

TABLE III-39

Risk Factors for Surface Spills

Incident	Quantity of Fission Products Released	Calculated Consequence Factor, Max Potential Offsite Dose, rem		Estimated Probability Factor, ^a Events per year
		Body	Bone	
1. Small miscellaneous leaks	Much less than 1 Ci	-	-	Several/yr
2. Leaks from flanges and evaporators	10 Ci of ¹³⁷ Cs	-	-	0.1
3. Sludge spill due to hose or pipe rupture	200 Ci of ⁹⁰ Sr	-	-	0.05
4. Spill due to pluggage of tank inlet	2000 Ci of ¹³⁷ Cs	-	-	0.05
5. Spill following explosion in waste evaporator	7.2 × 10 ³ Ci of ¹³⁷ Cs	1.9	-	10 ⁻⁵ to 2 × 10 ⁻⁴
6. Spill following explosion in waste tank	1.5 × 10 ² Ci of ⁹⁰ Sr and 1.5 × 10 ⁴ Ci of ¹³⁷ Cs	3.9	1.0	10 ⁻⁴
7. 5-minute HHW spill	10 ³ Ci each of ⁹⁰ Sr and ¹³⁷ Cs	0.3	6.8	0.005

a. Values indicate only the probability of occurrence of a spill. The probability for ingestion after the spill is much lower.

TABLE III-40

Risk Factors for Atmospheric Releases

Incident	Quantity of Fission Products Released	Calculated Consequence Factor, Max Potential Offsite Dose, rem		Estimated Probability Factor, Events per year
		Body	Bone	
8. Overheating of tank	<1 Ci of ¹³⁷ Cs	1 × 10 ⁻⁴ (body)		0.05
9. Release from filter in tank ventilation system	2 Ci of ¹³⁷ Cs	2 × 10 ⁻⁴ (body)		0.02
10. Evaporator explosion	7 Ci of ¹³⁷ Cs	1 × 10 ⁻³ (body)		10 ⁻⁴ to 2 × 10 ⁻³
11. Hydrogen explosion in waste tank (plugs, lift, filters rupture)	11 Ci of ¹⁴⁴ Ce	7 × 10 ⁻³ (body)		10 ⁻³
	14 Ci of ¹⁰⁶ Ru	5 × 10 ⁻² (bone)		
	0.5 Ci of ⁹⁰ Sr	7 × 10 ⁻² (lung)		
	52 Ci of ¹³⁷ Cs			
12. Hydrogen explosion in waste tank (roof collapse)	0.005 Ci of ²³⁸ Pu			10 ⁻⁴
	110 Ci of ¹⁴⁴ Ce	7 × 10 ⁻² (body)		
	140 Ci of ¹⁰⁶ Ru	5 × 10 ⁻¹ (bone)		
	5 Ci of ⁹⁰ Sr	7 × 10 ⁻¹ (lung)		