From: Whitaker, Donald
To: Caudill, Motria
Cc: Whipple, Wayne; Oliver, Karen
Subject: RE: Summary of BP Whiting results, some questions
Date: Wednesday, June 10, 2015 11:48:13 AM
Attachments: image001.png

Sorry about that…my error on the missing parentheses. Thanks for catching it.

Don

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From: Caudill, Motria
Sent: Wednesday, June 10, 2015 12:43 PM
To: Oliver, Karen
Cc: Whitaker, Donald; Whipple, Wayne
Subject: RE: Summary of BP Whiting results, some questions

Hi Karen – Great minds think alike! ☺ What you are proposing is what we in air monitoring call Relative Percent Difference (RPD). My colleagues here suggested it and I looked into our air toxics guidance (DQOs for our National Air Toxics Trends Station, etc.) and found some targets. For collocated/duplicate samples analyzed at the same laboratory the DQO is <15% RPD; for performance testing, where several labs are compared in their analysis of a spiked sample, the target is <25% RPD.

So our results are really good in this context.

A little correction: the formulas for what you called Percent Difference in the spreadsheet is missing parenthesis in the denominator.. should be $((X_1+X_2)/2)$. It took me a few minutes to figure out why our numbers didn't quite match up. No need for you guys to re-do this.. I've got it and will send you final versions of everything.

Thank you for generating the various bar charts and figures. I will definitely include these in the presentation. Thanks!

- Motria

From: Oliver, Karen
Sent: Tuesday, June 09, 2015 2:18 PM
To: Caudill, Motria
Cc: Whitaker, Donald; Whipple, Wayne
Subject: RE: Summary of BP Whiting results, some questions

Hi Motria,

I've attached a spreadsheet that Don put together with additional plots of the data. In our opinion, the data should be presented as % difference rather than % error (i.e. compared against each other rather than assuming that canisters are correct – especially since this particular canister method involves a week-long canister sampling period using the Entech flow restrictors set at very low flow rates). We think the results are very good considering that the can and tube methods are totally different.

Also, I think the audience will be interested in knowing how well the canister inlets performed over the week-long sampling period (initial flow settings vs. final and consistency of canister final vacuum).

I've attached a JEM article from some of our previous work in which tubes were compared to canisters and an autoGC system in Detroit that may be of interest.

Karen

From: Caudill, Motria
Sent: Tuesday, June 02, 2015 11:00 AM
To: Whipple, Wayne; Oliver, Karen
Subject: Summary of BP Whiting results, some questions

Wayne and Karen - Attached are the BP Whiting compiled results for benzene and toluene. We have 28 paired sets of ORD/CRL samples. The benzene comparison with BP's auto-GC stations is goofed up because their data for Sites #1 and 4 seem to have a calculation error; you can see that the numbers track with CRL, but are much higher. I'll contact them separately to ask about this.

Below is a summary of % difference in Benzene, CRL vs ORD, by week and site. Overall the paired samples average 33% different (ORD usually higher). Comparisons are consistent across the 4 stations (the duplicate canisters look okay, Site #2) but you can see that differences were greatest in the last two weeks of sampling in late October. I don't think this would be temperature-dependent, because the weekly average temp was in the mid-50's for all of October. Do either of you have an idea of what might have changed in your systems during late Oct, early Nov?

Benzene: Absolute value of % difference, CRL vs. ORD					
Week	Site 1	Site 2	Site 3	Site 4	Ave
2 (1)	22	11	18	58	27
3	30	50	17	28	31
4	24	23	1	9	14
5	9	9	41	26	21
6	34	23	34	15	27
7	57	45	46	66	53
8	50	76	44	57	57
Ave	32	34	29	37	33

The other outstanding question is - how much of the difference should be attributed to sampling media and how much to the use of two different laboratories? Wayne - can you provide a summary of your analysis of ORD's calibration standard.. or is there anything else I can say in the write-up to address this question?

Let me know if you have any questions about the spreadsheet. Suggestions about how to present the findings also appreciated. Thank you guys for everything!!

-Motria