Docket No. 50-423
B13164

Attachment 1

Millstone Nuclear Power Station, Unit No. 3

Proposed Revision to Technical Specifications

April 1989

DEFINITIONS

LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS

VENTING

1.39 VENTING shall be the controlled process of discharging air or gas from a confinement to maintain temperature, pressure, humidity, concentration, or other operating condition, in such a manner that replacement air or gas is not provided or required during VENTING. Vent, used in system names, does not imply a VENTING process.

SPENT FUEL POOL STORAGE PATTERNS:

1.40 Region I spent fuel racks contain a cell blocking device in every 4th location for criticality control. This 4th location will be referred to as the blocked location. A STORAGE PATTERN refers to the blocked location and all adjacent and diagonal Region I cell locations surrounding the blocked location. Boundary configuration between Region I and Region II must have cell blockers positioned in the outermost row of the Region I perimeter, as shown in Figure 3.9-2.

1.41 Region II contains no cell blockers.

SPENT FUEL POOL - REACTIVITY

3.9.13 The Reactivity Condition of the Spent Fuel Pool shall be such that k_{eff} is less than or equal to 0.95 at all times.

APPLICABILITY: Whenever fuel assemblies are in the spent fuel pool.

ACTION:

a. Borate until $k_{eff} \leq .95$ is reached.

b. Perform surveillance 4.9.1.2 until the misplaced/dropped fuel assembly causing $k_{eff} > .95$ is corrected.

SURVEILLANCE REQUIREMENTS

4.9.13 Ensure that all fuel assemblies to be placed in Region II of the spent fuel pool are within the enrichment and burn-up limits of Figure 3.9-1 by checking the fuel assembly's design and burn-up documentation.

SPENT FUEL POOL - STORAGE PATTERN

LIMITING CONDITION FOR OPERATION

3.9.14 Each STORAGE PATTERN of the Region I spent fuel pool racks shall require that:

a. Prior to storing fuel assemblies in the STORAGE PATTERN per Figure 3.9-2, the cell blocking device for the cell location must be installed.

b. Prior to removal of a cell blocking device from the cell location per Figure 3.9-2, the STORAGE PATTERN must be vacant of all stored fuel assemblies.

APPLICABILITY: Whenever fuel assemblies are in the spent fuel pool.

ACTION: Take immediate action to comply with 3.9.14(a), (b).

SURVEILLANCE REQUIREMENT

4.9.14 Verify that 3.9.14 is satisfied with no fuel assemblies stored in the STORAGE PATTERN prior to installing and removing a cell blocking device in the spent fuel racks.

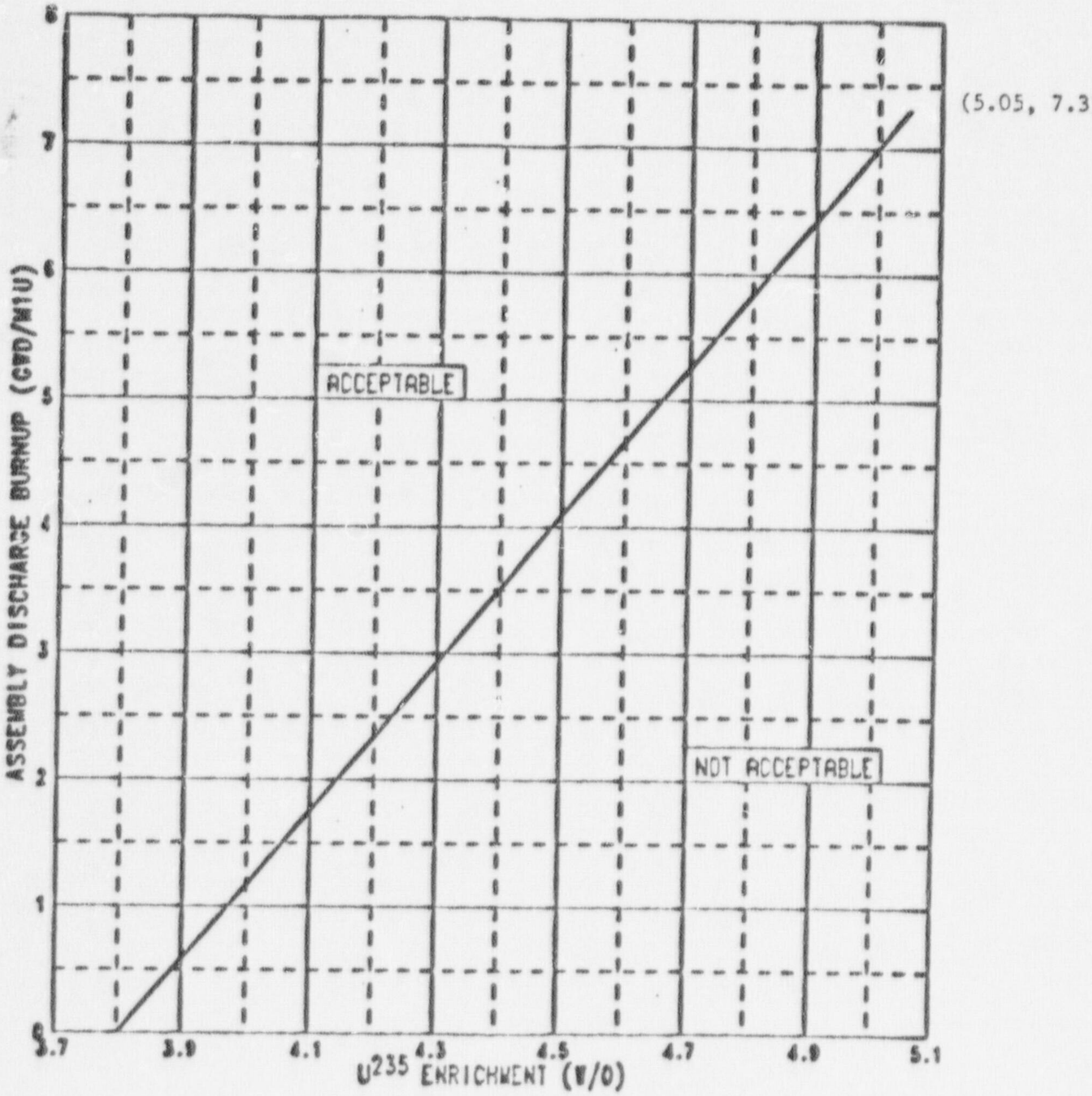

Figure 3.9-1

MILLSTONE UNIT 3 FUEL ASSEMBLY MINIMUM BURNUP VS INITIAL U235 ENRICHMENT FOR STORAGE IN REGION II SPENT FUEL RACKS

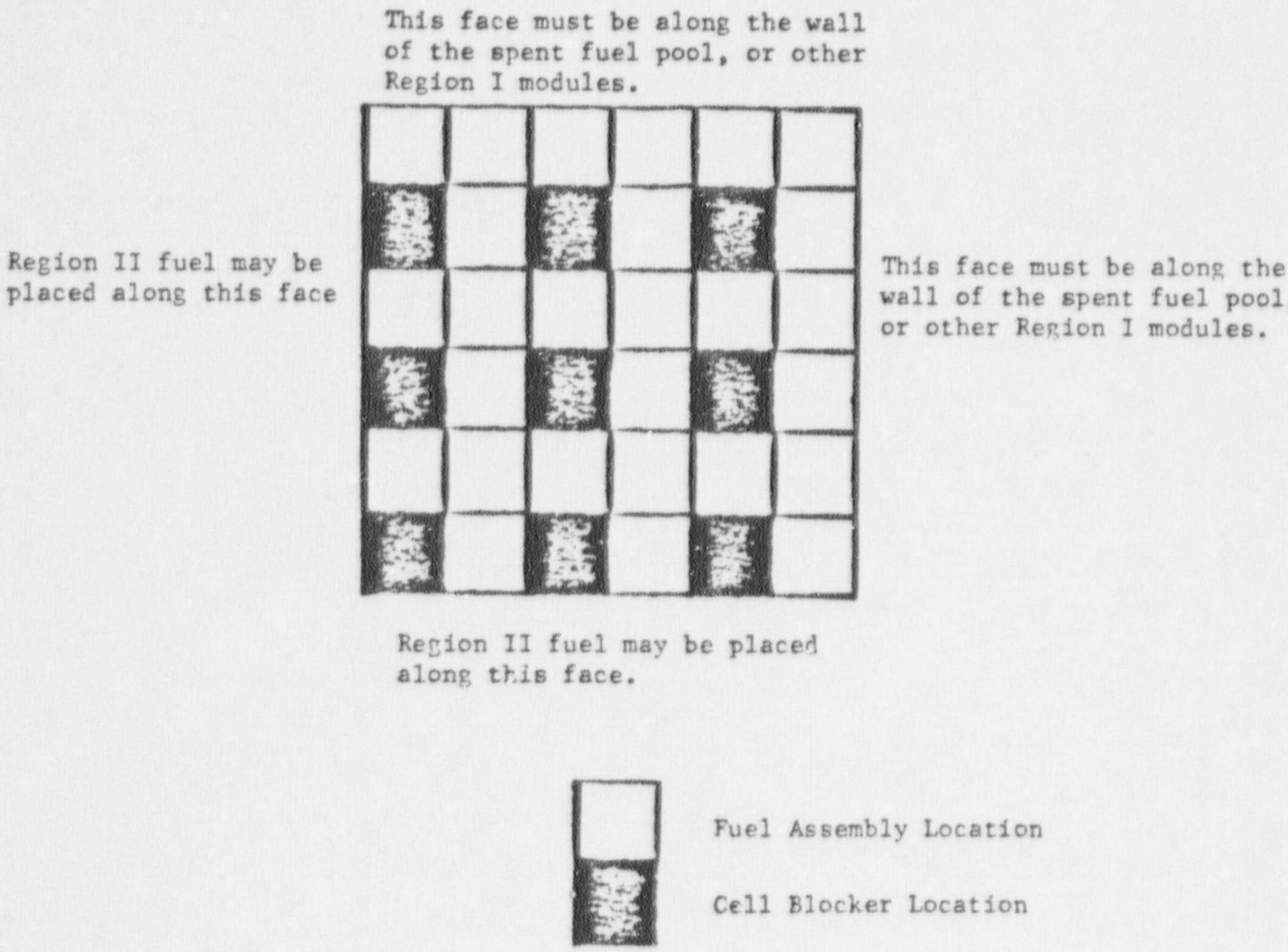

Figure 3.9-2

MILLSTONE UNIT 3 REGION I THREE OF FOUR FUEL ASSEMBLY LOADING SCHEMATIC FOR A TYPICAL 6 X 6 STORAGE MODULE

3/4.9.10 and 3/4.9.11 WATER LEVEL - REACTOR VESSEL and STORAGE POOL

The restrictions on minimum water level ensure that sufficient water depth is available to remove 99% of the assumed 10% iodine gap activity released from the rupture of an irradiated fuel assembly. The minimum water depth is consistent with the assumptions of the safety analysis.

3/4.9.12 FUEL BUILDING EXHAUST FILTER SYSTEM

The limitations on the Fuel Building Exhaust Filter System ensure that all radioactive material released from an irradiated fuel assembly will be filtered through the HEPA filters and charcoal adsorber prior to discharge to the atmosphere. Operation of the system with the heaters operating for at least 10 continuous hours in a 31-day period is sufficient to reduce the buildup of moisture on the adsorbers and HEPA filters. The OPERABILITY of this system and the resulting iodine removal capacity are consistent with the assumptions of the safety analyses. ANSI N510-1980 will be used as a procedural guide for surveillance testing.

3/4.9.13 SPENT FUEL POOL - REACTIVITY

The limitations described by Figure 3.9-1 ensure that the reactivity of fuel assemblies introduced into Region II are conservatively within the assumptions of the safety analysis.

Administrative controls have been developed and instituted to verify that the enrichment and burn-up limits of Figure 3.9-1 have been maintained for the fuel assembly.

3/4.9.14 SPENT FUEL POOL - STORAGE PATTERN

The limitations of this specification ensure that the reactivity conditions of the Region I storage racks and spent fuel pool k_{eff} will remain less than or equal to 0.95.

The Cell Blocking Devices in the 4th location of the Region I storage racks are designed to prevent inadvertent placement and/or storage of fuel assemblies in the blocked locations. The blocked location remains empty to provide the flux trap to maintain reactivity control for fuel assemblies in adjacent and diagonal locations of the STORAGE PATTERN.

STORAGE PATTERN for the Region I storage racks will be established and expanded from the walls of the spent fuel pool per Figure 3.9-2 to ensure definition and control of the Region I/Region II boundary and minimize the number of boundaries where a fuel misplacement incident can occur.

5.6 FUEL STORAGE

CRITICALITY

5.6.1.1 The spent fuel storage racks are designed and shall be maintained with:

a. A k_{eff} equivalent to less than or equal to 0.95 when flooded with unborated water.

b. A nominal 10.35-inch center-to-center distance between fuel assemblies placed in the storage racks.

c. Fuel assemblies stored in Region I of the spent fuel pool may have a maximum <u>nominal</u> fuel enrichment of up to 5.0 weight percent U_{235}. Region I is designed to permit storage of fuel in a 3-out-of-4 array with the 4th storage location blocked as shown in Figure 3.9-2.

d. Fuel assemblies stored in Region II of the spent fuel pool may have a maximum <u>nominal</u> fuel enrichment of up to 5.0 weight percent, conditional upon compliance with Figure 3.9-1 to ensure that the design burnup of the fuel has been sustained.

e. Racks are qualified to maximum nominal enrichment of 5.0 w/o U_{235}; however, actual plant analysis is performed on a Cycle 3 specific basis due to considerations on the pool cooling and piping systems and pool structure.

DRAINAGE

5.6.2 The spent fuel storage pool is designed and shall be maintained to prevent inadvertent draining of the pool below elevation 45 feet.

CAPACITY

5.6.3 The spent fuel storage pool contains 756 storage locations of which a maximum of 100 locations will be blocked.

5.7 COMPONENT CYCLIC OR TRANSIENT LIMIT

5.7.1 The components identified in Table 5.7-1 are designed and shall be maintained within the cyclic or transient limits of Table 5.7-1.

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Attachment 2

Millstone Nuclear Power Station, Unit No. 3

Safety Evaluations

April 1989

Millstone Nuclear Power Station, Unit No. 3
Safety Evaluations

1.0 Criticality

The Millstone Unit No. 3 spent fuel pool (SFP) storage racks were reanalyzed by Westinghouse utilizing a two-region storage scheme to accommodate a nominal 5.0 weight-percent U-235 fuel. Region I was reanalyzed to show that fresh 5.0 w/o (nominal) U-235 fuel can be stored in the racks in a three-out-of-four storage scheme. Region II was reanalyzed to take into consideration the changes in fuel and fission product inventory resulting for depletion in the reactor core of fuel with nominal enrichments up to 5.0 w/o U-235.

The Region I rack reanalysis was based on maintaining K_{eff} less than or equal to 0.95 for storage of Westinghouse 17 x 17 OFA and STD fuel at a nominal 5.0 w/o U-235 utilizing three-out-of-four storage cells in the array. The Region II spent fuel rack reanalysis was based on maintaining K_{eff} less than or equal to 0.95 for storage of Westinghouse 17 x 17 OFA and STD fuel at a nominal 5.0 w/o U-235 with an initial enrichment/burnup combination in the acceptable area of Figure 1 with utilization of every cell permitted for storage of the fuel assemblies.

The following assumptions were used to develop the nominal case KENO model for the Region I spent fuel rack storage of fresh fuel using three-out-of-four storage locations.

1. Calculations for the spent fuel racks have shown that the Westinghouse 17 x 17 OFA fuel assemblies yield a larger K_{eff} than does the Westinghouse 17 x 17 standard fuel assembly when both fuel assemblies have the same U-235 enrichment. Thus, only the Westinghouse 17 x 17 OFA fuel assembly was analyzed for Region I.

2. All fuel rods contain uranium dioxide at a nominal enrichment of 5.0 w/o U-235 over the infinite length of each rod.

3. No credit is taken for any U-234 or U-236 in the fuel, nor is any credit taken for the buildup of fission production poison material.

4. The moderator is pure water at a temperature of 68°F. A conservative value of 1.0 gm/cm^3 is used for the density of water.

5. No credit is taken for any spacer grids or spacer sleeves.

6. Fuel assemblies are loaded into three of every four cells in a checkerboard pattern in the storage cells.

7. The array is infinite in lateral and axial extent which precludes any neutron leakage from the array.

8. The minimum poison material loading of 0.020 grams B-10 per square centimeter is used throughout the array.

The KENO calculation for the nominal case resulted in a K_{eff} of 0.8987 with a 95 percent probability/95 percent confidence level uncertainty of ± 0.0055.

The maximum K_{eff} under normal conditions arises from consideration of mechanical and material thickness tolerances resulting from the manufacturing process in addition to asymmetric positioning of fuel assemblies within the storage cells. Studies of asymmetric positioning of fuel assemblies within the storage cells has shown that symmetrically placed fuel assemblies yield conservative results in rack K_{eff}. The sheet metal tolerances are considered along with construction tolerances related to the cell ID and cell center-to-center spacing. For the Region I racks, this resulted in a reduction of the nominal 1.26-inch water gaps to their minimum values. Thus, the "worst-case" KENO model of the Region I storage racks contains minimum water gaps with symmetrically placed fuel assemblies.

Based on the analysis described above, the maximum K_{eff} for the Millstone Unit No. 3 Region I spent fuel storage racks with three-out-of-four storage is 0.9347.

Since K_{eff} is less than 0.95 including uncertainties at a 95 percent probability/95 percent confidence level, the acceptance criteria for Region I criticality is met with fuel enriched to a nominal 5.0 w/o.

The nominal and maximum K_{eff} for storage of spent fuel in Region II was determined as described below. The actual conditions for this determination are defined by the zero burnup intercept point in Figure 1. The KENO-IV computer code was used to calculate the storage rack multiplication factor with an equivalent fresh fuel enrichment of a nominal 3.85 w/o. Combinations of fuel enrichment and discharge burnup yielding the same rack multiplication factor as at the zero burnup intercept are determined with PHOENIX.

The following assumptions were used to develop the nominal case KENO model for Region II storage of spent fuel:

1 Calculations for the spent fuel racks have shown that the Westinghouse 17 x 17 OFA fuel assemblies yields a larger K_{eff} than the Westinghouse 17 x 17 standard fuel assembly when both fuel assemblies have the same U-235 enrichment. Thus, only the Westinghouse 17 x 17 OFA fuel assembly was analyzed for Region II.

2. The Westinghouse 17 x 17 OFA spent fuel assembly contains uranium dioxide fuel at an equivalent "fresh fuel" enrichment of a nominal 3.85 w/o U-235.

3. The moderator is pure water at a temperature of 68°F. A conservative value of 1.0 gm/cm³ is used for the density of water.

4. No credit is taken for any spacer grids or spacer sleeves.

5. The array is infinite in lateral and finite axial extent which allows neutron leakage only in the axial direction.

6. The minimum poison material loading of 0.020 grams B-10 per square centimeter is used throughout the array.

The KENO calculation for the nominal case resulted in a K_{eff} of 0.9103 with a 95 percent probability/95 percent confidence level uncertainty of $\pm$0.0052.

The maximum K_{eff} under normal conditions was determined with a "worst-case" KENO model in the same manner as for the Region I storage racks. For the Region II racks, the water gaps are reduced from the nominal value of 1.26 inches to their minimum value. Thus, the "worst-case" KENO model of the Region II storage racks contains minimum water gaps of 1.17 inches with symmetrically placed fuel assemblies. The uncertainty associated with the reactivity equivalence methodology was included in the development of the burnup requirements.

Based on the analysis described above, the maximum K_{eff} for the storage of spent fuel in the Millstone Unit No. 3 Region II spent fuel storage racks is 0.9407.

The maximum K_{eff} for Region II for this configuration is less than 0.95, including all uncertainties at a 95 percent probability/95 percent confidence level. Therefore, the acceptance criteria for criticality are met for storage of spent fuel at an equivalent "fresh fuel" nominal enrichment of 3.85 w/o U-235.

2.0 <u>Fuel Storage Rack Analysis</u>

An analysis was performed to determine the impact of the increased thermal properties of the 5.0 w/o (nominal) U-235 fuel on the structural stress profile of the spent fuel racks. Additionally, this evaluation addressed the function, design, and analysis of the cell-blocking devices utilized in the spent fuel racks to support the higher enrichment level.

From a seismic/structural standpoint, the change of nominal enrichment from 3.8 w/o U-235 to a nominal enrichment 5.0 w/o U-235 does not affect the current licensing analysis due to the fact that the total weight of the fuel assembly remains the same. The enrichment change is in the distribution of U-235 versus U-238 that comprises the fuel pellet.

However, from a mechanical/thermal standpoint, the change from a nominal 3.8 w/o U-235 to a nominal 5.0 w/o U-235 does result in a spent fuel assembly that produces more heat which affects the analyzed stress profile of the rack.

The affected components resulting from the change in the thermal properties (heat output) of the fuel are the following:

	3.8 w/o Nominal Case	5.0 w/o Nominal Case	Allowable
Cell/Axial Stress (psi)	4,822	4,976	27,500
Cell-to-Grid Weld/Shear Stress (psi)	14,426	14,917	27,500

The change in the applied stress represented above is not significant and the resultant stress is still below the allowable; therefore, from the mechanical/thermal aspects of the spent fuel racks, the enrichment change is acceptable.

From a criticality standpoint, the proposed enrichment change analyzed produces a more reactive pool configuration in the existing spent fuel rack design, requiring institution of a regionalized pool storage configuration (Region I and Region II). Region I of the pool would store up to a nominal 5.0 w/o enriched, low (or no) burnup fuel in the checkerboard configuration on a three-out-of-four matrix (75 percent occupancy). Region II would store lower enriched, high burnup fuel where reactivity credit for burnup is taken and fuel would be stored at a 100 percent occupancy basis.

Cell blocking inserts will be installed in Region I for the following reasons:

1. To provide a vacant cavity that serves as the criticality "flux trap."

2. The blockers provide an established pattern for the SFP storage configuration and a "flag" if the pattern is disrupted.

3. The blockers provide for the "human factors" to fuel handlers as where the fuel assemblies do not belong.

4. The blockers can provide a passive device to provide for the controls delineated in Items 1 through 3, above.

   The cell blocker to be utilized at Millstone Unit No. 3 is a passive device. Analysis has postulated the presence of a fuel assembly in the affected location and concluded that accounting for the existing boron surveillance technical specification (3.9.1.2) for the SFP, the configuration remains subcritical (K_{eff} less than or equal to 0.95 is not violated) with a minimum boron concentration of 800 ppm.

The cell blocker is basically a mechanical plug with flow holes that is approximately 10 inches square on the top surface, 8.5 x 8 inches on the bottom surface, and 3 inches deep. The blocker will interface and rest on the lead-in funnels of the rack cell. The design has the square bottom essentially "keyed" into the rack cell just below the funnels so as to prevent a potential rotation of the blocker once placed into position in the rack. In addition, the cell blockers are designed to and can accommodate the storage of RCCAs, BPRAs, and thimble plugs. No modifications to the spent fuel racks will be required.

In conclusion, the seismic/structural analysis resulting from the increased thermal effects of the nominal 5.0 w/o U-235 fuel indicates that the stresses in the rack structure from the loadings associated with the normal and abnormal conditions are within allowable stress limits for Seismic Category 1 structures, and the design, analysis, and evaluation of the cell blocking device indicates that it is acceptable for its intended and specified service to provide an alternate to administrative control, provide for human factors consideration, and prevent inadvertent misplacement of a fuel assembly in the affected locations in the spent fuel racks.

3.0 Thermal Hydraulic Considerations

An evaluation was performed to review the impact of the increased fuel enrichment to be loaded at the beginning of Cycle 3 on the SFP cooling system. The fuel enrichment levels will contain fuel of a nominal 4.1 and 4.5 weight-percent U-235. This fuel has a higher enrichment than the nominal 3.8 weight-percent U-235 presently allowed by the technical specifications.

The proposed fuel loading was evaluated for its impact on the SFP cooling system. The original design calculation was revised to reflect actual maximum reactor plant component cooling water temperature. Heat loads were determined for an end of Cycle 3 core off-load, for a Cycle 3 emergency full core off-load, and for plant operation with a normal refuel load (one-third core) in the SFP. These heat loads were used as the basis for determining the SFP cooling system fluid temperatures under a variety of operating scenarios.

For all cases except an emergency core off-load, the predicted temperatures were lower than those described in the SFP cooling safety evaluation in the Millstone Unit No. 3 Final Safety Analysis Report (FSAR) (Section 9.1.3.3). All temperatures were based on only one 100 percent capacity train of SFP cooling in operation. The second train of SFP cooling is either on standby or out of service. Under no scenarios did the SFP fluid boil or the fluid temperature exceed 200°F.

For an emergency core off-load occurring during Cycle 3, the pool temperature was predicted to reach 163°F. This temperature exceeds the predicted temperature of 149°F for this event in the FSAR. A review of the design conditions of the equipment and piping confirmed that 163°F is acceptable since it is below the design temperature of the SFP cooling system which is 200°F.

FSAR Section 9.1.3.1.14 states that a maximum temperature of 150°F in the SFP will not occur for any time greater than 24 hours. This limit was based on American Concrete Institute Standards to avoid long-term degradation of the concrete supporting the SFP. The pool temperature is predicted to exceed 150°F for greater than 24 hours if there is an emergency core off-load during Cycle 3. This event has been evaluated and has been found to be acceptable.

The SFP cooling system design temperatures will not be exceeded under any operating scenarios using fuel intended for this reload. As such, this change does not increase the probability of occurrence or consequence of an accident or malfunction of equipment important to safety previously evaluated in the Safety Analysis Report for Millstone Unit No. 3, FSAR Section 9.1.3.3, titled Safety Evaluation.

The operation of or equipment in the SFP cooling system has not been modified in any way by this change and, as such, it does not create the possibility for an accident or malfunction of a different type than previously analyzed in the Safety Analysis Report for Millstone Unit No. 3, FSAR Section 9.1.3.3., titled Safety Evaluation.

The maximum SFP fluid temperature predicted using Cycle 3 fuel under any scenario is 163°F. This is still significantly below the SFP cooling design temperature of 200°F. As such, it does not significantly reduce the margin of safety as defined in the Technical Specification and presented in the Safety Analysis Report.

Therefore, based on the above, this change does not constitute an unreviewed safety question per 10CFR50.59 or a significant hazards consideration per 10CFR50.92.

FSAR Section 9.1.3 will be revised in the next scheduled update if this proposed change is approved.

4.0 Structural, Seismic Considerations

The SFP is located in the fuel building at Millstone Unit No. 3. The building, approximately 112 feet by 92.5 feet, is supported on compacted fill and/or rock. The fuel building has a ground floor at grade elevation and a basement 13 feet below grade. The SFP portion of the building is reinforced concrete construction from approximately 24 feet below to 28 feet above grade. The spent fuel areas are protected from tornado missiles by a reinforced concrete superstructure. The SFP is "L" shaped, with the bottom of the pool approximately 13 feet below grade. The floor is 8-foot-thick reinforced concrete. The walls are 6-foot-thick reinforced concrete. The walls and floor of the pool are lined with 1/4-inch-thick stainless steel plate.

The SFP was designed for the loads and load combinations specified in the "Millstone Nuclear Power Station Unit No. 3 Final Safety Analysis Report," Section 3.8.4. The loading analysis was performed in two parts. The first part was a mechanical load analysis. The mechanical loads included dead loads, live loads, hydrostatic loads, hydrodynamic loads, and seismic loads. The second part was a thermal load analysis. The thermal loads included normal operating and accident loads. The thermal and mechanical load analyses were combined and the design analysis was performed. The original analysis assumed the storage of a nominal 3.8 w/o U-235 fuel in the pool.

A calculation was performed to address the effect of the change of fuel enrichment on the spent fuel storage facility. The existing licensing mechanical load analysis was determined not to be affected due to the fact that the total weight of the fuel assembly is the same regardless of fuel enrichment levels. However, the change in enrichment does result in revised normal operating and accident thermal loads. The above-referenced calculation addressed both changes in steady state and transient temperature curves resulting from the change of fuel enrichment. The results of the calculation are summarized as follows:

- o Both the maximum normal refueling and full core off-load steady state temperature effects on the concrete structural elements (Cycle 3-specific) are less severe than the originally analyzed for effects of a nominal 3.8 w/o U-235 fuel temperature transients considering either normal heat load with loss of cooling or normal heat load, maximum T_0, with loss of cooling.

- o Both temperature transient cases associated with fuel (Cycle 3-specific) are time dependent functions which happen at a quicker rate than the originally analyzed for a nominal 3.8 w/o U-235 fuel transients. Because of this, the new transients impose less of a thermal gradient on the concrete structural elements resulting in less concrete stresses and strains.

The original concrete analyses for a nominal 3.8 w/o U-235 fuel bound the effects that the Cycle 3-specific fuel would impose on the structure.

The above calculation also determined that the existing liner design is still valid for Cycle 3-specific fuel because of the following:

- o The mechanical load analysis, as stated previously, remains the same.

- o The thermal load analysis for the Cycle 3-specific fuel is bounded by the nominal 3.8 w/o U-235 fuel analysis. This is due to the fact that the liner analysis is governed by the maximum temperature that is applied. The maximum temperature that the liner is subjected to is the same for either fuel enrichment.

In conclusion, the storage of Cycle 3-specific spent fuel will not adversely affect the SFP concrete and liner system.

5.0 Postulated Accident Scenarios

The only design basis accident that may be impacted by this license amendment is the fuel-handling accident. Other events, not considered as a design basis accident, which may be impacted by this license amendment are SFP criticality accidents and SFP heat removal.

- Fuel-Handling Accident

The proposed license amendment does not affect the radiological consequences of a spent fuel-handling accident. The source term for a spent fuel-handling accident is dependent on the following:

1. A nonmechanistic, conservative assumption that the cladding in all rods in the dropped assembly fail and 50 rods in the struck assembly fail.

2. The rated MW_t of the unit.

3. A radial peaking factor for the highest power density fuel of 1.65. Since the higher enrichment is not changing this factor, it will not change the source term.

4. Fraction of activity in gap.

5. Decay time of 100 hours since shutdown.

6. Total burnup; however, the calculation is insensitive to this parameter as all of the nuclides which contribute to the dose have a short half-life (less than 1 month) and hence reach equilibrium within a short time.

Since none of these parameters are affected by the proposed change, the radiological consequences will not change.

- Criticality Accident

The proposed enrichment change could produce a more reactive SFP configuration. For this reason, a two-region storage scheme will be used. In Region I, high enrichment (up to a nominal 5.0 w/o), low burnup (or unburned) fuel is stored with 75 percent occupancy. Cell blockers will serve as a passive device to assure the desired three-out-of-four loading. Technical Specification 3.9.14 specifies the allowed storage patterns in Region I. In Region II, lower enrichment, high burnup fuel is stored with 100 percent occupancy. Surveillance Requirement 4.9.13 specifies the enrichment and burnup requirements for fuel stored in Region II.

The analysis of the two-region SFP loading with unborated water shows that the desired subcriticality (K_{eff} less than or equal to 0.95) is maintained. Also, the analysis assumed a misplaced fuel assembly in Region I or Region II with an SFP boron concentration of 800 ppm. This analysis showed that the subcriticality criterion is not violated. An existing technical specification (3.9.1.2) provides assurance that the SFP boron concentration will be at least 800 ppm during fuel movement. It should be noted that current plant procedures require an SFP boron concentration between 2000 and 2200 ppm.

In summary, the proposed change is acceptable based on SFP criticality. The two-region loading assures that the subcriticality requirement is met even if the SFP water is assumed to be unborated. Also, if a fuel assembly is misplaced, the subcriticality requirement is met by crediting the minimum SFP boron concentration required by Technical Specification 3.9.1.2.

o <u>Spent Fuel Pool Heat Removal</u>

The technical specification change is required because fuel assemblies of higher initial enrichment will be used in the reactor core to allow for extended operating cycle lengths. As a result of increased fuel assembly burnups, the decay heat rates of those assemblies will increase.

The impact of the SFP cooling system due to the proposed fuel loading and resulting core off-loading scenarios has been analyzed. This evaluation is Cycle 3-specific and may not bound future cycles. This evaluation identified one scenario, the Cycle 3 emergency core off-load, which is not bounded by the current FSAR evaluation. For this scenario, the SFP temperature reached 163°F which exceeds the FSAR result of 149°F.

The limiting SFP temperature of 163°F is below the SFP cooling system design temperature of 200°F and therefore the operability of this system is not adversely impacted. In addition, FSAR Section 9.1.3 will be revised in the next scheduled update if this proposed change is approved.

o <u>Other Issues--Spent Fuel Pool Temperature</u>

The impact of increase in the limiting SFP temperature was evaluated based on mechanical and civil considerations. Pipe stresses resulting from the limiting heat load scenario (163°F pool temperature) are bounded by the existing stress analysis. This stress analysis assumes a pool temperature of 166°F, but limits the number of full core off-loads to six over the plant life. The end of Cycle 2 off-load will be the second full core off-load for Millstone Unit No. 3. Therefore, during Cycle 3 operation, the limit of six off-loads should not be exceeded and the current piping stress analyses will not be violated.

Also, the heat load due to the Cycle 3 emergency core off-load is acceptable based on civil considerations. The resulting concrete stresses are acceptable and there will be no concrete degradation (due to elevated temperatures for times greater than 24 hours).

6.0 <u>Conclusions</u>

The proposed license amendment has been reviewed in accordance with 10CFR50.92 and has been determined not to involve a significant hazards consideration. This change will not:

1. Involve a significant increase in the probability or consequences of an accident previously analyzed. The proposed change qualifies the Millstone Unit No. 3 SFP racks for an increase in initial fuel enrichment from the current nominal value of 3.8 weight-percent U-235 to a maximum nominal enrichment of 5.0 weight-percent U-235. The increase in the allowed initial fuel enrichment and the subsequent increase in the SFP Cycle 3-specific decay heat load (due to the burnup and discharge of this fuel) does not adversely impact the results of any previously analyzed accident.

2. Create the possibility of a new or different kind of accident from any previously analyzed accident. Since there are no changes in the way the plant is operated or in the operation of the equipment credited in the design basis accidents, the potential for an unanalyzed accident is not created. Also, no new failure modes are introduced.

3. Involve a significant reduction in the margin of safety. The proposed change qualifies the Millstone Unit No. 3 SFP racks for an increase in initial fuel enrichment. This increase and the subsequent increase in the SFP Cycle 3-specific decay heat load (due to the burnup and discharge of this fuel) does not adversely impact the consequences of any accident previously analyzed; therefore, there is no reduction in the margin of safety.

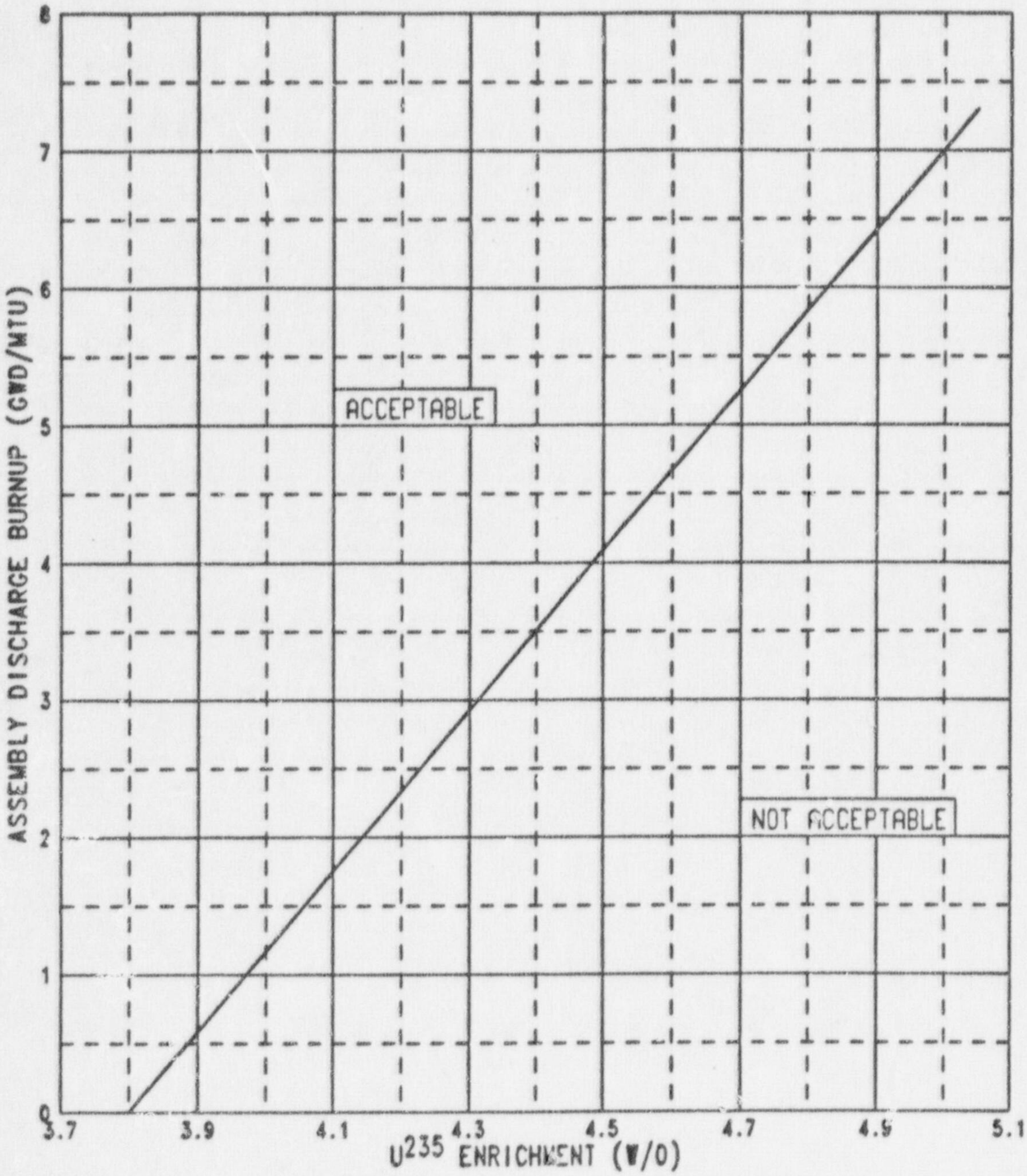

FIGURE 1

MILLSTONE UNIT 3 FUEL ASSEMBLY MINIMUM BURNUP VS INITAL U235 ENRICHMENT FOR STORAGE IN REGION 2 SPENT FUEL RACKS