

Table 5-4. Estimated average annual cumulative radiological doses and resulting health effects to offsite population and facility workers.

Activity	Maximally exposed individual				Offsite population ^a				Workers	
	Dose from airborne releases (rem)	Dose from liquid releases (rem)	Total Dose (rem)	Probability of fatal cancer risk	Collective dose from airborne releases (person-rem)	Collective dose from liquid releases (person-rem)	Total collective dose (person-rem)	Excess latent cancer fatalities	Collective dose	Excess latent cancer fatalities
SRS Baseline ^b	5.0×10^{-5}	1.3×10^{-4}	1.8×10^{-4}	9.5×10^{-8}	2.2	2.4	4.6	2.3×10^{-3}	160	0.066
Management of Spent Nuclear Fuel ^c	1.5×10^{-5}	5.7×10^{-5}	7.2×10^{-5}	3.6×10^{-8}	0.56	0.19	0.75	3.8×10^{-4}	55	0.022
Surplus HEU Disposition ^d	2.5×10^{-6}	(e)	2.5×10^{-6}	1.3×10^{-8}	0.16	(e)	0.16	8.0×10^{-5}	11	4.4×10^{-3}
Tritium Extraction Facility ^f	2.0×10^{-5}	(e)	2.0×10^{-5}	1.0×10^{-8}	0.77	(e)	0.77	3.9×10^{-4}	4	1.6×10^{-3}
Defense Waste Processing Facility ^g	1.0×10^{-6}	(e)	1.0×10^{-6}	5.0×10^{-10}	0.071	(e)	0.071	3.6×10^{-5}	120	0.048
Surplus Plutonium Disposition ^h	4.0×10^{-6}	(e)	4.0×10^{-6}	2.0×10^{-9}	1.6	(e)	1.6	8.0×10^{-4}	541	0.22
Management Plutonium Residues/ Scrub Alloy ⁱ	2.4×10^{-7}	(e)	2.4×10^{-7}	1.2×10^{-10}	0.026	(e)	0.026	1.3×10^{-5}	25	0.01
DOE complex miscellaneous components ^j	4.4×10^{-6}	4.2×10^{-8}	4.4×10^{-6}	2.2×10^{-9}	7.0×10^{-3}	2.4×10^{-4}	7.2×10^{-3}	3.6×10^{-6}	2	0.001
Sodium-Bonded Spent Nuclear Fuel ^k	3.9×10^{-7}	1.2×10^{-7}	5.1×10^{-7}	2.6×10^{-10}	1.9×10^{-2}	6.8×10^{-4}	2×10^{-2}	9.8×10^{-6}	38	0.015
Plant Vogtle ^l	5.4×10^{-7}	5.4×10^{-5}	5.5×10^{-5}	2.7×10^{-8}	0.042	2.5×10^{-3}	0.045	2.2×10^{-5}	NA	NA
		Total	9.8×10^{-5}	2.4×10^{-4}	3.4×10^{-4}	1.7×10^{-7}	5.4	2.6	8.1	4.0×10^{-3}
										1,030
										0.41

N/A = not available

a. A collective dose to the 50-mile (80-kilometer) population for atmospheric releases and to the downstream users of the Savannah River for aqueous releases.

b. Arnett and Mamatey (1998) for 1997 data for MEI and population. Worker dose is based on 1997 data (WSRC 1998).

c. Maximum-impacts alternative.

d. DOE (1996a); HEU = highly enriched uranium.

e. Less than minimum reportable levels.

f. DOE (1998b, 1999b).

g. DOE (1994).

h. DOE (1998c).

i. DOE (1998a).

j. Derived from impacts from conventional processing of Group A fuel.

k. DOE (1999).

l. NRC (1996).

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