

Table E-7. H-Canyon plutonium solutions.

Accident	Quantity released (curies)	Frequency (per year)	Accident consequences			Latent cancer fatalities (LCF)		
			Uninvolved worker	MEI ^a	Offsite population	Uninvolved worker	MEI	Offsite population
			(rem)	(rem)	(person-rem)	(Point estimate of increased risk per year) (Increased risk of LCF per occurrence)	(Point estimate of increased risk per year) (Increased risk of LCF per occurrence)	(Point estimate of increased risk per year) (Increased risk of LCF per occurrence)
NO ACTION								
H-Canyon (limiting solution source term)								
Unpropagated fire in solution vessel	0.594	2.02E-02	2.15	0.355	2.62E+03	1.7E-05 8.6E-04	3.6E-06 1.8E-04	2.6E-02 1.3
Inadvertent transfer from a processing vessel to the ground outside the H-Canyon building	1.32	4.00E-04	31.0	1.42	8.27E+03	1.0E-05 2.4E-02	2.8E-07 7.1E-04	1.7E-03 4.1
Inadvertent transfer of solution to H-Canyon sump	3.15E-02	8.10E-02	0.114	1.88E-02	1.39E+02	3.7E-06 4.6E-05	7.6E-07 9.4E-06	5.6E-03 7.0E-02
Airborne release of solutions resulting from coil and tube failure in H-Canyon cooling system	2.08E-02	2.55E-03	0.136	6.25E-03	36	1.4E-07 5.4E-05	8.0E-09 3.1E-06	4.6E-05 1.8E-02
Inadvertent nuclear criticality	4.76E+04	1.56E-03	(b)	1.32E-03	(b)	(b) (b)	1.0E-09 6.6E-07	(b) (b)
Severe earthquake	1.17	2.00E-04	27.4	1.26	7.31E+03	4.4E-06 2.2E-02	1.3E-07 6.3E-04	7.3E-04 3.7
CONVERSION								
H-Canyon (limiting solution source term)								
Same accident analysis as that for the No-Action Alternative								
HB-Line, Phase II (normal processing)								
Severe earthquake	7.00E-04	2.00E-04	1.79E-02	8.82E-04	4.83	1.4E-09 7.2E-06	8.3E-11 4.1E-07	4.8E-07 2.4E-03
Unpropagated fire in gloveboxes	1.60E-03	4.70E-02	6.46E-03	1.07E-03	7.88	1.2E-07 2.6E-06	2.5E-08 5.4E-07	1.9E-04 3.9E-03

Table E-7. (continued).

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)	
INTERIM STORAGE								
Existing Vaults (235-F)								
Rupture storage container (e.g., radiolytic decay)	5.14E-04	2.00E-02	8.62E-04	1.43E-04	1.05	6.9E-09 3.4E-07	1.4E-09 7.2E-08	1.1E-05 5.3E-04
Severe earthquake	1.05E-02	2.00E-04	0.60	7.0E-03	10	4.8E-08 2.4E-04	7.0E-10 3.5E-06	1.0E-06 5.0E-03
Fire	2.0E-5	5.0E-02	6.0E-04	2.0E-05	0.10	1.2E-08 2.4E-07	5.0E-10 1.0E-08	2.5E-06 5.0E-05
High-Level Waste Tanks								
Severe earthquake	(b)	2.00E-04	(b)	3.41E-03	0.26	(b) (b)	3.4E-10 1.7E-06	2.6E-08 1.3E-04
Hydrogen explosion in a tank	(b)	2.00E-05	0.291	1.13E-02	0.43	2.3E-09 1.2E-04	1.1E-10 5.7E-06	4.3E-09 2.2E-04
Waste tank filter fire	(b)	2.5E-02	9.55E-02	3.68E-03	8.5	9.6E-07 3.8E-05	4.6E-08 1.8E-06	1.1E-04 4.3E-03
F-Canyon (without dissolver)								
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	64.7	2.00E-04	9.91	0.447	2.64E+03	7.9E-07 4.0E-03	4.5E-08 2.2E-04	2.6E-04 1.3
Fire in a plutonium process vessel	56.2	6.10E-05	10.6	1.75	1.29E+04	2.6E-07 4.3E-03	5.3E-08 8.8E-04	3.9E-04 6.5
Inadvertent nuclear criticality	2.40E+05	1.60E-03	(b)	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	7.40E-05	1.61	7.24E-02	4.30E+02	4.8E-08 6.4E-04	2.7E-09 3.6E-05	1.6E-05 0.22
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Table E-7. (continued).

Accident	Quantity released (curies)	Frequency (per year)	Accident consequences			Latent cancer fatalities (LCF)		
			Uninvolved worker (rem)	MEI ^a (rem)	Offsite population (person-rem)	Uninvolved	MEI	Offsite
						worker (Point estimate of increased risk per year) (Increased risk of LCF per occurrence)	population (Point estimate of increased risk per year) (Increased risk of LCF per occurrence)	population (Point estimate of increased risk per year) (Increased risk of LCF per occurrence)
ADDITIONAL CONVERSION								
Actinide Packaging Facility (FB-Line drying)								
Severe earthquake	1.74	2.00E-04	4.54	0.208	1.22E+03	3.6E-07 1.8E-03	2.0E-08 1.0E-04	1.2E-04 0.62
Inadvertent nuclear criticality	(b)	5.26E-05	(b)	2.64E-03	2.93	(b) (b)	6.9E-11 1.3E-06	7.7E-08 1.5E-03
Propagated fire in gloveboxes	3.37E-03	5.26E-03	1.39E-03	2.29E-04	1.69	2.9E-09 5.5E-07	6.1E-10 1.2E-07	4.5E-06 8.4E-04
FB-Line (processing)								
Severe earthquake	4.34	2.00E-04	11.3	0.521	3.06E+03	9.0E-07 4.5E-03	5.2E-08 2.6E-04	3.0E-04 1.5
Inadvertent nuclear criticality in processing solution or solid	(b)	1.40E-04	(b)	2.64E-03	2.93	(b) (b)	1.8E-10 1.3E-06	2.1E-07 1.5E-03
Propagated fire in processing vessels or gloveboxes	0.105	5.26E-03	4.33E-02	7.13E-03	52.7	9.1E-08 1.7E-05	1.9E-08 1.3E-06	1.4E-04 2.6E-02
F-Canyon (second plutonium cycle contribution)								
Airborne release of plutonium solution resulting from coil and tube failure in F-Canyon water cooling tower	0.218	4.00E-02	0.531	2.44E-02	1.44E+02	8.8E-06 2.2E-04	4.8E-07 1.2E-05	2.9E-03 7.2E-02
Severe earthquake	0.365	2.00E-04	3.43	0.158	9.22E+02	2.8E-07 1.4E-03	1.6E-08 7.9E-05	9.2E-05 0.46
Fire in a plutonium process vessel	1.59	6.10E-05	2.27	0.378	2.78E+03	5.5E-08 9.0E-04	1.2E-08 1.9E-04	8.5E-05 1.4
Inadvertent nuclear criticality	2.40E+05	1.60E-03	(b)	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.	9.65E-02	7.40E-05	0.872	4.02E-02	2.35E+02	2.6E-08 3.5E-04	1.5E-09 2.0E-05	8.7E-06 0.12
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Accident	Quantity released (curies)	Frequency (per year)	Accident consequences			Latent cancer fatalities (LCF)		
			Uninvolved		Offsite	Uninvolved	MEI	Offsite
			worker (rem)	MEI ^a (rem)	population (person-rem)	worker (Point estimate of increased risk per year)	MEI (Increased risk of LCF per occurrence)	population (Increased risk of LCF per occurrence)
POST-STABILIZATION STORAGE								
Storage Vault								
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. These data were not available.								

b. These data were not available.