DOCKET NO. 50-245

ATTACHMENT

MILLSTONE NUCLEAR POWER STATION, UNIT NO. 1

PROPOSED TECHNICAL SPECIFICATION CHANGES

FOR FULL CORE OFF-LOAD

SEPTEMBER, 1980

| LIMITING CONDITION FOR OPERATION | SURVEILLANCE REQUIREMENT |
|---|---|

3.3.B Control Rod Withdrawal

3. Whenever the reactor is in the startup or run mode below 20% rated thermal power, no control rods shall be moved unless the rod worth minimizer is operable or a second independent operator or engineer verifies that the operator at the reactor console is following the control rod program. The second operator may be used as a substitute for an inoperable rod worth minimizer during a startup only if the rod worth minimizer fails after withdrawal of at least twelve control rods.

4. Control rods shall not be withdrawn for startup or refueling unless: at least two source range channels have an observed count rate equal to or greater than three counts per second; or all fuel bundles have been removed from the reactor vessel.

4.3.B Control Rod Withdrawal

3. (a) To consider the rod worth minimizer operable, the following steps must be performed:

(i) The control rod withdrawal sequence for the rod worth minimizer computer shall be verified as correct.

(ii) The rod worth minimizer compute line diagnostic test shall be successfully completed.

(iii) Proper annunciation of the select error of at least one out-of-sequence control rod in each fully inserted group shall be verified.

(iv) The rod block function of the rod worth minimizer shall be verified by attempting to withdraw an out-of-sequence control rod beyond the block point.

(b) If the rod worth minimizer is inoperable while the reactor is in the startup or run mode below 10% rated thermal power, and a second independent operator or engineer is being used, he shall verify that all rod positions are correct prior to commencing withdrawal of each rod group.

| LIMITING CONDITION FOR OPERATION | SURVEILLANCE REQUIREMENT |
|---|---|

## 3.10 REFUELING AND SPENT FUEL HANDLING

Applicability:

Applies to fuel handling, core reactivity limitations, and spent fuel handling.

Objective:

To assure core reactivity is within capability of the control rods, to prevent criticality during refueling, and to assure safe handling of spent fuel casks.

Specification:

A. Refueling Interlocks

The reactor mode switch shall be locked in the "Refuel" position during core alterations and the refueling interlocks shall be operable.

B. Core Monitoring

During core alterations two SRM's shall be operable, one in the core quadrant where fuel or control rods are being moved and one in an adjacent quadrant, except as specified in Paragraphs 3 and 4 below. For an SRM to be considered operable, the following conditions shall be satisfied:

1. The SRM shall be inserted to the normal operating level. (Use of special moveable dunking type detectors during fuel loading or major core alterations in place of normal detectors are permissible as long as the detector is connected into the normal SRM circuit.)

## 4.10 REFUELING AND SPENT FUEL HANDLING

Applicability:

Applies to the periodic testing of those interlocks and instruments used during refueling and spent fuel handling.

Objective:

To verify the operability of instrumentation and interlocks used in refueling and spent fuel handling.

Specification:

A. Refueling Interlocks

Prior to any fuel handling, with the head off the reactor vessel, the refueling interlocks shall be functionally tested. They shall also be tested at weekly intervals thereafter until no longer required and following any repair work associated with the interlocks.

B. Core Monitoring

1. Prior to making any alterations to the core, the SRM's shall be functionally tested and checked for neutron response. Thereafter, the SRM's will be checked daily for response when core alterations are being made.

2. Prior to spiral unloading or reloading, the SRM's shall be functionally tested. Prior to spiral unloading, the SRM's should also be checked for neutron response.

| LIMITING CONDITION FOR OPERATION | SURVEILLANCE REQUIREMENT |
|---|---|

2. The SRM shall have a minimum neutron induced count rate of three per second with all rods fully inserted in the core.

3. Prior to unloading, the SRM's shall be proven operable as stated above, however, during spiral unloading, the count rate may drop below 3 cps.

4. Prior to reloading fuel into an empty core, special movable dunking type detectors will be loaded into the core, followed by the fuel. Once eight fuel assemblies are loaded into the core in the close proximity of the movable dunking chambers or the SRM's Paragraph 3.10.B.1 and 2 apply.

C. Fuel Storage Pool Water Level

Whenever irradiated fuel is stored in the fuel storage pool, the pool water level shall be maintained at a level greater than or equal to 33 feet.

D. Crane Operability

The 110-ton redundant crane shall be operable when the crane is used for handling of a spent fuel cask.

E. Crane Travel With a Spent Fuel Cask

Spent fuel casks shall be prohibited from travel over irradiated fuel assemblies. When handling a spent fuel cask, the crane mode switch shall be in the "Mode 2" position and the mode switch key removed.

C. Fuel Storage Pool Water Level

Whenever irradiated fuel is stored in the fuel storage pool, the pool level shall be recorded daily.

D. Crane Operability

Within 4 days prior to Spent Fuel Cask handling operations, a visual inspection of crane cables, sheaves, hook, yoke, and cask lifting trunnions will be made. Following these inspections, no-load mechanical and electrical tests will be conducted to verify proper operation of crane controls, brakes and lifting speeds. A load test will then be conducted by lifting the empty cask out of the pivot cradle. The above inspections and pre-lifting procedure shall meet the requirements of ANSI Standard B30.2, 1967.

E. Crane Interlocks and Switches

Crane interlocks and limit switches which prevent crane travel over irradiated fuel assemblies shall be demonstrated OPERABLE within seven days prior to handling of all spent fuel casks and every seven days thereafter during spent fuel cask handling.

## 3.10 Bases

### A. Refueling Interlocks

During refueling operations, the reactivity potential of the core is being altered. It is necessary to require certain interlocks and restrict certain refueling procedures such that there is assurance that inadvertent criticality does not occur.

To minimize the possibility of loading fuel into a cell containing no control rod, it is required that all control rods are fully inserted when fuel is being loaded into the reactor core. This requirement assures that during refueling the refueling interlocks, as designed, will prevent inadvertent criticality. The core reactivity limitation of Specification 3.2 limits the core alterations to assure that the resulting core loading can be controlled with the reactivity control system and interlocks at any time during shutdown or the following operating cycle.

Addition of large amounts of reactivity to the core is prevented by operating procedures, which are in turn backed up by refueling interlocks on rod withdrawal and movement of the refueling platform. When the mode switch is in the "Refuel" position, interlocks prevent the refueling platform from being moved over the core if a control rod is withdrawn and fuel is on a hoist. Likewise, if the refueling platform is over the core with the fuel on a hoist, control rod motion is blocked by the interlocks. With the mode switch in the refuel position, only one control rod can be withdrawn.

For a new core, the dropping of a fuel assembly into a vacant fuel location adjacent to a withdrawn control rod does not result in an excursion or a critical configuration, thus, adequate margin is provided.

### B. Core Monitoring

The SRM's are provided to monitor the core during periods of station shutdown and to guide the operator during refueling operations and station startup. Requiring two operable SRM's, one in and one adjacent to any core quadrant where fuel or control rods are being moved assures adequate monitoring of that quadrant during such alterations. The requirement of three neutron induced count per second provides assurance that neutron flux is being monitored.

During unloading, it is not necessary to maintain 3 cps because core alterations will involve only reactivity removal and will not result in criticality.

During the loading of an empty sourceless core, the special movable dunking type fission detectors will not detect a neutron count because of the lack of neutron sources. Therefore, fuel must be placed in the core to establish a neutron count rate. The restriction of eight fuel assemblies will minimize the probability of an inadvertent criticality prior to achieving 3 cps, while providing the flexibility to load fuel bundles around the portable detectors and SRM's.

C. Fuel Storage Pool Water Level

To assure that there is adequate water to shield and cool the irradiated fuel assemblies stored in the pool, a minimum pool water level is established. The minimum water level of 33 feet is established because it would be a significant change from the normal level (37' 9"), well above a level to assure adequate cooling (just above active fuel).

D. Crane Operability

The operability requirements of the crane used for handling of spent fuel casks ensures that the redundant features of the crane have been adequately inspected. The redundant hoist system ensures that a load will not be dropped for all postulated credible single-component failures.

E. Crane Travel

The restriction of movement of spent fuel casks over irradiated fuel ensures (in addition to the redundancy features) that a cask cannot be dropped on irradiated fuel assemblies.