Reference and Typical Person Consumption and Usage Rates

(Note: Values developed by Savannah River National Laboratory for SRS in Stone and Jannik, 2013)

Pathway	Reference Person 95th percentile	Typical Person 50th percentile	Units
Fish consumption	24	3.7	kg/y
Marine invertebrates	Not applicable	1.5	kg/y
Boating	44	3,110,000	h/y (person-h/y)
Swimming	14	295,000	h/y (person-h/y)
Shoreline recreation	20	822,000	h/y (person-h/y)
Water consumption	800	300	L/y

Population Served by Downriver Water Treatment Plants

Beaufort-Jasper Purrysburg Plant		58,000	persons
Beaufort-Jasper Chelsea Plant		77,000	persons
City of Savannah Industrial & Domestic Water Supply		26,344	persons

50-mile Population

2010 US Census		781,060	persons

Site-Specific Parameters Used in Liquid Dose Calculations

		Value	Units
Savannah River *effective* flow rate at Hwy 301 for 2013 [a]		5,752	ft^3/s
River dilution in estuary		3	
Transport Time			
Recreation		1	d
Drinking Water		1.5	d
Fish		2	d
Treatment Plant Drinking Water		4	d
Sport Fish		10	d
Commercial Fish		13	d
Salt Water Invertebrate		13	d
Edible aquatic food harvest			
Fish - sport		8,220	person-kg/y
Fish - commercial		57,000	person-kg/y
Invertebrates - salt water		380,000	person-kg/y
Shoreline width factor		0.2	
Fish bioaccumulation factor for cesium		3,000	

a) The effective river flow rate was based on tritium concentration measurements.
   The 2013 measured river flow rate was 8,479 cfs. See Data Table 6-6 for details.

Irrigation Parameter Values:			
Parameter	**Value**	**Units**	**Comments**
Irrigated land area:	1000	acres	
Pop dose determined by:	area		POP or AREA
Savannah River flow rate:	5,752	cu.ft/sec	equals LT flow rate
River transit time:	2	d	
Irrigation rate:	3.6	L/sq.m/d	102 L/sq.m/mo
Weathering removal constant:	0.0495	1/d	14 d half-life
Crop exposure time:	70	d	
Grass exposure time:	30	d	
Buildup time in soil:	20,440	d	50 yr plant life
Vegetable crop yield:	2.2	kg/sq.m	
Pasture grass yield:	0.7	kg/sq.m	
Surface density of soil:	240	kg/sq.m	
Pasture grass hold-up time:	0	d	
Veg transport time (individual):	1	d	
Veg transport time (population):	6	d	
Milk transport time:	3	d	
Meat transport time:	6	d	
Fraction of fodder from irrigated field:	1		
Cattle consumption rate of fodder:	36	kg/d	beef
	52	kg/d	milk
Fraction of water from Savannah River:	1		
Cattle consumption rate of water:	28	L/d	beef
	50	L/d	milk
Reference Person (95th percentile)	289	kg/yr	veg
	31	kg/yr	leafy
	81	kg/yr	meat
	260	L/yr	milk
Typical Person (50th percentile)	89	kg/yr	veg
	11	kg/yr	leafy
	32	kg/yr	meat
	69	L/yr	milk
Total Production:	4.25E+06	kg/yr	veg
	1.06E+06	kg/yr	leafy
	4.05E+04	kg/yr	meat
	1.38E+06	L/yr	milk
Fractional retention on leaves:	0.25		all nuclides