



Northern States Power Company

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June 15, 1992

10 CFR Part 2  
Section 2.201

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555

PRAIRIE ISLAND NUCLEAR GENERATING PLANT  
Docket Nos. 50-282 License Nos. DPR-42  
50-306 DPR-60

Reply to a Notice of Violation  
NRC Inspection Report No. 306/92006  
Inadequate Procedure for Draindown to Midloop

Pursuant to the provisions of 10 CFR Part 2, Section 2.201, the following is submitted in response to the notice of deviation contained in your letter of May 21, 1992.

Violation

During an NRC inspection conducted from February 20 through March 30, 1992, a violation of NRC requirements was identified. In accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions," 10 CFR Part 2, Appendix C (1992), the Nuclear Regulatory Commission proposes to impose a civil penalty pursuant to Section 234 of the Atomic Energy Act of 1954, as amended (Act), 42 U.S.C. 2282, and 10 CFR 2.205. The particular violation and associated civil penalty are set forth below:

10 CFR 50, Appendix B, Criterion V states, in part, that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings of a type appropriate to the circumstances.

Contrary to the above, on February 6, 1992, the licensee issued procedure D2, "RCS Reduced Inventory Operations," Revision 21, for draining the Reactor Coolant System (RCS), which was not of a type appropriate to the circumstances of its use in that:

1. The procedure did not specify an indicated Tygon tube reading of RCS level at which the operator was required to verify that the wide range Emergency Response Computer System (ERCS) RCS level indication was functioning.

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2. The procedure did not provide adequate direction for controlling RCS pressure, a frequency for recording RCS level or RCS pressure readings, or a precaution indicating RCS pressure higher than about three psig would prevent the ERCS RCS level indicators from functioning.
3. The procedure did not specify any frequency for calculating holdup tank volume for comparison with the change in volume based on the change in RCS level indication and did not clearly specify a level-to-volume ratio to be used to calculate holdup tank volume.

This is a Severity Level III violation (Supplement I.)  
Civil Penalty - \$12,500.

#### Response to Violation

Northern States Power Company, Prairie Island Nuclear Generating Plant admits to the violation and concurs with its content. The Civil Penalty was paid by wire on May 29, 1992.

#### Reason for the Violation

The root cause of this violation is an over-reliance on experienced engineers in the control room to supplement a less than adequate written procedure for draining the Reactor Coolant System. The draining procedure was written and reviewed within the engineering organization at a level such that it could best be performed with the experienced engineers available for guidance.

The engineers supporting the draindown in previous refuelings were involved with the development of the procedures and thus were overly-familiar with the procedures and consequently assumed the three examples stated in the violation were common knowledge, when in fact, they were not.

These same engineers had always been present during past draindown operations. The concept of engineers supporting operations has been established with operations personnel starting at a very junior level. The System Engineer concept at Prairie Island lends itself to direct support of operations. During draindown operations, shift personnel allowed the experienced engineers to become too involved in directing the operation. In the recent refueling, these experienced engineers were replaced with less experienced engineers and a new procedure. These situations caused the draindown incident.

#### Corrective Steps That Have Been Taken and the Results Achieved

Immediate corrective actions to resolve the procedure deficiencies were implemented prior to subsequent draining of the Reactor Coolant System during

the refueling outage. Changes to the draining procedure consisted of:

1. Specifying a hold point at which to compare the ERCS level indication with the Tygon tube level to assure operability of the ERCS level indication.
2. Venting the Reactor Coolant System to containment atmosphere which precludes level errors associated with any overpressure. With this change it was no longer necessary to perform any level corrections. Further, direction was provided for the frequency of recording Reactor Coolant System level readings to assure control of the draindown.
3. Providing an accurate level-to-volume ratio for the heldup tank. Frequency of drained volume comparison to Reactor Coolant System level was not necessary because there was no benchmark available with which to compare.

As an additional change to the draindown procedure the operations and engineering roles were specifically defined and dedicated shift management and experienced engineering personnel were assigned to the draindown.

After incorporating the actions identified above, two draindowns of the Reactor Coolant System were successfully completed with no incidents.

Once the Reactor Coolant System draining was completed during the February, 1992 refueling outage, all draindown procedures were removed from the approved procedure list to assure comprehensive review and revision prior to next use.

#### Corrective Steps to be Taken to Avoid Further Violations

Prairie Island has performed a thorough review of the draindown incident and, as a result of the review, the following activities will take place to preclude overdraining the Reactor Coolant System in the future:

1. All corrective actions that have been completed to date pertaining to procedure inadequacies will be incorporated in future revisions to the procedures as appropriate.
2. A self-limiting hot leg drain path will be provided on the Reactor Coolant System, with the piping routed to limit the Reactor Coolant System lower level to just below the top of the inside diameter of the hot leg during the draining process. A vacuum breaker is being provided to assure no siphoning takes place.
3. The location of the tap off of the Reactor Coolant System used for shutdown purification will be changed to the Loop A pressurizer spray line. This location is at the centerline of the cold leg which would limit any potential overdraining while in the shutdown.

mode. The resulting level, if problems were encountered, is adequate to support residual heat removal pump operation and prevent any significant vortexing. This path also provides remote isolation capabilities from the control room.

4. A communication path between the Loop A hot leg and cold leg will be installed, to be used during the draindown. This line will assure equalization of pressure across Loop A of the Reactor Coolant System. A communication path presently exists for Loop B.
5. The vent path on the reactor head will be enlarged to assure more timely pressure equalization of the reactor head volume with the Reactor Coolant System loop volume during the draining process.
6. A non-intrusive Reactor Coolant System level indication system will be installed. This new system will be unaffected by the pressure in the Reactor Coolant System, thereby providing continuous level indication during any potential loss of shutdown events. This indication will only monitor level in the diameter of the loop piping and not the total Reactor Coolant System level.
7. Nitrogen will no longer be added to the Reactor Coolant System in the over-pressurization mode; rather, it will be added directly to the steam generators via a drain path in the Reactor Coolant System intermediate loop. With this change it will no longer be necessary to drain to the mid-loop elevation.
8. New procedures for reduced inventory operations with the Reactor Coolant System intact will be developed to support the new hardware. These procedures will be developed from within the operations organization assuring the necessary operations inputs.
9. Section Work Instruction, SWI-0-34, "Infrequently Performed Operations", will be implemented in the development of the new draindown procedures. This SWI provides management input to assure there is the appropriate balance of engineering support, operations management and training. It further defines the scope of the pre-task briefing and raises the importance of the task to the appropriate management level. This SWI will also be used to review the adequacy of all other critical evolution procedures.
10. To the extent practicable, the new procedures will be validated on a simulator, assuring their usability.
11. The operations organization will receive thorough training on the new draindown procedures. Other plant groups will receive training to the extent needed for each group.

The modifications to the primary systems are presently scheduled for

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implementation during each of the next two refueling outages for each unit. Completion of all activities identified above will be achieved prior to the next planned entry into a reduced inventory condition, presently scheduled for Spring of 1994 Unit 1 and Winter of 1995 for Unit 2. If an unplanned entry into reduced inventory becomes necessary, the Reactor Coolant System would be drained using a new procedure which implements the appropriate corrective actions as defined above or the core will be unloaded.

Date When Full Compliance Will Be Achieved

Full compliance has been achieved.

Please contact us if you have any questions or wish further information concerning this matter.



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