

## 14.22 WASTE GAS INCIDENT

### 14.22.1 GENERAL

The most limiting waste gas incident is defined as an unexpected and uncontrolled release to the atmosphere of the radioactive xenon and krypton fission gases that are stored in one waste gas decay tank.

As the components of the waste gas system are subjected to pressures no greater than 150 psig, a failure is certainly not likely. However, a rupture of a waste gas decay tank is analyzed to define the limit of the hazard that could result from any malfunction in the radioactive waste gas system.

### 14.22.2 METHOD OF ANALYSIS

It is assumed that the maximum activity in any one waste gas decay tank would occur shortly after a heatup and subsequent reactor startup from a cold shutdown condition of one unit near the end of a 24-month operating cycle. It is further assumed that this unit has been operating for an extended period with 1% defective VAP fuel and that all of the coolant is let down and the noble gases from one RCS volume are stored in one tank. On this basis the noble gas activity in the tank, neglecting decay after letdown, is as follows:

<u>Isotope</u>	<u>Activity, curies (Reference 1)</u>
Kr 85m	672
Kr 85	7,637
Kr 87	393
Kr 88	1,242
Xe 131m	1,749
Xe 133	106,943
Xe 135	4,325
Xe 138	188

The activity is assumed to be released into the Auxiliary Building with the ventilation system discharging into the turbulent wake of the plant buildings. Therefore, the 0-2 hour meteorological model described in Chapter 2 is applicable. Doses were computed using the dose conversion factors and methodology described in ICRP-30.

### 14.22.3 RESULTS

For this incident the whole body immersion dose at the nearest exclusion zone boundary is 0.182 REM, using  $\text{Chi}/\text{Q} = 1.3 \times 10^{-4} \text{ sec}/\text{m}^3$ .

### 14.22.4 CONCLUSIONS

In the unlikely event of rupture of a gas decay tank resulting in a release of the maximum stored gaseous activity from one RCS volume, the dose at the nearest exclusion zone boundary is a factor of approximately 100 less than the 10 CFR Part 100 dose guideline value. Therefore, a waste gas incident does not represent undue hazard to the public health and safety.

This event is not affected by the transition to Advanced CE-14 HTP™ fuel.

### 14.22.5 REFERENCES

1. J.R. Massari, "RC Waste Processing System Incident and Waste Gas Incident Dose Analysis," CA05994, October 18, 2002