

From: "Gregory, Julie J" <jjgrego@sandia.gov>
To: "Jason Schaperow" <JHS1@nrc.gov>
Date: Fri, Nov 5, 1999 1:17 PM
Subject: RE: RE: MACCS User Assistance

Jason,

Hi, here we go again...!

I got a chance to look at your results and the increase in population dose with decreasing source term inventory is a function of the long-term direct dose received by the returning population. Ingestion dose and decontamination dose both decrease with decreasing source term, whereas long-term direct dose increases with decreasing source term - this is seen by looking at the type 9 results (LONG-TERM POPULATION DOSE IN A GIVEN REGION...).

If you look at the type 12 results (IMPACTED AREA/POPULATION RESULTS...) for your calculations for the regions of interest (100mi,500mi) there are some interesting results. For the 0-100mi region, the total population is 274,000, the number of people not allowed to return to the region until decontamination/interdiction is complete is:

30day decay - 177,000

90day decay - 177,000

1year decay - 176,000

the number that are NEVER allowed to return (population condemnation) is:

30day decay - 67,400

90day decay - 67,400

1year decay - 66,000

For the 0-500mi region, the total population is 6,630,000, the number of people not allowed to return to the region until decontamination/interdiction is complete is:

30day decay - 3,370,000

90day decay - 3,320,000

1year decay - 3,090,000

the number that are NEVER allowed to return (population condemnation) is:

30day decay - 67,400

90day decay - 67,400

1year decay - 66,000

(these people are all within 100mi of the release since numbers are same as 0-100mi)

Note that for the 0-100mi radius, the number of people not allowed to return until decontamination is performed is about the same no matter what the decay time is. In contrast, for the 0-500mi radius, that number is actually greater for the larger source term, resulting in less population returning before the decontamination occurs. So, as the source term decreases, the number of people allowed to return to the region before decontamination between 100-500mi increases, and that additional exposure time must result in higher doses to that population. This is similar to what we saw in your earlier puzzling problem.

I also did a check where I ran your calculations with the DSCRLT (long-term relocation dose criterion) set to min and max values, and indeed, the total population dose and latent cancers decrease with decreasing source term (since either the entire population is allowed to return early or the entire

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population is never allowed to return).

I hope that this helps shed some light on your results - they make sense once you see what is going on with relocating population back onto the problem grid (although they are difficult to discuss!). Call or email me if you have any other questions.

Best regards,

Julie
505-844-7539
jjgrego@sandia.gov

-----Original Message-----

From: Jason Schaperow [mailto:JHS1@nrc.gov]
Sent: Tuesday, November 02, 1999 1:42 PM
To: jjgrego@sandia.gov
Cc: Cgt@nrc.gov
Subject: Re: RE: MACCS User Assistance

Julie,

I have attached the MACCS2 input and output files for my base case. I will try to contact you tomorrow to discuss.

Thanks.
Jason

>>> "Gregory, Julie J" <jjgrego@sandia.gov> 10/18 2:25 PM >>>
Jason,

I am currently in preparation for a trip to Los Alamos, and will be back in the office on Thursday 10/21. We probably could discuss this in detail then. I would suspect the increase in the 0-500 mi population dose (with decreased source term inventory) is probably similar to the Cs-134 anomaly we discussed earlier. There may also be some increased dose in the foodchain pathway for similar reasons. I cannot make any better judgments without looking in more detail at the calculations. Touch base with me on Thursday or Friday.

Julie

-----Original Message-----

From: Jason Schaperow [mailto:JHS1@nrc.gov]
Sent: Monday, October 18, 1999 11:16 AM
To: jjgrego@sandia.gov
Cc: CGT@nrc.gov; JDR@nrc.gov
Subject: MACCS User Assistance

Julie,

I have attached a request for MACCS User Assistance. Please call me when you are available. Thank you.

Jason

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