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Jan. 7, 2016

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001
Docket: 50-288
License No: R-112

We are requesting the removal of the pH requirement from our technical specifications. This change is consistent with the "Safety Evaluation Input by the Office of Nuclear Reactor Regulation Research and Test Reactors Pool Water - Safety Evaluation on Electrolytic Conductivity (TAC No. ME8511)" (ML15114A433)

An original, marked-up version, proposed version and a table delineating the requested changes to Reed College's technical specifications are enclosed.

Please contact me if you have any further questions.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on Jan 7, 2016

Melinda Krahenbuhl, Ph.D.
Director, Reed Research Reactor

A020
NRR

Table 1. Proposed changes to RRR Technical Specifications

Affected RRR TS	Proposed changed	Basis (Why the change is necessary)	Justification (Why the change is acceptable)
3.3 d	Deletion of "d. The pH of the pool water shall be between 5.0 and 7.5 averaged over 1 month"	The pH requirement is unnecessary when controlling pool water chemistry by conductivity measurement.	The change is consistent with the Safety Evaluation TAC NO. ME8511 (ML15114A433)
3.3 e	Deletion "e"	To correct the formatting of the document.	Correct formatting
3.3 e	Addition "d"	To correct the formatting of the document.	Correct formatting
3.3 Basis	Deletion " and pH" and "and pH"	The pH requirement is unnecessary when controlling pool water chemistry by conductivity measurement.	The change is consistent with the Safety Evaluation TAC NO. ME8511 (ML15114A433)
4.3	Deletion "and pH"	The pH requirement is unnecessary when controlling pool water chemistry by conductivity measurement.	The change is consistent with the Safety Evaluation TAC NO. ME8511 (ML15114A433)
4.3 Basis	Deletion "pH"	The pH requirement is unnecessary when controlling pool water chemistry by conductivity measurement.	The change is consistent with the Safety Evaluation TAC NO. ME8511 (ML15114A433)

ORIGINAL

3.3 Reactor Primary Pool Water

Applicability. This specification applies to the primary water of the reactor pool.

Objective. The objective is to ensure that there is an adequate amount of water in the reactor pool for fuel cooling and shielding purposes, that the bulk temperature of the reactor pool water remains sufficiently low to guarantee demineralizer resin integrity, and that pool chemistry will limit corrosion.

Specifications.

a. The pool water level shall be greater than 5 meters above the upper core plate. The pool water level shall initiate an alarm signal if the pool level falls 10 cm below normal. The alarm indication shall be visible in the control room and outside the reactor facility.

b. The bulk pool water temperature shall be less than 40°C. The pool water temperature shall initiate an alarm if the pool temperature exceeds 40°C.

c. The conductivity of the pool water shall be less than 5.0 microsiemens/cm averaged over 1 month.

d. The pH of the pool water shall be between 5.0 and 7.5 averaged over 1 month.

e. The radioactivity of the pool water shall be less than the limits in 10 CFR 20 Appendix B, Table 3 for radioisotopes with half-lives greater than 24 hours.

Basis.

Pool Water Level: The minimum height of 5 meters of water above the upper core plate guarantees that there is sufficient water for effective cooling of the fuel and that the radiation levels at the top of the reactor are within acceptable levels. The pool level is limited to a decrease of no more than 10 cm below normal to allow early detection of pool leakage. (RAI Response, May 20, 2011)

Pool Water Temperature: The bulk water temperature limit is necessary, according to the resin manufacturer, to ensure that the resin does not break down. The temperature limit also ensures the core inlet temperature is acceptable for the accident analysis. (RAI Response, December 12, 2011)

Pool Water Conductivity and pH: Experience at many research reactor facilities has shown that maintaining the conductivity and pH within the specified limit provides acceptable control of corrosion (NUREG-1537 Appendix 14, Section 3.3.(9)).

Pool Water Radioactivity: Pool activity is limited to ensure dose rates are maintained below 10 CFR 20 limits.

3.3 Reactor Primary Pool Water

Applicability. This specification applies to the primary water of the reactor pool.

Objective. The objective is to ensure that there is an adequate amount of water in the reactor pool for fuel cooling and shielding purposes, that the bulk temperature of the reactor pool water remains sufficiently low to guarantee demineralizer resin integrity, and that pool chemistry will limit corrosion.

Specifications.

a. The pool water level shall be greater than 5 meters above the upper core plate. The pool water level shall initiate an alarm signal if the pool level falls 10 cm below normal. The alarm indication shall be visible in the control room and outside the reactor facility.

b. The bulk pool water temperature shall be less than 40°C. The pool water temperature shall initiate an alarm if the pool temperature exceeds 40°C.

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~~d. The pH of the pool water shall be between 5.0 and 7.5 averaged over 1 month.~~

d. ~~e.~~ The radioactivity of the pool water shall be less than the limits in 10 CFR 20 Appendix B, Table 3 for radioisotopes with half-lives greater than 24 hours.

Basis.

Pool Water Level: The minimum height of 5 meters of water above the upper core plate guarantees that there is sufficient water for effective cooling of the fuel and that the radiation levels at the top of the reactor are within acceptable levels. The pool level is limited to a decrease of no more than 10 cm below normal to allow early detection of pool leakage. (RAI Response, May 20, 2011)

Pool Water Temperature: The bulk water temperature limit is necessary, according to the resin manufacturer, to ensure that the resin does not break down. The temperature limit also ensures the core inlet temperature is acceptable for the accident analysis. (RAI Response, December 12, 2011)

Pool Water Conductivity ~~and pH~~: Experience at many research reactor facilities has shown that maintaining the conductivity ~~and pH~~ within the specified limit provides acceptable control of corrosion (NUREG-1537 Appendix 14, Section 3.3.(9)).

Pool Water Radioactivity: Pool activity is limited to ensure dose rates are maintained below 10 CFR 20 limits.

3.3 Reactor Primary Pool Water

Applicability. This specification applies to the primary water of the reactor pool.

Objective. The objective is to ensure that there is an adequate amount of water in the reactor pool for fuel cooling and shielding purposes, that the bulk temperature of the reactor pool water remains sufficiently low to guarantee demineralizer resin integrity, and that pool chemistry will limit corrosion.

Specifications.

a. The pool water level shall be greater than 5 meters above the upper core plate. The pool water level shall initiate an alarm signal if the pool level falls 10 cm below normal. The alarm indication shall be visible in the control room and outside the reactor facility.

b. The bulk pool water temperature shall be less than 40°C. The pool water temperature shall initiate an alarm if the pool temperature exceeds 40°C.

c. The conductivity of the pool water shall be less than 5.0 microsiemens/cm averaged over 1 month.

d. The radioactivity of the pool water shall be less than the limits in 10 CFR 20 Appendix B, Table 3 for radioisotopes with half-lives greater than 24 hours.

Basis.

Pool Water Level: The minimum height of 5 meters of water above the upper core plate guarantees that there is sufficient water for effective cooling of the fuel and that the radiation levels at the top of the reactor are within acceptable levels. The pool level is limited to a decrease of no more than 10 cm below normal to allow early detection of pool leakage. (RAI Response, May 20, 2011)

Pool Water Temperature: The bulk water temperature limit is necessary, according to the resin manufacturer, to ensure that the resin does not break down. The temperature limit also ensures the core inlet temperature is acceptable for the accident analysis. (RAI Response, December 12, 2011)

Pool Water Conductivity: Experience at many research reactor facilities has shown that maintaining the conductivity within the specified limit provides acceptable control of corrosion (NUREG-1537 Appendix 14, Section 3.3.(9)).

Pool Water Radioactivity: Pool activity is limited to ensure dose rates are maintained below 10 CFR 20 limits.

4.3 Reactor Primary Pool Water

Applicability. This specification applies to the surveillance requirements for the reactor pool water.

Objective. The objective is to ensure that the reactor pool water level, the water temperature, and the conductivity monitoring systems are operating, and to verify appropriate alarm settings.

Specifications.

a. A channel check of the reactor pool water level shall be performed monthly.

b. A channel check of the reactor pool water temperature and level monitors shall be performed prior to each day's operation or prior to each operation extending more than one day.

c. A channel calibration of the reactor pool water level and temperature monitors shall be performed annually.

d. The reactor pool water conductivity and pH shall be measured monthly.

e. The reactor pool water radioactivity shall be measured quarterly.

Basis. Experience has shown that the frequencies of checks on systems that monitor reactor primary water level, temperature, pH and conductivity adequately keep the pool water at the proper level and maintain water quality at such a level to minimize corrosion and maintain safety.

4.3 Reactor Primary Pool Water

Applicability. This specification applies to the surveillance requirements for the reactor pool water.

Objective. The objective is to ensure that the reactor pool water level, the water temperature, and the conductivity monitoring systems are operating, and to verify appropriate alarm settings.

Specifications.

a. A channel check of the reactor pool water level shall be performed monthly.

b. A channel check of the reactor pool water temperature and level monitors shall be performed prior to each day's operation or prior to each operation extending more than one day.

c. A channel calibration of the reactor pool water level and temperature monitors shall be performed annually.

d. The reactor pool water conductivity ~~and pH~~ shall be measured monthly.

e. The reactor pool water radioactivity shall be measured quarterly.

Basis. Experience has shown that the frequencies of checks on systems that monitor reactor primary water level, temperature, ~~pH~~ and conductivity adequately keep the pool water at the proper level and maintain water quality at such a level to minimize corrosion and maintain safety.

4.3 Reactor Primary Pool Water

Applicability. This specification applies to the surveillance requirements for the reactor pool water.

Objective. The objective is to ensure that the reactor pool water level, the water temperature, and the conductivity monitoring systems are operating, and to verify appropriate alarm settings.

Specifications.

a. A channel check of the reactor pool water level shall be performed monthly.

b. A channel check of the reactor pool water temperature and level monitors shall be performed prior to each day's operation or prior to each operation extending more than one day.

c. A channel calibration of the reactor pool water level and temperature monitors shall be performed annually.

d. The reactor pool water conductivity shall be measured monthly.

e. The reactor pool water radioactivity shall be measured quarterly.

Basis. Experience has shown that the frequencies of checks on systems that monitor reactor primary water level, temperature, and conductivity adequately keep the pool water at the proper level and maintain water quality at such a level to minimize corrosion and maintain safety.