United States Court of Appeals

FOR THE DISTRICT OF COLUMBIA CIRCUIT

Argued September 15, 2017 Decided March 16, 2018

No. 16-1021

SIERRA CLUB, ET AL.,
PETITIONERS

v.

ENVIRONMENTAL PROTECTION AGENCY AND E. SCOTT PRUITT, ADMINISTRATOR, U.S. ENVIRONMENTAL PROTECTION AGENCY,
RESPONDENTS

AMERICAN CHEMISTRY COUNCIL, ET AL.,
INTERVENORS

Consolidated with 13-1256

On Petitions for Review of Final Action of
the United States Environmental Protection Agency

James S. Pew argued the cause for petitioners. With him on the briefs were *Neil Gormley*, *Patton Dycus*, and *Eric Schaeffer*. *Sanjay Narayan* entered an appearance.

Norman L. Rave Jr., Attorney, U.S. Department of Justice, argued the cause and filed the brief for respondents. *Perry M. Rosen*, Attorney, entered an appearance.

Sierra Club continues to protest both EPA's decision to use CO as a surrogate and the adequacy of the Agency's consideration of post-combustion controls. We addressed those broad contentions in *U.S. Sugar*. In that case, we remanded to EPA for further consideration of the rule's reliance on CO as a surrogate as a general matter, to the exclusion of alternative control methods. *Id*. The results of that consideration are not before us, and we do not revisit those arguments here.

But *U.S. Sugar* did not address EPA's decision, in light of its general reliance on CO as a surrogate for a group of organic HAPs, to establish the 130 ppm lower bound. Our *U.S. Sugar* remand left all of EPA's CO-based limits intact pending their further consideration, and did not address the levels at which any particular limits were set, only the decision to measure the limits on organic HAP emissions in terms of CO levels. *See id.* at 630. We therefore have yet to consider Sierra Club's more specific challenges to the 130 ppm limits, and we do so here. Treating CO as generally a suitable surrogate for organic HAPs, per *U.S. Sugar*, it remains for us to determine whether EPA's decision in 2013 (reaffirmed in 2015) to loosen the 2011 rule's most stringent CO floors was reasonable and consistent with the Act.

B.

Sierra Club argues that EPA violated the Act and made an arbitrary and capricious decision because the 130 ppm CO threshold in the 2013 final rule weakened standards the agency had earlier promulgated as MACT Floors for thirteen subcategories. EPA responds that its revised CO standards are just as effective as the original ones, assuring us that organic HAP destruction is "complete," or at least "essentially" complete, once CO emissions fall to 130 ppm. Resp't's Br. 18-

19. We take EPA to mean that organic HAP emissions are effectively nonexistent—or, in any event, cannot be further reduced—whenever a boiler's CO emissions are below 130 ppm. If articulated and adequately supported in the record, such a position could well satisfy the Act. *See* 42 U.S.C. § 7412(d)(2) (EPA "shall require the maximum degree of reduction in emissions of the [HAPs] subject to this section (including a prohibition on such emissions, where achievable)"). That conclusion would follow from the Act's focus on controlling specifically enumerated HAPs: So long as a surrogate is not itself a regulated HAP—as CO is not—its emissions need not be controlled beyond the point where EPA can be confident that the targeted HAP emissions are reduced as far as possible or, indeed, "eliminat[ed] . . . entirely." *U.S. Sugar*, 830 F.3d at 629.

But the record does not support any such conclusion here. When settling on the revised 130 ppm floors in 2013, EPA explained that it had set out to determine "whether there is a minimum CO level for boilers and process heaters below which there is no further benefit in organic HAP reduction/destruction." 78 Fed. Reg. at 7144-45. To make that assessment, the agency looked to data showing the relationship between varying levels of CO emissions and corresponding emissions of formaldehyde—the only organic HAP for which it had such data. *Id.* at 7144. On their face, however, those data did not show complete destruction of formaldehyde (or a leveling-off of emissions) as CO dropped below 130 ppm. *Id.* Nor did the data show continuation at those low levels of the correlation on which EPA's use of CO as a surrogate was based. Instead, "[a]t levels lower than 150 ppm, the mean levels of formaldehyde appear[ed] to increase, as d[id] the overall maximum value and variability in formaldehyde emissions." *Id.*

EPA was "aware of no reason why" the otherwise strong correlation between lower CO emissions and lower formaldehyde emissions would suddenly invert. *Id.* The Agency accordingly determined the data were untrustworthy and that they did not reflect an actual increase in formaldehyde emissions. EPA explained: "[W]e do not believe that such measurements are sufficiently reliable to use as a basis for establishing an emissions limit." *Id.* We deferred to EPA's scientific judgment on this exact point in *U.S. Sugar*, rejecting Sierra Club's argument that the imperfect formaldehyde data disproved the general validity of CO as a surrogate and noting EPA's assurances that the "apparent breakdown" of the relationship between formaldehyde and CO below 130 ppm "was most likely caused by the difficulty of measuring the regulated HAP at such extremely low emission levels." *U.S. Sugar*, 830 F.3d at 630.

In separately attempting to justify its conclusion that CO limits would not yield further reduction in organic HAPs if set below the level where the formaldehyde data became unreliable, however, EPA relied on the same data it had elsewhere decisively characterized as untrustworthy. EPA asserted in support of its decision to reject any limit more stringent than 130 ppm that, "[a]t CO levels less than [130 ppm], *our data indicate* that there is no apparent relationship between CO and organic HAP (i.e., formaldehyde)." 78 Fed. Reg. at 7145 (emphasis added). In other words, EPA's only support for its upward-revised floors was the very data it had just dismissed as inaccurate, now cited as reliable evidence that reducing CO below 130 ppm does not in fact reduce organic HAP emissions.

That mismatch—treating data EPA had viewed as not reliable at low emission levels as if it were affirmative support for a breakdown of the correlation at those levels—makes

EPA's decision arbitrary and capricious. EPA concluded that the otherwise well-documented general correlation between CO and organic HAPs does not persist below 130 ppm without providing a reasoned basis for its conclusion. Importantly, EPA was regulating against the backdrop of its own prior, general determination that CO was a surrogate for organic HAPs; it had concluded "that minimizing CO emissions will result in minimizing . . . organic HAP." 75 Fed. Reg. 32,018. "EPA proposed using CO as a surrogate because . . . the lowest possible CO emissions resulted in the lowest possible HAP emissions . . . ." *U.S. Sugar*, 830 F.3d at 629.

In *U.S. Sugar*, we relied on EPA's conclusion that there was tight correlation between reduced CO and reduced organic HAP emissions to affirm EPA's rule in part. *See id.* at 630. We treated that conclusion as supported by both the formaldehyde emissions data and the scientific principle underlying them: For reasons EPA explained, we accepted that incomplete combustion yields levels of CO and organic HAP emissions that correlate very closely to one another. *See id.* at 628, 630. EPA's refusal to extend that same logic to CO levels below 130 ppm requires a reasoned justification. The Agency failed to provide one.

EPA came closest to a reasoned determination that the surrogacy relationship broke down below 130 ppm in its assertion that CO is a "conservative" surrogate for organic HAPs because it is "a difficult to destroy refractory compound." 78 Fed. Reg. at 7145. Although EPA did not define the term, one way to understand EPA's characterization of CO as a "conservative surrogate" is that organic HAPs might all burn up in the combustion process at a level of completeness where some CO emissions remained, because "oxidation of CO to carbon dioxide is the slowest and last step of oxidation of hydrocarbons." *Id.* If that is true, there could theoretically be

some nonzero level of CO emissions below which no further reduction in organic HAP emission occurs, because the HAPs would be all gone (or perhaps still present in low amounts, yet impervious to combustion) before CO emissions ceased.

When justifying its rule, however, EPA did not say that organic HAP emissions are eliminated completely (or not susceptible of any further reduction) below 130 ppm, nor has it explained how any such theory follows from the only available record evidence—the formaldehyde data on which EPA otherwise exclusively relied. We cannot sustain an agency's decision on grounds it did not invoke. *See SEC v. Chenery*, 332 U.S. 194, 196 (1947).

Three points highlight the lack of basis to sustain the rule on a novel, "conservative surrogacy" ground. First, during the rulemaking process, EPA never took the position that organic HAP emissions fall to zero, nor gave any reason why they could not be further reduced, once CO emissions reach 130 ppm. It said only that, where CO is emitted at or below 130 ppm, organic HAP emissions are "extremely low." 78 Fed. Reg. at 7145; *see also U.S. Sugar*, 830 F.3d at 630. But describing HAP levels as "low," even "extremely low," or saying that their combustion is "essentially" complete, implies that HAPs have not been entirely eliminated. So EPA's observation that HAP emissions are "extremely low" when CO is at 130 ppm is not a reasoned basis for concluding that organic HAP emissions cannot be reduced still further. There is no "close enough" exception to the requirement that EPA's MACT floors limit emissions to the full extent shown to be achievable by the best-performing sources; to the contrary, the Act's MACT provisions instruct EPA to "maximize" the reduction in emissions, up to and including "a prohibition on such emissions, where achievable." 42 U.S.C. § 7412(d)(2).

Second, the formaldehyde data on which EPA generally relied are the only data EPA offered for its decision not to require that CO emissions be reduced below 130 ppm, and EPA staked its "conservative surrogate" theory on those data. *See* 78 Fed. Reg. at 7145. But, in virtually the same breath, EPA said those data were not a reliable indicator of what happens to organic HAP emissions at the low levels in question. Again, that contradiction leaves us unable to discern any reasoned basis for determining that organic HAPs disappear from the emission stream before CO does, or to otherwise conclude that organic HAP emissions cannot be further reduced.

Third, even if EPA had grounds to conclude that there is some nonzero level of CO emissions that marks a point below which organic HAP emissions cannot be further reduced, it offered no basis for identifying 130 ppm as that level. As just noted, EPA cites only the unreliable formaldehyde data—which, on average, show HAP emissions increasing below 150 ppm of CO, not leveling off or zeroing out. *See id.* Accepting that boomerang as a data flaw, and not as an accurate representation of a shift in the physical correlation between CO and HAP combustion, it is not evident how those unreliable data could support a conclusion that emissions in fact plateau at their lowest achievable level, rather than either increasing or continuing to decrease, at an inflection point of 130 ppm. EPA has not explained how the data could suffice.

Industry intervenors' brief (but not EPA's) seeks to bolster the evidence in the record by reference to two prior rules in which EPA set CO limits at a level equivalent to what EPA defends here. The conclusions reached in those other rulemakings are irrelevant under our precedent, which takes "every tub on its own bottom" when setting emissions standards under the Act; EPA must justify its conclusions in each proceeding. *U.S. Sugar*, 830 F.3d at 623 (quoting *Sierra*

Club, 353 F.3d at 986). It is not enough to have reached the same (unreviewed) conclusion elsewhere.

EPA did not in the rulemaking here rely on either of the prior rules to which intervenors cite, nor on the records supporting them. That makes sense because in neither prior rulemaking did EPA reach, much less justify, the specific conclusion that EPA has failed to support here: that a 130 ppm CO level suffices to eliminate organic HAP emissions, or that further reductions are not possible beyond that point. The first rule, promulgated in 1991 under the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. § 6901 *et seq*., limited organic matter emissions only to a level that would not "pose a significant risk," as that statute required; it did not conclude that 130 ppm was the maximum achievable reduction. *Burning of Hazardous Waste in Boilers and Industrial Furnaces*, 56 Fed. Reg. 7134, 7151 (Feb. 21, 1991). And, in finalizing the second cited rule, a 2005 restriction on hazardous waste combustors, EPA concluded only that CO levels below 130 ppm "may not provide significant reductions in organic HAP emissions" because such emissions are "extremely low" when CO levels are "in the range of zero to 100 ppm[]" (corrected to seven percent oxygen, which is equivalent to 130 ppm when corrected to three percent oxygen). *See National Emission Standards for Hazardous Air Pollutants: Final Standards for Hazardous Air Pollutants for Hazardous Waste Combustors (Phase I Final Replacement Standards and Phase II)*, 70 Fed. Reg. 59,402, 59,462 (Oct. 12, 2005). In neither case did EPA conclude that no below-130 ppm CO emissions limit would improve the control of HAPs.

EPA alternatively suggests that this court in *U.S. Sugar* already decided this issue in its favor, but we did not. We rejected the environmental petitioners' argument in that case that "record evidence demonstrated a breakdown in the

correlation between CO and organic HAP emissions below 130 ppm" such that EPA acted arbitrarily in relying on CO as a surrogate. *U.S. Sugar*, 830 F.3d at 630. In accepting the relationship between CO and HAP combustion as a general matter, we deferred to EPA's conclusion that there was only an "apparent" breakdown in that relationship—a breakdown "most likely caused by the difficulty of measuring the regulated HAP" at those levels, rather than by variability in the underlying relationship. *Id*. We did not endorse the conclusion that EPA now advances—that the data affirmatively prove an absence of further reductions.

Given these deficiencies in EPA's reasoning, we cannot discern the "reasonable connection to the facts in the record" necessary to defer to EPA's decision to revise these CO floors. *U.S. Sugar*, 830 F.3d at 829; *see also Motor Vehicle Mfrs. Ass'n of the U.S. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983). EPA may have a hunch that setting CO limits below a certain level would be ineffectual to control HAP emissions. But the record we have before us does not substantiate any such conclusion, much less provide a basis for pinpointing that level at 130 ppm.

It would be particularly inappropriate to give EPA a pass on backing up its apparent hunch here, where EPA was operating against the backdrop of its own prior reasoned judgment that "minimizing CO emissions will result in minimizing non-dioxin organic HAP," 75 Fed. Reg. 32,018, and where its conclusion appears to be counter to the only empirical evidence EPA had before it. *See State Farm*, 463 U.S. at 43. If EPA concludes that the relationship it previously identified between CO and organic HAP is actually valid only to a point—a conclusion the likes of which our prior regulation-by-surrogate cases have not endorsed—it must explain how the limiting point it specifies reflects the emission control actually

achieved by the best performing sources and, further, that it is the lowest emission level achievable with existing technology.

We therefore remand to EPA to reconsider its decision to adopt the 130 ppm CO limits. We do not vacate those limits, because Sierra Club has asked us not to do so and because "vacatur would cause substantial disruptive effects by removing emissions limits for the regulated HAPs." *U.S. Sugar*, 830 F.3d at 630. EPA may, if it finds it feasible to do so, undertake this reconsideration in conjunction with the broader task we gave EPA when remanding in *U.S. Sugar*: To further consider "the portion of the Major Boilers Rule providing for CO's use as a surrogate for non-dioxin/furan organic HAPs." *Id*.

Because we remand, we need not pass on Sierra Club's additional contention that EPA failed to consider beyond-the-floor standards under 42 U.S.C. § 7412(d)(2). In revisiting the CO-based standards (in light of both this decision and *U.S. Sugar*), however, EPA must consider both (1) whether the standards it adopts are Section 7412(d)(3)-compliant MACT Floors and (2) whether Section 7412(d)(2) beyond-the-floor standards are called for here. *See Nat'l Lime Ass'n*, 233 F.3d at 634-35.

~~III.~~

~~Sierra Club also challenges EPA's startup and shutdown work practice standards as arbitrary and capricious and contrary to the Act. It challenges the duration of the startup period EPA allows, as well as the content of both the startup and shutdown work practices EPA prescribed. Sierra Club contends that EPA's approach to the duration of startup arbitrarily and unlawfully gives all sources four extra hours before they must begin complying with numeric standards, even though some sources admittedly can achieve stable~~