

Monticello Nuclear Generating Plant
2807 West County Road 75
Monticello, MN 55362-9637

Operated by Nuclear Management
Company LLC

November 28, 2000

US Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

10 CFR Part 50
Section 50.90

MONTICELLO NUCLEAR GENERATING PLANT
Docket No. 50-263 License No. DPR-22

License Amendment Request
Establishment of Emergency Service Water Technical Specification

Attached is a license amendment request which proposes a change to the Technical Specifications, Appendix A of the Operating License for the Monticello Nuclear Generating Plant. This request is submitted in accordance with the provisions of 10 CFR Part 50, Section 50.90.

The proposed amendment establishes Technical Specification (TS) 3.18 and 4.18, "Emergency Service Water System." It also revises Specification 3.0 to include general requirements for system operability. The proposed specifications and changes are based on similar specifications from the BWR standard technical specifications, NUREG-1433.

Nuclear Management Company (NMC) requests authorization for a change to Appendix A of the Monticello Operating License as shown on the attachments labeled Exhibit A, B and C. Exhibit A contains a description of the proposed TS change, the reasons for requesting the change, a Safety Evaluation, a Determination of No Significant Hazards Consideration, and an Environmental Assessment. Exhibit B contains a mark-up of the proposed changes. Exhibit C contains the revised Monticello Technical Specification pages.

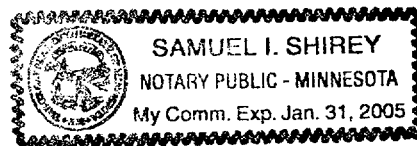
NMC requests a period of up to 45 days following receipt of this license amendment to implement the changes.

This letter does not contain any new NRC commitments and does not modify any prior commitments. This letter contains no restricted or other defense information. Please contact Doug Neve, Sr. Licensing Engineer, at (763)-295-1353 if you require further information related to this request.

A001

by Byron D. Day
Byron D. Day
Plant Manager
Monticello Nuclear Generating Plant

Samuel H. Shier
Notary



c: Regional Administrator-III, NRC
NRR Project Manager, NRC
Sr. Resident Inspector, NRC
Minnesota Department of Commerce
J Silberg, Esq.

Exhibit A

License Amendment Request Establishment of Emergency Service Water Technical Specification

Evaluation of Proposed Change to the Monticello Technical Specifications

Pursuant to 10 CFR Part 50, Section 50.90, Nuclear Management Company hereby proposes the following change to Appendix A to Facility Operating License DPR-22, "Technical Specifications" for Monticello Nuclear Generating Plant.

Background and Reasons for Change

Monticello uses two Emergency Service Water (ESW) Systems to remove the heat rejected by equipment which must operate under accident conditions. The two systems are:

1. The Emergency Diesel Generator-ESW (EDG-ESW) System consists of two pumps which provide cooling water to the Emergency Diesel Generators. Each of the pumps is in a separate division and supplies one EDG.
2. The Emergency Filtration Train-Emergency Service Water (EFT-ESW) System consists of two pumps which provide cooling water to several Emergency Core Cooling System (ECCS) electric motors and room coolers during accident situations. EFT-ESW System also supplies cooling water to the main Control Room air conditioning system. Each of the pumps is in a separate division.

The Monticello Technical Specifications do not currently include specific requirements for the ESW System. The EDG-ESW System supports only the EDGs; thus, when an EDG-ESW subsystem is inoperable, the associated EDG is declared inoperable and actions are taken in accordance with Technical Specification 3.9, "Auxiliary Electrical Systems." Therefore, no additional specifications are required for the EDG-ESW System. Currently, the EFT-ESW System is treated as a support system for the ECCS and air conditioning systems it serves and is administratively controlled to apply technical specification action statements when one or more divisions are inoperable. This results in applying a 24 hour action statement when one division is inoperable, based on the supported TS equipment required to be declared inoperable. The changes proposed below establish technical specifications for the Monticello EFT-ESW System.

Changes are also proposed to clearly define actions to be taken when support systems, such as the EFT-ESW System, are out of service. The definition of "operability" requires support systems to be operable in order to consider the supported system operable. Therefore, when a support system is inoperable, the applicable limiting condition for operation (LCO) is applied to the supported systems. The proposed changes would allow only the TS LCO for the support system to be applied, unless otherwise required.

Exhibit A

Proposed Change

A change to the Technical Specifications, Appendix A of the Operating License, is proposed to revise Specification 3.0, "Limiting Conditions for Operation," and to establish Specifications 3.18, "Emergency Service Water Limiting Conditions for Operation," and 4.18, "Emergency Service Water Surveillance Requirements." Corresponding Bases sections are also established. Exhibit B to this letter shows a mark-up of the proposed changes and added specifications; Exhibit C to this letter shows the final version of the proposed changes and added specifications. Exhibits B and C consider pending changes proposed by Monticello in letters to the NRC dated May 4, 2000 and August 31, 2000. A description of the proposed changes are as follows:

The Table of Contents are revised to reflect including a general LCO and EFT-ESW LCOs and surveillance requirements, as discussed below.

Specification 3.0.A is proposed to be added to establish requirements to be invoked on support and supported systems when TS support system operability requirements are not met.

Proposed Specification 3.18 establishes the limiting condition for operation as requiring both divisions of EFT-ESW to be operable for the applicable plant conditions, including refueling evolutions. Additionally, the proposed specification includes actions and allowed outage times if one or both divisions of the EFT-ESW System are inoperable.

Proposed Specification 4.18 establishes appropriate surveillance requirements (SRs) to ensure system operability. The surveillances assure that the system will operate when required and will provide adequate flow of water to remove heat during an accident.

The proposed changes described above are based on the NUREG-1433 Standard Technical Specifications (STS) for General Electric BWR/4 Plants (Reference 1).

Safety Evaluation

As stated above, proposed Specifications 3/4.18 are modeled after the Reference 1 STS. The following safety evaluation was prepared using the STS and associated bases as a template, with appropriate changes made so as to be directly applicable to the Monticello plant. Additional justification is provided to support the proposed specifications.

General LCO, Specification 3.0.A

Specification 3.0.A is added to provide requirements when a support system included in the technical specifications is inoperable. Proposed Specification 3.0.A does not apply to support systems which are not included in the technical specifications.

This specification is provided because the definition of operability requires that the associated inoperable supported system LCOs be entered solely due to the

Exhibit A

inoperability of the support system. The exception of proposed Specification 3.0.A is justified because the actions that are required to ensure the plant is maintained in a safe condition are specified in the support system LCOs. These LCOs actions may include entering the supported system LCOs or may specify other required actions.

When a support system is inoperable and there is an LCO specified for it in the TS, the supported system(s) are required to be declared inoperable if determined to be inoperable as a result of the support system inoperability. However, it is not necessary to enter into the supported systems' conditions and required actions unless directed to do so by the support system's required actions. Current Monticello Technical Specifications do not provide for this allowance and would require entry into multiple and restrictive LCOs and action statements. The potential confusion and inconsistency of requirements related to the entry into multiple support and supported systems' LCOs are eliminated by providing all the actions that are necessary to ensure the plant is maintained in a safe condition in the support system's required actions.

However, there are instances where support system LCOs direct entry into conditions and required actions for the supported system. When a support system's LCO directs a supported system LCO to be entered, the applicable conditions and required actions shall be entered.

When a support system not included in technical specifications is inoperable, proposed Specification 3.0.A does not apply. In the event that no LCO is specified for a required support system, the effect of support system inoperability on supported system operability shall be evaluated and the appropriate supported system LCOs shall be entered.

The proposed general LCO is similar to general LCO 3.0.6 in the STS (Reference 1). Changes to the wording have been made to conform with the nomenclature of Monticello Technical Specifications. Discussion has been added to the TS Bases, consistent with the level of detail in the current Monticello TS.

EFT-ESW System Specification 3.18/4.18

System Function and Design Basis

The EFT-ESW System is designed to provide cooling water for removing heat from the Control Room Ventilation (CRV) air conditioning condensers, Residual Heat Removal (RHR) Pump motor thrust bearings and room coolers, High Pressure Coolant Injection (HPCI) room coolers, and the Core Spray (CS) Pump motor thrust bearings. With the exception of the HPCI room coolers, these components are required for a safe reactor shutdown following a Design Basis Accident (DBA) or transient. Analysis has shown that the HPCI room coolers are not required to maintain HPCI System operability. Analysis has also shown that EFT-ESW flow to the CS Pump motor thrust bearings is not required for CS Pump operability. The HPCI room coolers and flow to the CS Pump motor are normally left in service, since adequate flow is still provided to the remaining EFT-ESW loads. The components cooled by the EFT-ESW System are supplied from the Service Water System during plant operation, as required. Upon receipt of an

Exhibit A

Emergency Diesel Generator (EDG) start signal or transfer of off-site power supply to Transformer 1AR, the EFT-ESW Pump in each division is automatically started. Since only essential loads are supplied from the EFT-ESW System and check valves prevent EFT-ESW flow diversion to the Service Water System, no automatic cooling load shed or system isolation is required.

The EFT-ESW System consists of two independent and redundant divisions. Each of the two EFT-ESW divisions is made up of a header, a 200 gpm pump, a suction source, valves, piping and associated instrumentation. The two divisions are separated from each other so failure of one division will not affect the operability of the other.

Cooling water is pumped from the Mississippi River by the EFT-ESW pumps to the essential components through the two main headers. After removing heat from the components, the water is discharged to the discharge canal through the Circulating Water System.

A description of the EFT-ESW system is included in the Monticello USAR, Section 10 (Reference 2).

Applicable Safety Analysis

The Mississippi River is the ultimate heat sink (UHS) which supplies sufficient water inventory for all EFT-ESW System post-accident cooling requirements. The ability of the EFT-ESW System to support long term cooling of equipment is assumed in evaluations of the equipment required for safe reactor shutdown presented in the USAR, Section 6 (Reference 3).

The ability of the EFT-ESW System to provide adequate cooling to the identified safety equipment is an implicit assumption for the safety analyses evaluated in the USAR, Sections 5 and 14 (References 4 and 5, respectively). The analyses include the evaluation of the long term primary containment response after a design basis LOCA.

The ability to provide onsite emergency AC power is independent of the availability of the EFT-ESW System, since the EDGs are supplied by a separate ESW system. The long term cooling capability of the CS Pumps (via the RHR room coolers) and RHR Pumps is dependent on the cooling provided by the EFT-ESW System. Long term cooling of the Control Room is also dependent on cooling provided by the EFT-ESW System. While EFT-ESW is supplied to the HPCI room coolers, analysis has shown that the HPCI System remains operable for long term accident mitigation without room cooling.

The EFT-ESW System, together with the ultimate heat sink, satisfy Criterion 3 of 10 CFR 50.36 for inclusion in the Technical Specifications.

Limiting Condition for Operation

Specification 3.18.A.1: The EFT-ESW subsystems are independent of each other to the degree that each has separate controls, power supplies, and the operation of one does not depend on the other. In the event of a DBA, one division of EFT-ESW is required to provide the minimum heat removal capability for the systems to which it

Exhibit A

supplies cooling water. To ensure this requirement is met, both subsystems of EFT-ESW must be operable. At least one subsystem will operate, if the worst single active failure occurs coincident with the loss of offsite power.

A subsystem is considered operable when it has an operable ultimate heat sink, an operable pump, and an operable flow path capable of taking suction from the intake structure and transferring the water to the appropriate equipment.

The operability of the UHS is based on having a minimum allowable water level in the service water pump bay of 901.5 ft mean sea level and a maximum water temperature of 90°F. The specified level considers the net positive suction head required, vortexing limitations, and flow requirements for the safety related pumps served by the bay for long term accident mitigation. The minimum allowed level provides for design flow requirements for both divisions of safety related service water systems (RHRSW, EFT-ESW and EDG-ESW). The specified temperature is the maximum temperature assumed for Monticello in various analyses of equipment and containment response under accident conditions.

The isolation of the EFT-ESW System to components or systems may render those components or systems inoperable, but does not affect the operability of the EFT-ESW System.

Whenever the reactor is above 212°F and there is irradiated fuel in the reactor vessel, the EFT-ESW System and UHS are required to be operable to support the equipment served by the EFT-ESW System. Therefore, the EFT-ESW System and UHS are required to be operable when the reactor is in that condition. Due to cooling requirements for the CRV System, the EFT-ESW System and UHS are also required to be operable during movement of irradiated fuel assemblies in the secondary containment, core alterations or activities having the potential for draining the reactor vessel.

In other plant conditions, the operability requirements of the EFT-ESW System are determined by the systems they support.

Actions

Specification 3.18.A.2: With one EFT-ESW subsystem inoperable, the inoperable subsystem must be restored to OPERABLE status within 7 days (30 days during refueling operations). With the unit in this condition, the remaining operable EFT-ESW subsystem is adequate to perform the heat removal function. However, the overall reliability is reduced because a single failure in the operable EFT-ESW subsystem could result in loss of EFT-ESW function. The 7 day allowed outage time is based on the redundant EFT-ESW System capabilities afforded by the operable division, the low probability of an accident occurring during this time period, and is consistent with the allowed completion time for restoring an inoperable EDG (the power supply to the EFT-ESW Pumps and equipment supplied with cooling water from the EFT-ESW System). The components served by an inoperable EFT-ESW system would be degraded but would operate in the short term following accident initiation since no temperature limits

Exhibit A

would be immediately exceeded. Additionally, in the event that off-site power was not lost during the accident, normal plant service water would remain in operation to supply the EFT-ESW loads. A 30 day allowed outage time for one division during refueling operations is consistent with the requirements for the CRV system during the same evolutions.

Specification 3.18.A.3 and 3.18.A.4: If an inoperable EFT-ESW subsystem is not restored to service in the allowed completion time, or if both trains of EFT-ESW are inoperable, an orderly shutdown is commenced such that cold shutdown is reached in 36 hours. The allowed completion time is reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. The completion time is consistent with other similar specifications. During refueling operations, direction is given to require entry into the conditions and actions required for the CRV System

Surveillance Requirements

Specification 4.18.A.1: This surveillance verifies the water level in each pump bay to be sufficient for the proper operation of the EFT-ESW pumps. Service water pump bay level is typically measured at the circulating water pump bay; however, other instruments and methods are available. The net positive suction head required, vortexing limitations and required flow were considered for each pump taking suction from the pump bay in determining the limit. The limit is based on the limiting pump. The 24 hour frequency is based on operating experience related to trending of the parameter variations over time. The level of the Mississippi River does not change rapidly and a 24 hour frequency ensures that the minimum level requirement would be met. Plant operating procedures address actions to be taken as the limiting water depth is approached.

Specification 4.18.A.2: This surveillance verifies the UHS temperature to ensure that the heat removal capability of the UHS is within the assumptions of the analyses for the functions it serves. The 24 hour frequency is based on operating experience related to trending of the temperature variations over time. The temperature of the Mississippi River does not change rapidly and a 24 hour frequency ensures that the maximum average temperature requirement would be met. Plant operating procedures address actions to be taken as the limiting water temperature is approached.

Specification 4.18.A.3: This surveillance verifies the automatic start capability of the EFT-ESW pump in each subsystem. This is demonstrated by the use of an actual or simulated signal. This surveillance is currently performed as part of the integrated ECCS test already performed on a cyclic basis. Operating experience has shown that these components pass the surveillance when performed at this frequency. Therefore, the frequency is concluded to be acceptable from a reliability standpoint.

The Reference 1 STS includes a surveillance to periodically verify the position of system valves which are not secured in their safety position. A similar surveillance is not proposed for Monticello. Periodic position verification is not required for valves in

Exhibit A

other systems included in Monticello TS. System line-up checklists are performed on safety related systems prior to start-up from planned outages and independent verification is required following manipulation of safety related valves. These actions accomplish the intent of the STS surveillance by providing a high level of assurance that system valves are maintained in the positions required to perform their safety functions.

The proposed Specifications 3.18/4.18 are consistent with the requirements of the Reference 1 STS for the similar system, justified for application to the Monticello Plant as discussed above. A bases section for the proposed specification is included, in the level of detail appropriate for inclusion in the current Monticello TS.

No Significant Hazards Consideration:

A license amendment is proposed to change the Technical Specifications, Appendix A of the Operating License for the Monticello Nuclear Generating Plant to implement a general limiting condition for operation (LCO) and to establish LCOs, action statements, allowed outage times and surveillance requirements for the Emergency Filtration Train Emergency Service Water (EFT-ESW) System.

The proposed amendment has been evaluated to determine whether it constitutes a significant hazards consideration as required by 10 CFR Part 50, section 50.91 using standards provided in section 50.92. This analysis is provided below:

The proposed amendment will not involve a significant increase in the probability or consequences of an accident previously evaluated.

The EFT-ESW System is not an accident initiator. The proposed amendment provides operability requirements and surveillance requirements to ensure the ESW System is available and operable when required for accident mitigation. The proposed operability requirements and allowed outage times are consistent with similar requirements for the systems supported by the EFT-ESW System. Dose to the public and the Control Room operators are not affected by the proposed change. The proposed general LCO provides direction with respect to actions to be taken when support systems are inoperable.

The proposed Technical Specification change does not introduce new equipment operating modes, nor does the proposed change alter existing system relationships. The proposed amendment does not introduce new failure modes.

Therefore, the proposed amendment will not significantly increase the probability or the consequences of an accident previously evaluated.

The proposed amendment will not create the possibility of a new or different kind of accident from any accident previously analyzed.

The proposed Technical Specification change does not introduce new equipment operating modes, nor does the proposed change alter existing system relationships. The proposed amendment does not introduce new failure modes. The proposed amendment does not alter the equipment required for accident mitigation and considers

Exhibit A

the effects on supported systems when a support system is inoperable. When support systems are inoperable, actions are specified to be taken consistent with safe plant operation.

Therefore, the proposed amendment will not create the possibility of a new or different kind of accident from any accident previously evaluated.

The proposed amendment will not involve a significant reduction in the margin of safety.

The proposed amendment provides specifications for the EFT-ESW System which are consistent with current Technical Specification requirements for other equipment. The proposed changes ensure that the EFT-ESW and other support systems will be available when required and provides adequate alternative actions when the support systems are not available. The allowed outage times for the EFT-ESW Pumps are consistent with that allowed for other equipment that would have similar importance to accident mitigation. The proposed general LCO does not result in a significant reduction in the margin of safety since it imposes requirements already in technical specifications for support systems included in technical specifications. In cases where support systems not included in technical specifications, the proposed general LCO does not apply and actions determined to be required by the technical specifications will be taken for the supported systems.

Therefore, the proposed amendment will not involve a significant reduction in the margin of safety.

Environmental Assessment

Nuclear Management Company has evaluated the proposed change and determined that:

1. The change does not involve a significant hazards consideration.
2. The change does not involve a significant change in the type or significant increase in the amounts of any effluent that may be released offsite, or
3. The change does not involve a significant increase in individual or cumulative occupational radiation exposure.

Accordingly, the proposed change meets the eligibility criterion for categorical exclusion set forth in 10 CFR Part 51, Section 51.22(b), and an environmental assessment of the proposed change is not required.

Exhibit A

References

1. NUREG-1433, "Standard Technical Specifications for General Electric BWR/4 Plants," Revision 1.
2. MNGP USAR, Section 10.3, "Plant Service Systems," Revision 18.
3. MNGP USAR, Section 6, "Plant Engineered Safeguards," Revision 18.
4. MNGP USAR, Section 5, "Plant Containment Systems," Revision 18.
5. MNGP USAR, Section 14, "Plant Safety Analysis," Revision 18.

Exhibit B

License Amendment Request Establishment of Emergency Service Water Technical Specification

Current Monticello Technical Specification Pages Marked Up With Proposed Change

This exhibit consists of current Technical Specification pages marked up with the proposed change. The pages included in this exhibit are as listed below:

Pages

i
iv
25a
25b (new text)
25c (renumbered page)
229za – 229zf (new)

TABLE OF CONTENTS

	<u>Page</u>
1.0 DEFINITIONS	1
2.0 SAFETY LIMITS AND LIMITING SAFETY SYSTEM SETTINGS	
2.1 and 2.3 Fuel Cladding Integrity	6
2.1 Bases	10
2.3 Bases	14
2.2 and 2.4 Reactor Coolant System	21
2.2 Bases	22
2.4 Bases	24
3.0 LIMITING CONDITIONS FOR OPERATION AND 4.0 SURVEILLANCE REQUIREMENTS	
3.0 Limiting Conditions for Operation (LCO) Applicability	25a
4.0 Surveillance Requirements	25a
3.0 Bases	25b
4.0 Bases	25c
3.1 and 4.1 Reactor Protection System	26
3.1 Bases	35
4.1 Bases	42
3.2 and 4.2 Protective Instrumentation	45
A. Primary Containment Isolation Functions	45
B. Emergency Core Cooling Subsystems Actuation	46
C. Control Rod Block Actuation	46
D. Other Instrumentation	46a
E. Reactor Building Ventilation Isolation and Standby Gas Treatment System Initiation	47
F. Recirculation Pump Trip Initiation and Alternate Rod Injection Initiation	48
G. Safeguards Bus Voltage Protection	48
H. Instrumentation for S/RV Low-Low Set Logic	48
I. Instrumentation for Control Room Habitability Protection	48
3.2 Bases	64
4.2 Bases	72
3.3 and 4.3 Control Rod System	76
A. Reactivity Limitations	76
B. Control Rod Withdrawal	77
C. Scram Insertion Times	81
D. Control Rod Accumulators	82
E. Reactivity Anomalies	83
F. Scram Discharge Volume	83a
G. Required Action	83a
3.3 and 4.3 Bases	84

TABLE OF CONTENTS (Cont'd)

	<u>Page</u>
3.13 and 4.13	Fire Detection Protection Systems 223
	A. Fire Detection Instrumentation 223
	B. Fire Suppression Water System 224
	C. Hose Stations 226
	D. Yard Hydrant Hose Houses 227
	E. Sprinkler Systems 227a
	F. Halon Systems 227b
	G. Penetration Fire Barriers 227b
	H. Alternate Shutdown System 227c
	3.13 Bases 228
	4.13 Bases 228b
3.14 and 4.14	Accident Monitoring Instrumentation 229a
	3.14 and 4.14 Bases 229e
3.15 and 4.15	Inservice Inspection and Testing 229f
	3.15 and 4.15 Bases 229g
3.16 and 4.16	Radiation Environmental Monitoring Program 229h
	A. Sample Collection & Analysis 229h
	B. Land Use Census 229j
	C. Interlaboratory Comparison Program 229k
	3.16 and 4.16 Bases 229t
3.17 and 4.17	Control Room Habitability 229u
	A. Control Room Ventilation System 229u
	B. Control Room Emergency Filtration System 229v
	3.17 Bases 229y
	4.17 Bases 229z
3.18 and 4.18	Emergency Service Water System 229za
	A. Emergency Filtration Train ESW (EFT-ESW) 229za
	3.18 Bases 229zc
	4.18 Bases 229zf
5.0	DESIGN FEATURES 230
	5.1 Site 230
	5.2 Reactor 230
	5.3 Reactor Vessel 230
	5.4 Containment 230
	5.5 Fuel Storage 231
	5.6 Seismic Designs 231
6.0	ADMINISTRATIVE CONTROLS 232
	6.1 Organization 232
	6.2 (Deleted)
	6.3 (Deleted)
	6.4 Action to be taken if a Safety Limit is Exceeded 243
	6.5 Plant Operating Procedures 244
	6.6 Plant Operating Records 246c
	6.7 Reporting Requirements 248
	6.8 Programs 253

3.0 LIMITING CONDITIONS FOR OPERATION

3.0 Limiting Conditions for operability (LCO)

- A. When a support system is declared inoperable, only the LCO actions associated with the support system are required to be entered except when the support system LCO actions specifically direct the supported system LCO actions to be entered.

4.0 SURVEILLANCE REQUIREMENTS

4.0 SURVEILLANCE REQUIREMENTS

- A. The surveillance requirements of this section shall be met. Each surveillance requirement shall be performed at the specified times except as allowed in B and C below.
- B. Specific time intervals between tests may be extended up to 25% of the surveillance interval to accommodate normal test schedules with the exception that, the intervals between tests scheduled for refueling shutdowns shall not exceed two years.
- C. Whenever the plant condition is such that a system or component is not required to be operable the surveillance testing associated with that system or component may be discontinued. Discontinued surveillance tests shall be resumed less than one test interval before establishing plant conditions requiring operability of the associated system or component.
- D. If it is discovered that a surveillance was not performed within the extended time interval allowed by 4.0.B, then the affected equipment shall be declared inoperable.
- E. Compliance with 4.0.D may be delayed, from the time of discovery, up to 24 hours or up to the limit of the time interval, whichever is less. This delay period is permitted to allow performance of the surveillance.

Bases 3.0:

LCO 3.0.A provides requirements when support systems that have an LCO specified in the Technical Specifications are inoperable. This specification is provided because the application of the operability definition would otherwise require that the LCO actions of the associated supported system be entered solely due to the inoperability of the required support system. The exception of 3.0.A is justified because the actions that are required to ensure the plant is maintained in a safe condition are specified in the support system LCO actions.

When a support system is inoperable and there is an LCO specified for it in the TS, it is not necessary to enter into the supported systems LCO actions unless either 1) directed to do so by the support system's LCO actions, or 2) the support system LCO actions direct that the supported system be declared inoperable. The potential confusion and inconsistency of requirements related to the entry into multiple support and supported system LCO actions are eliminated by providing all the actions that are necessary to ensure the plant is maintained in a safe condition in the support system's LCO actions.

LCO 3.0.A does not apply to required support systems which do not have LCOs specified in the technical specifications. In the event that no LCO is specified for a required support system, the effect of support system inoperability on supported system operability are evaluated and LCO actions taken as required.

Bases 4.0:

This specification provides that surveillance activities necessary to ensure the Limiting Conditions for Operations are met and will be performed during the periods when the Limiting Conditions for Operation are applicable.

A tolerance for performing surveillance activities beyond the nominal interval is provided to allow operational flexibility because of scheduling and performance considerations. The plant uses a fixed surveillance program that prevents repetitive addition of the allowable 25% extension. Each surveillance test is completed within plus or minus 25% of each scheduled fixed date. Scheduled dates are based on dividing each calendar year into four 13-week "surveillance" quarters consisting of 3 4-week "surveillance" months and one "catch-up" week. This method of scheduling permits certain tests always to be scheduled on certain days of the week.

The specification ensures that surveillance activities associated with a Limiting Condition for Operation have been performed within the specified time interval prior to entry into a plant condition for which the Limiting Condition for Operation is applicable. Under the terms of this specification, for example, during-initial plant startup or following extended plant outage, the surveillance activities must be performed within the stated surveillance interval prior to placing or returning the system or equipment to Operable status.

"Affected equipment" refers to the specific equipment on which a surveillance is being performed. If there is an LCO that corresponds to the specific equipment that has failed the surveillance, then that LCO shall be entered. If there is no corresponding LCO, then the effect of inoperability of the specific equipment that has failed the surveillance shall be evaluated (i.e., by applying the definition of operability) and actions taken as appropriate (e.g., to comply with the technical specifications).

3.0 LIMITING CONDITIONS FOR OPERATION

3.18 EMERGENCY SERVICE WATER SYSTEM

Applicability:

Applies to the operational status of the Emergency Service Water (ESW) Systems.

Objectives:

To ensure removal of the heat rejected by equipment which must operate under accident conditions.

Specification:

A. Emergency Filtration Train ESW (EFT-ESW)

1. Except as specified in Specification 3.18.A.2, 3.18.A.3 and 3.18.A.4, both EFT-ESW subsystems shall be operable whenever irradiated fuel is in the reactor vessel and reactor coolant temperature is greater than 212°F, or during movement of irradiated fuel assemblies in the secondary containment, core alterations or activities having the potential for draining the reactor vessel.
- 2.a One EFT-ESW subsystem may be inoperable for 7 days whenever irradiated fuel is in the reactor vessel and reactor coolant temperature is greater than 212°F.
- 2.b One EFT-ESW subsystem may be inoperable for 30 days during movement of irradiated fuel assemblies in the secondary containment, core alterations or activities having the potential for draining the reactor vessel. Concurrently enter the applicable LCO in Specification 3.17.A for CRV made inoperable by EFT-ESW.

4.0 SURVEILLANCE REQUIREMENTS

4.18 EMERGENCY SERVICE WATER SYSTEM

Applicability:

Applies to the periodic testing of the Emergency Service Water (ESW) Systems.

Objectives:

To verify the operability of the ESW Systems.

Specification:

A. Emergency Filtration Train ESW (EFT-ESW)

1. Verify the water level of the service water pump bay is ≥ 901.5 ft elevation once per 24 hours.
2. Verify the daily average river water temperature is $\leq 90^\circ\text{F}$ once per 24 hours.
3. Verify each EFT-ESW subsystem actuates on an actual or simulated initiation signal once every operating cycle.

3.0 LIMITING CONDITIONS FOR OPERATION

3. If the conditions of 3.18.A.1 or 3.18.A.2.a cannot be met, or if both divisions of the EFT-ESW System are inoperable, initiate action to be in at least Hot Shutdown within the following 12 hours and Cold Shutdown within the following 24 hours.
4. If the conditions of 3.18.A.1 or 3.18.A.2.b cannot be met, or if both divisions of the EFT-ESW System are inoperable during movement of irradiated fuel assemblies in the secondary containment, core alterations or activities having the potential for draining the reactor vessel, then complete the actions required by Specification 3.17.A for the affected division(s) of the CRV System.

4.0 SURVEILLANCE REQUIREMENTS

Bases 3.18:

The EFT-ESW System is designed to provide cooling water for removing heat from the CRV air conditioning condensers, Residual Heat Removal (RHR) Pump motors and room coolers, High Pressure Coolant Injection (HPCI) room coolers, and the Core Spray (CS) Pump motors. These components are required for a safe reactor shutdown following a Design Basis Accident (DBA) or transient. The components cooled by EFT-ESW System are supplied by the Service Water System during normal plant operation, as required. Upon receipt of an Emergency Diesel Generator (EDG) start signal or transfer of off-site power supply to Transformer 1AR, the EFT-ESW Pump in each division is automatically started. Since only essential loads are supplied from the EFT-ESW System and check valves prevent EFT-ESW flow diversion to the Service Water System, no automatic cooling load shed or system isolation is required.

The EFT-ESW System consists of two independent and redundant divisions. Each of the two EFT-ESW divisions is made up of a header, a 200 gpm pump, a suction source, valves, piping and associated instrumentation. The two divisions are separated from each other so failure of one division will not affect the operability of the other.

Cooling water is pumped from the Mississippi River by the EFT-ESW pumps to the essential components through two main headers. After removing heat from components, the water is discharged to the discharge canal through the Circulating Water System. A description of the EFT-ESW system is included in the Monticello USAR, Section 10.

The Mississippi River is the ultimate heat sink (UHS) which supplies sufficient water inventory for all EFT-ESW System post-accident cooling requirements. The ability of the EFT-ESW System to support long term cooling of the equipment is assumed in evaluations of the equipment required for safe reactor shutdown presented in the USAR, Section 6.

The ability of the EFT-ESW System to provide adequate cooling to the identified safety equipment is an implicit assumption for the safety analyses evaluated in the USAR. These analyses include the evaluation of the long term primary containment response after a design basis LOCA.

The long term cooling capability of the CS Pump motors (via the RHR room coolers) and RHR Pump motors is dependent on the cooling provided by the EFT-ESW System. Long term cooling of the Control Room is also dependent on cooling provided by the EFT-ESW System. While cooling water from the EFT-ESW system is supplied to the HPCI room coolers, analysis has shown that the HPCI system remains operable for long term accident mitigation without room cooling. Analysis has also shown that EFT-ESW flow to the CS Pump motor thrust bearings is not required for CS Pump operability.

Bases 3.18 (Cont'd):

Specification 3.18.A.1: The EFT-ESW subsystems are independent of each other to the degree that each has separate controls, power supplies, and the operation of one does not depend on the other. In the event of a DBA, one division of EFT-ESW is required to provide heat removal capability for the systems to which it supplies cooling water. To ensure this requirement is met, two subsystems of EFT-ESW must be operable. At least one subsystem will operate, if the worst single active failure occurs coincident with the loss of offsite power.

A subsystem is considered operable when it has an operable ultimate heat sink, an operable pump, and an operable flow path capable of taking suction from the intake structure and transferring the water to the appropriate equipment.

The operability of the UHS is based on having a minimum water level in the service water pump bay of 901.5 ft mean sea level and a maximum water temperature of 90°F. The specified level considers the net positive suction head required, vortexing limitations, and flow requirements for the safety related pumps served by the bay for long term accident mitigation. The minimum allowed level provides for design flow requirements for both divisions of safety related service water systems (RHRSW, EFT-ESW and EDG-ESW). The specified temperature is the maximum temperature assumed for Monticello in various analyses.

The isolation of the EFT-ESW System to components or systems may render those components or systems inoperable, but does not affect the operability of the EFT-ESW System.

Whenever the reactor is above 212°F and there is irradiated fuel in the reactor vessel, the EFT-ESW System and UHS are required to be operable to support the equipment served by the EFT-ESW System. Therefore, the EFT-ESW System and UHS are required to be operable when the reactor is in that condition. The EFT-ESW System and UHS are also required to be operable during movement of irradiated fuel assemblies in the secondary containment, core alterations or activities having the potential for draining the reactor vessel due to cooling requirements for the CRV System.

In other plant conditions, the operability requirements of the EFT-ESW System are determined by the systems they support.

Bases 3.18 (Cont'd):

Specification 3.18.A.2: With one EFT-ESW subsystem inoperable, the inoperable subsystem must be restored to OPERABLE status within 7 days (30 days during refueling operations). With the unit in this condition, the remaining operable EFT-ESW subsystem is adequate to perform the heat removal function. However, the overall reliability is reduced because a single failure in the operable EFT-ESW subsystem could result in loss of EFT-ESW function. The 7 day allowed outage time is based on the redundant EFT-ESW System capabilities afforded by the operable division, the low probability of an accident occurring during this time period, and is consistent with the allowed completion time for restoring an inoperable EDG (the power supply to the EFT-ESW Pumps and equipment supplied with cooling water from the EFT-ESW system). The components served by an inoperable EFT-ESW system would be degraded but would operate in the short term following an accident since no temperature limits would be immediately exceeded. A 30 day allowed outage time for one division during refueling operations is consistent with the requirements for the CRV system during the same evolutions.

Specification 3.18.A.3 and 3.18.A.4: If an inoperable EFT-ESW subsystem is not restored to service in the allowed completion time, or if both trains of EFT-ESW are inoperable, an orderly shutdown is commenced such that cold shutdown is reached in 36 hours. The allowed completion time is reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. The completion time is consistent with other similar specifications. During refueling operations, direction is given to require entry into the conditions and actions required for the CRV System.

Bases 4.18:

Specification 4.18.A.1: This surveillance verifies the water level in each service water pump bay to be sufficient for the proper operation of the EFT-ESW pumps. Level is typically measured at the circulating pump bay; however, other instruments and methods are available. The net positive suction head required, vortexing limitations and required flow were considered for each pump taking suction from the pump bay in determining this limit. The limit is based on the limiting pump. The 24 hour frequency is based on operating experience related to trending of the parameter variations over time. The level of the Mississippi River does not change rapidly and a 24 hour frequency ensures that the minimum level requirement would be met.

Specification 4.18.A.2: Verification of the UHS temperature ensures that the heat removal capability of the EFT-ESW System is within the assumptions of the DBA analysis. The 24 hour frequency is based on operating experience related to trending of the temperature variations over time. The temperature of the Mississippi River does not change rapidly and a 24 hour frequency ensures that the maximum average temperature requirement would be met. Plant operating procedures address actions to be taken as the limiting water temperature is approached.

Specification 4.18.A.3: This surveillance verifies that the EFT-ESW System automatically provides cooling water to the safety related equipment during an accident. This is demonstrated by the use of an actual or simulated signal. This surveillance also verifies the automatic start capability the EFT-ESW pump in each subsystem. This surveillance is currently performed as part of the integrated ECCS test already performed on a cyclic basis. Operating experience has shown that these components pass the surveillance when performed at this frequency. Therefore, the frequency is concluded to be acceptable from a reliability standpoint.

Exhibit C

License Amendment Request Establishment of Emergency Service Water Technical Specification

Revised Monticello Technical Specification Pages

This exhibit consists of revised Technical Specification pages that incorporate the proposed change. The pages included in this exhibit are as listed below:

Pages

i
iv
25a-25c
229za-229zf

TABLE OF CONTENTS

	<u>Page</u>
1.0 DEFINITIONS	1
2.0 SAFETY LIMITS AND LIMITING SAFETY SYSTEM SETTINGS	
2.1 and 2.3 Fuel Cladding Integrity	6
2.1 Bases	10
2.3 Bases	14
2.2 and 2.4 Reactor Coolant System	21
2.2 Bases	22
2.4 Bases	24
3.0 LIMITING CONDITIONS FOR OPERATION AND 4.0 SURVEILLANCE REQUIREMENTS	
3.0 Limiting Conditions for Operation (LCO) Applicability	25a
4.0 Surveillance Requirements	25a
3.0 Bases	25b
4.0 Bases	25c
3.1 and 4.1 Reactor Protection System	26
3.1 Bases	35
4.1 Bases	42
3.2 and 4.2 Protective Instrumentation	45
A. Primary Containment Isolation Functions	45
B. Emergency Core Cooling Subsystems Actuation	46
C. Control Rod Block Actuation	46
D. Other Instrumentation	46a
E. Reactor Building Ventilation Isolation and Standby Gas Treatment System Initiation	47
F. Recirculation Pump Trip Initiation and Alternate Rod Injection Initiation	48
G. Safeguards Bus Voltage Protection	48
H. Instrumentation for S/RV Low-Low Set Logic	48
I. Instrumentation for Control Room Habitability Protection	48
3.2 Bases	64
4.2 Bases	72
3.3 and 4.3 Control Rod System	76
A. Reactivity Limitations	76
B. Control Rod Withdrawal	77
C. Scram Insertion Times	81
D. Control Rod Accumulators	82
E. Reactivity Anomalies	83
F. Scram Discharge Volume	83a
G. Required Action	83a
3.3 and 4.3 Bases	84

TABLE OF CONTENTS (Cont'd)

	<u>Page</u>
3.13 and 4.13	223
A. Fire Detection Instrumentation	223
B. Fire Suppression Water System	224
C. Hose Stations	226
D. Yard Hydrant Hose Houses	227
E. Sprinkler Systems	227a
F. Halon Systems	227b
G. Penetration Fire Barriers	227b
H. Alternate Shutdown System	227c
3.13 Bases	228
4.13 Bases	228b
3.14 and 4.14	229a
3.14 and 4.14 Bases	229e
3.15 and 4.15	229f
3.15 and 4.15 Bases	229g
3.16 and 4.16	229h
A. Sample Collection & Analysis	229h
B. Land Use Census	229j
C. Interlaboratory Comparison Program	229k
3.16 and 4.16 Bases	229t
3.17 and 4.17	229u
A. Control Room Ventilation System	229u
B. Control Room Emergency Filtration System	229v
3.17 Bases	229y
4.17 Bases	229z
3.18 and 4.18	229za
A. Emergency Filtration Train ESW (EFT-ESW)	229za
3.18 Bases	229zc
4.18 Bases	229zf
5.0 DESIGN FEATURES	230
5.1 Site	230
5.2 Reactor	230
5.3 Reactor Vessel	230
5.4 Containment	230
5.5 Fuel Storage	231
5.6 Seismic Designs	231
6.0 ADMINISTRATIVE CONTROLS	232
6.1 Organization	232
6.2 (Deleted)	
6.3 (Deleted)	
6.4 Action to be taken if a Safety Limit is Exceeded	243
6.5 Plant Operating Procedures	244
6.6 Plant Operating Records	246c
6.7 Reporting Requirements	248
6.8 Programs	253

3.0 LIMITING CONDITIONS FOR OPERATION

3.0 LIMITING CONDITION FOR OPERATION (LCO)

- A. When a support system is declared inoperable, only the LCO actions associated with the support system are required to be entered except when the support system LCO actions specifically direct the supported system LCO actions to be entered.

4.0 SURVEILLANCE REQUIREMENTS

4.0 SURVEILLANCE REQUIREMENTS

- A. The surveillance requirements of this section shall be met. Each surveillance requirement shall be performed at the specified times except as allowed in B and C below.
- B. Specific time intervals between tests may be extended up to 25% of the surveillance interval to accommodate normal test schedules with the exception that, the intervals between tests scheduled for refueling shutdowns shall not exceed two years.
- C. Whenever the plant condition is such that a system or component is not required to be operable the surveillance testing associated with that system or component may be discontinued. Discontinued surveillance tests shall be resumed less than one test interval before establishing plant conditions requiring operability of the associated system or component.
- D. If it is discovered that a surveillance was not performed within the extended time interval allowed by 4.0.B, then the affected equipment shall be declared inoperable.
- E. Compliance with 4.0.D may be delayed, from the time of discovery, up to 24 hours or up to the limit of the time interval, whichever is less. This delay period is permitted to allow performance of the surveillance.

Bases 3.0:

LCO 3.0.A provides requirements when support systems that have an LCO specified in the Technical Specifications are inoperable. This specification is provided because the application of the operability definition would otherwise require that the LCO actions of the associated supported system be entered solely due to the inoperability of the required support system. The exception of 3.0.A is justified because the actions that are required to ensure the plant is maintained in a safe condition are specified in the support system LCO actions.

When a support system is inoperable and there is an LCO specified for it in the TS, it is not necessary to enter into the supported systems LCO actions unless either 1) directed to do so by the support system's LCO actions, or 2) the support system LCO actions direct that the supported system be declared inoperable. The potential confusion and inconsistency of requirements related to the entry into multiple support and supported system LCO actions are eliminated by providing all the actions that are necessary to ensure the plant is maintained in a safe condition in the support system's LCO actions.

LCO 3.0.A does not apply to required support systems which do not have LCOs specified in the technical specifications. In the event that no LCO is specified for a required support system, the effect of support system inoperability on supported system operability are evaluated and LCO actions taken as required.

Bases 4.0:

This specification provides that surveillance activities necessary to ensure the Limiting Conditions for Operations are met and will be performed during the periods when the Limiting Conditions for Operation are applicable.

A tolerance for performing surveillance activities beyond the nominal interval is provided to allow operational flexibility because of scheduling and performance considerations. The plant uses a fixed surveillance program that prevents repetitive addition of the allowable 25% extension. Each surveillance test is completed within plus or minus 25% of each scheduled fixed date. Scheduled dates are based on dividing each calendar year into four 13-week "surveillance" quarters consisting of 3 4-week "surveillance" months and one "catch-up" week. This method of scheduling permits certain tests always to be scheduled on certain days of the week.

The specification ensures that surveillance activities associated with a Limiting Condition for Operation have been performed within the specified time interval prior to entry into a plant condition for which the Limiting Condition for Operation is applicable. Under the terms of this specification, for example, during-initial plant startup or following extended plant outage, the surveillance activities must be performed within the stated surveillance interval prior to placing or returning the system or equipment to Operable status.

"Affected equipment" refers to the specific equipment on which a surveillance is being performed. If there is an LCO that corresponds to the specific equipment that has failed the surveillance, then that LCO shall be entered. If there is no corresponding LCO, then the effect of inoperability of the specific equipment that has failed the surveillance shall be evaluated (i.e., by applying the definition of operability) and actions taken as appropriate (e.g., to comply with the technical specifications).

3.0 LIMITING CONDITIONS FOR OPERATION

3.18 EMERGENCY SERVICE WATER SYSTEM

Applicability:

Applies to the operational status of the Emergency Service Water (ESW) Systems.

Objectives:

To ensure removal of the heat rejected by equipment which must operate under accident conditions.

Specification:

A. Emergency Filtration Train ESW (EFT-ESW)

1. Except as specified in Specification 3.18.A.2, 3.18.A.3 and 3.18.A.4, both EFT-ESW subsystems shall be operable whenever irradiated fuel is in the reactor vessel and reactor coolant temperature is greater than 212°F, or during movement of irradiated fuel assemblies in the secondary containment, core alterations or activities having the potential for draining the reactor vessel.
- 2.a One EFT-ESW subsystem may be inoperable for 7 days whenever irradiated fuel is in the reactor vessel and reactor coolant temperature is greater than 212°F.
- 2.b One EFT-ESW subsystem may be inoperable for 30 days during movement of irradiated fuel assemblies in the secondary containment, core alterations or activities having the potential for draining the reactor vessel. Concurrently enter the applicable LCO in Specification 3.17.A for CRV made inoperable by EFT-ESW.

4.0 SURVEILLANCE REQUIREMENTS

4.18 EMERGENCY SERVICE WATER SYSTEM

Applicability:

Applies to the periodic testing of the Emergency Service Water (ESW) Systems.

Objectives:

To verify the operability of the ESW Systems.

Specification:

A. Emergency Filtration Train ESW (EFT-ESW)

1. Verify the water level of the service water pump bay is ≥ 901.5 ft elevation once per 24 hours.
2. Verify the daily average river water temperature is $\leq 90^\circ\text{F}$ once per 24 hours.
3. Verify each EFT-ESW subsystem actuates on an actual or simulated initiation signal once every operating cycle.

3.0 LIMITING CONDITIONS FOR OPERATION

3. If the conditions of 3.18.A.1 or 3.18.A.2.a cannot be met, or if both divisions of the EFT-ESW System are inoperable, initiate action to be in at least Hot Shutdown within the following 12 hours and Cold Shutdown within the following 24 hours.
4. If the conditions of 3.18.A.1 or 3.18.A.2.b cannot be met, or if both divisions of the EFT-ESW System are inoperable during movement of irradiated fuel assemblies in the secondary containment, core alterations or activities having the potential for draining the reactor vessel, then complete the actions required by Specification 3.17.A for the affected division(s) of the CRV System.

4.0 SURVEILLANCE REQUIREMENTS

Bases 3.18:

The EFT-ESW System is designed to provide cooling water for removing heat from the CRV air conditioning condensers, Residual Heat Removal (RHR) Pump motors and room coolers, High Pressure Coolant Injection (HPCI) room coolers, and the Core Spray (CS) Pump motors. These components are required for a safe reactor shutdown following a Design Basis Accident (DBA) or transient. The components cooled by EFT-ESW System are supplied by the Service Water System during normal plant operation, as required. Upon receipt of an Emergency Diesel Generator (EDG) start signal or transfer of off-site power supply to Transformer 1AR, the EFT-ESW Pump in each division is automatically started. Since only essential loads are supplied from the EFT-ESW System and check valves prevent EFT-ESW flow diversion to the Service Water System, no automatic cooling load shed or system isolation is required.

The EFT-ESW System consists of two independent and redundant divisions. Each of the two EFT-ESW divisions is made up of a header, a 200 gpm pump, a suction source, valves, piping and associated instrumentation. The two divisions are separated from each other so failure of one division will not affect the operability of the other.

Cooling water is pumped from the Mississippi River by the EFT-ESW pumps to the essential components through two main headers. After removing heat from components, the water is discharged to the discharge canal through the Circulating Water System. A description of the EFT-ESW system is included in the Monticello USAR, Section 10.

The Mississippi River is the ultimate heat sink (UHS) which supplies sufficient water inventory for all EFT-ESW System post-accident cooling requirements. The ability of the EFT-ESW System to support long term cooling of the equipment is assumed in evaluations of the equipment required for safe reactor shutdown presented in the USAR, Section 6.

The ability of the EFT-ESW System to provide adequate cooling to the identified safety equipment is an implicit assumption for the safety analyses evaluated in the USAR. These analyses include the evaluation of the long term primary containment response after a design basis LOCA.

The long term cooling capability of the CS Pump motors (via the RHR room coolers) and RHR Pump motors is dependent on the cooling provided by the EFT-ESW System. Long term cooling of the Control Room is also dependent on cooling provided by the EFT-ESW System. While cooling water from the EFT-ESW system is supplied to the HPCI room coolers, analysis has shown that the HPCI system remains operable for long term accident mitigation without room cooling. Analysis has also shown that EFT-ESW flow to the CS Pump motor thrust bearings is not required for CS Pump operability.

Bases 3.18 (Cont'd):

Specification 3.18.A.1: The EFT-ESW subsystems are independent of each other to the degree that each has separate controls, power supplies, and the operation of one does not depend on the other. In the event of a DBA, one division of EFT-ESW is required to provide heat removal capability for the systems to which it supplies cooling water. To ensure this requirement is met, two subsystems of EFT-ESW must be operable. At least one subsystem will operate, if the worst single active failure occurs coincident with the loss of offsite power.

A subsystem is considered operable when it has an operable ultimate heat sink, an operable pump, and an operable flow path capable of taking suction from the intake structure and transferring the water to the appropriate equipment.

The operability of the UHS is based on having a minimum water level in the service water pump bay of 901.5 ft mean sea level and a maximum water temperature of 90°F. The specified level considers the net positive suction head required, vortexing limitations, and flow requirements for the safety related pumps served by the bay for long term accident mitigation. The minimum allowed level provides for design flow requirements for both divisions of safety related service water systems (RHRSW, EFT-ESW and EDG-ESW). The specified temperature is the maximum temperature assumed for Monticello in various analyses.

The isolation of the EFT-ESW System to components or systems may render those components or systems inoperable, but does not affect the operability of the EFT-ESW System.

Whenever the reactor is above 212°F and there is irradiated fuel in the reactor vessel, the EFT-ESW System and UHS are required to be operable to support the equipment served by the EFT-ESW System. Therefore, the EFT-ESW System and UHS are required to be operable when the reactor is in that condition. The EFT-ESW System and UHS are also required to be operable during movement of irradiated fuel assemblies in the secondary containment, core alterations or activities having the potential for draining the reactor vessel due to cooling requirements for the CRV System.

In other plant conditions, the operability requirements of the EFT-ESW System are determined by the systems they support.

Bases 3.18 (Cont'd):

Specification 3.18.A.2: With one EFT-ESW subsystem inoperable, the inoperable subsystem must be restored to OPERABLE status within 7 days (30 days during refueling operations). With the unit in this condition, the remaining operable EFT-ESW subsystem is adequate to perform the heat removal function. However, the overall reliability is reduced because a single failure in the operable EFT-ESW subsystem could result in loss of EFT-ESW function. The 7 day allowed outage time is based on the redundant EFT-ESW System capabilities afforded by the operable division, the low probability of an accident occurring during this time period, and is consistent with the allowed completion time for restoring an inoperable EDG (the power supply to the EFT-ESW Pumps and equipment supplied with cooling water from the EFT-ESW system). The components served by an inoperable EFT-ESW system would be degraded but would operate in the short term following an accident since no temperature limits would be immediately exceeded. A 30 day allowed outage time for one division during refueling operations is consistent with the requirements for the CRV system during the same evolutions.

Specification 3.18.A.3 and 3.18.A.4: If an inoperable EFT-ESW subsystem is not restored to service in the allowed completion time, or if both trains of EFT-ESW are inoperable, an orderly shutdown is commenced such that cold shutdown is reached in 36 hours. The allowed completion time is reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. The completion time is consistent with other similar specifications. During refueling operations, direction is given to require entry into the conditions and actions required for the CRV System.

Bases 4.18:

Specification 4.18.A.1: This surveillance verifies the water level in each service water pump bay to be sufficient for the proper operation of the EFT-ESW pumps. Level is typically measured at the circulating pump bay; however, other instruments and methods are available. The net positive suction head required, vortexing limitations and required flow were considered for each pump taking suction from the pump bay in determining this limit. The limit is based on the limiting pump. The 24 hour frequency is based on operating experience related to trending of the parameter variations over time. The level of the Mississippi River does not change rapidly and a 24 hour frequency ensures that the minimum level requirement would be met.

Specification 4.18.A.2: Verification of the UHS temperature ensures that the heat removal capability of the EFT-ESW System is within the assumptions of the DBA analysis. The 24 hour frequency is based on operating experience related to trending of the temperature variations over time. The temperature of the Mississippi River does not change rapidly and a 24 hour frequency ensures that the maximum average temperature requirement would be met. Plant operating procedures address actions to be taken as the limiting water temperature is approached.

Specification 4.18.A.3: This surveillance verifies that the EFT-ESW System automatically provides cooling water to the safety related equipment during an accident. This is demonstrated by the use of an actual or simulated signal. This surveillance also verifies the automatic start capability the EFT-ESW pump in each subsystem. This surveillance is currently performed as part of the integrated ECCS test already performed on a cyclic basis. Operating experience has shown that these components pass the surveillance when performed at this frequency. Therefore, the frequency is concluded to be acceptable from a reliability standpoint.