See IP letter U-601650 dated 6/19/90.

BASES

3/4.4.5 SPECIFIC ACTIVITY

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 ACTION statement permitting POWER OPERATION to continue for limited time periods with the primary coolant's specific activity greater than 0.2 microcuries per gram DOSE EQUIVALENT I-131, but less than or equal to 4.0 microcuries per gram DOSE EQUIVALENT I-131, accommodates possible iodine spiking ~~phenomenon which may occur following changes in THERMAL POWER. Operation with specific activity levels exceeding 0.2 microcuries per gram DOSE EQUIVALENT I-131 but less than or equal to 4.0 microcuries per gram DOSE EQUIVALENT I-131 must be restricted to no more than 800 hours per year, approximately 10 percent of the unit's yearly operating time, since these activity levels increase the 2 hour thyroid dose at the site boundary by a factor of up to 20 following a postulated steam line rupture. The reporting of cumulative operating time over 500 hours in any 6 month consecutive period with greater than 0.2 microcuries per gram DOSE EQUIVALENT I-131 will allow sufficient time for Commission evaluation of the circumstances prior to reaching the 800 hour limit.~~

~~Information obtained on iodine spiking will be used to assess the parameters associated with spiking phenomena. A reduction in frequency of isotopic analysis following power changes may be permissible if justified by the data obtained.~~

Closing the main steam line isolation valves prevents the release of activity to the environs should a steam line rupture occur outside containment.

The surveillance requirements provide adequate assurance that excessive specific activity levels in the reactor coolant will be detected in sufficient time to take corrective action.

INSERT ATTACHED

3/4.4.6 PRESSURE/TEMPERATURE LIMITS

All components in the reactor coolant system are designed to withstand the effects of cyclic loads due to system temperature and pressure changes. These cyclic loads are introduced by normal load transients, reactor trips, and startup and shutdown operations. The various categories of load cycles used for design purposes are provided in Section 3.9 of the FSAR. During startup and shutdown, the rates of temperature and pressure changes are limited so that the maximum specified heatup and cooldown rates are consistent with the design assumptions and satisfy the stress limits for cyclic operation.

The operating limit curves of Figure 3.4.6.1-1 are derived from the fracture toughness requirements of 10 CFR 50 Appendix G and ASME Code Section III, Appendix G. The curves are based on the RT_{NDT} and stress intensity factor information for the reactor vessel components. Fracture toughness limits and the basis of compliance are more fully discussed in FSAR subsection 5.3.1.5 entitled "Fracture Toughness."

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ACTION statement C requires a reactor coolant sample be taken and an isotopic analysis for iodine be performed if, during steady state operation, offgas levels increase by more than 10,000 microcuries per second in one hour at release rates less than 75,000 microcuries per second, or increase by more than 15% in one hour at release rates greater than 75,000 microcuries per second. These required isotopic analyses are intended to support determination of the cause for the increase in offgas radiation levels, such as the onset of leakage from a fuel pin(s) which will likely result in an increase in the reactor coolant specific activity. However, several evolutions have been identified which result in a predictable, known and temporary increase in the indicated offgas levels such that the indicated levels may exceed those specified in the action statement. These evolutions are placing a condensate polisher in service, temporarily turning the offgas pre-treatment monitor sample pump off, swapping steam jet air ejectors and regenerating the offgas desiccant dryer(s). Although the noted evolutions have no effect on reactor operation, they do affect "steady-state operation" of the offgas or offyas process radiation monitoring system with respect to Technical Specification 3/4.4.5. These evolutions do not require an offgas sample to be taken. However, it is prudent to verify that the offgas pre-treatment process radiation monitor readings return to expected levels within four hours following the identified evolutions (or as soon as possible following the steam jet air ejector swap or desiccant dryer regeneration process). This will confirm that there were no other causes for the indicated increase in the radioactivity rate.

BASES

3/4.7.8 MAIN CONDENSER OFFGAS MONITORING

3/4.7.8.1 OFFGAS - EXPLOSIVE GAS MIXTURE

Although there should normally be more than sufficient steam flow to the steam jet air ejectors to ensure adequate dilution of hydrogen (and thus prevent the offgas from attaining hydrogen levels in excess of the flammability limit), this specification is provided to ensure that the concentration of potentially explosive gas mixtures contained in the offgas holdup system is monitored and maintained below the flammability limit of hydrogen. Maintaining the concentration of hydrogen below its flammability limit provides assurance that the releases of radioactive materials will be controlled in conformance with the requirements of General Design Criterion 60 of Appendix A to 10 CFR Part 50.

3/4.7.8.2 OFFGAS - NOBLE GAS RADIOACTIVITY RATE

Restricting the gross radioactivity rate of noble gases from the main condenser provides reasonable assurance that the total body exposure to an individual at the exclusion area boundary will not exceed a small fraction of the limits of 10 CFR Part 100 in the event this effluent is inadvertently discharged directly to the environment without treatment. This specification implements the requirements of General Design Criteria 60 and 64 of Appendix A to 10 CFR Part 50.

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The surveillance requirements provide adequate assurance that changes in the gross radioactivity rate of noble gasses from the main condenser are identified and monitored to ensure the Technical Specification limits are not exceeded. The Technical Specification requires continuous monitoring of the offgas recombiner effluent, as well as periodic isotopic analysis (at least once per 31 days) of a representative sample of gasses taken at the discharge of the offgas recombiner. In addition, an isotopic analysis must also be performed within four hours following an increase in the nominal steady state fission gas release of greater than 50%, after factoring out increases due to changes in thermal power levels. The required isotopic analysis is intended to support determination of the cause for the increase in offgas radiation levels, such as the onset of leakage from a fuel pin(s) which will likely result in an increase in the reactor coolant specific activity. However, there are two evolutions, swapping of the steam jet air ejectors and regeneration of the offgas system desiccant dryers, which are known to result in a predictable and temporary increase in the indicated offgas radioactivity rate. Since the increase is due to an evolution(s) known to cause such an increase and not due to an actual increase in "the nominal steady state fission gas release from the primary coolant", isotopic analysis of a gas sample is not required for these two specific evolutions. However, it is prudent to ensure that the offgas radiation level (radioactivity rate) returns to previous or expected levels within four hours or as soon as possible following the swap or regeneration process. This will confirm that there are no other causes for the indicated increase in the radioactivity rate.