From:	James Wells
To:	Wetmore, Cynthia
Subject:	RE: Montrose GW System
Date:	Wednesday, February 25, 2015 1:44:52 PM
Attachments:	image001.png

Hi Cynthia,
Thanks for the call earlier this week.
I think I have what I need for now on the pCBSA/GAC issue.
Bottom line is that carbon is a lousy way to remove pCBSA from water!
Take care,
Jim W

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From: Wetmore, Cynthia [mailto:Wetmore.Cynthia@epa.gov]
Sent: Monday, February 23, 2015 10:28 AM
To: James Wells
Subject: RE: Montrose GW System

Hi Jim,

It is a good question - and a somewhat complicated response. Actually, the problem with pCBSA adsorption on GAC is that pCBSA is highly soluble and does not want to sorb onto GAC particles. So it passes right by the "sorb sites", so even when there is breakthrough for pCBSA, the GAC still has lots of available "sorb sites" for other chemicals that are not as water soluble.

I recall a study a long time ago on GAC adsorption for multiple chemicals, where one of the chemicals was water soluble similar to pCBSA. The study concluded that the water soluble chemical had adsorbed just near the inlet of the GAC and passed through the other sections. I don't recall the theory. In general, some COCs are adsorbed more preferentially than others. Anyway, also the GAC in this treatment train is not the real workhorse for removing the COCs – the HiPox/air stripper is designed to lower the COC concentrations to injection standards. The GAC system serves as a polishing step for some COCs that are not fully removed by the upstream processes.

We did conduct a GAC test for Montrose groundwater a few years ago. (I have attached the output graph). I don't know if we calculated a Koc. I was not involved in the project at the time, but it was my understanding based on the GAC test, that EPA determined that it wasn't a reliable technology, so I doubt we calculated a Koc or did any further analysis.

Feel free to give me a call, Cynthia

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From: James Wells [mailto:JWells@everettassociates.net]
Sent: Friday, February 20, 2015 3:54 PM
To: Wetmore, Cynthia
Subject: Montrose GW System

Hi Cynthia,
Can you help me with what's probably a dumb question about operation of the full scale system?
I understand that pCBSA is expected to break-through the liquid GAC fairly quickly (thus LGAC is not expected to reduce pCBSA concentration in reinjection water). Breakthrough occurs when all the sorption sites are filled with pCBSA, so wouldn't there be breakthrough for pesticides and benzene and TCE and other stuff too since all the sites in the GAC are occupied by pCBSA? Or are the sorptive characteristics of the other organics so different that they can still be removed even if pCBSA is breaking through? On a related note: what do we know about pCBSA sorption? Have you folks generated a Koc for this compound?
Thanks,
Jim W

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