

United States Court of Appeals
FOR THE DISTRICT OF COLUMBIA CIRCUIT

Argued January 24, 2012

Decided February 24, 2012

No. 10-1004

ATK LAUNCH SYSTEMS, INC.,
PETITIONER

v.

ENVIRONMENTAL PROTECTION AGENCY,
RESPONDENT

BRIAN MOENCH AND UTAH PHYSICIANS
FOR A HEALTHY ENVIRONMENT,
INTERVENORS

Consolidated with 10-1005, 10-1006,
11-1252, 11-1253, 11-1254

On Petitions for Review of a Final Action
of the Environmental Protection Agency

Michael A. Zody argued the cause for petitioners. With him on the briefs were *Michael L. Larsen*, *M. Lindsay Ford*, *Elizabeth A. Schulte*, and *David W. Tundermann*. *Dylan M. Fuge* and *Claudia M. O'Brien* entered appearances.

Jessica O'Donnell, Attorney, U.S. Department of Justice, argued the cause for respondent. With her on the brief was

Geoffrey L. Wilcox, Attorney, U.S. Environmental Protection Agency.

Joro Walker was on the brief for intervenors Utah Physicians for a Healthy Environment, et al. in support of respondent.

Before: ROGERS and KAVANAUGH, *Circuit Judges*, and GINSBURG, *Senior Circuit Judge*.

Opinion for the Court by *Circuit Judge* ROGERS.

ROGERS, *Circuit Judge*: In these consolidated petitions, ATK Launch Systems, Inc., two Utah counties, and three Utah cities seek partial vacation of a final rule designating certain areas as nonattainment for the 2006 24-hour fine particulate matter (PM_{2.5}) standard. *Air Quality Designations for the 2006 24-Hour Fine Particle (PM_{2.5}) National Ambient Air Quality Standards*, 74 Fed. Reg. 58,688 (Nov. 13, 2009) (“Final Rule”). In particular, petitioners challenge the inclusion of parts of Tooele and Box Elder Counties within the Salt Lake City nonattainment area. The Environmental Protection Agency concluded, upon applying its nine-factor test for designations, that emissions from eastern portions of both Box Elder County, including Brigham City and ATK’s operations, and Tooele County, including Tooele City and Grantsville City, contributed to nearby violations of the 24-hour PM_{2.5} standard in and around Salt Lake City.

Petitioners’ principal argument is that EPA was arbitrary and capricious in applying the nine-factor designation analysis, arguing dissimilar treatment as compared to EPA’s analysis of the data for two east coast counties, Warren County, New Jersey and Hartford County, Connecticut, which EPA designated attainment. Petitioners also object to EPA’s use of a pollutant

transport model generally and its analysis of wind data for Box Elder County specifically. Finally, they question EPA's decision to include ATK's operations in the nonattainment portion of Box Elder County. Because EPA's nine-factor test is intended to be applied on a case-by-case basis to account for diverse considerations, including the varying effects of local topography and meteorology on PM_{2.5} dispersion, and EPA reasonably explained its designations, we deny the petitions for review.

I.

Title 1 of the Clean Air Act ("CAA") requires EPA to set national ambient air quality standards for air pollutants that may reasonably be anticipated to endanger public health and welfare. 42 U.S.C. §§ 7408–09. One such pollutant, PM_{2.5}, consists of airborne particles 2.5 micrometers or smaller in diameter. EPA has promulgated both an annual and a 24-hour standard for PM_{2.5}. Effective December 18, 2006, EPA revised the 24-hour PM_{2.5} standard downward from 65 micrograms/cubic meter to 35 micrograms/cubic meter. *See National Ambient Air Quality Standards for Particulate Matter*, 71 Fed. Reg. 61,144 (Oct. 17, 2006) (codified at 40 C.F.R. pt. 50). Under § 107(d) of the CAA, 42 U.S.C. § 7407(d), after new or revised standards are promulgated, States are to submit proposed area designations to EPA, classifying areas as attainment, nonattainment, or unclassifiable. Areas are to be designated nonattainment if they either violate the standard or contribute to a nearby area's violation. *Id.* § 7407(d)(1)(A)(i). The EPA Administrator may modify the designations as deemed necessary, and States then have an opportunity to respond to the modifications. *Id.* § 7407(d)(1)(B)(ii).

On June 8, 2007, EPA provided States with a guidance document suggesting that they consider nine factors in making

designations: (1) emission data, (2) air quality data, (3) population density and degree of urbanization, (4) traffic and commuting patterns, (5) growth rates and patterns, (6) meteorology, (7) geography/topography (e.g., mountain ranges and other air basin boundaries), (8) jurisdictional boundaries, and (9) level of control of emission sources. The list is neither “mandatory nor an exclusive list of types of relevant information.” Final Rule, 74 Fed. Reg. at 58,694-95. In *Catawba County v. EPA*, 571 F.3d 20, 38–40 (D.C. Cir. 2009), the court approved EPA’s interpretation of section 107 of the CAA to permit it to apply this nine-factor test in determining which areas contribute to violations in a nearby nonattainment area.

The PM_{2.5} problem in the Salt Lake City area is driven by topography and meteorology: the area is a valley almost completely bounded by mountain ranges. Under normal meteorological conditions, air temperature decreases as altitude increases. In the Salt Lake City area, wintertime high pressure systems cause temperature inversions; high altitude warm air traps cold air below, with an inversion layer at about 1,500 feet. The surrounding mountains, which extend above the inversion layer, trap the ground level cold air and prevent dispersion. Pollution then accumulates in the stagnant air mass, sometimes for weeks at a time. The air quality worsens gradually until the high pressure system lifts, at which point the polluted air can disperse over the mountains. Without these seasonal inversions, Salt Lake City would not likely be in violation of the air quality standards – the State of Utah noted in its 2007 submission to EPA that it attains the annual PM_{2.5} standard.

Utah submitted its proposed designations on December 18, 2007, including recommendations that Box Elder County be designated attainment and Tooele County be designated unclassifiable; Box Elder County is north, and Tooele County is west, of the Great Salt Lake. Utah’s recommendations did not

include portions of these two “contributing” counties and also made Utah County, which borders Salt Lake County to the south, a separate nonattainment area. EPA disagreed and classified parts of both Box Elder County (including Brigham City and ATK’s operations) and Tooele County (including Tooele City and Grantsville City) nonattainment and as part of a single unified nonattainment area for the Salt Lake City area, because, under EPA’s analysis, they contribute to the Salt Lake City area’s violation of the 24-hour $PM_{2.5}$ standard. EPA’s classifications were consistent with Utah’s recommended eastern boundary but differed relative to the western boundary.

Considering the nine factors together, EPA determined that eastern portions of both Box Elder and Tooele Counties produce emissions that contribute to nearby violations of the standard. Final Utah Technical Support Document (Dec. 2008), at 53; *see* Final Rule, 74 Fed. Reg. at 58,769–70 (table). EPA found that the portions of Box Elder and Tooele Counties designated nonattainment were in the same topographic airshed as the greater Salt Lake City area, and that there was no physical impediment to prevent their emissions from traveling into the violating region. Using wind data collected from Salt Lake International Airport, EPA analyzed $PM_{2.5}$ measurements from air quality monitors; when the Salt Lake County monitors recorded violations, the prevailing winds were from the northwest and southeast. EPA concluded this indicated that “some portion of $PM_{2.5}$ that influence[s] [violating] monitor[s] [] originates from eastern Box Elder County to the north” and “some portion . . . originates from the north and west of Salt Lake County from sources in Tooele County.” Final Utah Technical Support Document, at 39. EPA further explained that modeling of emissions demonstrated that some contributions came from Box Elder and Tooele Counties, the populated areas of the counties had relatively high density, the percentage of

people commuting into Salt Lake County from the two counties was high, and both had higher than average predicted growth.

EPA also examined the wind patterns, which showed that, during the wintertime inversions, the emissions “sloshed” around the valley, because winds move from higher elevations to the low points during the night, and then in the opposite direction during the day. In this manner, emissions from the nonattainment portions of Box Elder and Tooele Counties would be carried into violating areas in and around Salt Lake City at night. EPA additionally considered the Contributing Emissions Score (“CES”), which incorporates emissions, meteorological, and air quality data to provide a relative ranking score of the potential contribution of an area’s counties to the local air quality problem. The scores are normalized to show relative contribution within an area, with values ranging from 0 to 100; the eastern portion of Box Elder County had a CES of 7 and the eastern portion of Tooele County had a CES of 2. In conjunction with the nine-factor test, the CES provided an additional method of evaluating the potential contribution of nearby counties. Based on its analysis, EPA defined the boundaries of the airshed as the Wasatch Mountains to the east, the Promontory and North Promontory Mountains to the west (for eastern Box Elder County), and the Stansbury to the west (for eastern Tooele County).

Petitioners sought review of the Final Rule in the U.S. Court of Appeals for the Tenth Circuit, and subsequently filed protective petitions for review in this court; the Tenth Circuit transferred the case to this court, *ATK Launch Sys., Inc. v. EPA*, 651 F.3d 1194 (10th Cir. 2011). Our review of EPA’s rulemaking pursuant to the CAA is under the same standard as the Administrative Procedure Act, 5 U.S.C. § 706(2)(A). *Catawba*, 571 F.3d at 41; *Allied Local & Reg’l Mfrs. Caucus v. EPA*, 215 F.3d 61, 68 (D.C. Cir. 2000). The Final Rule may be

vacated only if “arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law.” 42 U.S.C. § 7607(d)(9)(A). The court “must affirm the Rule if the record shows EPA considered all relevant factors and articulated a ‘rational connection between the facts found and the choice made.’” *Catawba*, 571 F.3d at 41 (quoting *Burlington Truck Lines v. United States*, 371 U.S. 156, 168 (1962)). The court “give[s] an ‘extreme degree of deference to [EPA] when it is evaluating scientific data within its technical expertise.’” *Id.* (quoting *City of Waukesha v. EPA*, 320 F.3d 228, 247 (D.C. Cir. 2003) (second alteration in original)). This level of deference is “especially appropriate in [] review of EPA’s administration of the complicated provisions of the Clean Air Act.” *Id.* (citing *Nat’l Ass’n of Clean Air Agencies v. EPA*, 489 F.3d 1221, 1229 (D.C. Cir. 2007)); see also *Bluewater Network v. EPA*, 372 F.3d 404, 410 (D.C. Cir. 2004).

II.

In upholding EPA’s nine-factor test, this court concluded that “nothing in the [CAA] compels EPA to quantify a uniform amount of contribution below which counties will automatically escape nonattainment designations or to quantify similar thresholds for the nine factors EPA evaluated in making those determinations.” *Catawba*, 571 F.3d at 39. Furthermore, the court observed, “discrete data points” are not determinative, because elevating them “ignore[s] the very nature of the nine-factor test, which is designed to analyze a wide variety of data on a case-by-case basis.” *Id.* at 46 (internal quotation marks and citation omitted). Thus, “EPA’s holistic assessment of numerous factors [] drives the process – no single factor determines a particular designation.” *Id.* Nonetheless, the nine-factor test may not be applied “inconsistently, resulting in *similar counties* being treated dissimilarly.” *Id.* at 40 (emphasis added).

A.

The bulk of petitioners' challenge rests on a comparison between the data underlying EPA's decision to classify Box Elder and Tooele Counties nonattainment and that underlying EPA's decision to classify two east coast counties, Warren County, New Jersey and Hartford County, Connecticut, attainment. Petitioners' premise is flawed. The significant topographical and meteorological differences between the Salt Lake City area and the two east coast counties make a direct one-to-one comparison of the data underlying the analyses inappropriate.

As the State of Utah explained in recommending designations, in the Salt Lake City area "it is not enough to simply have an urban area with an urban mix of emissions [to cause a violation]; there must also be a barrier to dispersion . . . which allows PM_{2.5} concentrations to build up over a period of several days." Utah Area Designation Recommendation for the 2006 PM_{2.5} NAAQS ("Utah Recommendations"), at 3. In other words, fewer emissions on any given day are necessary to cause a problem in the Salt Lake City area because the inversion layer forms a lid and the mountains a wall, trapping accumulating emissions for days or weeks. EPA pointed out that the 24-hour PM_{2.5} nonattainment areas on the east coast are distinct; no such temperature inversion exists trapping pollutants at the ground level, and no mountain ranges limit dispersion. *See* Final Connecticut Technical Support Document (Dec. 2008), at Factor 7; Final New Jersey Technical Support Document (Dec. 2008), at 18. There, the sheer volume of emissions on a given day, rather than topographical and meteorological influences that cause accumulation of emissions over time, suffices to cause violations of the 24-hour standard. Because the Salt Lake City area's problem is cumulative, a comparison of data on a per-day basis is not informative. It is no surprise that the data for the four counties led EPA to reach opposite conclusions, and

petitioners thus fail to demonstrate that “*similar counties* [have been] treated dissimilarly” by EPA. *Catawba*, 571 F.3d at 40 (emphasis added).

Petitioners also raise several objections concerning dissimilar treatment that go beyond a simple comparison of the data among the four counties. The first two, involving how EPA characterized the population density of the Utah Counties and its consideration of projected, in addition to historical, growth rates for Utah but not for Hartford and Warren Counties, are readily disposed of. Both Box Elder and Tooele Counties are physically large, with vast expanses of rural, unpopulated desert regions separated from the Salt Lake City airshed by mountain ranges. It was reasonable for EPA to examine the population of only the portions of the counties considered for nonattainment separately from the counties as a whole – indeed, it would be illogical to do otherwise. *See* Final Rule, 74 Fed. Reg. at 58,696. Although EPA could have taken the next step of determining the actual population density for the nonattainment-designated portions of the counties, its conclusion of relatively high density is supported by the data in the record. Likewise, the State of Utah provided EPA with projected growth rate data, *see* Utah Recommendations, at 27–28, and it was appropriate for EPA to consider “the best available information,” *Catawba*, 571 F.3d at 44.

Petitioners also object that in considering the traffic and commuting patterns for Box Elder and Tooele Counties, EPA relied on percentages of commuters traveling to other counties, rather than raw numbers of commuters, to support its findings of contribution. In Warren and Hartford Counties, EPA focused on the raw number of commuters. The court noted in *Catawba* that EPA stated that “the relevant factor on which it relied was not the percentage of commuters but rather the raw number of commuters.” *Id.* at 50. *Catawba*, however, dealt with the

annual PM_{2.5} standard. Because the 24-hour standard is at issue here, and the Salt Lake City area's violations of that standard occur after trapped pollution accumulates over days or weeks, reliance on daily raw numbers of commuters would understate the potential contribution of Box Elder and Tooele Counties. EPA, in fact, provided the raw numbers (both commuters and vehicle miles traveled) while noting this data "does not adequately take into account . . . [a] large volume of diesel truck traffic[] on the major highways running through th[e] area." Final Utah Technical Support Document, at 36. EPA explained that the relatively high percentage of commuters traveling from Box Elder and Tooele Counties to Salt Lake County demonstrates a linkage between the areas, suggesting that the two counties contribute to the nearby nonattainment status. *Id.* The high projected growth rates in population and vehicle miles traveled for both counties further supports this conclusion. In any event, "no single factor determines a particular designation." *Catawba*, 571 F.3d at 46; *see* Final Rule, 74 Fed. Reg. at 58,695.

Additionally, petitioners question EPA's treatment of the CES on two grounds: the use of partial-county scores for Box Elder and Tooele Counties and EPA's treatment of those counties' low scores, compared to the higher scores for Warren and Hartford Counties that EPA described as demonstrating a low potential for significant contribution. EPA reasonably relied on scores calculated for only the portions of Box Elder and Tooele Counties designated nonattainment, however, because a county-wide "CES cannot adequately account for the effects of mountainous terrain which would essentially split a county into different parts, each having [its] own potentially unique effect on the violating county," EPA Derivation of Contributing Emission Score (Dec. 15, 2008) ("CES Derivation"), at 9. And although the CES is normalized to show relative contribution, EPA cautioned that it "only provides relative contribution within the area under evaluation and does not provide a reliable means

for comparison between counties in different areas.” Final Rule, 74 Fed. Reg. at 58,695 n.16. In explaining the derivation of the CES, EPA emphasized that the scores require careful interpretation, “particularly in the western United States.” CES Derivation at 9. EPA addressed that concern by calculating partial-county scores to account for the size and geographic separation of the counties, and further noted that mountain ranges can act as barriers to transported emissions, implying further caution was warranted because of the effect of the inversion layer, which causes emissions to accumulate over time. In any event, the CES was “merely an additional method for evaluating the potential contribution of nearby counties,” Final Rule, 74 Fed. Reg. at 58,695, and other of the nine factors, such as topography, may weigh more heavily than the CES. *Cf. Catawba*, 571 F.3d at 49. EPA’s application of the CES data is the type of “‘evaluati[on] [of] scientific data within its technical expertise,’” for which the court gives EPA an “‘extreme degree of deference,’” *Id.* at 41 (quoting *City of Waukesha*, 320 F.3d at 247).

Further, petitioners maintain that in applying the first factor (emissions), EPA applied a “significant contribution” standard to Hartford County but an “any contribution” standard to Box Elder and Tooele Counties. In the Final Rule, EPA rejected adoption of a “significant contribution” standard, 74 Fed. Reg. at 58,691–92, and the court upheld its similar rejection in *Catawba*, 571 F.3d at 38–39. Although EPA’s technical analysis used the word “significant,” it more often referred to the potential contribution of Hartford County without using the word, suggesting that it was used as an adjective to describe the data, rather than as a dissimilar standard. *Compare* Final Connecticut Technical Support Document, at Factors 1, 6, and Conclusion, *with id.*, at Factors 3, 4, 5, 8, and Conclusion. It is far from the dissimilar treatment the court rejected in *Catawba*, where one Region’s bright-line test would have resulted in a

county in a different Region being designated attainment, had the same test been used in the second Region. *See id.* at 51–52. Petitioners fail to demonstrate that EPA employed a different standard or acted arbitrarily or capriciously in its analysis of Box Elder and Tooele Counties as compared to its analysis of Hartford County.

B.

In addition to asserting dissimilar treatment compared to Warren and Hartford Counties, petitioners challenge EPA’s use of modeling data in analyzing the potential transport of emissions from Box Elder and Tooele Counties as technically infirm, and its analysis and characterization of the wind data for Box Elder County as both unresponsive of inclusion in the nonattainment area, and nonresponsive to new information in the record. Neither objection has merit.

As part of its analysis of factor six, meteorology, EPA used a modeling program, “HYSPLIT,” which analyzes wind conditions to determine dispersion of pollutants; this analysis yields “back-trajectories” that help determine the source of pollutants. *See* Final Utah Technical Support Document, at 41. The modeling demonstrated a degree of transport of emissions from Box Elder and Tooele Counties into the violating Salt Lake City monitors during inversion episodes. Petitioners point to EPA’s statements acknowledging the “HYSPLIT” model’s limitations, particularly in areas with topographic features, such as mountains. *See* EPA State and Tribal Comment Summary and Response Document (Dec. 22, 2008) at 13, 188. EPA, however, independently analyzed surface meteorological data from the State of Utah’s monitoring stations, which confirmed the results of the “HYSPLIT” model. *Id.* By confirming the modeling results with on-the-ground data, EPA “took reasonable steps to ensure that” the “HYSPLIT” model’s limitations were considered, “and its choices are not arbitrary or capricious,” *Am.*

Coke & Coal Chems. Inst. v. EPA, 452 F.3d 930, 943 (D.C. Cir. 2006).

Likewise, petitioners' objection to EPA's analysis of wind direction data is without merit. In its initial analysis modifying Utah's recommended designations, EPA used wind direction and speed data from the Salt Lake City International Airport and the Pocatello Regional Airport in Idaho to analyze the pollution data for Box Elder County. In response to comments from the State of Utah that the two sites were too far from Box Elder County to adequately account for local topographic influences on wind direction and speed, EPA replaced the data with that from Hill Air Force Base, which is closer. The original data showed that when PM_{2.5} levels in Box Elder County were highest, wind was coming from the northwest. The replacement data, using the more representative Hill Air Force Base wind measurements, indicated that when PM_{2.5} levels in Box Elder County were highest, wind was coming from the southeast. Petitioners point out that EPA's conclusion did not change despite the substitution of new data for Box Elder County. In both the preliminary and final technical analyses, EPA concluded that "the data presented . . . for the Salt Lake City-Ogden-Clearfield [area] . . . appear to show that some component of measured elevated PM_{2.5} values may originate from the" northwest, supporting the conclusion that Box Elder County contributes to nearby violations. *Compare* EPA Modification to Designations (Aug. 18, 2008) at 36 with Final Utah Technical Support Document, at 39.

Nonetheless, petitioners' claim that EPA was arbitrary and capricious in failing to address the new data in its analysis is incorrect. EPA's analysis and conclusions were of the wind data for the Salt Lake City air basin as a whole, not just for Box Elder County. As EPA reasonably explained in responding to comments about the changed data, "[t]he difference between

[the original and substituted data] is not unexpected given the influence of local topography. The Salt Lake International [data] used by EPA is likely more representative of large scale wind patterns in the basin, given the relative distance of the airport from topographic features.” EPA Public Comment Summary and Response Document (Dec. 22, 2008), at 166–67; *see also* EPA State and Tribal Comment Summary and Response Document, at 189. In other words, to determine what areas are contributing to nearby violations, the most relevant wind data is that which corresponds with the *violating* monitors. The record supports the conclusion that, when PM_{2.5} levels are most severe in Salt Lake City, wind direction is sometimes from the northwest, indicating contribution from Box Elder County. EPA’s analysis of the wind data and air basin conclusion about pollution transport was reasonably based upon “the best available information,” *Catawba*, 571 F.3d at 44, and petitioners thus fail to demonstrate that EPA ignored new information or otherwise was arbitrary or capricious.

C.

Finally, petitioners challenge EPA’s designation of the portion of Box Elder County containing ATK’s operations as arbitrary and capricious. ATK is engaged in the aerospace and defense industries. EPA may designate partial counties, *see Catawba*, 571 F.3d at 42, and it reasonably relied on the Promontory Mountains, and the coinciding intra-county jurisdictional boundaries, as the western topographic boundary for the airshed in Box Elder County. Petitioners do not dispute that ATK’s operations occur below the inversion layer, which is at about 1,500 feet, and, as discussed, EPA reasonably concluded that meteorological data indicated that emissions from eastern Box Elder County, where ATK’s operations occur, contribute to nearby violations of the PM_{2.5} standards. Petitioners fail to demonstrate that EPA was arbitrary or

capricious by including ATK's operations within the nonattainment area.

Accordingly, we deny the petitions for review.