

 Charles J Zarzecki
04/03/2003 01:34 PM

To: Catherine A Barton/AE/DuPont
cc:
Subject: Re: Beychok Article 

Cathie,

I think they are really not 2 separate issues. Part of the work is to look at future treatment issues, and part of the work is to develop the required input parameters for c8 for the TOXCHEM model, which will be used to estimate c8 emissions from the wastewater treatment tanks. We will then use these emission rates in our air dispersion modeling. At least that is my understanding of what's going on. Why would they need 2 air people (PJ and I) to be included in the partitioning activities?

Charlie Z.
Catherine A Barton

 Catherine A Barton
04/03/2003 09:38 AM

To: Charles J Zarzecki/AE/DuPont@DuPont
cc:
Subject: Re: Beychok Article 

Yes, I meant the 14th...thanks for straightening me out.

I drew the same conclusion you did, that the partitioning work was going to delay our getting an emission rate number quickly. But, at the steering team meeting yesterday, Maria Angelo said the partitioning work will not hold up our modeling work; they are 2 separate issues. The partitioning work is being performed to look at future treatment opportunities. The modeling work we discussed at our meeting a week or so ago was to simulate current conditions. She told me different people were in charge of these 2 modeling efforts....I hope she's right.

Anyway, what you're telling me is that we can have the model results in 2 to 3 weeks after we get the emission data from the site. That seems reasonable to me.

Thanks,
Cathie
Charles J Zarzecki

 Charles J Zarzecki
04/03/2003 09:31 AM

To: Catherine A Barton/AE/DuPont
cc:
Subject: Re: Beychok Article 

Cathie,

EID747743

First, by "Monday's meeting", I assume you mean April 14?

Regarding CW, base on my schedule and yours, I would say a minimum of 2 weeks. However, I was at the CW wastewater partitioning team meeting yesterday, and it looks like they will only have a sampling plan proposed by Monday. Then they will have to implement it, get the results, and then we can move ahead with the TOXCHEM modeling. After that, we will have an emission rate for the wastewater. Looks like it will be awhile before we can do any ambient air dispersion modeling to get definitive results, anyway.

As a first cut, I guess we can run the stack numbers to see what they look like.

Charlie Z.

Catherine A Barton

 Catherine A Barton
04/02/2003 04:57 PM

To: Charles J Zarzecki/AE/DuPont@DuPont
cc:
Subject: Re: Beychok Article 

Charlie,

First, thanks for taking the time to go over Beychok's article thoroughly. I have the same instinctive feeling that you do: to lambast (yes, its' a great word) the model is a losing battle. We have to develop a more positive strategy that the agency can live with.

I like your alternative strategy of fine-tuning our inputs. I want to contact the site guys who did the estimates to see how much better they think they can get (I'll do that tomorrow). For Monday's meeting, I want to put together a graphic that shows them some options. Let me soak on it overnight and run something by you manana.

Incidentally, I met with the Cworks strategy team and they are happy with our modeling plan. Ann Masse wants me to get the emissions information from the site guys by 4/11 so we can start cranking numbers. Help me with this: **when do you think we can realistically have the first round of ambient air numbers?** I have to convert my flow diagram into text for Ann, and she wants me to put in real dates for deliverables (pending her boys get us the emissions data by 4/11).

I'll be in the office tomorrow, but I think you're at home. No matter...we'll connect.

thanks again,
C

Charles J Zarzecki

 Charles J Zarzecki
04/02/2003 03:14 PM

To: Catherine A Barton/AE/DuPont
cc:
Subject: Beychok Article

Cathie,

EID747744

I finally was able to review the Beychok article on error propagation in dispersion modeling. This could add fuel to Dave Rurak's fire. It's common knowledge that Gaussian models overpredict by a factor of 2, however, due to error propagation, he says as high as 80X. Also, as far as 1-hour concentrations are concerned, the actual averaging time for Pasquill's dispersion coefficients range from 3 minutes to 30 minutes, depending who you talk to. I always thought they were 15-minute averages. This short-term to 1-hour assumption can be shown (by Beychok) to result in a 2.5X overprediction.

However, in my opinion, since the 1-hour period is the basic time-step in the ISC (and other) model, an annual average concentration at any given receptor is 8,760 1-hour concentrations divided by 8,760 hours. If it predicts poorly for each 1-hour period, then it predicts poorly for the whole year.

Dave has to understand that the model is a screening tool. The more accurate information you put into a model, the greater the accuracy of the prediction. Instead of lambasting (is that a real word?) the model's 1-hour prediction, we should investigate how to fine-tune the input data and model options (e.g. particle settling, hours of operation, hourly emission rates, more accurate model (AERMOD), etc...). Or, go out and do some sampling to get the "real thing".

What do you think? Beychok references about a half-dozen other publications that discuss the shortcomings of Gaussian models. Some of them go way back. As you can see, nobody really took them seriously. What I am getting at: the regulatory agencies (OEPA, WVDEQ) are not going to want to hear about how bad ISC is for particular time periods. They may be open to other "accepted" models and to sharpening our pencils.

Regards,

Charlie Z.

EID747745