



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION III  
2443 WARRENVILLE RD. SUITE 210  
LISLE, ILLINOIS 60532-4352

April 25, 2018

Mr. Christopher Church  
Site Vice President  
Monticello Nuclear Generating Plant  
Northern States Power Company, Minnesota  
2807 West County Road 75  
Monticello, MN 55362-9637

**SUBJECT: MONTICELLO NUCLEAR GENERATING PLANT—NRC TEMPORARY  
INSTRUCTION 2515/191, MITIGATION STRATEGIES, SPENT FUEL POOL  
INSTRUMENTATION AND EMERGENCY PREPAREDNESS INSPECTION  
REPORT 05000263/2018011**

Dear Mr. Church:

On March 9, 2018, the U.S. Nuclear Regulatory Commission (NRC) completed a Temporary Instruction (TI) 2515/191, "Inspection of the Implementation of Mitigation Strategies and Spent Fuel Pool Instrumentation Orders and Emergency Preparedness Communication/Staffing/Multi-Unit Dose Assessment Plans" inspection at your Monticello Nuclear Generating Plant. On April 13, 2018, the NRC inspectors discussed the results of this inspection with Mr. K. Scott and other members of your staff. The results of this inspection are documented in the enclosed report.

The inspection examined activities conducted under your license as they relate to the implementation of mitigation strategies and spent fuel pool instrumentation orders (EA-12-049 and EA-12-051) and Emergency Preparedness Communication/Staffing/Multi-Unit Dose Assessment Plans, your compliance with the Commission's rules and regulations, and with the conditions of your operating license. Within these areas, the inspection involved examination of selected procedures and records, observation of activities, and interviews with station personnel.

Based on the results of this inspection, no findings or violations of significance were identified.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

*/RA/*

Ann Marie Stone, Team Leader  
Technical Support Staff  
Division of Reactor Projects

Docket No. 50-263  
License No. DPR-22

Enclosure:  
IR 05000263/2018011

cc: Distribution via ListServ®

Letter to Christopher Church from Ann Marie Stone dated April 25, 2018

SUBJECT: MONTICELLO NUCLEAR GENERATING PLANT—NRC TEMPORARY INSTRUCTION 2515/191, MITIGATION STRATEGIES, SPENT FUEL POOL INSTRUMENTATION AND EMERGENCY PREPAREDNESS INSPECTION REPORT 05000263/2018011

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-263;

License No: DPR-22

Report No: 05000263/2018011

Enterprise Identifier: I-2018-011-0001

Licensee: Northern States Power Company, Minnesota

Facility: Monticello Nuclear Generating Plant

Location: Monticello, MN

Dates: March 5 through March 9, 2018

Inspectors: J. Boettcher, Resident Inspector, Palisades (Team Leader)  
D. Krause, Resident Inspector  
G. O'Dwyer, Reactor Engineer  
L. Rodriguez, Reactor Inspector

Approved by: A. Stone, Team Leader  
Technical Support Staff  
Division of Reactor Projects

Enclosure

## SUMMARY

The U.S. Nuclear Regulatory Commission (NRC) continued monitoring licensee's performance by conducting a Temporary Instruction 2515/191, "Implementation of Mitigation Strategies and Spent Fuel Pool Instrumentation Orders and Emergency Preparedness Communication/Staffing/Multi-Unit Dose Assessment Plans" inspection at Monticello Nuclear Generating Plant in accordance with the Reactor Oversight Process. The Reactor Oversight Process is the NRC's program for overseeing the safe operation of commercial nuclear power reactors. Refer to <http://www.nrc.gov/NRR/OVERSIGHT/ASSESS/index.html> for more information. Additional items are summarized in the table below.

### List of Findings and Violations

No findings or violations of significance were identified.

### Additional Tracking Items

Type	Issue Number	Title	Report Section	Status
TI	2515/191	Implementation of Mitigation Strategies and Spent Fuel Pool Instrumentation Orders and Emergency Preparedness Communication/Staffing/Multi-Unit Dose Assessment Plans	Other Activities	Closed

## INSPECTION SCOPES

Inspections were conducted using the appropriate portions of the inspection procedures (IPs) in effect at the beginning of the inspection unless otherwise noted. Currently approved IPs with their attached revision histories are located on the public website at <http://www.nrc.gov/reading-rm/doc-collections/insp-manual/inspection-procedure/index.html>. Samples were declared complete when the IP requirements most appropriate to the inspection activity were met consistent with Inspection Manual Chapter (IMC) 2515, "Light-Water Reactor Inspection Program - Operations Phase." The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel to assess licensee performance and compliance with Commission rules and regulations, license conditions, site procedures, and standards.

## REACTOR SAFETY

### 71111.04—Equipment Alignment

#### Complete Walkdown (1 Sample)

The inspectors evaluated system configurations during a complete walkdown of the 125 VDC Division 1 and 2, for FLEX line-up on March 6, 2018.

## OTHER ACTIVITIES—TEMPORARY INSTRUCTIONS, INFREQUENT AND ABNORMAL

### Temporary Instruction 2515/191—Inspection of the Implementation of Mitigation Strategies and Spent Fuel Pool Instrumentation Orders and Emergency Preparedness Communication/Staffing/Multi-Unit Dose Assessment Plans

The inspectors verified plans for complying with NRC Orders EA-12-049, "Order Modifying Licenses with Regard to Requirements for Mitigation Strategies for Beyond-Design-Basis External Events" (Agencywide Documents Access and Management System (ADAMS) Accession No. ML12056A045) and EA-12-051, "Order Modifying Licenses with Regard to Reliable Spent Fuel Pool Instrumentation" (ML12054A679) are in place and are being implemented by the licensee. Additionally, the inspection verified implementation of staffing and communications information provided in response to the March 12, 2012, request for information letter (ML12053A340) and multiunit dose assessment information provided per COMSECY-13-0010, "Schedule and Plans for Tier 2 Order on Emergency Preparedness for Japan Lessons Learned", dated March 27, 2013 (ML12339A262).

- (1) Based on samples selected for review, the inspectors verified that the licensee satisfactorily implemented appropriate elements of the Diverse and Flexible Coping Strategies (FLEX) as described in the plant specific submittals and the associated safety evaluation (ML17319A591) and determined that the licensee is in compliance with NRC Order EA-12-049. The inspectors verified the licensee satisfactorily:
  - a) developed and issued FLEX Support Guidelines (FSGs) to implement the FLEX strategies for postulated external events;
  - b) integrated their FSGs into their existing plant procedures such that entry into and departure from the FSGs were clear when using existing plant procedures;
  - c) protected FLEX equipment from site-specific hazards;

- d) developed and implemented adequate testing and maintenance of FLEX equipment to ensure their availability and capability;
  - e) trained their staff to assure personnel proficiency in the mitigation of beyond-design basis events; and
  - f) developed the means to ensure the necessary off-site FLEX equipment would be available from off-site locations.
- (2) Based on samples selected for review, the inspectors verified that the licensee satisfactorily implemented appropriate elements of the FLEX strategy as described in the plant specific submittals and the associated safety evaluation and determined that the licensee is in compliance with NRC Order EA-12-051. The inspectors verified the licensee satisfactorily:
- a) installed the spent fuel pool (SFP) instrumentation sensors, cabling and power supplies to provide physical and electrical separation as described in the plant specific submittals and safety evaluation;
  - b) installed the SFP instrumentation display in the location, environmental conditions and accessibility as described in the plant specific submittals;
  - c) trained their staff to assure personnel proficiency with the maintenance, testing, and use of the SFP instrumentation; and
  - d) developed and issued procedures for maintenance, testing and use of the reliable SFP instrumentation.
- (3) The inspectors reviewed information provided in the licensee's multi-unit dose submittal and in response to the NRC's March 12, 2012, request for information letter, and verified that the licensee satisfactorily implemented enhancements pertaining to Near-Term Task Force (NTTF) Recommendation 9.3 response to a large scale natural emergency event that results in an extended loss of all ac power to all site units and impedes access to the site. The inspectors verified the following:
- a) the licensee satisfactorily implemented required staffing changes to support a multi-unit extended loss of alternating current (ac) power (ELAP) scenario;
  - b) emergency preparedness (EP) communications equipment and facilities are sufficient for dealing with a multi-unit ELAP scenario; and
  - c) the licensee implemented multi-unit dose assessment capabilities (including releases from spent fuel pools) using the licensee's site-specific dose assessment software and approach.

The inspectors verified that noncompliance with requirements, and standards identified during the inspection were entered into the licensee's corrective action program as appropriate. The corrective action program documents generated as a result of the inspection are listed in the Documents Reviewed section of this inspection report.

## INSPECTION RESULTS

No findings or violations of significance were identified. This TI is considered closed.

## EXIT MEETINGS AND DEBRIEFS

The inspectors verified no proprietary information was retained or documented in this report.

- On April 13, 2018, the inspectors presented the Temporary Instruction 2515/191 inspection results to Mr. K. Scott, and other members of the licensee staff.

## DOCUMENTS REVIEWED

### 71111.04—Equipment Alignment

- C.5-4401; Ops Man, FLEX DC Load Shed; Revision 4
- NE-36298-2; DC Electrical Load Distribution One Line Diagram; Revision 91

### TI 2515/191—Inspection of the Implementation of Mitigation Strategies and Spent Fuel Pool Instrumentation Orders and Emergency Preparedness Communication/Staffing/Multi-Unit Dose Assessment Plans

- 04-230; HPCI/RCIC Low Pump Suction Pressure Switch Setpoint Spurious Trip Avoidance; Revision 1
- 1444; Pre and Post Severe Weather Inspection Checklist; Revision 15
- 15-004; Monticello Flex Pump Simultaneous SFP / RPV Flow; Revision 0
- 16-055; Monticello Gothic Analysis for Hardened Containment Vent Project; 04/18/2017
- 16Q0391-CAL-002; Evaluation of New Steel Framed Butler FLEX Building for Design Basis and GMRS Seismic Loads; Revision 0
- 16Q0391-CAL-003; Seismic Evaluation of FLEX Systems, Structures and Components (CA 17-002 – Evaluation of FLEX Equipment Pathways and Operator Pathways); Revision 1
- 2014-02; Turbine Building Outside; Revision 29
- 2270; Critical Safety System Checklist; Revision 13
- 38-9233760-000; SAFER Response Plan for Monticello Nuclear Generating Plant; Revision 1
- 4 AWI-08.15.03; Risk Management for Outages; Revision 13
- 53923; Services Agreement – Diesel Generator Purchase for Monticello; 10/02/2014
- 5790-301-04; Site Evacuation Instructions; Revision 10
- 6SAR01537774; FLEX SnapShot Report; 12/12/2017
- 7182-02; Spent Fuel Pool Level Channel B Instrumentation Maintenance; Revision 4
- 8300-02; External Flooding Protection Implementation to Support A.6 Acts of Nature; Revision 8
- 90-038, Control Room Space Temperature Evaluation during Station Blackout; Revision 4
- 96-169; HPCI and RCIC NPSH Evaluation; Revision 3C
- A.2-406; Off-Site Dose Projection; Revision 26
- A.2-501; Communications During an Emergency; Revision 27
- A.2-504; Emergency Communicator Duties in the TSC and OSC; Revision 20
- A.2-803; Emergency Communications at the EOF; Revision 18
- A.6; Acts of Nature; Revision 56
- A.8-02.01, Spent Fuel Pool (SFP) Strategies; Revision 9
- A.8-06.02; Repower PAB PBX Phone System with Portable Generator; Revision 3



- A.8-06.03; Refueling Emergency Portable Diesel Powered Equipment; Revision 4
- A.8-06.04; Alternate Methods for Monitoring Rx Vessel and Containment Parameters; Revision 2
- A-Flex-MNGP-2018-1; 2018 Nuclear Oversight NMGP Flex Special Audit Report; 01/26/2018
- AR 01455074; MWI-6-M-4.01, Revision 0 (New) EC 24147 – Fukushima; 11/07/2014
- B.02.01-05; Fuel Pool Cooling; Revision 56
- B.02.03-05; Reactor Core Isolation Cooling; Revision 36
- B.06.04-05; Circulating Water System; Revision 82
- B.08.09-01; Condensate Storage System; Revision 7
- B.08.09-02; Condensate Storage System; Revision 5
- B.08.09-05; Condensate Storage System; Revision 30
- C.4-B.09.02.A; Station Blackout; Revision 47
- C.5-3201; Defeat RCIC Isolations; Revision 7
- C.5-3201; Defeat RCIC Isolations; Revision 8
- C.5-3202; Bypass HPCI Signals; Revision 7
- C.5-3203; Use of Alternate Injection Systems for RPV Makeup; Revision 17
- C.5-3302; Alternate Pressure Control; Revision 23
- C.5-3504; Primary Containment Vent and Purge; Revision 9
- C.5-3505; Venting Primary Containment; Revision 15
- C.5-4000; Station Blackout Guideline; Revision 2
- C.5-4101; FLEX Site Assessment; Revision 1
- C.5-4103; FLEX Response During External Flood; Revision 0
- C.5-4103; FLEX Response During External Flooding; Revision 1
- C.5-4201; FLEX Portable Diesel Pump Staging and Hose Connection; Revision 1
- C.5-4202; FLEX Portable Diesel Pump (PDP) Operation; Revision 1
- C.5-4203; RCIC Operation with High Level Trip Bypassed; Revision 1
- C.5-4204; HPCI Operation with High Level Trip Bypass; Revision 0
- C.5-4301; Spent Fuel Pool Makeup with FLEX Portable Diesel Pump; Revision 3
- C.5-4401; FLEX DC Load Shed; Revision 4
- C.5-4402; Stage and Connect FLEX 480V Portable Diesel Generator; Revision 1
- C.5-4402; Stage and Connect FLEX 480V Portable Diesel Generator; Revision 0
- C.5-4403; FLEX Portable Diesel Generator Operation; Revision 0
- C.5-4404; Operate Essential Battery Chargers From FLEX Portable Diesel Generator; Revision 2
- C.5-4405; Backfeed MCCs From 480V Portable Diesel Generator; Revision 0
- C.5-4406; Stage 120V Portable Diesel Generator; Revision 1
- C.5-4410; FLEX 4kV Generator; Revision 2
- C.5-4453; Energize Hard Pipe Vent during SBO; Revision 0
- C.5-4501; Reactor Building Ventilation during FLEX Conditions; Revision 0
- C.5-4502; Control Room and PAB Ventilation During FLEX Conditions; Revision 0
- C.5-4503; EFT Ventilation during FLEX Conditions; Revision 1
- C.5-4504; Ops Man, Temporary Lighting During FLEX Conditions; Revision 0
- C.6-003-A-23; Condensate Storage Tank Low Level; Revision 7
- C.6-004-A-25; RCIC Pump Suction Low Press; Revision 2
- CA 05-075; Liquefaction Analysis and Estimation of Post-Earthquake Settlements at ISFSI; Revision 0
- CAP 500001560694; LITF: P-506 Failed to Start on First Three Attempts; 08/08/2017
- CAP 501000000649; PSP-COM-0606 Surveillance Completion; 07/14/2017
- CAP 501000000690; PSP-COM-0606 Surveillance Steps; 07/14/2017
- CAP 501000001110; Additional 480V Cables Required for FLEX; 10/02/2017

- CAP 501000002903; Flex Generator Cable Delivered Too Short; 09/21/2017
- CAP 501000005748; Flex Building Sprinkler Drain Frozen; 11/22/2017
- CAP 501000007019; SBO Proc ELAP Declaration Question; 01/08/2018
- CAP 501000007606; NOS: FLEX – Operator Round for Flex Bldg; 01/24/2018
- CAP 501000007628; NOS: FLEX – Fuel Additives during Cold Weather; 01/24/2018
- CAP 501000007651; NOS: FLEX - Refueling Tow Vehicles; 01/24/2018
- CAP 501000007877; FLEX Inspection – Satellite Phone Charging at +24 Hours; 01/24/2018
- CAP 501000008587; NRC FLEX RFI – 2 Items Provided Late; 02/19/2018
- CAP 501000009138; NRC FLEX – Program Document Typo Errors; 03/06/2018
- CAP 501000009153; NRC FLEX – Program Document Questions; 03/05/2018
- CAP 501000009183; Cold Weather CST Operation – OE; 03/06/2018
- CAP 501000009193; NRC FLEX – Missing Screw on Pull Box; 03/06/2018
- CAP 501000009199; NRC FLEX – New FLEX Labels Needed; 03/07/2018
- CAP 501000009210; NRC FLEX – SAFER Contact Number in A.6; 03/06/2018
- CAP 501000009225; NRC FLEX – Snow Removal Discrepancy; 03/07/2018
- CAP 501000009232; NRC FLEX - CST Instrument Lince Could Freeze; 03/07/2018
- CAP 501000009242; NRC FLEX – Nitrogen Bottle Pressure Discrepancy; 03/07/2018
- CAP 501000009255; NRC FLEX – Fire Extinguishers Outdated; 03/07/2018
- CAP 501000009268; NRC FLEX: C.5-3505 Procedure Enhancement; 03/08/2018
- CAP 501000009306; NRC FLEX – O-Rings Needed for FLEX Pumps; 03/08/2018
- CAP 501000009845; NRC FLEX – Generator Refueling Level; 03/22/2018
- CAP 501000010699; TI 2515/191 FLEX Performance Deficiency; 04/13/2018
- CAP 610000000249; OE: Green NCV Perry DBA 2017–08–01; 01/11/2018
- CD 10.1; Emergency Response Organization; Revision 12
- E.4–01; Backfeed Bus 13 From 13 DG; Revision 5
- EC 23419; Fukushima Response Spent Fuel Pool Instrumentation; Revision 0
- EC 23475; Fukushima Response Portable Generator Connections; Revision 1
- EC 23478; Fukushima Response FLEX Storage Building; Revision 0
- EC 23479; Fukushima Response – RPV Injection Point; Revision 0
- EC 23477; Fukushima Response – Satellite Phone Communications; Revision 0
- EC 24147; Fukushima Implementation Engineering Change; Revision 0
- E–Plan; Emergency Plan; Revision 49
- FL–BEP–FLEX–002F; Advanced FLEX Training; Revision 0
- FL–BEP–FLEX–003F; ERO FLEX Training; Revision 0
- FLEX; Diverse and Flexible Coping Strategies (FLEX) Program Document; Revision 3
- FLEX; Diverse and Flexible Coping Strategies (FLEX) Program Document; Revision 4
- FP–BDB–CHNG–01; FLEX Strategy Change Process; Revision 3
- FP–BDB–EQP–01; Equipment Important to BDB Compliance; Revision 6
- FP–BDB–EQP–01; Equipment Important to BDB Compliance; Revision 7
- FP–BDB–IP–01; SAFER Response Staging Area Procedure; Revision 2
- FP–PE–PM–01; Preventive Maintenance Program; Revision 20
- IP–ENG–001; Standard Design Process; Revision 0
- LMS FLEX Qualification Training Reports for selected individuals; 03/08/2018
- L–MT–14–066; Monticello Nuclear Generating Plant Supplemental Information for the Notification of Full Compliance of Required Action for NRC Order EA 12–049 Mitigation Strategies for Beyond–Design–Basis External Events (TAC No. MF0923); 09/28/2017
- L–MT–15–027; Monticello Nuclear Generating Plant Phase 2 Staffing Assessment Revised – Onsite and Augmented Staffing Assessment Considering Functions Related to Near–Term Task Force (NTTF) Recommendation 4.2; 04/30/2015

- L-MT-17-047; Monticello Nuclear Generating Plant: Notification of Full Compliance of Required Action for NRC Order EA-12-049 Mitigation Strategies for Beyond-Design-Basis External Events (TAC No. MF0923); 07/06/2017
- Load Bank Report, Caterpillar XQ200, 200 kW Standby Diesel Generator Set; 10/28/2014
- M-3300; MNGP Beyond Design Basis Training Program Description; Revision 2
- MNGP FLEX Validation; 05/13/2015
- MNGP NRC Inspection TI 2515/191 Presentation; March 5, 2018
- MT-ILT-FLX-001L; Initial License Operator Training; Revision 2
- MT-MIC-LVL-004L; Spent Fuel Pool Level Detector; Revision 0
- MT-NLO-FLX-001L; Non-license Operator Training; Revision 2
- MWI-6-M-4.01; Snow Removal for FLEX Strategy; Revision 0
- NANTeL Generic Basic FLEX Training; 02/23/2015
- NF-36567; Area Piping Drawing Condensate Storage Tanks Plan & Sections; Revision 4
- NH-178639-1; Levee Alignment and Bin Wall Plan; Revision 4
- NH-36039; P&ID Condensate & Demineralized Water Storage Systems; Revision 98
- NH-36252; P&ID RCIC (Water Side); Revision 82
- NX-7822-22-2; RCIC System; Revision 78
- NX-7822-22-3; RCIC System Shutdown; Revision 78
- OSP-BDB-0397; G-101 #11 120V Portable Diesel Generator Testing; Revision 3
- OSP-FIR-0608; P-506 Portable Diesel Pump Testing; Revision 6
- OSP-FIR-0609; P-507 Portable Diesel Pump Testing; Revision 5
- OSP-FIR-1489; B.5.B/FLEX Equipment Inventory; Revision 23
- PSP-COM-0606; Communications Verification; Revision 6
- SEG M8119S-007; Simulator Exercise Guide, Station Blackout With An Extended Loss Of Power; Revision 0
- Transaction Agreement for Purchase and Sale of Fuel Oil; 01/02/2018
- WO 00445818; 100 Hour Run for New B.5.B Pumps (P506 and P507); 07/18/2012
- WO 00516193; FLEX - 480 V Portable DG 24 HR Test Run (G-506); 03/30/2015
- WO 00525202; G-507 - FLEX Generator Fluid & Filter Change; 06/30/2017
- WO 00525203; G-506 - FLEX Generator Fluid & Filter Change; 06/29/2017
- WO 00547906; G-507 - FLEX Generator Annual Preventive Maintenance; 06/29/2017
- WO 00547907; G-506 - FLEX Generator Annual Preventive Maintenance; 06/28/2017
- WO 700007157; LI-2789A/B, Update Instrumentation Software; 08/01/2017
- WO 700009402; Spent Fuel Pool Wide Range Level Indicator A; 08/01/2017
- WO 700017550-0010; P-506 Portable Diesel Pump 6 month PM; 10/06/2017
- WO 700017725-0010; Spent Fuel Pool Level Channel A Instrumentation Maintenance; 10/05/2017
- WO 700019939-0010; P-506 Portable Diesel Pump 12 month PM; 10/06/2017
- WO 700019966; OSP-BDB-0398 - G-102 #12 120 V Portable Diesel Generator Testing; 11/20/2017
- WO 700021020; P-507 Diesel Fire Pump 3Y PM; 11/22/2017
- WO 00462484; OPS-G-52, 50 Hour Acceptance Test for New Portable Generator; 01/04/2013
- WO 00462492; OPS-G-51, 50 Hour Acceptance Test for New Portable Generator; 01/04/2013
- WO 700030565; Replace UPS Batteries; 01/29/2018
- WO 515775-03; 4KV Portable Diesel Generator Cable Connection to 152-404; Revision 0
- PMCR 613000000416; P-506/P-507 12M PM: Add Coolant Test; 11/15/2017
- PMCR 613000000415; P-506/P-507 3Y PM: Remove Coolant Flush; 11/15/2017
- WO 00512006; Strategy Validation - Deploy PDP and Time; 06/20/2015