



ENVIRONMENTAL PROTECTION DIVISION

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MEMORANDUM

To: Karen Hays, Air Branch Chief *KH*

From: DeAnna Oser, Ambient Monitoring Program Manager

RE: EPA's Technical Memo on the Use of Stand-Alone Timers for Volatile Organic Compound (VOC) Sample Collection in Canisters dated February 23, 2021

The Environmental Protection Agency (EPA) issued a technical memo on February 23, 2021 regarding the use of stand-alone timers for sampling volatile organic compounds (VOC) in canisters. These stand-alone timers are used with passive sampling systems that "pull" the sample into an evacuated canister when a valve is opened. The vacuum in the canister is filled at a constant rate by the ambient sample based on the calibration settings of the pressure regulator. The stand-alone timers are used to collect a 24-hour sample from midnight to midnight in locations without electricity. The Georgia Environmental Protection Division (GA EPD) has been utilizing these stand-alone timers for the ethylene oxide ambient air monitoring study since August of 2019.

EPA indicated in the February 23 memo that due to issues with potential leaks in the timer and/or sample flow controller that the sample validation results would be invalidated, consistent with the *National Ambient Toxics Trends Station (NATTS) Technical Assistance Document, Revision 3*. The memo goes on to state that "Recently, ethylene oxide sampling studies involving timers have yielded similar results resulting in the invalidation of the data where the final canister pressure fell to ambient pressure."

During the course of the ethylene oxide data study through the December 17 data set posted to date, GA EPD has collected over 1000 ethylene oxide samples using the passive samplers with the stand-alone timers. Fifty of these samples have been collocated samples collected side by side over the same time period. Almost half of these collocated samples resulted in at least one of the two samples at ambient pressure when collected. The overall percent differences in the ethylene oxide concentration for these paired samples do not appear to be statistically significant as compared to when neither sample was recovered with ambient pressure.

The laboratory analyzing the ethylene oxide samples for GA EPD is Eastern Research Group (ERG), which is the laboratory contracted by EPA for NATTS analyses. For other NATTS sampling using evacuated canisters, it has been indicated that ERG measures the receipt pressure using very precise, certified gauges which are more accurate than the gauges available for the passive sampling systems. If ERG determines that the canister has a vacuum using laboratory's more precise, certified gauge, the

sample will be analyzed for the ethylene oxide concentration in the canister. If the canister is at ambient pressure as measured by the laboratory instruments, the canister will be voided and not analyzed for ethylene oxide concentration. As of the GA EPD samples collected on February 23, 2021, the laboratory will use this more precise gauge to determine the pressure at receipt in the laboratory and the GA EPD samples will be handled in a manner consistent with the NATTS analyses from across the country.

As the purpose of the ethylene oxide study is to characterize the ambient concentrations, the data that fell outside the target range on the end pressure has been qualified, rather than voided. For the data collected from August 2019 through February 23, 2021 where the end pressure of the sample was at ambient pressure, the data set has been qualified to inform the end user of the data that the samples were recovered outside the target end pressure range. Samples recovered after February 23, 2021 that are at an ambient pressure will be validated using the laboratory measurement of the pressure.

GA EPD disagrees with EPA's determination that the ethylene oxide results for any sample that is recovered at ambient pressure should be voided. Therefore, the data reported in the final summary of the data collected throughout this study will present the data with and without the samples that were recovered at an ambient pressure.

If you have any questions, please let me know.

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