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**United States Court of Appeals**  
**FOR THE DISTRICT OF COLUMBIA CIRCUIT**

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Argued May 4, 2006

Decided July 11, 2006

No. 03-1039

AMERICAN COKE AND COAL CHEMICALS INSTITUTE,  
PETITIONER

v.

ENVIRONMENTAL PROTECTION AGENCY,  
RESPONDENT

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Consolidated with  
No. 05-1334

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

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*Fredric P. Andes* argued the cause and filed the briefs for petitioner.

*Eric G. Hostetler*, Attorney, U.S. Department of Justice, argued the cause for respondent. On the briefs were *John C. Cruden*, Deputy Assistant Attorney General, *Brian H. Lynk*,

Attorney, and *Richard T. Witt*, Counsel, U.S. Environmental Protection Agency.

Before: HENDERSON, ROGERS and GRIFFITH, *Circuit Judges*.

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

ROGERS, *Circuit Judge*: In 2002, the Environmental Protection Agency promulgated a final rule under the Clean Water Act (“CWA”), 33 U.S.C. § 1251 *et seq.* (2000), revising certain nationwide limitations on water pollutant discharges from sources in the cokemaking subcategory of the iron and steel industry.<sup>1</sup> The American Coke and Coal Chemicals Institute (“Institute”) challenges four effluent limitations for existing sources that apply to the recovery of by-products from cokemaking. The Institute contends that the final limitations and standards are not a logical outgrowth of the proposed rule and violate its right to comment under both the CWA and the Administrative Procedure Act (“APA”), 5 U.S.C. § 553(c) (2000). The Institute also contends EPA was arbitrary and capricious. Upon review of the record, we conclude that the final limitations are a logical outgrowth of the proposed rule, that EPA’s determinations of the limitations are based on a reasonable and consistently explained methodology and supported by the record, and that EPA reasonably determined that the limitations are achievable. Accordingly, we deny the petitions for review.

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<sup>1</sup> See Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards for the Iron and Steel Manufacturing Point Source Category (“Final Rule”), 67 Fed. Reg. 64,216, 64,220 (Oct. 17, 2002) (codified at 40 C.F.R. pt. 420).

**I.**

The CWA declares a national goal of restoring and maintaining the chemical, physical and biological integrity of the nation's waters, 33 U.S.C. § 1251, and prohibits all pollutant discharges except where specifically authorized, *id.* § 1311(a). Industries "directly" discharging "toxic" or "non-conventional" pollutants into navigable waters must treat their wastewater so as to comply with effluent limitations set with reference to the capabilities of the "best available technology economically achievable" to control those discharges ("BAT"). *See id.* § 1342(a), (b); *id.* § 1311(b)(2)(A). Industries "indirectly" discharging such pollutants by discharging wastewater into sewage systems connected to publicly owned treatment works ("POTWs"), which treat the wastewater prior to its introduction into public waterways, are required to reduce the level of pollutants through treatment prior to such discharge (or "pretreatment") in order "to prevent the discharge of any pollutant *through* [publically owned] treatment works." *Id.* § 1317(b)(1) (*italics added*); *see generally Weyerhaeuser Co. v. Costle*, 590 F.2d 1011, 1019-20 (D.C. Cir. 1978). EPA is required to mandate pretreatment when a pollutant "interferes with, passes through, or otherwise is incompatible with such works." 33 U.S.C. § 1317(b)(1). The pretreatment standards for existing sources ("PSES") are set with reference to the level of pollution-control technology available to a given industry. *See id.* Although the CWA does not specify which level of control technology is to be the applicable reference in setting the PSES standards, EPA has adopted the position that PSES standards are to be set with reference to technologies analogous to BAT. *See* Final Rule, 67 Fed. Reg. at 64,210.

The manufacture of coke<sup>2</sup> has been subject to regulation under the CWA since 1982.<sup>3</sup> In 1992, EPA entered into a consent decree arising out of litigation based on a 1987 amendment to the CWA, 33 U.S.C. § 1314(m), which requires that EPA issue biannual plans for the annual review and revision of existing effluent guidelines and the promulgation of certain new guidelines. *See* Final Rule, 67 Fed. Reg. at 64,219. EPA agreed to undertake final action on eleven point-source categories and on eight categories to be later designated by the EPA, *id.* After completing a preliminary study, EPA selected the iron and steel industry as the subject of a revised effluent rule. *Id.*; *see* EPA Preliminary Study of the Iron and Steel Category, No. 821-R-95-037 (1995). The most common technique for manufacturing coke creates numerous by-products, including the four toxic or non-conventional pollutants at issue: benzo[a]pyrene, naphthalene, cyanide, and ammonia-N.<sup>4</sup>

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<sup>2</sup> Coke is “cooked” coal. It is a fuel – used primarily in the steel industry – created when the “impurities” of bituminous and other varieties of coal have been driven off by baking raw coal in an airless oven.

<sup>3</sup> *See* Iron and Steel Manufacturing Point Source Category Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards, 47 Fed. Reg. 23,258 (May 28, 1982).

<sup>4</sup> Benzo[a]pyrene is an aromatic hydrocarbon that is mutagenic and highly carcinogenic. Naphthalene, best known as the primary ingredient of mothballs, is an aromatic crystalline hydrocarbon that easily converts to gaseous matter at room temperature without a vacuum (*i.e.*, it “volatizes”) and is classified by EPA a “toxic” pollutant. *See* 40 C.F.R. § 401.15. Cyanides are chemical compounds containing a carbon atom triple-bonded to a nitrogen atom, and certain cyanides are highly toxic (*e.g.*, hydrogen cyanide). Ammonia-N (or ammonia as nitrogen) is an inorganic,

From 1997 to 1999, EPA conducted 67 visits to iron and steel facilities in the United States and Canada in order to collect information on each site's manufacturing operations, wastewater generation, and wastewater treatment systems.<sup>5</sup> EPA in 1998 also solicited technical and economic information relevant to promulgation of a revised rule from various participants in the cokemaking industry through four surveys.<sup>6</sup> On the basis of the site visits and surveys, EPA selected 16 sites at which to perform wastewater sampling in order to characterize the effectiveness of the treatment processes. *See* Proposed Development Document at § 3.3. During this period, EPA conducted a variety of outreach efforts, in which the Institute participated, *id.* at § 3.5, including five stakeholders' meetings between 1998 and 2000 at which EPA described its preliminary position on the model technology options and data quality protocols, and solicited further comment and relevant data. *Id.*<sup>7</sup> EPA obtained additional information from secondary sources, including trade journals, industry databases, and studies by

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dissolved form of nitrogen. Depending on other variables, high levels of ammonia-N are often toxic for aquatic life.

<sup>5</sup> *See* EPA Development Document for the Proposed Effluent Limitations Guidelines and Standards for the Iron and Steel Manufacturing Point Source Category ("Proposed Development Document") at § 3.2, No. 821-B-00-011 (December 2000).

<sup>6</sup> *See id.* at § 3.1; EPA Announcement of Information Collection Activities: 1997 Iron and Steel Industry Survey, 62 Fed. Reg. 54,453 (Oct. 20, 1997); *see also* OMB Responses to EPA Information Collection Activities, 63 Fed. Reg. 74,023, 47,023 (Sept. 3, 1998) (approving EPA's information collection request).

<sup>7</sup> *See generally* EPA Effluent Guidelines Iron & Steelmaking Rulemaking Process, <http://www.epa.gov/ost/ironsteel> (last visited June 19, 2006).

governmental and private entities. *See id.* at § 3.4-5. Because the operation of POTWs would be relevant to any PSES standards, EPA solicited information from the state and local entities responsible for POTW treatment of the indirect discharges from the industry. *Id.* at § 3.6. In general, any information that EPA collected that was not subject to protection from disclosure as confidential business information was made part of the public record. *See id.* at §§ 3.2, 3.5-6.

EPA published proposed revisions to the effluent limitations for the iron and steelmaking industry in December 2002, including the limitations applicable to the “by-product recovery” segment of the cokemaking subcategory.<sup>8</sup> With regard to the pollutants regulated through PSES standards, EPA stated that it contemplated using its “traditional” pass-through analysis to determine which pollutants would be subject to pretreatment limitations pursuant to 33 U.S.C. § 1317(b)(1). *See* NOPR, 65

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<sup>8</sup> *See* Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards for the Iron and Steel Manufacturing Point Source Category (“NOPR”), 65 Fed. Reg. 81,964, 81,978-79 (Dec. 27, 2000). The Proposed Development Document described how EPA would derive its effluent limitations. The NOPR and the development document identified: (1) the pollutants that would be the subject of the limitations, how those pollutants would be measured, *id.* at 82,016; Proposed Development Document at §§ 4, 11; (2) the pollutants considered to “pass-through” POTWs, thus requiring pretreatment, *see* 33 U.S.C. § 1317(b)(1), and EPA’s pass-through analysis, Proposed Development Document at §§ 11.9, 11.10; (3) the control technologies considered as the BAT or BAT-equivalent models, *id.* at §§ 12.2.1, 14, the sources of information on the operation of the model technologies, *id.* at §§ 3, 12.2, and the data-selection criteria, *id.* at § 12.1; and, (4) how EPA would derive discharge limitations expressed in terms of an allowable weight of discharged pollutant per ton of coke production, *id.* at § 12.

Fed. Reg. at 82,011.<sup>9</sup> EPA planned to compensate for gaps in the data, due to the impossibility of measuring certain pollutants found in very low concentration levels, by making certain assumptions about the value of “non-detect” datapoints. *See* NOPR, 65 Fed. Reg. at 82,012. EPA planned to use only a subset of the data on POTW performance in the 1982 POTW Study to estimate the effectiveness of the “well-operated POTW.” As relevant, EPA would estimate the percentages of pollutant removed by POTW treatment based upon data from POTWs that treated influent containing pollutants at a concentration of ten times the minimum level that could be detected. *Id.* Given that the treatment technologies generally reduced the concentration of pollutants by at least 90%, *id.*, the “ten times minimum level” criteria was designed to ensure that EPA’s estimation of the removal percentages would be “meaningful” because it would be based upon the comparison of two measured concentration readings (before and after treatment). *Id.* Where there remained datapoints indicating that a pollutant’s concentration was below a detectable level, EPA substituted the minimum detectable level of concentration. *Id.* In electing these data-editing criteria, EPA understood that both might lead to biases in favor of finding that POTW treatment

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<sup>9</sup> Under this methodology, a pollutant is deemed to pass through a POTW when the median percentage of the pollutant removed by well-operated POTWs is less than the median percentage removed by direct dischargers using BAT technologies to remove the same pollutant, *see* NOPR, 65 Fed. Reg. at 82,011. The NOPR identified a study of the effectiveness of POTWs dating from 1982 and covering the survey years 1977 through 1980, *see* EPA Fate of Priority Pollutants in Publicly Owned Treatment Works (“POTW Study”), No. 440/1-82/303 (Sept. 1982), as EPA’s “primary source” of data on the operation of benchmark “well-operated POTWs.” *See* NOPR, 65 Fed. Reg. at 82,011; *see also* Proposed Development Document at § 3.6.

was either more or less effective than it actually was.<sup>10</sup>

EPA evaluated four treatment technologies as possible BAT models for the direct discharge standards and two technological options as the models for the PSES standard. *Id.* at 82,016-17. In the NOPR, EPA identified one of the four direct discharge treatment technologies — referred to a BAT-3 — as the model for its proposed direct discharge standard. *Id.* at 82,016. EPA “co-propos[ed]” two model treatment technologies — PSES-1 and PSES-3 — as the basis for the PSES standards. *Id.* at 82,017. The Proposed Development Document identified, as the second of EPA’s general data-selection “criteria,” that data would be accepted as representative of the technological model only if the “facility had . . . demonstrate[d] good operation of the treatment component, as indicated by pollutant removals across the treatment system and treatment system effluent quality,” with “good operation” being determined based on such things as site visits, survey responses, and direct measurement of the reduction of pollutants. Proposed Development Document at § 12.1. The Proposed Development Document also stated that “EPA intends to further review and possibly revise the data selection methodology.” *Id.*

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<sup>10</sup> The “ten times minimum level” criteria potentially could lead to an over-estimation of the amount of pollutant removed by POTWs, because treatment technologies tend to be more effective when they treat higher concentrations of pollutant. NOPR, 65 Fed. Reg. at 82,013. On the other hand, the choice to assign the minimum detectable concentration level to non-detect datapoints could lead to an under-estimation of the effectiveness of the treatment. *Id.* at 82,012.



After an extended comment period,<sup>11</sup> EPA promulgated the final rule in October 2002.<sup>12</sup> Benzo(a)pyrene and cyanide were subjected to direct discharge limitations. Naphthalene, cyanide and ammonia-N were subject to indirect discharge limitations.<sup>13</sup> EPA's pass-through analysis for naphthalene remained substantially unchanged.<sup>14</sup> The procedures used to derive the direct- and indirect-discharge effluent limitations also did not change.<sup>15</sup> However, the Final Rule departed from the NOPR in

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<sup>11</sup> EPA extended the initial 60-day comment period (until April 2001) and held additional meetings with stakeholders, including the Institute, which in February 2001 made presentations on the economic effects of the proposed effluent limitations. 66 Fed. Reg. 17,842; *see* Final Development Document at § 3.6. The Institute also submitted written comments on the proposed rule, many of which EPA directly addressed in the EPA Comment Response Document at 20-20 through 20-45, 20-47 through 20-50, 20-61 through 20-62 (EPA Contract No. 68-C6-0044, Work Assignment 5-01 (April 30, 2002)). EPA also considered late-received comments. *See id.* at 26-1.

<sup>12</sup> *See supra* note 1; EPA Development Document for Final Effluent Limitations Guidelines and Standards for the Iron and Steel Manufacturing Point Source Category ("Final Development Document"), No. 821-R-02-004 (April 2002). Various other accompanying documents explain specific decisions, such as the exclusion of particular data-points.

<sup>13</sup> *See* Final Rule, 67 Fed. Reg. at 64,233.

<sup>14</sup> *Compare* Final Development Document at § 12.2.2-3, *with* Proposed Development Document at 11.9-10; *id.* at Table 10-2.

<sup>15</sup> *Compare generally* Final Development Document at § 14, *with* Proposed Development Document at § 12. These procedures may be divided into two principal stages. First, EPA derived limits on the

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permissible daily and monthly concentrations of specific pollutants in effluent wastewater from data from facilities with well-designed and operated model treatment technologies. Second, EPA converted these limits into limitations expressed in terms of the maximum weight of pollutant allowed per ton of coke production. Greatly simplified, EPA derived the maximum allowed concentration by first selecting the sampling episodes from facilities operating either BAT-1 or PSES-1 technologies and then calculating an average performance level for each episode (the “episode-specific” long term average or “LTA”) using either the arithmetic average or modified delta-lognormal distribution. Then, EPA adopted the median of the episode-specific LTAs as the “option-specific LTA” for that treatment technology. *Compare* Final Development Document at § 14.8.1, *with* Proposed Development Document at § 12.7.1. In order to allow for the predictable variation in the amount of pollutant removed by the technological option or model, the option-specific LTAs would be multiplied by both a daily and a monthly “variability factor.” Thus, EPA would derive two limits expressed in terms of maximum concentration: a maximum daily limit, which was calculated as the product of the option-specific LTA and the daily variability factor; and a maximum monthly average limit, which was calculated as the product of the option-specific LTA and the monthly variability factor. In order to derive the two variability factors, EPA first calculated daily and monthly episode-specific variability using the modified delta-lognormal distribution and then adopted the mean of the daily and monthly episode-specific variability factors as the daily and monthly option-specific variability factors. *Compare* Final Development Document at § 14.8.2, *with* Proposed Development Document at 12.7.4. Where the variability factors could not be calculated for specific pollutants, EPA borrowed the variability factors from a different pollutant treated by the same technological option. This was the case with benzo(a)pyrene. *Compare* Final Development Document at § 14.8.3, *with* Proposed Development Document at § 12.7.5. To calculate the concentration-based limits for benzo(a)pyrene, EPA borrowed the variability factors calculated for naphthalene treated under BAT-1, a decision it justified because benzo(a)pyrene and naphthalene were “chemically similar” and BAT-

four ways that are relevant to this appeal:

(1) EPA rejected BAT-3 as the technological model for the direct-discharge limitations, because it was “not economically achievable” by industry, in favor of the less costly (and less effective) BAT-1. *See* Final Rule, 67 Fed. Reg. at 64,233.

(2) EPA adopted PSES-1 as the technological model for the PSES standards, the less costly and less effective of the two co-proposed options.<sup>16</sup> *Id.* at 64,234. EPA

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1 effectiveness in treating these chemicals would exhibit comparable variability. Final Development Document at § 14.8.3.

Having calculated the maximum daily and the monthly average concentration limits for each pollutant, EPA then converted these limits into daily and monthly average limits based on the weight of pollutant allowed per ton of coke produced. This stage involved multiplying the concentration-based limits by a “production normalized flow rate,” by which EPA sought to capture the amount of water typically discharged per ton of coke production, and certain conversion factors, which would handle the translation between units. *See* Final Development Document at §§ 13.2 & 14.9.1. By multiplying the concentration limits by an amount of water discharged, EPA could make the jump from limits expressed in terms of average maximum concentrations to limits expressed in terms of pounds of allowable pollutant per ton of production. *See generally Nat'l Wildlife Fed'n v. EPA*, 286 F.3d 554, 571-73 (D.C. Cir. 2002) (per curiam).

<sup>16</sup> BAT-1 was the technological model of the previous direct discharge effluent limitations. *See* NOPR, 65 Fed. Reg. at 81,986. As relevant, BAT-1 involves two chief water treatment processes: “free and fixed ammonia stripping” and “biological treatment with clarification.” *See* Final Development Document at § 9.1.1. PSES-1 is equivalent to BAT-1 but dispenses with the biological treatment

predicted that setting the pretreatment limit based upon PSES-3 would result in plant closures and job losses. *Id.* It concluded that PSES-1 represented “the most appropriate” basis for pretreatment standards because, in combination with treatment occurring at the POTWs, PSES-1-based limitations will “substantially reduce the levels of all cokemaking pollutants of concern” and that compliance would be “economically achievable.” *Id.*

(3) EPA increased the production-normalized flow rate from the proposed 158 gallons per ton of production (“gpt”) to 163 gpt. *See* Final Development Document at § 13.3.1; Proposed Development Document at § 7.3. Because the final effluent limitation was calculated as the product of the concentration-based limits and the production-normalized flow rate, this increase in the flow rate had the effect (all else remaining the same) of increasing the amount of pollutant allowed per ton of production.

(4) EPA elected to base its evaluation of PSES-1 treatment of naphthalene upon different data than was used in the NOPR to evaluate PSES-1. As proposed, the reduction of naphthalene by PSES-1 treatment was evaluated based upon a single EPA-administered sampling episode, identified as ESE03. *See* Proposed Development Document at § 12.7.4. However, in the interim, EPA learned that the facility from which the ESE03 data derived had a history of CWA violations, and for this reason EPA no longer considered this episode representative of PSES-1 naphthalene treatment.<sup>17</sup> Instead, EPA evaluated PSES-1

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processes; PSES-3, in contrast, was identical to BAT-1. *See id.*

<sup>17</sup> *See* EPA Memorandum from Yu-Ting L. Guilaran, re. Selection of BAT Facilities for Cokemaking Subcategory for Final

naphthalene treatment based upon two EPA-administered sampling episodes, ESE01 and ESE02, and one industry self-monitoring episode, identified as ISM54.<sup>18</sup> The substitution of these datasets resulted in an increased calculation of naphthalene reduction by well-operated facilities using PSES-1 technology, which in turn resulted in a more stringent requirement for naphthalene reduction in pretreatment. *See* Final Development Document at § 14.10.

The Institute and certain affected companies petitioned the court to vacate the Final Rule and then sought reconsideration by EPA while its petition was stayed. The Institute argued before EPA that the mandated level of benzo(a)pyrene reduction could not be achieved by BAT-1, naphthalene does not “pass through” well-operated POTWs, and the mandated level of naphthalene reduction could not be achieved by PSES-1. In support of the first ground, the Institute submitted new data from two cokemaking facilities — United States Steel Company’s Gary Works and Clairton plants — which the Institute represented as demonstrating the required benzo(a)pyrene reductions using BAT-1 or technologies that go “beyond BAT[-1]” were not achievable. In support of the second and third grounds, the Institute challenged the methodology of EPA’s pass-through analysis (in particular, the mathematical interplay between the “ten times minimum level” data-selection criteria and the assignment of 10 µg/L values to non-detect datapoints in the POTW Study) and submitted new data purporting to demonstrate that naphthalene did not pass through well-operated

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Rule, DCN IS10816 (April 29, 2002) (memorandum contained in section 14.10 of the record); *see also* Final Rule, 67 Fed. Reg. at 64,234.

<sup>18</sup> *See* Final Development Document at § 14.10.

POTWs and that the limitations were not achievable by PSES-1 treatment technologies. EPA denied reconsideration,<sup>19</sup> the Institute filed a new petition for review, and the court consolidated the Institute's petitions.

## II.

The Institute's central contention is that the Final Rule is not a logical outgrowth of the NOPR because EPA failed to provide adequate notice of the derivation of the naphthalene limitation from three episodes or datasets — ESE01, ESE02, ISM54 — that were not identified in the NOPR as the proposed basis for naphthalene PSES limits, and of the exclusion of the one dataset — ESE03 — that was identified as the source of the proposed naphthalene limit.<sup>20</sup> This change resulted in an increase in the effectiveness of PSES-1 as expressed in the LTA for naphthalene, which in turn resulted in more stringent naphthalene pretreatment limit. *See* Final Rule, 67 Fed. Reg. at 64,234, 64,263. For the same reasons, the Institute contends it was denied adequate notice with regard to the naphthalene variability factors. Because it was deprived a fair opportunity to comment upon the exclusion of the ESE03 data and employment of the alternative three episodes, the Institute maintains EPA has failed to provide adequate notice and opportunity for comment as required by 5 U.S.C. § 553(c).

Under the APA, “[n]otice requirements are designed (1) to

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<sup>19</sup> EPA Decision on Petition for Reconsideration or, in the Alternative, Petition to Revise the Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards for the Iron and Steel Manufacturing Point Source Categories (“Reconsideration”) (April 29, 2005).

<sup>20</sup> *See* Proposed Development Document at § 12.2.1.

ensure that agency regulations are tested via exposure to diverse public comment, (2) to ensure fairness to affected parties, and (3) to give affected parties an opportunity to develop evidence in the record to support their objections to the rule and thereby enhance the quality of judicial review.” *Int’l Union, United Mine Workers of Am. v. Mine Safety & Health Admin.*, 407 F.3d 1250, 1259 (D.C. Cir. 2005) (citing *Small Refiner Lead Phase-Down Task Force v. EPA*, 705 F.2d 506, 547 (D.C. Cir. 1983)). “An agency satisfies the notice requirement, and need not conduct a further round of public comment, as long as its final rule is a ‘logical outgrowth’ of the rule it originally proposed.” *Northeast Md. Waste Disposal Auth. v. EPA*, 358 F.3d 936, 951-52 (D.C. Cir. 2004). If interested parties “should have anticipated” that the change was possible, and thus reasonably should have filed their comments on the subject during the notice-and-comment period, then the rule is deemed to constitute a logical outgrowth of the proposed rule. *See City of Waukesha v. EPA*, 320 F.3d 228, 245 (D.C. Cir. 2003); *see also Env’tl. Integrity Project v. EPA*, 425 F.3d 992, 996 (D.C. Cir. 2005); *First Am. Discount Corp.*, 222 F.3d 1008, 1015 (D.C. Cir. 2000); *Nat’l Mining Ass’n v. Mine Safety & Health Admin.*, 116 F.3d 520, 531 (D.C. Cir. 1997). A petitioner must demonstrate that the agency’s violation of the APA’s notice and comment procedures has resulted in “prejudice,” 5 U.S.C. § 706(2). *See generally Chamber of Commerce of the United States v. SEC*, 443 F.3d 890, 904 (D.C. Cir. 2006).

The flaw in the Institute’s logical outgrowth objection is that the right to comment under the APA upon a proposed rule does not extend to a right to comment upon each application of the agency’s announced rulemaking procedures, even if different applications may have significant consequences for the regulated industry, where the agency gave adequate notice of the procedures it intended to use, the criteria by which it intended to select data, and the range of alternative sources of data it was

considering. Here, the NOPR gave notice of each, and the Institute was afforded an opportunity to comment on each. A comparison of the rulemaking record shows that EPA made no relevant changes to the procedures it used to derive the effluent limitations. *See supra* note 15. Although the preamble in the NOPR did not state that EPA intended to reconsider the use of data from episode ESE03, nor that the ESE03 site would be reviewed for compliance with the general criteria of “good operation,” EPA made clear in the Proposed Development Document accompanying the NOPR that the model facilities “had to demonstrate good operation of the treatment component,” Proposed Development Document at § 12.1, and thus the Institute had notice that data deriving from any plants that failed to demonstrate “good operation” would not be considered sources of information on the operation of any proposed BAT. EPA stated unambiguously that it “might reconsider the exclusion of the naphthalene sampling data from sampling episode ESE01 and ESE02 and self-monitoring episode ISM54.” *Id.* at 12.2.1. Between 2000 and 2002, EPA explained, new information indicated that the ESE03 episode had come from a facility that was emitting pollutant “in excess of the permit,” *see* Final Rule, 67 Fed. Reg. at 64,234, and thus that the episode did not meet its announced data criteria and could not be accepted as coming from a BAT facility.

The First Circuit, in *BASF Wyandotte Corp. v. Costle*, 598 F.2d 637, 642-46 (1st Cir. 1979), was similarly confronted with a CWA rulemaking in which new data submitted during the comment period showed that treatment technologies for pesticides were more effective than previously indicated. The court aptly observed:

It is perfectly predictable that new data will come in during the comment period, either submitted by the public with comments or collected by the agency in a



continuing effort to give the regulations a more accurate foundation. . . . If data used and disclosed for the interim regulations presented the issues for comment, then there is no need to seek new comment even though significant quantitative differences result.

*Id.* at 644-45. Although the resulting limit was more stringent than had been announced, the First Circuit stated “[t]he agency should be encouraged to use such information in its final calculations without thereby risking the requirement of a new comment period.” *Id.* Similarly, the court rejected the argument that a new round of notice and comment was required under the APA when the agency decided in the final rule to merge subcategories of the pesticide industry after comments argued that the subcategories in the proposed rule, based on the different chemical structure of the pollutant, were irrational because data showed there were no statistically relevant differences between the treatment of the different chemicals. *Id.* at 643. The First Circuit reasoned that although commenters apparently hoped to persuade EPA to adopt more subcategories, EPA’s decision to abandon the subcategories altogether was not an unforeseen consequence of objections that undermined the premise for using subcategories. *Id.* Given that the commenters “had a fair opportunity to present their views on how the industry ought to be subcategorized” and that the choice to merge the subcategories was a foreseeable result of the EPA’s solicitation of comment on rationality of the subcategory scheme, there was no failure of notice or opportunity to comment even though parties may not have been able to predict how the EPA would choose to act upon their comments. *See id.* at 644.

We likewise conclude that EPA was not required to provide a new opportunity for comment upon its decision to exclude the ESE03 data based upon new information obtained after the

NOPR was issued and, in its place, to use the ESE01, ESE02, & ISM54 data that it had previously excluded subject to reconsideration. *See* Proposed Development Document at § 12.2.1. EPA’s decision to exclude the ESE03 data based upon its announced “good operation” criteria and the new information on the ESE03 plant’s non-compliance with its permits is similar to EPA’s decision in *BASF* to merge the subcategories based upon newly submitted data showing a lack of significant differences in the effectiveness of treatment: each decision was based upon newly submitted information that was analyzed under previously announced criteria, and each had the effect of significantly altering the scope of the database used to derive the pollutant limitation. Similarly, EPA’s decision in the final rule to use the three additional episodes expanded the scope of the relevant database, but in light of EPA’s statement in the Proposed Development Document that it might reconsider its exclusion of these other datasets, this possibility was noticed and made available for possible comment. That these three episodes indicated that PSES-1 was far more effective than the ESE03 results indicated was a “perfectly predictable” result of the notice and comment process, *BASF*, 598 F.2d at 644. None of the core goals of the notice and comment procedures, *see United Mine Workers of Am.*, 407 F.3d at 1259, were compromised by EPA’s decisions with regard to the naphthalene data. Although the final limitation is more stringent than had been initially proposed, the limitation is calculated according to the announced procedure and thus is not “surprisingly distant” from the limitation presaged in the NOPR, *see id.* at 1260.

To the extent the Institute contends that the EPA provided inadequate notice that the production-normalized flow rate would be derived from the “best performing mills” instead of the proposed median flow rates of all relevant facilities, where EPA indicated that the industry median would be “applicable and achievable,” Proposed Development Document at § 7.3, its

contention fares no better. Because the flow rate adopted was higher than the proposed flow rate (thus leading to less stringent limitations), the Institute seems to maintain that the flow rate should have been higher still because EPA, in explaining that the proposed flow rate was based upon the median flow rates of all relevant facilities, committed itself irrevocably to that method of deriving the flow rate rather than the method adopted in the final rule that looked only to the best performing 30% of the relevant facilities. See Final Development Document at § 13.2. EPA gave notice that it might consider “alternative [flow rates]” for particular manufacturing operations, and the Proposed Development Document put parties on notice that EPA’s flow rate would be based upon “better performing mills,” *id.*, which put commentators on notice that EPA was considering an alternative to the “industry median.” See *Envtl. Integrity Project*, 425 F.3d at 996; *United Mine Workers of Am.*, 407 F.3d at 1260. Moreover, the Institute can show no prejudice as the flow rate in the Final Rule is less stringent than the proposed flow rate, and this difference (all else being equal) resulted in a less stringent limitation across the board. See *Chem. Mfrs. Ass’n v. EPA*, 870 F.2d 177, 202 (5th Cir. 1989).

The Institute’s objection that EPA gave inadequate notice of the potential for increased compliance costs if the final limitations were stricter than those proposed in the NOPR fails to suggest what difference further comment on costs would have made. The Institute does not object that EPA rejected the more effective, but also more expensive, technologies originally proposed (BAT-3 for direct discharge; PSES-3 for pretreatment/indirect discharge). It presents no persuasive argument that it could not have anticipated the magnitudes of increased costs depending on the stringency of the limitations. The cases cited by the Institute are inapposite. In *Weyerhaeuser Co.*, 590 F.2d at 1028-29, EPA conceded error in calculating costs based on new evidence. The Institute does not claim EPA

has made a miscalculation. Although *Shell Oil Co. v. EPA*, 950 F.2d 741, 749-50 (D.C. Cir. 1991), involved increased costs where the scope of a regulation expanded without adequate notice, the Final Rule here produced no comparable change as no unexpected pollutants were subjected to effluent limitations. Moreover, in protesting the “drastic[]” increase of the costs, the Institute ignores that compliance costs would have been higher had EPA adopted the more effective BAT-3 and PSES-3 technologies as the BAT and BAT-equivalents, that the Institute was given a fair opportunity to comment on the potential costs of these more expensive technological options, and that it was given notice of the range of costs that it now represents as surprising. *Cf. BASF*, 598 F.2d at 642-44; *Chem. Mfrs. Ass’n*, 870 F.2d at 207.

Finally, the Institute’s contention that it was deprived of its comment rights under the CWA, 33 U.S.C. § 1251(e); *see Waterkeeper Alliance, Inc. v. EPA*, 399 F.3d 486, 502 (2d Cir. 2005), is contradicted by the record evidence of the Institute’s extensive participation in every stage of the rulemaking. *See supra* note 11.

### III.

Turning to the Institute’s contentions that EPA’s promulgation of the Final Rule was arbitrary and capricious, we begin by observing the limited nature of the court’s review. An agency action is “arbitrary and capricious,” 5 U.S.C. § 706(2)(A), if it “has relied on factors which Congress has not intended it to consider, entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.” *Motor Vehicle Mfrs. Ass’n of the U.S., Inc. v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29,

43 (1983). The court owes particular deference to EPA when its rulemakings rest upon matters of scientific and statistical judgment within the agency's sphere of special competence and statutory jurisdiction. *See, e.g., West Virginia v. EPA*, 362 F.3d 861, 871 (D.C. Cir. 2004); *Small Refiner Lead Phase-Down Task Force v. EPA*, 705 F.2d 506, 535 (D.C. Cir. 1983); *Kennecott v. EPA*, 780 F.2d 445, 447-48 (4th Cir. 1985).

The Institute makes two objections to EPA's conclusion that naphthalene "passes through" well operated POTWs.<sup>21</sup> First, it maintains that EPA inappropriately relied upon the POTW Study, which is over twenty years old and characterized by the Institute as "outdated," in coming to the conclusion that POTWs can remove up to 95% of the naphthalene from treated wastewater. However, EPA explained that because the technology has not changed since the study was completed, it remains the best source of POTW data.<sup>22</sup> At best, the Institute claims that later POTW data — especially with respect to

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<sup>21</sup> The Institute challenges to EPA's decision to regulate naphthalene on the ground that naphthalene does not satisfy EPA's criteria as a pollutant of concern. Even if this contention is not waived because raised only in the reply brief, *see, e.g., Charter Oil Co. v. Am. Employers' Ins. Co.*, 69 F.3d 1160, 1170-71 (D.C. Cir. 1995), there is no indication that this challenge was raised before EPA, and so it is waived, *see Amgen, Inc. v. Smith*, 357 F.3d 103, 117 (D.C. Cir. 2004); *Nat'l Wildlife*, 286 F.3d at 562. In any event, the NOPR generally identified as pollutants of concern "numerous . . . volatile organic compounds and polynuclear aromatic compounds" that were released into byproduct wastewater. Naphthalene is a volatile organic and an aromatic polynuclear compound.

<sup>22</sup> The Institute's claim that EPA ignored later POTW data is incorrect. *See Proposed Development Document* at § 11.9.1; *Final Development Document* at § 12.2.2; *see also EPA Comment Response Document* at 13-25.

POTW treatment of high-naphthalene concentration influent — more accurately represents the effectiveness of typical POTW treatment of naphthalene in cokemaking wastewater. But EPA’s position that the CWA requires it to consider POTW treatment capabilities on a nationwide basis, *see* EPA Comment Response Document at 13-25, is a permissible interpretation of Section 307 of the CWA, 33 U.S.C. § 1317(b)(1), which requires EPA to promulgate national standards for pretreatment. *See Chevron USA, Inc. v. Nat. Res. Def. Council*, 467 U.S. 837, 844-45 (1984). Section 307 refers to POTWs in the most general sense with no qualifications that would suggest it would be unreasonable for EPA to understand Congress to intend a uniform standard based on the average, not exceptionally effective POTW.

Second, the Institute challenges EPA’s pass-through analysis. The Institute’s claim that there is no record evidence that naphthalene actually passes through POTWs into navigable waters is incorrect. Although naphthalene, as a highly volatile compound, often escapes from wastewater directly into the air and the level of naphthalene after POTW treatment is at a non-detectable level, the record indicates naphthalene is sometimes present even after POTW treatment. *Cf.* NOPR, 65 Fed. Reg. at 82,012-13; Proposed Development Document at § 11.9.1. However, the Institute also challenges EPA’s assignment of a substitution value of 10 µg/L to non-detect results when that assumption, by EPA’s own acknowledgment, could have resulted in an underestimate of the naphthalene removal efficiency of POTWs relative to PSES-1, and thus might have increased the likelihood that EPA would find that naphthalene “passes-through” POTWs. EPA acknowledged the possibility of bias as a result of the assignment of the 10 µg/L level to a non-detect result. However, EPA also recognized that the use of the “ten times minimum level” criteria may have biased the calculations the other way. *See supra* note 10. Given the

limitations of record data on the effectiveness of PSES-1 and POTWs at removing naphthalene, EPA was confronted with a situation in which it was not possible, given the current state of technology, to establish conclusively the relative effectiveness of POTW and PSES-1 treatment. Nonetheless, the Institute points to nothing that would indicate that EPA's decision to adopt the ten-times minimum level criteria and to assign the 10 µg/L value to nondetect results, and to base its pass-through analysis upon calculations affected by these choices, was an unreasonable way to implement the statutory command to regulate pollutants that pass-through POTWs. *See* 33 U.S.C. § 1317(b); *Chem. Mfrs.*, 870 F.2d at 244; *see also Reynolds Metals Co. v. EPA*, 760 F.2d 549, 553, 567 (4th Cir. 1985). Such decisions involve expert statistical and scientific judgments to which this court properly defers. *See Penn. Dept. of Env't'l Prot. v. EPA*, 429 F.3d 1125, 1128-29 (D.C. Cir. 2005); *Int'l Fabricare Inst. v. EPA*, 972 F.2d 384, 389 (D.C. Cir. 1992).

The Institute also challenges the rationality of the effluent limits in the Final Rule. These challenges fail.

Benzo(a)pyrene. The Institute's challenge that the final limit is arbitrary and capricious because EPA failed to identify any BAT-1 facility that was capable of meeting this limit is based solely on *Tanners' Council of America, Inc. v. Train*, 540 F.2d 1188, 1192-93 (4th Cir. 1976), which is distinguishable in one key respect: unlike the instant rulemaking, in *Tanners'*, EPA did not develop the limitations based upon data from the regulated industry, but instead relied upon data from another industry without an adequate explanation of how the regulated industry would be able to adopt the treatment technology identified as the relevant model technology. *Id.* at 1192. Here, EPA not only developed the limitation based upon data from existing BAT-1 facilities treating benzo(a)pyrene in cokemaking

wastewater, but EPA took steps to ensure that its concentration-based limitations did not result in a limit that overstated the capabilities of the BAT-1 technology. For example, after deriving the maximum daily concentration limit for benzo(a)pyrene, EPA cross-checked the limitation against the raw data in order to verify that the statistical assumptions provided a reasonable “fit” with the data. *See* Final Development Document at § 14.8.4. EPA thus took reasonable steps to ensure that the limit represents BAT-1 treatment capabilities and its choices are not arbitrary or capricious. *See Kennecott*, 780 F.2d at 450-51; *Reynolds Metals Co. v. EPA*, 760 F.2d 549, 560 (4th Cir. 1985); *cf. Chem. Mfns. Ass’n v. EPA*, 28 F.3d 1259, 1265-66 (D.C. Cir. 1994).

To the extent the Institute suggests EPA must be able to point to data from a specific facility showing no instances where the benzo(a)pyrene limit was ever breached, it cites no authority for this proposition. Given that the purpose of the CWA is “to achieve the complete elimination of all discharges of pollutants into the nation’s waters,” *Am. Frozen Food Inst. v. Train*, 539 F.2d 107, 124 (D.C. Cir. 1976), EPA may surely make statistical choices about how to treat data based on the capabilities of the model technologies with this goal in mind, *cf. Natural Res. Defense Council, Inc. v. EPA*, 859 F.2d 156, 201-202 (D.C. Cir. 1988); *Kennecott*, 780 F.2d at 450-51; *Reynolds Metals*, 760 F.2d at 558-59. Although EPA’s decision to develop the daily and monthly concentration limits by employing the “ten times minimum level” data-selection criteria, and then to aggregate data from multiple facilities as either a single mean or median figure, *see supra* note 15, could have produced a limit that no BAT-1 facility actually achieved, the choice of effluent data-editing criteria and statistical methodology falls within EPA’s special area of expertise. EPA’s determinations do not appear arbitrary or capricious in light of the technological limitations on measuring very low concentration levels and EPA’s reasonable



explanations of its procedures as a means to capture more accurately the capability of BAT-1 in the general run of applications to the cokemaking industry. *Cf. Kennecott*, 780 F.2d at 450-51; *Reynolds Metals*, 760 F.2d at 558-59.<sup>23</sup>

Naphthalene. For the reasons previously discussed regarding benzo(a)pyrene, the Institute's contention that EPA failed to identify any PSES-1 facility that was capable of meeting the indirect discharge limitation fails. The notion that EPA was capricious by departing from its position that, in general, it would not regulate volatile pollutants misreads the NOPR, which did not state that EPA will not regulate volatile pollutants, such as naphthalene, *see* 65 Fed. Reg. at 82,010, but rather generally observed that certain pollutants need not be monitored because many pollutants may be surrogates for others. In any event, the NOPR identified naphthalene as a pollutant in cokemaking wastewater, 65 Fed. Reg at 81,975, that might be subject to the effluent limitations.

Also without merit is the Institute's contention that EPA acted capriciously in promulgating the naphthalene limitation because it had previously justified its decision to regulate naphthalene as an indicator of the effectiveness of biological treatment, which was a component of the co-proposed PSES-3

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<sup>23</sup> The Institute has waived its challenge to EPA's decision to adopt the naphthalene variability factors as the benzo(a)pyrene variability factors because, although the decision was set forth in the Proposed Development Document at § 12.7.5 (Table 5), the Institute did not claim during the administrative proceedings that benzo(a)pyrene has a different variability than naphthalene, or that the chemical structure of the two pollutants would lead one to expect any difference in their variability. *See Nat'l Wildlife*, 286 F.3d at 562; *Appalachian Power Co. v. EPA*, 251 F.3d 1026, 1036 (D.C. Cir. 2001).

model. According to the Institute, because EPA decided in the Final Rule to model indirect discharge limits upon PSES-1 technology, which does not employ a biological treatment component, its justification for the regulation of naphthalene was obviated. By this argument, the Institute would suggest that by originally justifying regulation of naphthalene as an indicator of the effectiveness of biological treatment, EPA had forever committed itself to this justification as the sole legally sufficient basis for its action. This is incorrect. The NOPR gave notice naphthalene was potentially subject to PSES limitations. The record evidence supports EPA's conclusion that the employment of the PSES-1 treatment technology could significantly reduce naphthalene discharge into POTWs. Hence, EPA did not act capriciously by promulgating its naphthalene limitations even though it had originally justified its choice to regulate naphthalene on other grounds.<sup>24</sup>

Cyanide. The Institute repeats its incapability challenge by arguing that the model BAT-1 facilities used by EPA were not able to achieve the cyanide reduction required by the Final Rule. The Institute relies on *Tanners*, 540 F.2d at 1193, and points to data from the model facility from which the two relevant episodes (ESE01 & ISM50) were drawn — United States Steel Company's Clairton Works plant — showing the facility was

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<sup>24</sup> The Institute claimed that nothing in the record indicated that PSES-1 technology was capable of reducing naphthalene, and thus EPA would be capricious in promulgating a rule requiring naphthalene reductions modeled upon a BAT that had no effect upon naphthalene. However, as clarified during oral argument and in supplemental filings in response to the court's order, the record shows EPA had data that unambiguously indicated that PSES-1 reduced naphthalene. For example, a 1992 study in the rulemaking record, but not initially in the record filed in this court, indicates that ammonia stripping was extremely effective in reducing naphthalene in cokemaking wastewater.

not able “consistently” to avoid exceeding the maximum cyanide limit. Many of these objections fail because they are predicated either upon data that was never submitted to EPA or that does not accord with the data that before EPA; with regard to the data that remains, EPA reasonably explained that certain anomalous information need not be the basis for the final cyanide limitation.

It is well established that “the focal point for judicial review” under the 5 U.S.C. § 706(2)(A) “should be the administrative record already in existence, not some new record made initially in the reviewing court.” *Camp v. Pitts*, 411 U.S. 138, 142 (1973). After excluding from consideration data not before EPA, only one Clairton self-monitoring episode (ISM50) is at issue. EPA points out that although the ISM50 episode indicates that 7 out of 265 days recorded indicate that the Clairton facility exceeded the daily cyanide concentration limit, four of the data-points coincide with the failure of the plant’s gas handling and chemical recovery system. The remaining three samples represent only 1.15% of the relevant dataset. Given that the maximum daily limit was intended by the EPA to reflect the 99th percentile distributional basis of the actual results of a well-operated plant employing BAT-1, *see* Final Development Document at § 14.6.2, EPA reasonably concluded that these three ISM50 data-points cannot be taken to indicate that Clairton is not capable of achieving the cyanide limitations at all times. Similarly, according to EPA, because the maximum monthly average limitation was intended to represent the 95th percentile distribution, and the three instances in which the monthly average fall outside of this distribution, the monthly average data fails to indicate that Clairton is incapable of achieving the cyanide limitations.

The court will not second-guess EPA’s expertise with regard to what the maximum effluent limits represent. *See Nat’l*

*Wildlife*, 286 F.3d at 571-73. As EPA explains in the Final Development Document, the daily and monthly average effluent limitations are not promulgated with the expectation that a plant will operate with an eye toward barely achieving the limitations. Final Development Document at § 14.6.2. Should a plant do so, it could be expected to exceed these limits frequently because of the foreseeable variation in treatment effectiveness. Rather, the effluent limitations are promulgated with the expectation that plants will be operated with an eye towards achieving the equivalent of the LTA for the BAT-1 model technology. *Id.* However, even operated with the goal of achieving the BAT-1 LTA, a plant's actual results will vary. EPA's maximum daily limitations are designed to be forgiving enough to cover the operations of a well-operated model facility 99% of the time, while its maximum monthly average limitations are designed to be forgiving enough to accommodate the operations of a well-operated model facility 95% of the time. *See id.* EPA's choice of percentile distribution represented by its maximum effluent limitation under the CWA represents an expert policy judgment that is not arbitrary or capricious. *See Nat'l Wildlife*, 286 F.3d at 573; *Kennecott*, 780 F.2d at 449.<sup>25</sup>

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<sup>25</sup> The Institute also maintains that, when calculated according to the weight rather than the concentration of the pollutant discharged, there are actually nine instances where Clairton exceeded the cyanide limitations in the ISM50 dataset; *see* Grey Appendix D.1 & D.2]; such a difference is of little moment. The Institute appears implicitly to assume that at the time the daily samples were taken the Clairton facility was operating at a particular flow rate. The data does not appear to suggest anything of the sort, and the calculation of the "nine" instances in which Clairton may have exceeded the daily mass limitations is founded upon the application of flow rates that are, presumably, either averages for Clairton or else averages for similar facilities. In either event, the Institute fails to explain sufficiently and substantiate its objections on this score.

Ammonia-N. The Institute also contends that the ammonia-N PSES limitations are not achievable by PSES-1 technology. Citing both *Tanners*, 540 F.2d at 1193, which is inapposite, and *Chemical Manufacturers*, 28 F.3d at 1265-66, the Institute contends that EPA promulgated the ammonia-N pretreatment limit on the basis of an industry data, ISM54, that demonstrated the ammonia-N limit being breached multiple times. In *Chemical Manufacturers*, the court reviewed an EPA model for determining an exposure level above which a hazardous air pollutant may be said to pose a high risk. *Id.* at 1264. Observing that “the normal criterion by which to evaluate a model is not the accuracy of the assumptions from which it proceeds but the utility of the results it produces,” *id.* at 1265, the court noted that EPA “need not justify the model on an ad hoc basis for every chemical to which the model is applied, even when faced with data indicating that it is not a perfect fit,” *id.* The court will “reverse the agency’s application of the generic air dispersion model as arbitrary and capricious if there is simply no rational relationship between the model and the known behavior of the hazardous air pollutant to which it is applied.” *Id.* (citing *State Farm*, 463 U.S. at 43). In that case, the court found no rational relationship between the data and the air dispersion model when EPA was faced with “specific scientific evidence” demonstrating that the model fundamentally failed to represent the physical properties of the chemical at issue, and where EPA sought to explain away any discrepancies with unsubstantiated speculation and conclusory assertions of fact.

*Chemical Manufacturers* is apposite because the cumulative effect of the data editing criteria, the assignment of a 10 µg/l level to nondetect results, and the various statistical choices made in the Final Rule may be treated as analogous to the generic air dispersion model examined in that case; in both instances, there is a risk that the conceptual tools used to predict

the behavior of a range of physical processes might, in a particular instance, fail so significantly that the conceptual tools must be revised in the face of reality. Here, EPA recognized as much by specifically incorporating a cross-check of the concentration limits against the data used to derive those limits, *see* Final Development Document at § 14.8.4. As the court had observed, a “perfect fit” is not required, *see Chemical Manufacturers*, 28 F.3d at 1265, and deference to EPA’s judgment is appropriate where minor differences between the record data and the agency’s representation of that data may be explained as matters of judgment as to the statistical relevancy of apparently anomalous information, *see Nat’l Wildlife*, 286 F.3d at 573; *Kennecott*, 780 F.2d at 450-51; *Reynolds Metals*, 760 F.2d at 559.

The Institute does not question whether EPA’s analysis of the ISM54 ammonia-N data bears a rational relationship to the data before the agency. Again, the Institute relies solely upon the argument that — calculated according to weight of ammonia-N discharged — the ISM54 data indicate three instances where samples exceeded the daily maximum and six instances in which the maximum monthly average limitation would have been breached. As explained *supra* note 24, there is no reason the court would take on faith the Institute’s calculation of the weight of ammonia-N discharged based upon data in the record indicating only the concentration of ammonia-N in cokemaking effluent, where such a calculation rests upon unexplained and unsubstantiated assumptions about flow rates. Unlike the situation in *Chemical Manufacturers*, 28 F.3d at 1266, it is not the agency but the Institute that relies upon unsubstantiated speculation in order to make the record data fit its perception of reality. EPA indicated as part of the rulemaking record that the concentration of ammonia-N never exceeded the maximum daily limit in the relevant ISM54 data, and the monthly limit was exceeded only once out of the twelve

monthly averages represented in the dataset. The single monthly average above the maximum limitations represents 8.33% of the monthly average data. Thus, the limit might be said to represent the 92d percentile distributional basis of the ISM54 data. Although the maximum monthly limit does not quite represent the 95th percentile distributional that was EPA's goal in establishing this limit, *see* Final Development Document at § 14.6.2, the maximum average monthly limitation "fits" the ISM54 data, *see Chemical Manufacturers*, 28 F.3d at 1264; the small deviation between the distribution of the data and EPA's distributional goal is insufficient to cause the court to second-guess EPA's expert judgment as to the relevancy of a single potentially anomalous instance.

#### IV.

Finally, the Institute contends that, in light of the additional information it submitted after the rulemaking record closed relevant to the benzo(a)pyrene and naphthalene limitations, EPA erred in denying reconsideration. Given EPA's decision on reconsideration to address the Institute's claims on the merits, we review the Institute's contentions pursuant to 5 U.S.C. § 706(2)(A); *see Prof'l Pilots Fed'n v. FAA*, 118 F.3d 758, 763 (D.C. Cir. 1997), and find them lacking.

Benzo(a)pyrene. The Institute challenged the benzo(a)pyrene limitation on the basis of new data from United States Steel Company's Gary Works, a facility employing technologies very similar to BAT-1, and Clairton plants. EPA pointed out that Gary Works does not use BAT-1 technology and therefore the data from this facility is irrelevant to limitations in the Final Rule based on BAT-1 technology. EPA described differences between Gary Works' system and BAT-1 systems, such as Gary Works' biological treatment, which combines into one "unit" or piece of equipment the biological

treatment and clarification stages, where in BAT-1 these stages are accomplished in separate units. Nonetheless, the Institute maintains that because both BAT-1 and Gary Works use an “activated sludge treatment” followed by aerobic nitrification (no matter how these steps are technically accomplished) the Gary Works data is decisive evidence that BAT-1 cannot achieve the benzo(a)pyrene limitations. This challenge fails in light of EPA’s plausible distinction between the BAT-1 and Gary Works systems.

As to the few times when Clairton exceeded the daily and monthly concentration-based limits in two three-month periods in 1999 and 2001, EPA explained that the high 1999 numbers resulted from unusually high rainfall in Pittsburgh and surmised that similar causes lay at the root of the high summer 2001 numbers. By contrast, the self-monitoring data from the following three years (fall 2001 to fall 2004) established that Clairton consistently met the limitations. With regard to other instances where the Clairton facility occasionally exceeded the benzo(a)pyrene limits, EPA reasonably maintains that these instances would fall into the 99th percentile distribution and do not of themselves upset the limit established. *Cf. Nat’l Wildlife*, 286 F.3d at 572.

The Institute also contends that the EPA arbitrarily and capriciously refused to reconsider its benzo(a)pyrene limitation in light of the newly-submitted self-monitoring data from Gary Works and Clairton that, when combined with existing record data, would have allowed EPA to calculate a benzo(a)pyrene variability factor directly and avoid borrowing the naphthalene variability factor for the benzo(a)pyrene analysis. Assuming the Institute’s additional data would have allowed a direct calculation of the benzo(a)pyrene variability factor, the Institute could show “prejudicial error,” 5 U.S.C. § 706(2); *see Chamber of Commerce*, 443 F.3d at 904, only if it could plausibly show



that a directly calculated benzo(a)pyrene variability factor would be higher than the naphthalene variability factor; only a higher variability factor would result in a less stringent benzo(a)pyrene limitation. The Institute makes no such showing and EPA concluded that the extra-record evidence indicated that benzo(a)pyrene's variability might be lower.

Naphthalene. The Institute's renewed challenge to EPA's pass-through analysis fails because it is based on data from a facility that does not employ the PSES-1 technology, and thus can be reasonably excluded from consideration by EPA. While the Institute maintains that EPA's pass-through analysis was illegitimate because there was no statistically significant difference between the removal of naphthalene in well-operated POTWs and naphthalene removal by PSES-1 facilities, given that high naphthalene levels were treated by the PSES-1 facilities and relatively low naphthalene levels were treated by POTWs, EPA points to various errors in the Institute's arguments and, regardless, this dispute involves EPA's expert judgments about statistical relevance to which the court properly defers. Similarly, whether the median value of a set of averages may be treated as representative of the set is a choice that falls squarely within EPA's area of expertise. The Institute's focus on EPA's decision not to regulate phenol, which also passes into POTWs is, at best, weakly relevant where other cost factors and technological capabilities would weigh in EPA's evaluation. EPA has taken the reasonable position that, unlike naphthalene, phenols are easily biodegraded and hence are more readily treated by POTWs (which use biological treatment processes).<sup>26</sup>

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<sup>26</sup> See EPA Comment Response Document at 13-3; Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards for the Iron and Steel Manufacturing Point Source Category, Extension of Comment Period, 66 Fed. Reg. 10,253, 10,257 (Feb. 21 2001).

*See Chem. Mfrs.*, 870 F.2d at 247.

Accordingly, we deny the petitions for review.