APPENDIX B

U. S. NUCLEAR REGULATORY COMMISSION
REGION IV

NRC Inspection Report: 50-267/84-22 License: DRP-34

Docket: 50-267

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

Facility Name: Fort St. Vrain Nuclear Generating Station

Inspection At: Fort St. Vrain (FSV) Site, Platteville, Colorado

Inspection Conducted: August 1-31, 1984

Inspector: for R. E. Ireland 10/17/84
G. L. Plumlee III, Senior Resident Inspector (SRI) Date

Approved: R. E. Ireland 10/17/84
R. E. Ireland, Acting Chief, Special Projects and Engineering Section Date

Inspection Summary

Inspection Conducted August 1-31, 1984 (Report 50-267/84-22)

Areas Inspected: Routine/Reactive, announced inspection of Licensee Action of Previous Inspection Finding; Operational Safety Verification; Surveillance; Maintenance; 10 CFR Part 21 Report Review/Follow Up; IE Bulletin Follow Up; CRD Event Follow Up; Observation/Evaluation of Exercises for Power Reactors; and Review of Periodic and Special Reports. This inspection involved 149 routine inspector-hours and 39 Reactive inspector-hours onsite by one NRC inspector.

Results: Within the nine areas inspected, four violations (failure to follow procedures, paragraph 5, and failure to submit adequate information, paragraph 7), one unresolved item (deviation requests (DRs), paragraph 7), and one open item (correction to Part 21 Report, paragraph 6) was identified.

DETAILS

1. Persons Contaced

Principal Licensee Employees

D. Alps, Security Supervisor
L. Bishard, Maintenance Supervisor
*T. Borst, Radiation Protection Manager
*W. Craine, Superintendent of Maintenance
*R. Craun, Supervisor Nuclear Site Engineering
M. Deniston, Shift Supervisor
J. Eggebroten, Technical Advisor
D. Evans, Shift Supervisor
*M. Ferris, QA Auditing Coordinator
*W. Franek, Superintendent Operations
*C. Fuller, Technical/Administrative Services Manager
*J. Gahm, QA Manager
B. Gunnerson, Supervisor, Nuclear Projects Structural
D. Hood, Shift Supervisor
*J. Hunter, Shift Supervisor
J. Jackson, QA/QC Supervisor
*M. McBride, Operations Manager
P. Moore, QA Technical Support Supervisor
*M. Niehoff, Site Engineering Manager
*F. Novachek, Technical Services Engineering Supervisor
H. O'Hagen, Shift Supervisor
*T. Orlin, Superintendent QA Services
J. Petera, Electrical Supervisor
T. Prenger, QA Engineering Coordinator
*J. Reesy, Nuclear Design Manager
G. Redmond, MQC Supervisor
G. Reigel, Shift Supervisor
*T. Schleiger, Health Physics Supervisor
*L. Singleton, Superintendent Operations QA
H. Starner, Coordinator Nuclear Site Construction
J. Van Dyke, Shift Supervisor Administration
*D. Warembourg, Manager Nuclear Production
*S. Willford, Training Supervisor

Principal NRC Contacts

#J. Beard, NRR
#D. Bennett, LANL
#J. Fly, LANL
#J. Miller, NRR
*P. Wagner, NRC Region IV

The SRI also contacted other plant personnel including reactor operators, maintenance men, electricians, technicians, and administrative personnel.

*Denotes those attending the exit interview.
#Members of the FSV Operations Assessment Team.

2. Licensee Action on Previous Inspection Findings

(Closed) Unresolved Item (50-267/8401-03): NED Review and Documentation of Purchase Order (PO) N3554 (CAAR-812). A report containing the licensee's nuclear engineering division (NED) evaluation of PO N3554 is contained in Inter-Department Memorandum NDS-84-0143, dated February 27, 1984. This memorandum addressed each of the SRI-identified deficiencies as well as additional deficiencies identified from NED's review of the PO. Memorandum NDS-84-013, dated February 22, 1984, provided instructions for archiving reserve shutdown (RSD) sample material identified by the SRI as being stored with the usable RSD material.

(Closed) Open Item (50-267/8010-02): Bulletin 79-27, "Electrical Modifications." Refer to NRC Inspection Report 84-14 for details.

(Closed) Open Item (50-267/8413-05): Revisions to OPOPs (CAAR-743). The following revisions were determined to have corrected the deficiencies identified:

OPOP I, Issue 58, dated May 17, 1984
OPOP III, Issue 58, dated June 19, 1984
OPOP IV, Issue 51, dated May 17, 1984
OPOP VI, Issue 36, dated May 17, 1984

(Open) Open Item (50-267/8315-01): Test of Load Shedding Relays (CAAR-649). Test of these relays has now been incorporated into a Nontechnical Specification Surveillance SR-EL-6-SA, Issue 1, dated August 20, 1984. Due to the fact that the May 17, 1983, event involved a procedural inadequacy in the testing of certain electrical relays essential to automatic load shedding and sequencing of the emergency diesel generator sets as documented in LER 83-018, the SRI has determined that this test should be incorporated into the Technical Specification electrical surveillance requirements. On August 31, 1984, the licensee agreed to incorporate this requirement into their next submittal of their proposed supplemental Technical Specification change to Section 5.4.

3. Operational Safety Verification

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

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

Logs and records reviewed included:

- o Shift Supervisor Logs
- o Reactor Operator Logs
- o Equipment Operator Logs
- o Auxiliary Operator Logs
- o Technical Specification Compliance Logs
- o Operations Order Book
- o Operations Deviations Reports
- o Clearance Log
- o Plant Trouble Reports

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

- o Monitoring Instrumentation
- o Radiation Controls
- o Housekeeping
- o Fluid Leaks
- o Piping Vibrations
- o Hanger/Seismic Restraints
- o Clearance Tags
- o Fire Hazards
- o Control Room Manning
- o Annunciators

a. Plant/Site Tour Findings

(1) During a tour of the 480 V Room on August 1, 1984, the SRI determined and reported to the licensee that the local trip status flags were up for the local 480 V degraded voltage relays at protective relay cabinets N-92120 and N-92121 for Bus 2 and 3. It appears that the local annunciator at Panel I-93520 and the remote annunciator at Panel I-06E(3-7) were cleared without

resetting the degraded voltage relays. This was also reported in NRC Inspection Report 84-15.

(2) Items of concern identified during the plant/site tours were reported to the licensee for correction.

(3) On August 22, 1984, the SRI determined that Surveillance SR 5.2.24a-D, "Circulating Water Makeup System Pond Inventory," for week 33, August 11-17, 1984, was still located in the control room unsigned and with the August 13, 1984, data missing. The licensee stated that this data was not taken due to the system being cleared out for maintenance. However, the licensee stated that the SR should have had better controls to ensure timely completion. The SRI evaluated this to be an isolated event.

b. Assessment of the Overall Conduct of Operations at FSV

As previously identified in NRC Inspection Report 84-18, this area was reviewed by an assessment team on July 9-11, 1984. An additional assessment was made in this area as documented in paragraph 8 of this report.

No violations or deviations were identified.

4. Surveillance (Monthly)

The SRI reviewed aspects of surveillance testing involving safety-related systems. The review included observation and review relative to Technical Specification requirements. The surveillance test reviewed and observed was:

SR 5.4.1.3.4a-M/5.4.1.3.4c-4 Circulator Penetration Pressure Test/ Calibration

No violations or deviations were identified.

5. Maintenance (Monthly)

The SRI reviewed records and observed work in progress to ascertain that the following maintenance activities were being conducted in accordance with approved procedures, Technical Specifications, and appropriate codes and standards:

PTR-6-860 Remove and Inspect CRD-44 from Region 28 in accordance with MP 12-6, "Maintenance and Repair of Control Rod Drive and Orificing Assemblies." Install New Rod and Orifice Position Potentiometers, Temperature Sensors, and Refurbish Shim Motor and 200 Assembly.

PTR 6-857 Remove and Inspect CRD-29 from Region 6 in accordance with MP 12-12, "Maintenance and Repair of Control Rod Drive."

CN 1717A/CWP 84-120 Hot Reheat Marmon Joint Replacement (Steam Generator Module B-2-5).

a. Poor Maintenance Practice

On August 21, 1984, the SRI identified that the roof to the temporary confinement structure for the CRD refurbishment work area was being modified while it was laying on top of the reactor vessel. The hold-down plates on the vessel were removed, exposing the secondary penetration closures. As a result, metal shavings fell into the recessed bolt holes for the secondary penetration closures. This was reported to the licensee, and corrective actions were initiated to remove the metal shavings.

b. Inadequate Design Controls

In brief, the licensee's plant modifications are controlled by a change notice (CN), a document that, when properly approved, authorizes modifications to the plant. The approval and release of a CN authorizes preparation of a CWP, a sequenced, detailed, step-by-step work plan that reflects the requirements of the job and includes detailed work instructions for such items as prefabrication, fabrications, welding, nondestructive examinations, inspections, cleaning, testing, installation, and any other pertinent work. Detailed work instructions for the CWP are incorporated into a process/inspection/testing record (PITR) which sequences work and records the process, inspection, and testing activities during the execution of the CWP work. If during CN implementation, it is determined that a deviation from the design or installation instructions is required, a DR may be processed using a CWP-DR provided that:

(1) The materials and components as specified in the CN are not compromised. Materials and components may be substituted if the substitutions meet or exceed the requirements set forth in the CN.

(2) The design intent, process flows, and/or safety evaluation as specified in the CN are not altered.

On August 22-23, 1984, during a review of the work in progress for CWP 84-120, the SRI identified the following:

(1) CWP 84-120 addressed the replacement of a marmon flange on Steam Generator (S/G) Module B-2-5 with a straight piece of pipe.

(2) CWP-DRs 84-120-1-A (for S/G Modules B-1-1 and B-1-3), 84-120-1-D (for S/G Modules B-1-2 and B-1-6), and 84-120-1-E (for S/G Modules B-2-1, B-2-2, and B-2-6) had been issued and authorized this same modification for other S/G modules. Thus, the CWP preparation and review process was bypassed.

(3) Modifications had been completed for B-2-5 and B-1-3. Fit up had been completed for B-1-1, B-1-2, and B-1-6. S-G Module B-1-1 was being setup for preheating.

(4) The following types of procedure deficiencies were identified: (a) CWP PITR QC requirements were not signed/dated for completed work, (b) CWP and CWP-DR PITRs did not contain the required inspection requirements, (c) CWP-DR PITR steps were not signed/dated for completed work, (d) CWP and CWP-DR PITRs did not have postweld heat treatment (PWHT) specification data and report sheets attached, (e) PWHT charts were not signed/dated by QA/QC as required, and (f) CWP-DRs had not been signed by the shift supervisor even though they affected the clearance tag boundaries.

(5) Discussion of these findings with the swing-shift welding supervisor indicated that he was aware that the documentation for this job was not up-to-date. He also confirmed that he had previously been instructed by management to ensure that PITR steps are signed off upon completion of the steps.

(6) Discussion of these findings with the licensee indicated that the CWP-DR PITRs were prepared from a file copy of the original CWP 84-120 PITR. Since the inspection requirements are assigned during the QA/QC CWP review process, this file copy of the master did not have the inspection requirements incorporated during the DR review process. The DR reviewers/approvers apparently believed that the CWP-DR PITR would receive the same level of review as did the CWP 84-120 PITR. This process is understood between FSV engineering and Ebasco but not between FSV engineering and the FSV maintenance department.

On August 27-28, 1984, the SRI extended inspection efforts in this area to include a review of the S/G marmon flange work that had previously been completed, and identified the following:

(1) CN 1717/CWP 83-171 was the original CN/CWP that authorized this modification to B-2-4.

(2) CN 1717A/CWP 84-74 was a reissue that authorized the modification to B-1-4.

(3) CWP-DRs 84-74-1-A (for B-1-5) and 84-74-1-C (for B-2-3) were deviations to CWP 84-74 authorizing the modification to other S/G modules.

(4) During this continued review, the SRI identified the following types of procedural deficiencies: (a) CWP 84-120 did not contain pages G-1/1A, G-2.1A, G-3.1A, G-21A, G-22A as called out in the PITR steps and as incorporated in CWP 84-74; (b) no DR to CN 1717A authorized issuance of CWP 84-120; and (c) CWPs 83-171 and 84-74 for the modifications that were completed in February and March 1984 were identified as being misplaced and forgotten. They were discovered in the QA/QC department's office and were incomplete, resulting in the following types of deficiencies:

(a) CWP cover sheets were not completed.
(b) CWP and CWP-DR PITR steps were not signed/dated.
(c) Inappropriate inspection requirements assigned and not signed/dated.
(d) Maintenance procedure control forms for Maintenance Procedure MP-100 were incomplete.
(e) MP-100, "General Welding Procedures," was complete.
(f) No weld data reports.
(g) No PWHT specification data and report sheets.
(h) PWHT charts were not signed by QA/QC.
(i) No weld rod control forms.
(j) Weld data sheets did not require liquid penetrant test (PT) for gamma port seals welds.
(k) No PT reports were found for the gamma ports.

(5) The licensee procedures do not prevent the shift supervisor from returning a system to service without first verifying that the modification (CWP) has been completed. Clearance Tag 6527 for CWP 83-171 and Clearance Tag 6629 for CWP 84-74 were both returned and the S/G loops were placed in service without the shift supervisor's knowledge of the CWP status.

All of the above findings were discussed with the licensee. The licensee was informed of the following apparent procedure violations:

(1) Procedure WM-1, "General Specification for Implementation of the Welding Manual," Issue 2, dated November 16, 1981:

(a) Failure to have a weld data sheet.
(b) Failure to have a required visual inspection (PT) requirement entered on the weld data sheet.
(c) Failure to have a weld data report.

(2) Procedure WM-4, "Preheat and Post Weld Heat Treatment Specification," Issue 1, dated April 6, 1981:

(a) Failure to have a PWHT specification data and report sheet completed and/or attached to the CWP.
(b) Failure to sign/date the PWHT chart.
(c) Failure to incorporate mandatory QA/QC inspection hold points.

(3) Procedure WM-7, "Covered Electrode/Filler Metal Classification, Identification, Control and Storage Specification," Issue 2, dated November 20, 1981:

(a) No weld rod control form.

(4) Procedure QCIM-5, "Review of Controlled Work Procedures (CWP's)," Issue 1, dated January 23, 1984:

(a) Review of completed CWPs had not been done by QA/QC for CWPs 83-171 and 84-74.
(b) Inappropriate inspection points were assigned for the steps requiring RT.
(c) No inspection points inserted in the CWP-DR PITRs for CWP 84-120.

(5) Procedure G-9, "Controlled Work Procedures," Issue 5, dated August 21, 1984:

(a) CWP-DRs for CWP 84-120 that affected tagging boundaries were not approved by the shift supervisor.
(b) For CWPs 83-171 and 84-74, the system was returned to service without the shift supervisor verifying that all the required work, tests, and inspections were completed.
(c) CWPs 83-171 and 84-74 were not controlled in accordance with Section 4.1, "CWP Processing, Controlling, and Implementation."

During discussions of the above problems with the licensee, the SRI pointed out the following items of concern which have generic implications:

(1) The problems identified above indicate that the items addressed in NRC Inspection Report 84-14 and Violation 8414-12 concerning the licensee' contractor (Ebasco) process for performing/controlling CWPs, PITRs, and DRs is now pertinent to the licensee/maintenance department's process for design modification control. In some respects, the indications of inadequate procedures for controlling the CWP process are more prevalent within the licensee's own departments. The licensee was informed that their response to 8414-12 contained in PSC letter P-84255, dated August 3, 1984, is not an adequate response in light of the most recent findings.

(2) As identified from the findings above, the licensee's attempt to perform CWP modifications utilizing CWP-DRs was not a process commonly used. As a result, the licensee's procedure did not clearly define how the process is to be controlled. This resulted in the maintenance supervisor having a large amount of paperwork that he did not know how to control, the failure to incorporate inspection requirements into the CWP-DR PITRs, and

an apparent abuse of the CWP-DR process by bypassing the CWP review process.

(3) The licensee does not have a formal process that will track the CWP's status throughout its implementation. The licensee's procedures also do not define who the "work coordinator" referenced in G-9 is. CWPs 83-171 and 84-74 being "pigeonholed" in QA/QC might have been prevented if these measures had been implemented.

(4) The return of a modified system to service without the shift supervisor's signature verifying CWP completion as identified above for CWPs 83-171 and 84-74 was previously addressed in two other Level IV Violations (8324-01 and 8126-03). From discussions with the shift supervisors, concerning the return of clearance tags for systems undergoing modification, the SRI determined that the licensee's response (P-82049, dated February 22, 1982) to Violation 8126-03 was not being complied with. The SRI also determined that the licensee's response (P-83368, dated November 10, 1983) to Violation 8324-01 did not prevent a further violation.

The licensee was informed that the failures to follow procedures which are Technical Specifications, Quality Assurance Program, and NRC commitment requirements are considered violations (8422-01, 8422-02, and 8422-03). The following immediate corrective actions were taken by the licensee:

(1) QA/QC signatures taken from other modification documentation allowed the completion of most of the required QA/QC documentation that was missing. However, this was not possible for the PT test reports for S/G Modules B-1-4 and B-1-5 gamma port seal welds, since none of the licensee's records indicated that penetrant tests had been done. On August 30, 1984, the SRI verified by review of completed PT test reports dated August 30, 1984, that QA/QC had gone back, removed the required lagging, and liquid penetrant tested the gamma ports which apparently had not been accomplished originally. Other documents such as the PWHT specification data and report sheet and the weld rod control form for CWP 84-74 were not found.

(2) On August 24, 1984, the licensee initiated action to prepare new CWPs and delete the CWP-DRs for the modification work in progress.

(3) On August 24, 1984, the licensee issued Inter-Department Memo NFG-84-0151, which stated:

> "Numerous problems associated with CWP 84-120 (Marmon flange replacement) have been brought to my attention

by the NRC SRI. The following is a brief discussion of these problems and the necessary corrective action.

"Problem #1 - CWP DR's are being written from preliminary copies of the CWP or from engineer's file copies of Change Notices. This has resulted in CWP DR's being issued with missing or erroneous information.

"Corrective Action #1 - Effective immediately. A copy of the approved CWP will be available in the Site Engineering office. This copy must be utilized for CWP DR preparation.

"Problem #2 - CWP DR's are being written in lieu of writing additional CWP's. CWP 84-120 was originally written to work on Marmon flange B-1-4. This CWP was subsequently DR'd to add additional Marmons (some of which were in the opposite loop).

"Corrective Action #2 - While the above is procedurally and technically acceptable it has resulted in unnecessary confusion and increases the potential for procedural violation. Therefore, the following will be implemented:

"1) CWP DR's affecting tagging boundaries will not be accepted.

"2) Site Engineering will be increasingly critical of CWP DR usage in lieu of writing a new CWP.

"Problem #3 - Administrative Procedure G-9 does not clearly define "proper authorization" for preparation of a CWP.

"Corrective Action #3 - Until such time as G-9 is revised to indicate "proper authorization", Site Engineering will use the following guidelines concerning CWP preparation:

"A) CWP's will be prepared to do the work exactly as scoped in a CN.

"B) DR's following the guidance of G-9 may be used to add to the work scope of a project. This DR may also authorize the new work scope to be worked under additional CWP's.

"C) PTR's may be utilized to authorize a CWP.

"Please keep in mind that Administrative Procedure G-9 and the CWP manual are currently undergoing an extensive review and rewrite effort. This effort will be completed on or before January 31, 1985. In the meantime, corrective actions which are simple and easy to implement, such as the above, will be taken. The above guidelines will be evaluated as G-9 is being rewritten. Any necessary changes will be made by either revision to this memo or by the revision to G-9."

(4) On August 29, 1984, the licensee issued Inter-Department Memo PPC-84-2281, which stated:

"Effective immediately, Shift Supervisors will not remove or hang clearances unless they have the CWP in hand and verify that cover sheet of the CWP has been properly signed for the work that has been completed."

(5) On August 29, 1984, the licensee issued Inter-Department Memo NFG-84-0153, which stated:

"In my memo NFG-84-0151, I indicated that Site Engineering would be increasingly critical of CWP DR usage in lieu of writing a new CWP. The purpose of this memo is to better define to you my thoughts on this subject.

"Proper planning is the key to successful execution of any project. Therefore, is a generic Change Notice is written with proper forethought it is acceptable to change the extent of the work by adding additional units via a DR. An example of this would be to generically approve the use of a swedgelock fitting for a particular application. A generic CN should be explicit in the technical details (piping code, pressure temperature, etc.) associated with this change. Therefore, if a CWP was written against this CN to utilize these fittings on a particular project and in working the project the necessity to add two more fittings was determined, a DR would be a viable means of adding the additional fittings to the project.

"On the other hand if a Change Notice is written on a specific task and a CWP is prepared to do this work, I do not feel that it is appropriate to add to the extent of the work with a DR. This situation would call for a CN reissue before a CWP could be written."

(6) On August 30, 1984, the licensee informed the SRI that they expected the revision to G-9 to be completed in early September 1984.

The SRI had no further questions in this area.

6. 10 CFR Part 21 Report Review/Follow Up

On July 31, 1984, the licensee informed the SRI that a Part 21 report concerning defective 5/8" diameter threaded rods purchased under specification ASTM A193, B-16, from Texas Bolt Company of Houston, Texas, was being issued. The report determined that, during visual examinations of the material received from two separate shipments, unacceptable longitudinal cracks were identified on material manufactured from the same heat lot.

The SRI reviewed the Part 21 report upon initial notification to determine whether the report satisfied the reporting requirement and corrective action was appropriate, and to identify the necessary NRC Region IV response. The SRI determined that the defect should not be classified a potential abnormal occurrence pursuant to Section 208 of the Energy Reorganization Act of 1974, as amended, and notified Region IV. This event was highlighted in the daily report to the Commission dated August 8, 1984.

Follow up to the written report forwarded by the licensee's letter P-84244, dated July 30, 1984, was made to ascertain whether the evaluation, corrective action, and report of the defect was adequate and in conformance with requirements of Part 21 and associated procedures and controls. The SRI identified the following problems:

- The licensee's Administrative Procedure G-8, "Compliance With 10 CFR 21 Requirements," Issue 4, dated September 3, 1982, needs corrections to reflect the proper address for the director, office of inspection and enforcement, and to reflect the correct amount of report copies to be sent to the NRC.

- The licensee's written report P-84244 incorrectly referenced the wrong PO number. The material was received under PSC PO N-5401 and not N-4501.

The licensee was informed that this is considered an open item (8422-04) pending corrections to G-8 and revision to teh Part 21 report.

The SRI determined from a review of the licensee's report that their initial corrective action was to remove Texas Bolt Company from the PSC approved vendors list. A follow up inspection of Texas Bolt Company occurred on August 15, 1984, by the PSC QA department. This inspection by the licensee followed by the commitment from Texas Bolt to correct the deficiencies identified below has resulted in reinstatement of Texas Bolt as a qualified vendor.

Deficiency	Corrective Action
Poor lighting/inspection position for visual inspection.	Texas Bolt visual inspection department has been moved to a natural lighted area, where small defects will be easier to detect by the naked eye.
Magnaflux inspections area had too much light and was too hot for adequate inspection.	Texas Bolt has moved their area for magnafluxing with a portable unit to another building.
The defective steel was purchased by Texas Bolt from their qualified vendor Republic Steel in 1979 in 20 ft. lengths.	The A193 Grade B16, 5/8" diameter material was confirmed by Republic Steel to have major discontinuities in the bar and Republic Steel agreed to accept return with total replacement of that particular heat lot.

The SRI verified that the defective threaded rod had not been installed during modifications to FSV's masonry block walls. The application for which the rod was intended.

No violations or deviations were identified.

7. IE Bulletins

The SRI verified by record review, observation, and discussion with the licensee the action taken in response to IE bulletins and reviewed the following bulletin:

(Open) IE Bulletin 80-11: "Masonry Wall Design." The SRI reviewed the licensee's response to this bulletin as outlined in the following PSC Letters/dates:

P-80198	July 7, 1980	(Initial 60-day response)
P-80381	October 28, 1980	(Initial 180-day response)
P-80413	November 25, 1980	(Supplement to 60 and 180-day responses)
P-81048	February 9, 1981	(Supplement to P-80381)
P-82354	August 24, 1982	(Response to July 21, 1982, NRC request)
P-82557	December 23, 1982	(Response to November 19, 1982, NRC request)
P-83022	January 11, 1983	(Response to November 19, 1982, NRC request)
P-83094	March 9, 1983	(LER submittal)
P-83299	September 6, 1983	(Response to NRC verbal request)
P-83364	November 8, 1983	(Response to October 18, 1983, NRC request)
P-84195	July 6, 1984	(Supplement to P-83364)

The NRC letter dated October 18, 1983 (G-83375), forwarded the Safety Evaluation Report (SER) addressing this issue. The SER concluded that all of the masonry walls, except those 17 for which credit was taken of the

joint reinforcement as structural elements, were acceptable. These 17 walls required further action to render them acceptable to the NRC.

The licensee's action as outlined in P-83364 stated, in part:

> "While PSC is of the opinion that "Dur-o-Wall" is an acceptable structural reinforcement for masonry walls and does have moment resisting capabilities, a reevaluation will be made of all Class I masonry walls which were seismically qualified considering Dur-o-Wall as a structural element. Per Attachment 2 of the above referenced letter, no structural credit will be taken for the Dur-o-Wall. These walls, as required, will be reinforced with metal bar straps to withstand the safe shutdown seismic event. This work shall be completed by July 2, 1984. The documentation for this work will be available in our office for your review."

PSC letter P-84195 confirmed a July 6, 1984, completion date.

The SRI confirmed that the reinforcement as stated above had been completed in accordance with CN-1280B/CWP 84-123, which required reinforcement of 20 additional masonry walls. The licensee stated that their reevaluation, without taking credit for joint reinforcement, indicated that only 8 out of the original 17 walls addressed in the SER required the necessary modification with metal bar straps upon using their original analysis method. However, their newly modified, more conservative calculations indicated that an additional 12 walls needed the modification. The SRI also determined that a total of 33 CWP-DRs had been issued against CWP 84-123 without requiring a CN reissue prior to completion of the modification. The licensee's procedures allow the use of DRs to authorize minor field revisions provided that the design intent, safety evaluation, environmental evaluation, and/or system process flow as specified in a CN is not altered. The SRI noted that several of the DR justifications were based on "engineering judgement." The SRI considers the use of "engineering judgement" as a DR justification without supportive design verification documentation to be an unresolved item (8422-05) pending a more indepth review of this process.

On August 20, 1984, the SRI determined that the licensee's responses to Bulletin 80-11 were not submitted under oath or affirmation as required by the bulletin and 10 CFR 50.54(f). The SRI also determined that, apparently, as a result of the licensee's response (P-2354) not containing the required details of wall modifications with drawings as requested by the NRC's July 21, 1982 (G-82232), letter, the SER's conclusion was invalid in regards to modification of the 16 walls addressed. Page 13 of the Technical Evaluation Report that was attached to the October 18, 1983, SER concluded that the licensee had used bar straps spanning vertically to modify 16 walls, and that these straps were attached to the floor by clip angles and anchors. Because of incomplete information from the licensee, this was not a valid conclusion in that this type of modification was made to only the cantilevered walls. Pinned walls received other types of

modifications (e.g., horizontal bar straps without attachment clips). The licensee's response (P-82354) did not provide details of other types of modifications that have been made to the masonry walls. Therefore, the licensee made modifications to masonry walls without having the review and approval required by IE Bulletin 80-11. The licensee was informed that this is considered a violation (8422-06).

The SRI had no further questions in this area.

8. CRD Event Followup

Due to the safety significance of this event which occurred on June 23, 1984, as documented in NRC Inspection Report 84-18, the SRI spent considerable inspection effort in this area. The following is a chronological summary of the SRI's observations for this reporting period:

a. On August 1-3, 1984, the SRI monitored and assisted in a review conducted by the Division of Licensing (NRR) to assess the safety significance of several CRD instrumentation-related problems as referenced in NRC Inspection Report 84-18 and identified below.

Date of Problem	Time (MDT)	Problem
July 17, 1984	10:45 a.m.	Out limit light for Region 3 CRD remained "on" while doing scram test.
	1:35 p.m.	Out limit light for Region 9 CRD remained "on" while doing scram test.
	3:00 p.m.	Region 19 CRD in limit light remained "on" while pulling rods and failed to come on when fully inserted.
July 18, 1984	4:20 p.m.	Region 23 CRD in limit light stayed "on" while pulling rods.
July 19, 1984	11:05 a.m.	Out limit light for Region 1 CRD remained "on" while doing scram test.
	2:40 p.m.	While pulling rods in Region 7 for scram test, received a slack cable alarm at 145.9".
July 20, 1984	11:10 a.m.	Analog indication lost on Region 15 CRD during testing.
	11:27 a.m.	Analog indication lost on Region 16 CRD during testing.
	1:30 p.m.	Could not withdraw CRD in Region 30.

The results of this review will be incorporated as an addition to the July 9-11, 1984, assessment team's report referenced in NRC Inspection Report 84-18.

b. On August 2, 1984, Region 25 (CRD-7) was replaced by a spare (CRD-19) which does not have a shim motor. CRD-7 was stored in equipment storage well (ESW) 6.

c. On August 2, 1984, Region 30 (CRD-11) was replaced by a spare (CRD-42) which is an instrumented control rod drive and orifice assembly (ICRDOA). CRD-11 was stored in ESW 3.

d. On August 2-3, 1984, the SRI along with the NRR review team members observed the licensee's manual retraction of Region 19 (CRD-13). As identified above, the Region 19 CRD had no "in-limit" light on. Both the digital and analog rod position indications were indicating a rod height of approximately 40 inches. The licensee's method of verifying that CRD-13 was fully inserted was not conclusive. This method involved measurement of shim motor wattages during various rod shims for CRD-13 and comparing these against wattage traces for other rods with normal indications. Due to the uncertainty of rod height in Region 19 the manual rewind tool was installed to determine the actual rod height. It was determined by the licensee that it would take approximately 330 revolutions of the rewind tool to raise the control rods from the full "in" to the full "out" position. This method verified that the Region 19 CRD had been fully inserted.

e. On August 4, 1984, Region 19 (CRD-13) was replaced by a spare ICRDOA-20. CRD-13 was stored in ESW 2.

f. On August 6, 1984, Region 18 (CRD-44) was replaced by a spare CRD-36 which has a stuck orifice valve and 30 wt-% boron carbide. CRD-44 was placed into the hot service facility (HSF) for refurbishment of its shim motor and drive train.

g. On August 9, 1984, the SRI observed work in-progress for the refurbishment of CRD-44 as directed by Plant Trouble Report (PTR) 6-860) in accordance with the licensee's inspection program.

h. On August 14, 1984, the SRI monitored the licensee's review of a draft CRD maintenance procedure, which was being developed to correct problems previously identified during CRD-44 refurbishment that had resulted in the incorrect reassembly of the CRDM. The new procedure, MP 12-12, was issued in an attempt to establish a procedure specifically developed for the CRD refurbishment effort. It included specific requirements, a data sheet to document critical data upon disassembly of the CRDM, and the required QC hold/witness points so that disassembly and reassembly could be positively controlled. The SRI's concerns as to the possibility of incorrect reassembly of previously refurbished CRDMs was brought to the licensee's attention. Non-conformance Reports (NCR) 84-240 and 84-241 were issued

addressing the loss of component control on CRD-14 and CRD-18 during disassembly/reassembly of the gear train, the possibility that critical bearings/shim assemblies may have been reassembled with wrong orientation, and the possibility of abnormal gear train wear patterns and operational friction. The NCR disposition was to require back EMF tests on the affected rods. If operable, then defer recording of critical data until next scheduled disassembly.

i. On August 16, 1984, CRD-44 refurbishment was completed and CRD-44 was stored in ESW 4.

j. On August 16, 1984, CRD-29 was removed from ESW 5 and placed in the HSF for refurbishment of its shim motor and drive train.

k. On August 21, 1984, the SRI observed work in progress to refurbish CRD-29. The refurbishment was being performed in accordance with the new procedure MP 12-12. The SRI also reviewed the following tests: T-214, "Motor Wattage Characteristics"; T-227, "Back EMF During Scram"; T-232, "Shim Motor Exercise Debris Removal Test"; and T-236, "Timed Scram Tests."

l. On August 23, 1984, refurbishment of CRD-29 was completed and CRD-29 was placed in ESW-5.

m. On August 23, 1984, CRD-7 was removed from ESW-6 and placed in the HSF for refurbishment of its shim motor and drive train.

n. On August 25, 1984, CRD-7 refurbishment was completed and CRD-7 was placed in ESW-6. At this point refurbishment had been completed on the original six CRDs that had failed to scram.

o. On August 26, 1984, CRD-11 was removed from ESW-3 and placed in the HSF. CRD-11 from Region 30 was believed to have a bad shim motor. This was confirmed by testing (megger) and the shim motor was removed for refurbishment.

p. On August 28, 1984, refurbishment of the shim motor for CRD-11 was completed. However, back EMF testing indicated a higher than normal scram time. CRD-11 gear train was disassembled for refurbishment. This CRD was reported to have more corrosion than any of the other refurbished CRDs. Heavy rust on the gears required ultrasonic cleaning.

q. On August 30, 1984, CRD-25 in Region 7 was prepared for removal from the reactor. Some difficulty was experienced retracting the rods using the shim motor. The rewind tool was used to obtain full retract. Upon removal of the assembly from the reactor, overcurrent on the auxiliary transfer cask (ATC) shutter motors occurred prior to closing the reactor isolation valve (RIV) completely. The RIV and ATC shutters were reopened. Manual closure of the RIV was attempted and indicated resistance to closure. Insertion of a borescope upon

removal of the drive scre from the ATC shutters confirmed the presence of a control rod canister in the shutter area. Further inspection indicated that one of the two rods for CRD-25 was not fully retracted into the ATC.

r. On August 31, 1984, during reassembly of the cable drum housing on CRD-11, two cable strands on one of the control rod cables were identified as being broken approximately 10 to 12 inches from the drum. Disposition of NCR 84-252 for this nonconformance was to replace the frayed cable.

No violations or deviations were identified.

9. Observation/Evaluation of Exercises for Power Reactors

On August 15, 1984, the SRI participated in assessing the adequacy of emergency response and preparedness at FSV during performance of the licensee's annual emergency preparedness exercise (FOSAVEX-84). As defined in the newly revised 10 CFR 50 Appendix E, IV.F, dated July 31, 1984, FOSAVEX-84 was a "partial participation" exercise. The exercise was initiated at 4:00 a.m. MDT with the onset of a leak in the "A" train helium purification cooler (E-2301) resulting in a leak that was not isolable. The event was escalated to a General Emergency category terminated at 10:10 a.m. MDT upon depressurization of the reactor vessel.

Details of the assessment are documented in NRC Inspection Report 84-19.

The SRI had no further questions in this area.

10. Report Review

The SRI reviewed the following reports for content, reporting requirements, and adequacy:

o Monthly Operations Report for the month of July 1984, and a revised report for the month of June 1984.

No violations or deviations were identified.

11. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether or not the items are acceptable, violations, or deviations. The following unresolved item was discussed in this report:

Paragraph	Item	Subject
7	8422-05	Deviation Requests

12. Exit Interview

Exit interviews were conducted at the end of various segments of this inspection with Mr. D. Warembourg, Manager, Nuclear Production, and/or other members of the PSC staff as indicated in the previous paragraphs. The licensee acknowledged these findings.

13. PSC/FSV Reorganization

During the month of August 1984, the following organizational changes were implemented:

- Mr. H. L. Brey, Manager, Nuclear Engineering, became Executive Staff Assistant. He is responsible for Nuclear Licensing and Fuel and other assigned activities.
- Mr. D. W. Warembourg, Manager, Nuclear Production, assumed the responsibility of Manager, Nuclear Engineering Division.
- Mr. J. W. Gahm, Manager, Quality Assurance, became the Manager, Nuclear Production Division.
- Mr. L. W. Singleton, Quality Assurance Operations Manager, was appointed the Manager, Quality Assurance Division.
- Mr. Michael J. Ferris, Supervsor, QA Auditing, was promoted to QA Operations Manager.
- Mr. Paul M. Burck, Quality Assurance Engineer, was promoted to Supervisor, QA Auditing.