UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Environmental Defense Fund Comments on *EPA Responses to Certain State Designation Recommendations for the 2015 Ozone National Ambient Air Quality Standards*	)	**Docket No. EPA–HQ–OAR–2017–0548** *Submitted via Regulations.gov* *February 5, 2018*

We appreciate the opportunity to submit these comments on behalf of Environmental Defense Fund ("EDF") on certain state and tribal area designation recommendations for the 2015 National Ambient Air Quality Standards for ground-level ozone. EDF is a national nonprofit organization representing over two million members and supporters. Since 1967, EDF has linked science, economics, and law to create innovative, equitable, and cost-effective solutions to urgent environmental problems. EDF and its members are deeply concerned about harmful air pollution, including ground-level ozone.

I. INTRODUCTION

On October 1, 2015, the Environmental Protection Agency ("EPA") finalized revised ground-level ozone standards of 70 parts per billion (ppb).[1] These strengthened standards were developed through a rigorous and extensive rulemaking process during which EPA relied on well-established scientific evidence and the recommendations of independent scientific advisors. The science on the health impacts of ozone pollution is well-established. These commonsense, consensus-backed standards save lives and protect American families. Accordingly, we urge EPA to expeditiously move forward with finalizing designations for all areas of the country that are in line with the Agency's obligations to protect public health.

In particular:

- In Colorado - EDF urges EPA to designate all of Larimer and Weld Counties as part of the nonattainment area, as those areas have significant and growing emissions that contribute to ozone in the nearby areas that exceed the applicable air quality standard. EDF agrees

[1] U.S. Environmental Protection Agency, *National Ambient Air Quality Standards for Ozone,* 80 Fed. Reg. 65,292 (October 26, 2015) ("2015 standards").

that all of Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, and Jefferson Counties should be included in the nonattainment area.

- In Texas – EDF strongly urges EPA to swiftly promulgate designations for the San Antonio area, including Bexar County. EDF supports EPA's proposed nonattainment designation for Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Rockwall, Tarrant, and Wise Counties and EDF urges EPA to finalize its designation expeditiously in order to protect human health and the environment. We also urge EPA to include specific recognition of the contribution of oil and gas emissions to the unhealthy ozone levels in the Dallas-Fort Worth area, and to work with the state to implement robust controls on such activities.

- In Utah - EDF supports EPA's proposed expansion of the nonattainment designation for the Uinta Basin, and EDF urges EPA to finalize the designation expeditiously in order to secure near-term and critical public health protections. EDF urges EPA to finalize a moderate classification for the Uinta Basin area. EDF also urges EPA to include the major sources located in Morgan and Summit Counties in the Northern Wasatch Front nonattainment area.

- In Arizona - EDF urges EPA to expand the Yuma nonattainment area to include more onroad sources.

- In Nevada - EDF urges EPA to further expand the Las Vegas nonattainment area to include the two major sources located in HA 215, to the east of the Las Vegas Valley.

- In Pennsylvania - EDF urges EPA to designate the Pittsburgh-Beaver Valley area as nonattainment. EDF supports EPA's recommendation that Berks County in the Reading area be designated as nonattainment, and EPA's recommendation to expand the counties designated nonattainment in the Harrisburg-York-Lebanon-Lancaster area.

- In Ohio - EDF urges EPA to add Ashtabula County to the Cleveland, Ohio nonattainment area and Ross County in the Columbus, Ohio nonattainment area.

- In Indiana - EDF supports EPA's inclusion of Lake and Porter Counties in the Chicago-IL-IN-WI nonattainment area. We also support EPA's nonattainment designation for Dearborn County, Indiana in the Cincinnati-KY-OH-IN nonattainment area, and EPA's nonattainment designation for the Louisville, KY-IN area, including Bullitt, Jefferson, and Oldham Counties in Kentucky, and Clark and Floyd Counties in Indiana.

II. LEGAL FRAMEWORK FOR THE OZONE DESIGNATIONS

The Clean Air Act ("CAA" or the "Act") has provided for extraordinary, bipartisan progress in protecting Americans' health and the environment for over 40 years. The Act requires the EPA Administrator to establish—and periodically review and revise—national, health-based standards known as National Ambient Air Quality Standards ("NAAQS") for certain harmful "criteria" air

pollutants, including ground-level ozone.[2] The Act instructs the Administrator to establish standards that "are requisite to protect the public health" with "an adequate margin of safety."[3] Thus, EPA must set the health-based standards based exclusively on public health considerations and must select a level which is precautionary in safeguarding against adverse health effects in sensitive populations. EPA is not permitted to consider costs in setting the standards.[4] The Agency must revisit these standards at least every five years in order to determine whether a revision is necessary based on the best available science.[5]

After EPA establishes or revises such a standard, it is then required to complete the second phase of the process—implementing the designations. EPA must determine whether every area in the country is an "attainment" or "nonattainment" with the new standard. Nonattainment areas include "any area that does not meet" the NAAQS along with any area that "contributes to ambient air quality in a nearby area that does not meet" the NAAQS.[6] Likewise, an attainment area is one where the air quality meets EPA's health-based standard.[7] EPA is compelled to carry out the designation process "as expeditiously as practicable," and "in no case later than two years from the date of promulgation of the new or revised" standard.[8]

States and tribes also play a key role in the process of designating areas that meet or that exceed the updated standard. Within one year of EPA finalizing a revised NAAQS, states and tribes must submit a list of recommended designations to the Administrator.[9] The Administrator then has a year to promulgate final area designations.[10] Although EPA receives recommendations from the states and tribes as to area designations, the Act authorizes EPA to modify those recommendations as it "deems necessary."[11]

III. EPA'S LEGAL DUTY TO ACT

On October 1, 2015, the EPA Administrator revised and strengthened these important health-based standards for ground-level ozone.[12] The 2015 standards lowered the acceptable thresholds for ozone in the ambient air to 70 parts per billion (ppb), more stringent than the 75 ppb level established in 2008.[13] Based on the statutory framework already described, states and tribes were required to submit recommendations for initial area designations to EPA within a year of the final revision, and in turn, EPA was required to move forward with the implementation process by

[2] 42 U.S.C. § 7409.
[3] *Id.* at § 7409(b)(1).
[4] *See Whitman v. Am. Trucking Ass'ns, Inc*., 531 U.S. 457, 471 (2001).
[5] 42 U.S.C. § 7409(d).
[6] 42 U.S.C. § 7407(d)(1)(A).
[7] There is also a third option—an "unclassifiable" area, which is "any area that cannot be classified on the basis of available information as meeting or not meeting" the standards. *See* 42 U.S.C. §§ 7407(d)(1)(A)(iii), 7471
[8] 42 U.S.C. § 7407(d)(1)(B)(i).
[9] 42 U.S.C § 7407(d)(1)(A).
[10] *Id.* § 7407(d)(1)(B)(i).
[11] *Id.* § 7407(d)(1)(B); *see Catawba Cnty., N.C. v. EPA*, 571 F.3d 20, 40 (D.C. Cir. 2009) (concluding EPA "has no obligation to give any quantum of deference to a designation that it 'deems necessary' to change").
[12] 2015 standards, 80 Fed. Reg. at 65,292.
[13] *Id.*

promulgating final designations for the 2015 ozone standards by October 1, 2017. Most of the states adhered to this obligation by submitting recommendations to EPA in the fall of 2016.[14]

EPA, however, failed to timely promulgate final designations as required by October 1, 2017, and the Agency continues to be in violation of this mandatory duty. EPA's failure to "expeditiously" complete the designations process has significant public health consequences. An area's attainment or nonattainment designation is key to the functioning of the NAAQS program because the Act's provisions are specifically designed to bring nonattainment areas into attainment with the standard by certain fixed deadlines that are dependent on EPA's promulgation of the final designations.[15] EPA's delay upends the CAA's carefully-structured statutory scheme designed to clean up dirty air. Accordingly, we urge EPA to immediately finalize these crucial designations for all areas of the country.

IV. GROUND LEVEL-OZONE HARMS PUBLIC HEALTH

Ground-level ozone, also known as smog, is one of the harmful criteria pollutants that EPA is required to regulate. Ozone is a caustic pollutant that irritates the lungs, exacerbates lung conditions like asthma, and is linked to a wide-array of serious heart and lung diseases. Ozone pollution is particularly harmful for children, seniors, people with lung impairments like asthma, and anyone active outdoors. Exposure to ozone causes a multitude of short-term and long-term health impacts, ranging from shortness of breath and coughing, to increased risk of premature death. EPA has estimated that compliance with the 2015 ozone standard will save hundreds of lives, prevent 230,000 asthma attacks in children, and prevent 160,000 missed school days for children each year.[16]

A. AN EXTENSIVE BODY OF SCIENTIFIC EVIDENCE DEMONSTRATES THE HARMS ASSOCIATED WITH OZONE POLLUTION

Between 2008 and 2015, there were more than 1,000 new studies that demonstrate the health and environmental harms of ozone.[17] In particular, EPA concluded:

> Scientific evidence shows that ozone can cause a number of harmful effects on the respiratory system, including difficulty breathing and inflammation of the airways. For people with lung diseases such as asthma and COPD (chronic obstructive pulmonary disease), these effects can aggravate their diseases, leading to increased medication use, emergency room visits and hospital admissions.

---

[14] *See e.g.*, EPA, Ozone Standards, State Recommendations, *available at* https://www.epa.gov/ozone-designations/2015-ozone-standards-state-recommendations. However, the state of Maryland submitted recommendations in early 2017. *See* https://www.epa.gov/sites/production/files/2017-05/documents/md_recommendations.pdf.

[15] *See, e.g.*, 42 U.S.C §§ 7501-7504, 7506, 7507-7509a, 7511-7511f.

[16] EPA, *Regulatory Impact Analysis of the Final Revisions to the National Ambient Air Quality Standards for Ground-Level Ozone*, EPA-452/R-15-007, at ES-16, tbl.ES-6 (2015).

[17] U.S. Environmental Protection Agency, Fact Sheet, *Overview of EPA's Updates to the Air Quality Standards for Ground-Level Ozone* ("2015 Ozone Standard Fact Sheet"), *available at* https://www.epa.gov/sites/production/files/2015-10/documents/overview_of_2015_rule.pdf; *see also* U.S. Environmental Protection Agency, Integrated Science Assessment for Ozone and Related Photochemical Oxidants, Final Report (Feb. 2013), *available at* http://cfpub.epa.gov/ncea/isa/recordisplay.cfm?deid=247492#Download.

> Evidence also indicates that long-term exposure to ozone is likely to be one of many causes of asthma development. In addition, studies show that ozone exposure is likely to cause premature death.[18]

More recent evidence from studies published within the last year now shows that ozone exposure is associated with an increased risk of death. The studies assessed ozone impacts in 61 million Medicare beneficiaries across 13 years in the United States and found that the associated risk of death continued below the current 8-hour NAAQS standard of 70ppb.[19] The authors of this landmark study concluded that there was no threshold of the effect seen and that it would be hard to justify any level of exposure as safe.[20] Another study found that long-term seasonal ozone was also associated with death and that reduction of just 5ppb of summertime average ozone across the country would save 9,537 lives per year.[21]

The scientific and technical analyses reflected in EPA's 2015 ozone standards also underscore that the risk of these harmful health effects is even more pronounced for people with asthma and other respiratory diseases, children, older adults, people who work or are active outdoors. An estimated 23 million people have asthma in the U.S., including almost 6.1 million children.[22] Asthma disproportionately impacts communities of color and lower-income communities.[23] Strengthened ozone health standards will help improve air quality in these and all communities across the country.

Children, in particular, are considered the most at-risk group because they breathe more air per unit of body weight, are more active outdoors, are more likely to have asthma than adults, and are still developing their lungs and other organs. In fact, EPA's Children's Health Protection Advisory Committee—a body of external experts that provide the Administrator with recommendations concerning children's health—recommended a substantially stronger standard to protect the health of children. CHPAC found that "[c]hildren suffer a disproportionate burden of ozone-related health impacts due to critical developmental periods of lung growth in childhood and adolescence that can result in permanent disability."[24]

---

[18] 2015 Ozone Standard Fact Sheet.
[19] Di Q, Dai L, Wang Y, Zanobetti A, Choirat C, Schwartz JD, Dominici F., *Association of Short-term Exposure to Air Pollution With Mortality in Older Adults*, 318 [J]AMA 2446–2456 (2017), doi:10.1001/jama.2017.17923
[20] *Id.*
[21] Di, Q., Wang, Y., Zanobetti, A., Wang, Y., Koutrakis, P., Choirat, C., Dominici, F. and Schwartz, J.D., *Air pollution and mortality in the Medicare population*. 376 NEW ENGLAND J. OF MED., 2513-2522 (2017), *available at* http://www.nejm.org/doi/full/10.1056/NEJMoa1702747.
[22] 2015 Ozone Standard Fact Sheet.
[23] *Id.*
[24] Letter from Sheela Sathyanarayana MD MPH, Chair, Children's Health Protection Advisory Committee to Christopher Frey PhD, CASAC Review of the Health Risk and Exposure Assessment for Ozone and Policy Assessment for the Review of the Ozone NAAQS: Second External Review Drafts, (May 19, 2014), *available at* https://www.epa.gov/sites/production/files/2014-12/documents/2014.05.19_chpac_ozone_naaqs.pdf.

V. STATE-SPECIFIC RECOMMENDATIONS

A. STATE OF COLORADO

In its letter dated December 20, 2017 to the State of Colorado, the EPA indicated its intent to designate Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, and Jefferson Counties as nonattainment for the 8-hour 2015 ozone standard. Additionally, the EPA indicated its intent to designate portions of Larimer County and Weld County Nonattainment- with boundaries consistent with those recommended by Colorado. The EPA also indicated that it intends to designate all other areas in the state not previously designated in November 2017 as attainment/unclassifiable.

As set forth below, EDF agrees that all of Adams, Arapahoe, Boulder, Broomfield, Denver, Douglas, and Jefferson Counties should be included in the nonattainment area. In addition, EDF urges EPA to designate all of Larimer and Weld Counties as part of the nonattainment area, as those are areas with significant and growing emissions that contribute to ozone in the nearby areas that exceed the applicable air quality standard. More than 10,000 EDF members reside in Colorado. EDF has regional offices throughout the country, including an office in Boulder, Colorado. For over three decades, EDF's Colorado office has worked to improve and protect the air quality in Colorado and has actively participated in numerous actions concerning air quality in Colorado.

1. Ground-Level Ozone Poses a Serious Threat to Public Health and the Environment in Colorado

Colorado has made great strides in improving air quality over the past forty years, but ozone remains a serious threat to the health of our citizens and the quality of life in Colorado. There is substantial scientific evidence that ozone pollution causes adverse effects including decrease in lung function, increase in respiratory symptoms, and increase in airway inflammation, even at the 2015 8-Hour ozone standard of 70 parts per billion.[25] This risk is particularly acute for adults and children with existing lung conditions, such as asthma. Approximately one in ten Coloradans suffer from asthma, a large percentage of which are members of the most vulnerable populations, *i.e.*, children and low-income and minority communities.[26] Ozone can also cause acute asthmatic symptoms in healthy adults who work or exercise outdoors. It regularly sends people to the emergency room, and in some cases, can trigger premature death.[27]

In fact, EPA's national independent expert scientific panel advised the agency to reduce the ozone standard from 75 ppb to in between 60 and 70 ppb. EPA's revised standard of 70 ppb represents the least protective end of that recommendation, though the standard is more rigorous than the 2008 standard, which Colorado has not yet met.

---

[25] Letter from Christopher Frey PhD to Administrator McCarthy, *CASAC Review of the EPA's Second Draft Policy Assessment for the Review of the Ozone National Ambient Air Quality Standards*, at ii (June 26, 2014), *available at* http://yosemite.epa.gov/sab/sabproduct.nsf/5EFA320CCAD326E885257D030071531C/$File/EPA-CASAC-14-004+unsigned.pdf.

[26] Am. Lung Ass'n, *State of the Air 2016*, 61 (2016) ("2016 State of the Air"), *available at* http://www.lung.org/assets/documents/healthy-air/state-of-the-air/sota-2016-full.pdf.

[27] 2015 Ozone Standard Fact Sheet.

Coloradans have a long history of working together to address important air pollution problems. One recent example includes the amendments to Regulation 7 adopted by the Colorado Air Quality Control Commission in 2014, which represented the first state-wide measures to reduce methane from the oil and gas sector and 2017 amendments to Regulation 7 directed at reducing emissions in the non-attainment area. These efforts to continually improve Colorado's air quality have made Colorado one of the best places to live and work in the country.

While we have made tremendous progress, more work needs to be done to protect the air we breathe, as demonstrated by, among other things, the recent nonattainment designation for ozone in the Denver Front Range Area and the increasing ozone concentrations that occurred at various ozone monitors in the nonattainment area. For example, the monitor at National Renewable Energy Lab in the summer of 2017 recorded ozone values of 88, 86, 83 and 83 ppb, well above the new standard of 70 ppb.

2. Nonattainment Areas Include Areas that Contribute to Ambient Air Pollution in Nearby Areas that Exceed that Applicable Air Quality Standard, Like Northern Weld and Larimer Counties

As acknowledged by EPA, the CAA defines nonattainment areas to include not only areas that fail to meet the NAAQS, but also any area that "contributes to ambient air quality in a nearby area that does not meet" the NAAQS.[28] Any area that "exacerbates" nonattainment in a nearby area can be included, a flexible standard of contribution that the federal courts have recognized as central to the "very purpose" of CAA Section 107(d) area designations.[29] Areas that are designated nonattainment are subject to a number of health-protective requirements intended to ensure expeditious improvements in air quality.[30] Thus, the area designations, including areas that contribute to nonattainment, are a critical step to protecting public health and the environment.

3. The Nonattainment Area Should Also Include Northern Weld and Larimer Counties

The current EPA proposal arbitrarily excludes the northern portion of Weld and Larimer Counties from the nonattainment area. Sources in Northern Weld and Larimer Counties emit significant amounts of ozone precursors. The bulk of those emissions are from oil and gas production activities, and multiple lines of evidence demonstrate that such emissions are understated in the inventory. These oil and gas emission sources are likely to grow in the future and therefore increase their detrimental effect on ozone pollution levels in the nonattainment

[28] 42 U.S.C. § 7407(d)(1)(A); *see* S. Rep. No. 101-228, 1990 CAA Legis. Hist. 8338, 8354-55 (1993) (Section 107(d) amendments "explicitly provide that EPA may include within the boundary an area that may cause or contribute to nonattainment in another area, regardless of whether pollutant concentrations in the first area exceed the standard").

[29] *See Catawba Cnty.,N.C. v. EPA,* 571 F.3d 20, 40 (D.C. Cir. 2009) (concluding EPA "has no obligation to give any quantum of deference to a designation that it 'deems necessary' to change").

[30] *See, e.g.*, 42 U.S.C. § 7511a (requiring deployment of all reasonably available control technologies in nonattainment areas, nonattainment new source review, and other plan provisions).

area.[31] Including these areas will also maximize the options available to Colorado to achieve the new, health-based ozone standards.

a. Including Northern Weld and Larimer Counties in the Ozone Nonattainment Area Will Aid Colorado in Developing Strategies to Achieve the Ozone Standard

The reasons to expand the nonattainment area are compelling. First, recent data demonstrates that Colorado will need to use all the tools at its disposal to improve the air quality in Colorado to meet the 2015 standard. For example, the 2014 to 2016 design value is 80 parts per billion, which is 10 ppb over the standard. The state will therefore need to reduce ozone concentrations significantly over the next few years, a task made more difficult by the impacts of climate change. The ozone designation must recognize these contributions to put the state in the best position to secure reductions to meet the standard and protect public health and the environment. This means that the EPA should expand the nonattainment area that is contributing to elevated ozone levels so that sources within that larger area can be required to apply controls to reduce ozone. This will enhance the ability of the state to secure additional reductions since more emissions will be subject to controls.

b. Emissions in Weld County and Larimer County are Significant and Growing

Emissions in northern Weld County and Larimer County are significant and growing. For example, in 2011 sources in northern Weld and Larimer Counties emitted more than 30,000 tons a year of ozone precursors.[32] To put this into perspective, those emissions are greater than precursor emissions from many of the counties contained in the nonattainment area proposed by EPA.[33] Expanding the non-attainment area to include these areas will enable the Colorado AQCC to impose additional controls in these areas to secure additional needed reductions. Indeed, the arbitrary line across these counties contradicts the presumptive nonattainment area from EPA guidance.[34] While EPA does allow for the use of area-specific analysis to support designations, as explained herein, such information supports *inclusion* of these areas in the nonattainment area. Moreover, EPA "generally believes it is appropriate to include the entire violating or contributing county in an ozone nonattainment area…."[35] As identified by EPA, these northern portions of these counties represent a large share of the total emissions from each County as far back as 2011. For Larimer County, they represent 36% of NOx and 37% of volatile organic compounds ("VOC")

[31] The analysis presented in this letter is consistent with the five factor analysis identified by EPA in its guidance for designating nonattainment areas for the 2015 8-hour ozone standard. These five factors include: 1. Air Quality Data; 2. Emission and emission related data; 3. Meteorological data; 4. Geography/topography; and 5. Jurisdictional boundaries. Area Designations for the 2015 Ozone National Ambient Air Quality Standards (2/25/2016) ("EPA 2015 Guidance") at 13. https://www.epa.gov/sites/production/files/2016-02/documents/ozone-designations-guidance-2015.pdf

[32] U.S. Envt'l Protection Agency, State of Colorado Technical Support Document For Recommended 8-hour Ozone Designations (September 15, 2016) ("EPA CO TSD") *available at* https://www.epa.gov/sites/production/files/2016-11/documents/co-rec-tsd.pdf

[33] *See* EPA CO TSD at 88. For example, the VOC emissions in northern Weld County are greater than 3 of the counties in the nonattainment area. Larimer County also exceeds emissions of a county in the non-attainment area. Taken together, the VOC emissions from these two northern areas are greater than five of counties in the nonattainment area.

[34] *See* EPA CO TSD at 21.

[35] EPA 2015 Guidance at 7.

(non-methane VOC) emissions. For Weld County, 25% of NOx and 18% of VOC emissions. As indicated below, oil and gas emissions in this area are understated and growing, so the actual emissions are even higher.

c. Oil and Gas Emissions in Northern Weld and Larimer County Are Understated and Growing

A meaningful share of the ozone precursor emissions in Weld and Larimer Counties are from oil and gas production operations, which are notoriously understated in emission inventories. Thus, the actual emissions are even higher than estimated in the inventory and modeled for in the APCD and EPA recommendations.

Up until recently, regulators have relied nearly exclusively on emission inventories in order to understand the magnitude of a particular pollution problem as well as the potential reductions associated with a proposed solution. Now however, recent advances in science have added to our knowledge and understanding of emissions from oil and gas facilities. These studies demonstrate that emissions are systematically significant and, at a select number of facilities, actual emissions are magnitudes higher than emission inventories suggest. In 2013, an independent team of scientists at the University of Texas conducted a study that directly measured emissions and found emissions from equipment leaks, pneumatic controllers and chemical injection pumps were each 38%, 63% and 100% higher, respectively, than as estimated in national inventories.[36] This study also found that 5% of the facilities were responsible for 27% of the emissions.[37]

Two follow-up studies focused specifically on emissions from pneumatic controllers and liquids unloading activities at wells found similar results.[38] These studies found that 19 percent of the pneumatic devices accounted for 95 percent of the emissions from the devices tested, and about 20 percent of the wells with unloading emissions accounted for 65% to 83% of those emissions. The average methane emissions per pneumatic controller were 17% higher than the average emissions per pneumatic controller in EPA's national greenhouse gas inventory.[39]
These findings were reinforced by a series of direct measurement studies focusing on emissions from compressor stations in the gathering and processing segment and in the transmission and storage segment. The gathering and processing study found substantial venting from liquids storage tanks at approximately 20 percent of the sampled gathering facilities.[40] Emission rates at these facilities were on average four times higher than rates observed at other facilities.

---

[36] Allen, D.T., et al, (2013) "Measurements of methane emissions at natural gas production sites in the United States," *Proc. Natl. Acad.* 2013, 110 (44), available at http://www.pnas.org/content/110/44/17768.full

[37] *See* Allen, D.T., et al, (2014), "Methane Emissions from Process Equipment at Natural Gas Production Sites in the United States: Pneumatic Controllers*," Environ. Sci. Technol*., 2015, 49 (1), pp. 633–640 (referencing 2013 Allen study), *available at* http://pubs.acs.org/doi/abs/10.1021/es5040156.

[38] Allen, D.T. et al., "Methane Emissions from Process Equipment at Natural Gas Production Sites in the United States: Liquid Unloadings," *Environ. Sci. Technol*., 2015, 49 (1), pp 641–648, *available at* http://pubs.acs.org/doi/abs/10.1021/es504016r.

[39] Allen, D.T., et al, (2014), "Methane Emissions from Process Equipment at Natural Gas Production Sites in the United States: Pneumatic Controllers*," Environ. Sci. Technol*., 2015, 49 (1), pp 633–640, *available at* http://pubs.acs.org/doi/abs/10.1021/es5040156.

[40] Mitchell, A.L., et al, (2015) "Measurements of Methane Emissions from Natural Gas Gathering Facilities and Processing Plants," *Environ. Sci. Technol*, 2015, 49 (5), pp 3219–3227, *available at* http://pubs.acs.org/doi/abs/10.1021/es5052809.

In the study on transmission and storage emissions, the two sites with very significant emissions were both due to leaks or venting at isolation valves.[41] The study also found that leaks were a major source of emissions across sources, concluding that measured emissions are larger than would be estimated by the emission factors used in EPA's reporting program. Other studies resulted in similar findings. In a 2013 study measuring emissions from 200 well pads in the Barnett Shale researchers found that approximately 20% of the well pads were responsible for 80% of the emissions detected. [42]

A more recent series of studies in the Barnett—incorporating both top-down and bottom-up measurement—found that emissions were 50% greater than estimates based on the applicable EPA inventory.[43] The studies partially attributed these large emissions to high emission sites not reflected in inventories, which focus on average emission factors. One study in particular found that a small number of sources are responsible for a disproportionate amount of emissions, noting specifically that "sites with high proportional loss rates have excess emissions resulting from abnormal or otherwise avoidable operating conditions, such as improperly functioning equipment."[44]

Given the overwhelming scientific evidence that these measurements show emissions from oil and gas facilities are significantly underestimated in inventories, it is critical that Colorado's efforts to reduce ozone precursors from the industry cast a wide net to capture as many facilities as possible.

The evidence that oil and gas emissions cause ozone exceedances in Colorado is even more direct and robust than shown in the national studies about particular emission sources, further supporting the inclusion of northern Weld and Larimer Counties in the nonattainment area. A plethora of recent peer-reviewed studies measuring air chemistry, meteorology and mixing patterns in the Colorado Front Range nonattainment area demonstrates that oil and gas production is a major contributor to high ozone levels in the Denver Front Range area. A paper published in 2017 specific to ozone in the front range non-attainment area concludes that, on individual days, oil and gas ozone precursors can contribute in excess of 30 ppb ozone and can lead to exceedances of the EPA ozone standard.[45] These studies show that transport from oil and natural gas emissions areas,

---

[41] R. Subramanian, et al, (2015) "Methane Emissions from Natural Gas Compressor Stations in the Transmission and Storage Sector: Measurements and Comparisons with the EPA Greenhouse Gas Reporting Program Protocol," *Environ. Sci. Technol*, *available at* http://pubs.acs.org/doi/abs/10.1021/es5060258.

[42] Rella, Chris W., et al, (2015), "Measuring Emissions from Oil and Natural Gas Well Pads Using the Mobile Flux Plane Technique," *Environ. Sci. Technol*., 2015, 49 (7), *available at* http://pubs.acs.org/doi/abs/10.1021/acs.est.5b00099.

[43] Harriss, *et al.*, (2015) "Using Multi-Scale Measurements to Improve Methane Emissions Estimates from Oil and Gas Operations in the Barnett Shale, Texas: Campaign Summary," *Environ. Sci. Technol.*, 49, ("Harriss (2015)"), *available at* http://pubs.acs.org/doi/abs/10.1021/acs.est.5b02305http://pubs.acs.org/doi/abs/10.1021/acs.est.5b02305http://pubs.acs.org/doi/abs/10.1021/acs.est.5b02305.

[44] Zavala-Araiza, *et al.*, (2015) "Toward a Functional Definition of Methane Super-Emitters: Application to Natural Gas Production Sites," *Environ. Sci. Technol*., 49, at 8167−8174 ("Zavala-Araiza (2015)"), *available at* http://pubs.acs.org/doi/pdfplus/10.1021/acs.est.5b00133.

[45] Cheadle, L. C., S. J. Oltmans, G. Pétron, R. C. Schnell, E. J. Mattson, S. C. C. Herndon, A. M. Thompson, D. R. Blake, and A. McClure-Begley (2017), Surface Ozone In the Colorado Northern Front Range and the Influence of Oil and Gas Development During FRAPPE/DISCOVER-AQ in Summer 2014, *Elem. Sci. Anth. 5, 61.*

like Larimer and Weld Counties, correlate with high ozone days, showing that it will be critical to curb oil and gas emissions further to achieve ozone attainment.[46]

New, high-quality and high-resolution data collected at the Boulder Reservoir in Boulder County also compellingly demonstrate that oil and gas emissions are the dominant source of VOC emissions in this area. Boulder County is sponsoring the study that is being carried out by a group of scientists at Colorado University-Boulder to collect data at the Boulder Reservoir. As recently reported,[47] the chemical signature at this location shows that, when the wind direction is blowing from the area of the oil and gas production (such as Weld and Larimer Counties), the chemicals present in the air are dominated by oil and gas emissions. Ethane is a primary oil and gas emission with only weak sources outside of oil and gas. This VOC marker for oil and gas operations is present at very high levels at Boulder Reservoir, compared to measurements from other urban areas, as reported. Importantly, the high concentration days occur when winds are from the direction of the oil and gas production area, in the direction of Larimer and Weld Counties. Moreover, the ethane levels do not change over the weekend (e.g. in response to changing traffic patterns), which further supports that these emissions are from oil and gas production and not the transportation sector.

Similarly, a 2018 study reports that the air chemistry and wind measurements show elevated VOC levels occur on those days when the wind direction is from the area of heavy oil and gas production. In contrast, when the wind is from the heavily urbanized areas of Denver or even the City of Boulder, these chemicals (ethane, VOC, and others, such as benzene and methane), tend to be lower. The City of Boulder, with a population of over 100,000, is located a mere five miles to the south.

This dominance of the oil and gas sector as a pollution source of ozone precursors and other chemicals is further confirmed by the i/n Pentane Isomeric Ratio measured at the Boulder Reservoir, which is selective tracer signal.[48] When that ratio is below 1.5, it tends to be dominated by oil and gas sources, and when it is above 1.5, it tends to be representative of background/urban sources.[49] A review of that ratio indicates that there is a very strong oil and gas signature when the air is blowing from the northeast, which is as the area of high oil and gas production activities.

---

[46] Evans, J. M., and D. Helmig (2017), "Investigation of the Influence of Transport from Oil and Natural Gas Regions on Elevated Ozone Levels in the Northern Colorado Front Range" *Journal of the Air & Waste Management Association, 67,* 196-211. *See also* McDuffie, E. E., et al. (2016), Influence Of Oil And Gas Emissions on Summertime Ozone in the Colorado Northern Front Range, *Journal of Geophysical Research: Atmospheres*, *121*(14), 8712-8729, doi:10.1002/2016jd025265; Swarthout, R. F., R. S. Russo, Y. Zhou, A. H. Hart, and B. C. Sive (2013), Volatile Organic Compound Distributions During The NACHTT Campaign At The Boulder Atmospheric Observatory: Influence Of Urban And Natural Gas Sources, *Journal of Geophysical Research-Atmospheres*, *118*(18), 10614-10637; Pfister, G., F. Flocke, R. S. Hornbrook, J. Orlando, and S. Lee (2017), Process-Based and Regional Source Impact Analysis for FRAPPE and DISCOVER-AQ 2014, *Final Report to the Colorado Department of Public Health and Environment, 31 July, 2017*.

[47] http://video.ucar.edu/mms/acom/2018/d_helmig.mp4 (Helmig 2018)

[48] Helmig 2018.

[49] Helmig 2018; *See also* Gilman, J. B., B. M. Lerner, W. C. Kuster, and J. A. de Gouw (2013), Source Signature of Volatile Organic Compounds from Oil and Natural Gas Operations in Northeastern Colorado, *Environmental Science & Technology*, *47*(3), 1297-1305, 1300 doi:10.1021/es304119a.

The wind rose and air chemistry measurements at the Boulder Reservoir also show that elevated concentrations of nitrogen oxides are associated with oil and gas production, when the wind is blowing from the direction of the oil and gas production areas, such as Weld and Larimer Counties.[50] Those areas are low in population so nitrogen oxides emissions should be low, but the data shows nitrogen oxides pollution is much higher than would be expected when the air is blowing from that direction, given the low population.[51] As EPA is aware nitrogen oxides are an important ozone precursor.

Modeling by APCD confirms that the meteorology and topography enable sources from northern Weld County and northern Larimer County to contribute to high ozone levels in the non-attainment area. Figures 1-22, 1-23, 1-26, 1-27, and 1-28 from the Colorado TSD ("CO TSD") all demonstrate that sources in northern Weld County and/or Larimer County contribute to ozone at the four highest monitors in the current non-attainment area. As discussed above, these areas are significant sources of ozone precursors, and in fact the oil and gas component of this inventory is almost certainly understated. Thus, the meteorology and topography support including these areas in the non-attainment area. EPA modeling shows similar results.[52]

Future growth of oil and gas in the area will only exacerbate the ozone contributions from these areas. The Denver Julesburg Basin (the "DJ Basin") is the locus of the most intense and growing oil and gas activity in the state. The DJ Basin encompasses all of Weld County and the eastern portion of Larimer County, all the way to the Wyoming border. As the price of oil recovers, intense growth in these areas is likely to continue. An attachment uploaded with our comments shows a map produced by the Colorado Oil and Gas Conservation Commission ("COGCC") website on January 29, 2018.[53] The map shows pending and approved permits for oil and gas wells in the state as blue squares, green dots and orange diamonds. Existing wells are shown as red dots. This figure shows oil and gas permitting activity in northern Weld County so intense that it is indistinguishable from the oil and gas development occurring in the proposed nonattainment areas of those counties. Larimer County is part of the DJ Basin with existing wells, so also could face similar development. This figure further demonstrate that these areas are and will be significant contributors to ozone in the nonattainment area, and therefore must be included in the non-attainment area.

d. Expanding the Nonattainment Area to Northern Weld and Larimer County Does Not Create Jurisdictional Difficulties

The requested expansion of the non-attainment area will not create any jurisdictional difficulties. Part of each of the two counties is already included in the nonattainment area, so including the balance of each county would not create difficult jurisdictional issues. Thus, the jurisdictional boundaries factor (one of the five EPA factors) supports inclusion of these areas in the nonattainment area.

[50] Helmig 2018.
[51] *Id.*
[52] *See* EPA CO TSD Figure 8 through 12.
[53] https://cogccmap.state.co.us/cogcc_gis_online/ clicking on permits and pending permits shows current and likely future activity.

B. STATE OF TEXAS

1. We Support EPA's Designation of Ten Counties in the Dallas-Fort Worth Area as Nonattainment

We support EPA's recommendation to designate ten counties in the Dallas-Fort Worth ("DFW") area as nonattainment.[54] The CAA requires EPA to designate as nonattainment any area containing a monitor that is violating the ozone standard or any area containing sources of emissions that are contributing to a violation of the NAAQS in a nearby area.[55] EPA proposes to designate as nonattainment counties within the DFW area that contain violating monitors, as well as counties that contain emissions that contribute to violations at nearby monitors. EPA has correctly relied on emissions data, including the location of emissions sources, in designating Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Rockwall, Tarrant, and Wise Counties in the DFW area as nonattainment. Two of these counties, Dallas and Tarrant, have emissions of NOx and VOC that exceed 33,000 tpy.[56]

Per EPA's TSD, eleven regulatory monitors in Collin, Dallas, Denton, Johnson, Parker, and Tarrant Counties recorded violations of the 2015 ozone NAAQS based on the 2016 design value (i.e., based on data for the 2014-2016 period).[57] These regulatory monitors recorded design values between 71 and 80 ppb, which is higher than the 70 ppb limit specified by the 2015 NAAQS.[58] In addition, EPA determined that Ellis, Kaufman, Rockwall, and Wise counties to be in nonattainment in part because they ranked high among NOx and VOC emissions.[59] Ellis County ranks among the highest in NOx emissions (6^{th}) with 10,087 tpy of NOx emissions and 5,551 tpy of VOC emissions. Kaufman County has 5,391 tpy of NOx emissions and 3,013 tpy of VOC emissions. Rockwall County has 1,611 tpy of NOx emissions and 1,720 tpy of VOC emissions. Wise County also ranks highest among NOx and VOC emissions (5^{th}) with 10,789 tpy of NOx emissions and 12,777 tpy of VOC emissions. In addition, back trajectories of paths air masses traveled to violating monitors in nearby counties show that these air masses passed over large point sources in Ellis, Kaufman, Rockwall, and Wise counties, indicating that NOx and VOC emissions from point sources in these counties contributed to the design values recorded at the violating monitors.[60] Accordingly, EPA correctly designated Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Rockwall, Tarrant, and Wise Counties as nonattainment. Air quality data from

[54] Letter from Samuel Coleman, P.E., Deputy Reg'l Adm'r, U.S. Envt'l Protection Agency Region 6, to Hon. Greg Abbott, Gov. of Tex., 2 (Dec. 22, 2017) ("Coleman letter"), *available at* https://www.epa.gov/sites/production/files/2017-12/documents/tx_ltr_12_22_17.pdf .
[55] U.S. Envt'l Protection Agency, State of Texas Intended Area Designations for the 2015 Ozone National Ambient Air Quality Standards Technical Support Document, 1 (2015) ("EPA TX TSD"), *available at* https://www.epa.gov/sites/production/files/2017-12/documents/tx_120d_tsd_12_22_17final.pdf .
[56] *Id*. at 12.
[57] *Id*. at 7, 8.
[58] *Id*.
[59] *Id*. at 32-33.
[60] *Id*. at 18, 32-33.

2017 is in accord. Per available data, the design value for the proposed nonattainment area is 79 ppb.[61]

In particular, we support EPA's inclusion of Wise County in its designation of Nonattainment.[62] Based on the adjusted 2014 National Emissions Inventory data, Wise County's emissions of VOC at 12,777 tpy and NOx emissions at 10,789 tpy are the fifth highest in the 19-county Dallas-Fort Worth Combined Statistical Area, as discussed above.[63] The close proximity of these comparatively high emissions to violating monitors supports EPA's inclusion of Wise County in the Nonattainment area.[64] In addition, EPA's 2008 analysis indicated that Wise County's emissions resulted in 9 exceedances of 75 ppb.[65] While Wise County does not have regulatory monitors indicating ambient ozone concentrations in excess of the standard, EPA correctly concluded that, through its emissions from point sources and non-point sources, Wise County contributes to observed violations of the ozone standard in nearby counties and thus should be designated as Nonattainment.[66]

a. Ozone's Negative Health Impacts to DFW Area Residents

The DFW area is one of the United States' 25 cities most polluted by ozone, and Tarrant and Denton Counties are two of the 25 United States counties most polluted by ozone.[67] The American Lung Association ("ALA") estimates that in 2015, 157,759 people under the age of 18 and 422,482 adults suffered from asthma in the DFW area, and 282,033 suffered from chronic obstructive pulmonary disease in the DFW area.[68] Air quality in Collin, Dallas, Denton, Ellis, Johnson, Parker, Rockwall, and Tarrant counties received a failing grade from ALA on account of the harmful concentrations of ozone in those counties.[69] Both Tarrant and Denton counties had 59 days between 2013 and 2015 where 8-hour ozone concentration was between 71 and 85 ppb and 7 days where 8-hour ozone concentration was between 86 and 105 ppb.[70] The remaining counties in the DFW area EPA designated as nonattainment had between five and 34 days where 8-hour ozone concentration was between 71 and 85 ppb.[71]

[61] U.S Envt'l Protection Agency, Outdoor Air Quality Data—Download Daily Data, EPA.GOV, https://www.epa.gov/outdoor-air-quality-data/download-daily-data ("EPA Air Data Download") (The design value represents the highest concentration recorded at a regulatory monitor in the NAA.) (last visited Feb. 2, 2018).
[62] Coleman letter at 2.
[63] EPA TX TSD at 32.
[64] U.S. Envt'l Protection Agency, Dallas-Fort Worth, Texas Final Area Designations for the 2008 Ozone National Ambient Air Quality Standards, 23 (2008) ("2008 TX TSD"), *available at* https://archive.epa.gov/ozonedesignations/web/pdf/r6_dfw_tsd_final.pdf .
[65] *Id*. at 20.
[66] *Id*. at 21.
[67] 2016 State of the Air at 6, 17, 20.
[68] *Id*. at 17.
[69] *Id*. at 149.
[70] *Id*. at 48, 149.
[71] *Id*.

b. Emissions from Oil and Gas Facilities Are a Major Contributor to Unhealthy Ozone Pollution

Emissions from the over 15,000 facilities in the ten DFW-area counties that EPA designated as nonattainment is a major contributor to the unhealthy ozone concentrations in the DFW area.[72] In 2009, the Texas Commission on Environmental Quality ("TCEQ") prepared an emissions inventory of NOx and VOC emissions resulting from Barnett Shale oil and gas production, transmission, processing, and related activities.[73] TCEQ estimated that oil and gas activities were responsible for 14,652 tons per year of NOx and 18,383 tons per year of VOC.[74] Of that, oil and gas activities in the ten nonattainment counties were responsible for 5,328 tpy of NOx emissions and 14,947 tpy of VOC emissions. EPA has also noted that "the high growth in [Wise County's] emissions is due in large part to growth in emissions from the Barnett Shale gas production development."[75] The ALA has also noted in its most recent report that increased oil and gas extraction is a major contributing factor as to which cities experienced the greatest number of unhealthy air days[76] and its report found high levels of unhealthy ozone in places where oil and gas production has expanded in the last few years.[77] Strong pollution control standards serve to limit emissions of major precursors to ozone such as NOx and VOCs, benefitting public health in communities across the United States.[78]

While we commend EPA on its inclusion of ten DFW-area counties as nonattainment, EPA's failure to mention oil and gas emissions as a contributor to unhealthy ozone levels in the area is a major omission. As discussed above, state, EPA, and independent data clearly demonstrate that emissions from oil and gas facilities is a large contributor of NOx and VOC emissions in the DFW area. We urge EPA to note such contributions in its final designation.

c. EDF Urges EPA to Finalize Nonattainment for Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Rockwall, Tarrant, and Wise Counties

EPA's recommended nonattainment designation is an important first step in helping to ensure that greater controls are placed on the emissions from oil and gas facilities in the DFW area; however, the poor air quality in the DFW area demonstrates that much more must be done to reduce emissions from these facilities and protect the health of the millions of DFW area residents. We urge EPA and the state to evaluate and implement all available cost-effective means to reduce oil and gas emissions, including implementing the oil and gas CTGs and establishing robust pollution control standards for existing oil and gas operations.[79] These measures are required regardless of

[72] 2016 oil and gas well count and production data accessed from Drillinginfo. *Drillinginfo DI Desktop;* Austin, TX. http://www.didesktop.com/.
[73] 2008 TX TSD at 7.
[74] *Id.*
[75] *Id.* at 23.
[76] 2016 State of the Air at 6.
[77] *Id.* at 11.
[78] *Id.* at 12.
[79] *Id.*

the specific nonattainment area designation (i.e., marginal or moderate) as in either instance the poor air quality in the DFW area threatens human health and welfare.[80]

We strongly support EPA's proposed designation of nonattainment for Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Rockwall, Tarrant, and Wise Counties and urge EPA to finalize its designation expeditiously in order to protect human health and the environment. We also urge EPA to include specific recognition of the contribution of oil and gas emissions to the unhealthy ozone levels in the DFW area, and to work with the state to implement robust controls on such activities.

2. We Strongly Urge EPA to Evaluate the Contribution of Emissions from Counties in the San Antonio-New Braunfels MSA and Eagle Ford Shale on Air Quality in Bexar County

Compelling evidence demonstrates that emissions from sources, including numerous oil and gas facilities, contribute to unhealthy air quality in the San Antonio-New Braunfels Metropolitan Statistical Area ("San Antonio"). The state's recommendation wholly ignores such data. EPA must reject the state's 2016 recommendation in so far as it relied solely on data demonstrating that regulatory monitors in Bexar County were violating the 2015 standard, but failed to consider any information on contributing emissions from areas outside of Bexar.[81] Such limited analysis is contrary to the plain language and intent of the CAA.[82] Moreover, EPA must reject any attempt by the state to demonstrate that air quality in the San Antonio area, including Bexar County, meets the 2015 standard.[83] Air quality data from 2014-2016, as well as 2017, demonstrates unequivocally that regulatory monitors in Bexar county are violating the standard, and compelling emissions data and meteorological data strongly suggests that sources outside of Bexar county contribute to such violations.

a. Regulatory Monitors in Bexar County Violate the 2015 Standard

EPA must designate an area as nonattainment if it contains regulatory monitors that violate the applicable NAAQS.[84] The design values for Bexar county based on air quality data from 2016 and 2017 both exceed the 70 ppb standard. The 2016 design value (based on the highest recorded concentrations at regulatory monitors the county) is 73 ppb while the 2017 design value (based on the highest recorded concentrations at regulatory monitors the county) is 74 ppb.[85] Accordingly, at a minimum, EPA must designate Bexar County as nonattainment for the 2015 standard.

---

[80] We support comments submitted to EPA noting the applicability of Reasonably Available Control Technologies to oil and gas sources located in marginal nonattainment areas. *See* Feb. 13, 2016 comments submitted to EPA by CATF et al., Docket No. EPA-HQ-OAR-2016-0202, *available at* https://www.regulations.gov/docket?D=EPA-HQ-OAR-2016-0202.

[81] Letter from Greg Abbott, Gov. of Tex., to Janet G. McCabe, Assistant Adm'r, U.S. Envt'l Protection Agency Office of Air & Radiation, & Ron Curry, Reg'l Adm'r, U.S. Envt'l Protection Agency Region 6 (Sept. 30, 2016) ("Abbott Letter") (*available at* https://www.epa.gov/sites/production/files/2016-11/documents/tx-rec.pdf).

[82] *See* 42 U.S.C. § 7407.

[83] Letter from Greg Abbott, Gov. of Tex., to Hon. Scott Pruitt, Adm'r, U.S. Envt'l Protection Agency (Sept. 27, 2017), *available at* https://www.epa.gov/sites/production/files/2018-01/documents/o-pruittscott201709270524.pdf. .

[84] 42 U.S.C. § 7407(d)(1).

[85] EPA Air Data Download (EDF analysis based on information *available at* https://www.epa.gov/outdoor-air-quality-data/download-daily-data) (last visited Feb. 2, 2018).

b. Compelling Information Demonstrates that Oil and Gas Sources Located Outside of Bexar County Are Likely Contributing to Violations of the 2015 Standard.

i. Emissions Data Strongly Suggests Emissions from Sources Located Outside of Bexar County Contribute to Unhealthy Air Quality in the San Antonio Area

Emissions data, including data from the over 28,000 oil and gas facilities located in the nearby Eagle Shale,[86] as well as meteorological data, strongly suggests that areas outside of Bexar are contributing to violations in Bexar county, and therefore must be designated as nonattainment areas. In 2016, EDF submitted much of this data to the TCEQ. We have attached this information to these comments for EPA's consideration.

Specifically, 2012 inventory data prepared by the Alamo Area Council of Governments ("AACOG") demonstrates that oil and gas facilities in the Eagle Ford Shale contributed 121 tons of oxides of nitrogen and 223 tons of VOCs per ozone season day in 2012.[87] The magnitude of ozone precursor emissions from the Eagle Shale are likely much larger today as significant development continues, with minimal state or federal controls applied to these sources. , and Indeed, modeling prepared by AACOG in 2015 predicted that in 2018 "emissions could grow to as much as 689 tons of VOCs per ozone season day under the low development scenario" while NOx emissions were also predicted to increase to 219 tons per day under the low development scenario.[88] AACOG predicted even greater emissions increases under a moderate or high development scenario.[89] It is worth noting that inventories consistently underestimate actual emissions.[90]

More recent analysis performed by the University of Texas at Austin (commissioned by TCEQ) found elevated hydrocarbon concentrations at a non-regulatory monitor in Karnes County indicating a high likelihood of oil and gas emissions. Per this analysis, hydrocarbon concentrations in this part of the Eagle Shale were twice as high as any other monitor in the state.[91]

EPA must consider the impact of emissions from sources located outside of Bexar County, including the more than 28,000 oil and gas facilities in the Eagle Shale, in designating the San Antonio area.

---

[86] EDF data obtained from *Drilling Info* in January 2018.

[87] Letter from Colin Leyden, Envt'l Defense Fund, to Kristin Patton, Tex. Comm'n on Envt'l Quality, 6 (Apr. 15, 2016) ("EDF Letter"), *available at* https://www.tceq.texas.gov/assets/public/implementation/air/sip/ozone/2015Designations/2015OzoneDesignationRec_PublicComments%20Received.pdf (citing Alamo Area Council of Gov'ts, *Technical Report, Oil & Gas Emission Inventory Update, Eagle Ford Shale* (Oct. 20, 2015) (*available at* http://www.aacog.com/DocumentCenter/View/34710)).

[88] EDF Letter, at 6.

[89] *Id.*

[90] Harriss, Robert, et al., *Using Multi-Scale Measurements to Improve Methane Emissions Estimates from Oil and Gas Operations in the Barnett Shale Region, Tex.*, ENVIRON. SCI. TECHNOL. 49, 7524-7526 (July 7, 2015) *available at* http://pubs.acs.org/doi/10.1021/acs.est.5b02305.

[91] *Id.* at 7.

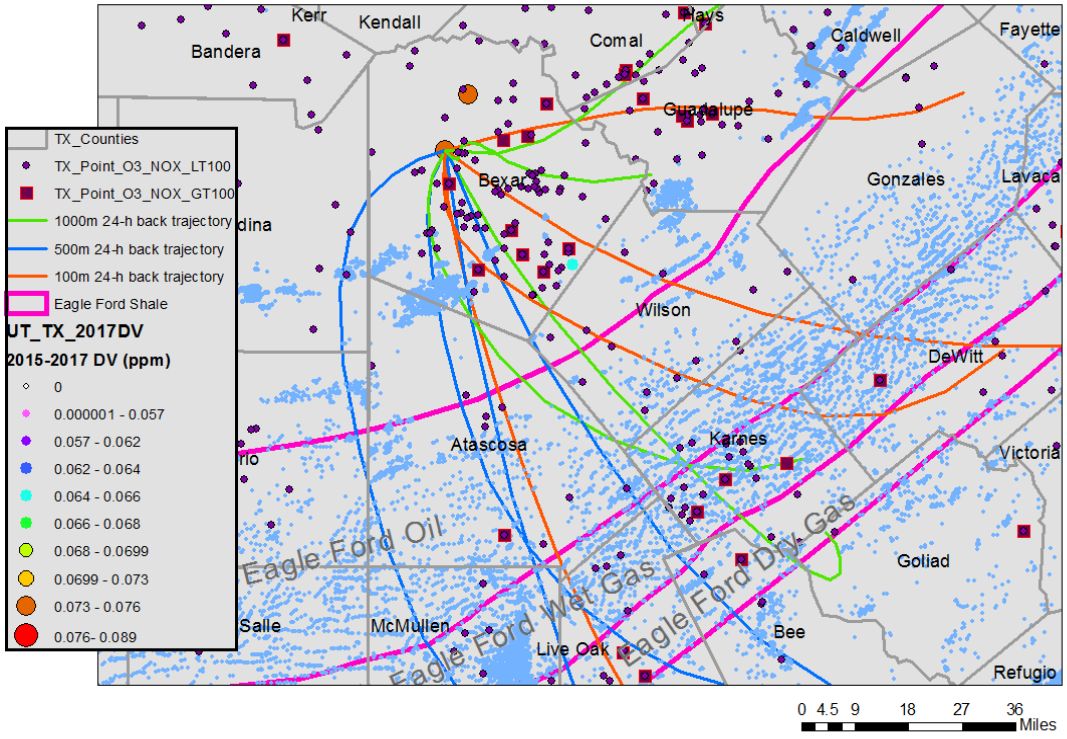
ii. Meteorological Data Strongly Suggests Emissions from Sources Located Outside of Bexar County Contribute to Unhealthy Air Quality in the San Antonio Area

Modeling conducted by AACOG and the University of Texas demonstrates that oil and gas emissions from the Eagle Shale have the potential to contribute to elevated ozone concentrations at regulatory monitors in Bexar County. Specifically, 2013 modeling prepared by AACOG predicted that emissions from projected 2018 oil and gas activities could result in maximum changes in 8-hour average ozone concentrations in Bexar county ranging from 1.8ppb to 7.8 ppb, or as much as 10% of ozone levels in San Antonio, depending on the anticipated level of activity in the Eagle Ford: low, medium or high.[92]

Modeling prepared by the University of Texas is in accord, finding that 2012 levels of Eagle Ford shale emissions accounted for up to 2.5 ppb ozone in Bexar County.[93]

This month EDF ran HYSPLIT back trajectories to determine the paths an air parcel would have travelled before reaching the violating monitors in Bexar County. The results of this analysis also suggest that high emitting point sources in Guadalupe and Comal counties in the Eagle Shale may be contributing to the violations in Bexar County.

Spatial distribution of oil and gas wells (blue dots) – Eagle Ford



[92] *Id.* at 8.
[93] *Id.* at 9.

We urge EPA to review and consider the modeling and meteorological data referenced in EDF's 2016 comments to TCEQ, which strongly suggests that oil and gas emissions from the Eagle Shale are contributing to degraded air quality in the San Antonio area.

c. San Antonio Area Residents Suffer Negative Health Impacts Due to Ozone Pollution

San Antonio area is one of the United States' 25 cities most polluted by ozone.[94] ALA's 2017 *State of the Air Report* estimates that in 2015, 48,477 people under the age of 18 and 134,762 adults suffered from asthma in the San Antonio area, and 91,254 suffered from chronic obstructive pulmonary disease in the San Antonio area.[95] Air quality in Bexar County received a failing grade from ALA on account of its harmful concentrations of ozone.[96] Bexar County had 31 days between 2013 and 2015 where 8-hour ozone concentration was between 71 and 85 ppb and 5 days where 8-hour ozone concentration was between 86 and 105 ppb.[97]

d. We Urge EPA To Promulgate a Designation for the San Antonio Area Swiftly

EPA must act swiftly to promulgate a designation for the San Antonio area, including Bexar County. The CAA requires that EPA promulgate designations "as expeditiously as practicable, but in no case later than two years from the date of promulgation of the new or revised national ambient air quality standard."[98] Over two years have passed since Texas recommended that Bexar County be designated as nonattainment.[99] We urge EPA not to further delay unnecessarily in finalizing a designation for the entire San Antonio CBSA area based on all available information and an analysis of the entire area to properly determine which counties should be included the nonattainment area— including both areas with violating monitors and areas contributing to those violations.[100]

C. STATE OF UTAH

1. We support EPA's Nonattainment Designations for Uintah and Duchesne Counties in the State of Utah

We commend EPA on proposing to designate portions of Uintah and Duchesne Counties with townships below 6,250 feet (including both state and tribal lands) as nonattainment.[101] EPA's recommended boundary contains three regulatory monitors that violated the 2015 standard based on the 2016 design value (i.e., based on data for the 2014-2016 period): the Whiterocks, Ouray,

[94] Am. Lung Ass'n, *State of the Air 2017*, 6, 17 (2017) ("2017 State of the Air"), *available at* http://www.lung.org/assets/documents/healthy-air/state-of-the-air/state-of-the-air-2017.pdf.
[95] *Id.* at 17.
[96] *Id.* at 149.
[97] *Id.* at 48, 149.
[98] 42 U.S.C. § 7407(d)(1)(B)(i).
[99] Abbott Letter.
[100] EDF Letter.
[101] Letter from Douglas H. Benevento, Reg'l Adm'r, U.S. Envt'l Protection Agency Region 8, to Hon. Gary Herbert, Gov. of Utah (Dec. 20, 2017) (*available at* https://www.epa.gov/sites/production/files/2017-12/documents/ut-epa-resp-ozone.pdf).

and Myton monitors.[102] In addition, a former regulatory monitor, the Rabbit Mountain/Dragon Road Prevention of Significant Deterioration monitor, recorded exceedances of the 70 ppb standard while operating in 2012 and the 2013. These regulatory monitors recorded 19 days above the standard and 54 exceedances during the winter months of 2013-2015.[103] Several exceedances during 2013 were well above the 2015 health-based standard of 70 ppb, including exceedances at the Whiterocks monitor of 107 ppb in 2013 and 86 ppb in 2016 and an exceedance of 107 ppb at the Rabbit Mountain/Dragon Road monitor in 2013.[104]

In so doing, EPA modified and expanded on the boundary of the nonattainment area proposed by the state of Utah and the Ute Indian Tribe. The state recommended a boundary of 6,000 feet for the portions of Uintah and Duchesne Counties under state jurisdiction. The Ute Tribe recommended that an unspecified area around the Ouray monitor be designated nonattainment, unless EPA agreed to exclude two days in June 2015 as exceptional events.[105] EPA's recommended area includes all tribal areas within Uintah and Duchesne Counties under the 6,250-foot elevation boundary.

a. *EPA Correctly Expanded the Recommended Nonattainment Boundary to Ensure that it Contains all Violating Monitors and Emissions Sources Contributing to Nonattainment*

The CAA requires EPA designate as nonattainment any area containing a monitor that is violating the standard or areas that contain sources of emissions that are contributing to a violation of the ozone NAAQS in a nearby area.[106] EPA correctly proposes to designate as nonattainment areas under 6,250 feet within Uintah and Duchesne Counties that contain violating monitors and contain emission sources that contribute to degraded air quality in the Basin.

EPA correctly expanded on the state and tribal boundary recommendations in order to ensure that the nonattainment area includes all violating regulatory monitors, as well as former regulatory monitors recording exceedances of the 2015 standard. Specifically, EPA's expanded elevation threshold captures the Whiterocks monitoring station, located at 6,216 feet in Uintah County. The 2014-2016 design value for the Whiterocks monitor is 71 ppb.[107] In addition, the expanded elevation boundary includes a former regulatory monitor, the Rabbit Mountain/Dragon Road monitor, located at 6,165 ft, that recorded very high exceedances of the 2015 standard while operating in 2012 and 2013.[108] Accordingly, EPA correctly concluded that "the data shows than an elevation of 6,000 feet does not include all portions of the area violating the NAAQS."[109]

[102] U.S. Envt'l Protection Agency, Utah: N. Wasatch Front, S. Wasatch Front, & Uintah Basin Intended Area Designations for the 2015 Ozone Nat'l Ambient Air Quality Standards Technical Support Document, 33 (2017) ("EPA UT TSD") *available at* https://www.epa.gov/sites/production/files/2018-01/documents/ut_120d_tsd.pdf.
[103] *Id.* at 35.
[104] *Id.* at 34 (noting that the Whiterocks monitor recorded an exceedance of 107 ppb on January 22, 2013 and the recorded an exceedance of 107 ppb on January 26, 2013).
[105] *Id.* at 1.
[106] 42 U.S.C. § 7407(d)(1); EPA UT TSD at 1-2.
[107] EPA UT TSD at 33.
[108] *Id.* at 34.
[109] *Id.* at 35.

Data from 2017 is in accord. 2017 data demonstrates that air quality in the recommended nonattainment area continues to deteriorate. The design value for Uintah and Duchesne is 89ppb.[110] This is well above the 2015 standard.

EPA's expanded boundary also correctly includes oil and gas sources that contribute to ozone pollution that would not have been included in the tribal and state area designations. Per EPA's TSD, two large compressor stations in the Basin are located above 6,000 ft.[111] NOx and VOC from these compressor stations contribute to the unhealthy air in the Basin. In addition, per EPA's TSD, 85% of oil and gas facilities representing 88% of emissions in the Basin are located below 6,000 ft.[112] By extending the boundary to 6,250 ft., the nonattainment area includes 93% of all wells and 92% of all oil and natural gas emissions.[113]

b. Unhealthy Air Quality in the Uinta Basin Threatens the Health of Thousands of Residents and Demands Stronger Actions to Reduce Oil and Gas Emissions

Nearly 5,000 people suffer from asthma and more than 2,100 people suffer from cardiovascular disease in Uintah and Duchesne counties.[114] Air quality in Uintah and Duchesne Counties received a failing grade from ALA on account of the harmful concentrations of ozone in the area.[115]

c. Emissions from Oil and Gas Facilities are a Major Contributor to Unhealthy Ozone Pollution

Emissions from the nearly 10,000 oil and gas wells,[116] and associated facilities, in Duchesne and Uintah Counties contribute to the unhealthy ozone concentrations in the Basin. According to EPA, "emissions from the production segment of the oil and natural gas sector were estimated to be the largest anthropogenic contributor of VOC and NOx emissions in the area of analysis."[117] EPA further noted that "a large portion of VOC emissions come from fugitive emissions and leaks."[118] Independent analysis of the impact of oil and gas emissions on air quality in the Basin supports these statements:

- Data from the Uinta Basin winter ozone studies and a 2014 oil and gas inventory for the Basin found that "oil and gas production and development is the most significant emission source in the Basin" and "days of high ozone coincide with

[110] EPA Air Data Download (EDF analysis based on information *available at* https://www.epa.gov/outdoor-air-quality-data/download-daily-data) (last visited Feb. 2, 2018).
[111] EPA UT TSD at 36.
[112] *Id.* at 37.
[113] *Id.* at 38.
[114] 2017 State of the Air at 150.
[115] *Id.* at 151.
[116] EDF Analysis based on 2018 data available on Drilling Info.
[117] EPA UT TSD at 37.
[118] *Id.* at 42.

elevated levels of methane, VOCs, and nitrogen species indicative of the oil and gas industry."[119]

- A recent study that examined VOC emissions from oil and gas in the Uinta Basin found that well pads are responsible for high VOC mixing ratios in the vicinity of the site, specifically that "[s]trongly elevated mixing ratios of the measured VOCs were found at almost all source locations…"[120]
- According to the state oil and gas activity and emissions in the Uinta Basin were responsible for over 90,000 tons of VOCs in 2014.[121]
- The Uinta Basin Winter Ozone Study found that the high ozone episodes observed in the December 2013 to March 2014 time period, which corresponded with colder temperatures, snow cover, and atmospheric inversions, were triggered by compounds "directly released from various emission sources and form in the atmosphere from directly emitted volatile organic compounds (VOCs) such as those emitted from oil and natural gas exploration and production activities."[122]

d. EPA Should Finalize a Moderate Nonattainment Classification for the Uinta Basin

We urge EPA to finalize a moderate nonattainment classification for the Uinta Basin. Congress provided different classifications for ozone nonattainment areas based on the degree to which air quality concentrations exceed the NAAQS.[123] Timelines for planning and implementation and requirements for specific programs to reduce emissions vary based on these classifications and, thus the Act contemplates that they reflect the latest information on air quality to ensure those measures and timetables are effective. This is especially true, where, as here, 2017 air quality data demonstrates that air quality in the recommended nonattainment area continues to deteriorate. Based on the Ouray monitor, the 2017 design value for Uintah and Duchesne Counties is 89 ppb.[124] Under EPA's current classification regulations, any value higher than 81 ppb should result in a moderate nonattainment classification.[125] Degraded air quality in the Basin occurs primarily in the winter months. Thus EPA can expeditiously finalize a moderate classification based on this 2017 data, ensuring that the Act's requirements are in place prior to the start of the 2018-2019

[119] State of Utah Dept. of Envt'l Quality, Utah Area Designation Recommendations for the 2015 8-Hour Ozone National Ambient Air Quality Standard, 42 (Sept. 2016), *available at* https://www.epa.gov/sites/production/files/2016-11/documents/ut-rec-tsd.pdf.
[120] Warneke, C. et al., *Volatile organic compound emissions from the oil and natural gas industry in the Uintah Basin, Utah: oil and gas well pad emissions compared to ambient air composition*, 14 ATMOS. CHEM. PHYS. 10977–10988 (2014) (*available at* www.atmos-chem-phys.net/14/10977/2014/).
[121] State of Utah Dept. of Envt'l Quality, Uinta Basin: 2014 Air Agencies Oil and Gas Emissions Inventory, *available at* https://deq.utah.gov/locations/U/uintahbasin/air-agencies-emissions-inventory/index.htm .
[122] Stoeckenius, Till, ed., *Final Report: 2014 Uinta Basin Winter Ozone Study* at ES-2 (Feb. 2015) (prepared for Utah Div. of Air Quality by Environ Int'l Corp.) (*available at* http://www.deq.utah.gov/locations/U/uintahbasin/ozone/docs/2015/02Feb/UBWOS_2014_Final.pdf).
[123] 42 U.S. Code § 7511
[124] EPA Air Data Download (EDF analysis based on information *available at* https://www.epa.gov/outdoor-air-quality-data/download-daily-data) (last visited Feb. 2, 2018).
[125] *Implementation of the 2015 National Ambient Air Quality Standards for Ozone: Nonattainment Area Classifications and State Implementation Plan Requirements*, 81 Fed. Reg. 81,276, 81,284 (Nov. 17, 2016).

winter ozone season. Accordingly, we urge EPA to act expeditiously in finalizing a nonattainment designation for the Uinta Basin and a moderate nonattainment classification.

e. We Urge EPA to Pursue Strategies Along with the Nonattainment Designation to Improve Air Quality in the Uinta Basin

EPA's recommended nonattainment designation is a first step in helping to ensure that greater controls are placed on the emissions from oil and gas facilities. The poor air quality in the Basin – both on state and tribal lands – unequivocally demonstrates that much more must be done to reduce emissions from oil and gas facilities. A number of pathways exist to reduce emissions in the Basin, including implementation of the Oil and Gas CTGs, the development of a Federal Implementation Plan for the areas under tribal jurisdiction, swift implementation and enforcement of the BLM waste rule, and development of rules to address emissions from existing sources on state lands. Such measures could go a long way towards reducing harmful emissions and waste while also protecting the health of the thousands of residents of the Basin.

2. We Urge EPA to Include the Major Sources Located in Morgan and Summit Counties in the Northern Wasatch Front Nonattainment Area

EPA does not intend to modify the State's recommendations for the Northern and Southern Wasatch Front nonattainment areas. In addition to the inclusion of Salt Lake County, Davis County, and portions of Weber and Toole Counties in the Northern Wasatch Front nonattainment area, EPA should include the major sources located in Morgan and Summit Counties, adjacent to counties with violating monitors, in the Northern Wasatch Front nonattainment area. In its TSD, EPA discusses its reasoning for not including these counties in the nonattainment area:

> EPA does not intend to include Summit, Juab, Wasatch, and Morgan Counties. All of these areas have low populations (less than 40,000) and population densities less than 25 per square mile. They also have significantly lower emissions than the counties and partial counties EPA intends to include in the nonattainment area. Furthermore, topographic obstacles (Wasatch Mountains), as well as meteorology, prevent emissions in these areas from influencing violating monitors.[126]

There are no monitors in Summit and Morgan counties and while these counties have relatively low population densities, compared to the other counties in the nonattainment areas, it does appear that sources in portions of these counties have the potential to influence violating monitors in adjacent counties to the west, despite certain topographic and meteorological obstacles that may exist. Both Morgan County and Summit County include major sources of NOx emissions. And the location of these sources in these two counties appears to coincide with many of the lower elevation back trajectories in EPA's TSD that show impacts to these monitors on exceedance days.

Specifically, the source in Summit County shown in Figure 3 of EPA's TSD appears to influence the monitors at Hawthorne, Ogden, Bountiful, and North Provo based on the back trajectories for exceedance days shown in EPA's TSD (Figures 7, 8, 9, 11). The source in Morgan County shown in Figure 3 of EPA's TSD appears to influence the monitors at Hawthorne, Ogden, Bountiful,

[126] EPA UT TSD at 29.

Harrisville, and Spanish Fork based on the back trajectories for exceedance days shown in EPA's TSD (Figures 7, 8, 9, 10, 12).

The source in Summit County shown in Figure 3 of EPA's TSD appears to be the Holcim Devil's Slide Portland Cement Plan, in Croydon, Utah. This source's most recent Title V permit renewal includes an annual NOx emissions limit of 1,817 tons per year. The source in Morgan County shown in Figure 3 of EPA's TSD appears to be the Utelite Corporation shale processing plant, just south of the Rockport Reservoir and Rockport State Park, which is a major source of NOx emissions.

Accordingly, we urge EPA to include these major sources located in Morgan and Summit Counties in the Northern Wasatch Front nonattainment area

D. STATE OF ARIZONA

1. We Urge EPA to Expand the Yuma, Arizona Nonattainment Area to Include More Onroad Sources

EPA's intended designated nonattainment area in the Phoenix-Mesa, Arizona area include portions of Gila, Mesa, and Pinal counties, as recommended by the State. In addition, EPA intends to designate a portion of the Gila River Indian Community, as recommended by the Tribe. Beyond the State and Tribal recommendations, EPA also intends to designate the Fort McDowell Yavapai Nation, the Salt Rover Pima-Maricopa Indian Community, and portions of the Tohono O'odham Nation of Arizona as nonattainment, although none of these areas submitted designation recommendations. This expanded Phoenix-Mesa nonattainment area encompasses a larger area than the nonattainment areas for the 1997 and 2008 ozone NAAQS and includes two additional monitors.

For the Yuma nonattainment area, the EPA does not intend to modify the State's recommendation to designate a portion of Yuma County as nonattainment for the 2015 ozone NAAQS. Furthermore, EPA intends to designate portions of the Cocopah Tribe of Arizona and portions of the Quechan Tribe of the Fort Yuma Indian Reservation.

EPA should expand the Yuma nonattainment area to include more onroad sources of pollution that contribute to the exceeding monitor in Yuma County. According to the State, onroad emissions are "approximately 50% of overall NOx in the area and the highest source of NOx in the Yuma area."[127]

In the State's recommendation, it quantified vehicle miles traveled ("VMT") in the recommended nonattainment area as follows, "[a]ccording to 2014 HPMS data, the proposed nonattainment area captures approximately 19% of the total county VMT, or 379,091,328 annual VMT out of 1,996,740,940 annual VMT for the entire county."[128] The gridded VMT analysis in EPA's

[127] Arizona Dep't of Envt'l Quality, *2015 Ozone NAAQS Boundary Recommendations and Technical Support Document* ("AZ TSD") (Sept. 27, 2018) at 42 *available at* https://www.epa.gov/sites/production/files/2016-11/documents/az-rec-enc-1.pdf.
[128] AZ TSD

response to the State's recommendation shows that the areas of highest VMT go beyond the boundaries of the recommended nonattainment area. In particular, EPA should expand the nonattainment area to include the high-VMT area that extends directly to the south of the exceeding monitor.[129] Based on the back trajectory modeling presented in EPA's TSD, it appears that this area directly impacts the monitor in Yuma County on exceeding days.[130]

E. STATE OF NEVADA

1. EPA Should Expand the Las Vegas Nonattainment Area Further, to Include the Two Major Sources Located in HA 215, to the East of the Las Vegas Valley

EPA's intended nonattainment boundary for the 2015 ozone NAAQS expands the state recommendation to also include the southern portion of hydrographic area ("HA") 216, in the Apex Valley. EPA's intended nonattainment boundary also includes land in Nevada HA 212 of the Las Vegas Tribe of Paiute Indians, which did not submit a recommendation to EPA.

EPA should expand the nonattainment area, further, to include the two major sources located in HA 215, to the east of the Las Vegas Valley. In its TSD, EPA discusses its reasoning for *not* including HA 215 in the nonattainment area:

> Although air flow between Las Vegas Valley and HA 211 (to the northwest) and portions of HA 215 (to the east) is not much impeded by topographic features, HA 211 has no large point sources and the portion of HA 215 containing two large point sources is separated from the Las Vegas Valley by topography. Also, wind does not generally flow from those hydrographic areas toward the Las Vegas Valley, they are sparsely populated, and neither hydrographic area has any violating monitors. . . . Overall, the factors do not support the inclusion of HAs 211, 215, or 218 in the intended nonattainment area. Jurisdictional considerations support this boundary, as the area is located fully within Clark County, within the jurisdiction of the Clark County Department of Air Quality, and the boundary largely follows hydrographic boundaries, which have been the typical basis for designations in Nevada.[131]

While HA 215 does not have a monitor and does have a relatively low population density, compared to the Las Vegas Valley, it does appear that the two sources (identified in EPA's TSD as Nevada Cogeneration Associates #2 and PABCO Building) in this hydrographic area (215) have the potential to influence monitors on exceedance days in the adjacent hydrographic areas to the west, despite topographic and meteorological obstacles that may exist. Both sources are major sources of NO_x emissions. And the location of these sources appears to coincide with many of the

[129] U.S. Envt'l Protection Agency, Phoenix-Mesa and Yuma Nonattainment Areas Intended Area Designations for the 2015 Ozone National Ambient Air Quality Standards Technical Support Document (TSD) ("EPA AZ TSD") *available at* https://www.epa.gov/sites/production/files/2017-12/documents/az_120d_tsd_combined_final_0.pdf (indicated in dark brown on EPA TSD Figure 4.5 at 38)
[130] EPA AZ TSD at 40 (Figure 4.6).
[131] U.S. Envt'l Protection Agency, Las Vegas Nonattainment Area Intended Area Designations for the 2015 Ozone National Ambient Air Quality Standards Technical Support Document, 30 (2015) ("EPA NV TSD"), *available at* https://www.epa.gov/sites/production/files/2017-12/documents/nv_120d_tsd_combined_final.pdf.

lower elevation back trajectories in EPA's TSD that show impacts to monitors in the Las Vegas Valley.

Specifically, the PABCO gypsum plant, just east of the intended nonattainment area boundary, has a potential to emit over 300 tons per year NOx and over 100 tons per year VOC[132] and appears to influence the monitors at Apex, Paul Meyer, Joe Neal, and JD Smith based on the back trajectories for exceedance days shown in EPA's TSD (Figures 3.6a, b, e, f).[133] The Nevada Cogen Associates #2 plant at the northern end of Lake Mead has the potential to emit over 170 tons per year NOx[134] and appears to influence the monitors at Walter Johnson, and Joe Neal based on the back trajectories for exceedance days shown in EPA's TSD (Figures 3.6c, e).[135]

F. COMMONWEALTH OF PENNSYLVANIA

1. We Support EPA's Recommendation that Berks County, Pennsylvania in the Reading Area be Designated as Nonattainment

EPA has correctly determined that for the Reading Area, Berks County should be designated as in nonattainment with the 2015 Ozone NAAQS. As EPA states, Berks County has a violating monitor with a 2014-2016 Design Value above the NAAQS at 0.071 ppm. EDF also notes that initial data from 2017 shows several ozone exceedances in Berks County,[136] indicating continual air quality challenges for the area which could contribute to 2015-2017 Design Values above the 2015 Ozone NAAQS.

2. We Support EPA's Recommendation to Expand the Counties Designated Nonattainment in the Harrisburg-York-Lebanon-Lancaster Area

EPA has also correctly expanded Pennsylvania's recommended nonattainment in the Harrisburg-York-Lebanon-Lancaster Area from just Lebanon County to also include Cumberland, Dauphin, Lancaster, and York Counties. EPA's decision is based correctly on a combination of factors including: emission sources of NOx and VOC within and outside Lebanon County, high VMT from nearby counties, emissions transport, population and population density.

3. We Urge EPA to Designate Pittsburgh-Beaver Valley Area as Nonattainment

Pennsylvania revised its recommendation to EPA in April 2017, after initially recommending the Pittsburgh-Valley Area as in nonattainment with the 2015 Ozone NAAQS. Pennsylvania notes two violating monitors in "Harrison in Allegheny County, at 72 ppb and Kittanning in Armstrong

---

[132] *See* Clark County, Dep't of Air Quality, Part 70 Operating Permit Renewal Issued to PABCO Building Products, 2 (2017), *available at* http://www.clarkcountynv.gov/airquality/permitting/Documents/TitleV/00011_Final_Permit.pdf

[133] EPA NV TSD

[134] *See* Clark County, Dep't of Air Quality, Part 70 Operating Permit Renewal Issued to Nevada Cogeneration Associates #2, 2 (2017), *available at* http://www.clarkcountynv.gov/airquality/permitting/Documents/TitleV/00391_Final_Permit.pdf

[135] EPA NV TSD

[136] Pennsylvania Department of Environmental Protection, Ozone Standards Exceedances 2017 8-Hour Ozone report, (Last accessed Feb. 2, 2018) *available at* http://www.dep.state.pa.us/dep/deputate/airwaste/aq/aqm/exceed/exceed08_2017.pdf

County, at 73 ppb."[137] Pennsylvania revised its recommendation in April 2017, based on 2016 data. There are a large number of major NOx and VOC emissions in this area. Allegheny County, for example, has the highest total VOC emissions and the second highest NOx emissions among counties in Pennsylvania, according to 2011 NEI data presented by Pennsylvania in its original October 2016 recommendation to EPA. Furthermore, 2017 data indicates several exceedances of the NAAQS as shown in the table below.

Allegheny County Monitor Exceedances of 2015 Ozone NAAQS									
	4/14/2017 Max	5/10/2017 Max	5/16/2017 Max	6/10/2017 Max	7/5/2017 Max	7/19/2017 Max	7/20/2017 Max	7/27/2017 Max	Total exceedances
Harrison Twp				71 ppb		72 ppb	71 ppb	80 ppb	**4**
South Fayette	72 ppb	71 ppb	72 ppb	72 ppb	76 ppb				**5**

Source: Adapted from Pennsylvania Department of Environmental Protection 2017 exceedances report data

NOx County Level Emissions 2014 (tons)	
Allegheny	37,724
Armstrong	20,307
Beaver	24,508
Butler	6,613
Fayette	4,704
Indiana	45,007
Washington	9,804
Westmoreland	22,505
Total	**171,173**

Source: EPA 2014 National Emissions Inventory

[137] Pennsylvania Department of Environmental Protection, FINAL DESIGNATION RECOMMENDATIONS FOR THE 2015 EIGHT-HOUR OZONE NATIONAL AMBIENT AIR QUALITY STANDARDS, (Oct. 2016) *available at* http://files.dep.state.pa.us/Air/AirQuality/AQPortalFiles/Regulations%20and%20Clean%20Air%20Plans/attain/Ozonedes/02_2015_NAAQS_Ozone_Final_Designation_Recommendations_Final_Oct_2016.pdf

VOC County Level Emissions 2014 (tons)	
Allegheny	26,741
Armstrong	10,217
Beaver	5,126
Butler	9,515
Fayette	7,631
Indiana	13,772
Washington	13,375
Westmoreland	16,138
Total	**102,515**

Source: EPA 2014 National Emissions Inventory

Furthermore, PA DEP's 2016 submission includes HYSPLIT back trajectories that appear to show impact from the Pittsburgh-Beaver Valley area to violating monitors at Bristol, Lebanon, Norristown, and Philadelphia (see Appendix C of the PA DEP analysis).[138]

Given the significant emissions in this area, EPA should also consider the impact of these emissions sources on other intrastate nonattainment areas.

G. STATE OF OHIO

1. We Urge EPA to Add Ashtabula County, Ohio to the Cleveland, Ohio Nonattainment Area

EPA intends to designate the seven counties in the Cleveland area, as recommended by the State, as nonattainment for the 2015 ozone NAAQS. EPA should also include Ashtabula County, which was part of the 1997 and 2008 ozone nonattainment area. In its TSD, EPA discusses its reasoning for *not* including Ashtabula County in the nonattainment area for the 2015 ozone NAAQS:

> While Ashtabula County has moderate emissions as compared to other counties in the area of analysis (17% and 23% of Cuyahoga County's NOx and VOC emissions, respectively), the county ranks relatively low in population density and VMT and has only two HYSPLIT trajectories that pass through the county on days that the violating monitors are exceeding the NAAQS.[139]

[138] *Id.* at 19.

[139] U.S. Envt'l Protection Agency, Cleveland and Columbus Nonattainment Areas Intended Area Designations for the 2015 Ozone National Ambient Air Quality Standards Technical Support Document, 20 (2015) ("EPA OH TSD"), *available at* https://www.epa.gov/sites/production/files/2017-12/documents/oh_120d_tsd_final.pdf.

The monitor in Ashtabula County continues to very nearly violate the NAAQS. The monitor has a 2014-2016 design value of 70 ppb.[140] Preliminary 2017 data indicate the 2015-2017 design value remain at 70 ppb.[141]

And while Ashtabula County has a relatively low population density and VMT, compared to the other counties in the nonattainment areas, it does appear that major point sources in the city of Ashtabula have the potential to influence violating monitors in adjacent counties to the west. Specifically, major sources in Ashtabula include Zehrco Plastics, Ashta Chemicals, Cristal USA, Iten Industries, and Molded Fiber Glass (MFG), with these sources located near a couple of the back trajectories for exceedance days shown in EPA's TSD (Figures 6a and b).

2. We Urge EPA to Include Ross County, Ohio in the Columbus, Ohio Nonattainment Area

EPA intends to designate the four counties in the Columbus area, as recommended by the State, as nonattainment for the 2015 ozone NAAQS. Within EPA's Area if Analysis, it's notable that Ross County, which is not included in (nor is it adjacent to) EPA's intended nonattainment area, includes a major source of NOx emissions that appears to impact the Franklin County monitor on exceedance days (*see* EPA TSD Figure 13). According to EPA's TSD, Ross County, "has the 2nd highest level of NOx emissions."[142] Specifically, the P H Glatfelter paper facility in Ross County emitted over 1,000 tons of NOx in 2016 from its two coal-fired boilers.[143]

H. STATE OF INDIANA

1. We Support EPA's Inclusion of Lake and Porter County, Indiana in the Chicago-IL-IN-WI Nonattainment Area

EPA has recommended including several additional counties in the Chicago-IL-IN-WI nonattainment area than what states had recommended: Lake and Porter Counties in Indiana, and part of Kenosha County in Wisconsin. As EPA notes, "[t]he EPA must designate an area nonattainment if it has an air quality monitor that is violating the standard or if it has sources of emissions that are contributing to a violation of the NAAQS in a nearby area."[144] We support including the Indiana counties due to the identified major emission sources that contribute to nonattainment in those area. Further, we note that these Indiana counties had been part of similar multistate nonattainment areas for the 2008 and 1997 Ozone NAAQS due to these same transport issues and that EPA is correctly being consistent with prior NAAQS.

---

[140] *See* EPA OH TSD Table 2 at 8

[141] U.S Envt'l Protection Agency, Outdoor Air Quality Data—Monitor Values Report, EPA.GOV, *available at* https://www.epa.gov/outdoor-air-quality-data/monitor-values-report (analysis based on a review of 2017 data in EPA's Monitor Value Report, showing 100 percent valid days and no exceptional events with a 4th highest maximum 8-hour average concentration of 69 ppb for the monitor in Ashtabula County).

[142] EPA OH TSD at 33

[143] U.S. Envt'l Protection Agency, Air Markets Program Data, EPA.GOV, *available at* https://ampd.epa.gov/ampd/ (analysis based on data retrieved from EPA data) (last visited Feb. 2, 2018).

[144] U.S. Envt'l Protection Agency, Chicago, IL-IN-WI Nonattainment Area Intended Area Designations for the 2015 Ozone National Ambient Air Quality Standards Technical Support Document, (2015), *available at* https://www.epa.gov/sites/production/files/2017-12/documents/il_in_wi_chicago_120d_tsd_final_0.pdf

EPA also correctly notes Kenosha County air quality monitors show violations of the 2015 standard, based on 2014-2016 Design Values and should be designated as nonattainment. Kenosha County (partial) was part of a similar 2008 Ozone NAAQS nonattainment area and was part of the Milwaukee-Racine nonattainment area for the 1997 standard. We also note that the 2015-2017 preliminary Design Values for Kenosha are above the 2015 ozone standard, indicating likely continued noncompliance with the 2015 standard and need for expedient action to protect public health.[145]

2. We Support EPA's Nonattainment Designation for Dearborn County, Indiana in the Cincinnati-KY-OH-IN Nonattainment Area

EPA does not intend to modify Kentucky's and Ohio's recommendations for nonattainment boundaries. However, EPA intends to expand the Cincinnati, OH-KY-IN nonattainment area to include a portion of Dearborn County (Lawrenceburg Township), in Indiana. We support including Dearborn County and note that this area was included in this nonattainment area for the 1997 and 2008 Ozone NAAQS. These counties and partial counties were all included in the Cincinnati, OH-KY-IN nonattainment area for the 2008 ozone NAAQS. Dearborn County has the single biggest VOC-emitting large point source in the area and, as EPA states, "Dearborn County alone contains approximately 52 percent of the large point source VOC emissions in the CSA."[146] EPA also notes the dense pattern of HYSPLIT back trajectories across counties in the nonattainment area, including a portion of Dearborn County. In addition to the Lawrenceburg Township, EPA should extend the nonattainment area further into Dearborn County to include the sources in Aurora, Indiana: (1) the Texas Gas Transmission, LLC - Dillsboro Compressor Station (Title V PTE 2,918 TPY NOx, 60 TPY VOC);[147] and (2) the Aurora Casket Co (the 2nd largest VOC source in Dearborn County with 2011 VOC emissions totaling nearly 500 tons per year).[148] There is a high density of back trajectories for one of the three Hamilton County monitors, showing potential impacts on exceedance days from the general location of these sources in Aurora, Indiana.[149]

3. We Support EPA's Nonattainment Designation for the Louisville, KY-IN Area, Including Bullitt, Jefferson, and Oldham Counties in Kentucky, and Clark and Floyd Counties in Indiana

EPA is recommending a nonattainment designation for the Louisville, KY-IN Area, including Bullitt, Jefferson, and Oldham Counties in Kentucky, and Clark and Floyd Counties in Indiana. We support this designation decision, and, as EPA notes, this decision is due to a clear monitor

---

[145] WI Dep't of Nat. Resources, Top Four 8-Hour Average Ozone Concentrations - as of November 1, 2017, (2017) *available at* https://dnr.wi.gov/topic/AirQuality/documents/CurrentDesignValuesO3.xlsx.

[146] U.S Envt'l Protection Agency, Cincinnati, OH-KY-IN Intended Area Designations for the 2015 Ozone National Ambient Air Quality Standards Technical Support Document (2015) ("EPA TSD Cincinnati OH-KY-IN"), *available at* https://www.epa.gov/sites/production/files/2017-12/documents/oh_ky_in_cincinnati_120d_tsd_final.pdf.

[147] *See* IN Dep't of Envt'l Mgmt., Air Quality Permit Status Search, IN.GOV, *available at* http://www.in.gov/apps/idem/caats/permitDetail.xhtml.

[148] *See* Ohio Envt'l Agency, Ohio's Recommended Designations for the 2015 Ozone Standard TSD Table 5 Cincinnati, OH-KY-IN Analysis Area Emissions Point Sources for 2011, 16 (2015), *available at* https://www.epa.gov/sites/production/files/2016-11/documents/oh-rec-tsd.pdf

[149] *See* EPA TSD Cincinnati OH-KY-IN at 24, Figure 7d.

violation of the 2015 Ozone NAAQS in Jefferson County, based on 2014-2016 Design Values. Portions of the Louisville-KY-IN area were also designated nonattainment for the 1997 Ozone NAAQS and the intended boundary for the 2015 Ozone NAAQS is the same as it was for the 2008 Ozone NAAQS.[150] EPA is appropriately relying on the 2014-2016 Design Values, which is quality-assured and state-certified, rather than the older 2013-2015 data submitted by the Commonwealth of Kentucky and the state of Indiana in making initial recommendations to EPA.

We support EPA's inclusion of these counties in the nonattainment area due to EPA's five-factor emissions analysis that showed a monitor violation (in the case of Jefferson County), and/or contributions of NOx and VOC emissions in the area, population, population density, vehicle miles traveled & commuting patterns, and meteorological data.

VI. CONCLUSION

Thank you for the opportunity to provide comments on EPA's recommendation for the 8-hour ozone designations for the 2015 ozone standard. If you have any questions about our submission, please reach out to Rachel Fullmer at rfullmer@edf.org.

Sincerely,

Rachel Fullmer
Environmental Defense Fund
2060 Broadway, Suite 300
Boulder, CO 80302
rfullmer@edf.org
T: (303) 447-7208

Colin Leyden
Environmental Defense Fund
301 Congress Avenue, Suite 1300
Austin, TX 78701
cleyden@edf.org

Mandy Warner
Environmental Defense Fund
1875 Connecticut Ave NW, Ste 600
Washington, DC 20009
mwarner@edf.org

[150] U.S. Envt'l Protection Agency, Louisville, KY-IN Nonattainment Area Intended Area Designation for the 2015 Ozone National Ambient Air Quality Standards Technical Support Document (2015), *available at* https://www.epa.gov/sites/production/files/2017-12/documents/ky_in_louisville_csa_120d_tsd_final.pdf (This area was designated unclassifiable/attainment for the 2008 Ozone NAAQS).

Attachment 1	Cheadle, L. C., S. J. Oltmans, G. Pétron, R. C. Schnell, E. J. Mattson, S. C. C. Herndon, A. M. Thompson, D. R. Blake, and A. McClure-Begley (2017), *Surface Ozone In the Colorado Northern Front Range and the Influence of Oil and Gas Development During FRAPPE/DISCOVER-AQ in Summer 2014,* Elem. Sci. Anth. 5, 61.
Attachment 2	COGCC Map of Colorado Activity, (last accessed Jan. 29, 2018).
Attachment 3	Letter from Colin Leyden, Envt'l Defense Fund, to Kristin Patton, Tex. Comm'n on Envt'l Quality, 6 (Apr. 15, 2016)
Attachment 4	Evans, J. M., and D. Helmig, *Investigation of the Influence of Transport from Oil and Natural Gas Regions on Elevated Ozone Levels in the Northern Colorado Front Range*, Journal of the Air & Waste Management Association, 67, 196-211 (2017).
Attachment 5	Helmig 2018; *See also* Gilman, J. B., B. M. Lerner, W. C. Kuster, and J. A. de Gouw (2013), Source Signature of Volatile Organic Compounds from Oil and Natural Gas Operations in Northeastern Colorado, *Environmental Science & Technology*, *47*(3), 1297-1305, 1300 doi:10.1021/es304119a
Attachment 6	McDuffie, E. E., et al. (2016), *Influence Of Oil And Gas Emissions on Summertime Ozone in the Colorado Northern Front Range*, Journal of Geophysical Research: Atmospheres, 121(14), 8712-8729, doi:10.1002/2016jd025265
Attachment 7	Pfister, G., F. Flocke, R. S. Hornbrook, J. Orlando, and S. Lee, *Process-Based and Regional Source Impact Analysis for FRAPPE and DISCOVER-AQ 2014, Final Report to the Colorado Department of Public Health and Environment*, 31 July, 2017.
Attachment 8	Swarthout, R. F., R. S. Russo, Y. Zhou, A. H. Hart, and B. C. Sive (2013), *Volatile Organic Compound Distributions During The NACHTT Campaign At The Boulder Atmospheric Observatory: Influence Of Urban And Natural Gas Sources*, Journal of Geophysical Research-Atmospheres, 118 (18), 10614-10637.