

May 26, 1998

Mr. M. Wadley
Vice President
Nuclear Generation
Northern States Power Company
414 Nicollet Mall
Minneapolis, MN 55401

SUBJECT: NRC OPERATIONAL ASSESSMENT TEAM INSPECTION REPORTS
50-282/98006(DRS); 50-306/98006(DRS) AND NOTICE OF VIOLATION

Dear Mr. Wadley:

On April 9, 1998, the NRC completed an inspection at the Prairie Island reactor facility. The enclosed report presents the results of that inspection.

The purpose of the inspection was to independently assess the conduct of operations. This included a 72-hr observation period and a review of administrative procedures and policies. During the 2-week period covered by this inspection, your conduct of activities at the Prairie Island facility was generally characterized by safety-conscious operations. The operations shift management and control room operators were effective at controlling work in progress and performing pre-evolution briefings. Operators were attentive to their assigned duties and were aware of plant and equipment statuses. Efforts to improve and maintain a high standard for plant material condition were evident. Operations personnel performed above established management expectations; however, in some cases, management expectations were low. Also, we are concerned about two violations of NRC requirements that were identified. The first violation involved a failure to follow a procedure when isolating a breaker. Operations personnel did not pursue a procedure change prior to hanging a secure tag. The second violation involved an inadequate procedure for transferring power for a motor control center. In this case, engineering personnel failed to revise a procedure when a modification to the system was completed.

These violations are cited in the enclosed Notice of Violation, and the circumstances surrounding the violations are described in detail in the enclosed report. Please note that you are required to respond to this letter and should follow the instructions specified in the enclosed Notice when preparing your response. The NRC will use your response, in part, to determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

M. Wadley

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In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and your response will be placed in the NRC Public Document Room.

Sincerely,

/s/ J. A. Grobe

John A. Grobe, Director
Division of Reactor Safety

Docket Nos. 50-282; 50-306
License Nos. DPR-42; DPR-60

Enclosures: 1. Notice of Violation
2. Inspection Reports 50-282/98006(DRS); 50-306/98006(DRS)

cc w/encls: Plant Manager, Prairie Island
State Liaison Officer, State
of Minnesota
State Liaison Officer, State
of Wisconsin
Tribal Council
Prairie Island Dakota Community

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cc w/encls: Plant Manager, Prairie Island
State Liaison Officer, State
of Minnesota
State Liaison Officer, State
of Wisconsin
Tribal Council
Prairie Island Dakota Community

DOCUMENT NAME: G:DRS\PRA98006.DRS

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NOTICE OF VIOLATION

Northern States Power Company
Prairie Island Station

Docket Nos. 50-282; 50-306
License Nos. DPR-42; DPR-60

During an NRC inspection conducted from March 30 through April 9, 1998, violations of NRC requirements were identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," NUREG-1600, the violations are listed below:

1. Criterion V of 10 CFR Part 50, Appendix B, requires, in part, that activities affecting quality shall be accomplished in accordance with instructions, procedures, and drawings.

Step 6.10.4.c.2.b of Administrative Work Instruction 3.10.0, "Control and Operations of Plant Equipment," Revision 7, requires that qualified personnel shall check molded case circuit breakers open by "testing dead" when applying a safety tag for the "off" position.

Contrary to the above, on April 1, 1998, the inspectors observed a plant operator hang a secure tag associated with work order 9801216 on the #21 safety injection pump motor control center breaker without performing a dead test as required.

This is a Severity Level IV violation (Supplement I).

2. Criterion V of 10 CFR Part 50, Appendix B, requires, in part, that activities affecting quality shall be prescribed by documented instructions, procedures, and drawings of the type appropriate for the circumstances.

Temporary memo 1997-0178, initiated October 31, 1997, instructed operators to delete Step 5.1.6.H.8 (for 1MA2) and Step 5.3.4.D.5 of procedure 1C20.8, "Instrument AC Distribution System," Revision 9, until a modification for the transfer capability was completed. Step 5.1.6.H.8 provided instructions for operators to restore normal Unit 1 power to motor control center 1MA2 if necessary. Step 5.3.4.D.5 provided instructions for operators to transfer the power source from Unit 2 to Unit 1 for motor control center 1MA2.

Contrary to the above, the inspectors identified that during the period of November 10, 1997, and April 7, 1998, procedure 1C20.8 did not contain adequate instructions for transferring power sources for motor control center 1MA2 since temporary memo 1997-0178 was still in effect. The modification for the transfer capability was completed on November 10, 1997, and the licensee did not cancel the temporary memo.

This is a Severity Level IV violation (Supplement I).

Pursuant to the provisions of 10 CFR 2.201, Northern States Power Company is hereby required to submit a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555 with a copy to the Regional Administrator, Region III, and a copy to the NRC Resident Inspector at the Prairie Island Nuclear Generating Plant, within 30 days of the date of the letter transmitting this Notice of Violation (Notice). This reply should be clearly marked as a "Reply to a Notice of Violation"

and should include for each violation: (1) the reason for the violation, or, if contested, the basis for disputing the violation or severity level, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further violations, and (4) the date when full compliance will be achieved. Your response may reference or include previous docketed correspondences, if the correspondence adequately addresses the required response. If an adequate reply is not received within the time specified in this Notice, an order or a Demand for Information may be issued as to why the license should not be modified, suspended, or revoked, or why such other action as may be proper should not be taken. Where good cause is shown, consideration will be given to extending the response time.

If you contest this enforcement action, you should also provide a copy of your response to the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001.

Because your response will be placed in the NRC Public Document Room (PDR), to the extent possible, it should not include any personal privacy, proprietary, or safeguards information so that it can be placed in the PDR without redaction. If personal privacy or proprietary information is necessary to provide an acceptable response, then please provide a bracketed copy of your response that identifies the information that should be protected and a redacted copy of your response that deletes such information. If you request withholding of such material, you must specifically identify the portions of your response that you seek to have withheld and provide in detail the bases for your claim of withholding (e.g., explain why the disclosure of information will create an unwarranted invasion of personal privacy or provide the information required by 10 CFR 2.790(b) to support a request for withholding confidential commercial or financial information). If safeguards information is necessary to provide an acceptable response, please provide the level of protection described in 10 CFR 73.21.

Dated at Lisle, Illinois
this 26th day of May 1998

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos: 50-282; 50-306
License Nos: DPR-42; DPR-60

Report No: 50-282/98006(DRS); 50-306/98006(DRS)

Licensee: Northern States Power Company

Facility: Prairie Island Nuclear Generating Plant

Location: 1717 Wakonade Drive East
Welch, MN 55089

Dates: March 30 through April 9, 1998

Inspectors: A. M. Stone, Senior Resident Inspector, Monticello
R. M. Bailey, Reactor Inspector
S. G. DuPont, Project Engineer
J. D. Ellis, License Examiner
T. R. Jones, License Examiner

Approved by: M. Leach, Chief, Operator Licensing Branch
Division of Reactor Safety

EXECUTIVE SUMMARY

Prairie Island Nuclear Generating Station, Unit 1 and Unit 2
NRC Inspection Reports 50-282/98006; 50-306/98006

This operational assessment team inspection report covers a 2-week period of on-site inspection of the conduct of operations which included a continuous 72-hour period of control room observation. The conduct of operation at the Prairie Island facility was good; however, the inspectors noted that management expectations were low concerning frequency of control room panel walkdowns and required actions during the crew turnover process.

Operations

- Control room personnel were cognizant of the overtime hour limitations and operated in accordance with program guidance. The documentation of the on-shift hours in support of active license maintenance was clear and concise. Control room shift briefings and relief turnovers were conducted in accordance with program guidance. However, the inspectors concluded that the Unit-1 control operators could be hindered from monitoring the panels during the shift briefing evolution. (Section O1.2)
- The control room operators responded appropriately to unexpected annunciator alarms; however, response to expected alarms was inconsistent between crews. Management's expectations for operator response to expected alarms upon receipt was low. The operations personnel were effective in communicating plant conditions and evolutions. Plant operators were knowledgeable of the facilities and equipment status. (Section O1.3)
- Operations personnel generally had a good understanding of indicators on the control board. The control operators were attentive to their assigned duties and aware of plant and equipment statuses. Operators frequently walked down the control room panels. Some minor indication and equipment discrepancies were noted. However, operations management's expectation that operators walkdown panels once per hour was low. Also, the unit supervisors' review of the control panels varied greatly among the crews observed. (Section O1.4)
- In general, the control room operators were effective at controlling work in progress and performing pre-evolution briefs. However, one shift supervisor did not consider the potential affect of cross-tying buses prior to a pre-job briefing until questioned by the inspectors. (Section O1.5)
- The control room and plant operators were knowledgeable and competent when tagging system components for planned work. However, one violation for failure to follow an electrical breaker tag-out procedure was identified. (Section O1.6)
- The overall housekeeping and material condition of the plant was good. Recently overhauled equipment indicated a conscious and significant effort to maintain a high standard for material condition. However, several examples were identified where operations personnel accepted discrepant equipment conditions such as sealed-in alarms, inaccurate flow indication, and inappropriate application of a component cooling

flow indication gauge. This demonstrated a lack of a questioning attitude by the operators in accepting degraded equipment, procedure problems, and workarounds as a part of normal plant operation. (Section O2.1)

- The licensee's program for identifying operator workarounds was acceptable. Operations personnel were cognizant of the open workarounds and procedures were revised to address additional operator actions required. (Section O2.2)
- In general, the licensee implemented the temporary memo and special order processes in accordance with procedures. Operations personnel were knowledgeable of the conditions. However, the licensee did not remove an outdated temporary memo when a modification was completed on the instrument AC distribution system. This resulted in a violation for an inadequate procedure associated with transferring power between units for motor control center 1MA2. (Section O3.1)
- The temporary modification and bypass control processes were effective. The processes were well implemented with few temporary modification outstanding at any one time. One concern was identified with the lack of periodic verification of stickers and identification of bypasses within the plant and control room. The licensee was in the process of developing a verification process. (Section O3.2)

Report Details

Summary of Plant Status

The Units operated at or near full power for the duration of the inspection period.

I. Operations

O1 Conduct of Operations

O1.1 General Comments

The inspectors conducted an observation of routine control room activities during a continuous 72-hour period using Inspection Procedures (IPs) 93802 and 71707 as guidance. In general, conduct of operations was professional and focused on operational safety. Specific observations and findings are listed in the following sections.

O1.2 Shift Manning and Relief Turnovers

a. Inspection Scope (IPs 71707 and 93802)

The inspectors assessed the licensee's operations personnel shift turnovers and briefings conducted during the continuous 72-hour monitoring period. The inspectors also assessed the licensee's effectiveness to control plant operations with the current shift manning. The following procedures were considered in the review process:

- Administrative Work Instruction (5AWI) 3.15.0, "Plant Operation", Revision 5 and
- Section Work Instruction (SWI) O-2, "Shift Organization, Operation & Turnover," Revision 38.

b. Observations and Findings

Each duty crew consisted of two licensed senior reactor operators, Unit 1 and Unit 2 Shift Supervisors (SS); four licensed reactor operators, Lead Plant Equipment & Reactor Operators (LPERO) and Plant Equipment & Reactor Operators (PERO); and six outplant operators, Assistant Plant Equipment Operators (APEO) and Plant Attendants (PA). An additional licensed reactor operator serves as the dedicated seismic watch person. (See Section O2.2 for more details.) The duty crew was supervised by a Shift Manager (SM), a licensed senior reactor operator. During the continuous 72-hour observation period, personnel manning in the control room as specified in Technical Specification Table 6.1-1 was maintained at all times.

The inspectors also reviewed documentation for maintenance of active licenses. Licensed personnel are required to work five 12-hour shifts per quarter to maintain a license. The licensed reactor and senior reactor operators documented each full 12-hour shift worked to ensure the current quarter's requirements were met. No concerns were identified.

The inspectors also verified that the licensee did not rely on excessive operator overtime to accomplish routine operations. Technical Specification 6.1.E.1 states that adequate shift coverage shall be maintained without routine heavy use of overtime and provides guidelines on acceptable working hours limitations. The licensee's implementing procedure, 5AWI 3.15.0, required the plant manager or designee to authorize deviation from these guidelines in accordance with Technical Specification 6.1.E.2. The inspectors reviewed the February 1998 overtime report and noted that several individuals had greater than 120 hours of overtime for the month due to the Unit 2 forced-outage. The inspectors reviewed the ingress and egress security records for 10 of these individuals and verified that appropriate deviation authorizations were obtained when necessary. The inspectors also interviewed three PEROs and two Unit SSs. No problems with the use of excessive overtime were identified.

Shift relief personnel were generally observed arriving early and performing a detailed discussion and panel review of plant and equipment status, log entries, planned work, and operating priorities from their counterparts. The inspectors noted that SWI O-2 did not require operations personnel to walkdown the control room panels or review the log entries with their counterparts and concluded that management expectations for the turnover process were low. Following the individual turnovers and after the previous crew left, a crew brief was conducted in the Unit-1 control area about 30-minutes later and included all on-shift members. The briefings were informative and incorporated a discussion on each unit's status, planned work items and any abnormal conditions. An open dialog was normally observed at the briefings, versus simple dissemination of information from supervision. However, the inspectors noted that during the shift briefings, the Unit 1 control room was crowded which could hinder the operators from monitoring the panels and responding to annunciators.

c. Conclusions

Control room personnel were cognizant of the overtime hour limitations and operated in accordance with program guidance. The documentation of the on-shift hours in support of active license maintenance was clear and concise. Control room shift briefings and relief turnovers were conducted in accordance with program guidance. However, the inspectors concluded that the Unit-1 control operators could be hindered from monitoring the panels during the shift briefing evolution.

O1.3 Conduct of Routine Operations

a. Inspection Scope (IPs 71707 and 93802)

During the 72-hours of observation, the inspectors reviewed ongoing plant operations, including observations of response to annunciator and alarms, conduct of operator rounds, and communication. The following procedures were considered in the review process:

- SWI O-48, "Control Room Annunciator Response," Revision 0 and
- SWI O-24, "Operation Section Communications," Revision 4.

b. Observations and Findings

The LPEROs and PEROs responded by referencing the appropriate alarm response instructions whenever an unexpected annunciator alarm was received. Operator responses were appropriate and the conditions were promptly communicated to the duty supervisor. However, operator response to expected alarms was inconsistent between crews. In some cases, operators announced the expected alarm but did not review the annunciator procedure. Also, the inspectors were concerned that operators were not considering other possible causes for expected alarms and this could result in an unnoticed condition. Management's expectations for annunciator response was low, in that, Section 6.1 of SWI O-48 delineated specific operator actions for only unexpected alarms.

In general, the operators demonstrated good communication skills during normal and abnormal evolutions. The standard of communications, as outlined in SWI O-24, was implemented during routine conversations but not required. However, the consistent use of formal repeat backs was not noticeable in all cases. For example, one US did not communicate to the control operators that a maintenance activity would cause an annunciator alarm until after the alarm was received.

Plant operations personnel were attentive during in-plant rounds. Plant operators attended plant equipment accordingly by adding oil to pumps when needed, replacing a burnt-out light bulb on local panels, and monitoring component cooling water pump seal leakage rates.

c. Conclusions

The control room operators responded appropriately to unexpected annunciator alarms; however, response to expected alarms was inconsistent between crews. Management's expectations for operator response to expected alarms upon receipt was low. The operations personnel were effective in communicating plant conditions and evolutions. Plant operators were knowledgeable of the facilities and equipment status.

O1.4 Operator Attentiveness to Duty and Panel Monitoring

a. Inspection Scope (IPs 71707 and 93802)

The inspectors assessed the licensee's ability to monitor control panel indications during routine operator walkdowns and to determine all conditions adverse to continued operations. These observations were conducted during the continuous 72-hour monitoring period. The following procedure was considered in the process:

- SWI O-2, "Shift Organization, Operation & Turnover," Revision 38.

b. Observations and Findings

The inspectors observed control room operators during the performance of panel walkdowns and noted the following:

- Operators were generally knowledgeable of equipment condition and status of outstanding tags on control room handswitches. However, the inspectors noted that one operator did not understand that Appendix R breakers were de-energized to prevent spurious operation during a fire.
- Each LPERO and PERO performed routine panel walkdowns and reviewed all indications during normal and abnormal operations. Operators were attentive and performed detailed panel walkdowns about once an hour which was in accordance with the expectations specified in SWI O-2. A few operators were observed performing a more frequent detailed panel review of control indications, some as often as every fifteen minutes. The inspectors noted that the diesel control panel was not walked down as frequently as the remaining panels.
- Most Unit SSs routinely scanned the control area about once every couple of hours but the level of detail of these scans varied between individual supervisors. A few Unit SSs were observed only performing a general panel walkdown during shift turnovers, once every 12-hours. Section 5.5 of SWI O-2 specified that all on-duty personnel must be aware of the status for portions of the plant and equipment they are assigned responsibility. The inspectors did not observe any lapses in awareness on the part of the supervisors.

The inspectors identified several minor discrepancies on the control room panels which were promptly addressed by operations personnel. These included:

- operators did not know why blue dot stickers were affixed to some annunciator windows. The licensee later explained that the stickers were placed on the annunciator windows which were transferred to a different computer system some time ago. Subsequent to the inspectors' identification, the stickers were removed.
- operators were unaware that the blue pen on the Unit 2 steam generator pressure recorder had dried out. The operators replaced the pen.
- the chart paper for the #11 reactor coolant pump seal flow was out. This was identified when an annunciator for a low flow condition was received.
- operations personnel were unaware that an out-of-service sticker was missing on an inoperable spare annunciator on a Unit 2 control room panel. The inspectors identified that the licensee did not conduct routine verification on outstanding out-of-service tags on the control room panels.

c. Conclusions

Operations personnel generally had a good understanding of indicators on the control board. The control operators were attentive to their assigned duties and aware of plant and equipment statuses. Operators frequently walked down the control room panels. Some minor indication and equipment discrepancies were noted. However, operations management's expectation that operators walkdown panels once per hour was low.

Also, the unit supervisors' review of the control panels varied greatly among the crews observed.

O1.5 Work Control and Pre-job Briefings

a. Inspection Scope (IPs 71707 and 93802)

The inspectors observed the initiation of several work orders and attended pre-job briefings to assess the licensee's effectiveness at controlling work activities. The following procedures were considered in the review process:

- 5AWI 3.2.4, "Conduct of Work," Revision 15,
- C20.15, "Service Building Addition 4.16/.480kV System", Revision 4, and
- Work Order (WO) 9608901, Trouble Shoot Ground on Bus 420 4kV/480 Transformer, Revision 0.

b. Observations and Findings

The control room operators reviewed and discussed work order packages and performed associated evolution briefings in accordance with program guidance. Additionally, key personnel were present at each briefing with an appropriate level of detail being discussed.

However, on April 3, 1998, two concerns were identified during the shift activities associated with WO 9608901. The work order was written to remove the normal 4kV/480V transformer supply to Bus 420 due to a suspected ground. The WO directed operators to cross-tie Bus 420 to Bus 320 in accordance with procedure C20.15. The Unit 2 SS and the Unit 2 LPERO discussed the evolution and decided to proceed. Two plant operators were directed to the control room for a pre-job briefing but just as the pre-job briefing started, one of the operators was re-directed to support activities involving a nitrogen truck. During the 30-minute period before the operator returned, the inspectors discussed the sequence of the evolution with the Unit 1 SS, who was directing the activity. The inspectors inquired about the immediate and long term affects on plant operation if one or both of the busses were lost during the evolution. The Unit 1 SS did not know and reviewed the load lists for Bus 320 and Bus 420. The Unit 1 SS informed the inspectors that the loss of one or both of the busses would not trip the reactor and the loss would be manageable. The inspectors were concerned that the Unit 1 SS did not review this information earlier.

The inspectors also questioned why the procedure did not provide information regarding interlocks or limitations associated with using the cross-tie breakers. The Unit 1 SS reviewed the logic drawing for the breakers and determined that there were interlocks associated with the Bus 320 normal supply, Bus 420 normal supply, and bus cross-tie breaker. These breakers could be closed simultaneously for only 20 seconds before the cross-tie breaker trips open. The Unit 1 SS decided to include this information in the pre-job briefing and did not process a temporary procedure change since the sequence of steps was not altered. The inspectors agreed since similar switching procedures

contained only an additional caution statement describing the interlock. The Unit 1 SS stated that the procedure deficiency would be turned over to the day-shift US for resolution. The inspectors were concerned that the restoration procedure was also deficient and this information could be lost if the issue was turned over to the next crew. After discussion with the inspectors, the Unit 1 SS decided to revise the work order restoration section to include a caution about the interlocks, added this information to the turnover sheet, and wrote out a procedure change request to correct the procedure.

c. Conclusions

In general, the control room operators were effective at controlling work in progress and performing pre-evolution briefs. However, one shift supervisor did not consider the potential affect of cross-tying buses prior to a pre-job briefing until questioned by the inspectors.

O1.6 Safety System Tagging

a. Inspection Scope (IPs 71707 and 93802)

The inspectors assessed the licensee's safety system tagging and isolation program during the continuous 72-hour monitoring period. The following procedure was considered in the review process:

- 5AWI 3.10.0, "Control and Operation of Plant Equipment," Revision 7.

b. Observations and Findings

The control room operators performed reviews of safety system tagging evolutions associated with routine work packages. The plant operators and attendants performed each tagging evolution in accordance with program guidance with one exception. On April 1, 1998, plant operators were directed to hang a secure tag for WO 9801216 on the #21 safety injection pump motor control center breaker. The inspectors noted that the breaker had been previously tagged-out and placed in the "off" position in support of another maintenance activity. The inspectors questioned the operator on the procedure requirements for hanging a second tag on an electrical breaker. The operator stated that the second tag should cross-reference the information contained on the first tag prior to being placed on the breaker. However, the inspectors identified that the instructions provided in 5AWI 3.10.0 had been recently revised and did not discuss the

method outlined by the operator. After discussion with the Unit 2 SS, the plant operator referenced the first tag on the second tag and hung the second tag.

Step 6.10.4.c.2.b of 5AWI 3.10.0 required personnel to check molded case circuit breakers open by "testing dead" when applying a safety tag for the "off" position. No guidance was provided for the proper method of performing or documenting the addition of a second tag for a breaker previously tagged-out. A temporary procedure change was not initiated for this deviation from established procedures. Failure to perform Step 6.10.4.c.2.b of 5AWI 3.10.0 is a violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Drawings, and Procedures" (VIO 50-282/98006-01; VIO 50-306/98006-

01(DRS)). This event had minimal safety significance; however, it demonstrated that management's expectations on procedure adherence were not consistently followed.

c. Conclusions

The control room and plant operators were knowledgeable and competent when tagging system components for planned work. However, one violation for failure to follow an electrical breaker tag-out procedure was identified.

O2 Operational Status of Facilities and Equipment

O2.1 Observations During Plant Tours

a. Inspection Scope (IPs 71707 and 93802)

The inspectors performed several walkdowns within the auxiliary and turbine buildings to ascertain the material condition of systems, structures, and components. Selected portions of the residual heat removal (RHR) and component cooling (CC) systems were inspected during plant tours. The following documents were also reviewed:

- 1C14.1, "Component Cooling System - Unit 1," Revision 11 and
- 1C15.1, "RHR System," Revision 16.

b. Observations and Findings

The overall plant material condition, labeling, and housekeeping were good. Many components, in particular control valves and steam dump valves, were recently overhauled. All of the tubing, air regulators, positioners, limit switches and controllers had been overhauled or replaced. This indicated a conscious and significant effort by the licensee to maintain a high standard of material condition. The inspectors noted few water or steam leaks throughout the Auxiliary or Turbine Buildings. The inspectors also made the following specific observations:

- The number and size of contaminated areas was quite reasonable. Plant operators stated that radiation protection personnel had shown significant support in reducing the amount of contaminated floor space.
- During an Auxiliary Building walkdown, the inspectors observed that a placard stating "Caution: open 2CA-9-1 before starting pump, rehang tag after stopping pump" was affixed to the #21 caustic addition recirculation and fill pump breaker but was not placed on the equivalent #11 pump breaker. The inspectors discussed the observation with the SS who determined that a label should have been on both breakers. The SS completed a label request form to have a label placed on the #11 pump breaker.
- During a walkdown of the Unit 1 and Unit 2 RHR systems, the inspectors identified that one of the packing leakoff valves on the sump recirculation suction valves was missing an equipment identification tag.

- During a walkdown of the Unit 1 and Unit 2 CC systems, the inspectors noted a higher than expected mechanical seal leakage on the CC pumps, but the leakage was collected for reuse of the chromated water. The PAs and APEOs displayed a high level of attentiveness to this plant condition.
- The inspectors noted that the gauges for the CC system cooling water flow to the containment spray pump seal coolers were all indicating full upscale, greater than 15 gallons per minute (gpm). The inspectors were concerned that this was an inappropriate application for the gauges since the CC system checklist specified a range of 15 gpm to 20 gpm for these coolers. This discrepancy was discussed with shift management who were unable to provide a clear and concise explanation of why this condition was allowed to exist or how the intent of the procedure step could be met. The inconsistency between the installed instrumentation and the procedural requirement should have been flagged as unacceptable configuration. The system engineer planned to reduce flow to within the instrument range.
- The inspectors also noted that the CC inlet and outlet flow gauges to the spent fuel pool heat exchanger provided vastly different flow readings for the same parameter. The inlet flow gauge, FI-18261, read approximately 1800 gpm (as required by procedure) and the outlet flow gauge, FI-18399, read approximately 2175 gpm. This condition was recognized by the operators as a known problem and has been accepted as-is. The inspectors walked down the CC piping and noted that flow elements were located in long stable runs of piping and provided readouts on standard bourdon tube flow gauges, both supplied by the same manufacturer. The system engineer explained that these gauges were not ASME Section XI equipment and were not calibrated at a set frequency. The inspectors were concerned that these gauges and perhaps similar ones were used in determining the flow balance within the CC systems. This issue is considered an Inspection Follow up Item (IFI 50-282/98006-02; IFI 50-306/98006-02(DRP) pending further review of the licensee's CC flow balancing methodology.
- The licensee utilized the chemical volume and control system monitor tanks as the source tanks for a liquid radwaste discharge. The operators filled a monitor tank, took samples, and when deemed acceptable for discharge, discharged the tank as a stand alone batch tank. At the completion of the transfer, the transfer pumps trip on low level in the respective tank as designed. As a result, the operators have a sealed-in low monitor tank low level alarm whenever the tank has been recently transferred until inventory is added to the tank. The operators accepted the sealed-in alarm as a normal condition for the system.

c. Conclusions

The overall housekeeping and material condition of the plant was good. Recently overhauled equipment indicated a conscious and significant effort to maintain a high standard for material condition. However, several examples were identified where operations personnel accepted discrepant equipment conditions such as sealed-in alarms, inaccurate flow indication, and inappropriate application of a component cooling

flow indication gauge. This demonstrated a lack of a questioning attitude by the operators in accepting degraded equipment, procedure problems, and workarounds as a part of normal plant operation.

O2.2 Operator Workarounds

a. Inspection Scope (IPs 71707 and 93802)

The inspectors reviewed the licensee's process for identifying and resolving equipment deficiencies which could impact operator responses to events. The following document was considered in this review:

- 5AWI 3.15.0, "Plant Operations," Revision 5

b. Observations and Findings

As of March 30, 1998, the licensee had 13 open operator workarounds (OWAs). The inspectors verified that these conditions did not result in safety-related equipment inoperabilities. Compensatory measures were documented in Special Orders, Temporary Memos, Temporary Instructions, or other appropriate plant documents. The inspectors reviewed the operations committee meeting notes to verify that the committee had reviewed the open OWAs. New items were discussed as well as target closeout dates for outstanding issues. The inspectors also verified that the operators were knowledgeable of the open OWAs. Operations personnel were involved in identifying and evaluating potential OWAs. Specific comments are provided below:

- Action 19950910, "Unit 1 and Unit 2 moisture separator reheaters steam supply control valves leak by." The inspectors verified that 1EO, "Reactor Trip or Safety Injection," Revision 17, contained instructions for the plant operators to isolate the reheaters. The inspectors noted that plant operators were knowledgeable of this OWA and associated manual actions.
- Action 19980055, "11 and 22 Auxiliary feedwater pump auxiliary lube oil pump timers have failed." This OWA required the plant operators to manually start the lube oil pumps twice a week to maintain pre-lube. The licensee issued temporary memo 1997-0221 to include this requirement in the system operation procedure. The inspectors reviewed the procedure change with a plant operator.
- Action 19980057, "Inadequate seismic analysis requires continuous monitoring of seismic event alarm." Several temporary memos were issued to address this concern. The licensee established a dedicated "seismic watch" reactor operator on each shift. The seismic watch operators were fully aware of their responsibilities and the procedural requirements for a seismic watch. The procedure was concise in its language and intent.

c. Conclusions

The licensee's program for identifying OWAs was acceptable. Operations personnel

were cognizant of the open OWAs and procedures were revised to address additional operator actions required.

O3 **Operations Procedures and Documentation**

O3.1 Temporary Memo and Special Order Processes

a. Inspection Scope (IPs 71707 and 93802)

The inspectors evaluated several outstanding temporary memos (TMAs) and special orders (SOs) to verify that the TMAs and SOs did not create new procedures but were changes to existing procedures and checklists. The inspectors also reviewed the following procedures:

- 5AWI 1.5.4, "Temporary Memos," Revision 7 and
- 5AWI 1.2.0, "Special Orders," Revision 0.

b. Observations and Findings

The inspectors verified that the SOs and TMAs were controlled in accordance with procedures. The licensee obtained the appropriate authorization which included review by two management personnel or operations committee members prior to implementing the TMAs and the SOs. The following observations were made:

- SO 238, "Control of Steam Exclusion Boundaries" Revision 7, defined the steam exclusion boundaries and provided direction when a boundary was degraded. The inspectors reviewed several previous and outstanding evaluations for degraded boundaries. The engineer provided technically sound justification for equipment operability without using leak-before-break methodologies. The inspectors also verified that control room layout drawings were marked-up to indicate steam exclusion boundaries and that operations personnel were aware of the issue.
- SO 236, "Fire Barrier Inspections" Revision 5, defined areas within the plant which required once-per-hour fire watch patrols due to an outstanding industry concern with a specific fire barrier system. The inspectors noted that site safety personnel who were responsible for conducting the required fire watches were knowledgeable of the special order. The licensee also issued a letter to the operations personnel which described current fire watch requirements
- Temporary memo 1997-0178 was initiated on October 31, 1997 when the licensee realized that procedure 1C20.8, "Instrument AC Distribution System," Revision 9, had been revised prematurely to reflect a modification which had not been completed. The TMA deleted Step 5.1.6.H.8 which instructed operators to restore normal Unit 1 power to motor control center 1MA2 if necessary and deleted Step 5.3.4.D.5 which instructed operators to transfer power from Unit 1 to Unit 2 per another procedure. With the implementation of this TMA, procedure 1C20.8 reflected current equipment capabilities. On April 7, 1998, the inspectors

identified that the modification, Mod 96EB01, had been completed on November 10, 1997; however, TMA 1997-0178 was still in effect. The system engineer agreed that the TMA should have been removed when the modification package was closed. Criterion V of 10 CFR Part 50, Appendix B, requires activities affecting quality to be accomplished through procedures of the type appropriate for the circumstances. Failure to revise procedure 1C20.8 (by removing the TMA) is a violation (VIO 50-282/98006-03; VIO 50-306/98006-03(DRS)).

c. Conclusions

In general, the licensee implemented the TMA and SO processes in accordance with procedures. Operations personnel were knowledgeable of the conditions. However, the licensee did not remove an outdated TMA when a modification was completed on the instrument AC distribution system. This resulted in an inadequate procedure for transferring power between units for motor control center 1MA2 and was a violation.

O3.2 Temporary Modification and Bypass Control Process Review

a. Inspection Scope (IPs 71707 and 93802)

The inspectors reviewed the temporary modification and bypass control processes to assess the effectiveness of temporary alterations control. The following procedures were considered in the process:

- 5AWI 3.9.0, "Bypass Control," Revision 1 and
- 5AWI 6.5.0, "Temporary Modifications," Revision 3.

b. Observations and Findings

The inspectors reviewed the list of active temporary modifications and bypasses. The total population of bypasses and temporary alterations were low (four temporary modifications and six bypasses) for both units. The inspectors interviewed four shift supervisors and five operators at the controls, and found that all were knowledgeable of the existence of the bypasses and temporary modifications. The inspectors also found that the operations crews were knowledgeable of the effects on plant operation due to the bypasses and temporary modifications. However, the crews could not describe the differences between the processes since both were applied similarly .

The inspectors verified by independently auditing the stored unused bypasses that no jumper was installed without authorization. The inspectors also walked down several locations where bypasses were installed and verified that they were installed according to the procedure. During the walkdown, the inspectors found that one sticker was not affixed on the affected annunciator. The inspectors verified that the documentation showed that it had been installed some time in the past. The licensee determined that the bypass was still active and determined that the sticker had fallen off without being noticed. The inspectors reviewed the licensee's processes and determined that a

periodical review of tags and stickers were not required. The inspectors considered that this was a weakness. The licensee was planning to implement a verification process for annunciator stickers. The inspectors reviewed the draft process and determined that it was appropriate and addressed the inspectors' concern.

c. Conclusions

The temporary modification and bypass control processes were effective. The processes were well implemented with few temporary modification outstanding at any one time. One concern was identified with the lack of periodic verification of stickers and identification of bypasses within the plant and control room. The licensee was in the process of developing a verification process.

V. Management Meetings

X1 Exit Meeting Summary

On April 9, 1998, the inspectors presented the inspection results to members of licensee management. The licensee acknowledged the findings presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

- *K. Albrecht, General Superintendent Engineering, Electrical/Instrumentation & Controls
- *T. Amundson, General Superintendent Engineering, Mechanical
- *W. Bell, Shift Supervisor
- *B. Bodin, Shift Supervisor
- *G. Dammann, Shift Supervisor
- J. Goldsmith, General Superintendent Engineering, Generation Services
- *D. Herling, Shift Manager
- J. Hill, Manager Quality Services
- *J. Jaenicke, Lead Reactor Operator
- *D. Johnson, Shift Manager
- *S. Jones, Reactor Operator
- *P. Kramer, Assistant Plant Equipment Operator
- *M. Ladd, Training Issues Manager
- *G. Lenertz, General Superintendent Plant Maintenance
- *R. Pearson, Shift Supervisor
- *D. Reynolds, Procedure Process Coordinator
- *S. Schaak, Plant Attendant
- *T. Silverberg, General Superintendent Plant Operations
- J. Sorensen, Plant Manager
- *T. Strain, Lead Reactor Operator
- *G. Thomforde, Assistant Plant Equipment Operator
- *M. Wadley, Vice President Nuclear Generation
- *E. Watzl, President Generation
- *D. Westphal, Superintendent, Operations Training

NRC

- *M. Leach, Chief, Operator Licensing Branch
- *S. Ray, Senior Resident Inspector, Prairie Island

* indicates those present during an exit meeting conducted on April 9, 1998.

INSPECTION PROCEDURES USED

IP 71707: Plant Operations
IP 93802: Operational Safety Team Inspection

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-282/98006-01(DRS) 50-306/98006-01(DRS)	VIO	Failure to follow procedure for isolating a breaker
50-282/98006-02(DRP) 50-306/98006-02(DRP)	IFI	Review of the licensee's CC flow balancing methodology.
50-282/98006-03(DRS) 50-306/98006-03(DRS)	VIO	Inadequate procedure for transferring power supply for motor control center 1MA2

LIST OF ACRONYMS USED

5AWI	Administrative Work Instruction
APEO	Assistant Plant Equipment Operator
ASME	American Society of Mechanical Engineers
CC	Component Cooling
CFR	Code of Federal Regulations
DRS	Division of Reactor Safety
gpm	Gallons Per Minute
IFI	Inspection Followup Item
IP	Inspection Procedure
LPERO	Lead Plant Equipment & Reactor Operators
NRC	Nuclear Regulatory Commission
NRC	Nuclear Regulatory Commission
NSP	Northern States Power
OWA	Operator Workaround
PA	Plant Assistant
PDR	Public Document Room
PERO	Plant Equipment & Reactor Operators
RHR	Residual Heat Removal
SM	Shift Manager
SO	Special Order
SS	Shift Supervisor
SWI	Section Work Instruction
TMA	Temporary memo
VIO	Violation
WO	Work Order