

TABLE III-36

Calculated Radioactivity Levels in the Savannah River and Potential Dose Commitment for an Accidental 5-Minute HHW Spill

Nuclide	Half-Life	Concentration in Purex HHW, ^a Ci/liter	Concentration in Savannah River from Postulated Spill, μCi/ml ^c	Dose Commitment, rem ^b Body	Bone	LLI ^e
⁸⁹ Sr	51d	26	0.018	0.013	0.46	
⁹⁰ Sr	28y	5.2	0.0035	0.016	6.3	
⁹⁵ Zr	65d	52 ^d	0.039	-		1.4
⁹⁵ Nb	35d	120 ^d	0.084	-		2.1
¹⁰⁶ Ru	1y	13 }	0.018	0.004		3.6
¹⁰⁶ Rh	2h	13 }				
¹³⁷ Cs	30y	5.2	0.0035	0.26		
¹⁴⁴ Ce	285d	104 }	0.146	0.002		14.6
¹⁴⁴ Pr	17.3m	104 }				
¹⁴⁷ Pm	2.5y	20	0.014	-		0.2
			Total	0.30	6.8	22.

a. Assumed maximum concentrations.

b. 70-year dose commitment to an individual from ingestion of 1200 ml, the average amount of water people drink in a day.

c. Assuming complete suspension of insolubles.

d. Assuming no Zr or Nb is removed in head-end processing.

e. Lower large intestine.