UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
RESEARCH TRIANGLE PARK, NC 27711

OFFICE OF
AIR QUALITY PLANNING
AND STANDARDS

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MEMORANDUM

SUBJECT: Additional Revisions to the Photochemical Assessment Monitoring Stations Compound Target List

FROM: Kevin A. Cavender, National PAMS Program Manager
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TO: PAMS Monitoring Agencies

The purpose of this memorandum is to summarize changes being made to the Photochemical Assessment Monitoring Stations (PAMS) compound target list. On November 20, 2013, the EPA amended the existing target list to divide the list into two categories – priority compounds and optional compounds. In addition, seven new compounds were added to the target list as priority compounds. This memorandum makes additional changes to the PAMS target list based on information gathered since November 20, 2013.

MOVING NEW COMPOUNDS TO THE OPTIONAL COMPOUNDS LIST

The seven new compounds (alpha-pinene, beta-pinene, 1,3-butadiene, benzaldehyde, carbon tetrachloride, ethanol, and tetrachloroethylene) added to the priority list in 2013 are being moved to the optional list after further consideration. Based on the results of the autoGC evaluation completed in 2016, the EPA believes that these compounds may not be measured well at PAMS sites due to either low ambient concentrations or due to technological issues.

For example, alpha and beta-pinenes are not measured well using most existing autoGC systems because the Nafion™ drier used in these systems remove polar compounds. While some autoGC systems have been developed that avoid this issue, the EPA does not believe that it is appropriate at this time to add these compounds to the priority list. Note however, that in this revised list alpha- and beta-pinene are included separately in the optional compound list, rather than combined as they were in the 2013 revisions. Based on data from systems capable of measuring these two compounds, we have determined that these compounds are chromatographically well separated from each other, and that the issues regarding conversion of alpha- to beta-, and vice versa, are likely limited to calibration and QC standards and not ambient measurements. As such, the EPA believes it is more appropriate to measure and report these compounds separately rather than as a combined alpha/beta pinene value.

MOVING ACETONE TO OPTIONAL LIST

Acetone is one of the carbonyl compounds currently measured using method TO-11a, and has been on the PAMS target list since early in the program's history. The EPA has determined that acetone is not well measured using Method TO-11a based on recent efforts to evaluate and optimize the method. Therefore, acetone is being moved to the optional target list.

FINAL PAMS TARGET LISTS

The final PAMS target list is provided in Table 1. Monitoring agencies are encouraged to incorporate these changes as soon as possible into their PAMS measurement and reporting procedures. Continued reporting of the optional compounds may continue on a voluntary basis but should be reviewed in the overall context of agency reporting burden.

Table 1. Revised PAMS Target List[a]

Existing Priority Compounds	Optional Compounds
1,2,3-Trimethylbenzene	1,3 Butadiene
1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene
1-Butene	1-Pentene
2,2,4-Trimethylpentane	2,2-Dimethylbutane
Acetaldehyde[b]	2,3,4-Trimethylpentane
Benzene	2,3-Dimethylbutane
Cis-2-Butene	2,3-Dimethylpentane
Ethane	2,4-Dimethylpentane
Ethylbenzene	2-Methylheptane
Ethylene	2-Methylhexane
Formaldehyde[b]	2-Methylpentane
Isobutane	3-Methylheptane
Isopentane	3-Methylhexane
Isoprene	3-Methylpentane
M/P Xylene	Acetone
M-Ethyltoluene	Acetylene
N-Butane	Alpha Pinene
N-Hexane	Benzaldehyde[b]
N-Pentane	Beta Pinene
O-Ethyltoluene	Cis-2-Pentene
O-Xylene	Carbon Tetrachloride
P-Ethyltoluene	Cyclohexane
Propane	Cyclopentane
Propylene	Ethanol
Styrene	Isopropylbenzene
Toluene	M-Diethylbenzene
Trans-2-Butene	Methylcyclohexane
	Methylcyclopentane
	N-Decane
	N-Heptane
	N-Nonane
	N-Octane
	N-Propylbenzene
	N-Undecane
	P-Diethylbenzene
	Tetrachloroethylene
	Trans-2-Pentene

[a] This table only includes individual target compounds. Monitoring agencies should continue measuring and reporting total non-methane organic compounds (TNMOC)

[b] These compounds are carbonyls and are measured using Method TO-11a