January 22, 1986

Docket No. 50-263

Mr. D. M. Musolf
Nuclear Support Services Department
Northern States Power Company
414 Nicollet Mall - 8th Floor
Minneapolis, Minnesota 55401

Dear Mr. Musolf:

The Commission has issued the enclosed Amendment No. 37 to Facility Operating License No. DPR-22 for the Monticello Nuclear Generating Plant. The amendment consists of changes to the Technical Specifications in response to your application dated June 24, 1983.

The amendment revises the Technical Specifications to provide Limiting Conditions for Operation and Surveillance Requirements for the following items: (1) Overtime Limitations, (2) Reporting Safety/Relief Valve Failures and Challenges, (3) Reactor Core Isolation Cooling (RCIC) and RCIC Suction Transfer, (4) Isolation of RCIC Modifications and (5) Additional Accident Monitoring Instrumentation. These changes relate to TMI Action Items covered by Generic Letters 83-02 and 83-36 dated January 10 and November 1, 1983 respectively. The items not included in this amendment either have been resolved or will be addressed separately.

A copy of the Safety Evaluation is enclosed.

Sincerely,

Original signed by:

John A. Zwolinski, Director
BWR Project Directorate #1
Division of BWR Licensing

Enclosures:
1. Amendment No. 37 to
   License No. DPR-22
2. Safety Evaluation

cc w/enclosures:
See next page

DISTRIBUTION	KRidgway	CPatel	
Docket File	CJamerson	BGrimes	OPA, CMiles
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PDR ADOCK 05000263
P PDR

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

NORTHERN STATES POWER COMPANY

DOCKET NO. 50-263

MONTICELLO NUCLEAR GENERATING PLANT

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 37
License No. DPR-22

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by Northern States Power Company (the licensee) dated June 24, 1983, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.2 of Facility Operating License No. DPR-22 is hereby amended to read as follows:

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P PDR

2 Technical Specifications

The Technical Specifications contained in Appendix A as revised through Amendment No. 37 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

John A. Zwolinski, Director
BWR Project Directorate #1
Division of BWR Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: January 22, 1986.

ATTACHMENT TO LICENSE AMENDMENT NO. 37

FACILITY OPERATING LICENSE NO. DPR-22

DOCKET NO. 50-263

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages. The revised areas are indicated by marginal lines.

Pages

i, iv, vi, vii
46a
50
60d
61
69a
71a
111
111a
112
229b
229c
229d
229e - 229t (renumber of pages only)
233
233a
249a

TABLE OF CONTENTS

LIST OF TABLES

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
2. Rod Block Monitor (RBM) (continued) b. RBM Setpoints for control rod block are given in Table 3.2.3. The upscale LTSP shall be applied above 30% and up to 65% of rated thermal power. The upscale ITSP shall be applied at and above 65% and up to 85% of rated thermal power. The upscale HTSP shall be applied at and above 85% of rated thermal power. The RBM Bypass time delay shall be less than or equal to 2.0 seconds. D. Other Instrumentation Whenever the reactor is in the RUN Mode, the limiting conditions for operation for the instrumentation listed in Table 3.2.8 shall be met.	

Amendment No. 29, 37

TABLE 3.2.1 - Continued

Function	Trip Settings	Total No. of Instrument Channels Per Trip System	Min. No. of Operable or Operating Instrument Channels Per Trip System (1,2)	Required Conditions
b. High Drywell Pressure (5)	≤2 psig	2	2	D
3. Reactor Cleanup System (Group 3)				
a. Low Reactor Water Level	≥10'6" above the top of the active fuel	2	2	E
b. High Drywell Pressure	≤2 psig	2	2	E
4. HPCI Steam Lines				
a. HPCI High Steam Flow	≤150,000 lb/hr with ≤60 second time delay	2(4)	2	F
b. HPCI High Steam Flow	≤300,000 lb/hr	2(4)	2	F
c. HPCI Steam Line Area High Temp.	≤200°F	16(4)	16	F
5. RCIC Steam Lines				
a. RCIC High Steam Flow	≤45,000 lb/hr with 5 ±2 sec time delay	2(4)	2	G
b. RCIC Steam Line Area	≤200°F	16(4)	16	G
6. Shutdown Cooling Supply Isolation				
a. Reactor Pressure Interlock	≤75 psig at pump suction	2(4)	2	C

Amendment No. 21, 22, 37

Table 3.2.8
Other Instrumentation

Function	Trip Setting	Minimum No. of Operable or Operating Trip System (1)	Total No. of Instrument Channels Per Trip System	Minimum No. of Operable or Operating Instrument Channels Per Trip System (1)	Required Conditions*
A. RCIC Initiation					
1. Low-Low Reactor Level	≥6'6" & ≤6'10" above top of active fuel	1	2	2	B
B. HPCI/RCIC Turbine Shutdown					
a. High Reactor Level	≤14'6" above top of active fuel	1	2	2	A
C. HPCI/RCIC Turbine Suction Transfer					
a. Condensate Storage Tank Low Level	≥2'0" above tank bottom	1	2	2	C

NOTE:

1. Upon discovery that minimum requirements for the number of operable or operating trip systems or instrument channels are not satisfied, action shall be initiated to:

   a. Satisfy the requirements by placing the appropriate channels or systems in the tripped condition (Turbine/Feedwater Trip only), or
   b. Place the plant under the specified required condition using normal operating procedures.

* Required conditions when minimum conditions for operation are not satisfied:

A. Reactor in Startup, Refuel, or Shutdown Mode.
B. Comply with Specification 3.5.F.2.
C. Align HPCI and RCIC suction to the suppression pool. Restore channels to operable status status within 30 days or place the plant in Required Condition A.

Amendment No. 37

Table 4.2.1
Minimum Test and Calibration Frequency For Core Cooling
Rod Block and Isolation Instrumentation

Instrument Channel	Test (3)	Calibration (3)	Sensor Check (3)
ECCS INSTRUMENTATION			
1. Reactor Low-Low Water Level (Note 7)	once/month	Once/3 months	Once/Shift
2. Drywell High Pressure (Note 7)	once/month	Once/3 months	None
3. Reactor Low Pressure (Pump Start)	Note 1	Once/3 months	None
4. Reactor Low Pressure (Valve Permissive)	Note 1	Once/3 months	None
5. Undervoltage Emergency Bus	Refueling Outage	Refueling Outage	None
6. Low Pressure Core Cooling Pumps Discharge Pressure Interlock	Note 1	Once/3 months	None
7. Loss of Auxiliary Power	Refueling Outage	Refueling Outage	None
8. Condensate Storage Tank Level	Refueling Outage	Refueling OUtage	None
9. Reactor High Water Level	Once/month	Once/3 months	Once/day
ROD BLOCKS			
1. APRM Downscale	Notes (1,5)	Once/3 months	None
2. APRM Flow Variable	Notes (1,5)	Once/3 months	None
3. IRM Upscale	Notes (2,5)	Note 2	Note 2
4. IRM Downscale	Notes (2,5)	Note 2	Note 2
5. RBM Upscale	Notes (1,5)	Once/3 months	None
6. RBM Downscale	Notes (1,5)	Once/3 months	None
7. SRM Upscale	Notes (2,5)	Note 2	Note 2
8. SRM Detector not in Start-up Position	Note 2	Note 2	Note 2
9. Scram Discharge Volume-High Level	Once/3 months	Refueling outage	None
MAIN STEAM LINE ISOLATION			
1. Steam Tunnel High Temperature	Refueling Outage	Refueling Outage	None
2. Steam Line High Flow	Note 1	Once/3 months	Once/Shift

Amendment No. 2, 10, 37

Bases Continued:

open and instrumentation drift has caused the nominal 80-psi blowdown range to be reduced to 60 psi. Maximum water leg clearing time has been calculated to be less than 6 seconds for the Monticello design. Inhibit timers are provided for each valve to prevent the valve from being manually opened less than 10 seconds following valve closure. Valve opening is sensed by pressure switches in the valve discharge line. Each valve is provided with two trip, or actuation, systems. Each system is provided with two channels of instrumentation for each of the above described functions. A two-out-of-two-once logic scheme ensures that no single failure will defeat the low-low set function and no single failure will cause spurious operation of a safety/relief valve. Allowable deviations are provided for each specified instrument setpoint. Setpoints within the specified allowable deviations provide assurance that subsequent safety/relief valve actuations are sufficiently spaced to allow for discharge line water leg clearing.

Although the operator will set the set points within the trip settings specified in Tables 3.2.1 through 3.2.8, the actual values of the various set points can differ appreciably from the value the operator is attempting to set. The deviations could be caused by inherent instrument error, operator setting error, drift of the set point, etc. Therefore, these deviations have been accounted for in the various transient analyses and the actual trip settings may vary by the following amounts:

References:

1. "Average Power Range Monitor, Rod Block Monitor and Technical Specifications Improvement (ARTS) Program for Monticello Nuclear Generating Plant", NEDC-30492-P, April, 1984.

Amendment No. 30, 37

	Trip Function	Deviation
Instrumentation for Safety/Relief Valve Low Low Set Logic	Reactor Coolant System Pressure for Opening/Closing	±20 psig
	Opening - Closing Pressure	≥60 psi
	Discharge Pipe Pressure Inhibit	±10 psid
	Timer Inhibit	-3 sec +10 sec
Other Instrumentation	High Reactor Water Level	+6 inches
	Low-Low Reactor Water Level	-3 inches
	Low Condensate Storage Level	-6 inches

A violation of this specification is assumed to occur only when a device is knowingly set outside of the limiting trip settings, or, when a sufficient number of devices have been affected by any means such that the automatic function is incapable of operating within the allowable deviation while in a reactor mode in which the specified function must be operable or when actions specified are not initiated as specified.

Amendment No. 30, 37

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS

shutdown shall be initiated immediately and the reactor pressure shall be reduced to 150 psig within 24 hours thereafter.

F. Reactor Core Isolation Cooling System (RCIC)

1. Except as specified in 3.5.F.2 below, the RCIC system shall be operable whenever the reactor pressure is greater than 150 psig and irradiated fuel is in the reactor vessel. To be considered operable, the RCIC system shall meet the following conditions:

   a. The RCIC shall be capable of delivering 400 gpm into the reactor vessel at 150 psig.

   b. The controls for automatic transfer of the RCIC pump suction from the condensate storage tank to the suppression chamber shall be operable.

   c. The controls for automatic restart on subsequent low reactor level after it has been terminated by a high reactor level signal shall be operable.

F. Surveillance of Reactor Core Isolation Cooling System (RCIC)

Surveillance of the RCIC System shall be performed as follows:

1. Testing

Item	Frequency
Pump operability	Once/month
Motor operated valve operability	Once/month
Flow rate test	After major pump maintenance and every three months
Simulated automatic actuation, transfer of suction to suppression pool, and automatic restart on subsequent low reactor water level	Once/Operating Cycle

Amendment No. 37

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
2. From and after the date that the RCIC system is made or found to be inoperable for any reason, except automatic transfer of pump suction, reactor operation is permissible only during the succeeding 15 days unless such system is sooner made operable, provided that during such 15 days all active components of the HPCI system are operable. With the controls for automatic transfer of pump suction inoperable, operation for up to 30 days is permissible if the pump suction is aligned to the suppression pool. If these conditions cannot be met, an orderly shutdown shall be initiated and the reactor pressure reduced to 150 psig within 24 hours.	2. When it is determined that the RCIC system is inoperable, the HPCI system shall be demonstrated to be operable immediately and daily thereafter.

Amendment No. 37

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
G. Minimum Core and Containment Cooling System Availability	G. Surveillance of Core and Containment Cooling System
1. During any period when one of the standby diesel generators is inoperable, continued reactor operation is permissible only during the succeeding seven days, provided that all of the low pressure core cooling and containment cooling subsystems connected to the operable diesel generator shall be operable. If this requirement cannot be met, an orderly shutdown shall be initiated and the reactor water temperature shall be reduced to less than 212°F within 24 hours.	1. When it is determined that one of the standby diesel generators is inoperable, all low pressure core cooling and containment cooling service water systems connected to the operable diesel generator shall be demonstrated to be operable immediately and daily thereafter. In addition, the operable diesel generator shall be demonstrated to be operable immediately and daily thereafter.
2. Any combination of inoperable components in the core and containment cooling systems shall not defeat the capability of the remaining operable components to fulfill the core and containment cooling functions.	

Amendment No. 37

Table 3.14.1

Instrumentation for Accident Monitoring

Function	Total No. of Instrument Channels	Minimum No. of Operable Channels	Required Conditions*
Reactor Vessel Fuel Zone Water Level	2	1	A, B
Safety/Relief Valve Position (One Channel Pressure Switch and One Channel Thermocouple Position Indication per Valve)	2	1	A, C
Drywell Wide Range Pressure	2	1	A, B
Suppression Pool Wide Range Level	2	1	A, B
Drywell High Range Radiation	2	1	A, D
Drywell and Suppression Pool Hydrogen and Oxygen Monitor	2	1	A, B
Offgas Stack Wide Range Radiation	2	1	A, D
Reactor Bldg Vent Wide Range Radiation	2	1	A, D

* Required Conditions

A. When the number of channels made or found to be inoperable is such that the number of operable channels is less than the total number of channels, either restore the inoperable channels to operable status within seven days, or prepare and submit a special report to the Commission pursuant to Technical Specification 6.7.B.2 within the next 30 days outlining the action taken, the cause of the inoperability, and the plans and schedule for restoring the system to operable status.

Amendment No. 2, 37

Table 3.14.1 (continued)

Instrumentation for Accident Monitoring

* Required Conditions (continued)

B. When the number of channels made or found to be inoperable is such that the number of operable channels is less than the minimum number of operable channels shown, the minimum number of channels shall be restored to operable status within 48 hours or be in at least Hot Shutdown within the next 12 hours.

C. When the number of channels made or found to be inoperable is such that the number of operable channels is less than the minimum number of operable channels shown, the torus temperature shall be monitored at least once per shift to observe any unexplained temperature increase which might be indicative of an open SRV; the minimum number of channels shall be restored to operable status within 30 days or be in at least Hot Shutdown within the next 12 hours.

D. When the number of channels made or found to be inoperable is such that the number of operable channels is less than the minimum number of operable channels shown, initiate the preplanned alternate method of monitoring the appropriate parameters in addition to submitting the report required in (A) above.

Amendment No. 2, 37

Table 4.14.1

Minimum Test and Calibration Frequency for
Accident Monitoring Instrumentation

Instrument Channel	Test (Note 1)	Calibration (Note 1)	Sensor Check (Note 1)
Reactor Vessel Fuel Zone Water Level Monitor	-	Once/Operating Cycle	Once/month (Note 3)
Safety/Relief Valve Position (Pressure Switches)	-	Once/Operating Cycle	Once/month (Note 2)
Safety/Relief Valve Position (Thermocouples)	-	Once/Operating Cycle	Once/month (Note 2)
Drywell Wide Range Pressure Monitors	-	Once/Operating Cycle	Once/month
Suppression Pool Wide Range Level Monitors	-	Once/Operating Cycle	Once/month
Drywell High Range Radiation Monitors	-	Once/Operating Cycle	Once/month
Drywell and Suppression Pool Hydrogen and Oxygen Monitors	-	Once/Operating Cycle	Once/month
Offgas Stack Wide Range Radiation Monitors	-	Once/Operating Cycle	Once/month
Reactor Bldg Wide Range Radiation Monitors	-	Once/Operating Cycle	Once/month

Notes:

(1) Functional tests, calibrations, and sensor checks are not required when the instruments are not required to be operable. If tests are missed, they shall be performed prior to returning the instruments to an operable status.

(2) Proper instrument response shall be verified during each safety/relief valve actuation.

(3) These instruments are off-scale high during normal plant operation.

Amendment No. 2, 37

Bases:

3.14/4.14 The operability of the accident monitoring instrumentation ensures that sufficient information is available on selected plant parameters to monitor and assess these variables during and following an accident. This capability is consistent with the recommendations of NUREG-0578, "TMI-2 Learned Task Force Status Report and Short Term Recommendations".

Amendment No. 2, 37

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS

3.15 INSERVICE INSPECTION AND TESTING

Applicability:

Applies to components which are part of the reactor coolant pressure boundary and their supports and other safety-related pressure vessels, piping, pumps, and valves.

Objective:

To assure the intergrity of the reactor coolant pressure boundary and the operational readiness of safety-related pressure vessels, piping, pumps, and valves.

Specification:

A. Inservice Inspection

1. To be considered operable, Quality Group A, B, and C components shall satisfy the requirements contained in Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda for continued service of ASME Code Class 1, 2, and 3 components, respectively, except where relief has been granted by the Commission pursuant to 10 CFR 50, Section 50.55a(g)(6)(i).

4.15 INSERVICE INSPECTION AND TESTING

Applicability:

Applies to the periodic inspection and testing of components which are part of the reactor coolant pressure boundary and their supports and other safety-related pressure vessels, piping, pumps, and valves.

Objective:

To verify the integrity of the reactor coolant pressure boundary and the operational readiness of safety-related pressure vessels, piping, pumps, and valves.

Specification:

A. Inservice Inspection

1. Inservice inspection of Quality Group A, B, and C components shall be performed in accordance with the requirements for ASME Code Class 1, 2, and 3 components, respectively, contained in Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda as required by 10 CFR 50, Section 50.55a(g), except where relief has been granted by the the Commission pursuant to 10 CFR 50, Section 50.55a(g)(6)(i)

Amendment No. 6, 37

Bases 3.15 and 4.15

The inservice inspection program for the Monticello plant conforms to the requirements of 10 CFR 50, Section 50.55a(g). Where practical, the inspection of components classified into NRC Quality Groups A, B, and C conforms to the requirements of ASME Code Class 1, 2, and 3 components, respectively, contained in Section XI of the ASME Boiler and Pressure Vessel Code. If a Code required inspection is impractical for the Monticello facility, a request for a deviation from that requirement is submitted to the Commission in accordance with 10 CFR 50, Section 50.55a(g)(6)(i).

Deviations which are needed from the procedures prescribed in Section XI of the ASME Code and applicable Addenda will be reported to the Commission prior to the beginning of each 10-year inspection period if they are known to be required at that time. Deviations which are identified during the course of inspection will be reported quarterly throughout the inspection period.

A program of inservice testing of Quality Group A, B, and C pumps and valves is also in effect at the Monticello plant. Technical Specifications related to this program will be issued following NRC review and approval of the pump and valve testing program.

Amendment No. 6, 37

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS

4.16 RADIATION ENVIRONMENTAL MONITORING PROGRAM

Applicability

Applies to the periodic monitoring and recording of radioactive effluents found in the plant environs.

Objective

To provide for measurement of radiation levels and radioactivity in the site environs on a continuing basis.

Specification

A. Sample Collection & Analysis

1. The Radiation Environmental Monitoring Program given in Table 4.16.1 shall be conducted. Radioanalysis shall be conducted meeting the requirements of Table 4.16.2.

   A map and a table identifying the locations of the sampling points shall be provided in the Offsite Dose Calculation Manual (ODCM).

2. Whenever the Radiation Environmental Monitoring Program is not being conducted as specified in Table 4.16.1, the Annual Radiation Environmental Monitoring Report shall include a description of the reasons for not conducting the program as required and plans for preventing a recurrence.

Amendment No. 15, 37

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
	3. Deviations are permitted from the required sampling schedule if samples are unobtainable due to hazardous conditions, seasonable unavailability, or to malfunction of automatic sampling equipment. If the latter occurs, every effort shall be made to complete corrective action prior to the end of the next sampling period.
	4. With the level of radioactivity in an environmental sampling medium exceeding the reporting levels of Table 4.16.3 when averaged over any calendar quarter, in lieu of any other report, prepare and submit to the Commission within 30 days from the end of the affected calendar quarter a Report pursuant to Specification 6.7.C.2.a. When more than one of the radionuclides in Table 3.12-2 are detected in the sampling medium, this report shall be submitted if: $$\frac{\text{concentration (1)}}{\text{limit level (1)}} + \frac{\text{concentration (2)}}{\text{limit level (2)}} + \ldots > 1.0$$ When radionuclides other than those in Table 3.12-2 are detected and are the result of plant effluents, this report shall be submitted if the potential annual dose to an individual is equal to or greater than the calendar year limits of Specifications 3.8.A.2, 3.8.B.2, or 3.8.B.3. This report is not required if the measured level of radioactivity was not the result of plant effluents; however, in such an event, the condition shall be reported and described in the Annual Radiation Environmental Monitoring Report.

Amendment No. 15, 37

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
	5. Although deviations from the required sampling schedule are permitted under Item 3, above, whenever milk or leafy green vegetables can no longer be obtained from the designated sample locations required by Table 4.16.1, the Semi-annual Radioactive Effluent Release Report for this period shall explain why the samples can no longer be obtained and will identify the locations which will be added to and deleted from the monitoring program as soon as practicable.
	B. Land Use Census
	1. A land use census shall be conducted and shall identify the location of the nearest milk animal, the nearest residence, and the nearest garden of greater than 500 ft^2 producing fresh leafy vegetables, in each of the 16 meteorological sectors within a distance of five miles. The census shall also identify the locations of all milk animals and all 500 ft^2 or greater gardens producing broad leaf vegetation in each of the meteorological sectors within a distance of three miles. This census shall be conducted at least once per year between the dates of May 1 and October 31 by door to door survey, aerial survey, or by consulting local agricultural authorities associations.

Amendment No. 19, 37

3.0 LIMITING CONDITIONS FOR OPERATION	4.0 SURVEILLANCE REQUIREMENTS
	2. With a land use census identifying a location which yields a calculated dose or dose commitment (via the same exposure pathway) 20 percent greater than at a location from which samples are currently being obtained in accordance with Specification 4.16.A.1, the Semiannual Radioactive Effluent Release Report for this period shall identify the new location. The new location shall be added to the radiological environmental monitoring program within 30 days. The sampling location, excluding the control station location, having the lowest calculated dose or dose commitment (via the same exposure pathway) may be deleted from this monitoring program after October 31 of the year in which this land use census was conducted. C. Interlaboratory Comparison Program 1. Analyses shall be performed on radioactive materials supplied as part of an NRC approved interlaboratory comparison program as described in the ODCM. 2. The results of analyses performed as a part of the above required program shall be included in the Annual Radiation Environmental Monitoring Report. When required analyses are not performed, corrective action shall be reported in the Annual Radiation Environmental Monitoring Report.

Amendment No. 15,37

Amendment No. 18, 37

Table 4.16.1
(Page 1 of 5)

MONTICELLO NUCLEAR GENERATING PLANT
RADIATION ENVIRONMENTAL MONITORING PROGRAM
SAMPLE COLLECTION AND ANALYSIS

Exposure Pathway and/or Sample	Number of Samples and Sample Locations**	Sampling and Collection Frequency	Type and Frequency of Analysis
1. Airborne Radioiodine & Particulates	Samples from 5 locations: 3 samples from offsite locations (in different sectors) of the highest calculated annual average ground level D/Q, 1 sample from the vicinity of a community having the highest calculated annual average ground-level D/Q, and 1 sample from a control location 8-20 miles distance and in the least prevalent wind direction	Continuous Sampler operation with sampler collection weekly.	Radioiodine analysis Weekly for I-131 Particulate: Gross beta activity on each filter weekly*. Analyses shall be performed more than 24 hours following filter change. Perform gamma isotopic analysis on composite (by location) sample quarterly.
2. Direct Radiation	37 TLD stations established with duplicate dosimeters placed at the following locations:	Quarterly	Gamma Dose quarterly

* If gross beta activity in any indication sample exceeds 10 times the yearly average of the control sample, a gamma isotopic analysis is required.

** Sample locations are given on the figure and table in the ODCM.

Amendment No. 15, 37

Table 4.16.1
(Page 2 of 5)

MONTICELLO NUCLEAR GENERATING PLANT
RADIATION ENVIRONMENTAL MONITORING PROGRAM
SAMPLE COLLECTION AND ANALYSIS

Exposure Pathway and/or Sample	Number of Samples and Sample Locations**	Sampling and Collection Frequency	Type and Frequency of Analysis
2. Direct Radiation (Con't.)			
	1. Using the 16 meterological wind sectors as guidelines, an inner ring of stations in the general area of the site boundary is established and an outer ring of stations at 4 to 5 mile distance from the plant site is established. Because of inacessibility, two sectors in the inner and outer rings are not covered.		
	2. Seven dosimeters are established at special interest areas and a control station.		
3. Waterborne			
a. Surface	Upstream & downstream locations	Monthly composite of weekly samples (water & ice conditions permitting)	Gamma Isotopic analysis of each monthly composite Tritium analysis of quarterly composites of monthly composites

** Sample locations are given on the figure and table in the ODCM.

Table 4.16.1
(Page 3 of 5)

MONTICELLO NUCLEAR GENERATING PLANT
RADIATION ENVIRONMENTAL MONITORING PROGRAM
SAMPLE COLLECTION AND ANALYSIS

Exposure Pathway and/or Sample	Number of Samples and Sample Locations**	Sampling and Collection Frequency	Type and Frequency of Analysis
3. Waterbourne (con't.)			
b. Ground	Three samples from wells within 5 miles of the plant site and one sample from a well greater than 10 miles from the plant site.	Quarterly	Gamma Isotopic and tritium analyses of each sample
c. Drinking	One sample from the City of Minneapolis water supply	Monthly composite of weekly samples.	I-131 Analysis and Gross beta and Gamma isotopic analysis of each monthly composite Tritium analysis of quarterly composites of monthly composites
d. Sediment from Shoreline	One sample upstream of plant, one sample downstream of plant, and one sample from shoreline of recreational area	Semiannually	Gamma isotopic analysis of each sample

** Sample locations are given on the figure and table in the ODCM.

Amendment No. 18, 37

Table 4.16.1
(Page 4 of 5)

MONTICELLO NUCLEAR GENERATING PLANT
RADIATION ENVIRONMENTAL MONITORING PROGRAM
SAMPLE COLLECTION AND ANALYSIS

Exposure Pathway and/or Sample	Number of Samples and Sample Locations**	Sampling and Collection Frequency	Type and Frequency of Analysis
4. Ingestion			
a. Milk	One sample from dairy farm having highest D/Q, one sample from each of three dairy farms calculated to have doses from I-131 >1 mrem/yr, and one sample from 10-20 miles	Monthly or biweekly if animals are on pasture	Gamma isotopic and I-131 analysis of each sample
b. Fish and Invertebrates	One sample of one game specie of fish located upstream and downstream of the plant site. One sample of Invertebrates upstream and downstream of the plant site.	Samples collected semi-annually	Gamma isotopic analysis on each sample (edible portion only on fish).

** Sample locations are given on the figure and table in the ODCM.

Table 4.16.1
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MONTICELLO NUCLEAR GENERATING PLANT
RADIATION ENVIRONMENTAL MONITORING PROGRAM
SAMPLE COLLECTION AND ANALYSIS

Exposure Pathway and/or Sample	Number of Samples and Sample Locations**	Sampling and Collection Frequency	Type and Frequency of Analysis
c. Food Products	One sample of corn from highest D/Q farm and one sample from 10-20 miles	At time of harvest	Gamma isotopic analysis of edible portion of each sample
	One sample of potatoes from highest D/Q farm and one sample from 10-20 miles	At time of harvest	Gamma isotopic analysis of edible portion of each sample
	One sample of broad leaf vegetation from highest D/Q garden and one sample from 10-20 miles	At time of harvest	I-131 analysis of edible portion of each sample

** Sample locations are given on the figure and table in the ODCM.

Table 4.16.2
(Page 1 of 2)

MAXIMUM VALUES FOR THE LOWER LIMITS OF DETECTION (LLD)[a,e]

Analysis	Water (pCi/l)	Airborne Particulate or Gas (pCi/m^3)	Fish (pCi/kg, wet)	Milk (pCi/l)	Food Products (pCi/kg, wet)	Sediment (pCi/kg, dry)
gross beta	4[b]	1×10^{-2}				
^{3}H	2000(1000[b])					
^{54}Mn	15		130			
^{59}Fe	30		260			
$^{58}, ^{60}Co$	15		130			
^{65}Zn	30		260			
^{95}Zr-Nb	15[c]					
^{131}I	1[b, d]	7×10^{-2}		1[d]	60	
$^{134,137}Cs$	15(10[b]), 18	1×10^{-2}	130	15	60	150
^{140}Ba-La	15[c]			15[c]		

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TABLE 4.16.2
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TABLE NOTATION

a - The LLD is the smallest concentration of radioactive material in a sample that will be detected with 95% probability with 5% probability of falsely concluding that a blank observation represents a "real" signal.

For a particular measurement system (which may include radiochemical separation):

$$LLD = \frac{4.66\ s_b}{E \cdot V \cdot 2.22 \cdot Y \cdot \exp(-\lambda \Delta t)}$$

where

LLD is the a priori lower limit of detection as defined above (as picocurie per unit mass or volume),

s_b is the standard deviation of the background counting rate or of the counting rate of a blank sample as appropriate (as counts per minute). Typical values of E, V, Y and Δt shall be used in the calculations.

E is the counting efficiency (as counts per transformation)

V is the sample size (in units of mass or volume)

2.22 is the number of transformations per minute per picocurie

Y is the fraction radiochemical yield (when applicable)

λ is the radioactive decay constant for the particular radionuclide

Δt is the elapsed time between sample collection (or end of the sample collection period) and time of counting

b - LLD for drinking water.
c - Total for parent and daughter.
d - Applies to specific isotope analysis-not to gamma spectrum analyses.
e - Other peaks which are measurable and identifiable, together with the radionuclides in Table 4.16.2, shall be identified and reported.

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Table 4.16.3

REPORTING LEVELS FOR RADIOACTIVITY CONCENTRATIONS IN ENVIRONMENTAL SAMPLES

Analysis	Reporting Levels				
	Water (pCi/l)	Airborne Particulate or Gas (pCi/m^3)	Fish (pCi/kg, wet)	Milk (pCi/l)	Vegetables (pCi/kg, wet)
H-3	2×10^4(a)				
Mn-54	1×10^3		3×10^4		
Fe-59	4×10^2		1×10^4		
Co-58	1×10^3		3×10^4		
Co-60	3×10^2		1×10^4		
Zn-65	3×10^2		2×10^4		
Zr-Nb-95	4×10^2(b)				
I-131	2	0.9		3	1×10^2
Cs-134	30	10	1×10^3	60	1×10^3
Cs-137	50	20	2×10^3	70	2×10^3
Ba-La-140	2×10^2(b)			3×10^2(b)	

a - For drinking water samples
b - Total for parent and daughter

Amendment No. 15, 37

3.16 and 4.16 BASES

A. Sample Collection & Analysis

The Radiation Environmental Monitoring Program required by this specification provides measurements of radiation and of radioactive materials in those exposure pathways and for those radionuclides which lead to the highest potential radiation exposures of individuals resulting from the plant operation. This program thereby supplements the radiological effluent monitoring by verifying that the measurable concentrations of radioactive materials and levels of radiation are not higher than expected on the basis of the effluent measurements and modeling of the environmental exposure pathways. After a specific program has been in effect for at least three years of operation, program changes may be initiated based on this experience.

The detection capabilities required by Table 4.16.2 are state-of-the-art for routine environmental measurements in industrial laboratories. The LLD's for drinking water meet the requirement of 40CFR 141.

B. Land Use Census

This specification is provided to ensure that changes in the use of off site areas are identified and that modifications to the monitoring program are made if required by the results of this census. The best survey information from door-to-door, aerial or consulting with local agricultural authorities shall be used. This census satisfies the requirements of Section IV.B.3 of Appendix I to 10 CFR Part 50. Restricting the census to gardens of greater than 500 square feet provides assurance that significant exposure pathways via leafy vegetables will be identified and monitored since a garden of this size is the minimum required to produce the quantity (26 kg/year) of leafy vegetables assumed in Regulatory Guide 1.109 for consumption by a child. To determine this minimum garden size, the following assumptions were used, 1) that 20% of the garden was used for growing broad leaf vegetation (i.e., similar to lettuce and cabbage), and 2) a vegetation yield of 2 kg/square meter.

C. Interlaboratory Comparison Program

The requirement for participation in an interlaboratory comparison program is provided to ensure that independent checks on the precision and accuracy of the measurements of radioactive material in environmental sample matrices are performed as a part of a quality assurance program for environmental monitoring in order to demonstrate that the results are reasonable valid.

Amendment No. 15, 37

E. A training program for individuals serving in the fire brigade shall be maintained under the direction of a designated member of Northern States Power management. This program shall meet the requirements of Section 27 of the NFPA Code - 1976 with the exception of training scheduling. Fire brigade training shall be scheduled as set forth in the training program.

F. Administrative procedures shall be developed and implemented to limit the working hours of unit staff who perform safety-related functions; e.g., senior reactor operators, reactor operators, health physicists, auxiliary operators, and key maintenance personnel. Procedures shall include the following provisions:

1. Adequate shift coverage shall be maintained without routine heavy use of overtime. The objective shall be to have operating personnel work a normal 8-hour day, 40-hour week while the plant is operating. However, in the event that unforeseen problems require substantial amounts of overtime to be used, or during extended periods of shutdown for refueling, major maintenance or major plant modifications, on a temporary basis, the following guidelines shall be followed:

   a. An individual should not be permitted to work more than 16 hours straight, excluding shift turnover time.

   b. Overtime should be limited for all nuclear plant staff personnel so that total work time does not exceed 16 hours in any 24-hour period, nor more than 24 hours in any 48-hour period, not more than 84 hours in any seven day period, all excluding shift turnover time. Individuals should not be required to work more than 15 consecutive days without two consecutive days off.

   c. A break of at least eight hours including shift turnover time should be allowed between work periods.

   d. Except during extended shutdown periods, the use of overtime should be considered on an individual basis and not for the entire staff on a shift.

e. Shift Technical Advisor (STA) and Shift Emergency Coordinator (SEC) on-site rest time periods shall not be considered as hours worked when determining the total work time for which the above limitations apply.

2. Any deviation from the above guidelines shall be authorized by the Plant Manager or designee, or higher levels of management, in accordance with established procedures and with documentation of the basis for granting the deviation. During plant emergencies the Emergency Director shall have this authority. Controls shall be included in the procedures such that individual overtime shall be reviewed monthly to assure that excessive hours have not been assigned. Routine deviation from the above guidelines is not allowed.

Amendment No. 37

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The radioactive effluent release report to be submitted 60 days after January 1 of each year shall also include an assessment of radiation doses to the likely most exposed member of the general public from reactor releases and other nearby uranium fuel cycle sources (including doses from primary effluent pathways and direct radiation) for the previous 12 consecutive months to show conformance with 40 CFR 190, Environmental Radiation Protection Standards for Nuclear Power Operation.

The radioactive effluent release reports shall include the following information for solid waste shipped offsite during the report period.

a. container volume,

b. total curie quantity (specify whether determined by measurement or estimate).

c. principal radionuclides (specify whether determined by measurement or estimate),

d. type of waste (e.g., spent resin, compacted dry waste, evaporator bottoms),

e. type of container (e.g., LSA, Type A, Type B, Large Quantity), and

f. solidification agent (e.g., cement, urea formaldehyde).

The radioactive effluent release reports shall include unplanned releases from the site of radioactive materials in gaseous and liquid effluents on a quarterly basis, changes to the ODCM, a description of changes to the PCP, a report of when milk or vegetable samples can not be obtained as required by Table 4.16.1, and changes in land use resulting in significant increases in calculated doses.

5. Annual Summaries of Meteorological Data

An annual summary of meteorological data shall be submitted for the previous calendar year in the form of joint frequency distributions of wind speed, wind direction, and atmospheric stability at the request of the Commission.

6. Report of Safety/Relief Valve Failures and Challenges. An annual report of safety/relief valve failures and challenges shall be submitted prior to March 1st of each year.

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 37 TO FACILITY OPERATING LICENSE NO. DPR-22

NORTHERN STATES POWER COMPANY

MONTICELLO NUCLEAR GENERATING PLANT

DOCKET NO. 50-263

1.0 INTRODUCTION

Following the accident at Three Mile Island, Unit 2, the staff developed the NRC Action Plan, NUREG-0660, to provide a comprehensive and integrated plan to improve safety at power reactors. Specific NUREG-0660 items, approved by the Commission for implementation at power reactors, were issued as NUREG-0737. NUREG-0737, "Clarification of TMI Action Plan Requirements" specified that new Technical Specifications would be required for several of the items. Generic Letter 83-02, dated January 10, 1983 provided guidance on Technical Specifications for those items which were scheduled for implementation by December 31, 1981 and Generic Letter 83-36, dated November 1, 1983 provided guidance for those items which were scheduled for implementation after December 31, 1981. The Northern States Power Company (the licensee) in their letter dated June 24, 1983 submitted proposed Technical Specification changes for several of these items. The staff's evaluation of these proposed Technical Specification changes are provided in Section 2.0 below.

2.0 EVALUATION

A. Generic Letter 83-02 Item 2 - Limit Overtime (I.A.1.3.1)

On June 15, 1982, the staff issued Generic Letter 82-12 which contained a revised version of the Commission's Policy Statement on nuclear power plant staff working hours. Generic Letter 83-02 requested that the administrative section of the Technical Specification be revised to implement the Commission policy.

On October 7, 1982, and November 11, 1982, the licensee requested a deviation from the NRC 72-hour workweek limitation to allow 84-hour workweeks during plant outages, with a further restriction that employees would not be required to work more than 15 days without having two consecutive days off. In addition, the licensee requested that onsite rest time for the Shift Technical Advisor and Shift Emergency Coordinator not be counted as hours worked. The staff responded to this request, on March 17, 1983, concluding that this would not result in increased risk to the health and safety of the public. The licensee requested to amend the license incorporating this policy in Section 6.1.F of the Technical Specifications.

We have reviewed the licensee's proposed wording to incorporate the Commission's policy on overtime limits and find it acceptable.

B. Generic Letter 83-02 Item 17. Reporting SV and RV Failures and Challenges (II.K.3.3)

Generic letter 83-02 requested that the administrative section of the Technical Specification be revised to require that any failure of the relief valves or safety valves be promptly reported to the Commission by telephone and followed up with a written report. Additionally, all challenges to these valves are to be reported to the Commission on a monthly or annual basis. The licensee proposed a change which will add reporting requirements as specified in Technical Specifications (TSs) Section 6.7.A.6, documenting all failures and challenges to the Safety Valves in an annual report. We find that the changes as proposed meet the proposed TS format and are acceptable.

C. Generic Letter 83-02, Item 8 - RCIC Restart and RCIC Suction Transfer (II.K.3.13 and II.K.3.22)

By letters dated October 1 and December 29, 1980, the BWR Owners Group submitted evaluations on the separation of HPCI and RCIC initiation setpoints on the same low water level signal and provisions for RCIC automatic restart after a high level trip. The staff reviewed these evaluations and concurred with the BWR Owners Group and the licensee that the separation of initiation setpoints was unnecessary. The staff also concurred with the modifications necessary to allow automatic restart of RCIC following a high level trip.

By letters dated December 31, 1981, September 8, 1982, and April 21, 1983, the licensee submitted information for the modifications necessary to provide automatic RCIC suction transfer from the Condensate Storage Tank (CST) on CST Low level indication to the Suppression Pool. These changes were accepted by the staff by letter dated May 5, 1983.

In their letter of June 24, 1983, the licensee proposed the followup TS changes.

1. A new Table 3.2.7 which specifies trip settings, minimum number of operable trip systems, total number of trip systems, and minimum number of operable instrument channels per trip system for RCIC initiation on low-low water level, HPCI/RCIC turbine shutdown on high water level, and HPCI/RCIC suction transfer from CST to Suppression Pool on low CST level.

2. Additions to Table 4.2.1 which include required surveillance of CST level and reactor high water level instrumentation.

3. Additions to Table 3.2.7 which include allowable trip durations in high reactor water level, low-low water level, and low CST level.

4. Additions to RCIC Limiting Conditions for Operation which add the requirements for automatic pump suction and automatic restart on subsequent low water level after a trip on high water level and the action statements for inoperability.

5. The bases for these new specifications were included.

We have reviewed these TSs additions and revisions for RCIC Restart and RCIC Suction Transfer and, with the following change which was also discussed with the licensee, found them to be acceptable and consistent with the existing TSs.

a. In Table 4.2.1, page 61, ECCS Instrumentation Minimum Test and Calibration Frequency Once/Day Sensor Checks was added to Item 9, Reactor High Water Level.

D. Generic Letter 83-02, Item 9 - Isolation of HPCI and RCIC Modifications (II.K.3.15)

By letters dated December 30, 1980 and December 22, 1981, the licensee submitted plans and schedules to provide modifications to the RCIC system to add a time delay of 5 seconds on the RCIC isolation logic system to prevent unwanted steamline isolations during RCIC startup. Modifications to the HPCI system were not required. In a letter dated January 6, 1983, the staff concurred with these modifications.

In their letter of June 23, 1983, the licensee submitted proposed TS changes. The change added a 5-second ± 2-second time delay to item 5a., of Table 3.2.1, RCIC High Steam Flow. Surveillances of the time delay relay will be carried out with the regular RCIC High Steam Flow Trip surveillances specified in Table 4.2.1. This is also consistent with HPCI High Steam Flow surveillances in the same table. We, therefore, find this change to be acceptable.

E. Generic Letter 83-36, Item 3 - Noble Gas Effluent Monitors (II.F.1.1)

The licensee supplemented the existing normal range monitors to provide noble gas monitoring in accordance with Item II.F.1.1. The

proposed TSs are consistent with the guidelines provided in Generic Letter 83-36 and therefore, the staff concludes that the TSs for Item II.F.1.1 are acceptable.

F. Generic Letter 83-36, Item 4 - Sampling and Analysis of Plant Effluents (II.F.1.2)

The guidance provided in Generic Letter 83-36 requested that an administrative program should be established, implemented and maintained to ensure the capability to collect and analyze or measure representative samples of radioactive iodines and particulates in plant gaseous effluents during and following an accident. The licensee has proposed TSs that are consistent with our guidance and therefore, the staff concludes that the TSs for sampling and analysis of plant effluents are acceptable.

G. Generic Letter 83-36, Item 5 - Containment High-Range Radiation Monitor (II.F.1.3)

The licensee has installed two in-containment monitors in the Plant that are consistent with the guidance of TMI Action Plan Item II.F.1.3. Generic Letter 83-36 provided guidance for limiting conditions for operation and surveillance requirements for these monitors. The licensee proposed TSs are consistent with the guidance provided in Generic Letter 83-36, and therefore, the staff concludes that the proposed TSs for Item II.F.1.3 are acceptable.

H. Generic Letter 83-36, Item 6 - Containment Pressure Monitor (II.F.1.4)

The Monticello Plant has been provided with two supplementary channels for monitoring drywell pressure following an accident. The proposed TSs for drywell pressure monitor contain limiting conditions for operation and surveillance requirements for the monitor which are consistent with the existing TSs for other accident monitoring instrumentation at the Monticello Plant. The staff, therefore, concludes that the proposed TSs are acceptable as they meet the intent of the guidance contained in Generic Letter 83-36.

I. Generic Letter 83-36, Item 7 - Containment Water Level Monitor (II.F.1.5)

The suppression pool wide range water level monitors provide the capability required by TMI Action Plan Item II.F.1.5. The proposed TSs for suppression pool water level monitor contain limiting conditions for operation and surveillance requirements for the monitor which are consistent with the existing TSs for other accident monitoring instrumentation at the Monticello Plant. The staff, therefore, concludes that the proposed TSs are acceptable as they meet the intent of the guidance contained in Generic Letter 83-36.

J. Generic Letter 83-36, Item 8 - Containment Hydrogen Monitor (II.F.1.6)

The licensee installed drywell and suppression pool hydrogen monitors that provide the capability required by TMI Action Plan Item II.F.1.6. The proposed Technical Specifications contain limiting conditions for operation and surveillance requirements for these monitors that are consistent with the existing TSs for other accident monitoring instrumentation at the Monticello Plant. The staff, therefore, concludes that the proposed TSs are acceptable as they meet the intent of the guidance contained in Generic Letter 83-36.

3.0 ENVIRONMENTAL CONSIDERATIONS

This amendment involves a change in the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes in surveillance requirements. The staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that this amendment involves no significant hazards consideration and there has been no public comment on such finding. Accordingly, this amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

4.0 CONCLUSION

We have concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (2) such activities will be conducted in compliance with the Commission's regulations and the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

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Dated: January 22, 1986.