2/9/00

Cases with one core and ruthenium:

Store files in "1core_ru" directory.

Do the MACCS calculations at 1 year.

Case #	Cases	Input and Output Decks
Base Case	3.5 cores, no Ru release	
11	3.5 cores, Ru release	
21	1 core (final core offload), no Ru release	
31	1 core (final core offload), Ru releas	

Step 1: Rerun Base Case

atmos 7d
early 299
chrnc1_n
SURSIT
METSUR
} BESTD.OUT

I checked my rerun Base Case against SAND99-02 numbers. They were exactly the same.

FJ

Case		Distance	Prompt Fatalities	Societal Dose	Cancer Fatalities
Base Case	SMSAB-99-02	0-100	1.01	45,400	2,320
		0-500	1.01	595,000	26,800
	Rerun of input decks	0-100	1.01	45,400	2,320
		0-500	1.01	595,000	26,800
ELEVEND		0-100	95.3	95,300	9,150
		0-500	95.3	624,000	33,900
ELEVENAD		0-100	94.4	95,100	9,120
		0-500	94.4	627,000	34,000
ELEVENBD		0-100	94.3	95,100	9,120
		0-500	94.3	627,000	34,000
ELEVENCD		0-100	1.02	45,400	2,320
		0-500	1.02	595,000	26,800
ELEVENDD		0-100	1.01	45,400	2,320
		0-500	1.01	595,000	26,800

Step 2: Run Case 11

Change Ru release fraction from 2×10^{-5} to 1.

atmos 7d → atmos 11d

atmos 11d
early 299
chrnel_n
SURSIT
METSUR
} ELEVEND.OUT

Run Case 11a

Change Co inventories to 0.

atmos 11d → atmos 1ad

atmos 1ad
early 299
chrnel_n
SURSIT
METSUR
} ELEVENAD.

Run Case 11b

Change Ru-103 inventory to 0 (Co inventories are 0)

atmos/ad → atmos/bd

atmos/bd
early 299
chrncl_n
SURSIT
METSUR
} ELEVEN BD

Run case 11c

Change Ru-106 inventory to 0 (Co inventories are 0)

atmos/ad → atmos/cd

atmos/cd
early 299
chrncl_n
SURSIT
METSUR
} ELEVENCD

Run Case 11d

Change Ru-103 and Ru-106 inventories to 0
(Co inventories are 0)

atmos/ad → atmos/dd

atmos/dd
early299
chrnc1_n
SUBSET
METSUR
} ELEVENDD

Evaluate inventory (double-check 5/14/99 numbers)

Ru-106	Ci in core at $t=0$	2.48×10^7	✓
	Ci in core at $t=1$ yr	1.24×10^7	e^{-2t}
	Ci in batch 11 at $t=1$ yr	5.95×10^6	✓
	Ci in batches 1-11 at $t=1$ yr	9.13×10^6	✓

Ci in batches 1-10 :

$$\begin{array}{r} 9.13 \times 10^6 \\ -\ 5.95 \times 10^6 \\ \hline 3.18 \times 10^6 \end{array}$$

Ci in SFP

$$\begin{array}{r} 3.18 \times 10^6 \\ 1.24 \times 10^7 \\ \hline 1.55 \times 10^7 \text{ Ci} \end{array} \quad \times 3.7 \times 10^{10}$$

Bq in SFP = 5.76×10^{17} Bq vs. 5.77×10^{17} Bq ✓

Cs-137 $\qquad$ **Ci**

in core at $t=0$ $\quad 5.84 \times 10^6$ ✓

in core at $t=1$ yr $\quad 5.71 \times 10^6 \qquad e^{-\lambda t}$

in batch 11 at $t=1$ yr $\quad 2.77 \times 10^6$

in batches 1-11 at $t=1$ yr $\quad 1.97 \times 10^7$ ✓

in batches 1-10 $\quad 1.97 \times 10^7$

$- \; 2.77 \times 10^6$

1.69×10^7

in SFP $\quad 1.69 \times 10^7$

5.71×10^6

2.26×10^7

Bq in SFP $= 2.26 \times 10^7 \times 3.7 \times 10^{10} = 8.38 \times 10^{17}$ vs. 8.38×10^{17} ✓