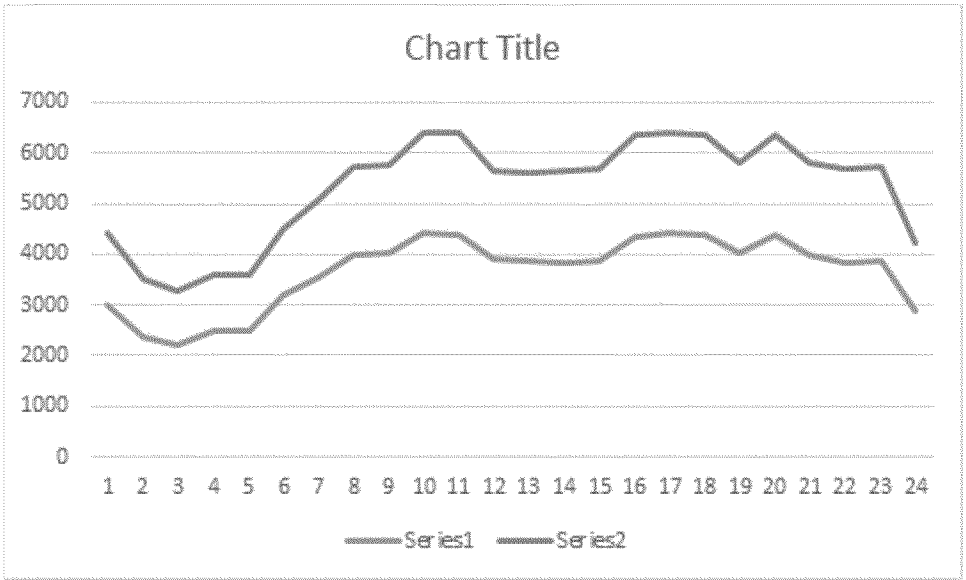
To: Wilbur, Emily[emily.wilbur@dnr.mo.gov]
From: Hawkins, Andy
Sent: Thur 4/9/2015 6:14:44 PM
Subject: RE: EGU emissions question

Emily,

FYI, one more bit of info… I plotted the first day for L1 in the two data sets (variability ~ aermod). It does appear there is a relation between the two datasets but there is clearly some ratio being used or I'm doing the g/s to lbs/hr conversion incorrectly. Note the ratio between the two datasets is also not a constant which is even more puzzling for me. I clearly don't understand what you guys did to get this hourly dataset or I'm making an error in how I'm analyzing this.



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From: Hawkins, Andy
Sent: Thursday, April 09, 2015 10:14 AM
To: 'Wilbur, Emily'
Subject: RE: EGU emissions question

Anytime is fine… I'm just confused by this… the hourly numbers used in the modeling seem higher for L1 than exist in the variability spreadsheet. Is there some sort of adjustment being made to the hourly aermod input file?

For example, from the raw data tab in the .xls file… average for L1 = 2,765 lbs/hr.

From my R code mean for L1 = 5,047 lbs/hr

I then imported the aermod file into excel to check my R code L1 average = 5,047 lbs/hr.

Then go to CAMD

State	Facility Name	Facility ID (ORISPL)	Unit ID	Year	Program(s)	SO2 (tons)	Heat Input (MMBtu)
MO	Labadie	2103	1	2011	ARP	14464.4	4.83E+07
MO	Labadie	2103	1	2012	ARP	12099.3	1 4.32E+07
MO	Labadie	2103	1	2013	ARP	9806.223	4.14E+07
MO	Labadie	2103	2	2011	ARP	14399.06	4.75E+07
MO	Labadie	2103	2	2012	ARP	9194.2	3.27E+07
MO	Labadie	2103	2	2013	ARP	9359.463	3.89E+07
MO	Labadie	2103	3	2011	ARP	14284.61	4.63E+07
MO	Labadie	2103	3	2012	ARP	10397.39	3.59E+07
MO	Labadie	2103	3	2013	ARP	9174.426	3.80E+07
MO	Labadie	2103	4	2011	ARP	14799.01	4.81E+07
MO	Labadie	2103	4	2012	ARP	10543.76	3.61E+07
MO	Labadie	2103	4	2013	ARP	10043.9	4.15E+07

So L1 has an average of 12,123 tons over 2011-2013 which is an average of 2,768 lbs/hr this seems to match the variability analysis so I must be doing something wrong in interpreting the aermod hourly input file.

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From: Wilbur, Emily [mailto:emily.wilbur@dnr.mo.gov]
Sent: Thursday, April 09, 2015 9:50 AM
To: Hawkins, Andy
Subject: RE: EGU emissions question

Hi Andy,

I have staff out for the rest of the week. We'll have to get back with you early next week. I don't want to give an answer without checking with staff. Hope that's ok. If you need an answer sooner, let me know and I can see what I can do.

Thanks,

Emily

From: Hawkins, Andy [mailto:hawkins.andy@epa.gov]
Sent: Thursday, April 09, 2015 9:42 AM
To: Wilbur, Emily
Subject: EGU emissions question

Emily,

I imported the hourly file you provided with the modeling into R and did some statistics on it…

item group1 vars n mean sd median trimmed mad min max range skew kurtosis se

11 1 LABADIE1 1 26304 5047.3075 1437.7619 5449.3441 5338.7913 716.7556 7.93656e-07 6668.832 6668.832 -2.31432935 5.3060147 8.864946

12 2 LABADIE2 1 26304 4528.0032 1959.7878 5221.9964 4835.4535 918.6837 7.93656e-07 7252.726 7252.726 -1.43027341 0.9349202 12.083650

13 3 LABADIE3 1 26304 4564.4379 1859.6493 5264.4460 4908.8953 764.6431 7.93656e-07 6927.829 6927.829 -1.60884364 1.4303315 11.466217

14 4 LABADIE4 1 26304 4776.2692 1943.1531 5634.6922 5188.4066 705.0432 7.93656e-07 6483.333 6483.333 -1.68990384 1.4767023 11.981084

15 5 MERMC1 1 26304 366.9289 267.7894 415.9957 359.2508 253.5220 0.00000e+00 1290.787 1290.787 -0.08728484 -0.8828391 1.651135

16 6 MERMC2 1 26304 392.9034 249.0442 437.7955 394.0739 204.7450 0.00000e+00 1498.985 1498.985 -0.27470906 -0.5533995 1.535556

17 7 MERMC3 1 26304 623.4517 562.7878 769.7921 592.6160 791.7003 0.00000e+00 2308.976 2308.976 0.09124067 -1.3634065 3.470034

18 8 MERMC4 1 26304 956.8348 751.0346 1129.2884 936.6823 769.6839 0.00000e+00 3684.762 3684.762 -0.08676911 -1.2077614 4.630726

19 9 RUSH1 1 26304 2471.7287 1144.4369 2485.9615 2546.7724 897.1815 0.00000e+00 6302.902 6302.902 -0.42106825 0.3653379 7.056364

110 10 RUSH2 1 26304 2702.0020 1153.9317 2648.0090 2751.8761 869.1608 0.00000e+00 6543.799 6543.799 -0.33643955 0.6432706 7.114907

I then started looking at the variability analysis files and the hourly numbers don't seem to match between the two datasets.

Are the two datasets the same timeframe, 2011-2013 emissions, and data in the hourly aermod file 08 equates to 2011 data?

What am I doing wrong in looking at this? I'm assuming the units are g/s in the aermod file, and 08 01 01 01 equates to 2011/01/01 hour 1. Is this correct?

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