OYSTER CREEK NUCLEAR GENERATING STATION
(DOCKET NO. 50-219)
PROVISIONAL OPERATING LICENSE NO. DPR-16

Applicant hereby requests the Commission to amend Appendix A to the above captioned license.

1. Section to be changed

3.3.E. Reactor Coolant Quality (Page 3.3-2).

2. Change requested

E. Reactor Coolant Quality

1. The reactor coolant quality during power operation with steaming rates to the turbine-condenser of less than 100,000 pounds per hour shall be limited to:

conductivity	2 uS/cm
chloride ion	0.1 ppm

2. When the conductivity and chloride concentration limits given in 3.3.E.1 are exceeded, an orderly shutdown shall be initiated immediately, and the reactor coolant temperature shall be reduced to less than 212°F within 24 hours.

3. The reactor coolant quality during power operation with steaming rates to the turbine-condenser of greater than or equal to 100,000 pounds per hour shall be limited to:

conductivity	10 uS/cm
chloride ion	0.5 ppm

4. When the maximum conductivity or chloride concentration limits given in 3.3.E.3 are exceeded, an orderly shutdown shall be initiated immediately, and the reactor coolant temperature shall be reduced to less than 212°F within 24 hours.

5. During power operation with steaming rates to the turbine-condenser of greater than or equal to 100,000 pounds per hour, the time limit above 1.0 uS/cm at 25°C (77°F) and 0.2 ppm chloride shall not exceed 72 hours for any single incident.

6. When the time limits for 3.3.E.5 are exceeded, an orderly shutdown shall be initiated within 4 hours.

3. Discussion:

During the integrated assessment of the SEP topics, the NRC staff indicated that Oyster Creek Technical Specifications have no provisions for the time-related conductivity limit and the current licensing criterion is a long-term limit of 1 uS/cm for power operation.

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Pursuant to 10CFR50.91, an analysis concerning significant hazards consideration is provided below:

1. Section to be changed:

   3.3.E. - Reactor Coolant Quality (Page 3.3-2).

2. Extent of change:

   Revise Section 3.3.E. of the Oyster Creek Technical Specification to incorporate the conductivity and chloride limits given in Regulatory Guide 1.56.

3. Discussion:

   Examples of amendments that are considered not likely to involve significant hazards considerations were provided in the Federal Register on April 6, 1983 (48FR14870). Revision of Section 3.3.E of the Oyster Creek Technical Specifications is within the provisions of example (ii) (as referenced above) in that the change constitutes an additional limitation, restriction, or control not presently included in the technical specifications.

4. Determination:

   We have determined that the subject change request involves no significant hazards in that operation of the Oyster Creek Nuclear Generating Station in accordance with Technical Specification Change Request No. 124 would not:

   1. Involve a significant increase in the probability or consequence of an accident previously evaluated; or

   2. Create the possibility of a new or different kind of accident from any previously evaluated; or

   3. Involve a significant reduction in a margin of safety.

D. Reactor Coolant System Leakage

Reactor coolant leakage into the primary containment from unidentified sources shall not exceed 5 gpm. In addition, the total leakage in the containment, identified and unidentified, shall not exceed 25 gpm. If these conditions cannot be met, the reactor will be placed in the cold shutdown condition.

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2. When the conductivity and chloride concentration limits given in 3.3.E.1 are exceeded, an orderly shutdown shall be initiated immediately, and the reactor coolant temperature shall be reduced to less than 212°F within 24 hours.

3. The reactor coolant quality during power operation with steaming rates to the turbine-condenser of greater than or equal to 100,000 pounds per hour shall be limited to:

conductivity	10 uS/cm
chloride ion	0.5 ppm

4. When the maximum conductivity or chloride concentration limits given in 3.3.E.3 are exceeded, an orderly shutdown shall be initiated immediately, and the reactor shall be reduced to less than 212°F within 24 hours.

5. During power operation with steaming rates to the turbine-condenser of greater than or equal to 100,000 pounds per hour, the time limit above 1.0 uS/cm at 25°C (77°F) and 0.2 ppm chloride shall not exceed 72 hours for any single incident.

6. When the time limits for 3.3.E.5 are exceeded, an orderly shutdown shall be initiated within 4 hours.

F. Recirculation Loop Operability

1. The reactor shall not be operated with one or more recirculation loops out of service except as specified in Specification 3.3.F.2.

2. Reactor Operation with one idle recirculation loop is permitted provided that the idle loop is not isolated from the reactor vessel.

3. If Specifications 3.3.F.1 and 3.3.F.2 are not met, the reactor shall be placed in the cold shutdown condition within 24 hours.

Chlorides are known to (1) promote intergranular stress corrosion cracking of sensitized stainless steels, (2) induce transgranular cracking of non-sensitized stainless steels, (3) promote pitting and (4) promote crevice attack in most RCS materials (BWR Water Chemistry Guidelines, EPRI, April 1, 1984). The higher the concentration, the faster the attack. Therefore, the level of chloride in the reactor water should be kept as low as is practically achievable. The limits are therefore set to be consistent with Regulatory Guide 1.56 (Rev. 1.)

In the case of BWR's where no additives are used in the primary coolant, and where neutral pH is maintained, conductivity provides a very good measure of the quality of the reactor water. When the conductivity is within its proper normal range, pH, chloride, and other impurities affecting conductivity and water quality must also be within their normal ranges. Significant changes in conductivity provide the operator with a warning mechanism so that he can investigate and remedy the conditions causing the change. Measurements of pH, chloride, and other chemical parameters are made to determine the cause of the unusual conductivity and instigate proper corrective action. These can be done before limiting conditions, with respect to variables affecting the boundaries of the reactor coolant, are exceeded. Several techniques are available to correct off-standard reactor water quality conditions including removal of impurities from reactor water by the cleanup system, reducing input of impurities causing off-standard conditions by reducing power and reducing the reactor coolant temperature to less than 212°F. The major benefit of reducing the reactor coolant temperature to less than 212°F is to reduce the temperature dependent corrosion rates and thereby provide time for the cleanup system to re-establish proper water quality.

References

(1) FDSAR, Volume I, Section IV-2
(2) (Deleted)
(3) (Deleted)
(4) Licensing Application Amendment 16, Design Requirements Section
(5) (Deleted)
(6) FDSAR, Volume I, Section IV-2.3.3 and Volume II, Appendix H
(7) FDSAR, Volume I, Table IV-2-1
(8) Licensing Application Amendment 34, Question 14
(9) Licensing Application Amendment 28, Item III-B-2
(10) Licensing Application Amendment 32, Question 15
(11) (Deleted)
(12) Licensing Application Amendment 68, Supplement No. 6 Addendum 3
(13) Licensing Application Amendement 16, Page 1