October 20, 2000

EA 00-182

Mr. J. Sorenson
Site General Manager
Prairie Island Nuclear Generating Plant
Nuclear Management Company, LLC
1717 Wakonade Drive East
Welch, MN 55089

SUBJECT: PRAIRIE ISLAND NUCLEAR GENERATING PLANT - NRC INSPECTION REPORT 50-282-00-12(DRP); 50-306-00-12(DRP)

Dear Mr. Sorensen:

On August 18 through September 30, 2000, the NRC conducted a safety inspection at your Prairie Island Nuclear Generating Plant. The enclosed report presents the results of that inspection which were discussed on October 5, with you and other members of your staff.

This inspection was an examination of activities conducted under your license as they relate to safety and compliance with the Commission’s rules and regulations and with the conditions of your license. Within these areas, the inspection consisted of a selective examination of procedures and representative records, observations of activities, and interviews with personnel.

During this inspection period, resolution of an issue first identified in Inspection Report 50-282/99013(DRP); 50-306/99013(DRP) was completed. This resolution resulted in the identification of one finding of very low safety significance (Green). This finding contained two examples of failure to follow operating procedures and is being treated as a violation of NRC requirements. However, the violation was not cited due to its very low safety significance and because it has been entered into your corrective action program. If you contest the Non-Cited Violation, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region III; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Prairie Island facility.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if you choose to provide one) will be available **electronically** for public inspection in the NRC Public Document Room **or** from the *Publicly Available Records*

System (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/NRC/ADAMS/index.html (the Public Electronic Reading Room).

Sincerely,

/RA/

Roger Lanksbury, Chief
Reactor Projects Branch 5

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

Enclosure: Inspection Report 50-282-00-12(DRP);
50-306-00-12(DRP)

cc w/encl: Site General Manager, Prairie Island
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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos:	50-282, 50-306
License Nos:	DPR-42, DPR-60
Report No:	50-282-00-12(DRP); 50-306-00-12(DRP)
Licensee:	Nuclear Management Company, LLC
Facility:	Prairie Island Nuclear Generating Plant
Location:	1717 Wakonade Drive East Welch, MN 55089
Dates:	August 18 through September 30, 2000
Inspectors:	S. Ray, Senior Resident Inspector S. Thomas, Resident Inspector D. Kimble, Resident Inspector, Monticello J. Hopkins, Operator License Examiner
Approved by:	Roger Lanksbury, Chief Reactor Projects Branch 5 Division of Reactor Projects

NRC's REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) recently revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting and assessing safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas): reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

Reactor Safety

- Initiating Events
- Mitigating Systems
- Barrier Integrity
- Emergency Preparedness

Radiation Safety

- Occupational
- Public

Safeguards

- Physical Protection

To monitor these seven cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the Significance Determination Process, and assigned colors of GREEN, WHITE, YELLOW, or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE findings indicate issues that are of low to moderate safety significance. YELLOW findings are issues that are of substantial safety significance. RED findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, and RED. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight. And RED indicates performance that represents a significant reduction in safety margin but still provides adequate protection to public health and safety.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for inspection findings. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plant, as described in the Action Matrix.

More information can be found at: http://www.nrc.gov/NRR/OVERSIGHT/index.html.

SUMMARY OF FINDINGS

Inspection Report 50-282-00-12(DRP); 50-306-00-12(DRP), on 08/18 - 09/30/2000; Nuclear Management Company, LLC; Prairie Island Nuclear Generating Plant; Units 1 & 2; Event Follow-up.

The inspection was conducted by resident inspectors and a regional operator licensing examiner. The inspection identified one green issue with one Non-Cited violation. The significance of issues is indicated by their color (GREEN, WHITE, YELLOW, RED) and was determined by the Significance Determination Process.

Cornerstone: Mitigating Systems

GREEN. Operators failed to follow procedures in two instances during the draining of the Unit 1 reactor coolant system (RCS) on April 20, 1999, resulting in a Non-Cited Violation. Specifically, operators did not verify RCS level had stopped decreasing before proceeding to subsequent procedure steps. The inspectors determined the examples of not following procedure to be of very low safety significance, because the residual heat removal was not impacted and the amount of water that could have been drained from the RCS was limited by system configuration and alignment. (Section 4OA3.1)

Report Details

Summary of Plant Status: Unit 1 and Unit 2 operated at or near full power for the entire inspection period except that Unit 1 was reduced to about 40 percent power on September 16-17, 2000, for turbine valve testing and condenser cleaning and Unit 2 was reduced to about 45 percent power on September 23-24, 2000, for turbine valve testing. On August 21, a merger between Northern States Power Company and New Century Energies was completed and the newly formed company, Xcel Energy, assumed ownership of the plant and Independent Spent Fuel Storage Facility through its wholly owned subsidiary, Northern States Power Company. Operating authority remained with Nuclear Management Company.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R04 Equipment Alignment

a. Inspection Scope

The inspectors performed a walkdown of the 12 component cooling pump and associated heat exchanger while its operability contributed significantly to plant safety because the D1 diesel generator was unavailable during testing. The inspectors ensured that the configuration of the train was in accordance with the applicable operating checklist and that the equipment could still perform its required design basis functions. As part of this inspection, the inspectors reviewed Integrated Checklist C1.1.14-1, “Unit 1 Component Cooling System,” Revision 16.

b. Issues and Findings

There were no findings identified during this inspection.

1R05 Fire Protection

.1 Fire Protection Walkdowns

a. Inspection Scope

The inspectors conducted fire protection walkdowns focused on the control of transient combustible materials and ignition sources, the material condition of available fire detection and suppression equipment, the adequacy of compensatory measures for out-of-service or degraded fire protection equipment, and the condition and operating status of installed fire barriers. The inspectors selected the following fire areas for inspection based on their overall contribution to internal fire risk, as documented in the Individual Plant Examination of External Events (IPEEE):

- Fire Area 2, Unit 1, Auxiliary Building, 755-foot elevation;
- Fire Area 41, Screenhouse, 670-foot elevation;

- Fire Area 76, Unit 2, Auxiliary Building, 755-foot elevation; and
- Fire Areas 33 and 34, Unit 1, Battery Rooms 11 and 12.

As part of this inspection, the inspectors reviewed the following documents:

- IPEEE, NSPLMI-96001, Appendix B, “Internal Fires Analysis,” Revision 1;
- Plant Safety Procedure F5, Appendix A, “Fire Strategies,” Revision 6;
- Plant Safety Procedure F5, Appendix D, “Impact of Fire Outside Control/Relay Room,” Revision 5;
- Plant Safety Procedure F5, Appendix E, “Fire Protection Safe Shutdown Analysis Summary,” Revision 6;
- Plant Safety Procedure F5, Appendix F, “Fire Hazard Analysis,” Revision 12; and
- Administrative Work Instruction 5AWI 3.13.2, “Fire Preventive Practices,” Revision 1.

b. <u>Issues and Findings</u>

There were no findings identified during this inspection.

.2 <u>Fire Drill Observation</u>

a. <u>Inspection Scope</u>

The inspectors observed a fire brigade drill. The drill scenario included an electrical fire located in safeguards Bus 16. This location was appropriate because a fire in the Bus 16 room was identified by the Prairie Island IPEEE Internal Fire Analysis as one of the top contributors to core damage frequency. Key aspects of the drill that the inspectors evaluated included the following:

- turnout gear was properly donned;
- self-contained breathing apparatus equipment was properly used;
- fire hose lines were capable of reaching all necessary fire hazard locations and were properly laid out without flow restrictions;
- the fire area was entered in a controlled manner;
- sufficient and appropriate fire fighting equipment was brought to the scene of the simulated fire by the fire brigade;
- the fire brigade leader’s directions were clear and effective;
- radio communications with the plant operators and between fire brigade members was efficient and effective;
- fire brigade members checked for fire victims and fire propagation into other plant areas;
- effective smoke removal operations were simulated;
- fire fighting pre-plan strategies were used; and
- the licensee’s pre-planned drill scenario was followed and the drill acceptance criteria were met.

b. <u>Issues and Findings</u>

There were no findings identified during this inspection.

1R12 Maintenance Rule Implementation

a. Inspection Scope

The inspectors verified the licensee's implementation of the maintenance rule for structures, systems, or components (SSCs) with performance problems. This evaluation included the following aspects:

- whether the SSC was scoped in accordance with 10 CFR 50.65;
- whether the performance problem constituted a maintenance rule functional failure;
- safety significance classification;
- the proper 10 CFR 50.65a(1) or a(2) classification for the SSC; and
- the appropriateness of the performance criteria for SSCs classified as a(2) or the appropriateness of goals and corrective actions for SSCs classified as a(1).

The inspectors reviewed the licensee's implementation of the maintenance rule requirements for the following SSCs:

- fire protection and detection system;
- cooling water system; and
- containment ventilation system.

The inspectors selected the fire protection and detection system for evaluation based on the system's importance in the protection of vital plant areas and equipment such as the relay room, auxiliary feedwater pump room, safety-related and nonsafety-related electrical equipment, and station transformers.

The inspectors selected the cooling water system for evaluation based on the system's importance to cool vital plant equipment, provide the ultimate heat sink during accident conditions, and serve as the backup fire protection water source during abnormal conditions.

The inspectors selected the containment ventilation system for evaluation based on the system's importance in preventing a fission product release from containment to the environment following an event such as a loss of coolant accident.

As part of this inspection, the inspectors reviewed the 1999 Annual and First Quarter Equipment Performance Report, dated May 2, 2000; Second Quarter Equipment Performance Report, dated July 28, 2000; and Prairie Island Maintenance Rule System Basis Document, as well as the following work orders (WOs) and condition reports (CRs):

- Fire Protection/Detection System
    - IPEEE, NSPLMI-96001, Appendix B, "Internal Fires Analysis," Revision 1;
    - WO 9901998, "Fix Moisture Barriers on D5 Detectors";
    - WO 9905213, "Bus 15 Room to 111 Bus Room Alarm Switch";
    - WO 9908400, "121 Screenwash Pump Noisy Bearing";
    - WO 9908790, "Zone 98 Alarmed and Would Not Reset";

- WO 9908792, “121 Motor Driven Fire Pump Starts Prematurely at 114 Pounds Per Square Inch Gauge”;
- WO 9911767, “Fire Protection Zone 27 Alarm with No Detector Flash”;
- WO 9912463, “22 Battery Room to 21 Battery Room Door Stays Ajar”;
- WO 9912520, “Fire Protection Zone 27 in Alarm and Will Not Clear”;
- WO 9912703, “122 Diesel Fire Pump has Head Gasket Leak”;
- WO 0001057, “P3122-1, Diesel Fire Pump Annual Inspection”;
- WO 0004453, “Replace Fire Detector 56-12, 715 Level Containment”; and
- WO 0006535, “Investigate Fire Detection Zone 75 Alarm.”

- Cooling Water System
    - CR 19992232, “Cooling Water Temporarily Greater Than 85 Pounds Per Square Inch”;
    - CR 19992746, “121 Motor Driven Cooling Water Pump Section XI Performance in the Alert Range”;
    - CR 19993287, “Section XI Closure Testing of 2CL-43-2 and CL-43-3 Performed in a Manner Other Than That Described in H10.1";
    - CR 20000883, “121 Motor Driven Cooling Water Pump Performance Fell in Alert Range During WO 9914249, SP [Surveillance Procedure] 1106C”;
    - CR 20001780, “2CL-57-1 [21 Component Cooling Heat Exchanger Relief] Failed Setpoint Test by Greater Than 103 Percent of Set Pressure”;
    - CR 19992227, “12 Diesel Driven Cooling Water Pump Performance Curve Fell into the Alert Range During WO 9906182, SP1106A”;
    - CR 19990189, “22 Diesel Driven Cooling Water Pump Annual Start on Low Header Pressure per SP1106B Fell in the Alert Range”;
    - CR 19992013, “SA-56-4 [22 Diesel Cooling Water Pump Starting Air Relief Valve] Lifted During SP1106B”; and
    - CR 20002340, “Bolt Missing From Cooling Water Hanger 1-CWH-516."

- Containment Ventilation System
    - CR 19982834, “Some Surveillance Procedures Open Containment Isolation Valves Without Entering a Limiting Condition for Operations, Administrative Controls on these Valves are not Appropriate”;
    - CR 19991117, “Relay Contacts for R-25 and R-31 that Isolate Containment In-Service Purge Isolation Valves Have Not Been Tested”;
    - CR 19991303, “ERTF [Error Reduction Task Force] Report 99-02, Human Performance Problems During the Performance of SP 2136.1";
    - CR 20000292, “Plastic Rollers for Variable Pitch Blades on 121 Containment Purge Fan Were Found to be .010 Inches to .015 Inches Too Long”;
    - CR 20001588, “Check Valve for Outage Air Supply to Unit 2 Containment at Penetration 42E is Installed Upside Down”;
    - CR 20002256, “Torque Values Not Recorded For Containment Penetration Flange Bolts”;
    - CR 20003217, “The Capacity of the Reactor Gap Cooling Fan Does Not Reflect the Actual System Operation as Described in the USAR [Updated Safety Analysis Report] and [Drawings] NF-39602-1 and 2";

- CR 20003244, “Reactor Vessel Gap Cooling Low Flow Alarm Setpoint Lowered to Allow Annunciator to Clear After Fan Coils Swapped”;
- WO 9904846, “Excessive Air Leakage at Personnel Airlock Outer Door”;
- WO 9905382, “Damper Did Not Activate During Fan Coil Unit Preventative Maintenance”;
- WO 9910982, “Install New Sump C Manway Cover”;
- WO 0000471, “Replace Outer Door Seal on Unit 2 Maintenance Airlock Door Prior to Post Outage Volumetric Airlock Test”;
- WO 0004045, “High Vibrations on 23 Fan Coil Unit Motor Inboard”;
- WO 0004080, “High Axial Vibrations on 21 Fan Coil Unit During Post Maintenance Test”;
- WO 0004375, “21 Containment Fan Coil Unit, Rework to Eliminate Unstable Axial Vibrations”; and
- WO 0004376, “22 Containment Fan Coil Unit, Rework to Eliminate Unstable Axial Vibrations.”

b. Issues and Findings

There were no findings identified during this inspection.

1R13 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors reviewed the licensee’s management of plant risk for high risk configurations during routine maintenance activities and its control of emergent work activities. The inspectors verified that evaluation, planning, control, and performance of the work was done in a manner to reduce risk where practical, and that contingency plans were in place where appropriate. The following activities were inspected:

- troubleshooting and contingency actions for the Unit 2 Train A pressurizer spray valve sticking partially open, and
- troubleshooting and repair of the 11 Safety Injection (SI) pump miniflow indication showing low flow.

As part of this inspection, the inspectors reviewed the following documents:

- WO 0008645, “CV-31228 Loop A Pressurizer Spray Appears Stuck”;
- WO 0004360, “CV-31228 Leaks By - 21 Reactor Coolant Loop A Pressurizer Spray Control Valve”;
- WO 0010342, “Investigate Unit 2 Loop A Pressurizer Spray Valve Stuck Open”;
- CR 20003478, “Unit 2 Loop A Pressurizer Spray Valve CV-31228 Appears to be Stuck”;
- Temporary Instruction 00-82, dated 9/3/2000, regarding operation with Unit 2 spray valve stuck open;
- Safety Evaluation Screening 695, “Unit 1 Loop B Pressurizer Spray Valve, CV-31225";
- Safety Evaluation Screening 552, “Pressurizer Heater Capacity Requirements”;

- WO 0010712, “SI Lo/No Flow Alarm While Performing TP [Test Procedure] 1087";
- TP 1087, “Monthly Unit 1 SI Pump Lubrication,” Revision 2;
- TP 1713, “SI Pump Mini Flow Recirc Line Flowmeter Annual Functional Test,” Revision 0;
- Alarm Response Procedure C47018-0403, “SI Mini Recirc Line Lo/No Flow,” Revision 17;
- CR 20003741, “SI Mini Recirculation Flow Failure 18241 Failure Could Have Been Avoided if Replaced With New Equipment”; and
- CR 20001126, “Assess Current Status of Unit 1 and Associated Equipment and Determine Course of Action if Required.”

b. Issues and Findings

There were no findings identified during this inspection.

1R14 Nonroutine Evolutions

a. Inspection Scope

The inspectors evaluated control room operator performance during a planned power reduction, from 100 percent to approximately 45 percent power, to facilitate control valve testing on the Unit 2 main turbine.

b. Issues and Findings

There were no findings identified during this inspection.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed a sampling of operability evaluations for safety significant systems and conditions to determine that operability was justified, that availability was assured, and that no unrecognized increase in risk had occurred. The following evaluations were reviewed:

- CR 20003060, “D1/D2 Load Sequencer Direct Current Power Supply”;
- CR 20003150, “Westinghouse Spent Fuel Pool Critical Analysis Contains Non-Conservatism that Results in Violating Effective Multiplication Factor Limit at 0 Parts Per Million Boron Concentration”; and
- CR 20003242, “Non-Conservatism Exists in Main Steam Line Break Dose Analysis for Voltage Based Repair Criteria Which Limit Dose Equivalent Iodine Concentration to 0.6 Microcuries Per Gram.”

b. Issues and Findings

There were no findings identified during this inspection.

1R16 Operator Workarounds

a. Inspection Scope

The inspectors reviewed the operator workaround discussed in CR 20003479, “Unit 2 Loop A Pressurizer Spray Valve CV-31228 Appears to be Stuck Partially Open.” This condition required the operators to operate with additional pressurizer heater banks in service to compensate for the increased spray flow through the mechanically bound, partially opened CV-31228. The inspectors reviewed this operator workaround to determine if the functional capability of the system, the human reliability in responding to an initiating event, or the ability of operators to implement abnormal or emergency operating procedures was affected.

b. Issues and Findings

The were no findings identified during this inspection.

1R19 Post-Maintenance Testing

a. Inspection Scope

The inspectors reviewed post-maintenance testing activities to ensure that the testing adequately verified system operability and functional capability. These post-maintenance testing activities were selected based on the respective system’s importance to mitigating core damage or protecting barrier integrity.

The inspectors observed post-maintenance testing associated with the following work:

- Steam exclusion damper solenoid valve replacements in accordance with the following:
    - WO 9911370, “Replace CD 34197 [21/22 battery room supply steam exclusion “A” control damper] solenoid valve”;
    - WO 9911371, “Replace CD 34198 [21/22 battery room supply steam exclusion “B” control damper] solenoid valve”;
    - WO 9911367, “Replace CD 34194 [Unit 2 turbine building 480-volt switchgear return exclusion “B” control damper] solenoid valve”;
    - WO 9911366, “Replace CD 34193 [2 turbine 480-volt switchgear return exclusion “A” control damper] solenoid valve”; and
    - SP 1112, “Steam Exclusion Monthly Damper Test,” Revision 36.

- 11 SI pump miniflow detector repair in accordance with the following:
    - WO 0010712, “SI Lo/No Flow Alarm While Performing TP 1087”;
    - TP 1087, “Monthly Unit 1 SI Pump Lubrication,” Revision 2; and
    - TP 1713, “SI Pump Mini Flow Recirc line Flowmeter Annual Functional Test,” Revision 0.

- Diesel-driven fire pump testing in accordance with the following:
    - WO 0010723, “122 Diesel-Driven Fire Pump Coolant Leak”; and
    - SP 1524, “122 Diesel Fire Pump Weekly Test,” Revision 22.

b. Issues and Findings

There were no findings identified during this inspection.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors verified, by witnessing selected surveillance testing and reviewing test data, that the equipment tested by the SPs met Technical Specifications, the USAR, Design Basis Documents, and licensee procedural requirements, and demonstrated that the equipment was capable of performing its intended safety functions. The following tests were evaluated:

- SP 1090, "Containment Spray Pump Quarterly Test," Revision 53;
- SP 1093, "D1 Diesel Generator Monthly Slow Start Test," Revision 69; and
- SP 2089, "RHR [Residual Heat Removal] Pumps and Suction Valves From the RWST [Refueling Water Storage Tank] Quarterly Test," Revision 54.

The inspectors reviewed the following additional documents as part of this inspection:

- Technical Manual X-HIAW 113-12, "Containment Spray Pumps," Revision 8;
- Operations Manual B18D, "Containment Spray System," Revision 4;
- USAR Section 6.4, "Containment Vessel Internal Spray System," Revision 18;
- NRC Bulletin 88-04, "Potential Safety-Related Pump Loss," and Licensee Responses Dated July 7, 1988, October 10, 1988, March 20, 1989, and October 29, 1990;
- NUREG 1482, "Guidelines for Inservice Testing and Nuclear Power Plants";
- WO 0006790, "P3124-1-21 21 RHR Pump Annual Inspection"; and
- SP 1089, "RHR Pumps and Suction Valves From RWST Quarterly Test," Revision 49.

b. Issues and Findings

There were no findings identified during this inspection.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification

a. Inspection Scope

The inspectors verified that the performance indicator data submitted by the licensee was accurate and complete. This was accomplished by a review of the control room logs as well as all NRC inspection reports, Licensee Event Reports, and licensee Monthly Operating Reports for the 2nd quarter of 1999 through the 2nd quarter of 2000 for Unit 1 and Unit 2. The following performance indicators were verified:

- Scrams With a Loss of Normal Heat Removal; and
- Unplanned Power Changes Per 7,000 Critical Hours.

b. Issues and Findings

There were no findings identified during this inspection.

4OA3 Event Follow-up

Cornerstones: Mitigating Systems, Barrier Integrity

.1 (Closed) Unresolved Item (URI) 50-282/99013-02(DRS): Unit 1 Reactor Coolant System (RCS) Overdraining Event.

a. Inspection Scope

The NRC completed its evaluation of the overdraining of the Unit 1 RCS on April 20, 1999. This issue involved a potential violation with four examples for deviations from Special Operating Procedure 1D2, “RCS Reduced Inventory Operation,” Revision 8. This issue was previously discussed in Inspection Report (IR) 50-282/99013(DRP); 50-306/99013(DRP), Section 4OA3.

b. Issues and Findings

As previously documented in IR 50-282/99013(DRP); 50-306/99013(DRP), the licensee performed a root cause analysis, documented in the ERTF Report 99-07, “Overdrain of Unit 1 RCS While Draining to the Top of the Hot Legs.” The licensee identified several inappropriate operator actions and proposed corrective actions. The proposed corrective actions associated with this event were entered in the licensee’s corrective action program and were being tracked as CR 19991384.

The inspectors evaluated the ERTF report and determined that the most significant deficiencies which contributed to the overdrain of the RCS were related to improper procedure use. The report described four examples where procedure 1D2 was not followed during draining of the Unit 1 RCS. The four examples were:

- the operating crew did not verify that RCS level had stopped decreasing, as required by Step 5.2.13.F of procedure 1D2, after the water from the 12 Steam Generator (SG) tubes was drained;

- the operating crew did not verify that RCS level had stopped decreasing, as required by Step 5.2.24.F of procedure 1D2, after the water from the 11 SG tubes was drained;

- the operator assigned to monitor the plastic tube RCS level indicator inside containment did not attend the evolution pre-job briefing as required by Step 5.1.13 of procedure 1D2; and

- while aligning equipment to drain the tubes for the 11 SG, the operating crew performed Steps 5.2.18 through 5.2.21 of procedure 1D2 out-of-sequence in order to restore the plastic tube RCS level indication introducing to an accurate reading by purging the 11 SG with nitrogen.

The inspectors performed a risk-significance screening in accordance with the NRC's Significance Determination Process. Since residual heat removal was not impacted and the amount of water that could be drained from the RCS was limited by system configuration and alignment, the issue was considered to be of very low safety significance, was screened out from further review, and was considered to be within the licensee response band (GREEN).

Based on further review of ERTF Report 99-07 and interviews with licensee personnel involved in the event and the root cause analysis, the NRC reached the following conclusions:

- Technical Specification 6.4.A, required that written procedures be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, "Quality Assurance Program Requirements (Operations)," Revision 2, Appendix A, February 1978. Section 9.d(3) of Regulatory Guide 1.33, required, in part, procedures that could be categorized either as maintenance or operating procedures be developed for draining and refilling recirculation loops. Special Operating Procedure 1D2 implemented Section 9.d(3) of Regulatory Guide 1.33. Steps 5.2.13.F and 5.2.24.F of Procedure 1D2, required the verification that RCS level had stopped decreasing when draining the RCS to below the top of the RCS hot leg piping for the 12 and 11 SGs respectively. On April 20, 1999, while draining the RCS to below the top of the hot leg piping for the 12 and 11 SGs, operators did not verify that RCS level had stopped decreasing before they continued with Steps 5.2.14 and 5.2.25 of procedure 1D2. These two examples of failure to follow the operating procedure for draining the RCS are being treated as a Non-Cited Violation (NCV 50-282-00-12-01(DRP)), consistent with Section VI.A.1 of the NRC Enforcement Policy. This violation was previously characterized by the Significance Determination Process as having very low risk significance, was screened out from further review, and was considered to be within the licensee response band (GREEN). As previously documented in IR 50-282/99013(DRP); 50-306/99013(DRP), this issue was entered into the licensee corrective action program and was being tracked as CR 19991384.

- Procedure 1D2, Step 5.1.13, required assembly of <u>all</u> (emphasis added) personnel assigned draindown responsibilities for a pre-job briefing. On April 20, 1999, the operator assigned to monitor the plastic tube RCS level indicator inside containment was given an individual pre-job brief but was not included in the group pre-job briefing. The failure of the operator assigned to monitor the plastic tube RCS level indicator inside containment to attend the group pre-job briefing as required by Step 5.1.13 of procedure 1D2 is considered a violation of minor significance that is not subject to formal enforcement action, in accordance with Section IV of the NRC's Enforcement Policy. As previously documented in IR 50-282/99013(DRP); 50-306/99013(DRP), this issue was entered into the licensee corrective action program and was being tracked as CR 19991384.

- Administrative Work Instruction 5AWI 1.5.0, "Procedure Control," Step 6.6.6.a, required that procedure steps should (emphasis added) be performed in the order written. On April 20, 1999, while aligning equipment to drain the tubes for the 11 SG, the operating crew performed Steps 5.2.18 through 5.2.21 of procedure 1D2 out of sequence in order to restore the plastic tube RCS level indication by purging the 11 SG with nitrogen. Because Administrative Work Instruction 5AWI 1.5.0, did not require (emphasis added) procedure steps to be performed in the order written, there was no violation of procedures. As previously documented in IR 50-282/99013(DRP); 50-306/99013(DRP), this issue was entered into the licensee corrective action program and was being tracked as CR 19991384.

.2 (Closed) Licensee Event Report (LER) 50-282/2000-002-00 (1-00-02): "Fuel Pellet Density Exceeds Assumption in Spent Fuel Pool Criticality Analysis."

The licensee concluded that because of an error in fuel pellet density assumptions by the fuel vendor, it could not meet the requirement of TS 5.6.A.1.b to prevent criticality in the spent fuel pool if the pool were fully flooded with unborated water. The inspectors reviewed the LER and identified no additional issues or findings not reported by the licensee. Although the NRC does not have a formal Significance Determination Process for this type of issue, the event was determined to be of minor safety significance and not subject to formal enforcement action in accordance with Section IV of the NRC's Enforcement Policy because the boron concentration in the pool was routinely maintained well in excess of the 1800 parts per million level required by TS 5.6.A.3 for day-to-day pool activities and because a spent fuel dilution event sufficient to result in postulated criticality would be extremely unlikely and could take many hours or days to occur, allowing ample time for operator intervention. This event was entered in the licensee's corrective action system as CR 20003150.

4OA6 Management Meetings

Exit Meeting Summary

The inspectors presented the inspection results to Mr. J. Sorensen and other members of licensee management on October 5, 2000. 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

T. Amundson, General Superintendent Engineering
T. Breene, Manager Nuclear Performance Assessment
J. Goldsmith, General Superintendent Engineering, Nuclear Generation Services
A. Johnson, General Superintendent Radiation Protection and Chemistry
L. Gard, General Superintendent Plant Maintenance
D. Schuelke, Plant Manager
T. Silverberg, General Superintendent Plant Operations
M. Sleigh, Superintendent Security
J. Sorensen, Site General Manager

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None.

Opened and Closed

50-282-00-12-01(DRP)	NCV	Failure to Follow Procedures During Unit 1 Reactor Coolant System Overdraining Event (4OA3.1)

Closed

50-282/99013-02(DRS)	URI	Unit 1 Reactor Coolant System Overdraining Event (4OA3.1)
50-282/2000-002-00	LER	Fuel Pellet Density Exceeds Assumption in Spent Fuel Pool Criticality Analysis (4OA3.2)

LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access and Management System
CFR	Code of Federal Regulations
CR	Condition Report
DRP	Division of Reactor Projects
DRS	Division of Reactor Safety
ERTF	Error Reduction Task Force
IPEEE	Individual Plant Examination of External Events
IR	Inspection Report
LER	Licensee Event Report
NCV	Non-Cited Violation
NRC	Nuclear Regulatory Commission
PARS	Publicly Available Records System
RCS	Reactor Coolant System
RHR	Residual Heat Removal
RWST	Refueling Water Storage Tank
SG	Steam Generator
SI	Safety Injection
SP	Surveillance Procedure
SSC	Structure, System, or Component
TP	Test Procedure
URI	Unresolved Item
USAR	Updated Safety Analysis Report
WO	Work Order