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U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Document Control Desk

Subject: Oconee Nuclear Station
Docket Numbers 50-269, 270, and 287
Technical Specification Bases (TSB) Change

Please find attached revisions to TSB 3.7.11 Spent Fuel Pool (SFP) Water Level, which were implemented on October 17, 2001. The changes revise the Bases to clarify that Oconee's analysis assumes the top of the irradiated fuel assemblies as being the top of the fuel pins, for SFP level measurement. Also, clarification is provided regarding shielding provided by SFP water.

Attachment 1 contains the new TSB pages and Attachment 2 contains the markup version of the Bases pages.

If any additional information is needed, please contact Larry E. Nicholson, at (864-885-3292).

Very truly yours,

W. R. McCollum, Jr., Vice President
Oconee Nuclear Site

A001

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Attachment 1

B 3.7 PLANT SYSTEMS

B 3.7.11 Spent Fuel Pool Water Level

BASES

BACKGROUND

The minimum water level in the Spent Fuel Pool is consistent with the assumption of iodine decontamination factors following a fuel handling or cask drop accident. The water also provides shielding during the movement of spent fuel.

A general description of the Spent Fuel Pool design is given in the UFSAR, Section 9.1.2, Reference 1. The Spent Fuel Pool Cooling and Cleanup System is given in the UFSAR, Section 9.1.3 (Ref. 2). The assumptions of the fuel handling accident or cask drop are given in the UFSAR, Section 15.11.2 (Ref. 3).

APPLICABLE SAFETY ANALYSES

During movement of irradiated fuel assemblies or crane operations with loads in the Spent Fuel Pool, the water level in the pool is an initial condition design parameter in the analysis of the fuel handling accident and cask drop accidents in the fuel pool. A minimum water level of 23 ft (Regulatory Position C.1.c of Ref. 4) allows a decontamination factor (DF) of 100 (Regulatory Position C.1.g of Ref. 4) to be used in the accident analysis for iodine. This relates to the assumption that 99% of the total iodine released from the pellet to cladding gap of all the damaged fuel assembly(ies) rods is retained by the Spent Fuel Pool water. The fuel pellet to cladding gap is assumed to contain 10% of the total fuel rod iodine inventory (Ref. 4).

The fuel handling accident and cask drop accident analysis in the Spent Fuel Pool is described in Reference 3. Since the minimum water level of 21.34 feet is less than 23 feet, the assumed iodine DF must be less than 100, according to Ref. 4, and calculated with comparable conservatism. Oconee's analysis assumes the top of the irradiated fuel assemblies as the top of the fuel pins (Refs. 4 and 8). An experimental test program described in WCAP-7828 (Ref. 6) evaluated the extent of removal of iodine released from a damaged irradiated fuel assembly. Using the analytical results from the test program described in WCAP-7828, with a water depth of 21.34 feet, a comparable DF of 89 was determined. With a minimum water level of

BASES

APPLICABLE SAFETY ANALYSES (continued)

21.34 ft, and a minimum decay time of 72 hours prior to fuel handling, the analysis and test programs demonstrate that the iodine release due to a postulated fuel handling or cask drop accident is adequately captured by the water, and offsite doses are maintained within allowable limits (Ref. 7).

The Spent Fuel Pool water level satisfies Criterion 2 and 3 of 10 CFR 50.36 (Ref. 7).

LCO

The specified water level preserves the assumptions of the fuel handling and cask drop accident analyses (Ref. 3). As such, it is the minimum required for fuel storage and movement within the Spent Fuel Pool or movement of the cask over the Spent Fuel Pool.

APPLICABILITY

This LCO applies during movement of irradiated fuel assemblies in the Spent Fuel Pool or movement of the cask over the Spent Fuel Pool since the potential for a release of fission products exists.

ACTIONS

Required Actions A.1 and A.2 are modified by a Note indicating that LCO 3.0.3 does not apply.

If moving irradiated fuel assemblies or a cask while in MODE 5 or 6, LCO 3.0.3 would not specify any action. If moving irradiated fuel assemblies or a cask while in MODES 1, 2, 3, and 4, the fuel or cask movement is independent of reactor operations. Therefore, in either case, inability to suspend movement of irradiated fuel assemblies or a cask is not sufficient reason to require a reactor shutdown.

A.1

When the initial conditions for an accident cannot be met, immediate action must be taken to preclude the occurrence of an accident. With the Spent Fuel Pool at less than the required level, the movement of fuel assemblies in the Spent Fuel Pool is immediately suspended. This effectively precludes the occurrence of a fuel handling accident. In such a case, unit procedures control the movement of other (non cask) loads over the spent fuel. This does not preclude movement of a fuel assembly to a safe position.

BASES

ACTIONS (continued)

A.2

When the initial conditions for an accident cannot be met, immediate action must be taken to preclude the occurrence of an accident. With the Spent Fuel Pool at less than the required level, movement of a cask over the Spent Fuel Pool is immediately suspended. This effectively precludes the occurrence of a cask drop accident. In such a case, unit procedures control the movement of other (non cask) loads over the spent fuel. This does not preclude movement of a cask to a safe position.

SURVEILLANCE REQUIREMENTS

SR 3.7.11.1

This SR verifies that sufficient Spent Fuel Pool water is available in the event of a fuel handling or cask drop accident. The water level in the Spent Fuel Pool must be checked periodically. The 7 day Frequency is appropriate because the volume in the pool is normally stable. Water level changes are controlled by unit procedures and are acceptable, based on operating experience.

During refueling operations, the level in the Spent Fuel Pool is at equilibrium with that in the fuel transfer canal, and the level in the fuel transfer canal is checked daily in accordance with SR 3.9.6.1.

REFERENCES

1. UFSAR, Section 9.1.2.
2. UFSAR, Section 9.1.3.
3. UFSAR, Section 15.11.2.
4. Regulatory Guide 1.25.
5. 10 CFR 100.11.
6. WCAP-7828, December 1971.
7. 10 CFR 50.36

Attachment 2

B 3.7 PLANT SYSTEMS

B 3.7.11 Spent Fuel Pool Water Level

BASES

BACKGROUND

The minimum water level in the Spent Fuel Pool is consistent with the assumption of iodine decontamination factors following a fuel handling or cask drop accident. ~~The specified water level shields and minimizes the general area dose when the storage racks are filled to their maximum capacity.~~ The water also provides shielding during the movement of spent fuel.

A general description of the Spent Fuel Pool design is given in the UFSAR, Section 9.1.2, Reference 1. The Spent Fuel Pool Cooling and Cleanup System is given in the UFSAR, Section 9.1.3 (Ref. 2). The assumptions of the fuel handling accident or cask drop are given in the UFSAR, Section 15.11.2 (Ref. 3).

APPLICABLE SAFETY ANALYSES

During movement of irradiated fuel assemblies or crane operations with loads in the Spent Fuel Pool, the water level in the pool is an initial condition design parameter in the analysis of the fuel handling accident and cask drop accidents in the fuel pool. A minimum water level of 23 ft (Regulatory Position C.1.c of Ref. 4) allows a decontamination factor (DF) of 100 (Regulatory Position C.1.g of Ref. 4) to be used in the accident analysis for iodine. This relates to the assumption that 99% of the total iodine released from the pellet to cladding gap of all the damaged fuel assembly(ies) rods is retained by the Spent Fuel Pool water. The fuel pellet to cladding gap is assumed to contain 10% of the total fuel rod iodine inventory (Ref. 4).

The fuel handling accident and cask drop accident analysis in the Spent Fuel Pool is described in Reference 3. Since the minimum water level of 21.34 feet is less than 23 feet, the assumed iodine DF must be less than 100, according to Ref. 4, and calculated with comparable conservatism. **Oconee's analysis assumes the top of the irradiated fuel assemblies as the top of the fuel pins (Refs. 4 and 8).** -An experimental test program described in WCAP-7828 (Ref. 6) evaluated the extent of removal of iodine released from a damaged irradiated fuel assembly. Using the analytical results from the test program described in WCAP-7828, with a water depth of 21.34 feet, a comparable DF of 89 was determined. With a minimum water level of

BASES

APPLICABLE SAFETY ANALYSES (continued)

21.34 ft, and a minimum decay time of 72 hours prior to fuel handling, the analysis and test programs demonstrate that the iodine release due to a postulated fuel handling or cask drop accident is adequately captured by the water, and offsite doses are maintained within allowable limits (Ref. 7).

The Spent Fuel Pool water level satisfies Criterion 2 and 3 of 10 CFR 50.36 (Ref. 7).

LCO

The specified water level preserves the assumptions of the fuel handling and cask drop accident analyses (Ref. 3). As such, it is the minimum required for fuel storage and movement within the Spent Fuel Pool or movement of the cask over the Spent Fuel Pool.

APPLICABILITY

This LCO applies during movement of irradiated fuel assemblies in the Spent Fuel Pool or movement of the cask over the Spent Fuel Pool since the potential for a release of fission products exists.

ACTIONS

Required Actions A.1 and A.2 are modified by a Note indicating that LCO 3.0.3 does not apply.

If moving irradiated fuel assemblies or a cask while in MODE 5 or 6, LCO 3.0.3 would not specify any action. If moving irradiated fuel assemblies or a cask while in MODES 1, 2, 3, and 4, the fuel or cask movement is independent of reactor operations. Therefore, in either case, inability to suspend movement of irradiated fuel assemblies or a cask is not sufficient reason to require a reactor shutdown.

A.1

When the initial conditions for an accident cannot be met, immediate action must be taken to preclude the occurrence of an accident. With the Spent Fuel Pool at less than the required level, the movement of fuel assemblies in the Spent Fuel Pool is immediately suspended. This effectively precludes the occurrence of a fuel handling accident. In such a case, unit procedures control the movement of other (non cask) loads over the spent fuel. This does not preclude movement of a fuel assembly to a safe position.

BASES

ACTIONS (continued)

A.2

When the initial conditions for an accident cannot be met, immediate action must be taken to preclude the occurrence of an accident. With the Spent Fuel Pool at less than the required level, movement of a cask over the Spent Fuel Pool is immediately suspended. This effectively precludes the occurrence of a cask drop accident. In such a case, unit procedures control the movement of other (non cask) loads over the spent fuel. This does not preclude movement of a cask to a safe position.

SURVEILLANCE REQUIREMENTS

SR 3.7.11.1

This SR verifies that sufficient Spent Fuel Pool water is available in the event of a fuel handling or cask drop accident. The water level in the Spent Fuel Pool must be checked periodically. The 7 day Frequency is appropriate because the volume in the pool is normally stable. Water level changes are controlled by unit procedures and are acceptable, based on operating experience.

During refueling operations, the level in the Spent Fuel Pool is at equilibrium with that in the fuel transfer canal, and the level in the fuel transfer canal is checked daily in accordance with SR 3.9.6.1.

REFERENCES

1. UFSAR, Section 9.1.2.
2. UFSAR, Section 9.1.3.
3. UFSAR, Section 15.11.2.
4. Regulatory Guide 1.25.
5. 10 CFR 100.11.
6. WCAP-7828, December 1971.
7. ~~7.~~ 10 CFR 50.36
8. ~~PIP O-099-1160.~~