined that results packages for CWPs 86-0131, 86-0132, 86-0133, and 86-0134, associated with Change Notice 2178, had not received a closeout review in accordance with Procedure G-9 "Controlled Work Procedures." The licensee withdrew these packages from records and combined them with the CWPs for proper closeout review.

During this inspection, the NRC inspectors verified that Procedure G-9 had been revised, as committed, to provide a procedure listing (for completion by the CWP work coordinator). This assures proper CWP closeout review and sign-off. This item is considered closed.

- 2.1.16 (Open) Violation (267/8807-02): Failure to Have Adequate Procedures - Three unnumbered valves were found in the cooling water line to the

engine driven firewater pump that were not identified on the plant valve lineup check lists. These valves have been temporarily identified and tagged. General Service Action Request No. 2154 has been initiated to provide for permanent numbering. CN 2814 will be issued to assign plant component numbers and install permanent tags. This item remains open.

2.2 Deviations (92702)

- 2.2.1 (Open) Deviation (267/8516-01): Failure to Meet Commitment on Records Center - This deviation resulted from the determination that the records storage center did not meet the requirements of Section B.5.19.9 of the Updated FSAR, Revision 2, in which the licensee committed to ANSI N45.2.9-1974, "Requirements for Collection, Storage, and Maintenance of Quality Assurance Records for Nuclear Power Plants." There were no exceptions noted nor exemptions requested to the ANSI standard.

In response to this deviation, the licensee committed to the design and construction of a new records storage center. However, because of financial problems that resulted from the plant being removed from the rate base in October 1986, the licensee determined that a new facility was not economically prudent and postponed indefinitely the proposed construction of a new records storage facility. As of this inspection, the licensee had not informed the NRC of this change to a commitment, and had not advised the NRC of an alternative solution to clear the deviation. This is an apparent deviation to the commitments made in the original deviation response. (267/8814-02)

2.3 Unresolved Items (92701)

- 2.3.1 (Closed) Unresolved Item (267/8110-02): Failure to Have a Documented Program for Materials and Component Parts Requiring Shelf-Life Controls - This concern was identified at the end of the inspection (267/81-10). It was made an unresolved item until specific problems relating to shelf-life control were defined.

2.3.1.1 History of the Licensee's Shelf-Life Program During the Period 1981-1988

NRC and licensee correspondence subsequent to Inspection Report 50-267/81-10 which documents the lack or inadequacy of the licensee's shelf-life program, is listed below. This documentation was identified and reviewed during this inspection. None of these documents resulted in a violation or deviation relating to the shelf-life program:

- o 1981: NRC Inspection Report 50-267/81-23, paragraph 2 - This report left unresolved item (267/8110-02) open, pending licensee's review of the scope of the concern.

- o 1982: NRC inspection Report 50-267/82-06, paragraph 2 - This report identified that there were shelf-life controls for new material, but not for existing material. It indicated that additional licensee actions were required. Unresolved item (267/8110-02) was again left open.
- o 1983: NRC Inspection Report 50-267/83-12, paragraph 2 - This report essentially reiterates Inspection Report 50-267/82-06, though more details were included.
- o 1984: NRC Letter, H. R. Denton to R. F. Walker, dated October 16, 1984 - Page 4-11, Section (3), covered spare parts management. This section indicated that the licensee had no shelf-life program for most components at FSV. It requested the licensee to review the validity of the then existing FSV concept of shelf-life control.
- o 1985: PSC Letter, Serial P-85107, dated March 29, 1985, C. L. Lee to R. D. Martin; Subject: "PSC Performance Enhancement Program" - This letter, on page 43, identified the establishment of Performance Enhancement Program (PEP) Sub-Project VI.7; "Establish Component Shelf-Life Program." Completion date was March 31, 1986.
- o 1986: PSC Letters (1) dated January 15, 1986, R. F. Walker to H. N. Berkow, and (2) dated July 31, 1986, R. O. Williams to H. N. Berkow, Subject: "Status Report for Performance Enhancement Program" - These letters document continuing slippage in the completion of Sub-Project VI.7 to September 15, 1986. Implementation of the shelf-life program was subsequently identified as November 15, 1986.
- o 1987: NRC Inspection Report 50-267/87-10 dated July 21, 1987 - This report on page 18, Section 16, discussed FSV QA Audit 87-01 covering maintenance and procurement. Eight significant findings were identified in the shelf-life program. The NRC inspection report identified issuance of Management Corrective Action Report (MCAR) 87-01 to assure licensee management responses to the audit findings.
- o 1988: PSC Interoffice Memo OAC-88-0393, dated March 15, 1988, P. F. Tomlinson to R. O. Williams, Subject: "Closure of MCAR 87-01" - This memorandum closed MCAR 87-01. On this date the licensee apparently implemented shelf-life program.

2.3.1.2 Present Status of Licensee Actions Relative to Material Installed Prior to Implementation of Shelf-Life Controls

- o The licensee had implemented a shelf-life program. Key program documents include SMAP-28, "Station Shelf-Life Program,"

(currently Issue 3 dated February 12, 1988), and STD-24, "NED Shelf-Life Requirements/Guidelines" (currently Issue 2, dated September 24, 1987).

- o The licensee had performed a validating audit of system implementation as discussed in Section 2.3.1.1 and had closed all audit findings.
- o The licensee's upgraded maintenance program will identify components which are subject to shelf-life controls and will replace these components as necessary.

2.3.1.3 Summary

This unresolved item was considered closed based upon the inclusion of the FSV shelf-life program in the PEP program, and on licensee actions as stated in Section 2.3.1.2.

- 2.3.2 (Closed) Unresolved Item (267/8623-01): Failure to Perform Periodic Review of the FSV Generating Station Audit Program - This unresolved item was based on discussions with appropriate licensee QA personnel. They indicated that no documented reviews were performed and identified no records of such reviews. This finding was discussed at the exit meeting for Inspection Report 50-267/86-23 and a violation was issued.

The licensee's response to the violation was that audits were performed. This response was signed by the site QA manager who was at that time a new employee who was not on-hand and involved in NRC Inspection Report 50-267/86-23. Based on the licensee response, this violation was made an unresolved item and was left open pending NRC review of the licensee identified audits during a subsequent inspection. These audits were Nuclear Facility Safety Committee (NFSC) audits D-81-01, D-83-01, and D-85-01.

During this inspection, the NRC inspectors reviewed the audits identified in the licensee response to item 267/8623-01. All were audits of the overall licensee quality program, which included the area of audits. These audits identified problems in the licensee audit program. These problems were an extension of violation 267/8619-01; this violation (267/8619-01) has been satisfactorily closed. Based on this closure and quality program enhancements subsequently implemented, this unresolved item is considered closed.

- 2.3.3 (Open) Unresolved Item (267/8712-04): Absence of Fire Detectors in Turbine Building - This item was unresolved due to the absence of fire detectors in certain areas of the turbine building and questions about the acceptability of the installation of the linear beam detectors. The licensee has received information from the supplier

that the mounting of linear beam detectors on unistruts is acceptable, and there should be no concern for thermal expansion. Installation of additional detectors in the turbine building has been completed under CN 2003D. The licensee is still working with the supplier and installer to verify full compliance with NFPA Standards 72D and 73E. This item remains open.

2.3.4 (Closed) Unresolved Item (267/8806-02): Validity of Torque Switch Settings - The NRC inspector questioned the validity of Limatorque supplied settings for torque switches which had been replaced with different models during the EQ outage. The licensee has been advised by Limatorque that the different model switches involved only a material change and that the maximum torque switch settings for the old and the new models are identical. It is concluded, therefore, that the switch settings are correct. This item is considered closed.

2.3.5 (Closed) Unresolved Item (267/8810-03): Routing of Electrical Power and/or Control Cables for the Electrical Fire Pump Through the Fire Area Containing the Diesel Driven Fire Pump - In response to an NRC request for additional information, the licensee replied that the control cable of concern is the 120V AC motor heater feed cable and is not required for the pump to operate. All control circuitry for the AC pump is located outside of the fire water pump house. The licensee has installed an alternate power supply from the ACM with a transfer switch. The ACM power supply cable does not run through the diesel side fire area. This item is closed.

2.4 Open Items (92/01)

2.4.1 (Closed) Open Item (267/7610-01): Completion of Power Ascension Program - When this item was opened in 1976, initial power ascension testing was taking place. In 1981, essentially all planned tests were completed except those which required the reactor to be at or near full-rated power. The remaining tests included Xenon stability testing, automatic load change, and turbine generator load shedding. Conditions suitable for the conduct of these tests have not since been obtained.

At the present time, the licensee is authorized to operate the reactor at a maximum power level of 82 percent of rated power. This restriction has been imposed because of limitations on shutdown cooling capability, and there are no plans in the immediate future to lift this restriction. Consequently, the remaining tests cannot be definitively scheduled. If and when the licensee requests authorization to exceed 82 percent of full power, the NRC must conduct a safety evaluation. This would include, among other things, an assessment of test requirements. Since the conduct of the remaining tests must be considered indefinitely postponed, there is

no need to carry provision in the inspection program for witnessing the remaining initial startup tests or reviewing the test results. This item is considered closed.

2.4.2 (Closed) Open Item (267/8519-02): Verification That Surveillances Are Current - At the time of the subject inspection in late June 1985, the licensee was making preparations for restart of the reactor following a prolonged outage for control rod refurbishment. Verification that surveillances were complete was accomplished by the resident inspector prior to restart in July 1985. Completion of these surveillances is documented in Inspection Report 50-267/85-30. This item is considered closed.

2.4.3 (Closed) Open item (267/8525-02): Repair/Replacement of Mercontrol Pressure Switch Face Plates - The senior resident inspector (SRI) identified during a plant tour that a Mercontrol pressure switch in the west diesel generator room had a smashed, glass face plate. The face plates on the switches provide physical protection and a barrier to dirt and debris. The SRI also observed two broken Mercontrol pressure switch face plates and one pushed-in face plate in the east diesel generator room. A few days later, the SRI toured the diesel generator rooms and determined that the Mercontrol face plates in the west diesel generator room were repaired. The face plates in the east diesel generator room were still in disrepair.

During this inspection, the NRC inspectors verified, during a tour of the east and west diesel generator rooms, that all face plates on the Mercontrol pressure switches were intact. This item is considered closed.

2.4.4 (Closed) Open Item (267/8623-04): Apparent Conflicts in Licensee Procedure QAAP-1, "Guidelines for QA and NFSC Audits" - During this inspection, the NRC inspectors reviewed QAAP-1 for the changes accomplished by the licensee to resolve the apparent conflicts. QAAP-1 was acceptable. This open item is considered closed.

2.4.5 (Open) Open Item (267/8636-01): Completion of Review and Walkdown of Plant Systems - This item was opened to provide followup on the results of "Phase II" walkdowns identified in CAR 86-105. Phase I is complete. As of July 27, 1988, thirteen systems had been completed, and four were in progress. Thirteen others had not been started. Pending review of the walkdown results obtained to date, to determine the significance of any findings, this item remains open.

2.4.6 (Closed) Open Item (267/8709-01): Followup to Determine Status of Independent Verification Steps During Conduct of Surveillances - The NRC inspectors had identified a bad practice in that there was no independent verification of a wire termination. The lack of independent verification in this instance was brought to the licensee's attention. The licensee agreed with the NRC inspectors

and corrected the procedure. The licensee was in the process of reviewing surveillance procedures and adding independent verification steps as needed.

During this inspection, the NRC inspectors determined that the licensee had reemphasized applying Procedure NPAP-4, "Surveillance Procedure Preparation," guidance during the annual or biannual review of surveillance procedures. Attachment NPAP-4A of the procedure described what was to be independently verified and how it could be accomplished.

The NRC inspectors reviewed the surveillance procedures listed in Attachment 1, Table 1 to determine proper independent verification was being conducted as specified in Procedure NPAP-4.

From review of the above surveillance procedures, the NRC inspectors identified three surveillance procedures which did not have adequate independent verification steps as required by Procedure NPAP-4. A summary of each procedure deficiency is provided below:

- o Procedure SR 5.2.15-M, Section 5, required a helium bottle to be connected in several steps. However, upon disconnection of the helium bottle (test rig) there was no independent verification step to verify proper return of the system to normal.
- o Procedure SR 5.4.1.1.8.b-M, Section 5 required, during the "Channel A, B, and C Thermocouple Amplifier Calibration," the removal of jumpers without requiring an independent verifier's initials.
- o Procedure SR 5.4.1.3.2.C-M, Section 5 required, in several steps, that jumpers be removed throughout the procedure without requiring independent verification.

Procedure 5.2.15-M, which had a biennial review cycle, was last reviewed by the onsite review committee according to the Plant Operations Review Committee Approved Procedures List (PAPL) on November 1, 1985. This procedure appeared to be overdue for review.

Procedure SR 5.4.1.1.8.b-M was last reviewed by the onsite review committee in March 1988, and Procedure SR 5.4.1.3.2.C-M was last reviewed by the onsite review committee in June 1987. These two procedures were both reviewed after the original deficiency had been brought to the licensee's attention.

The failure of the above procedures to have independent verification steps is contrary to Procedure NPAP-4, Issue 3, "Surveillance Procedure Preparation." Technical Specification AC7.4a.1 requires the licensee to comply with Regulatory Guide 1.33. NPAP-4 was prepared pursuant to Appendix A of Regulatory Guide 1.33, November 1972. This is an apparent violation (267/8814-01).

2.4.7 (Closed) Open Item (267/8712-01): Review of SLRDIS Test Results - During the May 1987 inspection, the NRC inspectors did not have an opportunity to review the test results for the newly installed Steam Line Rupture Detection and Isolation System (SLRDIS).

During the present inspection, the NRC inspectors reviewed the results of testing done under the following procedures (These results were obtained from tests done in late 1986 and early 1987):

<u>Procedure</u>	<u>Title</u>
SR 5.4.1.3.8 abcd -R1	SLRDIS Calibration and Testing for Panel I-93543
SR 5.4.1.3.8 abcd -R2	SLRDIS Calibration and Testing for Panel I-93544
SR 5.3.4b1-A	"Loop I Safe Shutdown Cooling Power Operated Valve Tests"
SR 5.3.4b2-A	"Loop II Safety Shutdown Cooling Power Operated Valve Tests"

These tests collectively demonstrated that the SLRDIS installation was operable and correctly calibrated for rate of temperature rise and high temperature trips and that actuation logic and response times were in accordance with requirements. Surveillances done on valves, verified that SLRDIS power operated valves were operable, with stroke times within the times specified. This item is considered closed.

2.4.8 (Closed) Open Item (267/8712-02): SLRDIS Training for Operators - During the inspection in 1987, the NRC inspectors had questioned whether training of operators on the newly installed SLRDIS system was adequate. Doubt was raised by the responses of some operator during the interviews.

During this inspection, the NRC inspectors reviewed a licensee internal memorandum, PPC-87-2630, dated July 27, 1987, which confirms that initial SLRDIS training had been given to licensed and nonlicensed operations personnel during the period November 7 through December 19, 1986. Further training was given to all operators from March 11-20, 1987. This training took place prior to reactor startup following the EQ outage. This item is considered closed.

2.4.9 (Closed) Open Item (267/8712-03): Completion of CRDOA Surveillance Procedures - The NRC inspectors had noted during inspection 267/8712 that the licensee had not completed certain maintenance surveillance procedures for control rod drive and orifice assemblies (CRDOA).

During this inspection, the NRC inspectors confirmed that the following procedures related to the CRDOAs had been completed: SR-TE-10X, SR-MA-12-RX, SR-MA-11-RX, SR-4.1.1.1.F.3-RX, and SR-4.1.9.D.4-RX. This item is considered closed.

- 2.4.10 (Closed) Open Item (267/8712-05): Revision of Clearance Procedure - The NRC inspectors had noted, from review of LER 87-005, that clearance procedure, SMAP-19, would be reviewed by the licensee and revised if necessary to assure that personnel know how to properly prepare clearance procedures. A series of Loop 2 shutdown actuations had occurred on February 20, 1987, because of an inadequate clearance.

During this inspection, the NRC inspector agreed with the licensee that SMAP-19 did not need revision. This procedure is adequate as written, and the inadequate clearance procedure was caused by personnel error. This item is considered closed.

- 2.4.11 (Closed) Open Item (267/8712-06): Moisture Monitor Penetration Covers - The NRC inspectors had observed that cover plates had been removed from moisture monitor penetrations. The NRC inspectors stated the need for operational controls, to keep the cover plates in place, when maintenance or calibration work is not taking place, to protect the moisture monitors from damage.

During this inspection, the NRC inspectors reviewed Operations Order, OP-Order 87-13, which was issued in October 1987. This order provides that prior to reactor criticality, hard plastic covers be installed for all penetrations. Prior to preceding above 30 percent power, the order states that the permanent steel tertiary covers must be installed. Thus the moisture monitor instruments are protected from damage at all times during reactor operation, except when maintenance and calibration work is actually taking place. At power levels in excess of 30 percent of rated-power the penetrations are sealed by a pressure retaining closure. These controls are satisfactory. This item is considered closed.

- 2.4.12 (Closed) Open Item (267/8725-03): Discrepancies in the Labeling on the Fire Detection System Panels - The NRC inspectors reviewed the operating instructions for the panels and observed that permanent labeling had been installed and was correct. This item is considered closed.

- 2.4.13 (Closed) Open Item (267/8806-01): Comparability Analysis for Valve Operator Thrust Requirements - The NRC inspector had noted that comparability analysis for Limitorque operators for Valves HV-2237 and HV-2238 were not provided in test records. After switches were set, these valves were not tested under differential pressure conditions and operability had been established by comparison to HV-3108 which had been tested.

By letter dated July 15, 1988 (P-88250), the licensee committed to test these valves under differential pressure during the helium circulator refurbishment outage now taking place. Data from these tests will resolve this question. This item is considered closed.

- 2.4.14 (Closed) Open Item (267/8810-02): Valves/Components Within the Plant Were Not Clearly Labeled or Identified - The licensee instituted a "Signage Program" through their Procedure SOAP-8 in November 1987. Subsequent to the identification of a specific concern in the area of valves/components needed for plant safe shutdown not being clearly labeled or identified, emphasis was placed in this area. The NRC inspectors verified in a sampling that new permanent labels and tags have been installed on the safe shutdown components and valves. This program is continuing. This item is considered closed.

3.0 Instrumentation Used to Assess Plant Conditions During and Following an Accident (RG 1.97 Implementation) (25587)

The NRC inspectors reviewed this area to determine whether the licensee had installed an instrumentation system for assessing plant conditions during and following the course of an accident. The instrumentation systems were required to meet the criteria specified in Regulatory Guide 1.97, Revision 2. Correspondence between the licensee and NRC utilized during this inspection is listed below:

- o PSC Letter, Emergency Response Capabilities, Regulatory Guide 1.97, dated February 28, 1985
- o NRC Letter, Emergency Response Capability - Conformance to Regulatory Guide 1.97, dated March 12, 1986
- o PSC Letter, Emergency Response Capabilities, Regulatory Guide 1.97, dated July 14, 1986
- o NRC Letter, Emergency Response Capability, Conformance to Regulatory Guide 1.97, dated April 22, 1987
- o PSC Letter, Emergency Response Capabilities; Regulatory Guide 1.97, dated March 14, 1988

The licensee committed to have the instrumentation systems required by RG 1.97 installed and functional by the end of the upcoming (fourth) refueling outage; hence, installation of equipment was not completed at this time. Additionally, due to changes in the licensee's safe shutdown cooling requirements, the instrumentation used to monitor some of the plant variables had changed.

The licensee was requested to send an update to NRC of their RG 1.97 instrumentation table. After review of the submittal, the NRC will issue another safety evaluation report. If everything has been

determined to be satisfactory (i.e., the safety evaluation issued) and the licensee has installed the instrumentation, the inspection can be completed.

No violations or deviations were identified.

4.0 Generic Letter 83-28, Followup of Actions Related to Salem Anticipated Transient Without Scram (2515-64) (25564)

The NRC inspectors reviewed this area to determine a status of the licensee's implementation of Generic Letter (GL) 83-28. For reference, Attachment 1, Table 2 identifies the status of NRR staff review of each item in the generic letter and identifies the correspondence between the licensee and the NRC related to each item. The procedure listings in Attachment 1, Table 3 summarize those procedures which provide guidance for the topics contained in Generic Letter 83-28. The procedures marked by an asterisk were reviewed by the NRC inspectors to determine their applicability.

No violations or deviations were identified.

5.0 Followup of Licensee Event Reports (LERs) (92700)

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

- 5.1 (Closed) LER 76-02 reported that on January 16, 1976, a reduction in circulator speed occurred without reduction in water flow to the pelton wheel. It was determined that inadequate drainage of bearing water allowed the water to accumulate to the point of submerging the steam turbine, increasing its drag. It was determined that steam traps in the cold reheat piping were not capable of draining bearing water at the rate it entered the piping, thus allowing water to accumulate. Circulator speed reduction in this manner occurred a number of times.

This condition was remedied by modifying the steam traps so they could handle any increased volume of water. Interviews of licensee personnel during the present inspection confirmed that this problem has not recurred. LER 76-02 is considered closed.

- 5.2 (Closed) LER 81-33 reported that one of three channels for C-circulator tripped on "low speed" while the circulator was operating at 4500 rpm. It was determined that a change in resistance had occurred in the cable connecting the speed probe. This condition was corrected by use of a spare speed element and cable. LER 81-33 is considered closed.

- 5.3 (Closed) LER 83-30 reported that changes in circulator speed cable impedance had resulted in a circulator "Speed-High" channel being inoperable. High temperatures in the vicinity of the cables, led to the problem. Faulty sections of seven cables were replaced under CN 1776. A reheat steam leak was also repaired. In addition, ventilation ducts were installed to provide additional cooling. Repair of the steam leak and the additional cooling apparently corrected the problem. LER 83-30 is considered closed.
- 5.4 (Closed) LER 83-48 reported that on November 3-4, 1983, during testing of D circulator, two of three bearing water differential pressure switches were found inoperable. These were ITT Barton, Model P-288A switches. These switches were replaced, calibrated, and returned to service. LER 83-48 is considered closed.
- 5.5 (Closed) LER 85-29 reported the discovery of impaired fire barrier penetration seals. These impairments were determined to be the result of personnel error during installation of seal modifications. Immediate corrective action was the establishment of a fire watch and satisfactory repair and inspection of each seal. Subsequent corrective action was to revise SR 5.10.4a-A, "Fire Penetration Seals Annual Inspection," (Issue 14, dated March 18, 1986) to include all appropriate seal acceptance criteria. Procedure TA-SMAP-7, "Fort St. Vrain Work Review Committee Guidelines," (Issue 3, dated January 10, 1986) has been revised to improve the design change review process to better track, review and document the effects of a design change on plant procedures. Additional seals were inspected and found to be acceptable. The corrective actions in response to this LER are considered sufficient and LER 85-29 is considered closed.
- 5.6 (Closed) LER 86-21 reported the discovery that four safe shutdown cooling valves were potential single failure points, assuming passive failure of the valves' pressure boundary function. This was determined to be the result of inadequate system design and installation. The NRC inspectors reviewed CN 2270 and CN 2424 and verified that backup isolation valves were installed to provide redundant isolation for the four identified areas of concern. The corrective actions in response to this LER are considered sufficient and LER 86-21 is considered closed.
- 5.7 (Closed) LER 87-06 reported missing and degraded fire barrier penetration seals as a result of the annual performance of the fire barrier penetration seal surveillance and a subsequent comprehensive program to evaluate all fire barrier penetrations. Immediate corrective action was to establish a fire watch in all deficient fire barrier vital areas. CN 2616, CN 2345, and CN 2747 were issued to repair all deficiencies. The NRC inspectors verified completion of repairs in selected areas and determined that some work still remained to be completed. Surveillance Procedure SR-FP-13A-A has

been revised to reflect a correct scope which includes all vital fire rated seals and seals required to support suppression systems. The corrective actions in response to this LER are considered sufficient and LER 87-06 is considered closed.

5.8 (Closed) LER 87-25 reported the loss of offsite electrical power when the reserve auxiliary transformer fire water deluge system was inadvertently actuated. The licensee determined that this was the result of an installation error when the relay assembly contacted the junction box door document holder. This document holder should have been removed when the particular style relay was installed in the junction box. The door document holder in the junction box has been removed. Similar junction boxes with this style relay have been inspected and the document holders removed. The corrective actions in response to this LER are considered sufficient and LER 87-25 is considered closed.

6.0 Review of the 10 CFR Part 21 Reports (36100)

The NRC inspectors 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 inspectors are listed below:

<u>No.</u>	<u>User, Vendor or Supplier</u>	<u>Subject</u>
87-19	Limitorque	Pre-1975 Valves Assembled with EP-0 Grease are Evidencing Spring Pack Failure
87-30	Niagara Mohawk Power Corporation	Improper Electrical Manhole Duct Seal Design
87-31	Automatic Valve Corporation	Houghton #620 Lubricant Attacks and Degrades Aluminum Valves
87-38	Morrison-Knudsen	100 VDC Relays Failed to Drop Out Due to Residual Magnetism
87-51	SOR Inc.	Bubble Formation in Diaphragm Layers of Pressure Switches
87-65	Public Service Co. of Colorado	Schwitzer Model 30R Air Start Motors Missing Bearing Race

87-74 Limitorque

Manufacturing Changes Made to
Limitorque Motors with Unqualified
Material

The NRC inspectors concluded that the licensee's evaluations were satisfactory. No violations or deviations were identified in the review of this program area.

7. Exit Meeting

The inspection scope and findings were summarized with those individuals identified in paragraph 1. The licensee did not identify as proprietary any information provided to or reviewed by the NRC inspectors.

A second exit meeting was held by telephone conversation on August 4, 1988, which summarized changes in the inspection findings.

ATTACHMENT 1

TABLE 1

Procedures Reviewed in Connection with Open Item (267/8709-01):
Independent Verification

- o SR-FP-11b.1/11d-A, Issue 1, Fire Suppression Water System Flush and Flow Test
- o SR-RF-11-M, Issue 2, Circulating Water Pump Vibration Test
- o SR 4.1.1.B.1/2-W/4.1.2.A.3 /5.1.1.b-M, Issue 5, Power/Low Power/Startup 10-Inch Scram Test
- o SR 4.1.3.D-W/R, Issue 3, Control Rod Operability Check When In Refueling Mode
- o SR 5.10.1-A, Issue 11, Control Room Auxiliary Electric Equipment Room, 480V Switchgear Isolation and Purge Dampers
- o SR 5.2.15-M, Issue 27, PCRIV Penetration Interspace System Functional Test
- o SR 5.2.16e-5Y, Issue 2, PCRIV Auxiliary System In-Line Check Valve Tests
- o SR 5.2.24.b-M, Issue 8, Circulating Water Makeup Pump Control and Instrumentation Functional Test
- o SR 5.2.24.b-W, Issue 7, Circulating Water Makeup System Pump Functional Test
- o SR 5.4.1.1.8.b-M, Issue 20, Reheat Steam Temperature Scram Test
- o SR 5.4.1.3.1.C-M, Issue 32, Circulator Speed (Steam and Water) Test
- o SR 5.4.1.3.2.C-M, Issue 33, Feedwater Flow Test
- o SR 5.4.9-W, Issue 38, Area Monitors Functional Test
- o SR 5.6.1b-5A, Issue 1, Standby Generator 1B Auto Start Test

ATTACHMENT 1

TABLE 2

CORRESPONDENCE SUMMARY OF
GENERIC LETTER 83-20, "REQUIRED ACTIONS BASED ON
GENERIC IMPLICATIONS OF SALEM ATWS EVENTS"

<u>GL 83-28 Item Number</u>	<u>Related Correspondence*</u>	<u>Licensing Review Status</u>
1.1	P-83359 G-85214	Closed
1.2	P-83359 G-85189 P-85204 G-85296	Closed
2.1 (First Part)	P-83359 G-85180 P-85204 P-86610 P-86676 G-87076	Closed
2.1 (Second Part)	P-83359 G-85180 P-85204 G-87298 P-87389	Under NRC Staff Review
2.2.1	P-83359 P-87118 G-87416	Closed
2.2.2	P-83359 G-85180 P-85204 G-87092 P-87389	Under NRC Staff Review
3.1	P-83359 G-85180 P-85204 G-85484	Closed

*Dates and titles of "P" and "G" letters are identified immediately following this tabulation.

3.2	P-83359 G-85180	
	P-85204 G-85484	Closed
4.1	Not Applicable	Not Applicable
4.2	Not Applicable	Not Applicable
4.3	Not Applicable	Not Applicable
4.4	Not Applicable	Not Applicable
4.5.1	P-83359 G-87074	Closed
4.5.2	P-83359 G-87102	Closed
4.5.3	P-83359 G-85180 P-85204	Under NRC Staff Review

Letter
Designation

Subject/Date

P-83359	Response to Generic Letter 83-28, dated November 4, 1983
G-85180	Request for Information, dated May 9, 1985
G-85189	Draft Technical Evaluation Report for Salem ATWS Item 1.2, dated May 17, 1985
G-85214	Safety Evaluation Report - Generic Letter Item 3.1 - Post-Trip Review (Program Description and Procedure), dated June 6, 1985
P-85204	Response to Generic Letter 83-28, dated June 12, 1985
G-85296	Safety Evaluation Report - Generic Letter Item 1.2 - Post-Trip Review (Data and Information Capability), dated July 23, 1985
G-85484	Generic Letter 83-28, Items 3.1 and 3.2 - Safety Evaluation for Post-Maintenance Testing, dated November 25, 1985
P-86610	Generic Letter 83-28, Action Item 2.1, dated October 31, 1986

P-86676 Generic Letter 83-28, Action Item 2.1, dated
December 19, 1986

G-87076 Safety Evaluation for Generic Letter 83-28, Item 2.1
(Part 1), dated March 11, 1987

G-87074 Safety Evaluation for Generic Letter 83-28,
Item 4.5.1, dated March 12, 1987

G-87092 Request for Additional Information, Generic
Letter 83-28, Item 2.2 (Part 2), dated March 20, 1987

G-87102 Safety Evaluation for Generic Letter 83-28,
Item 4.5.2 (Reactor Trip System Reliability On-Line
Testing), dated March 31, 1987

P-87118 Generic Letter 83-28, Action Item 2.2, dated April 1,
1987

G-87298 Request for Additional Information on Item 2.1
(Part 2) of Generic Letter 83-28, dated August 31,
1987

P-87389 Additional Information on Generic Letter 83-28, dated
October 29, 1987

G-87416 Safety Evaluation for Item 2.2 (Part 1) of Generic
Letter 83-28, Equipment Classification of All
Safety-Related Components

ATTACHMENT 1

TABLE 3

The following procedures provide guidance related to the issues described in Generic Letter 83-28:

- *ED-100, Change Notice (CN) Preparation and Document Control
- ED-101, Technical Review of Vendor Manuals
- *ENG-1, Control of Modification and Document Changes
- *G-2, Fort St. Vrain Procedure Systems
- *G-9, Controlled Work Procedures
- *G-15, Control of Vendor Manuals
- MAP-1, Fort St. Vrain Preventative Maintenance Program Description
- MAP-3, Fort St. Vrain Lubrication Program
- MAP-7, Parts Identification and Control
- MAP-20, Allowable Consumable and Equivalents Control
- *NMAP-1, Fort St. Vrain Nuclear Generating Station Information Assessment Group Charter
- *NMAP-11, Preventative Maintenance Program
- P-5, Replacement Parts and Materials
- *P-7, Station Service Request Processing
- *P-12, Plant Maintenance
- *PEP-3, Fort St. Vrain Critical Significant/Significant Component List
- *SMAP-1, Technical Specifications Surveillance Testing Program
- *SMAP-2, Non-Technical Specifications Surveillance Testing Program
- *SMAP-7, Post-Trip Review
- *SMAP-23, Post-Maintenance Testing
- *SMAP-27, Preventative and Corrective Maintenance Equipment Review
- *These procedures were reviewed by the NRC inspectors.