

Table E-8. H-Canyon neptunium 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								
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
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	8.28E-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-8. (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
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 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
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

<i>Hydrogen explosion in a tank</i>	<i>(b)</i>	<i>2.00E-05</i>	<i>0.291</i>	<i>1.13E-02</i>	<i>0.43</i>	<i>2.3E-09</i>	<i>1.1E-10</i>	<i>4.3E-09</i>
						<i>1.2E-04</i>	<i>5.7E-06</i>	<i>2.2E-04</i>
<i>Waste tank filter fire</i>	<i>(b)</i>	<i>2.5E-02</i>	<i>9.55E-02</i>	<i>3.68E-03</i>	<i>8.5</i>	<i>9.6E-07</i>	<i>4.6E-08</i>	<i>1.1E-04</i>
						<i>3.8E-05</i>	<i>1.8E-06</i>	<i>4.3E-03</i>

Table E-8. (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)		
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
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
F-Canyon (second plutonium cycle contribution)								
Airborne release 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 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 transfer of 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
POST-STABILIZATION STORAGE								
Storage Vault								
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-05	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

- a. MEI = maximally exposed individual.
 - b. These data were not available.
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