



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

Operated by Nuclear Management
Company LLC

September 27, 2001

10 CFR Part 50
Section 50.90

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

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

License Amendment Request for Revision to
Standby Diesel Generators Technical Specifications and Surveillance Requirements

Attached is a request for a change to the Technical Specifications (TS), Appendix A of Operating License DPR-22, for the Monticello Nuclear Generating Plant. This request is submitted pursuant to and in accordance with the provisions of 10 CFR Part 50, Section 50.90 and Section 50.91.

The purpose of this License Amendment Request is to revise Monticello TS Section 3.9.B.3/4.9.B.3 to revise the diesel fuel supply volume required for Diesel Generator operability, clarify existing wording, add a TS Limiting Condition for Operation (LCO) and a TS Surveillance Requirement (SR) regarding Diesel Generator air receivers, delete a current TS SR concerning Diesel Generator starting air compressors, and restructure and renumber the TS LCOs and SRs for applicability and administrative purposes.

Exhibit A contains the Proposed Changes, Reasons for Change, a Safety Evaluation, a Determination of No Significant Hazards Consideration and an Environmental Assessment. Exhibit B contains current Monticello TS pages marked up to show the proposed changes. Exhibit C contains the revised Monticello TS pages.

This submittal does not contain any new NRC commitments and does not modify any prior commitments.

The Monticello Operations Committee has reviewed this application. A copy of this submittal, along with the evaluation of No Significant Hazards Consideration, is being forwarded to our appointed state official pursuant to 10 CFR 50.91.

NMC respectfully request a 60-day implementation period for this revision.

A001

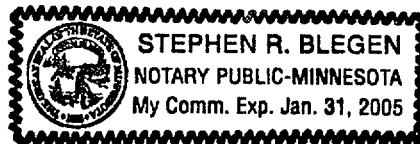
If you have any questions regarding this License Amendment Request please contact Doug Neve, Licensing Project Manager (Interim), at 763-295-1353.

2 Feb

Jeff S. Forbes
Vice President
Monticello Nuclear Generating Plant

Subscribed to and sworn before me this 27th day of Sept., 2001

Sybil Bleg
Notary



Attachments:

Exhibit A –	Evaluation of Proposed Change to the Monticello Technical Specifications
Exhibit B -	Current Monticello Technical Specifications Pages Marked up With Proposed Changes
Exhibit C -	Revised Monticello Technical Specifications Pages

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

Exhibit A

License Amendment Request for Revision to Standby Diesel Generators Technical Specifications and Surveillance Requirements

Evaluation of Proposed Changes to the Monticello Technical Specifications

Pursuant to 10 CFR Part 50, Section 50.90 and Section 50.91, Nuclear Management Company, LLC, (NMC) hereby proposes the following changes to the Technical Specifications (TS), Appendix A of Operating License DPR-22, for the Monticello Nuclear Generating Plant.

Background -

Diesel Generator Fuel Oil Storage:

The Monticello Technical Specifications (TS) and the Updated Safety Analysis Report (USAR) specify that the diesel generator fuel oil storage requirement is fulfilled by maintaining approximately 34,500 gallons of fuel oil in the Diesel Oil Storage Tank.

The Updated Safety Analysis Report (USAR) design requirements for the Emergency Diesel Generator's (EDG's) fuel oil supply are stated in Section 8.4 as follows:

Each EDG shall have local fuel tanks (day tank and base tank) fed from a common diesel oil storage tank. The local tanks shall have sufficient capacity for a minimum of eight hours of full power operation of their respective unit. The diesel oil storage tank shall provide sufficient fuel to the EDGs for at least one week of full load operation of one unit.

A review of the volume calculation for the Diesel Oil Storage Tank, Base Tank and Day Tank was undertaken as a result of the discovery that vortexing had not been considered during volume calculations for other storage tanks on site. Vortexing is important because initiation of the phenomenon could prevent utilization of a portion of the credited tank volume.

The review determined that the previous calculation of useable volume in the Day Tank and Base Tank contained sufficient margin to account for vortex initiation. However, the review also determined that the Diesel Oil Storage Tank design requirement was not satisfied by the capacity of approximately 34,500 gallons stated in the Monticello TS Section 3.9.B.3.c and in USAR Section 8.4.1.2. This is due to the combined effects of vortexing and a higher than actual suction elevation assumed in the volume calculation for the Diesel Oil Storage Tank.

Based on the review discussed above a revised calculation was performed to account for the possible effects of vortexing and to assume a higher than actual suction elevation in the volume calculation for the Diesel Oil Storage Tank. The revised calculation has determined that the fuel storage requirement in the Monticello TS Section 3.9.B.3.c and in the USAR should be changed from "approximately 34,500

Exhibit A

gallons” to “approximately 38,300 gallons” to account for possible vortexing. Currently the Diesel Oil Storage Tank volume is being administratively controlled above 38,300 gallons of fuel oil.

Diesel Generator (DG) Air Start System:

Each DG at Monticello is designed to start automatically, and within 10 seconds begin to accept load. Each DG has a robust air start system in that they each have two (2) independent air starting systems. Each system provides 100 percent redundancy for its DG. Starting at a nominal pressure of 200 psig, each air receiver has adequate capacity for five start attempts of the DG without recharging. The automatic start logic for each diesel supplies two start attempts from each air receiver, staggered such that there are a total of three start attempts of the DG. If the DG does not start as a result of the automatic start logic, manual operator action is required and the DG has not met its emergency operability requirement of starting and beginning to accept load within 10 seconds. Each air receiver has the capability of providing a minimum of two (2) DG starts without any assistance from the air compressors when maintained greater than or equal to 165 psig.

The current Surveillance Requirement (SR) 4.9.B.3.b for the starting air system is inappropriate since it does not support the associated Limiting Condition for Operation (LCO), and does not meet the requirements of 10 CFR 50.36(c)(3) for inclusion into the Technical Specifications (TS). Therefore, in an effort to improve this section of the TS, a new TS LCO and SR regarding DG starting air receivers is being proposed to replace the SR regarding the starting air compressors.

Proposed Changes and Reason for Changes -

Change 1 - Renumber and relocate TS requirements.

Revise the Monticello TS by renumbering and relocating the following TS:

ITEM	Current TS #	Revised TS #
1.	3.9.B.3.a	3.9.B.3.a.1
2.	3.9.B.3.b	3.9.B.3.a.2
3.	3.9.B.3.c	3.9.B.3.b
4.	4.9.B.3.a	4.9.B.3.a.1
5.	4.9.B.3.c	4.9.B.3.a.2
6.	4.9.B.3.e	4.9.B.3.b.1
7.	4.9.B.3.d	4.9.B.3.b.2
8.	4.9.B.3.f	4.9.B.3.b.3

Exhibit A

These proposed changes to the Monticello Technical Specifications are needed to more appropriately align the correct TS LCO with the correct TS SR. These are administrative changes that will provide for a more understandable TS. These changes also support the deletion of TS 4.9.B.3.b and its replacement with TS 3.9.B.3.c/4.9.B.3.c by allowing for the relocation and restructuring of the Monticello TS to provide for a TS which is more consistent with the Standard Technical Specifications while retaining the format and wording of the current Monticello Technical Specifications.

Change 2 - Delete TS 4.9.B.3.b, and replace it with a new TS 3.9.B.3.c/4.9.B.3.c.

Delete the current TS 4.9.B.3.b, to check the diesel starting air compressors for operation and their ability to recharge air receivers during the monthly generator test, and replace it with a new TS 3.9.B.3.c/4.9.B.3.c.

TS 4.9.B.3.b should be deleted because this SR does not assure that the necessary operability of the diesel generators (DG) will be maintained, nor that the LCO will be met. Testing the air compressors on a monthly basis does not demonstrate operability of the associated DG. Operability of the DG is demonstrated by maintaining sufficient air pressure for the DG to automatically start on an automatic start signal.

Add a new TS 3.9.B.3.c /4.9.B.3.c for the diesel generator starting air receivers. This new TS requires that both of the starting air receivers associated with each DG will be maintained at a pressure \geq 165 psig, and on a monthly basis, that this pressure will be verified for each of the DG air start receivers.

The new TS 3.9.B.3.c/4.9.B.3.c will improve the Monticello TS by making them more consistent with the requirements of 10 CFR Part 50, Section 50.36(c)(2)(ii)(C) and Section 50.36(c)(3).

The new TS LCO 3.9.B.3.c is more consistent with the requirements of 10 CFR 50.36(c)(2)(ii)(C) in that the air start receivers provide DG starting capability which ensures the DG will function to mitigate a design basis accident.

The new TS SR 4.9.B.3.c is more consistent with the requirements of 10 CFR 50.36(c)(3), in that it requires a visual inspection, on a monthly basis, to ensure that the necessary air pressure is available to meet the requirements of the limiting conditions for operation.

The addition of the new TS 3.9.B.3.c/4.9.B.3.c is also part of the justification for the deletion of the TS 4.9.B.3.b, and adding this new TS also makes the Monticello TS more consistent with NUREG-1433 while retaining the format and wording of the current Monticello Technical Specifications.

The proposed changes identified above involve changes to the Monticello Technical Specifications. These changes revise the Standby Diesel Generator section of the

Exhibit A

current Monticello TS to be more consistent with the requirements of 10 CFR Part 50, Sections 50.36(c)(2) and 50.36(c)(3), while retaining the existing format and wording of the current Monticello Technical Specifications.

Change 3 - Revise TS 3.9.B.3.b.

Revise the minimum number of gallons of fuel oil required to be maintained in the fuel oil storage tank for the diesel generators to be considered operable from 34,500 to 38,300 gallons.

This change is needed to incorporate a revision to a previously performed calculation. The revised calculation incorporated additional allowances for the combined effects of vortexing and a higher than actual suction elevation assumed in the volume calculation for the Diesel Oil Storage Tank. The revised calculation determined that the minimum amount of diesel fuel required for the diesel generators to be considered operable should be approximately 38,300 gallons. Monticello has implemented administrative controls to maintain the level in the Diesel Oil Storage Tank above the revised level of 38,300 gallons.

Pursuant to 10 CFR 50.36 (c)(2)(i) Limiting Conditions for Operation are the lowest functional capability or performance levels of equipment required for safe operation of the facility. Therefore, this revised tank level is required to be incorporated into the Monticello TS to ensure compliance with the regulation.

Appropriate changes to the Bases are also included.

Safety Evaluation -

Renumbering and relocating TS as appropriate is acceptable because it is administrative and will provide for a more understandable TS. These changes also support the relocation and restructuring of the Monticello TS to provide for a TS which is more consistent with the TS of NUREG-1433 while retaining the format and wording of the current Monticello Technical Specifications.

Deleting TS 4.9.B.3.b is acceptable because this SR does not assure that the necessary operability of the DG will be maintained, nor that the LCO will be met. Testing the air compressors on a monthly basis does not demonstrate operability of the associated DG. Operability of the DG is demonstrated by maintaining sufficient air pressure for the DG to automatically start on a automatic start signal. The new TS LCO and SR that is being inserted as TS 3.9.B.3.c/4.9.B.3.c is acceptable because it will provide consistency with the requirements of this TS Section and with the requirements of 10 CFR Part 50, Section 50.36(c)(2)(ii)(C) and Section 50.36(c)(3).

The new TS LCO 3.9.B.3.c is more consistent with the requirements of 10 CFR 50.36(c)(2)(ii)(C), in that the air start receivers provide sufficient air pressure for DG starting capability which ensures the DG will function to mitigate a design basis accident. The new TS SR 4.9.B.3.c is more consistent with the requirements of 10 CFR

Exhibit A

50.36(c)(3), in that it requires a visual inspection, on a monthly basis, to ensure that the necessary air pressure is available to meet the requirements of the limiting conditions for operation.

Adding the new TS 3.9.B.3.c/4.9.B.3.c is acceptable because it is part of the justification for the deletion of the SR 4.9.B.3.b. Providing this new TS LCO and SR is more consistent with NUREG-1433 while retaining the format and wording of the current Monticello Technical Specifications. Because of the robust design of the Monticello DG starting air receivers a requirement to maintain each air receiver at a pressure ≥ 165 psig is acceptable because the installed system meets the safety system operability requirements. Allowing one air receiver to be inoperable for a period of seven (7) days is acceptable because of the remaining air start capacity, the fact that most DG starts are accomplished on the first attempt, and the low probability of an event during this brief period. Additionally, the remaining air receiver is capable of providing enough air pressure for a minimum of two DG starts. Therefore, allowing an air receiver to be inoperable for seven (7) days is acceptable, because if the DG fails to start on the first two (2) attempts it will not be capable of performing its intended safety function, starting and beginning to accept loads within ten seconds, and will be declared inoperable. If both starting air receivers, for the same DG, are below their required pressure of 165 psig, the associated DG will immediately be declared inoperable.

In addition, the new TS SR 4.9.B.3.c ensures that, without the aid of the refill compressors, sufficient air start capacity for each DG is available. The monthly frequency takes into account the capacity, capability, redundancy and diversity of the AC sources and other indications available in the control room, including alarms, to alert the operator to below normal air start pressure.

Revising TS 3.9.B.3.b by replacing the existing minimum of 34,500 gallons of diesel fuel requirement with the new requirement of 38,300 gallons is acceptable because of the revised calculation that was preformed taking into account a more conservative tank level to account for the possible effects of vortexing and a higher than actual suction elevation assumed in the volume calculation for the Diesel Oil Storage Tank. Pursuant to 10 CFR 50.36 (c)(2)(i), Limiting Conditions for Operation are the lowest functional capability or performance levels of equipment required for safe operation of the facility. Therefore, this revised tank level is required to be incorporated into the Monticello TS to ensure compliance with the regulation.

Determination of No Significant Hazards Consideration -

Nuclear Management Company, LLC (NMC), purposes the changes of this License Amendment Request to revise Monticello TS Section 3.9.B.3/4.9.B.3 to revise the diesel fuel supply volume required for Diesel Generator operability, clarify existing wording, add a new Technical Specification limiting condition for operation and surveillance requirement regarding Diesel Generator air receivers, delete a surveillance requirement concerning Diesel Generator starting air compressors, and restructure the Technical Specification for consistency between existing limiting conditions for operation and surveillance requirements for administrative purposes.

Exhibit A

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:

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

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

The proposed revision to the Monticello TS renumbers and relocates TS as appropriate to provide a more understandable TS, deletes an existing TS SR which does not satisfy the requirements of 10 CFR 50.36 for inclusion in the TS, adds a new TS LCO and SR for DG air start receivers which more appropriately complies with the requirements of 10 CFR 50.36, and revises the minimum number of gallons of diesel fuel required in the Diesel Oil Storage Tank for the DG to be declared operable.

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

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

The proposed changes do not introduce a new mode of plant operation, or involve a physical modification to the plant. The proposed Technical Specification changes do not introduce new equipment, nor do the proposed changes alter existing system relationships. The proposed amendment does not introduce new failure modes.

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

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

The proposed changes maintain the current TS requirements for safe operation of the Monticello plant. The proposed changes do not involve a physical modification to the plant, or a new mode of operation. The proposed changes do not alter the scope of equipment currently required to be operable nor do the proposed changes affect equipment safety functions. The proposed Technical Specification changes do not introduce new equipment, nor do the proposed changes alter existing system relationships. The proposed amendment does not introduce new failure modes.

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

Exhibit A

Based on the evaluation described above and pursuant to 10 CFR Part 50, Section 50.91, Nuclear Management Company (NMC) has determined that operation of the Monticello Nuclear Generating Plant in accordance with the proposed license amendment request does not involve any significant hazards considerations as defined in 10 CFR Part 50, Section 50.92.

Environmental Assessment -

NMC has evaluated the proposed changes and determined that:

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

Accordingly, the proposed changes meet the eligibility criterion for categorical exclusion set forth in 10 CFR Part 51, Section 51.22(c)(9). Therefore, pursuant to 10 CFR Part 51, Section 51.22(b), an environmental assessment of the proposed changes is not required.

Exhibit B

License Amendment Request for Revision to
Standby Diesel Generators Technical Specifications and Surveillance Requirements

Current Monticello Technical Specification Pages
Marked Up With Proposed Change

This Exhibit consist of current Monticello Technical Specification pages marked up with the proposed changes. The pages included in the exhibit are listed below:

Pages

200
201
202
204
205

3.0 LIMITING CONDITIONS FOR OPERATION

4.0 SURVEILLANCE REQUIREMENTS

2. Both diesel generators are operable and capable of feeding their designated 4160 volt buses.
3. (a) 4160V Buses #15 and #16 are energized.
(b) 480V Load Centers #103 and #104 are energized.
3. All station 24/48, 125, and 250 volt batteries are charged and in service, and associated battery chargers are operable.

B. When the mode switch is in Run, the availability of electric power shall be as specified in 3.9.A, except as specified in 3.9.B or the reactor shall be placed in the cold shutdown condition within 24 hours.

1. Transmission Lines

From and after the date that incoming power is available from only one line, reactor operation is permissible only during the succeeding seven days unless an additional line is sooner placed in **service providing both the emergency diesel generators are operable.**

3.0 LIMITING CONDITIONS FOR OPERATION

4.0 SURVEILLANCE REQUIREMENTS

~~service providing both the emergency diesel generators are operable.~~

↑ Repaginate to
Previous Page

2. Reserve Transformers

If offsite power sources are made or found to be inoperable for any reason such that Specification 3.9.A.1 is not met, reactor operation is permissible only during the succeeding 72 hours unless such offsite sources are sooner made operable, provided that either 1R or 2R Transformer is operable.

3. Standby Diesel Generators

- a. 1) From and after the date that one of the diesel generators is made or found to be inoperable, reactor operation is permissible only during the succeeding 7 days provided that the operable diesel generator is demonstrated to be operable within 24 hours.

This test is required to be completed regardless of when the inoperable diesel generator is restored to operability.

The operability of the other diesel generator need not be demonstrated if the diesel generator inoperability was due to preplanned preventive maintenance or testing.

- ~~b.~~ 2) If both diesel generators become inoperable during power operation, the reactor shall be placed in the cold shutdown condition.

3.9/4.9

B. 3. Standby Diesel Generators

- a. 1) Each diesel generator shall be manually started, loaded and operated at approximately rated load for at least 60 minutes once every month to demonstrate operational readiness.

- ~~b. During the monthly generator test, the diesel starting air compressor shall be checked for operation and their ability to recharge air receivers.~~

201 2/15/91
Amendment No. ~~25, 51, 77~~

3.0 LIMITING CONDITIONS FOR OPERATION

- ~~e.~~ b. For the diesel generators to be considered operable, there shall be a minimum of ~~34,500~~ 38,300 gallons of diesel fuel (7 days supply for 1 diesel generator at full load @ 2500 KW) in the diesel oil storage tank.

c. Insert Attached

3.9/4.9

4.0 SURVEILLANCE REQUIREMENTS

- e. a. 2) At least once each Operating Cycle during shutdown simulate a loss of offsite power in conjunction with an ECCS actuation test signal, and:
 - (a) Verify de-energization of the emergency busses and load shedding from the emergency busses.
 - (b) Verifying diesel starts from ambient conditions on the auto-start signal and is ready to accept emergency loads within ten seconds, energizes the emergency busses with permanently connected loads, energizes the auto-connected emergency loads in proper time sequence, and operates for greater than five minutes while its generator is loaded with emergency loads.
- e. b. 1) Once a month the quantity of diesel fuel available shall be logged.
- ~~d.~~ b. 2) During the monthly generator test, the diesel fuel oil transfer pump and diesel oil service pump shall be operated.
- e. b. 3) Once a month a sample of diesel fuel shall be taken and checked for quality.

c. Insert Attached

202 8/12/91
Amendment No. ~~3, 75, 80~~

Insert

3.0 LIMITING CONDITIONS FOR OPERATION

- c. When a diesel generator is required to be operable, maintain air pressure for both associated air starting receivers ≥ 165 psig.
 - 1) With one diesel generator starting air receiver pressure < 165 psig, restore starting air receiver pressure to ≥ 165 psig within 7 days, or declare the associated diesel generator inoperable.
 - 3) With both diesel generator starting air receivers pressure < 165 psig, immediately declare the associated diesel generator inoperable.

4.0 SURVEILLANCE REQUIREMENTS

- c. Verify each required operable diesel generator air start receiver pressure is ≥ 165 psig once per month.

Bases 3.9:

The general objective is to assure an adequate supply of power with at least one active and one standby source of power available for operation of equipment required for a safe plant shutdown, to maintain the plant in a safe shutdown condition, and to operate the required engineered safeguards equipment following an accident.

AC for shutdown requirements and operation of engineered safeguards equipment can be provided by either of the two standby sources of power (the diesel generators) or any of the three active sources of power (No. 1R, No. 2R, or No. 1AR transformers). Refer to Section 8 of the USAR.

To provide for maintenance and repair of equipment and still have redundancy of power sources, the requirement of one active and one standby source of power was established. The plant's main generator is not given credit as a source since it is not available during shutdown.

The plant 250 V dc power is supplied by two batteries. Most station 250 V loads are supplied by the original station 250 V battery. A new 250 V battery has been installed for HPCI loads and may be used for other station loads in the future. Each battery is maintained fully charged by two associated chargers which also supply the normal dc requirements with the batteries as a standby source during emergency conditions. The plant 125 V dc power is normally supplied by two batteries, each with an associated charger. Backup chargers are available.

The minimum diesel fuel supply of ~~34,500~~ **38,300** gallons will supply one diesel generator for a minimum of seven days of full load (2500 KW) operation. Actual fuel consumption during this period would be 33,096 gallons, but the minimum tank level has been established at the higher ~~34,500~~ **38,300** gallon value to allow for instrument inaccuracy, **pump suction vortexing**, tank volume uncertainties, and the location of the suction piping within the tank. Additional diesel fuel can normally be obtained within a few hours. Maintaining at least 7 days supply is therefore conservative.

Insert Attached

In the normal mode of operation, power is available from the offsite sources. One diesel may be allowed out of service based on the availability of offsite power provided that the remaining diesel generator is demonstrated to be operable within 24 hours. This test is required even if the inoperable diesel is restored to operability within 24 hours. Thus, though one diesel generator is temporarily out of service, the offsite sources are available, as well as the remaining diesel generator. Based on a monthly testing period (Specification 4.9), the seven day repair period is justified. (1)

(1) "Reliability of Engineered Safety Features as a Function of Testing Frequency", I.M. Jacobs, Nuclear Safety, Volume 9, No. 4, July - August 1968.

Insert

Each diesel generators starting air receiver has the capability of providing a minimum of at least two (2) engine starts without any assistance from the air compressors when maintained at greater than or equal to 165 psig. If one starting air receiver is below its required pressure then it must be returned to its required pressure within 7 days, or its associated diesel generator must be declared inoperable. The 7 day period is acceptable based on the remaining air start capacity, the fact that most diesel generators starts are accomplished on the first attempt, and the low probability of an event during this brief period. If both starting air receivers, for the same diesel generator, are below their required pressure, immediately declare the associated diesel generator inoperable.

Bases 4.9:

The monthly test of the diesel generator is conducted to check for equipment failures and deterioration. Testing is conducted up to equilibrium operating conditions to demonstrate proper operation at these conditions. The diesel will be manually started, synchronized to the bus and load picked up. It is expected that the diesel generator will be run for one to two hours. Diesel generator experience at other generating stations indicates that the testing frequency is adequate to assure a high reliability of operation should the system be required. In addition, during the test when the generator is synchronized to the bus it is also synchronized to the offsite power source and thus not completely independent of this source. To maintain the maximum amount of independence, a thirty day testing interval is also desirable.

Insert Attached

~~Each diesel generator has two air compressors and six air receiver tanks for starting. It is expected that the air compressors will run infrequently. During the monthly check of the diesel, the receivers will be drawn down below the point at which the compressor automatically starts to check operation and the ability of the compressors to recharge the receivers. Pressure indicators are provided on each bank of three receivers. During the monthly load test of the diesel generators, the diesel fuel oil transfer pump and diesel oil service pump will be operated. A sample of diesel fuel will be taken monthly to assure that the quality remains high.~~

The test of the emergency diesel generator during the refueling outage will be more comprehensive in that it will functionally test the system, i.e., it will check diesel starting and closure of diesel breaker and sequencing of loads on the diesel. The diesel will be started by simulation of a loss of coolant accident. In addition, an undervoltage condition will be imposed to simulate a loss of offsite power. The timing sequence will be checked to assure proper loading in the time required. The only load on the diesel is that due to friction and windage and a small amount of bypass flow on each pump. Periodic tests between refueling outage check the diesel to run at full load and the pumps to deliver full flow. Periodic testing of the various components plus a functional test at a refueling interval are sufficient to maintain adequate reliability.

Although station batteries will deteriorate with time, utility experience indicates there is almost no possibility of precipitous failure. The type of surveillance described in this specification is that which has been demonstrated over the years to provide an indication of a cell becoming irregular or unserviceable long before it becomes a failure.

In addition, the checks described also provide adequate indication that the batteries have the specified ampere-hour capability.

Insert

The Surveillance Requirement for diesel generator starting air receivers ensures that, without the aid of the refill compressors, sufficient air start capacity for each diesel generator is available. The system design requirements provide minimum air pressure to support two engine starts, from each of the two starting air receivers associated with each diesel generator, without recharging. The monthly surveillance requirement frequency for verifying the pressure in each starting air receiver takes into account the capacity, capability, redundancy, and diversity of the AC sources and other indications available in the control room, including alarms, to alert the operator to below normal air start pressure.

Exhibit C

License Amendment Request for Revision to
Standby Diesel Generators Technical Specifications and Surveillance Requirements

Revised Monticello Technical Specification Pages

This Exhibit consist of revised Monticello Technical Specification pages that incorporate the proposed changes. The pages included in the exhibit are listed below:

Pages

200
201
202
204
204a
205

3.0 LIMITING CONDITIONS FOR OPERATION

2. Both diesel generators are operable and capable of feeding their designated 4160 volt buses.
 3. (a) 4160V Buses #15 and #16 are energized.

(b) 480V Load Centers #103 and #104 are energized.
 4. All station 24/48, 125, and 250 volt batteries are charged and in service, and associated battery chargers are operable.
- B. When the mode switch is in Run, the availability of electric power shall be as specified in 3.9.A, except as specified in 3.9.B or the reactor shall be placed in the cold shutdown condition within 24 hours.
1. Transmission Lines

From and after the date that incoming power is available from only one line, reactor operation is permissible only during the succeeding seven days unless an additional line is sooner placed in service providing both the emergency diesel generators are operable.

4.0 SURVEILLANCE REQUIREMENTS

3.0 LIMITING CONDITIONS FOR OPERATION

2. Reserve Transformers

If offsite power sources are made or found to be inoperable for any reason such that Specification 3.9.A.1 is not met, reactor operation is permissible only during the succeeding 72 hours unless such offsite sources are sooner made operable, provided that either 1R or 2R Transformer is operable.

3. Standby Diesel Generators

- a. 1) From and after the date that one of the diesel generators is made or found to be inoperable, reactor operation is permissible only during the succeeding 7 days provided that the operable diesel generator is demonstrated to be operable within 24 hours.

This test is required to be completed regardless of when the inoperable diesel generator is restored to operability.

The operability of the other diesel generator need not be demonstrated if the diesel generator inoperability was due to preplanned preventative maintenance or testing.

- 2) If both diesel generators become inoperable during power operation, the reactor shall be placed in the cold shutdown condition.

4.0 SURVEILLANCE REQUIREMENTS

B. 3. Standby Diesel Generators

- a. 1) Each diesel generator shall be manually started, loaded and operated at approximately rated load for at least 60 minutes once every month to demonstrate operational readiness.
- 2) At least once each Operating Cycle during shutdown simulate a loss of offsite power in conjunction with an ECCS actuation test signal, and:
 - (a) Verify de-energization of the emergency busses and load shedding from the emergency busses.
 - (b) Verifying diesel starts from ambient conditions on the auto-start signal and is ready to accept emergency loads within ten seconds, energizes the emergency busses with permanently connected loads, energizes the auto-connected emergency loads in proper time sequence, and operates for greater than five minutes while its generator is loaded with emergency loads.

3.0 LIMITING CONDITIONS FOR OPERATION

- b. For the diesel generators to be considered operable, there shall be a minimum of 38,300 gallons of diesel fuel (7 days supply for 1 diesel generator at full load @ 2500 KW) in the diesel oil storage tank.
- c. When a diesel generator is required to be operable, maintain air pressure for both associated air starting receivers ≥ 165 psig.
 - 1) With one diesel generator starting air receiver pressure < 165 psig, restore starting air receiver pressure to ≥ 165 psig within 7 days, or declare the associated diesel generator inoperable.
 - 2) With both diesel generator starting air receivers pressure < 165 psig, immediately declare the associated diesel generator inoperable.

4.0 SURVEILLANCE REQUIREMENTS

- b.
 - 1) Once a month the quantity of diesel fuel available shall be logged.
 - 2) During the monthly generator test, the diesel fuel oil transfer pump and diesel oil service pump shall be operated.
 - 3) Once a month a sample of diesel fuel shall be taken and checked for quality.
- c. Verify each required operable diesel generator air start receiver pressure is ≥ 165 psig once per month.

Bases 3.9:

The general objective is to assure an adequate supply of power with at least one active and one standby source of power available for operation of equipment required for a safe plant shutdown, to maintain the plant in a safe shutdown condition, and to operate the required engineered safeguards equipment following an accident.

AC for shutdown requirements and operation of engineered safeguards equipment can be provided by either of the two standby sources of power (the diesel generators) or any of the three active sources of power (No. 1R, No. 2R, or No. 1AR transformers). Refer to Section 8 of the USAR.

To provide for maintenance and repair of equipment and still have redundancy of power sources, the requirement of one active and one standby source of power was established. The plant's main generator is not given credit as a source since it is not available during shutdown.

The plant 250 V dc power is supplied by two batteries. Most station 250 V loads are supplied by the original station 250 V battery. A new 250 V battery has been installed for HPCI loads and may be used for other station loads in the future. Each battery is maintained fully charged by two associated chargers which also supply the normal dc requirements with the batteries as a standby source during emergency conditions. The plant 125 V dc power is normally supplied by two batteries, each with an associated charger. Backup chargers are available.

The minimum diesel fuel supply of 38,300 gallons will supply one diesel generator for a minimum of seven days of full load (2500 KW) operation. Actual fuel consumption during this period would be 33,096 gallons, but the minimum tank level has been established at the higher 38,300 gallon value to allow for instrument inaccuracy, pump suction vortexing, tank volume uncertainties, and the location of the suction piping within the tank. Additional diesel fuel can normally be obtained within a few hours. Maintaining at least 7 days supply is therefore conservative.

Each diesel generators starting air receiver has the capability of providing a minimum of at least two (2) engine starts without any assistance from the air compressors when maintained at greater than or equal to 165 psig. If one starting air receiver is below its required pressure then it must be returned to its required pressure within 7 days, or its associated diesel generator must be declared inoperable. The 7 day period is acceptable based on the remaining air start capacity, the fact that most diesel generators starts are accomplished on the first attempt, and the low probability of an event during this brief period. If both starting air receivers, for the same diesel generator, are below their required pressure, immediately declare the associated diesel generator inoperable.

Bases 3.9 (Continued):

In the normal mode of operation, power is available from the offsite sources. One diesel may be allowed out of service based on the availability of offsite power provided that the remaining diesel generator is demonstrated to be operable within 24 hours. This test is required even if the inoperable diesel is restored to operability within 24 hours. Thus, though one diesel generator is temporarily out of service, the offsite sources are available, as well as the remaining diesel generator. Based on a monthly testing period (Specification 4.9), the seven day repair period is justified. (1)

(1) "Reliability of Engineered Safety Features as a Function of Testing Frequency", I.M. Jacobs, Nuclear Safety, Volume 9, No. 4, July - August 1968.

Bases 4.9:

The monthly test of the diesel generator is conducted to check for equipment failures and deterioration. Testing is conducted up to equilibrium operating conditions to demonstrate proper operation at these conditions. The diesel will be manually started, synchronized to the bus and load picked up. It is expected that the diesel generator will be run for one to two hours. Diesel generator experience at other generating stations indicates that the testing frequency is adequate to assure a high reliability of operation should the system be required. In addition, during the test when the generator is synchronized to the bus it is also synchronized to the offsite power source and thus not completely independent of this source. To maintain the maximum amount of independence, a thirty day testing interval is also desirable.

The Surveillance Requirement for diesel generator starting air receivers ensures that, without the aid of the refill compressors, sufficient air start capacity for each diesel generator is available. The system design requirements provide minimum air pressure to support two engine starts, from each of the two starting air receivers associated with each diesel generator, without recharging. The monthly surveillance requirement frequency for verifying the pressure in each starting air receiver takes into account the capacity, capability, redundancy, and diversity of the AC sources and other indications available in the control room, including alarms, to alert the operator to below normal air start pressure. During the monthly load test of the diesel generators, the diesel fuel oil transfer pump and diesel oil service pump will be operated. A sample of diesel fuel will be taken monthly to assure that the quality remains high.

The test of the emergency diesel generator during the refueling outage will be more comprehensive in that it will functionally test the system, i.e., it will check diesel starting and closure of diesel breaker and sequencing of loads on the diesel. The diesel will be started by simulation of a loss of coolant accident. In addition, an undervoltage condition will be imposed to simulate a loss of offsite power. The timing sequence will be checked to assure proper loading in the time required. The only load on the diesel is that due to friction and windage and a small amount of bypass flow on each pump. Periodic tests between refueling outage check the diesel to run at full load and the pumps to deliver full flow. Periodic testing of the various components plus a functional test at a refueling interval are sufficient to maintain adequate reliability.

Although station batteries will deteriorate with time, utility experience indicates there is almost no possibility of precipitous failure. The type of surveillance described in this specification is that which has been demonstrated over the years to provide an indication of a cell becoming irregular or unserviceable long before it becomes a failure.

In addition, the checks described also provide adequate indication that the batteries have the specified ampere-hour capability.