

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

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

Report No: 50-282/99018(DRS); 50-306/99018(DRS)

Licensee: Northern States Power Company

Facility: Prairie Island Nuclear Generating Plant

Location: 1717 Wakonade Dr. East
Welch, MN 55089

Dates: November 1 - 5, 1999

Examiners: Michael Bielby, Reactor Inspector
Ann Marie Stone, Reactor Inspector

Approved by: David E. Hills, Chief, Operator Licensing Branch
Division of Reactor Safety

SUMMARY OF FINDINGS

Prairie Island Nuclear Power Station, Units 1 & 2
NRC Inspection Report 50-282/99018(DRS); 50-306/99018(DRS)

This report covers the pilot baseline inspection for the biennial review of the licensed operator requalification training program. The inspectors used the risk informed baseline pilot inspection procedure 71111 Attachment 11, "Licensed Operator Requalification".

REACTOR SAFETY

Cornerstone: Barrier Integrity

The inspectors observed three examples involving compromise of licensed operator requalification examination integrity with respect to examination security. This non-cited violation included two instances in which personnel not on the security agreement were present during job performance measure administration on the simulator and one instance which allowed the possibility for additional unauthorized personnel to view job performance measure administration on the simulator. This violation had low safety significance because the examples did not result in invalidation of administered requalification examinations.

Report Details

I. Operations

1. REACTOR SAFETY

1R11 Licensed Operator Requalification

.1 Operator Knowledge and Performance

.1.1 Annual Evaluation of Operator Performance (Operator Requalification)

a. Inspection Scope (71111.11)

The inspectors observed the performance of one operating shift crew during the annual licensed operator requalification operating examination. The crew consisted of four licensed reactor operators (RO) and four licensed senior reactor operators (SRO). The operating shift crew was divided into two simulator crews for evaluation purpose.

b. Observations and Findings

No significant inspection findings were identified.

.2.1 Operating History

a. Inspection Scope (71111.11)

The inspectors reviewed the plant's operating history from January 1998 through September 1999, to assess whether the licensed operator requalification training program had addressed operator performance deficiencies noted in the plant. The inspectors discussed recent human performance issues with the NRC resident inspectors and licensee personnel, and reviewed the following documents:

- Licensee Event Reports for 1998 and 1999,
- the current plant issues matrix, and
- selected NRC Inspection Reports, including reports written by resident inspectors and operator licensing examiners.

b. Observations and Findings

No significant inspection findings were identified.

.2.2 Requalification Examination Material

a. Inspection Scope (71111.11)

The inspectors reviewed the annual requalification examination material, which consisted of dynamic simulator scenarios, job performance measures (JPM), and written examinations to evaluate general quality, construction, and difficulty level. The inspectors assessed the examination material quality and content using inspection procedure 71111, Attachment 11 checklists. The inspectors reviewed the methodology for developing the requalification examinations, including incorporation of probabilistic risk assessment insights. The inspectors compared both the current year and last year's annual requalification cycle examination material to assess the level of examination material duplication. The inspectors also discussed various aspects of the examination development with members of the licensee's training and operations staff.

b. Observations and Findings

No significant inspection findings were identified.

.2.3 Requalification Examination Administration Practices

a. Inspection Scope (71111.11)

The inspectors observed the administration of all aspects of the requalification examination to determine the evaluators' ability to administer an examination and assess adequate performance through measurable criteria. The inspectors observed the performance of the simulator to support the examinations. The inspectors observed one operating shift crew (divided into two simulator crews) during the dynamic simulator scenarios and JPM evaluations. Nine licensed operations and training staff personnel were observed administering the examinations, including pre-examination briefings, observations of operator performance, individual and crew evaluations of observations, techniques for JPM cuing, and final evaluation briefing and documentation for twelve licensed operators. In addition, the inspectors interviewed operators and key staff members from training and operations departments to assess their understanding of the requalification training process. The inspectors also reviewed the licensee's overall examination security program.

b. Observations and Findings

On November 3, 1999, during the administration of JPMs in the simulator, the inspectors observed the following examination security concerns:

- Maintenance personnel repaired a lock on a simulator instructors' booth door and inspected the simulator back door lock while the operators were performing

their annual requalification JPM examinations. These individuals were not on the security agreement.

- An individual entered the simulator room to update procedures which had been revised. This individual was not on the security agreement.
- The windows on the simulator instructors' room doors were not covered. Though somewhat obstructed, it was possible to view the actions in the simulator or computer displays through these windows.

The individuals involved were not sensitive to the warning signs placed on the doors. These three instances represented opportunities for other licensed personnel, who would later be administered the same examination material, to gain knowledge of the examination content and therefore, adversely impacted the integrity of the examination. The three instances described above are examples of a violation of 10 CFR 55.49, "Integrity of Examinations and Tests", which requires that facility licensees shall not engage in any activity that compromises the integrity of any examination required by 10 CFR Part 55. This violation is being treated as a Non-Cited Violation (NCV) consistent with the Interim Enforcement Policy for Use During the NRC Power Reactor Oversight Process Pilot Plant Study (50-282/99018-01; 50-306/99018-01 (DRS)). This violation is in the licensee's corrective action program as issue 19993150. This violation had low safety significance because the examples did not result in invalidation of administered requalification examinations.

.2.4 Regualification Training Program Feedback Process

a. Inspection Scope (71111.11)

The inspectors verified the methods and effectiveness of the licensed operator requalification training program to ascertain whether assessments of operator performance were effectively incorporated into the requalification training. The inspectors performed interviews with key licensee personnel (operators, instructors, training management, and quality assurance) and reviewed the applicable licensee's procedures and the following documents to assess the licensee's training program feedback system effectiveness:

- Student and Manager evaluations of training sessions and
- Licensee self-assessments of the training program.

b. Observations and Findings

No significant inspection findings were identified.

.2.5 Remedial Training Program

a. Inspection Scope (71111.11)

The inspectors reviewed documentation of the licensed operator requalification remedial training program and program procedures, and conducted interviews with key staff members. The inspectors reviewed remedial training packages for individuals who failed portions of the 1998 operating examination. At the time of the inspection, there were no failures of the 1999 requalification examination.

b. Observations and Findings

No significant inspection findings were identified.

.2.6 Conformance with Operator License Condition

a. Inspection Scope (71111.11)

The inspectors reviewed a sample of licensed operators' records to ascertain whether the facility and the operator licensee's were maintaining license conditions in accordance with 10 CFR 55.53. The following records were reviewed:

- a sampling of licensed operator medical records,
- operator proficiency log records for 1999 which indicated the watch standing hours for licensed operators at the facility, and
- requalification training attendance records for this current cycle.

b. Observations and Findings

No significant inspection findings were identified.

4.0 OTHER ACTIVITIES

4OA4 Closure of Items

.1 (Closed) Violation (VIO) 50-282/98010-01; 50-306/98010-01: Inadequate Procedure for Dumping Steam with Steam Generator Power Operated Relief Valves. The inspectors verified the corrective actions described in the licensee's response letter, dated August 7, 1998, to be reasonable and complete. No similar problems were identified.

.2 (Closed) Violation (VIO) 50-282/97019-01; 50-306/97019-01: Section Work Instruction O-10, "Operations Manual Usage," Circumvented Required Emergency Operating Procedure Steps. The inspectors verified the corrective actions described in the licensee's response letter, dated January 21, 1998, to be reasonable and complete. No similar problems were identified.

- .3 (Closed) Violation (VIO) 50-282/97019-02; 50-306/97019-02: Several Section Work Instructions Were Improperly Implemented Without Proper Approval and Review. The inspectors verified the corrective actions described in the licensee's response letter, dated January 21, 1998, to be reasonable and complete. No similar problems were identified.
- .4 (Closed) Inspection Follow-up Item (IFI) 50-282/97019-03; 50-306/97019-03: Licensee's Use of Dual Role Senior Reactor Operator/Shift Technical Advisor (SRO/STA). The inspectors reviewed 1998 Observation Reports related to the licensee's self-assessments of the Shift Manager (SM) Oversight role. The licensee identified problems related to the SM/STA responsibilities during various dynamic simulator scenarios involving routine, abnormal, and emergency plant events. The licensee implemented corrective actions which included revision of several emergency plan implementing procedures and abnormal procedures to allow the shift supervisor (SS) of the unaffected unit to assist the SM, as necessary, and to no longer require the SM to directly respond to the scene of a chemical or oil spill, fire, medical, or radiological emergency. During this inspection, the inspectors observed the licensee administer two scenarios to two different crews that involved instances in which the SM was required to perform concurrent duties of SM, emergency director, and STA. During emergency plant operations, the SM called on the unaffected unit SS to assist in implementation of the emergency plan by providing initial reviews of event classification and protective action recommendations, and making notifications. The inspectors did not observe any loss of the SM overview role or oversight function during the scenario examinations based on direct involvement in tasks related to performance of concurrent duties of SM, emergency director, and STA.
- .5 (Closed) Unresolved Item (URI) 50-282/97019-04; 50-306/97019-04: Potential Failure to Provide Adequate Instruction to Meet Completion Time Criteria Assumed in the Updated Safety Analysis Report for a Steam Generator Tube Rupture Event. The licensee initiated non-conformance report 19970653 to address this issue. Using operator response times and design assumptions, the licensee recalculated the amount of time operators would have prior to overfilling the steam generator during a tube rupture event. The licensee determined that a steam generator overfill could occur sometime between 28.4 and 32.7 minutes into the event depending on how quickly the crew isolated the auxiliary feedwater system. The licensee demonstrated that each crew could meet this time requirement; thus, meet the assumptions in the Updated Safety Analysis Report. Therefore, no violation occurred. The scenario was incorporated into the requalification program.

4OA5 Management Meetings

.1 Exit Meeting Summary

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on November 5, 1999. The licensee acknowledged the observations and findings and did not identify any information as proprietary.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

T. Amundson, General Superintendent, Engineering
D. Fricke, Superintendent Simulator Engineering
J. Jensen, Training Process Manager
T. Johansen, Operations Training Requalification Coordinator
B. Mather, Shift Manager Special Projects
S. Seilhmyer, Operations Training Instructor
T. Silverberg, General Superintendent Plant Operations
J. Sorensen, Site General Manager
D. Westphal, Operations Training Superintendent

INSPECTION PROCEDURES USED

71111.11 Reactor Safety - Initiating Events, Mitigating Systems, Barrier Integrity,
Attachment 11, Licensed Operator Requalification

ITEMS OPENED, CLOSED AND DISCUSSED

Opened

None

Opened and Closed

50-282/99018-01;
50-306/99018-01 NCV Compromise of examination security integrity

Closed

50-282/98010-01;
50-306/98010-01 VIO Inadequate Procedure for dumping steam with steam generator power operated relief valves.

50-282/97019-01;
50-306/97019-01 VIO Inadequate Procedure for responding to an anticipated transient without a scram.

50-282/97019-02;
50-306/97019-02 VIO Several instructions were improperly implemented without proper approval and review

50-282/97019-03;
50-306/97019-03: IFI Licensee's use of dual role senior reactor operator/shift technical advisor

50-282/97019-04
50-306/97019-04 URI Potential failure to provide adequate instruction

LIST OF ACRONYMS USED

| | |
|-----|-------------------------------|
| CFR | Code of Federal Regulations |
| DRS | Division of Reactor Safety |
| IFI | Inspection Follow-up Item |
| JPM | Job Performance Measure |
| NCV | Non-Cited Violation |
| NRC | Nuclear Regulatory Commission |
| RO | Reactor Operator |
| SM | Shift Manager |
| SRO | Senior Reactor Operator |
| SS | Shift Supervisor |
| STA | Shift Technical Advisor |
| URI | Unresolved Item |
| VIO | Violation |

LIST OF DOCUMENTS REVIEWED

The following is a list of licensee documents reviewed during the inspection, including documents prepared by others for the licensee. Inclusion on this list does not imply that NRC inspectors reviewed the documents in their entirety, but, rather that selected sections or portions of the documents were evaluated as part of the overall inspection effort. NRC acceptance of the documents or any portion thereof is not implied.

Procedures:

Program Description for License Requalification Training Program P9100L, Revision 14
5AWI 1.5.8, "Procedure Adherence," Revision 0
5AWI 3.15.6, "Site Communication Standard", Revision 0
Emergency Plan Implementing Procedures, Section F3, "Classification of Emergencies,"
Revision 25
SWI-O-2, "Shift Organization, Operation and Turnover," Revision 41
SWI-O-10, "Operations Manual Usage," Revision 36
SWI-O-39, "Operations Training Plan, Revision 5
SWI O-40, "License Requalification," Revision 1
SWI O-50, "Reactivity Management," Revision 0
SWI-OT-4, "Cycle Examination Development/Review/Approval Flowchart," Revision 0
SWI-OT-5, "Test Item Guidelines," Revision 0
SWI-OT-6, "Evaluator Practices," Revision 1
SWI-OT-7, "Crew Training Representative Responsibilities," Revision 5
SWI-OT-8, "Exam Security," Revision 5
SWI-OT-9, "Operations Training Computer Administered Examinations
Training Procedures 2.3, "Incorporating PRA [probabilistic risk assessment] into Training,"
Revision 1
Training Procedures 3.5, "Requalification Examination Bank Maintenance," Revision 0
Training Procedures 3.7, "License Requalification Examination Administration," Revision 7
Training Procedures 4.1, "Training Evaluation," Revision 5

Current Cycle Material:

Post Course Evaluation Reports for Cycles 98-01 through 98-13
Simulator Evaluation Summary for Cycles 98-06, 98-09 and 98-10
Simulator Evaluation Exam Analysis for Requal Cycles 98-06 and 98-08
Remedial Training Plans for Selected Individuals
Attendance Records for Current Requalification Cycle
Part A and Part B Written Examination administered on November 4, 1999
Simulator Exercise Guide #18, "Charging Pump Air Leak, Continuous Rod Withdrawal,
SBLOCA [small break loss of coolant accident]," Revision 8
Simulator Exercise Guide #32, "PRZR [Pressurizer] Level Failure, Fire, Loss of Generator Seal
Oil and SGTR [steam generator tube rupture] with Subsequent Fault," Revision 3
Simulator Exercise Guide #41, "PRZR Level Failure, Turbine Valve Malfunctions, Uncontrolled
Depressurization of Both SGs [steam generators]," Revision 2

Simulator Exercise Guide ATT043, "Auto Stop Oil Transmitter Failure, VCT [volume control tank] Level Transmitter Failure, Loss of all AC with LBLOCA [large break loss of coolant accident], Revision 1
Simulator Exercise Guide ATT0033, "Seal Water Heat Exchanger Leak, CRUD Burst; SBLOCA, Transfer to Recirculation, Loss of Recirculation," Revision 0
Simulator Exercise Guide ATT040, "Failure of RPS [reactor protection system], Tornado, LOOP [loss of offsite power], Loss of Heat Sink," Revision 2
JPM MS-3S, "Initiate Cooldown of Unit 1 RCS [reactor coolant system] Using 11 SG PORV From HSD [hot shutdown] Panel," Revision 5
JPM VC-3S, "Place Excess Letdown in Service," Revision 6
JPM EO-9S, "Terminate SI [safety injection] and RHR [residual heat removal] Flow Following Inadvertent SI," Revision 7
JPM BD-1F-1, "Respond to a Loss of Generator Bus Duct Cooling," Revision 3
JPM EG-8, "Reset D6 EDG [emergency diesel generator] Start Failure and 86 Relays," Revision 3
JPM EO-3SF-1, "Respond to Reactor Trip with Safety Injection (Immediate Actions)," Revision 2

Assessments:

Prairie Island Operations Training Self Evaluation Report for 3rd Quarter 1997 (Requal Exam Bank Maintenance)
Prairie Island Operations Training Self Evaluation Report dated conducted July 26-30, 1999
General Quality Services Audit Report AG 1998-01, "Plant Operations Personnel Training"
General Quality Services Audit Report AG 1998-03, "Plant Simulators"
Operations Training PAC [program advisory committee] Meeting Minutes for 1998 and 1999

LIST OF BASELINE INSPECTIONS PERFORMED

The following inspectable-area procedures were used to perform inspections during the report period. Documented findings are contained in the body of the report.

Licensed Operator Requalification

Inspection Procedure 71111.11

SIMULATION FACILITY REPORT

Facility Licensee: Prairie Island Nuclear Station

Facility Licensee Docket Nos: 50-282; 50-306

Operating Tests Administered: November 2 through November 4, 1999

The following documents observations made by the NRC examination team during the license requalification examination. These observations do not constitute audit or inspection findings and are not, without further verification and review, indicative of non-compliance with 10 CFR 55.45(b). These observations do not affect NRC certification or approval of the simulation facility other than to provide information which may be used in future evaluations. No licensee action is required in response to these observations.

During the conduct of the simulator portion of the operating tests, the following items were observed:

| ITEM | DESCRIPTION |
|------|-------------|
|------|-------------|

1. None