To: Miller, Ken[kenneth.miller@wustl.edu]
From: Avey, Lance
Sent: Thur 3/3/2016 10:10:00 PM
Subject: RE: Ameren modeling information for Labadie

Hi Ken,

I apologize for my late reply, been meaning to. But, there is really no recent guidance on the flow rates. It is acceptable to use actual flow rates if available, and at this time we are still evaluating if the technique used to calculate the actual flow rate is valid. But really no guidance I can point you to.

Also, there is no recent guidance on merged stacks. One can definitely model the merged plume for designation purposes as the intent is to realistically see what a monitor would see. However, the approach used, as in the actual flow rates case, needs to be valid. And we are looking at that.

Sorry this is not much help, but let me know of any further questions. Also, you also asked in a prior email, are you still wondering about stack flow data for non 2012-2014 years?

Lance

Lance Avey

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From: Miller, Ken [mailto:kenneth.miller@wustl.edu]

Sent: Monday, February 29, 2016 2:28 PM
To: Avey, Lance <Avey.Lance@epa.gov>
Subject: RE: Ameren modeling information for Labadie

Lance,

With the recent release of EPA's response to the state's recommendation for Labadie and the 30-day public comment period on EPA's proposed nonattainment designation which looks like it will start tomorrow, I wanted to touch base regarding a couple of modeling questions. First, has EPA published any guidance on the standard vs. actual flows question? I'm particularly interested in whether it is acceptable for sources to use actual flows in their modeling, and if so, what is the "right" way to convert standard flows to actual flows. You've indicated before that as a general matter EPA is not opposed to the use of actual flows, so long as the temps used in the conversion are representative of actual temps at the stack tip, but more definitive guidance on the subject would be helpful if any is available. Second, has EPA published any guidance on merged stacks? I've looked before and could only find some really old information that was more about how to do it than whether/when it should be done. I've asked Emily before and she told me she wasn't aware of any either. Thanks.

Regards,

Ken

Ken Miller, P.G.

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Please consider the environment before printing.

From: Avey, Lance [mailto:Avey.Lance@epa.gov]
Sent: Friday, January 15, 2016 9:36 AM
To: Miller, Ken
Subject: FW: Ameren modeling information for Labadie

Hi Ken,

I was going to pass this along to you earlier. But this will be good to know for our talk today.

Lance Avey

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From: Wilbur, Emily [mailto:emily.wilbur@dnr.mo.gov]
Sent: Monday, December 21, 2015 1:58 PM
To: Avey, Lance <Avey.Lance@epa.gov>
Cc: Hawkins, Andy <hawkins.andy@epa.gov>; Keas, Ashley <Ashley.Keas@dnr.mo.gov>
Subject: RE: Ameren modeling information for Labadie

Hi Lance,

This was one of the questions we had early on about using actual emissions data: fixed vs. standard vs. actual flows. If there is a preference, please let us know for future reference.

Here is the information we obtained from Ameren about how the actual flows were calculated:

The flows used are those that are reported to the CAMD system. These flows are in standard cubic feet per hour (scfh) which represents a temperature of 68 Deg F. We converted these flows to actual cubic feet per hour (acfh) using actual measured temperature in the stack assuming constant pressure. That is

$V_a = T_a * V_s / T_s$

Where

V_a – acfh

V_s – scfh

T_a – actual stack temperature (absolute Rankin or Kelvin)

T_s – standard stack temperature (absolute Rankin or Kelvin)

Velocity at stack top then based on stack exit area based on 20.5 ft diameter.

Combining flues:

1) Emission rate: The emission rate for Unit 3 and Unit 4 were summed.

2) Temperature: The combined temperature for Units 3 and 4 was calculated from the weighted average of the (Unit 3 temperature * Unit 3 velocity) + (Unit 4 temperature * Unit 4 velocity) / (Unit 3 velocity + Unit 4 velocity)

3) Velocity: The combined velocity for Units 3 and 4 was calculated from the sum of the Unit

3 and 4 velocities * (pi * (6.25 (single flue diameter)^2) / (pi * 8.84 (equivalent dual flue diameter)^2)

Please let me know if you have any questions.

Thanks,

Emily

From: Avey, Lance [mailto:Avey.Lance@epa.gov]
Sent: Friday, December 18, 2015 8:53 AM
To: Wilbur, Emily
Cc: Hawkins, Andy
Subject: Ameren modeling information for Labadie

Hi Emily,

As we continue to evaluate the sets on modeling inputs we have received for Labadie for 1-hr SO2, we are seeing some differences in the modeled inputs, like the exit velocities used. Could you supply the calculation methodology for the exit velocities for the Ameren values and have them include all hourly parameters that were used in their calculation?

Thanks much,

Lance

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