

Table E-5. Americium and curium solutions.

Accident	Quantity released (curies)	Frequency (per year)	Accident consequences			Latent cancer fatalities (LCF)		
			Uninvolved worker (rem)	MEI ^a (rem)	Offsite population (person-rem)	Uninvolved worker	MEI	Offsite population
						(Point estimate of increased risk per year)	(Increased risk of LCF per occurrence)	
NO ACTION								
F-Canyon (americium/curium solutions only)								
Severe earthquake ^b	0.360	2.00E-04	5.39	0.241	1.43E+03	4.31-07 2.2E-03	2.4E-08 1.2E-04	1.4E-04 0.72
Inadvertent transfer of americium/curium solution to F-Canyon sump	1.01E-02	3.30E-02	2.12E-02	3.47E-03	26.0	2.8E-07 8.5E-06	5.7E-08 1.7E-06	4.3E-04 1.3E-02
Inadvertent transfer of americium/curium solution from processing vessel to ground outside building	1.73	8.80E-05	23.1	1.04	6.11E+03	1.6E-06 1.8E-02	4.6E-08 5.2E-04	2.7E-04 3.1
CONVERSION								
F-Canyon (full operation)								
Airborne release of plutonium solution resulting from coil and tube failure in F-Canyon water cooling tower	17.0	4.00E-02	16.5	0.755	4.42E+03	2.6E-04 6.6E-03	1.5E-05 3.8E-04	8.8E-02 2.2
Severe earthquake	73.0	2.00E-04	10.5	0.474	2.80E+03	8.4E-07 4.2E-03	4.7E-08 2.4E-04	2.8E-04 1.4
Fire in process vessel	56.2	6.10E-05	10.6	1.75	1.29E+04	2.6E-07 4.2E-03	5.3E-08 8.8E-04	3.9E-04 6.5
Inadvertent nuclear criticality	2.40E+05	1.60E-03	(c)	7.43E-03	12.9	(b) (b)	5.9E-09 3.7E-06	1.0E-05 6.5E-03
Inadvertent transfer of plutonium solution from a processing vessel to the ground outside building	24.9	1.10E-04	1.61	7.24E-02	4.30E+02	7.7E-08 6.4E-04	4.0E-09 3.6E-05	2.4E-05 0.22

Table E-5. (continued).

Accident	Quantity released (curies)	Frequency (per year)	Accident consequences			Latent cancer fatalities (LCF)		
			Uninvolved worker	MEI ^a (rem)	Offsite population (person-rem)	Uninvolved worker (Point estimate of increased risk per year)	MEI	Offsite population (Increased risk of LCF per occurrence)
			(rem)	(rem)	(person-rem)			
CONVERSION (continued)								
F-Canyon hot cell (americium/curium line)								
Severe earthquake	0.48	2.00E-04	6.1	0.28	1.6E+03	4.9E-07	2.8E-08	1.6E-04
						2.4E-03	1.4E-04	0.80
Unpropagated fire in gloveboxes	1.1	4.70E-02	2.2	0.36	2.7E+03	4.1E-05	8.5E-06	6.3E-02
						8.8E-04	1.8E-04	1.4
INTERIM STORAGE								
High-Level Waste Tanks								
Severe earthquake	(c)	2.00E-04	(c)	3.41E-03	0.26	(c)	3.4E-10	2.6E-08
						(c)	1.7E-06	1.3E-04
Hydrogen explosion in a tank	(c)	2.00E-05	0.291	1.13E-02	0.43	2.3E-09	1.1E-10	4.3E-09
						1.2E-04	5.7E-06	2.2E-04
Waste tank filter fire	(c)	2.5E-02	9.55E-02	3.68E-03	8.5	9.6E-07	4.6E-08	1.1E-04
						3.8E-05	1.8E-06	4.3E-03
Existing vaults (235-F)								
Rupture of storage container (e.g., radiolytic decay)	5.14E-04	2.00E-02	8.62E-04	1.43E-04	1.05	6.9E-09	1.4E-09	1.1E-05
						3.4E-07	7.2E-08	5.3E-04
Severe earthquake	1.05E-02	2.00E-04	0.60	7.0E-03	10	4.8E-08	7.0E-10	1.0E-06
						2.4E-04	3.5E-06	5.0E-03
Fire	2.0E-05	5.0E-02	6.0E-04	2.0E-05	0.10	1.2E-08	5.0E-10	2.5E-06
						2.4E-07	1.0E-08	5.0E-05

a. MEI = Maximally exposed individual.

- b. Contribution from americium/curium only, not entire contents of F-Canyon.
 - c. These data were not available.
-