United States Court of Appeals

FOR THE DISTRICT OF COLUMBIA CIRCUIT

Argued October 9, 2003 Decided June 18, 2004

No. 02-1282

MOSSVILLE ENVIRONMENTAL ACTION NOW AND SIERRA CLUB,
PETITIONERS

v.

ENVIRONMENTAL PROTECTION AGENCY AND CHRISTINE TODD WHITMAN, ADMINISTRATOR, U.S. ENVIRONMENTAL PROTECTION AGENCY,
RESPONDENTS

VINYL INSTITUTE, INC.,
INTERVENOR

On Petition for Review of an Order of the Environmental Protection Agency

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James S. Pew argued the cause and filed the briefs for petitioners.

Brian H. Lynk, Attorney, U.S. Department of Justice, argued the cause for respondents. With him on the brief were *G. Scott Williams*, Attorney, and *Andrew G. Gordon*, Attorney, Environmental Protection Agency. *Christopher S.*

Bills of costs must be filed within 14 days after entry of judgment. The court looks with disfavor upon motions to file bills of costs out of time.

Vaden, Attorney, U.S. Department of Justice, entered an appearance.

Before: SENTELLE, RANDOLPH and ROGERS, *Circuit Judges*.

Opinion for the Court filed by *Circuit Judge* SENTELLE.

SENTELLE, *Circuit Judge*: Petitioners Mossville Environmental Action Now and Sierra Club seek review of an Environmental Protection Agency ("EPA") rule styled "National Emission Standards for Hazardous Air Pollutants for Polyvinyl Chloride and Copolymers Production." 67 Fed. Reg. 45,886 (July 10, 2002) ("the Part 63 NESHAP"). This rule, adopted pursuant to section 112 of the Clean Air Act ("CAA"), set emission standards for PVC and Copolymer production facilities that mirrored EPA's previous rule, articulated at 41 Fed. Reg. 46,560 (Oct. 21, 1976); 40 C.F.R. Subpart F (§§ 61.60 – 61.71) ("the Part 61 NESHAP" or "the Part 61 standard"), because the EPA determined that the Part 61 NESHAP were the most stringent controls in the industry.

Petitioners contend that EPA has failed to meet the requirements of the CAA in setting various limits for vinyl chloride emission. They further contend that EPA erred in failing to set emission limits for all of the other hazardous air pollutants ("HAPs") emitted during PVC production. Two of petitioners' arguments regarding vinyl chloride emissions limits have been waived, and we do not find meritorious their remaining challenges to those limits. We do, however, hold that EPA has failed properly to set emissions limits on other HAPs, as required by the CAA. The petition is therefore granted in part and denied in part.

I. Background

A. Statutory Background

This is the latest in a series of challenges to rulemakings establishing emission standards for HAPs in various industries under the 1990 revisions to the CAA. *See, e.g., Northeast Md. Waste Disposal Auth. v. EPA*, 358 F.3d 936 (D.C.

Cir. 2004) (per curiam) (municipal waste combustors); *Sierra Club v. EPA*, 353 F.3d 976 (D.C. Cir. 2004) (copper smelters); *Cement Kiln Recycling Coalition v. EPA*, 255 F.3d 855 (D.C. Cir. 2001) (hazardous waste combustors); *Nat'l Lime Ass'n v. EPA*, 233 F.3d 624 (D.C. Cir. 2000) (portland cement manufacturing facilities); *Sierra Club v. EPA*, 167 F.3d 658 (D.C. Cir. 1999) (medical waste incinerators); *Appalachian Power Co. v. EPA*, 135 F.3d 791 (D.C. Cir. 1998) (per curiam) (electric utility boilers).

Section 112 of the CAA was amended in 1990 to include a congressionally established list of HAPs. 42 U.S.C. § 7412(b)(1). Vinyl chloride is included on that list. *Id.* The CAA directs the EPA to establish categories and subcategories of major sources that emit one or more of the enumerated HAPs. *Id.* § 7412(c). The statute further requires the EPA to issue technology-based emission standards, known as National Emission Standards for Hazardous Air Pollutants ("NESHAP"), for those sources. There are essentially two steps in this process.

The CAA establishes a minimum required reduction–known as the maximum achievable control technology floor ("MACT floor"). The MACT floor for new sources "shall not be less stringent than the emission control that is achieved in practice by the best controlled similar source, as determined by the Administrator." *Id.* § 7412(d)(3). For existing sources:

> Emission standards . . . may be less stringent than standards for new sources in the same category or subcategory but shall not be less stringent, and may be more stringent than –
>
> (B) the average emission limitation achieved by the best performing 5 sources (for which the Administrator has or could reasonably obtain emissions information) in the category or subcategory for categories with fewer than 30 sources.

Id.

Once floor standards are established, the EPA determines if standards more stringent than those actually achieved by

the best performing sources are possible. These standards must

> require the maximum degree of reduction in emissions of the hazardous air pollutants subject to this section (including a prohibition on such emissions, where achievable) that the Administrator, taking into consideration the cost of achieving such emission reduction, and any non-air quality health and environmental impacts and energy requirements, determines is achievable for new or existing sources in the category or subcategory to which such emission standard applies[.]

Id. § 7412(d)(2). These are known as "beyond-the-floor" standards. In setting beyond-the-floor standards, the EPA is to "require the maximum degree of reduction in emission of the hazardous air pollutant" that is achievable

> through application of measures, processes, methods, systems or techniques including, but not limited to, measures which –
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> (A) reduce the volume of, or eliminate emissions of, such pollutants through process changes, substitution of materials or other modifications,
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> (B) enclose systems or processes to eliminate emissions,
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> (C) collect, capture or treat such pollutants when released from a process, stack, storage or fugitive emissions point,
>
> (D) are design, equipment, work practice, or operational standards (including requirements for operator training or certification) as provided in subsection (h) of this section, or
>
> (E) are a combination of the above.

Id. The EPA must balance these considerations with other factors such as cost, non-air-quality health and environmental concerns, and energy implications. *Id.* This technology-based regime replaced an earlier risk-based regime that

required EPA to regulate at a level that provided an ample margin of safety to protect the public.

Additionally, section 112(d)(1) requires the EPA to set emission standards for every HAP emitted from each category or subcategory of major sources. *Id.* § 7412(d)(1); *see also Nat'l Lime Ass'n v. EPA*, 233 F.3d 625, 634 (D.C. Cir. 2000) ("*National Lime*") (stating EPA has "the clear statutory obligation to set emission standards for each listed HAP").

B. Regulatory Background

Vinyl chloride, a gas that is highly toxic and a known human carcinogen, is the starting point for PVC and copolymer production. It is first pressurized and agitated in a reactor, resulting in polymerization. Once polymerized, vinyl chloride can be transformed into many diverse products, from latex paints to PVC piping. Vinyl chloride can enter the atmosphere in several ways during PVC production. The gas can escape to the atmosphere when equipment is opened for routine maintenance, either through leaks in the production system, or by being present in such low concentrations that it escapes through recovery systems in exhaust streams. This form of pollution is often referred to as "stack emissions" or "exhaust gasses." There is also some residual vinyl chloride in the PVC itself, know as residual vinyl chloride monomer ("RVCM"). RVCM is removed from the PVC through a process known as stripping. Stripping results in vinyl chloride emissions as well. Those emissions are often referred to as "process equipment emissions" or "RVCM emissions."

In 1976, prior to the 1990 implementation of technology-based standards, the EPA promulgated emission standards for vinyl chloride under the risk-based standard then in effect. 41 Fed. Reg. 46,560 (Oct. 21, 1976); 40 C.F.R. Subpart F (§§ 61.60 – 61.71) ("the Part 61 NESHAP"). Pertinent to this case, under the Part 61 standard EPA regulated exhaust gasses from the reactors of polyvinyl chloride plants at ten parts per million ("ppm") averaged over a three-hour period. *See, e.g.,* 40 C.F.R. § 61.64(a)(1). RVCM emissions were regulated at 2000 ppm per plant for PVC dispersion

resins, excluding latex resins, 40 C.F.R. § 61.64(e)(1)(i), and 400 ppm per plant for all other PVC resins, averaged daily. *Id.* at § 61.64(e)(1)(ii).

When Congress amended the CAA in 1990, it required the EPA within ten years to review its emission standards to ensure compliance with the amended CAA. 42 U.S.C. § 7412(q)(1). Pursuant to this command, EPA addressed the Part 61 NESHAP in two separate rules. The first, known as the Hazardous Organic NESHAP ("HON Rule"), addresses and supersedes the Part 61 NESHAP as it relates to the production of ethylene dichloride and vinyl chloride. 57 Fed. Reg. 31,576 (July 16, 1992); *see* 40 C.F.R. part 63, subparts F, G, and H (40 C.F.R. §§ 63.100 – 63.182). The HON Rule, however, explicitly excludes batch operations, such as PVC production, from its scope. 40 C.F.R. § 63.100(j)(4). Because batch operations were covered by the Part 61 NESHAP, another rulemaking was required to deal with the Part 61 NESHAP's application to batch operations, including PVC production. That rule is the Part 63 NESHAP at issue here.

To set the Part 63 standards, the EPA first determined that twenty-eight sources in the United States produce PVC and all are subject to the Part 61 NESHAP. 65 Fed. Reg. at 76,962/1. The EPA then considered state emission requirements and determined that the Part 61 NESHAP requirements, not state requirements, had the greatest influence on emission controls. The EPA further determined that no better technology was available than the Part 61 standard already required. Looking specifically at RVCM emission from PVC resins, the EPA recognized that while some states had more stringent standards in place, those standards were based on quarterly averages, while the Part 61 standard was based on daily limits. *Id.* The EPA found that comparing these standards was difficult because of the different measuring periods. In addition, the EPA found that the amount of RVCM emission is primarily dependent on what type of PVC resins each plant manufactures. There is thus a wide variation of RVCM emission during normal operation, and EPA found that the daily limits ensure that operators keep average RVCM emission low so that the spikes do not cause the

average to violate the daily limits. The EPA also found that the most stringent state standards had been imposed on plants that produced PVC resins that were the most capable of stripping to low RVCM levels. 65 Fed. Reg. at 76,962/1. Because these state limitations were specific to the products at each plant, EPA determined that the state permit limits were not generally applicable.

In sum, the EPA concluded that the Part 61 NESHAP satisfied all of the requirements set forth in the 1990 amendments, and adopted almost all of the old Part 61 NESHAP standards as the new Part 63 NESHAP standards. Thus, the Part 61 standards became the "floor" for existing sources pursuant to section 112 of the CAA. The EPA then declined to adopt beyond-the-floor measures, citing, *inter alia*, the possibility that certain PVC production would be prohibited if more stringent standards were adopted.

Additionally, the EPA determined that it was unnecessary to set separate individual emission standards for all other HAPs that result from PVC production, as required by section 112(d)(1), because it could simply use vinyl chloride as a surrogate for those other HAPs. This, according to the EPA, was because the stripping, scrubbing, incineration, or combination thereof, that is required under the Part 61 standard limits emission of all HAPs, not just vinyl chloride. Unsatisfied with these standards, petitioners have sought review of the Part 63 NESHAP here.

II. Analysis

This Court sets aside final EPA action under the CAA if that action is arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law. 42 U.S.C. § 7607(d)(9); *see Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 41 (1983). Under this familiar standard, "[a]gency determinations based upon highly complex and technical matters are 'entitled to great deference.' " *Appalachian Power Co. v. EPA*, 249 F.3d 1032, 1051-52 (D.C. Cir. 2001) (per curiam) (quoting *Public Citizen Health Research Group v. Brock*, 823 F.2d 626, 628 (D.C. Cir. 1987)).

A. Waiver

We first deal with whether certain of petitioners' claims are properly before us. The EPA contends that two of petitioners' challenges–that EPA erred in setting the floor for exhaust gasses and erred in failing to establish beyond-the-floor standards–were waived as they were not properly raised before the agency below. We turn first to EPA's establishment of a floor for exhaust gasses.

In its rulemaking, the EPA determined that no more stringent limits applied to vinyl chloride exhaust gas streams than the ten ppm limit in the Part 61 NESHAP, and established that limit as the floor. 65 Fed. Reg. at 76,962/2. Petitioners claim that their concerns regarding this issue were sufficiently raised in two letters submitted to the EPA by parties not involved in this case. The question is whether these letters were sufficiently specific to raise the issue before the EPA.

The first is a February 8, 2001 letter from the State and Territorial Air Pollution Programs Administrators ("STAPPA") and the Association of Local Air Pollution Control Officials ("ALAPCO") to the EPA ("STAPPA Letter"). That letter addresses different aspects of the rule, but with respect to the setting of MACT floors it specifically addresses the 400 ppm standard for "residual vinyl chloride in the PVC slurry." Indeed, it mentions the 400 ppm standard, which applies to RVCM emissions, four times in the six paragraphs that address the MACT floor. It does not, however, ever mention the ten ppm standard that applies to exhaust emissions. Nor do those paragraphs ever mention "gasses" or "exhaust." The letter thus did not specifically challenge the ten ppm exhaust gas limit.

In an effort to avoid the lack of a specific challenge, petitioners argue that nothing in the letter directly limits the fact that "their objection is a general one to EPA's floor approach." This will not do. "Only an objection to a rule or procedure which was raised with reasonable specificity during the period for public comment (including any public hearing) may be raised during judicial review." 42 U.S.C.

§ 7607(d)(7)(B). We "strictly" enforce this requirement. *Motor & Equip. Mfrs. Ass'n v. Nichols*, 142 F.3d 449, 462 (D.C. Cir. 1998) (internal quotation marks and citation omitted). Reasonable specificity requires something more than a "general [challenge] to EPA's approach." The language in the letter that petitioners rely upon is a sentence, in the last paragraph addressing MACT floors, that states that "control device performance and capabilities and process improvements have evolved" to a point below the Part 61 standards. According to petitioners, because only the ten ppm standard is based on the performance of control devices, it is clear that the comments were not limited to the 400 ppm floor. This fails. In a letter so obviously focused on the 400 ppm standard, such general reference in the closing paragraph does not rise to the "reasonable specificity" required by the statute.[1]

The second letter that petitioners claim raised the issue is dated February 12, 2001 and is from the State of Louisiana to the EPA ("the Louisiana Letter"). This two-page letter also does not mention the ten ppm standard, but again directly addresses RVCM emissions. It does, however, have an attached table, which the letter claims proves that state limits are more stringent than the Part 61 standards. One of the eight columns in the table is labeled "Misc. Process Vents," and includes data that could be exhaust limits. Again, and for the reasons stated above, this does not meet the standard of reasonable specificity. The letter does not directly address the ten ppm standard, and attaching a table that cryptically refers to miscellaneous process vents does not automatically put the EPA on notice of a challenge to every piece of information contained in the table. In sum, petitioners' challenge to the floor on exhaust gasses is waived because it was not raised with reasonable specificity to the agency below.

[1] Petitioners also point to a sentence in the letter requesting the EPA to use "all readily available data, including the data provided under Subpart F." Petitioners' argument that, because Subpart F contains data for both the ten and 400 ppm standards, the EPA was on notice fails for the same reasons as articulated above.

We now turn to petitioners' claim that EPA erred in failing to establish beyond-the-floor standards pursuant to CAA section 112(d)(2). 42 U.S.C. § 7412(d)(2). EPA again claims that this argument is waived. For their part, petitioners again point to the STAPPA and Louisiana letters as bringing the beyond-the-floor concerns to the attention of the EPA. In our view, both the STAPPA and Louisiana letters fail to raise the beyond-the-floor issue with reasonable specificity.

The Louisiana letter consists of four numbered paragraphs. The first paragraph, by its own language, addresses the "MACT Floor." The fourth deals with EPA's failure to regulate other HAPs. The second and third paragraph present petitioners' best argument that Louisiana raised the issue, but they are simply not specific enough. The second paragraph states that Louisiana permits are "more stringent than the currently proposed MACT requirements." The third paragraph describes the Part 61 standard as "old," and asserts that better technology is available. While these two paragraphs could imply not only a challenge to the setting of the MACT floor, but also a challenge to EPA's failure to set beyond-the-floor standards, that is all it does – potentially imply a challenge. There is no mention of beyond-the-floor standards.

It is just not clear that the State of Louisiana, in a letter that contained specific and clear challenges to the setting of the RVCM MACT floor, was also challenging the beyond-the-floor standards. While petitioners may argue that it is obvious that if one challenges the floor, one is also implicitly challenging the failure to set beyond-the-floor standards, that is not the way the regulatory system is structured. Such a standard would require agencies to review perpetually all of the "implied" challenges in any challenge they receive. We will not impose such a burden on the agency. All that Louisiana had to do was draft one sentence that specifically challenged EPA's decision. It did not, and that specific challenge is thus not preserved.

The same is true of the STAPPA letter. It specifically addresses STAPPA's concern that EPA's proposed standard

"does not meet the MACT floor requirements of Section 112(d)." In closing the pertinent section, STAPPA requests that the "EPA recalculate the MACT floor using information about other sources. . . ." Like the Louisiana letter, this letter fails to mention beyond-the-floor standards, nor does it cite the specific provision of the CAA which deals with them. In *Motor & Equipment Manufacturers*, we considered petitioners' claims waived because they failed to cite the specific provision to the agency below. 142 F.3d at 462 (holding that a petitioner's claim that EPA should comply with CAA section 202 does not put the agency on sufficient notice for a specific claim regarding CAA section 202(b)(1)(C)). Like the Louisiana letter, the only way the STAPPA letter could be read as placing the EPA on notice is to place the burden on EPA to cull through all the letters it receives and answer all of the possible implied arguments. Such a rule would defeat the statutory requirement for "reasonable specificity."

B. The RVCM Floor

Petitioners also contend that the EPA violated its statutory duty by failing to identify the five best performing PVC plants in setting the RVCM floor. Indeed, the EPA readily admits that it did not identify the best five performing plants, even though the CAA specifically requires the EPA to set floors that

> shall not be less stringent, and may be more stringent than –
>
> (B) the average emission limitation achieved by the best performing 5 sources (for which the Administrator has or could reasonably obtain emissions information) in the category or subcategory for categories with fewer than 30 sources.

42 U.S.C. § 7412(d)(3)(B). Petitioners further point to *Cement Kiln Recycling Coalition v. EPA*, where we held that "EPA may not deviate from section 7412(d)(3)'s requirement that floors reflect what the best performers actually achieve. . . ." 255 F.3d 855, 861 (D.C. Cir. 2001) ("*CKRC*").

The EPA argues that in this case, determining the best five sources was impossible. This is because of the great variability in RVCM emissions, and the fact that that variability is a result of the type of resin being produced, not the technology or processes applied to control emission. 67 Fed. Reg. at 45,889/2-3. According to the EPA, there can even be great variability in RVCM emission at the same PVC plant, which would obviously employ the same technology and processes on a day-to-day basis, if that plant produces a variety of resins, which most do. *Id.* at 45,887/2. With comparisons between plants impossible, and emission variations not related to technological performance, the EPA claims it was unable to select the best five sources. Therefore, after considering other alternatives, it determined that since all twenty-eight PVC plants were subject to the Part 61 NESHAP, those standards estimated the best five performing sources.

In testing the EPA's reliance on the Part 61 NESHAP, we look to our earlier in-depth treatment of this and similar provisions of the CAA. In *Sierra Club v. EPA,* the Sierra Club challenged the EPA's methodology when it "ranked . . . incinerators by the stringency of the control provisions to which they were subject" and then "selected the 12 percent of the incinerator population subject to the strictest controls and set the floor . . . by averaging the emissions limitations governing those incinerators." 167 F.3d at 661. Sierra Club challenged the use of regulatory data for determining floors because the statute in that case required, almost exactly as the statute presently before us required, that "[e]missions standards . . . shall not be less stringent than the average emissions limitation achieved by the best performing 12 percent of units in the category." 42 U.S.C. § 7429(a). Noting that "this phrase on its own says nothing about how the performance of the best units is to be calculated," *Sierra Club*, 167 F.3d at 661, we held that EPA need not base its standards on actual data, but could lawfully rely on estimates drawn from the regulatory data as to what the best performing 12 percent were achieving. *Id.* at 663. Ultimately, however, we remanded that decision to the agency because

EPA had "not pointed to evidence supporting the reasonableness of the approximation." *Id.*

In *National Lime*, we heard another challenge to EPA's methodology, that time with respect to the statute presently before us, CAA section 112. Relying heavily on *Sierra Club*, we rejected a petitioner's claim that textual differences in CAA sections 129 and 112 mandated a different analysis. *National Lime*, 233 F.3d at 632. There, EPA selected "the median [performing] plant out of the best twelve percent of the plants for which it had information and set the . . . floor at the level of the worst performing plant in its databases using th[e same] technology [as the median plant]." *Id.* at 630. Again, we held that CAA section 112 allowed the EPA to "reasonably estimate" the performance of the top 12 percent rather than use the actual data, as long as the estimate was reasonable. *Id.* at 633. We held that Sierra Club had not offered a reason in the record to show EPA's estimate was not reasonable. *Id.*

In *CKRC*, we again reiterated our earlier position, enunciated in our *Sierra Club* and *National Lime* decisions, that EPA could use estimates if reasonable, but in a different context. There, EPA took the position that section 112 required it to set a standard that could be achieved by the worst performing plant that utilized MACT control technology. *CKRC*, 255 F.3d at 861. The Sierra Club challenged this on the basis that section 112 does not limit itself to any one technology, so EPA was required to consider what the best performers *actually* achieved, taking into consideration factors other than MACT technology. *Id.* We agreed, and held that "the worst performing MACT source do[es] not, as the CAA requires, represent a reasonable estimate of emissions achieved by the best-performing sources." *Id.* at 865. We also reiterated that EPA could use estimates, as long as they reflected a "reasonable[ ] estimate [of] the performance of the . . . best-performing plants." *Id.* at 862. In *CKRC*, EPA failed to make the connection.

Most recently, in *Northeast Maryland Waste Disposal Authority v. EPA*, we rejected EPA's efforts to use state

permit limits as the MACT floor for pollutants from small municipal waste combustion units. 358 F.3d 936, 953-54 (D.C. Cir. 2004) ("*NMWDA*"). There, "[a]s in *Sierra Club*, EPA stated only that it 'believes' state permit limits reasonably reflect the actual performance of the best performing units without explaining why this is so." *Id.* at 954. EPA only asserted that the inherent variability of emission levels made its data inaccurate, but gave "no evidence that the [state] permit levels reflect the emission levels of the best-performing" plants. *Id.* EPA's belief did not rise to the level of a reasonable estimate.

Turning to the present case, EPA again cites the variability of emission, which EPA claims makes the lower state limits inappropriate. This, EPA explained, is because the state permit levels are tailored to the specific products at each plant, and typically use a longer averaging time in order to require a lower average limit. More importantly, however, instead of simply claiming that it believes its Part 61 standards estimate what the best five plants actually achieve, EPA points to some evidence. In its response to comments, EPA cited its analysis of three years of data, and showed that even "the facility that had the lowest overall long term RVCM experienced significant variation in daily averages including one daily (three hour) average of 397 ppm." EPA Response to Comments at 6, April 2002. Thus, the 400 ppm daily standard contained in the Part 61 standard is just barely satisfied by the plant with the lowest overall long term RVCM. EPA has thus pointed to factual data that the Part 61 standard reasonably estimates the performance of the top performers, because even the best performing sources occasionally have spikes, and under the standard, each facility must meet the 400 ppm standard every day and under all operating conditions. The EPA has met it burden of establishing that its standards reasonably estimate the performance of the best five performing sources. Having cited the great variability of emission levels, even within the same plants, and the inherent difficulty in other standards it considered, the EPA's selection of the Part 61 standards as the MACT floor is reasonable because it has supported its deci-

sion with record data that shows the connection between its MACT floor and the top performing plants.

C. Use of Vinyl Chloride as a Surrogate

Petitioners also challenge the EPA's failure to establish emission standards for every HAP that PVC plants emit. We have held that this requirement, spelled out in CAA section 112(d)(1), establishes a "clear statutory obligation to set emission standards for each listed HAP" that the source category emits. *Nat'l Lime*, 233 F.3d at 634. Instead, according to petitioners, EPA simply utilized the Part 61 NESHAP, which addresses only vinyl chloride. Petitioners argue that this fails under both the first and second step of the familiar *Chevron* analysis, and in the alternative, that it is arbitrary and capricious because EPA has failed to present any evidence that its vinyl chloride regulations regulate all other HAPs.

For its part, EPA contends that it simply utilized vinyl chloride as a surrogate for the other HAPs. EPA makes several attempts to defend this effort, none of which can save it. First, in EPA's view, *National Lime* merely requires "that there [be] a correlation between [the surrogate and the other HAPs]; it need not quantify that correlation or assess its variability." *Id.* at 639. In EPA's own words, "if [it] can demonstrate that the necessary correlation exists, the agency may use a surrogate and avoid full-blown application of Section 112 for each hazardous air pollutant emitted from an industry." EPA's problem is that, assuming, without deciding, this is all that is required, it completely failed to do so.

We have clearly held that "EPA may use a surrogate to regulate hazardous pollutants if it is reasonable to do so." *Nat'l Lime*, 233 F.3d at 637. In assessing the reasonableness of EPA's use of a surrogate in that case, we held that because EPA had demonstrated that there are always HAP metals in particulate matter (the surrogate), and thus that the removal of the particulate matter removed the HAP metals, EPA had satisfied its burden. *Id.* at 639; *see also Sierra Club v. EPA*, 353 F.3d 976 (D.C. Cir. 2004). The EPA found no such correlation here.

The EPA asserts that it "is aware of no statutory or regulatory provision or any case law imposing" the requirement that "EPA must identify each and every pollutant controlled through a surrogate under Section 112(d)." The EPA reads the requirement that it establish a correlation between the surrogate and the HAP it is attempting to regulate as not requiring identification of the HAP it is attempting to regulate. To clarify EPA's position, it contends that "[p]rovided EPA reasonably determined . . . a link existed between vinyl chloride controls and other hazardous air pollutants, it should make no difference whether EPA has identified each of the other hazardous air pollutants emitted by the industry." While EPA may be able to know that a correlation exists between one known pollutant and some other unknown pollutants, it has not memorialized that knowledge in such a fashion that commenters, interested members of the public, regulated entities, or most importantly, a reviewing court, can assess. We cannot review under any standard the adequacy of the EPA's correlation determination if we do not know what correlation the EPA found to exist. The closest the EPA comes to supplying record support for its determination is a reference to tables included in the administrative record showing what other hazardous air pollutants were emitted by various plants at various locations. These charts take up several pages of the joint appendix, and we have no way of knowing what EPA's claims are as to which of the HAPs are represented by surrogacy or to what degree. In short, we do not find EPA's explanation persuasive, and hold that its determination that vinyl chloride is a surrogate for all other HAPs emitted from PVC production facilities is arbitrary and capricious and not supported in the record. Therefore, EPA's use of vinyl chloride as a surrogate for other HAPs emitted from PVC plants is remanded to the agency for more a adequate explanation.

III. Conclusion

The petition is denied in part and granted in part. The Part 63 NESHAP is vacated and remanded to the agency for

it to reconsider or properly explain its methodology for regulating HAPs emitted in PVC production other than vinyl chloride by use of a surrogate. All of petitioners' remaining claims are either not properly before us, or are not meritorious.