

Comments of Dr. David McCabe; Clean Air Task Force, Senior Scientist  
at the Public Meeting of the Chartered Science Advisory Board  
May 31–June 1, 2018, Washington DC

Good afternoon, my name is David McCabe. I am an atmospheric chemist and I serve as a senior scientist with Clean Air Task Force, where I work extensively with industry, regulators, and academics to produce peer-reviewed research that furthers our understanding of the sources of pollution and feasible means of mitigation.

CATF is concerned about EPA’s current attitude towards science, which has become obvious in EPA’s recent proposals to restrict the use of certain scientific studies in regulatory decision-making and to allow the widespread sale of “glider kit” trucks which lack modern emission controls. Both of these examples show the Agency’s disregard for objective information and the scientific process, and its move to rely on analysis that supports particular outcomes. This is a great concern for all Americans, whose health and welfare depend upon effective environmental regulation.

For example, EPA’s proposed rule that claims to strengthen transparency in science supporting regulations, would in fact prevent the Agency using the best available science – and therefore would keep EPA from complying with environmental laws.<sup>1</sup> Recently, the Administrator testified that absent the ability to make the underlying data available to the public, EPA would no longer use peer-reviewed scientific studies of the health effects of pollution exposures – even those that have been previously validated and replicated. Banning the use of studies where the underlying data must be kept confidential would impermissibly remove plainly relevant information from critical public health rulemakings, and would represent a significant shift in policy.<sup>2</sup>

EPA is attempting to cynically exploit the movement to make science more open and robust as an excuse to categorize a whole class of analysis as unfit to inform regulatory development. Many health studies are based on highly private information, which cannot be publicly released without the risk of identifying the individuals that participated in the studies. But that does not mean those studies can’t be verified. For example, the data underlying the Harvard “Six Cities” Studies has been extensively re-analyzed by independent institutions, confirming the essential findings.<sup>3</sup> However,

---

<sup>1</sup> Bob Sussman, “EPA’s Flawed ‘Secret Science’ Plan Puts Good Science at Risk,” BLOOMBERG BNA (May 21, 2018), *available at*: <https://www.bna.com/practitioner-insights-epas-n57982092715/>.

<sup>2</sup> EPA has long held that “whether research data are fully available to the public or available to researchers through other means does not affect the validity of the scientific conclusions from peer-reviewed research publications.” EPA, *Plan to Increase Access to Results of EPA-Funded Scientific Research*, at 4-5 (Nov. 29, 2016) (emphasis added).

<sup>3</sup> National Research Council, *Access to Research Data in the 21<sup>st</sup> Century: An Ongoing Dialogue Among Interested Parties*, at 11-12 (2002), *available at*: <https://www.nap.edu/catalog/10302/access-to-research-data-in-the-21st-century-an-ongoing>.

researchers found that public disclosure of the personal data underlying the studies – if it included enough data to be useful for research purposes – would violate the privacy of study participants.<sup>4</sup>

There are already various means for public access to studies that EPA uses, and in some cases their underlying data, without the release of confidential information, including the Freedom of Information Act, which provides an avenue to request raw data, including a process ensuring that sensitive data is protected.

At the same time, in another rulemaking process, EPA has proposed allowing older engines without modern pollution controls to be installed in new trucks while citing fundamentally inappropriate analysis of the effects of this action. This rule could lead to thousands of additional deaths per year,<sup>5</sup> but EPA has attempted to wave that away by citing an industry-sponsored study that has not undergone peer-review and which the university where the study was produced insists should not be relied upon pending conclusion of an internal investigation.

We call on you, the SAB, to carefully review EPA's approach and these proposals, and do all that you can in your official role to ensure that EPA follows the law and uses the best available scientific information as it makes regulatory decisions that will affect the health and welfare of all Americans. Thank you for the opportunity to speak today.

---

<sup>4</sup> *Id* at 11.

<sup>5</sup> See Comments of Environmental Defense Fund, the Environmental Law & Policy Center, and West Harlem Environmental Action (WE ACT for Environmental Justice) on the Environmental Protection Agency's Proposed Rule, Repeal of Emission Requirements for Glider Vehicles, Glider Engines, and Glider Kits, 82 Fed. Reg. 53,442, Appendix B. Available at: <https://www.regulations.gov/contentStreamer?documentId=EPA-HQ-OAR-2014-0827-4863&attachmentNumber=3&contentType=pdf>

Curriculum Vitae  
**David C. McCabe**  
 Atmospheric Scientist  
 Clean Air Task Force  
[dmccabe@catf.us](mailto:dmccabe@catf.us)  
 626-710-6542

## EDUCATION

- Ph.D. University of Colorado 2004  
 Physical Chemistry, with research focused on Atmospheric Kinetics  
*Research:* Vibrational Quenching Kinetics of the OH radical  
*Advisor:* A.R. Ravishankara (NOAA)
- A.B. University of Chicago 1994  
 Chemistry; also fulfilled requirements for A.B. in Geography  
 General Honors and Honors in Chemistry

## PROFESSIONAL EXPERIENCE

- Scientist Clean Air Task Force 2010 - present  
 Coordinate research on methane emissions from oil and gas operations in United States; Analyze US emissions data to understand uncertainties in current emissions inventories and the differences between official inventories and findings from ambient air measurements; Coordinate with advocacy staff at CATF and partner groups to develop policy goals and prepare technical information for legal, advocacy, and public outreach materials.
- AAAS Science & Technology Policy Fellow US EPA Office of Research and Development 2007 - 2009  
 Coordinated and promoted work at US EPA and elsewhere to develop GEOSS, a global effort to improve Earth science data availability and usability.
- Postdoctoral Research Fellow California Institute of Technology 2004 - 2007  
*Research:* Built and operated an aircraft-based chemical ionization mass spectrometry system to measure trace species (acids and peroxides) in the remote and polluted troposphere  
*Advisor:* Paul Wennberg

## REFEREED PUBLICATIONS

- Weyant, C.L., P.B. Shepson, R. Subramanian, M.O.L. Cambaliza, A. Heimbürger, D. **McCabe**, E. Baum, B.H. Stirm, and T.C. Bond (2016) "Black Carbon Emissions from Associated Natural Gas Flaring," *Environ. Sci. Technol.* **50**, 2075, doi:10.1021/acs.est.5b04712.
- Kleinman, M.T., J.D. Bachmann, H.J. Feldman, D. **McCabe**, J.J. West, and A.F. Fiore (2015) "Connecting air quality and climate change," *J. Air Waste Manage.* **65**, 1283, doi: 10.1080/10962247.2015.1095599.

- Swarthout, R.F., R.S. Russo, Y. Zhou, B.M. Miller, B. Mitchell, E. Horsman, E. Lipsky, D.C. **McCabe**, E. Baum, and B.C. Sive (2015) "Impact of Marcellus Shale natural gas development in southwest Pennsylvania on volatile organic compound emissions and regional air quality." *Environ. Sci. Technol.* **49**, 3175, doi:10.1021/es504315f.
- Caulton, D.R., P.B. Shepson, M.O.L. Cambaliza, D. **McCabe**, E. Baum, and B.H. Stirm (2014) "Methane destruction efficiency of natural gas flares associated with shale formation wells," *Environ. Sci. Technol.* **48**, 9548, doi:10.1021/es500511w.
- St. Clair, J.M., D.C. **McCabe**, J.D. Crouse, U. Steiner, and P.O. Wennberg (2010) "Chemical ionization tandem mass spectrometer for the in situ measurement of methyl hydrogen peroxide," *Rev. Sci. Instru.* **81**, 094102, doi:10.1063/1.3480552.
- Avery, M., C. Twohy, D. **McCabe**, J. Joiner, K. Severance, E. Atlas, D. Blake, T.P. Bui, J. Crouse, J. Dibb, G. Diskin, P. Lawson, M. McGill, D. Rogers, G. Sachse, E. Scheuer, A.M. Thompson, C. Trepte, P. Wennberg, and J. Ziemke, (2010) "Convective distribution of tropospheric ozone and tracers in the Central American ITCZ region: Evidence from observations during TC4," *J. Geophys. Res.*, **115**, D00J21, doi:10.1029/2009JD013450.
- Rajakumar, B., D.C. **McCabe**, R.K. Talukdar, and A.R. Ravishankara (2010) "Rate coefficients for the reactions of OH with n-propanol and iso-propanol between 237 and 376 K," *Int. J. Chem. Kinet.*, **42**, 10, doi:10.1002/kin.20456.
- Crouse, J.D., P.F. DeCarlo, D.R. Blake, L.K. Emmons, T. L. Campos, E. C. Apel, A. D. Clarke, A. J. Weinheimer, D. C. **McCabe**, R. J. Yokelson, J. L. Jimenez, and P. O. Wennberg (2009) "Biomass burning and urban air pollution over the Central Mexican Plateau," *Atmos. Chem. Phys.*, **9**, 4929, doi:10.5194/acp-9-4929-2009.
- Spencer, K.M., D.C. **McCabe**, J.D. Crouse, J.R. Olson, J.H. Crawford, A.J. Weinheimer, D.J. Knapp, D.D. Montzka, C.A. Cantrell, R.S. Hornbrook, R.L. Mauldin III, P.O. Wennberg (2009) "Inferring ozone production in an urban atmosphere using measurements of peroxyacetic acid," *Atmos. Chem. Phys.*, **9**, 3697, doi:10.5194/acp-9-3697-2009.
- Ng, N.L., P.S. Chhabra, A.W.H. Chan, J.D. Surratt, J.H. Kroll, A.J. Kwan, D.C. **McCabe**, P.O. Wennberg, A. Sorooshian, S.M. Murphy, N.F. Dalleska, R.C. Flagan, and J.H. Seinfeld (2007) "Effect of NO<sub>x</sub> level on secondary organic aerosol (SOA) formation from the photooxidation of terpenes," *Atmos. Chem. Phys.*, **7**, 5159, doi:10.5194/acp-7-5159-2007.
- McCabe**, D.C., B. Rajakumar, P. Marshall, I.W.M. Smith, and A.R. Ravishankara (2006) "The relaxation of OH ( $v = 1$ ) and OD ( $v = 1$ ) by H<sub>2</sub>O and D<sub>2</sub>O at temperatures from 251 to 390 K," *Phys. Chem. Chem. Phys.*, **8**, 4563, doi:10.1039/B609330B.
- McCabe**, D.C., I.W.M. Smith, B. Rajakumar, and A.R. Ravishankara (2006) "Rate coefficients for the relaxation of OH ( $v = 1$ ) by O<sub>2</sub> at temperatures from 204–371 K and by N<sub>2</sub>O from 243–372 K," *Chem. Phys. Lett.*, **421**, 111, doi:10.1016/j.cplett.2006.01.037.
- Talukdar, R.K., T. Gierczak, D.C. **McCabe**, and A.R. Ravishankara (2003) "Reaction of Hydroxyl Radical with Acetone. 2. Products and Reaction Mechanism," *J. Phys. Chem. A*, **107**, 5021, doi:10.1021/jp0273023.

**McCabe**, D.C., S.S. Brown, M.K. Gilles, R.K. Talukdar, I.W.M. Smith, and A.R. Ravishankara (2003) “Kinetics of the Removal of OH ( $v = 1$ ) and OD ( $v = 1$ ) by HNO<sub>3</sub> and DNO<sub>3</sub> from 253 to 383 K,” *J. Phys. Chem. A*, **107**, 7762, doi:10.1021/jp0346413.

Vakhtin, A.B., D.C. **McCabe**, A.R. Ravishankara, and S.R. Leone (2003) “Low-Temperature Kinetics of the Reaction of the OH Radical with Hydrogen Peroxide,” *J. Phys. Chem. A*, **107**, 10,642, doi:10.1021/jp030424q.

**McCabe**, D.C., T. Gierczak, R.K. Talukdar, and A.R. Ravishankara (2001) “Kinetics of the reaction OH + CO under atmospheric conditions,” *Geophys. Res. Lett.*, **28**, 3135, doi:10.1029/2000GL012719.

Gilles, M.K., D.C. **McCabe**, J.B. Burkholder, and A.R. Ravishankara (2001) “Measurement of the Rate Coefficient for the Reaction of OH with BrO,” *J. Phys. Chem. A*, **105**, 5849, doi:10.1021/jp0039666.

### CONFERENCE PRESENTATIONS (ORAL AND POSTER)

Fleischman, L., **D. McCabe**, D. Lyon, M. D’Antoni, J. Anhalt, “[Tank Emissions from Controlled Tanks](#),” Stakeholder Workshop on EPA GHG Data for Petroleum and Natural Gas Systems, Oct. 2017, Houston, TX, USA.

Field, R., J. Soltis, D. Snare, R. Edie, D. **McCabe**, S. Murphy, “Reconciling Airborne Basin Scale Methane Flux Estimates with Ground Based Quantification of Methane and VOC Emissions from Well Pads,” American Geophysical Union Fall Meeting, Presentation A11L-03, Dec. 2014, San Francisco, CA, USA.

Weyant, C., P. Shepson, R. Subramanian, M.O. Cambaliza, D. **McCabe**, E. Baum, D. Caulton, A. Heimbürger, T. Bond, “[Black Carbon Emissions from Associated Natural Gas Flaring](#),” American Geophysical Union Fall Meeting, Presentation A11L-08, Dec. 2014, San Francisco, CA, USA.

Snare, D., R. Field, J. Soltis, D. **McCabe**, S. Murphy, “Mobile Lab for Estimating VOC and Methane Emissions Fluxes,” 16<sup>th</sup> Global Emissions Initiative Conference, June 2014, Boulder, CO, USA.

**McCabe**, D., L. Fleischman, “Quantifying Cost-Effectiveness of Systematic Leak Detection and Repair Programs Using Infrared Cameras,” Natural Gas STAR Annual Implementation Workshop, May 2014, San Antonio, TX, USA.

Caulton, D., P. Shepson, M. Cambaliza, D. **McCabe**, E. Baum, B. Stirr, “Efficiency of Natural Gas Flares Associated with Shale Formation Wells,” American Geophysical Union Fall Meeting, Presentation A23B-0208, Dec. 2013, San Francisco, CA, USA.

**McCabe**, D.C., E. Baum, S. Saunier, “Quantifying Methane Mitigation Costs from US Oil and Natural Gas,” Air and Waste Management Association, Climate Change: Impacts, Policy, and Regulation Conference, Presentation 11, Sept. 2013, Herndon, VA, USA.

**McCabe**, D., P. Groisman, *et al.*, “Open Burning and the Arctic: Current Knowledge and Priorities for Future Research,” European Geophysical Union General Assembly 2011, Presentation EGU2011-12855, Apr. 2011, Vienna, Austria.

- Robinson, E.M., R.B. Husar, S.R. Falke, D.C. **McCabe**, L. Menard, L. Wald, A. Warnock, "GEOSS Architecture Implementation Pilot-II: Integrating Technologies and Expertise to Build GEOSS," American Geophysical Union Fall Meeting, Presentation U51B-0018, Dec. 2009, San Francisco, CA, USA.
- Dickerson, P., J. Szykman, D. **McCabe**, "Integrating Satellite Observations into AIRNow: Providing Real Time Air Quality and Forecasts in the US and Elsewhere," CEOS Atmospheric Composition Constellation Workshop on Air Quality, June 2009, Frascati, Italy.
- McCabe**, D., P. Dickerson, L. Friedl, R. Husar, T. Keating, F. Lindsay, E. Robinson, S. Falke, "The GEO Air Quality Community of Practice: From Observations to Decision Support," International Symposium on Remote Sensing of Environment, Presentation TS 34-3, May 2009, Stresa, Italy.
- McCabe**, D.C., J.M. St. Clair, J.D. Crouse, K.M. Spencer, P.O. Wennberg, T.F. Hanisco, D.S. Sayres, A.S. O'Brien, J.G. Anderson, "Measurements of Isotopic Composition of Water Vapor Using CIMS From the NASA DC-8 During TC4," American Geophysical Union Fall Meeting, Presentation A31C-0114, Dec. 2008, San Francisco, CA, USA.
- Hodzic, A., F.M. Flocke, S. Madronich, J. Fast, W. Zheng, A. Weinheimer, D. Montzka, D. Knapp, L. Mauldin, P. Wennberg, J.D. Crouse, D. **McCabe**, A. Clarke, C.A. Hostetler, J.W. Hair, "Contribution of Dust Particles to the Heterogeneous Removal of Acidic Gases From the Atmosphere During the MIRAGE Experiment," American Geophysical Union Fall Meeting, Presentation A23C-1476, Dec. 2007, San Francisco, CA, USA.
- McCabe**, D., K. Spencer, J. Crouse, P. Wennberg, J. Crawford, J. Olson, A. Weinheimer, L. Mauldin, C. Cantrell, R. Anderson, "Nitric, Nitrous, and Pernitric Acids in and around Mexico City," American Geophysical Union Fall Meeting, Presentation A33D-1545, Dec. 2007, San Francisco, CA, USA.
- Knapp, D.J., D.C. Rogers, A.J. Weinheimer, D. Montzka, F.M. Flocke, W. Zheng, P. Wennberg, J. Crouse, D. **McCabe**, P. Decarlo, E. Dunlea, A. Aiken, J. Jimenez, D. Blake, "The Effect of Inlet Aspiration of Aerosol Odd-nitrogen Species on NO<sub>y</sub> Budget Determination," American Geophysical Union Fall Meeting, Presentation A33A-0825, Dec. 2007, San Francisco, CA, USA.
- Flocke, F. *et al.*, "Reactive nitrogen chemistry in Mexico City outflow - a unique case," American Geophysical Union Fall Meeting, Presentation A31E-05, Dec. 2007, San Francisco, CA, USA.
- McCabe**, D.C., B.Rajakumar, I.W.M. Smith, A.R. Ravishankara, "Temperature Dependent Rate Coefficients for Removal of OH ( $v=1$ ) by Acetone and Benzene," 228th American Chemical Society National Meeting, Aug. 2004, Philadelphia, PA, USA.
- Rajakumar, B., D.C. **McCabe**, R.K. Talukdar, A.R. Ravishankara, "Kinetics of the Reaction of OH Radical with n-propanol and iso-propanol in the Temperature Range of 235-375K," 228th American Chemical Society National Meeting, Aug. 2004, Philadelphia, PA, USA.
- McCabe**, D.C., B. Rajakumar, I.W.M. Smith, A.R. Ravishankara, "Temperature-dependent rate coefficients for removal of OH ( $v = 1$ ) by several species," 18th International Symposium on Gas Kinetics, Aug. 2004, Bristol, United Kingdom.

**McCabe**, D.C., S.S. Brown, M.K. Gilles, R.K. Talukdar, I.W.M. Smith, A.R. Ravishankara, “The Reactions of OH ( $v = 1$ ) and OD ( $v = 1$ ) With HNO<sub>3</sub> and DNO<sub>3</sub>,” The Kinetics and Dynamics of Elementary Gas-Phase Reactions: Celebrating the Career of Professor Ian W.M. Smith F.R.S., Sept. 2002, Birmingham, United Kingdom.

Vakhtin, A.B., D.C. **McCabe**, A.R. Ravishankara, S.R. Leone “The Kinetics of OH + H<sub>2</sub>O<sub>2</sub> at Cryogenic Temperatures,” The Kinetics and Dynamics of Elementary Gas-Phase Reactions: Celebrating the Career of Professor Ian W.M. Smith F.R.S., Sept. 2002, Birmingham, United Kingdom.

**McCabe**, D.C., S.S. Brown, M.K. Gilles, R.K. Talukdar, I.W.M. Smith, and A.R. Ravishankara, “The Reactions of OH ( $v = 1$ ) and OD ( $v = 1$ ) with HNO<sub>3</sub> and DNO<sub>3</sub>,” 17th International Symposium on Gas Kinetics, Aug. 2002, Essen, Germany.

Gierczak, T., R.K. Talukdar, D.C. **McCabe**, A.R. Ravishankara, “The Reaction of Hydroxyl Radical with Acetone: Products and the Reaction Mechanism Study,” 17th International Symposium on Gas Kinetics, Aug. 2002, Essen, Germany.

Gierczak, T., D.C. **McCabe**, R.K. Talukdar, A.R. Ravishankara, “Kinetics of the Reaction of Carbon Monoxide With the Hydroxyl Radical,” American Geophysical Union Fall Meeting, Presentation A21B-17, Dec. 1999, San Francisco, CA, USA.

## PROFESSIONAL ACTIVITIES

### Expert Testimony

Colorado Air Quality Control Commission, Oil and Gas Rulemaking, October 2017.

Colorado Air Quality Control Commission, Oil and Gas Rulemaking, February 2014.

### Invited Reviewer

EPA’s *Methodologies for U.S. Greenhouse Gas Emissions Projections: Non-CO<sub>2</sub> and Non-Energy CO<sub>2</sub> Sources*, Natural Gas Systems and Petroleum Systems Sections, 2013.

EPA’s *Global Mitigation of Non-CO<sub>2</sub> Greenhouse Gases*, Natural Gas and Oil Systems Section, 2013.

EPA’s *Inventory of US Greenhouse Gas Emissions and Sinks: 2013 – 2018*.

UNECE Task Force on Hemispheric Transport of Air Pollution’s *Hemispheric Transport of Air Pollution 2010 Assessment*, Part A, 2010.

### Meeting Co-Chair

“Open Burning and the Arctic: Causes, Impacts, and Mitigation Approaches,” Organized by Clean Air Task Force and Bellona, Nov. 2010, St. Petersburg, Russia.

[http://www.bellona.org/bellona.org/fires-and-the-arctic/subjects/conf\\_eng](http://www.bellona.org/bellona.org/fires-and-the-arctic/subjects/conf_eng).

### Session Organizer/Co-Chair

“Air Quality and GEOSS” Session at GEO-VI Plenary, Nov. 2009, Washington, DC, USA.

“Air Quality and GEOSS” Session at GEO-V Plenary, Nov. 2008, Bucharest, Romania.

“Air Quality and Public Health in the Americas” Session at GEOSS in the Americas Symposium, Oct. 2008, Panama City, Panama.

“Advances in Air Monitoring Technologies” Session at EPA Science Forum 2008, May 2008, Washington, DC, USA.