

RAD-CHEM PROCEDURE

SPECIFICATIONS AND SURVEILLANCE CVCS SYSTEMS

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POSRC	
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1.0 PURPOSE

The purpose of this procedure is to present the specifications and surveillance programs for CVCS Systems.

2.0 SPECIFICATIONS - TABLE 1

- 2.1 Consideration of purification ion exchanger resin replacement should be made if any of the below listed guidelines are exceeded:
 - 2.1.1 Effluent concentrations exceed reactor coolant specification, RCP 1-202.
 - 2.1.2 An average Decontamination factor less than 10 for gamma emitters.
 - 2.1.3 A vessel contact radiation level of 500R/hr is exceeded.
- 2.2 Consideration of decontaminating ion exchanger resin replacement should be made if any of the criteria in 2.1 are exceeded, the decontamination factor for boron is less than 2, or following refueling.
- 2.3 Consideration of filter replacement should be made if any of the below listed guidelines are exceeded.
 - 2.3.1 Decontamination factors less than 10 for suspended solids.
- 2.4 RCS hydrogen concentration is variable with hydrogen overpressure in the VCT.
 - 2.4.1 Hydrogen pressure must be 9 psia to 45 psia to maintain specifications of RCP 1-202 (10-50 cc/Kg).

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3.0 SURVEILLANCE - TABLE 1

3.1 Sampling of the CVCS ion exchangers and filters will be accomplished in accordance with the frequencies listed in Table 1.

4.0 CALCULATIONS

Determination of RCS hydrogen concentration from VCT o/o H₂.

$$\frac{\text{VCT psia H}_2}{K} = \text{cc/Kg H}_2 \text{ in RCS}$$

$$\text{Where: VCT psia H}_2 = (\text{VCT psig} + 14.7) \left(\frac{\text{o/o H}_2 \text{ VCT}}{100} \right)$$

$$K = 0.9 \text{ psia/cc/Kg}$$

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TABLE 1

	<u>Analysis Procedure/Method</u>	<u>Specification</u>	<u>Frequency</u>
A.	<u>Ion Exchangers</u>		
1.	Conductivity/901	(1.)	1/M
2.	pH @ 25°C/902	(1.)	1/M
3.	Boron/903	DF = 2(min) (2.)	1/M (3.)
4.	Chloride/906	0.15 ppm (max)	1/M
5.	Fluoride/907	0.1 ppm (max)	1/M
6.	Lithium/908	NS	1/M
7.	Quantitative Gamma Activity	DF = 10(min) (2) avg	1/M
8.	Dose Rate, Vessel Contact	N.S.	1/M
B.	<u>Filters</u>		
1.	Suspended Solids/911	DF = 10 (min)	1/M
C.	<u>VCT</u>		
1.	Hydrogen/904	9-45 psia	3/W
(1)	Should be consistent with concentrations of chemical additives.		
(2)	DF = influent/eff		
(3)	When deborating ion exchanger is operating.		

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