ACP-2011-422 “Explicit modeling of organic chemistry and secondary organic aerosol partitioning for Mexico City and its outflow plume”, J. Lee-Taylor et al.

We are submitting our revised manuscript for your consideration. We were pleased to receive such a positive response from all four reviewers. We have addressed each of their comments in detail, and are sending as separate files our responses to the individual reviewers. While most of the reviewers’ comments were of a minor nature, each reviewer had several thoughtful and specific questions, mainly to do with requests for clarification of various points. We are grateful for the feedback and hope the manuscript is now more readable and that our arguments are easier to follow. Our results and conclusions have not changed. However, three of the reviewers’ points in particular resulted in significant improvements:

1) Most reviewers expressed confusion about our use of n-alkanes as surrogate species, and our comparison to Los Angeles (LA) data for a Mexico City model study. The Fraser (1997) data from LA is the only observational dataset of which we are aware. We have clarified that we do not actually use those data, but only show them to illustrate that the amount of our emitted n-alkanes is reasonable when compared to the observed sum of primary hydrocarbons in a polluted urban location (LA).

2) One reviewer [#1] pointed out a numerical inconsistency in our description of the emitted amounts of POA. This was because of a typo on our part, which we have corrected.

3) One reviewer [#4] requested that we re-phrase part of our Conclusions section to more accurately convey the physical concepts we were trying to describe. Our conclusions remain unchanged, however the text now makes more sense.

Also, we have added a co-author, Angela Baker (now at the Max Planck Institute for Chemistry), who made the UCI canister measurements used to initialize our model. All co-authors have approved the final version of the manuscript.

Thank you for your time and attention. We look forward to your final response

Sincerely,

Julia Lee-Taylor