

Exhibit B

Monticello Nuclear Generating Plant

License Amendment Request Dated June 13, 1991

Technical Specification Pages Marked Up  
with Proposed Wording Changes

Exhibit B consists of the existing Technical Specification pages marked up with the proposed changes. Existing pages affected by this change are listed below:

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179  
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### 3.0 LIMITING CONDITIONS FOR OPERATION

#### 4. Pressure Suppression Chamber-Drywell Vacuum Breakers

- a. When primary containment is required, all eight drywell-suppression chamber vacuum breakers shall be operable and positioned in the closed position as indicated by the position indication system, except during testing and except as specified in 3.7.A.4.b through 3.7.A.4.d below.
- b. Any drywell-suppression chamber vacuum breaker may be nonfully closed as indicated by the position indication and alarm systems provided that drywell to suppression chamber differential pressure decay does not exceed that shown on Figure 3.7.1
- c. Up to two drywell-suppression chamber vacuum breakers may be inoperable provided that: (1) the vacuum breakers are determined to be fully closed and at least one position alarm circuit is operable or (2) the vacuum breaker is secured in the closed position or replaced by a blank flange.
- d. Drywell-suppression chamber vacuum breakers may be cycled, one at a time, ~~using the exercise test push button,~~ during containment inerting and deinerting operations to assist in purging air or nitrogen from the suppression chamber vent header.

3.7/4.7

### 4.0 SURVEILLANCE REQUIREMENTS

#### 4. Pressure Suppression Chamber-Drywell Vacuum Breakers

- a. Operability and full closure of the drywell-suppression chamber vacuum breakers shall be verified by performance of the following:
  - (1) Monthly each operable drywell-suppression chamber vacuum breaker shall be exercised through an opening-closing cycle.
  - (2) Once each operating cycle, drywell to suppression chamber leakage shall be demonstrated to be less than that equivalent to a one-inch diameter orifice and each vacuum breaker shall be visually inspected. (Containment access required)
  - (3) Once each operating cycle, vacuum breaker position indication and alarm systems shall be calibrated and functionally tested. (Containment access required)
  - (4) Once each operating cycle, the vacuum breakers shall be tested to determine that the force required to open each valve from fully closed to fully open does not exceed that equivalent to 0.5 psi acting on the suppression chamber face of the valve disc. (Containment access required)

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~~REV 86 12/23/85~~

Bases Continued:

One-inch opening of any one valve or a 1/8-inch opening for all eight valves, measured at the bottom of the disc with the top of the disc at the seat. The position indication system is designed to detect closure within 1/8 inch at the bottom of the disc.

At each refueling outage and following any significant maintenance on the vacuum breaker valves, positive seating of the vacuum breakers will be verified by leak test. The leak test is conservatively designed to demonstrate that leakage is less than that equivalent to leakage through a one-inch orifice which is about 3% of the maximum allowable. This test is planned to establish a baseline for valve performance at the start of each operating cycle and to ensure that vacuum breakers are maintained as nearly as possible to their design condition. This test is not planned to serve as a limiting condition for operation.

During reactor operation, an exercise test of the vacuum breakers will be conducted monthly. This test will verify that disc travel is unobstructed and will provide verification that the valves are closing fully through the position indication system. If one or more of the vacuum breakers do not seat fully as determined from the indicating system, a leak test will be conducted to verify that leakage is within the maximum allowable. Since the extreme lower limit of switch detection capability is approximately 1/16", the planned test is designed to strike a balance between the detection switch capability to verify closure and the maximum allowable leak rate. A special test was performed to establish the basis for this limiting condition. During the first refueling outage all ten vacuum breakers were shimmed 1/16" open at the bottom of the disc. The bypass area associated with the shimming corresponded to 63% of the maximum allowable.<sup>1</sup> The results of this test are shown in Figure 3.7.1. Two of the original ten vacuum breakers have since been removed.

When a drywell-suppression chamber vacuum breaker valve is exercised through an opening-closing cycle, the position indicating lights at the remote test panels are designed to function as follows:

Fully Closed	2 Green - On 2 Red - Off
Intermediate Position	2 Green - Off 2 Red - Off
Fully Open	2 Green - Off 2 Red - On

~~The remote test panel consists of a push button to actuate the air cylinder for testing, two red lights,~~

3.7 BASES

← REPLACE WITH ATTACHED.

179

~~REV 67 4/17/83~~

Bases Continued:

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~~and two green lights for each of the eight valves.~~ There are four independent limit switches on each valve. The two switches controlling the green lights are adjusted to provide an indication of disc opening of less than 1/8" at the bottom of the disc. These switches are also used to activate the valve position alarm circuits. The two switches controlling the red lights are adjusted to provide indication of the disc very near the full open position.

The control room alarm circuits are redundant and fail safe. This assures that no simple failure will defeat alarming to the control room when a valve is open beyond allowable and when power to the switches fails. The alarm is needed to alert the operator that action must be taken to correct a malfunction or to investigate possible changes in valve position status, or both. If the alarm cannot be cleared due to the inability to establish indication of closure of one or more valves, additional testing is required. The alarm system allows the operator to make this evaluation on a timely basis. The frequency of the testing of the alarms is the same as that required for the position indication system.

Operability of a vacuum breaker valve and the four associated indicating light circuits shall be established by cycling the valve. The sequence of the indicating lights will be observed to be that previously described. If both green light circuits are inoperable, the valve shall be considered inoperable and a pressure test is required immediately and upon indication of subsequent operation. If both red light circuits are inoperable, the valve shall be considered inoperable, however, no pressure test is required if positive closure indication is present.

Oxygen concentration is limited to 4% by volume to minimize the possibility of hydrogen combustion following a loss of coolant accident. Significant quantities of hydrogen could be generated if the core cooling systems failed to sufficiently cool the core. The occurrence of primary system leakage following a major refueling outage or other scheduled shutdown is more probable than the occurrence of the loss of coolant accident upon which the specified oxygen concentration limit is based. Permitting access to the drywell for leak inspections during a startup is judged prudent in term of the added plant safety offered without significantly reducing the margin of safety. Thus, to preclude the possibility of starting the reactor and operating for extended periods of time with significant leaks in the primary system, leak inspections are scheduled during startup periods, when the primary system is at or near rated operating temperature and pressure. The 24-hour period to provide inerting is judged to be sufficient to perform the leak inspection and establish the required oxygen concentration. The primary containment is normally slightly pressurized during periods of reactor operation. Nitrogen used for inerting could leak out of the containment but air could not leak in to increase oxygen concentration. Once the containment is filled with nitrogen to the required concentration, no monitoring of oxygen concentration is necessary. However, at least once a week the oxygen concentration will be determined as added assurance.

The remote test panels consist of indication and controls in the control room and indication in the reactor building. The control room indication and controls for the drywell to suppression chamber vacuum breakers consist of one red light and one green light for each of the eight valves, a common vacuum breaker selector switch, and a common test switch. The reactor building vacuum breaker panel contains one red light and one green light for each of the eight valves.

### 3.0 LIMITING CONDITIONS FOR OPERATION

- c. For the diesel generators to be considered operable, there shall be a minimum of ~~32,500~~ gallons of diesel fuel (7 days supply for 1 diesel generator at full load @ 2500 KW) in the diesel oil storage tank.

34,500

### 4.0 SURVEILLANCE REQUIREMENTS

- c. At least once each Operating Cycle during shutdown simulate a loss of offsite power in conjunction with an ECCS actuation test signal, and:
1. Verify de-energization of the emergency busses and load shedding from the emergency busses.
  2. 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 the emergency loads.
- d. During the monthly generator test, the diesel fuel oil transfer pump and diesel oil service pump shall be operated.
- e. Once a month the quantity of diesel fuel available shall be logged.
- f. Once a month a sample of diesel fuel shall be taken and checked for quality.

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.

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~~The minimum diesel fuel supply of 32,500 gallons will supply one diesel generator for a minimum of seven days of full load operation. The diesel fuel oil requirement of 32,500 gallons ensures that one emergency diesel generator can run for seven days at full load (2500 KW). The amount of fuel oil necessary to run one emergency diesel generator for seven days is 31,248 gallons. The difference between these two volumes allows for instrument inaccuracy, tank volume uncertainties, and the location of the suction pipe. Additional diesel fuel can normally be obtained within a few hours. Maintaining at least seven days supply is therefore conservative.~~

In the normal mode of operation, power is available from the off-site sources. One diesel may be allowed out of service based on the availability of off-site 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 off-site 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.

"The minimum diesel fuel supply of 34,500 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 gallon value to allow for instrument inaccuracy, 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."

Exhibit C

Monticello Nuclear Generating Plant

License Amendment Request Dated June 13, 1991

Revised Monticello Technical Specification Pages

Exhibit C consists of revised Technical Specification pages that incorporate the proposed changes. The pages included in this exhibit are:

Page

164  
179  
180  
202  
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  - (3) Once each operating cycle, vacuum breaker position indication and alarm systems shall be calibrated and functionally tested. (Containment access required)
  - (4) Once each operating cycle, the vacuum breakers shall be tested to determine that the force required to open each valve from fully closed to fully open does not exceed that equivalent to 0.5 psi acting on the suppression chamber face of the valve disc. (Containment access required)

164

Bases Continued:

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### Bases Continued:

vacuum breaker selector switch, and a common test switch. The reactor building vacuum breaker panel contains one red light and one green light for each of the eight valves. There are four independent limit switches on each valve. The two switches controlling the green lights are adjusted to provide an indication of disc opening of less than 1/8" at the bottom of the disc. These switches are also used to activate the valve position alarm circuits. The two switches controlling the red lights are adjusted to provide indication of the disc very near the full open position.

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