# Emissions Preparation for Air Quality Modeling

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### Questions

1. Do you provide a tool for the review and comment? A: There is not a tool for providing comments, but sometimes they are accepted via formal docket at regulations.gov, sometimes they are submitted through email, and other times via the Emission Inventory System (EIS).
2. Comment: Slimmed down version of NEI in intervening years assumes mobile and point data categories are the most important categories of the NEI. A: In interim year NEIs/modeling platforms, we try to characterize emissions for the sectors that change the most and are most quantifiable. The large point sources are submitted, fires vary greatly by year, and mobile source emissions have substantial trends from year to year, so that is why we try to quantify them.
3. How do you work with discontinuities in emissions at the Mexico and Canada borders? A: We are limited to the data we have available in each region (be it satellite or inventory data). So, in many case we can only make a note of discontinuities.
4. Is there a reason you cannot or would not fix the NEI when you find an error? A: Some types of fixes can be entered into EIS but it may be after the NEI is released. In the modeling platform, we fix known errors to the extent feasible – sometimes they would require an expensive rerun of a model to get a full correction, or the error may be found too late in the process to correct for a specific project.
5. In the fire example, you have moved the Kansas wildfire out of the agricultural sector because it is treated differently. What are the differences and how would it affect the modeling? A: wildfires are treated as day-specific point data, while ag. fires are not always day-specific and can be spatially allocated with surrogates. Temporal allocation to a specific-hour (diurnal profile) and chemical speciation treatment for ag fires is different vs. wildfires. Plume rise treatment can also be different for wild vs prescribed fires.
6. How do you handle missing CEMS data? A: CEMS data are used for hours for which data are available. For data are flagged as “non-measured”, we apply a tool that replaces the data with a monthly mean if they are far enough out of the range of the range of the mean value. This helps prevent including spikes due to nonmeasured data in the air quality modeling.
7. Any thought about integrating MEGAN in the SMOKE model? A: We have not considered incorporated MEGAN into SMOKE, but it would not need to be integrated into SMOKE for MEGAN emissions to be used. Instead, BEIS can be turned off and gridded speciated hourly emissions output from MEGAN can be merged with the other emissions.
8. What % of point sources have actual input data available for the plume rise equation? A: Almost all point sources with stacks in the Emission Inventory System have parameters that can be used to compute plume rise filled in for them – including temperature, height, and diameter, although about 200 release points (out of over 200,000) do not have velocity or flow specified.
9. Is the CEMS data that is used directly submitted by sources or imported from CAMD? A: CEMS data are collated by CAMD and provided for AQ modeling use in a SMOKE-ready format.
10. Comment: On slide 81-Area Fugitive Dust, it assumes the monitoring network is sufficient, which it is not. A: This question is related to the bullet on the slide stating that AQ models tend to overestimate the impact of fugitive dust emissions. This bullet was written to express a general tendency to explain why we make the transport fraction and meteorological adjustments. We can review this in the context of more recent platforms.
11. Comment: On slide 83, remote sensing is needed badly to verify transport fractions. A: the transport fractions are based on the type of land use in the region, which is derived from satellite data.
12. On slide 84, data relies upon WRF precip. How's is the model performance? A: The performance of the meteorological model regarding precipitation and the resulting soil moisture varies by time and location. Spatial patterns are generally well-matched, but magnitudes are not always matched.
13. On slide 84, Do you account for pollen count in any way in your modeling? A: No, we do not account for pollen in the modeling.
14. Comment: The fire emission inventory has to have time, space, plume rise, and speciation parameters added. A: The fire EI is day and point specific. We would like to include additional information to better characterize fires for modeling as such data becomes available.
15. Comment: The plume rise is very uncertain for specific fires. A: We agree that fire plume rise is very uncertain. Research activities at EPA include investigating better plume rise algorithm(s) for fires.
16. Comment: Thanks to Jeff Vukovich for fielding dust, biogenics, and fire emissions questions. All these categories are very uncertain but parameterized.
17. On speciation, would you integrate any of the speciated [inventory] HAPS? A: Yes. Our platforms currently integrate naphthalene, benzene, acetaldehyde, formaldehyde and methanol and additional pollutants for onroad and nonroad (done in MOVES). More pollutants can be integrated if the user desires to do so. In this case, users would run the Speciation Tool to create NONHAPTOG profiles specific to the pollutants they select to integrate and would specify them also in the SMOKE inputs (e.g., INVTABLE).
18. For the project that converted VIN information into the relevant MOVES format, is there information available on the methodology used? A: Yes, there is a report here: <ftp://newftp.epa.gov/Air/nei/2014/doc/2014v2_supportingdata/onroad/TechMemo_WA5-08_Task1_21July2017.pdf>