From:	Esh, David
To:	Yadav, Priya
Subject:	FW: RE: Question about consumption rates
Date:	Monday, February 10, 2020 11:15:54 AM
Attachments:	image001.png

From: Mehta, Sunil <sunil_mehta@rl.gov>
Sent: Monday, January 20, 2020 3:02 PM
To: Esh, David <David.Esh@nrc.gov>
Subject: [External_Sender] RE: Question about consumption rates

Hello Dave,

Good to hear from you. Happy New Year to you as well.

I agree that there is limited information available in the PA regarding the vegetable consumption rate but we can add more when the document gets revised. The last paragraph on p. 6-136 of the PA document (RPP-ENV-58782) provides the basis for the calculation for the groundwater pathway dose and references the Exposure Scenario Data Package (RPP-ENV-58813) where the calculations are documented. The DOE-STD-1196-2011 (Derived Concentration Technical Standard) requires the representative person to be age- and gender-weighted based on the population and that is why we had to estimate the crop ingestion rate in this manner. Then we took the 95^{th} percentile of the underlying distribution to estimate the ingestion rates for the representative person. This led to value of 272.3 kg/yr. Note that the mean value of the distribution is much lower, like 101 kg/yr. The primary reference for the parameter values was the Exposure Factors Handbook: 2011 Edition (EPA/600/R-090/052). More details are presented in Appendix P (along with Table P-8) of RPP-ENV-58813.

For the Intruder calculation, we assumed the intruder is simply an adult and then we took the value from EPA's PRG Users Guide (Queried in 2015). It recommended a fruit ingestion rate of 178.1 g/day and vegetable ingestion rate of 126.2 g/day. When combined it leads to annual ingestion rate of 106.5 kg/yr. This value is somewhat closer to the mean value we had calculated for the representative person (based on Exposure Factors Handbook: 2011 Edition as discussed above).

In summary, the values are derived differently and we were not trying to make the intruder be like a representative person. Additionally, we were being very conservative with our choice of ingestion rates for the representative person.

Hope this provides some information Please let me know if more is needed.

Thanks

Sunil Mehta, Ph.D.

Environmental Scientist

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From: Esh, David <David.Esh@nrc.gov>
Sent: Friday, January 17, 2020 1:09 PM
To: Mehta, Sunil <sunil_mehta@rl.gov>
Subject: Question about consumption rates

Hi Sunil – Happy new year!

I am working on our report and I noticed that the vegetable consumption rate for the groundwater pathway is much higher (272.33) than that used for the intruder (106.5). I couldn't find an explanation in the PA (I may have missed it), and thought it would be quicker to ask you. Thanks!

Dave

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