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Notes ID: D1E37BA043ECB6F78525788000731B8D

From: "Heather Ford" <HFord@nobisengineering.com>

To: Jim Dilorenzo/R1/USEPA/US@EPA

Delivered Date: 08/17/2010 12:06 PM EDT

Subject: FW: Risk calculation for the residential drinking water sample with BEHP data hit

ATTACHMENT: 70 yr risk 3 paths -private well new chrom III.xls
Hi Jim - as requested.

Here are the calculations assuming chromium results represent only trivalent chromium. Note trivalent chromium is not considered a carcinogen, so cancer risks from chromium disappear. The resulting total cancer risk drops to 7E-6, and HI drops to 0.08.- cancer calculations for tri - chromium.

Heather

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-----Original Message-----
From: dilorenzo.jim@epamail.epa.gov [mailto:dilorenzo.jim@epamail.epa.gov]
Sent: Tuesday, August 17, 2010 9:53 AM
To: Heather Ford
Subject: Re: Risk calculation for the residential drinking water sample with BEHP data hit

Heather - Please ask Cindy to also run the cancer calculations assuming tri-chromium (or total chromium).

Thanks -
Jim

Jim DiLorenzo
USEPA - New England
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Boston, MA 02109-3912

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fax 617.918.0247

From: "Heather Ford" <HFord@nobisengineering.com>

To: Jim Dilorenzo/R1/USEPA/US@EPA

Date: 08/17/2010 06:44 AM

Subject: Risk calculation for the residential drinking water sample with BEHP data hit

Jim - see Cindy's email below and the attachment with her risk calculations.
Heather

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

From: Cynthia Woods [mailto:cwoods@avatarenviro.com]
Sent: Monday, August 16, 2010 6:01 PM
To: Heather Ford
Cc: David Lang
Subject: FW: Olin BEHP data hit

Hi Heather,
Attached are the requested calculations. I have provided both hazard index calculations for the child resident and cancer risks for 70 year residential exposure at the home with 9.9 BEHP. They also had di-n-butyl phthalate, benzoic acid, chromium, sulfate, and nitrate as N detected.
There are no tox values for sulfate and while there is an non-cancer reference dose for nitrate, I wasn't sure of its applicability to what we have measured. Because the speciation of chromium is not specified and I know we have some chromium VI in on-site soils (I do not believe we have any chromium speciated data from site groundwater), I used the more conservative chromium VI tox values.
None of the 4 contaminants evaluated is considered volatile, so I did not calculate risks via the inhalation pathway. Only chromium and BEHP are carcinogenic and chromium acts via the mutagenic mode, but BEHP does not. Each of the 4 chemicals has an RfD so they are all evaluated for non-cancer hazards.

As you will see, hazard indices are below 1; however, cancer risks are above the EPA target of 1E-4, with chromium as the principal driver of that risk. Chromium III is not considered carcinogenic at all, so if the measured chromium is actually all trivalent, most of the carcinogenic risks go away and the HI would be lower still.

Cindy

[attachment "70 yr risk 3 paths -private well new.xls" deleted by Jim Dilorenzo/R1/USEPA/US]
- 70 yr risk 3 paths -private well new chrom III.xls