

REACTOR COOLANT SYSTEM

3/4.4.7 CHEMISTRY

LIMITING CONDITION FOR OPERATION

3.4.7 The Reactor Coolant System chemistry shall be maintained within the limits specified in Table 3.4-2.

APPLICABILITY: At all times.

ACTION:

MODES 1, 2, 3, and 4:

- a. With any one or more chemistry parameter in excess of its Steady-State Limit but within its Transient Limit, restore the parameter to within its Steady-State Limit within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours; and
- b. With any one or more chemistry parameter in excess of its Transient Limit, be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

At All Other Times:

With the concentration of either chloride or fluoride in the Reactor Coolant System in excess of its Steady-State Limit for more than 24 hours or in excess of its Transient Limit, reduce the pressurizer pressure to less than or equal to 500 psig, if applicable, and perform an engineering evaluation to determine the effects of the out-of-limit condition on the structural integrity of the Reactor Coolant System; determine that the Reactor Coolant System remains acceptable for continued operation prior to increasing the pressurizer pressure above 500 psig or prior to proceeding to MODE 4.

SURVEILLANCE REQUIREMENTS

4.4.7 The Reactor Coolant System chemistry shall be determined to be within the limits by analysis of those parameters specified in Table 3.4-2 at least once per 72 hours.*

*Sample and analysis for dissolved oxygen is not required with $T_{avg} \leq 180^{\circ}\text{F}$.

SEABROOK - UNIT 1

3/4 4-25

9506130223 950607
PDR ADDCK 05000443
P PDR

7A1

91

185

250°F

TABLE 3.4-2

REACTOR COOLANT SYSTEM CHEMISTRY LIMITS

<u>PARAMETER</u>	<u>STEADY-STATE LIMIT</u>	<u>TRANSIENT LIMIT</u>
Dissolved Oxygen*	< 0.10 ppm	≤ 1.00 ppm
Chloride	< 0.15 ppm	≤ 1.50 ppm
Fluoride	≤ 0.15 ppm	≤ 1.50 ppm

*Limit not applicable with T_{avg} less than or equal to ~~180°F~~

250°F

III. Retype of Proposed Changes

See attached retype of proposed changes to Technical Specifications. The attached retype reflects the currently issued version of Technical Specifications. Pending Technical Specification changes or Technical Specification changes issued subsequent to this submittal are not reflected in the enclosed retype. The enclosed retype should be checked for continuity with Technical Specifications prior to issuance.

Revision bars are provided in the right hand margin to designate a change in the text.

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APPLICABILITY: At all times.

ACTION:

MODES 1, 2, 3, and 4:

- a. With any one or more chemistry parameter in excess of its Steady-State Limit but within its Transient Limit, restore the parameter to within its Steady-State Limit within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours; and
- b. With any one or more chemistry parameter in excess of its Transient Limit, be in at least HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours.

At All Other Times:

With the concentration of either chloride or fluoride in the Reactor Coolant System in excess of its Steady-State Limit for more than 24 hours or in excess of its Transient Limit, reduce the pressurizer pressure to less than or equal to 500 psig, if applicable, and perform an engineering evaluation to determine the effects of the out-of-limit condition on the structural integrity of the Reactor Coolant System; determine that the Reactor Coolant System remains acceptable for continued operation prior to increasing the pressurizer pressure above 500 psig or prior to proceeding to MODE 4.

SURVEILLANCE REQUIREMENTS

4.4.7 The Reactor Coolant System chemistry shall be determined to be within the limits by analysis of those parameters specified in Table 3.4-2 at least once per 72 hours.*

*Sample and analysis for dissolved oxygen is not required with $T_{avg} \leq 250^{\circ}\text{F}$.

TABLE 3.4-2

REACTOR COOLANT SYSTEM CHEMISTRY LIMITS

<u>PARAMETER</u>	<u>STEADY-STATE LIMIT</u>	<u>TRANSIENT LIMIT</u>
Dissolved Oxygen*	< 0.10 ppm	≤ 1.00 ppm
Chloride	< 0.15 ppm	≤ 1.50 ppm
Fluoride	≤ 0.15 ppm	≤ 1.50 ppm

*Limit not applicable with T_{avg} less than or equal to 250°F.

IV. Determination of Significant Hazards for License Amendment Request 95-02 Proposed Changes

North Atlantic has reviewed the proposed change in accordance with 10CFR50.92 and concluded that the change does not involve a significant hazard. The basis for this conclusion is that the three criteria of 10CFR50.92(c) are not compromised. The proposed change does not involve a significant hazard because the change would not:

- (1) *The proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.*

The proposed change does not increase the probability or consequences of accidents previously evaluated. Increasing the temperature at which oxygen levels are required to be maintained within specified limits from 180°F to 250°F reflects existing data which indicates a benign effect of oxygen on RCS components below this temperature. This increase places Seabrook in line with standard industry specifications for reactors of similar size and vintage. This change is also consistent with established oxygen induced corrosion data for internal reactor coolant system components. As a result, reactor coolant system integrity is not challenged and therefore the probability or consequences of an accident previously evaluated is not affected.

Dissolved oxygen contributes to stress corrosion cracking of RCS materials and to general corrosion of system and fuels materials. Current industry literature and NSSS vendor information indicates that these effects are reduced to a point of little concern at temperatures less than 250°F and operating controls need not be implemented until the coolant exceeds this temperature. Dissolved oxygen is controlled during plant heatup by the use of hydrazine for residual oxygen scavenging. NSSS vendor information has assigned an upper temperature limit of 250°F for oxygen control in its primary control manual. The basis for this limit is two-fold: (1) the corrosive effect of oxygen below 250°F is negligible, and (2) the reaction rate of hydrazine with oxygen is greatly enhanced at higher temperatures. Ultimately, this will aid the plant in removing oxygen in a more expeditious fashion on reactor restarts from a cold shutdown condition.

- (2) *The proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.*

The proposed change to Surveillance Requirement 4.4.7 of the Technical Specifications raises the temperature limit for which RCS oxygen levels must be maintained within specified limits from 180°F to 250°F. This change reflects existing data which indicate a benign effect of oxygen on RCS components below this temperature. This increase places Seabrook in line with standard industry specifications for reactors of similar size and vintage. This change is also consistent with established oxygen induced corrosion data for internal reactor coolant system components.

Dissolved oxygen contributes to stress corrosion cracking of RCS materials and to general corrosion of system and fuels materials. Current industry literature and NSSS vendor information indicates that these effects are reduced to a point of little concern at temperatures less than 250°F and operating controls need not be implemented until the coolant exceeds this temperature. Dissolved oxygen is controlled during plant heatup by the use of hydrazine for residual oxygen scavenging. NSSS vendor information has assigned an upper temperature limit of 250°F for oxygen control in its primary control manual. The basis for this limit is two-fold: (1) the corrosive effect of oxygen below 250°F is negligible, and (2) the reaction rate of hydrazine with oxygen is greatly enhanced at higher temperatures. Ultimately, this will aid the plant in removing

oxygen in a more expeditious fashion on reactor restarts from a cold shutdown condition. Therefore, the proposed change to Surveillance Requirement 4.4.7 does not create the possibility of a new or different kind of accident from any previously analyzed.

- (3) *The proposed change does not result in a significant reduction in the margin of safety.*

The proposed change to Surveillance Requirement 4.4.7 of the Technical Specifications does not result in a significant reduction in the margin of safety. The change seeks to conform Seabrook Station's temperature limit for maintaining RCS oxygen within specified limits to standard Technical Specifications held by other PWRs. Dissolved oxygen contributes to stress corrosion cracking of RCS materials and to general corrosion of system and fuels materials. Current industry literature and NSSS vendor information indicates that these effects are reduced to a point of little concern at temperatures less than 250°F and operating controls need not be implemented until the coolant exceeds this temperature.

Dissolved oxygen contributes to stress corrosion cracking of RCS materials and to general corrosion of system and fuels materials. Current industry literature and NSSS vendor information indicates that these effects are reduced to a point of little concern at temperatures less than 250°F and operating controls need not be implemented until the coolant exceeds this temperature. Dissolved oxygen is controlled during plant heatup by the use of hydrazine for residual oxygen scavenging. NSSS vendor information has assigned an upper temperature limit of 250°F for oxygen control in its primary control manual. The basis for this limit is two-fold: (1) the corrosive effect of oxygen below 250°F is negligible, and (2) the reaction rate of hydrazine with oxygen is greatly enhanced at higher temperatures. Ultimately, this will aid the plant in removing oxygen in a more expeditious fashion on reactor restarts from a cold shutdown condition. Based on the above, the proposed change does not involve a reduction in the margin of safety.

V. Proposed Schedule for License Amendment Issuance and Effectiveness

North Atlantic requests NRC review of License Amendment Request 95-02 and issuance of a license amendment having immediate effectiveness by November 1, 1995.

VI. Environmental Impact Assessment

North Atlantic has reviewed the proposed license amendment against the criteria of 10CFR51.22 for environmental considerations. The proposed changes do not involve a significant hazards consideration, nor increase the types and amounts of effluents that may be released offsite, nor significantly increase individual or cumulative occupational radiation exposures. Based on the foregoing, North Atlantic concludes that the proposed change meets the criteria delineated in 10CFR51.22(c)(9) for a categorical exclusion from the requirements for an Environmental Impact Statement.