Basu, Sudhamay

From: Osborn, Douglas [dosborn@sandia.gov]
Sent: Thursday, May 17, 2012 2:07 PM
To: Ross, Kyle Wayne; Esmaili, Hossein; Basu, Sudhamay; Lee, Richard; Notafrancesco, Allen
Cc: Cardoni, Jeffrey Neil; Bixler, Nathan E
Subject: MACCS2 results
Attachments: Results.pdf

All,

I've attached a PDF with all the MACCS2 results for population weighted risk, land contamination, population dose, peak dose, and cleanup costs.

I've also provide graphs for each of the metrics.

Also, I had to rerun Case 3 – Filtered and Case 4 – Filtered. I incorrectly applied the DF=10 to the noble gases. As a result, the dose and risk results have risen slightly (2nd or 3rd decimal).

The reason the SOARCA – Filtered case is so much lower than the other results is because I applied the DF=10 to ALL release pathways since there is no vent path.

Regards,
Doug

C-14

Population Weighted Risk (LCF Risk per event)

	SOARCA	SOARCA - filtered	Case 1	Case 2	Case 3	Case 3 - Filtered	Case 4	Case 4 - Filtered
0-10 miles	9.20E-05	2.09E-05	9.64E-05	1.56E-04	9.58E-05	5.60E-05	1.55E-04	1.25E-04
0-20 miles	7.85E-05	1.19E-05	8.49E-05	1.16E-04	8.67E-05	3.93E-05	1.22E-04	8.61E-05
0-30 miles	5.40E-05	7.60E-06	5.84E-05	8.42E-05	6.14E-05	2.62E-05	8.86E-05	5.94E-05
0-40 miles	3.43E-05	4.55E-06	3.69E-05	5.70E-05	4.03E-05	1.61E-05	5.96E-05	3.82E-05
0-50 miles	2.79E-05	3.62E-06	2.99E-05	4.76E-05	3.30E-05	1.29E-05	4.94E-05	3.14E-05

Contaminated Area (km^2)

Contamination Level ($\mu Ci/m^2$ ^{137}Cs)	SOARCA	SOARCA - filtered	Case 1	Case 2	Case 3	Case 3 - Filtered	Case 4	Case 4 - Filtered
1	2,090	97	2,040	8,920	1,990	427	7,630	4,470
5	275	7	258	1,040	254	49	871	554
15	55	1	50	280	54	8	215	136
40	10	0.1	9	74	11	1	53	33

Population Dose (REM) -- 50 mile radius

SOARCA	SOARCA - filtered	Case 1	Case 2	Case 3	Case 3 - Filtered	Case 4	Case 4 - Filtered
322,000	41,500	359,000	514,000	397,000	183,000	552,000	392,000

Peak Dose at site boundary (REM) -- 1 week dose

SOARCA	SOARCA - filtered	Case 1	Case 2	Case 3	Case 3 - Filtered	Case 4	Case 4 - Filtered
43	4	52	20	48	6.0	23	4.7

Total Economic Costs ($) for 0-10 miles

SOARCA	SOARCA - filtered	Case 1	Case 2	Case 3	Case 3 - Filtered	Case 4	Case 4 - Filtered
$134,000,000	$13,300,000	$135,000,000	$217,000,000	$195,000,000	$88,900,000	$232,000,000	$155,000,000

Total Economic Costs ($) for 0-50 miles

SOARCA	SOARCA - filtered	Case 1	Case 2	Case 3	Case 3 - Filtered	Case 4	Case 4 - Filtered
$1,140,000,000	$31,200,000	$1,380,000,000	$1,910,000,000	$1,730,000,000	$274,000,000	$2,050,000,000	$1,000,000,000

Population Weighted Risk (LCF Risk per event)

	Case 6	Case 7 (44 hrs)	Case 7 – Filtered (44 hrs)	Case 8	Case 9	Case 9 - Filtered	Case 10
0-10 miles	8.47E-05	6.38E-05	1.35E-05	1.70E-04	1.31E-04	9.82E-05	5.43E-05
0-20 miles	6.56E-05	4.61E-05	7.24E-06	1.48E-04	1.65E-04	9.89E-05	6.88E-05
0-30 miles	4.58E-05	3.10E-05	4.65E-06	1.02E-04	1.20E-04	7.18E-05	4.80E-05
0-40 miles	3.01E-05	1.97E-05	2.80E-06	6.62E-05	8.14E-05	4.78E-05	3.13E-05
0-50 miles	2.45E-05	1.61E-05	2.23E-06	5.47E-05	6.71E-05	3.91E-05	2.59E-05

Contaminated Area (km^2)

Contamination Level ($\mu Ci/m^2$ ^{137}Cs)	Case 6	Case 7 (44 hrs)	Case 7 – Filtered (44 hrs)	Case 8	Case 9	Case 9 - Filtered	Case 10
1	1,760	1,440	62	8,630	5,090	1,410	2,680
5	267	175	4	1,010	630	192	404
15	72	34	0.4	246	154	41	101
40	19	7	0.04	60	39	8	29

Population Dose (REM) -- 50 mile radius

Case 6	Case 7 (44 hrs)	Case 7 – Filtered (44 hrs)	Case 8	Case 9	Case 9 - Filtered	Case 10
305,000	235,000	37,300	709,000	893,000	544,000	330,000

Peak Dose at site boundary (REM) -- 1 week dose

Case 6	Case 7 (44 hrs)	Case 7 – Filtered (44 hrs)	Case 8	Case 9	Case 9 - Filtered	Case 10
56	45	5.6	67	209	96	68

Total Economic Costs ($) for 0-10 miles

Case 6	Case 7 (44 hrs)	Case 7 – Filtered (44 hrs)	Case 8	Case 9	Case 9 - Filtered	Case 10
$126,000,000	$72,400,000	$8,180,000	$234,000,000	$377,000,000	$279,000,000	$125,000,000

Total Economic Costs ($) for 0-50 miles

Case 6	Case 7 (44 hrs)	Case 7 – Filtered (44 hrs)	Case 8	Case 9	Case 9 - Filtered	Case 10
$847,000,000	$485,000,000	$17,800,000	$2,480,000,000	$5,720,000,000	$2,970,000,000	$1,790,000,000