U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-282/88010(DRS); 50-306/88010(DRS)

Docket Nos. 50-282; 50-306 Licenses No. DPR-42; DPR-60

Licensee: Northern States Power Company
414 Nicollet Mall
Minneapolis, MN 55401

Facility Name: Prairie Island Nuclear Generating Plants
Units 1 and 2

Inspection At: Prairie Island Plant Site, Welch, Minnesota

Inspection Conducted: June 6-21, 1988

Inspectors: R. S. Love, Team Leader
Reactor Inspector, Region III

7/11/88
Date

J. Hard, Senior Resident Inspector
Prairie Island

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Date

Inspection Summary

Inspection on June 6-21, 1988 (Reports No. 50-282/88010(DRS); 50-306/88010(DRS)).
Areas Inspected: Special announced safety inspection to verify that the Prairie Island Emergency Operating Procedures (EOPs) are technically correct; that their specified actions can be meaningfully accomplished using existing equipment,

controls, and instrumentation; and that the available procedures have the usability necessary to provide the operator with an effective operating tool. The inspection was conducted in accordance with Temporary Instruction (TI) 2515/92. (SIMS No. HF 4.1)

Results: One violation was identified against 10 CFR 50, Appendix B, Criterion XVIII - Failure to perform planned and periodic audits of the Prairie Island Emergency Operating Procedures between April 1984 and April 14, 1988 (Paragraph 4).

DETAILS

1. Persons Contacted

Northern States Power Company (NSP)

*L. Eliason, General Manager, Nuclear Power Plants
*M. Sellman, General Superintendent, Plant Operations
*E. Watzl, Plant Manager
*M. Wadley, Shift Manager (SRO)
*J. Goldsmith, Superintendent, Nuclear Technical Services
*T. Bacon, QC Specialist
*H. Julian, EOP Writer (Volian Enterprises)
*D. Schuelke, Superintendent, Radiation Protection
*D. Reynolds, Operations Training Supervisor
*W. Waldron, Senior Operations Specialist
*D. Mendele, Superintendent, Engineering and Radiation Protection
*[illegible], Lead Production Engineer
[illegible] McGillie, Operations Training Supervisor (Monticello)
[illegible] Goranson, Senior Production Engineer (Monticello)
*M. Werner, Training Instructor
D. Smith, Operations Instructor (Westinghouse)
M. Gardzinski, Instructor (SRO)
J. Sorenson, Shift Manager (SRO)
S. Rogers, Reactor Operator (RO)
W. Eppen, Reactor Operator (RO)
G. Dammann, Lead Reactor Operator (RO)
L. Henry, Lead Reactor Operator (SRO)
H. Pemble, Shift Supervisor (SRO)
R. Thorkelson, Lead Reactor Operator (RO)
S. Chezick, Reactor Operator (RO)
W. Irvin, Lead Plant Equipment Operator (RO)
G. Woodhouse, Shift Supervisor (SRO)
W. Mather, Lead Plant Equipment Operator (SRO)
S. Groh, Assistant Plant Equipment Operator
P. Kramer, Apprentice Plant Attendant
D. Page, Assistant Plant Equipment Operator
J. Gosman, Lead Plant Equipment Operator

U.S. Nuclear Regulatory Commission (US NRC)

*W. H. Regan, Jr., Chief, Human Factors Assessment Branch, NRR
*H. J. Miller, Director, Division of Reactor Safety, Region III
*M. Moser, Resident Inspector, Prairie Island

SRO denotes a licensed Senior Reactor Operator
RO denotes a licensed Reactor Operator

Other licensee personnel were contacted/interviewed during the inspection.

*Denotes those personnel in attendance at the exit interview on June 21, 1988.

2. Emergency Operating Procedures (25592)

a. Background

Emergency Operating Procedures (EOPs) have undergone significant changes due to the 1979 accident at the Three Mile Island (TMI) facility. The post-TMI procedures are symptom-oriented rather than event-oriented. Symptom-oriented EOPs provide the operator guidance on how to verify the adequacy of critical safety functions and how to restore and maintain these functions when they are degraded. Symptom-oriented EOPs are written in a manner that the operator need not diagnose an event to maintain the plant in a safe shutdown condition for all accidents that are within the scope of the EOPs.

The purpose of this inspection was to verify that the Prairie Island EOPs are technically correct; prepared in accordance with the writer's guide; that their specified actions can be accomplished using existing equipment, controls, and instrumentation; and that the available procedures have the usability necessary to provide the operator with an effective operating tool.

This was accomplished by performing: a desk-top review of 25 Optimal Recovery Procedures, six Critical Safety Function Status Trees, 18 Function Restoration Procedures, and two Abnormal Procedures; system walkdowns of eight Recovery Procedures, two Restoration Procedures, and one Abnormal Procedure; eight scenarios on your plant specific simulator that exercised 19 procedures and the six status trees; and a human factors review during the desk-top review and walkdown of the procedures, and during the simulator scenarios. In addition, 11 users and developers of the EOPs were interviewed. For a detailed listing of the procedures and status trees reviewed, walked down and exercised on the simulator, see Appendix A.

This inspection report provides examples of observations noted during the inspection. The licensee was provided detailed debriefings in which all of the inspection team's observations were discussed. In addition, a detailed listing of all observations will be provided to the Prairie Island NRC Resident Inspector's office for followup and closure.

b. Desk-Top Review

The desk-top review was accomplished by comparing the Prairie Island (PI) procedures and status trees identified in Appendix A with the Westinghouse Owners Group (WOG) Emergency Response Guidelines (ERGs), PI Procedure Generating Package (PGP), Writer's Guide and the Plant Specific Setpoint Document. The inspection team also reviewed the ERG and EOP background documents, the ERG Executive document, and the PI Design Differences Document. When deviations between the various documents were identified, the inspectors verified that the deviations were identified, documented, and justified in the Deviation Document. When required, the inspectors also verified that a safety analysis report had been prepared in accordance with 10 CFR 50.59. In addition, the inspectors reviewed the licensee's verification and validation (V & V) of the Prairie Island EOPs.

Results of Desk-Top Review

Generic Technical Guidelines were prepared for all of the ERGs. These generic guidelines provide a complete and documented analytical basis for each of the procedures. The Generic Technical Guidelines have been verified by the WOG. The PGP and EOPs were developed from the WOG Low Pressure ERGs, Revision 1A. A review was conducted by the licensee and it was concluded that in general, the ERG reference plant analysis was applicable and that no additional analysis was required to support the use of the ERGs to develop the Prairie Island PGP and EOPs. A review of technical adequacy due to several design differences between the reference plant and Prairie Island was performed by NSP engineering personnel. Any differences between the EOPs and the WOG ERG, with exceptions, were identified, documented, and justified in the Deviation Document.

In general, the Prairie Island (PI) EOPs were found acceptable, however, the following concerns were identified:

- EOP E-0 (See Appendix A), Step 7, Response Not Obtained column (RNO). Substeps b and c from the comparable ERG step were not included in the EOP and there was inadequate justification in the Deviation Document for this deviation. Due to design differences, PI does not have Phase B containment isolation valves. The licensee has committed to add additional information to the Deviation Document from the Design Difference Document.

- EOP E-0, Step 16a and b, RNO. The licensee has committed to expanding the justification in the Deviation Document to explain the differences between the ERG and EOP transition points.

- EOP ES-0.0, Steps 3, RNO and 4, Action/Expected Response column (A/ER). After evaluation by NSP and NRC, the licensee has committed to word these steps in accordance with the ERG.

- EOP ES-0.1, Step 12.c, A/ER. The licensee has committed to expand the justification in the Deviation Document to explain the differences between the ERG and EOP steam generator (S/G) levels.

- EOP ES-0.2, Attachment C. The licensee has committed to define an "L" and "S" signal in the writer's guide or in the attachment.

- EOP ES-0.2B, Step 11, A/ER. The licensee has committed to revise the Deviation Document to reflect deletion of pressurizer level versus RCS pressure.

- EOP ES-0.4, Steps 1.a and b, A/ER. The licensee has committed to expand the justification in the Deviation Document on subscep sequence deviations.

- EOP ES-0.4, Step 2.b, A/ER. The licensee has committed to provide additional information to the Deviation Document on pressurizer level control methods at PI to justify the deviation between the ERG and EOP.

- EOP ES-1.1, NOTE before Step 1 (1N). The Deviation Document indicates that a NOTE had been added before Step 1, however, the NOTE does not appear in the EOP. The licensee has committed to correct the Deviation Document by deleting the reference to the NOTE.

- EOP ES-1.1, 10C. The licensee deleted ERG CAUTION. "On natural circulation, RTD bypass temperatures and associated interlocks will be inaccurate," with justification. The inspection team recommended that this CAUTION be reinstated. The licensee has committed to reevaluate the need for this CAUTION in this procedure and throughout the EOPs (Generic Issue).

- EOP ES-1.1, Step 12, RNO. At the Inspection Team's recommendation, the licensee committed to evaluate the need to add a contingency transition step for a case of both RHR pumps and no SI pumps running.

- EOP ES-1.2, General. When a temporary change is made to a procedure, the licensee enters the change in the body of the procedure as though it was a revision to the procedure. If the temporary change cover letter was to be detached, there would be two different controlled procedure revisions on file, however, both revisions would carry the same revision numbers. The same situation occurred with EOP ES-1.3. The licensee committed to revising ES-1.2 and ES-1.3 and their associated background documents, and to delete the temporary change memos.

- EOP ES-1.2, Steps 10.d and e, RNO. There was some confusion on the part of the inspectors as to when the transitions should be made in these two substeps. The licensee committed to clarify these transitions during the next procedure revision.

- EOP ES-1.3, Step 9.d and e, RNO. Same problem and resolution as noted in ES-1.2 Step 10.d and e above.

- EOP E-3, Step 13. The adverse containment temperature values provided in E-3 do not match the temperature valves provided in the PI Setpoint Document. An investigation by the licensee indicated that the values contained in the Setpoint Document were correct. The licensee committed to revise EOP E-3 to correct the adverse containment temperature values.

- EOP E-3, Steps 14 and 25. The licensee committed to add additional justification in the Deviation Document for step sequence deviations between the ERG and the EOP.

- Generic Issue. There are instances throughout the EOPS where the operator is directed to be in two EOPs at the same time. This is contrary to the general usage guidelines for EOPs. Paragraph 4.2.5 of the ERG Writer's Guide states "Transition shall not contain a 'return' feature (e.g., performed Steps X through Y in some other procedure and then return)."

  This type of deviation from good practice was identified in the following EOPs:

ES-0.2, Step 13c, RNO	ES-1.1, Step 20c, RNO
E-3, Step 33c, RNO	ECA-0.2, Step 1, RNO
ECA-2.1, Step 25c, RNO	ECA-3.1, Step 26c, RNO
ECA-3.2, Step 19c, RNO	ECA-3.3, Step 17c, RNO

The above concerns are typical of the type identified during the desk-top review. After an evaluation was performed, none of the concerns were identified as being safety-significant.

An EOP validation had been performed by the licensee to verify that the procedures were usable, i.e., they can be understood and followed without confusion, delays, and errors. In addition, the validation program verified that the EOPs guided the operator in mitigating transients and accidents. The validation of the EOPs were performed by a multi-discipline team. One or more of the following methods were used in the validation program: (1) desk-top review; (2) control room plant walkdowns; (3) exercising the EOPs on the plant specific simulator.

During the review of Prairie Island's verification and validation program, no safety-significant concerns were identified.

c. Plant Walkdown

Plant walkdowns of select EOPs were performed during the inspection to verify that the specified actions could be accomplished by the operators using existing equipment, controls, and instrumentation. See Appendix A for listing of procedures walked down by the three inspection teams. Each team consisted of two NRC personnel and a licensed Senior Reactor Operator (SRO), a Reactor Operator (RO), or a non-licensed Plant Equipment Operator. During the walkdowns, the inspectors specifically looked at component accessibility and identification (labeling/tagging), tools and protective equipment needed for local equipment operations, emergency lighting, communications, and environmental conditions (radiation and temperatures) during a Design Basis Accident (DBA).

(1) Prior to this inspection, the licensee updated their EOPs to the WOG ERGs, Revision 1A. As part of their V&V program, the licensee walked down (February through May 1988) their EOP to ensure usability. To supplement their V&V program, the licensee generated a "Local Action Checklist" (see Appendix B) to identify potential problem areas such as: accessibility, environmental

conditions, inadequate lighting, and shift staffing. During their walkdowns, the licensee identified the need for: dedicated ladders/platforms, additional/replacement components labels/tags, additional emergency lighting, and the installation of additional sound powered phone jacks. The inspectors were informed that corrective action on the identified items included the issuance of work orders or the item has been sent to engineering for evaluation.

(2) During the inspection, the inspectors identified additional examples of the type of deficiencies identified by the licensee. Examples follow:

- EOP ES-1.2, Step 6, RNO. The operator is required to locally close Valve MV-32084 or MV-32085. The operator needed to climb on pipes and/or hangers to reach the valves. The licensee took corrective action to install dedicated ladders in both RHR pit areas so that the operators can locally close these two valves.

- EOP ES-1.2, Step 12, RNO. The operator is required to locally close Valve MV-32162 or MV-32163. At present, the operator needs to climb on pipes and/or hangers to reach the valves. Ladder or platform is needed.

- EOP ES-1.2, Step 13, RNO. The operator is required to locally close Valve MV 32206 or MV 32207. At present, the operator needs to climb on pipes and/or hangers to reach the valves. Ladder or platform is needed.

- During a walkdown of the containment isolation valves, it was noted that additional emergency lighting is needed in the steam generator blowdown (SGB) flash tank area.

The licensee has committed to submit to Plant Engineering Staff the need for a more detailed evaluation for additional Emergency Lighting in areas determined to be inadequate and the need for permanently installed catwalks and access ladders in the areas identified. Pending the review of Plant Engineering Staff's evaluation on the need for permanently installed catwalks and access ladders, this item is open (50-282/88010-01; 50-306/88010-01).

(3) As part of the licensee's environmental study, floor plans were developed to show the Design Basis Accident (DBA) dose rates (R/hr) throughout the plant. The DBA dose rates are a result of safety system failure leading to major core damage with release to the containment atmosphere. This study is contained in Emergency Plant Implementing Procedure No. F3-25, Revision 4, Attachment A, "Dose Rate Calculation Description."

During plant walkdowns, the inspectors noted the areas entered to perform actions required by the EOPs. Using this information, the inspectors were able to determine the calculated dose rates,

(during a DBA) for the areas entered from the licensee's environmental study. It was noted that during a DBA with recirculation mode in progress, the operator would have to enter a Radiation Field of approximately 100 R/hr to locally operate Containment Isolation Valves in the SGB flash tank area.

(4) In general, the tools and protective equipment needed to perform local operations as described in the EOPs was adequate and readily available. Also, the labeling throughout the plant was very good. Several minor labeling concerns were identified and are discussed in Paragraph 3 of this report.

d. Simulator Scenarios

Eight scenarios were conducted on the PI plant specific simulator to verify that the PI EOPs provide the operator with an effective operating tool to place the plant in a safe shutdown condition for accidents and transients that are within the scope of the EOPs. Nineteen EOPs and the six Critical Safety Function Status Trees, as identified in Appendix A, were exercised during the scenarios. The scenarios were conducted in two four hour sessions utilizing the licensed operators from Crew 4, that were in Requalification Training. The simulator operating crew consisted of a Shift Supervisor (SS), Lead Reactor Operator (LRO), Reactor Operator (RO), and a Shift Technical Advisor (STA). This crew size meet the PI minimum Technical Specification requirements.

In general, the specific actions detailed in the EOPs were: technically correct; could be accomplished using the existing equipment, controls, and instrumentation; and provided the operators with an effective tool to place the plant in a safe shutdown condition. The EOPs led the operators through the correct transition points without much confusion. The Inspection Team observed one incorrect transition during the execution of EOP ECA-3.1 due to incorrect wording of Step 13, A/ER.

As worded, ECA-3.1, Step 13, directs the operator to check the status of the Safety Injection (SI) and Residual Heat Removal (RHR) pumps. If both pumps were running, the operator is to continue with Step 14. However, if both pumps are not running, the operator is directed to transition to Step 19.

In accordance with the WOG ERG, the intent of Step 13 is to continue with Step 14 if either the SI or the RHR pump is running and to transition to Step 19 if neither pump is running.

During the scenario, the SI pumps were running and the RHR pumps were secured. The correct operator action was to continue with Step 14. However, the "OR" was omitted in Step 13 which resulted in the SS making an incorrect transition to Step 19. The safety significance of this transition error was evaluated by the inspectors. It was determined that subsequent procedural steps would have transitioned the operator back to Step 15 and automatic functions

would have deenergized the pressurized heaters as required by Step 14. Therefore, the incorrect transition to Step 19 is not considered to be safety significant.

It was also noted that the same generic step (Step 7) appears in EOP ECA-3.2 and the required "OR" was also omitted. During the evaluation of this procedural error, it was also determined that subsequent procedural steps would have transitioned the operator back to Step 9 and automatic functions would have deenergized the pressurizer heaters as required by Step 8. Therefore, an incorrect transition at Step 7 is not considered to be safety significant.

The licensee took prompt corrective action by revising EOPs ECA-3.1 and ECA-3.2 to incorporate an "OR" into the appropriate steps. The revised procedures were placed in the Control Room EOP binders before the Inspection Team departed the PI site.

3. Human Factors Review

The objectives of the human factors review was to ensure that the EOPs followed the guidance provided in the Writers Guide for Prairie Island Nuclear Plant Emergency Operating Procedures, Revision 1, date May 1, 1988 and to ensure that the EOPs can by physically and effectively carried out. To achieve these objectives, the human factors evaluator performed a desk-top review of the EOPs, observed simulator scenarios, participated in walkdowns of the EOPs, and interviewed select users and developers of the EOPs.

a. Desk-Top Review

The EOPs reviewed are listed in Appendix A and in general, they comply with the PI Writers Guide. The following exceptions were noted:

- Attachment E is not labeled to indicate that this graph is to be used for adverse containment conditions only. The attachment is not identified as to which EOP it pertains, nor is there a revision number on the attachment (examples: EOPs E-0, ES-3.3 and FR-H.2).

- Paragraph 4.3 of the Writers Guide states that NOTES and CAUTIONS shall not contain action steps. In EOP E-0, the CAUTION before Step 31 contains an action statement and in EOP ECA-3.1, the NOTE before Step 16 contains an action statement (Generic).

- Paragraph 4.3 of the Writers Guide states that a description of the consequence shall be included in the CAUTION so that the operator will know the concern. In EOP ECA-0.0, the CAUTION before Step 6 does not provide a consequence.

- EOP FR-P.2, Step 4.b.1, A/ER. Figure FRP2-1 is incorrectly referenced. The correct reference is Figure FRP2-2.

- The same step is worded differently in different procedures, e.g., EOPs E-3, Step 7 versus FR-C.1 Step 9 and ECA-1.1, Step 18.b, RNO versus ECA-3.1, Step 31.b, RNO. Consistent wording should be maintained when the steps are the same.

- EOP ES-0.3B, Figures ES03B-1 and ES03B-2. These figures are labeled the same and contain different graphs. One graph is used to determine the required condensate while the other graph is used to determine the available condensate.

The licensee has committed to correct the above listed deficiencies as well as the other deficiencies provided during the debriefing sessions.

b. Walkdown of EOPs

The Inspection Team noted that the operators knew the plant and were able to simulate implementation of the EOPs. The location and labeling of EOPs was very good. During walkdowns of the EOPs and an Abnormal Procedure (see Appendix A) the following findings were identified:

(1) During walkdowns of Abnormal Procedure C1.8, Step 9, it was noted that large yellow tags were placed on valves that need to be locally operated following a turbine/reactor trip. This was considered to be an outstanding operator aid.

(2) Figure C1-10, used for calculating boron addition, was missing from Abnormal Procedure C1.8. This figure is required to perform Step 8 of the procedure at the Hot Shutdown Panel. The licensee took immediate action to place Figure C1-10 in all the controlled copies of Procedure C1.8.

(3) A labeling inconsistency was identified in EOP FR-S.1, Step 5a, RNO, which directs the operator to open the MG set input and output breakers. Locally, the breakers are listed as Motor and Generator.

(4) In EOP E-0, Step 5, RNO, the operator was directed to manually or locally align safeguard components. At present, there is no listing of containment isolation valves in the procedure nor is a list available to the Equipment Operator in the Control Room or in the Auxiliary Building work station. However, the licensee was in the process of generating a listing of Containment Isolation Valves and committed to place this list in the Control Room and Auxiliary Building work station.

(5) Meters were identified with no unit designators (°F or psig). Examples include: Wide Range Steam Generator Level, 1LR-460; RCS Cold Leg Temperature, ITR-450 and ITR-451; and Pressurizer Level, 1RP-420.

(6) In several areas of the plant, labels are made with dyno-tape and has the potential for falling off. This concern was

previously identified by the licensee and corrective action was in progress.

The licensee has committed to correct the above listed deficiencies.

c. Simulator Scenarios

During observation of simulator scenarios, it was noted that staffing levels were adequate, the roles and responsibilities of the crew were clearly defined, a team approach was utilized, and the operators were able to carry out their assigned tasks without difficulty or conflicts. The SRO followed the procedures and demonstrated an understanding of the intent of the EOPs. In general, transitions within procedures and between procedures was smooth. See Paragraph 2.d of this report for an identified transition error.

With regard to place-keeping, each procedure is in a separate binder and the binders are clearly labeled. The operators, using special pens, check-off the steps in the procedures as the steps were completed, and used pens, pencils, and paperclips as place-keeping aids. Although no specific instances were noted where the operators lost their place, some difficulties were observed when the operator was directed to return to a procedure and step in effect. The licensee committed to evaluate place-keeping methods and revise practices as appropriate.

During the simulator scenarios, it was noted that emergency lighting in the Control Room was adequate to implement the EOPs during a station blackout. See Paragraph 2.c(1) of this report for inplant emergency lighting deficiencies noted.

d. Personnel Interviews

During the inspection, 11 users/developers of the Prairie Island EOPs were interviewed. Interviewees included: one Shift Supervisor (SRO); six Lead Plant Equipment and Reactor Operators (two SROs and four ROs); two Assistant Plant Operators; an Apprentice Plant Attendant; and one EOP writer.

In general, the operators interviewed had a positive attitude toward the EOPs and supported their use. The interviewees identified two concerns which had also been identified by the Inspection Team.

The first concern pertained to the use of negatives in the action/expected response column. This concern was discussed with the licensee and with the NRR Reviewer for WOG ERG, Revision 1A.

The second concern pertained to component location. At present, the location of an item is listed by column and elevation, however, the columns are not always clearly identified. This concern was discussed with the licensee and they committed to review the column markings and to evaluate the need to supply additional locating aids.

The operators felt the communications systems (pager, dial phones, sound-powered phones, etc.) throughout the plant were good. However, the licensee and the NRC identified areas where additional sound-powered phones and jacks would be desirable. See Paragraph 2.c of this report for additional details.

4. QA Audit

During the inspection, the inspectors requested copies of the last two QA audits of the Prairie Island (PI) EOPs for review. The inspectors were informed that only one audit was performed in this area and was provided with a copy of QA Audit Report Number AG-88-20-13, dated May 23, 1988. A review of the audit report indicated that it was an indepth review. Following are examples of the audit findings:

a. In procedure E-1, there were four transition steps that referenced the wrong procedure. Procedure E-1 was revised during the audit to reference the correct procedures.

b. Identified 20 EOPs that had attachments as part of the procedure but were not listed on the procedure's introduction page. These deficiencies were corrected during the audit.

c. Identified potential step sequence errors in EOP E-3. As of June 10, 1988, the licensee is evaluating the need to revise E-3 so as to be consistent with the ERG.

d. During walkdown of various EOPs, it was identified that the SI test line to the RWST valves were missing the proper labels. As of June 10, 1988, these valves had proper tags applied.

Nine potential deficiencies were identified and the auditor recommended corrective action on six of the deficiencies that were not corrected during the audit. As of June 10, 1988, all but two of the potential deficiencies have been corrected. These two items are still being evaluated by the licensee. One item under evaluation is discussed in as item 4.c above. The other item pertains to the need to environmentally qualify (EQ) the steam generator (SG) narrow range level indication. Under normal containment conditions, the operator uses SG narrow range level indication. Under adverse containment conditions, the operator must use wide range instrumentation because the SG narrow range level instrumentation is not qualified for harsh environment. This item is being evaluated by NSP Technical Engineering staff.

During personnel interviews, the inspectors were informed that the QA audit discussed above had been requested by the PI Operations Department because the audit of PI EOPs was not on the QA Audit Schedule. It was also learned that the PI EOPs were first approved for use in April 1984. All evidence obtained from review of documents and personnel interviews confirms that the PI EOPs were not audited by QA from April 1984 until the first audit was started on April 14, 1988. The licensee was informed that failure to perform planned and periodic audits of the PI EOPs is a violation of 10 CFR 50, Appendix B, Criterion XVIII.

Further investigation into this matter revealed that as of June 20, 1988, the QA Audit Schedule contained the requirements for planned and periodic audits of the PI EOPs.

In summary, the inspection showed that action has been taken to correct the identified violation (faiure to perform planned and periodic audtis of the PI EOPs) and to prevent recurrence. An indepth audit of the PI EOPs was conducted on April 14 - May 11, 1988, and the QA Audit Schedule now contains the requirements for planned and periodic audits of the PI EOPs. Consequently, no reply to the violation is required and we have no further questions regarding this matter.

5. EOP Summary

As noted in Paragraphs 2, 3 and 4 of this report, various concerns were identified by the Inspection Team. For the concerns identified, the licensee has either:

- Completed the corrective action before the Inspection Team left the site.
- Committed to specific corrective action to resolve the deficiency.
- Committed to perform an evaluation to determine corrective action, if required.

During the inspection, the following positive attributes were identified:

- Prairie Island (PI) has upgraded their EOPs to meet Revision 1A of the WOG Emergency Response Guidelines.
- PI has an effective Verification and Validation (V&V) program in place. The feedback from the operators/engineers and the V&V program is also very good.
- To supplement the V&V program, PI has developed a Local Action Checklist which is included as Appendix B to this report.
- Background information has been added to individual procedure steps to clarify the intent of the step. In addition, all of the background documentation for a procedure is filed in the procedure binder. Each EOP is in a separate binder and is well identified.

6. Open Items

Open items are matters which have been discussed with the licensee which will be reviewed further by the inspectors and which involves some actions on the part of the NRC or licensee or both. Open item disclosed during this inspection is discussed in Paragraph 2.c(2) of this report.

7. Exit Interview

The inspectors met with licensee representatives (denoted in Paragraph 1) on June 21, 1988. The inspectors summarized the purpose, scope, and findings of the inspection and the likely informational content of the inspection report. The licensee acknowledged this information and did not identify any proprietary information.

APPENDIX A

PRAIRIE ISLAND EMERGENCY OPERATING PROCEDURES

OPTIMAL RECOVERY PROCEDURES

*#E-0, Revision 4, Reactor Trip or Safety Injection
ES-0.0, Revision 2, Rediagnosis
#ES-0.1, Revision 4, Reactor Trip Response
#ES-0.2, Revision 3, SI Termination
*#ES-0.3A, Revision 0, Natural Circulation Cooldown w/CRDM Fans
ES-0.3B, Revision 0, Natural Circulation Cooldown w/o CRDM Fans
ES-0.4, Revision 1, Natural Circulation Cooldown w/Steam Void in Vessel

*#E-1, Revision 5, Loss of Reactor or Secondary Coolant
ES-1.1, Revision 4, Post LOCA Cooldown and Depressurization
#ES-1.2, Revision 3, Transfer to Recirculation
*#ES-1.3, Revision 0, Transfer to Recirculation With One Safeguard Train Out of Service

#E-2, Revision 1, Faulted Steam Generator Isolation

*#E-3, Revision 3, Steam Generator Tube Rupture (SGTR)
ES-3.1, Revision 2, Post-SGTR Cooldown Using Backfill
ES-3.2, Revision 2, Post-SGTR Cooldown Using Blowdown
ES-3.3, Revision 2, Post-SGTR Cooldown Using Steam Dump

*#ECA-0.0, Revision 2, Loss of All AC Power
ECA-0.1, Revision 0, Loss of All AC Power Recovery Without SI Required
#ECA-0.2, Revision 0, Loss of All AC Power Recovery With SI Required

*#ECA-1.1, Revision 1, Loss of Emergency Coolant Recirculation
ECA-1.2, Revision 0, LOCA Outside Containment

*#ECA-2.1, Revision 2, Uncontrolled Depressurization of Both Steam Generators

#ECA-3.1, Revision 4, SGTR With Loss of Reactor Coolant - Subcooled Recovery
ECA-3.2, Revision 5, SGTR With Loss of Reactor Coolant - Saturated Recovery
ECA-3.3, Revision 2, SGTR Without Pressurizer Pressure Control

CRITICAL SAFETY FUNCTION STATUS TREES

#F-0.1, Revision 1, Subcriticality
#F-0.2, Revision 2, Core Cooling
#F-0.3, Revision 2, Heat Sink
#F-0.4, Revision 2, Integrity
#F-0.5, Revision 1, Containment
#F-0.6, Revision 2, Inventory

FUNCTION RESTORATION PROCEDURES

*#FR-S.1, Revision 5, Response to Nuclear Power Generation/ATWS
FR-S.2, Revision 2, Response to Loss of Core Shutdown

*FR-C.1, Revision 2, Response to Inadequate Core Cooling
#FR-C.2, Revision 2, Response to Degraded Core Cooling
FR-C.3, Revision 1, Response to Saturated Core Cooling

#FR-H.1, Revision 2, Response to Loss of Secondary Heat Sink
FR-H.2, Revision 1, Response to Steam Generator Overpressure
FR-H.3, Revision 1, Response to Steam Generator High Level
FR-H.4, Revision 1, Response to Loss of Normal Steam Release Capabilities
FR-H.5, Revision 1, Response to Steam Generator Low Level

#FR-P.1, Revision 2, Response to Imminent Pressurized Thermal Shock Condition
FR-P.2, Revision 1, Response to Anticipated Pressurized Thermal Shock Condition

#FR-Z.1, Revision 1, Response to High Containment Pressure
FR-Z.2, Revision 1, Response to High Sump B Level
FR-Z.3, Revision 1, Response to High Containment Radiation

FR-I.1, Revision 1, Response to Pressurizer Flooding
FR-I.2, Revision 1, Response to Low System Inventory
FR-I.3, Revision 3, Response to Voids in Reactor Vessel

*C1.8, Revision 4, Shutdown from Outside the Control Room F5, Appendix B, Control Room Evacuation (Fire) Safe Shutdown Procedure

A desk-top review of all these procedures was performed as noted in Paragraphs 2.b and 3.b of this report.

*A walkdown of these procedures was performed as noted in Paragraphs 2.c and 3.c of this report.
#These procedures were exercised during the simulator scenarios as discussed in Paragraphs 2.d and 3.d of this report.

APPENDIX B

LOCAL ACTION CHECKLIST

PROCEDURE _____ STEP _____

1. IS THE COMPONENT SPECIFIED IN THE LOCAL ACTION ACCESSIBLE?

   YES NO

   IF NO LIST WHAT NEEDS TO BE DONE (LADDER, PLATFORM, ETC.)

   _____

   _____

   _____

2. ENVIRONMENTAL CONDITIONS

   A. DO EXPECTED RADIATION LEVELS FOR DBA OR LONG TERM RECIRCULATION PREVENT LOCATION ACTION?

      YES NO

   B. EXPECTED RADIATION LEVEL FROM F3-25 DBA/RECIRC _____ / _____

   C. DOES THE AREA IN WHICH THE COMPONENT IS LOCATED HAVE ADEQUATE LIGHTING (NORMAL AND EMERGENCY)?

      YES NO

   D. IS THE COMPONENT LOCATED IN A CONTAMINATED AREA?

      YES NO

3. CAN MINIMUM SHIFT STAFFING SUPPORT THIS LOCAL ACTION?

   YES NO

4. APPROXIMATE LOCATION OF COMPONENT (USE THE PLANT COORDINATES)

   _____

5. ANY RECOMMENDATIONS REGARDING THE ABILITY TO PERFORM LOCAL ACTION.

   _____

   _____

   _____

EVALUATION PERFORMED BY _____

DATE OF EVALUATION _____