LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS

3.6.F Reactor Coolant Chemistry

1. Radioactivity

Whenever the reactor is critical the limits on activity concentrations in the reactor coolant shall not exceed the equilibrium value of 0.2 μ Ci/gm of dose equivalent* I-131.

If activity concentration > 0.2 μ Ci/gm dose equivalent I-131 but ≤ 4.0 μ Ci/gm, operation may continue for up to 48 hours provided that operation under these conditions shall not exceed 800 hours in any consecutive 12 month period. Should the total operating time of a specific activity > 0.2 μ Ci/gm dose equivalent I-131 exceed 500 hours in any consecutive 6 month period, the licensee shall report the number of hours of operation above this limit to the NRC within 30 days.

If activity concentration > 0.2 μ Ci/gm dose equivalent I-131 for more than 48 hours during one continuous time interval, or > 4.0 μ Ci/gm, be in at least HOT SHUTDOWN with the main steam line isolation valves closed within 12 hours.

*That I-131 concentration which alone would produce the same thyroid dose as the quantity and iodine mixture actually present.

4.6.F Reactor Coolant Chemistry

1. Radioactivity

a. During equilibrium power operation an isotopic analysis, including quantitative measurements for at least I-131, I-132, I-133, and I-135 shall be performed monthly on a coolant liquid sample.

b. During equilibrium power operation an isotopic analysis, including quantitative measurements for at least Xe-133 and Xe-135 shall be performed monthly on a steam jet air ejector off-gas sample.

c. Additional coolant samples shall be taken whenever the reactor coolant dose equivalent I-131 concentration exceeds 0.2 μ Ci/gm and any of the following conditions are met:

1) During startup

2) Following a power change exceeding 15% of rated thermal power in less than 1 hour (net change averaged for 1 hour).

3) The off-gas level, at the SJAE, increases by more than 10,000 μ Ci/sec in 1 hour at release rate < 80,000 μ Ci/sec, or

4) The off-gas level at the SJAE, increases by more than 15% in 1 hour at release rate > 75,000 μCi/sec.

5) Whenever the reactor coolant dose equivalent I-131 concentration exceeds 4.0 μ Ci/gm.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
	Additional coolant liquid samples shall be taken at 4-hour intervals for 48 hours, or until a stable iodine concentration below the limiting value of 4.0 μ Ci/gm is established. If the total iodine activity of the sample is below 0.2 μ Ci/gm, an isotopic analysis to determine equivalent I-131 is not required.
	All data obtained from normal and any additional samples shall be included in the annual report. If the limits of the specification are exceeded, a report shall be made to the Directorate of Licensing within 30 days.

3.6 Recirculation Pump Start

The coolant in the bottom of the vessel is at a lower temperature than that in the upper regions of the vessel when there is not recirculation flow. The colder water is forced up when recirculation pumps are started. This will not result in stresses which exceed ASME Boiler and Pressure Vessel Code, Section III limits when the temperature differential is not greater than 145 F.

F. Reactor Coolant Chemistry

The limitations on the specific activity of the primary coolant ensure that the 2 hour thyroid and whole body doses resulting from a main steam line failure outside the containment during steady state operation will not exceed small fractions of the dose guidelines of 10 CFR 100. The values for the limits on specific activity represent interim limits based upon a parametric evaluation by the NRC of typical site locations. These values are conservative in that specific site parameters, such as site boundary location and meteorological conditions, were not considered in this evaluation.

The maximum activity limit during a short term transient is established from consideration of a maximum iodine inhalation dose less than 300 rem. The probability of a steam line break accident coincident with an iodine concentration transient is significantly lower than that of the accident alone, since operation of the reactor with iodine levels above the equilibrium value is limited to 10 percent of total operation.

Based upon a review of daily reactor water iodine concentrations at several sites that show the iodine transients during power generation are less than a factor of ten, sampling frequencies have been established that vary with the iodine concentration in order to assure that the maximum coolant iodine concentrations are not exceeded.

Materials in the primary system in contact with the coolant are primarily stainless steel and Zircaloy. The reactor water chemistry limits are established to prevent damage to these materials. Limits are placed on conductivity and chloride concentrations. Conductivity is limited because it is continuously measured and gives an indication of abnormal conditions and the presence of unusual materials in the coolant. Chloride limits are specified to prevent stress corrosion cracking of the stainless steel. According to test data, allowable chloride concentrations could be set several orders of magnitude above the established limit at the oxygen concentration (.2-.3ppm) experienced during power operation without causing significant failures. Zircaloy does not exhibit similar stress corrosion failures. However, there are some conditions under which the dissolved oxygen content of the reactor coolant water could be higher than .2-.3ppm, such as reactor startup and hot standby. During these periods, a more restrictive limit of 0.1ppm has been established to assure that permissible chloride-oxygen combination are not exceeded. During refueling when the reactor is depressurized Specification 3.6.F.2.c would apply. Boiling occurs at higher steaming rates causing deaeration of the reactor water, thus maintaining oxygen concentration at low levels and assuring that the chloride-oxygen content is not such as would tend to induce stress corrosion cracking.

ATTACHMENT 5

CONTAINMENT SYSTEMS

DRYWELL AND SUPPRESSION CHAMBER PURGE SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.1.8 The drywell and suppression chamber 18 inch purge supply and exhaust isolation valves shall be OPERABLE and:

a. Each valve may be open for purge system operation for inerting, deinerting and pressure control.

APPLICABILITY: OPERATIONAL CONDITIONS 1, 2 and 3.

ACTION:

a. With an 18 inch drywell and suppression chamber purge supply and/or exhaust isolation valve(s) inoperable or open for other than inerting, deinerting or pressure control, close the open 18 inch valve(s) or otherwise isolate the penetration(s) within four hours or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.6.1.8.1 When not PURGING and VENTING, each 18 inch drywell and suppression chamber purge supply and exhaust isolation valve shall be verified to be:

a. Closed at least monthly.

4.6.1.8.2 Once per operating cycle each 18 inch drywell and suppression chamber purge supply and exhaust isolation valve with resilient material seals shall be demonstrated OPERABLE by having its seal replaced and by verifying that the measured leakage rate is less than or equal to (0.01) L_a when pressurized to P_a).