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INTRODUCTION

These Technical Specifications are prepared in accordance with the requirements of 10 CFR 50.36 and apply to the Monticello Nuclear Generating Plant, Unit No. 1. The bases for these Specifications are included for information and understandability purposes.

1.0 DEFINITIONS

The succeeding frequently used terms are explicitly defined so that a uniform interpretation of the Specifications may be achieved.

A. Alteration of the Reactor Core

The act of moving any component in the region above the core support plate, below the upper grid and within the shroud. (Normal operating functions such as control rod movement using the normal drive mechanism, tip scans, SRM and IRM detector movements, etc., are not to be considered core alterations.)

B. Hot Standby

Hot Standby means operation with the reactor critical in the startup mode at a power level just sufficient to maintain reactor pressure and temperature.

C. Fire Suppression Water System

The fire suppression water system consists of: water sources; pumps; and distribution piping with associated sectionalizing isolation valves. Such valves include yard hydrant valves, and the first valve ahead of the water flow alarm device on each sprinkler, hose standpipe, or spray system riser.

3.0 LIMITING CONDITIONS FOR OPERATION

3.13 FIRE DETECTION AND PROTECTION SYSTEMS

Applicability:

Applies to instrumentation and plant systems used for fire detection and protection of the nuclear safety-related structures, systems, and components of the plant.

Objective:

To insure that the structures, systems, and components of the plant important to nuclear safety are protected from fire damage.

Specification:

A. Fire Detection Instrumentation

1. Whenever irradiated fuel is in the reactor vessel and reactor water temperature is greater than 212°F, at least (N-1) of the fire detectors located in the following areas shall be operable, where N is the number installed in each area: cable spreading room, standby gas treatment system room, 4.16KV switchgear areas, and the intake structure.
2. If specification 3.13.A.1 cannot be met, a patrolling fire watch shall be established to ensure that each protected area with more than one inoperable detector is checked at intervals no greater than once each hour.

3.13/4.13

4.0 SURVEILLANCE REQUIREMENTS

4.13 FIRE DETECTION AND PROTECTION SYSTEMS

Applicability:

Applies to the periodic testing of instrumentation and plant systems used for fire detection and protection of the nuclear safety related structures, systems, and components.

Objective:

To verify the operability of instrumentation and plant systems used for fire detection and protection of nuclear safety related structures, systems, and components.

Specification:

A. Fire Detection Instrumentation

1. Fire detectors located in the cable spreading room, standby gas treatment system room, 4.16 KV switchgear area, and intake structure shall be tested in accordance with the following schedule:
 - a. At least once each six months each detector shall be inspected and cleaned if necessary.
 - b. At least once each 12 months each detector shall be functionally tested.

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3.0 LIMITING CONDITIONS FOR OPERATION

B. Fire Suppression Water System

1. Except as specified in 3.13.B.2 or 3.13.B.3 below, the system shall be operable whenever irradiated fuel is in the reactor vessel and reactor water temperature is greater than 212°F with:
 - a. At least two of the following pumps operable and capable of delivering at least 1500 gpm at a discharge pressure of 90 psig:
 1. Diesel-driven fire pump
 2. Motor-driven fire pump
 3. Screen wash pump
 - b. Piping and correctly positioned valves to supply fire suppression water to all safety related structures, systems, and components.
2. From and after the date that one of the two pumps required by specification 3.13.B.1.a is made or found inoperable for any reason, reactor operation is permissible during the succeeding 14 days provided that the remaining pump is operable.

3.13/4.13

4.0 SURVEILLANCE REQUIREMENTS

B. Fire Suppression Water System

1. The fire suppression water system shall be demonstrated operable as follows:
 - a. Fire pumps shall be started at least once each month and run for at least 5 minutes on recirculation flow.
 - b. A simulated automatic actuation of each fire pump and the screen wash pump, including verification of pump capability, shall be conducted at least once every 12 months.
 - c. The yard main and the reactor building header shall be flushed at least once every 12 months.
 - d. Valves in flow paths supplying fire suppression water to safety related structures, systems, and components shall be verified to be correctly positioned at least once every 12 months.
2. When it is determined that one of the two pumps required by specification 3.13.B.1.a is inoperable, the remaining operable pump shall be started daily and run for at least 5 minutes on recirculation flow until specification 3.13.B.1.a can be met.

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3.0 LIMITING CONDITIONS FOR OPERATION

3. From and after the date that the supply of fire suppression water to any safety-related structure, system, or component is made or found to be interrupted for any reason, reactor operation is permissible only during the succeeding 14 days unless the supply is sooner restored.

4. If the requirements of specifications 3.13.B.1 through 3.13.B.3 cannot be met, an orderly shutdown of the reactor shall be initiated and the reactor shall be placed in the cold shutdown condition within 24 hours.

C. Hose Stations

1. Whenever irradiated fuel is in the reactor vessel and reactor water temperature is greater than 212°F, hose stations protecting the following areas shall be operable:
 - a. Diesel generator rooms
 - b. Safety related switchgear areas
 - c. Safety related areas of the greenhouse
 - d. Reactor building
 - e. Control room
 - f. Cable spreading room
 - g. Safety related battery rooms

3.13/4.13

4.0 SURVEILLANCE REQUIREMENTS

C. Hose Stations

The hose stations specified in 3.13.C.1 shall be demonstrated operable as follows:

1. At least once each month a visual inspection shall be conducted to assure all equipment is available.

2. At least once each 12 months the hose shall be removed for inspection and re-racking and all gaskets in the couplings shall be inspected and replaced if necessary.

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3.0 LIMITING CONDITIONS FOR OPERATION

2. If specification 3.13.C.1 cannot be met, hoses supplied from operable hose stations shall be made available for routing to each area with an inoperable hose station.

D. Fire Barrier Penetration Fire Seals

Whenever irradiated fuel is in the reactor vessel and reactor water temperature is greater than 212°F, all fire barrier penetration fire seals protecting safety related areas shall be intact or they shall be continuously attended.

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4.0 SURVEILLANCE REQUIREMENTS

3. At least once each five years the valves shall be partially opened to verify operability and no blockage.

D. Fire Barrier Penetration Fire Seals

1. A visual inspection of fire barrier penetration fire seals shall be conducted at least once every 18 months.
2. Following repair of a fire barrier penetration fire seal, a visual inspection of the seal shall be conducted.

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3.13 BASES:

Elements of the fire detection and protection system are required to be operable to protect safety related structures, systems, and components whenever there is irradiated fuel in the reactor vessel and reactor water temperature is greater than 212°F. The system will be maintained operable at other times consistent with testing and maintenance requirements.

Ionization type fire detectors are located in the following areas of the plant to protect safety-related structures, systems, and components:

- Cable spreading room
- Standby gas treatment system room
- 4.16 KV switchgear area
- Intake structure

These detectors sense the airborne products of combustion during the very early stages of a fire. The detectors in each area initiate a local alarm and an alarm in the Control Room. The specifications require all but one detector in each area to be operable. Since there are at least three detectors in each area, the loss of one detector does not significantly degrade the ability to detect fires in any area. If more than one detector is inoperable a patrolling fire watch is established in the affected area until the required number of detectors are restored to operable status.

The fire suppression water system is supplied by three vertical centrifugal pumps rated at 1500 gpm at 100 psig each. Two pumps, one motor driven and one diesel driven, are the assigned fire pumps. The third pump is motor driven and normally assigned as a screen wash pump. Transfer from screen wash duty to fire duty occurs automatically. All pumps are started automatically by instrumentation sensing header pressure. Any one pump is capable of supplying all fire fighting water requirements. Two of the three pumps are required to be operable. If two pumps become inoperable, up to 14 days are allowed to restore operability of at least two pumps. If all three pumps are inoperable, or if two pumps are not made operable within 14 days, the reactor is placed in cold shutdown.

Fire protection for all safety related areas is provided by hose stations supplied from the fire suppression water system. If the water supply to these areas is interrupted, operation of the reactor for a period up to 14 days is permitted. While the normal supply is interrupted, provision is made for an alternate water supply if possible during this period. Although major maintenance on the fire protection system will be scheduled for refueling outages, the ability to isolate sections of the fire header for short periods of time for maintenance is provided.

Piping and cabling penetrating fire barriers are provided with fire seals at each fire barrier. If a seal is made or found to be inoperable for any reason, the penetration area is continuously attended until an effective fire seal is restored.

4.13 BASES:

Fire detectors are tested in accordance with the manufacturer's recommendations. All tests and inspections are performed by the plant staff. Every six months each detector is inspected for dust accumulation and cleaned if necessary. Every 12 months each detector is activated and proper functioning of the alarm circuitry is checked. Combustion generated smoke will not be used for these tests. All alarm circuits are automatically supervised for open circuits and ground faults.

Fire pumps are tested each month to verify operability. Test starting of the screen wash pump is not required since it is normally in service. Each fire pump is manually started and operated for at least five minutes with pump flow directed through the recirculation test line. Every 12 months the operability of the automatic actuation logic for the fire pumps and the screen wash pump is verified and the performance of each pump is verified to meet system requirements. The specified flush and valve lineup check provide assurance that the piping system is capable of supplying fire suppression water to all safety related areas.

When one of the two required pumps is inoperable, the operable pump is started daily to verify operability until two pumps are once again available.

Hose stations in safety related areas are inspected monthly to verify that all required equipment is in place. Hose station gaskets in hose couplings and the hose are inspected every year. Operability of hose station isolation valves is verified every five years by partially opening each valve to verify flow. All of these tests provide a high degree of assurance that each hose station will perform satisfactorily after periods of standby service.

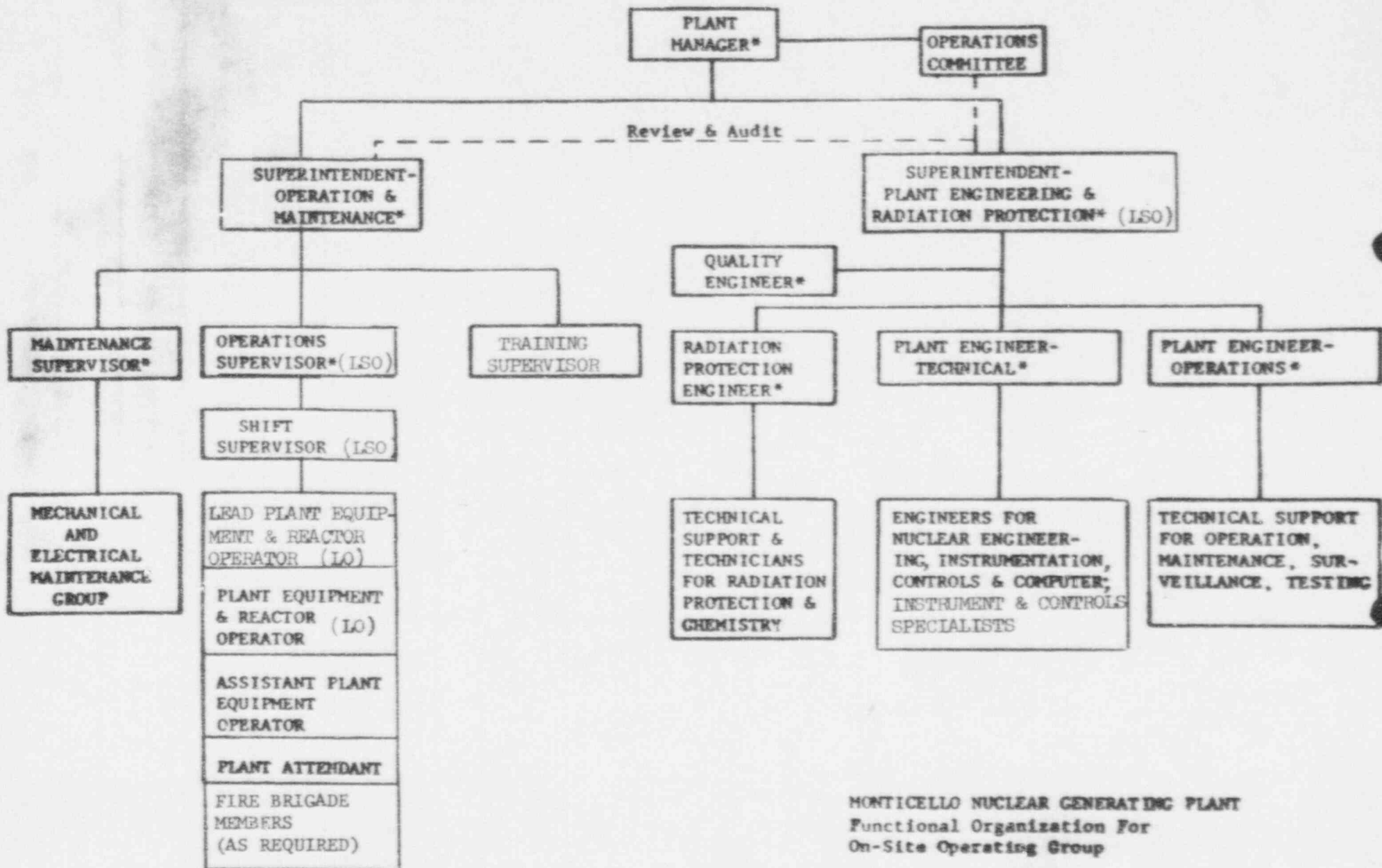
Plant fire barrier walls are provided with seals for pipes and cables. Where such seals are installed, they must be maintained intact to perform their function. Visual inspection of each installed seal is required every 18 months and after seal repair. A visual inspection following repair of a seal in the secondary containment boundary is sufficient to assure that seal leakage will be within acceptable limits.

6.0 ADMINISTRATIVE CONTROLS

6.1 Organization

- A. The Plant Manager has the overall full-time onsite responsibility for safe operation of the facility. During periods when the Plant Manager is unavailable, he may delegate this responsibility to other qualified supervisory personnel.
- B. The Northern States Power corporate organizational structure relating to the operation of this plant is shown in Figure 6.1.1.
- C. The minimum functional organization for operation of the plant shall be as shown in Figure 6.1.2 and:
 - 1. Each on duty shift shall be composed of at least the minimum shift crew composition shown in Table 6.1.1.
 - 2. At least one licensed operator shall be in the control room when fuel is in the reactor.
 - 3. At least two licensed operators shall be present in the control room during cold startup, scheduled reactor shutdown, and during recovery from reactor trips.
 - 4. An individual qualified in radiation protection procedures shall be on site when fuel is in the reactor.
 - 5. All alterations of the reactor core shall be directly supervised by a licensed Senior Reactor Operator or Senior Reactor Operator Limited to Fuel Handling who has no other concurrent responsibilities during this operation.
 - 6. A fire brigade consisting of three members shall be maintained on site during the day shift, during refueling outages, and at all other times when site activities such as welding and burning present a significant fire hazard. This fire brigade is in addition to the minimum shift crew composition specified in Table 6.1.1 and notes thereto. At all other times three members of the normal shift organization may constitute the fire brigade.
- D. Minimum qualifications, training, replacement training and retraining of plant personnel shall be in accordance with that stated in the "Standard for Selection and Training of Personnel for Nuclear Power Plants", ANSI N18.1-1971. The minimum frequency of the retraining program shall be every two years. The training program shall be under the direction of a designated member of the plant staff.

E. A training program for individuals serving in the fire brigade shall be maintained under the direction of a designated member of the plant staff. 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 operator training and retraining program.



MONTICELLO NUCLEAR GENERATING PLANT
 Functional Organization For
 On-Site Operating Group

CODE: * Key Supervisor
 LO Licensed Operator
 LSO Licensed Senior Operator

FIGURE 6.1.2

TABLE 6.1.1
MINIMUM SHIFT CREW COMPOSITION (Note 1)

CATEGORY	APPLICABLE PLANT CONDITIONS	
	COLD SHUTDOWN OR REFUELING OPERATION	ABOVE COLD SHUTDOWN
No. Licensed Senior Operators (LSO)	1 (Note 2)	1
Total No. Licensed Operators (LSO & LO)	2	3
Total No. Licensed and Unlicensed Personnel	3	5

NOTES:

1. Shift crew composition may be one less than the minimum requirements for a period of time not to exceed two hours in order to accommodate an unexpected absence of one duty shift crew member provided immediate action is taken to restore the shift crew composition to within the minimum requirements specified.
2. Does not include the licensed Senior Reactor Operator, or Senior Reactor Operator Limited to Fuel Handling, supervising alterations of the reactor core.

- f. Investigation of all events which are required by regulation or technical specifications to be reported to NRC in writing within 24 hours.
 - g. Revisions to the Facility Emergency Plan, the Facility Security Plan, and the Fire Protection Program.
 - h. Operations Committee minutes to determine if matters considered by that Committee involve unreviewed or unresolved safety questions.
 - i. Other nuclear safety matters referred to the SAC by the Operations Committee, plant management or company management.
 - j. All recognized indications of an unanticipated deficiency in some aspect of design or operation of safety-related structures, systems, or components.
 - k. Reports of special inspections and audits conducted in accordance with specification 6.3.
6. Audit - The operation of the nuclear power plant shall be audited formally under the cognizance of the SAC to assure safe facility operation.
- a. Audits of selected aspects of plant operation, as delineated in Paragraph 4.4 of ANSI N18.7-1972, shall be performed with a frequency commensurate with their nuclear safety significance and in a manner to assure that an audit of all nuclear safety-related activities is completed within a period of two years. The audits shall be performed in accordance with appropriate written instructions and procedures.
 - b. Periodic review of the audit program should be performed by the SAC at least twice a year to assure its adequacy.
 - c. Written reports of the audits shall be reviewed by the Vice President - Power Production & System Operation, by the SAC at a scheduled meeting, and by members of management having responsibility in the areas audited.

7. Authority

The SAC shall be advisory to the Vice President - Power Production & System Operation.

8. Records

Minutes shall be prepared and retained for all scheduled meetings of the Safety Audit Committee. The minutes shall be distributed to the Vice President-Power Production & System Operation, the General Superintendent of Nuclear Power Plant Operation, each member of the SAC and others designated by the Chairman or Vice Chairman within one month of the meeting. There shall be a formal approval of the minutes.

9. Procedures

A written charter for the SAC shall be prepared that contains:

- a. Subjects within the purview of the group.
- b. Responsibility and authority of the group.
- c. Mechanisms for convening meetings.
- d. Provisions for use of specialists or subgroups.
- e. Authority to obtain access to the nuclear power plant operating record files and operating personnel when assigned audit functions.
- f. Requirements for distribution of reports and minutes prepared by the group to others in the NSP organization.

- c. Mechanism for scheduling meetings
- d. Meeting agenda
- e. Use of subcommittee
- f. Review and approval, by members, of OC actions
- g. Distribution of minutes

6.3 Special Inspections and Audits

- A. An independent fire protection and loss prevention inspection and audit shall be performed annually utilizing either qualified off-site Northern States Power Company personnel or an outside fire protection consultant.
- B. An inspection and audit by an outside qualified fire protection consultant shall be performed at intervals no greater than three years.

6.4 Action to be Taken if a Safety Limit is Exceeded

If a Safety Limit is exceeded, the reactor shall be shut down immediately. An immediate report shall be made to the General Superintendent of Nuclear Power Plant Operation, or his designated alternate in his absence, and reported as specified in Section 6.7. A complete analysis of the circumstances leading up to and resulting from the situation, together with recommendations by the Operations Committee, shall also be prepared. This report shall be submitted to the General Superintendent of Nuclear Power Plant Operation and the Chairman of the Safety Audit Committee.

Reactor operation shall not be resumed until authorized by the U S Nuclear Regulatory Commission.

6.5 Plant Operating Procedures

Detailed written procedures, including the applicable check-off and instructions, covering areas listed below shall be prepared and followed. These procedures and changes thereto, except as specified in 6.5.D shall be reviewed by the Operation Committee and approved by a member of plant management designated by the Plant Manager.

A. Plant Operations

1. Integrated and system procedures for normal startup, operation and shutdown of the reactor and all systems and components involving nuclear safety of the facility.
2. Fuel handling operations.
3. Actions to be taken to correct specific and foreseen potential or actual malfunction of systems or components including responses to alarms, primary system leaks and abnormal reactivity changes and including follow-up actions required after plant protective system actions have initiated.
4. Surveillance and testing requirements that could have an effect on nuclear safety.
5. Implementing procedures of the security plan.
6. Implementing procedures of the emergency plan, including procedures for coping with emergency conditions involving potential or actual releases of radioactivity.
7. Implementing procedures of the fire protection program.

Drills on the procedures specified in A.3 above shall be conducted as a part of the retraining program. Drills on the procedures specified in A.6 above shall be conducted at least semi-annually, including a check of communications with offsite support groups.

B. Radiological

Radiation control procedures shall be maintained and made available to all plant personnel. These procedures shall show permissible radiation exposure and shall be consistent with the requirements of 10 CFR 20. This radiation protection program shall be organized to meet the requirements of 10 CFR 20.

NRC DISTRIBUTION FOR PART 50 DOCKET MATERIAL

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Mr. Victor Stello

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Minneapolis, Minnesota
L. O. Mayer

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PLANT NAME:
Monticello

ENCLOSURE

Amdt. to ol/change to Appendix A tech specs. ...notorized 1/31/77....consisting of interim limiting conditions for operation and surveillance requirements for the plant fire detection and protection system....

(1-P) (23-P)

SAFETY		FOR ACTION/INFORMATION		ENVIRO	2/3/77	RJL
ASSIGNED AD:						
<input checked="" type="checkbox"/> BRANCH CHIEF:	Ziemann (6)	ASSIGNED AD:				
<input checked="" type="checkbox"/> PROJECT MANAGER:	Snalder	BRANCH CHIEF:				
<input checked="" type="checkbox"/> LIC. ASST. :	Diggs	PROJECT MANAGER:				
	McGough	LIC. ASST. :				

INTERNAL DISTRIBUTION			
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<input checked="" type="checkbox"/> NRC PDR	HEINEMAN	TEDESCO	ENVIRO ANALYSIS
<input checked="" type="checkbox"/> I & E (2)	SCHROEDER	BENAROYA	DENTON & MULLER
<input checked="" type="checkbox"/> OELD		LAINAS	
<input checked="" type="checkbox"/> GOSSICK & STAFF	ENGINEERING	IPPOLITO	ENVIRO TECH.
MIPC	MACARRY	KIRKWOOD	ERNST
CASE	KNIGHT		BALLARD
HANAUER	SIHWEIL	OPERATING REACTORS	SPANGLER
HARLESS	PAWLICKI	STELLO	
			SITE TECH.
PROJECT MANAGEMENT	REACTOR SAFETY	OPERATING TECH.	GAMMILL
BOYD	ROSS	EISENHUT (LTA)	STAPP
P. COLLINS	NOVAK	SHAO	HULMAN
HOUSTON	ROSZTOCZY	BAER	
PETERSON	CHECK	JTLER	SITE ANALYSIS
MELTZ		RIMES	VOLLMER
HELTEMES	AT & I		BUNCH
SKOVHOLT	SALTZMAN		<input checked="" type="checkbox"/> J. COLLINS
	RUTBERG		KREGER

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RS 16 CYS HOLDING/SENT: CAT B (2/3/77)			