

Table E-6. H-Canyon uranium 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 (normal solution term)								
Unpropagated fire in solution vessel	2.90E-02	3.56E-02	8.92E-03	5.41E-02	65.8	1.3E-07	9.6E-07	1.2E-03
						3.6E-06	2.7E-05	3.3E-02
Inadvertent transfer from a processing vessel to the ground outside the H-Canyon building	5.61E-02	4.03E-04	3.11E-02	0.678	1.81E+02	5.0E-09	1.4E-07	3.6E-05
						1.2E-05	3.4E-04	9.1E-02
Inadvertent transfer of solution to H-Canyon sump	2.75E-04	8.06E-02	8.43E-05	5.11E-04	0.622	2.7E-09	2.1E-08	2.5E-05
						3.4E-08	2.6E-07	3.1E-04
Airborne release of solutions resulting from coil and tube failure in H-Canyon cooling system	19.6	2.55E-03	1.15E-02	0.253	67.6	1.2E-08	3.2E-07	8.6E-05
						4.6E-06	1.3E-04	3.4E-02
Inadvertent nuclear criticality	4.76E+04	1.56E-03	(b)	1.32E-03	(b)	(b)	1.0E-09	(b)
						(b)	6.6E-07	(b)
Severe earthquakes	0.149	2.00E-04	2.53E-03	1.15E-04	0.674	2.0E-10	1.2E-11	6.7E-08
						1.0E-06	5.8E-08	3.4E-04
H-Outside (UNH tank)								
Transfer error	(b)	1.75E-02	(b)	4.30E-05	0.286	(b)	3.8E-10	2.5E-06
						(b)	2.2E-08	1.4E-04
Liquid release due to severe earthquake	(b)	2.00E-04	(b)	4.58E-02	2.72E+02	(b)	4.6E-09	2.8E-05
						(b)	2.3E-05	0.14

Table E-6. (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 (Point estimate of increased risk per year) (Increased risk of LCF per occurrence)	MEI	Offsite population
CONVERSION								
FA-Line (normal operations)								
Eructation (spewing from overpresurization) in vessel during processing	3.40E-05	4.00E-02	1.97E-04	9.04E-06	5.49E-02	3.2E-09	1.8E-10	1.1E-06
						7.9E-08	4.5E-09	2.7E-05
"Red-oil" explosion (i.e., uncontrollable reaction of contaminated organic materials) in the denitrator	2.30E-05	1.40E-04	1.33E-04	6.12E-06	3.71E-02	7.4E-12	4.3E-13	2.6E-09
						5.3E-08	3.1E-09	1.9E-05
Design-basis tornado	2.60	1.00E-06	(b)	2.9E-05	8.0	(b)	1.5E-14	4.0E-09
						(b)	1.5E-08	4.0E-03
Severe earthquake	1.29E-06	2.00E-04	7.47E-06	3.43E-07	2.08E-03	6.0E-13	3.4E-14	2.1E-10
						3.0E-09	1.7E-10	1.0E-06
Uranium Solidification Facility (normal operations)								
Severe earthquake	(b)	2.00E-04	5.90E-02	1.01E-04	0.700	4.7E-09	1.0E-11	7.0E-08
						2.4E-05	5.1E-08	3.5E-04
Uncontrolled chemical reaction during processing in denitrator pot	4.91E-07	4.90E-06	5.25E-07	8.22E-08	6.26E-04	1.0E-15	2.0E-16	1.5E-12
						2.1E-10	4.1E-11	3.1E-07
Inadvertent criticality	(b)	2.27E-04	16.4	1.33E-02	18.8	1.5E-06	1.5E-09	2.1E-06
						6.6E-03	6.7E-06	9.4E-03

Table E-6. (continued).

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)		
CONVERSION (continued)								
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	1.39E-07 5.44E-05	7.97E-09 3.13E-06	4.59E-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
INTERIM STORAGE								
Storage vault (Uranium Storage Facility)								
Severe earthquake	(b)	2.00E-04	5.90E-02	1.01E-04	0.700	4.7E-09 2.4E-05	1.0E-11 5.1E-08	7.0E-08 3.5E-04
Inadvertent criticality	(b)	2.27E-04	16.4	1.33E-02	18.8	1.5E-06 6.6E-03	1.5E-09 6.7E-06	2.1E-06 9.4E-03
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	4.6E-08	1.1E-04
						3.8E-05	1.8E-06	4.3E-03

a. MEI = Maximally exposed individual.

b. These data were not available.
