

**RECORD NO. 17-1430**

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IN THE  
**United States Court of Appeals**  
FOR THE FOURTH CIRCUIT

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OHIO VALLEY ENVIRONMENTAL COALITION INC.;  
SIERRA CLUB; WEST VIRGINIA HIGHLANDS  
CONSERVANCY; and WEST VIRGINIA RIVERS COALITION,

*Plaintiffs-Appellees,*

v.

SCOTT PRUITT, Administrator, United States Environmental  
Protection Agency, and CECIL RODRIGUES, Acting Regional  
Administrator, United States Environmental Protection Agency,  
Region III.

*Defendants-Appellants.*

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ON APPEAL FROM THE UNITED STATES DISTRICT COURT  
FOR THE SOUTHERN DISTRICT OF WEST VIRGINIA  
AT CHARLESTON

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**BRIEF OF *AMICUS CURIAE***  
**WEST VIRGINIA COAL ASSOCIATION**  
**SUPPORTING FEDERAL DEFENDANTS-APPELLANTS**

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UNITED STATES COURT OF APPEALS FOR THE FOURTH CIRCUIT
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No. 17-1430 Caption: Ohio Valley Environmental Coalition v. Environmental Protection Agency

Pursuant to FRAP 26.1 and Local Rule 26.1,

West Virginia Coal Ass'n
(name of party/amicus)

who is amicus, makes the following disclosure:
(appellant/appellee/petitioner/respondent/amicus/intervenor)

- 1. Is party/amicus a publicly held corporation or other publicly held entity? YES NO
2. Does party/amicus have any parent corporations? YES NO
If yes, identify all parent corporations, including all generations of parent corporations:
3. Is 10% or more of the stock of a party/amicus owned by a publicly held corporation or other publicly held entity? YES NO
If yes, identify all such owners:

4. Is there any other publicly held corporation or other publicly held entity that has a direct financial interest in the outcome of the litigation (Local Rule 26.1(a)(2)(B))?  YES  NO  
 If yes, identify entity and nature of interest:

5. Is party a trade association? (amici curiae do not complete this question)  YES  NO  
 If yes, identify any publicly held member whose stock or equity value could be affected substantially by the outcome of the proceeding or whose claims the trade association is pursuing in a representative capacity, or state that there is no such member:

See attached page

6. Does this case arise out of a bankruptcy proceeding?  YES  NO  
 If yes, identify any trustee and the members of any creditors' committee:

Signature: s/ Douglas J. Crouse

Date: July 24, 2017

Counsel for: \_\_\_\_\_

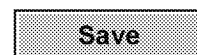
**CERTIFICATE OF SERVICE**

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I certify that on July 24, 2017 the foregoing document was served on all parties or their counsel of record through the CM/ECF system if they are registered users or, if they are not, by serving a true and correct copy at the addresses listed below:

s/ Douglas J. Crouse  
 (signature)

July 24, 2017  
 (date)



**Response to Question No. 5**

All member companies of the trade association party that are publically traded, or whose parent companies are publically traded, whose stock or equity value may be affected substantially by the outcome of the proceeding, are identified below.

**West Virginia Coal Association**

<u>Member</u>	<u>Parent</u>
Alliance Coal, LLC	Alliance Resource Partners
Alpha Natural Resources, LLC	None
ArcelorMittal	None
Arch Coal, Inc.	None
CONSOL Energy, Inc.	None
Natural Resource Partners, LP	None
United Coal Company, LLC	None

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## INTEREST OF *AMICUS CURIAE*

West Virginia is the nation's second leading coal producer.<sup>1</sup> The industry provides thousands of high-paying jobs and represents a significant portion of the tax base in West Virginia. Coal accounts for the production of over 30 percent of the nation's electricity,<sup>2</sup> and West Virginia also produces a significant amount of the nation's metallurgical coal (coal used to produce "coke" used in the production of steel and metal alloys). The West Virginia Coal Association ("WVCA") is a trade association representing approximately ninety-eight percent of West Virginia's underground and surface coal mine production.<sup>3</sup> Its members include coal producers, mineral and land owners and ancillary businesses. Most or all of its coal-producing members must apply for and hold National Pollutant Discharge Elimination System ("NPDES") permits for discharges of stormwater from

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<sup>1</sup> U.S. Energy Information Administration, Frequently Asked Questions (2017) (2015 data), available at <https://www.eia.gov/tools/faqs/faq.php?id=69&t=2>; "Coal Data Browser" (aggregate coal mine average employees 2015) (last accessed July 23, 2017).

<sup>2</sup> U.S. Energy Information Administration, Frequently Asked Questions (2017) (2016 data); *id.* available at; <https://www.eia.gov/tools/faqs/faq.php?id=69&t=2>; "Coal Data Browser" (aggregate coal mine average employees 2015) (last accessed July 23, 2017) West Virginia State Treasury, Coal Severance Tax Archive, available at <http://www.wvtreasury.com/Banking-Services/Revenue-Distributions/Coal-Severance-Tax/Coal-Severance-Tax-Archive> (last accessed July 23, 2017).

<sup>3</sup> *See* West Virginia Coal Association, Who we Are, available at <http://www.wvcoal.com/who-we-are> (last accessed July 23, 2017).

sediment control ponds designed to capture all of the surface runoff at surface mines into waters of the United States.

Both mine operators and land owners at reclaimed mine sites have been targeted by OVEC and the Sierra Club in CWA citizen suits. Those suits have sought to impose “conductivity” limits in NPDES permits held by mine operators and to require landowners to obtain NPDES permits at reclaimed mine sites where the operator has previously been released of NPDES permit obligations.<sup>4</sup>

The issue raised in this case – whether the West Virginia Department of Environmental Protection (“WVDEP”) or the EPA has an immediate obligation under the CWA to develop TMDLs for ionic toxicity – has significant implications for the coal mining industry. TMDLs are implemented by allocating allowable pollutant “loads” to both “point” and “non-point” sources of pollutants. Memorandum Opinion and Order, Docket No. 87 at 3-5 (Feb. 14, 2017) (“Op.”) (App-\_\_\_\_-\_\_\_\_).

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<sup>4</sup> See, e.g., *Ohio Valley Env'tl. Coal., Inc., et al. v. Elk Run Coal Co., Inc.*, 24 F.Supp.3d 532 (S.D. W. Va. 2014); *Ohio Valley Env'tl. Coal., Inc., et al. v. Fola Coal Co., LLC*, 120 F.Supp.3d 509 (S.D. W. Va. 2015); *Ohio Valley Env'tl. Coal., Inc., et al. v. Fola Coal Co., LLC*, Nos. 2:13-cv-21588; 2:13-cv-16044, 2016 WL 3190255 (S.D. W. Va. June 7, 2016) (conductivity cases); *West Virginia Highlands Conservancy, et al. v. Pocahontas Land Corp.*, No. 2:13-cv-12500 (S.D. W. Va.); *Ohio Valley Env'tl. Coal., Inc., et al. v. Pocahontas Land Corp.*, No. 2:15-cv-15515 (S.D. W. Va.); *Ohio Valley Env'tl. Coal., Inc., et al. v. Hernshaw Partners, LLC*, 984 F.Supp.2d 589 (S.D. W. Va. 2013) (landowner cases).

The goal of OVEC and the Sierra Club is to effect the imposition of ionic toxicity “loads” by imposing effluent limits in NPDES permits on “conductivity.” They have argued that the imposition of such limits requires the WVCA’s members to construct and operate “reverse osmosis” treatment facilities, technology that is not only unproven for this purpose but which is unsustainably expensive.<sup>5</sup> This unprecedented relief would jeopardize the ability of the WVCA’s members to maintain their businesses – which is precisely OVEC and the Sierra Club’s goal. This lawsuit is just the latest in a long series of legal challenges OVEC and the Sierra Club have brought in state and federal courts in which they have sought to have their opinions substituted for the technical judgments of WVDEP and EPA, all in an attempt to achieve their goal of moving states “beyond

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<sup>5</sup> In CWA citizen’s suits, OVEC and the Sierra Club has urged the court to require a West Virginia mine operator to install reverse osmosis treatment systems capable of treating many hundreds of gallons per minute of runoff. *See* Order Specifying Relief, *Ohio Valley Env’tl. Coal., Inc., et al. v. Fola Coal Co., LLC*, No. 2:13-cv-5006 (S.D. W. Va. Dec. 8, 2015), Docket No. 183. In a recent case the same district court found that the present value cost to construct and operate t a reverse osmosis system to treat discharges from just one surface mine outlet would cost more than \$136 million. *Id.* at 5.

coal” – *i.e.*, ending coal mining.<sup>6</sup> For these reasons, the questions presented here squarely implicate the interests of the WVCA and its members.<sup>7</sup>

The WVCA joins, but does not repeat, the arguments of EPA and other amici that the district court lacked authority to create a mechanism of judicial review where none exists. Rather, it seeks to explain why even if the court had such authority, it erred in ordering EPA to immediately commence TMDL development for the 179<sup>8</sup> streams that WVDEP has identified as not meeting water quality standards for the protection of aquatic life due to “ionic toxicity.”<sup>9</sup>

### **BACKGROUND AND SUMMARY OF ARGUMENT**

Surface mines remove rock or “overburden” to access coal seams. Mine operations use the broken rock to backfill the mine site and to place “excess” rock in “valley fills.” *See Ohio Valley Env’tl Coal. v. Aracoma Coal Co.*, 556 F.3d 177, 186 (4th Cir. 2009). When rain and ground water contact the broken rock it can

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<sup>6</sup> *See* Sierra Club, About the [Beyond Coal] Campaign, available at <http://content.sierraclub.org/coal/about-the-campaign> (last accessed July 23, 2017).

<sup>7</sup> Neither EPA nor its counsel authored this brief in whole or in part, nor did EPA or any other party contribute money to fund this brief.

<sup>8</sup> *Op.* at 7.

<sup>9</sup> The district court denied WVCA’s motion to intervene below, finding its claim of harm too remote notwithstanding the Sierra Club’s efforts to impose conductivity effluent limits on mine operators through citizen suits. Memorandum Opinion and Order denying Motion by West Virginia Coal Association to Intervene as a Defendant, Docket No. 32 (Dec. 14, 2015).

dissolve the salts, minerals and metals from the rock. This water is collected in sediment control ponds and is discharged in compliance with “effluent limits” imposed in water discharge (NPDES) permits designed to ensure that water quality standards are met in the receiving streams. *Id.* at 189-91 (describing CWA and other permitting programs at mine sites).

To evaluate whether waters were maintaining the aquatic life uses recognized by its water quality standards, as required by CWA § 303(d)(1)(A), WVDEP used the “West Virginia Stream Condition Index” (“WVSCI”) from 2002 to 2010. *Op.* at 5. The WVSCI relies exclusively on measures of aquatic insects to determine if aquatic life uses are being attained. But, as the district court noted, the WVSCI provides no information on the cause(s) of impairment. *See Op.* at 5-7.

The identification of the cause of impairment can be relatively straightforward where data shows that in-stream concentrations of specific pollutants exceed the allowable concentrations established by rulemaking in “water quality criteria” adopted under CWA § 303(c) (33 U.S.C. § 1313(c)) to protect aquatic life uses. Thus, for many of the substances in storm water discharges from surface mines, such as iron and aluminum, WVDEP has established specific water quality criteria expressed as an allowable in-stream concentration. *See W. Va.*

Code St. R. § 47-2-8, App. E, Table 1.<sup>10</sup> But, for other salts and minerals frequently discharged by surface mines and other earth disturbing activities, neither WVDEP nor EPA have adopted or recommended specific water quality criteria because they have not been identified as causing or contributing to significant adverse effects.

Solutions containing these salts and minerals can include electrically charged atoms and molecules known as “ions.” These ions affect the ability of the water to carry minute electrical charges, and this effect can be measured as “conductivity” or “specific conductance.” Higher levels of dissolved salts, minerals and metals are more conductive and produce higher levels of “conductivity.”<sup>11</sup>

Exercising its obligations to identify so-called “impaired” waters under CWA § 303(d)(1), WVDEP used the WVSCI to identify 179 streams as impaired due to “ionic toxicity,” or “conductivity.” But, as discussed below, those labels do not suggest that conductivity itself is the “cause” of impairment nor do they seek to identify the particular substances contributing to impairment any more than identifying a water as impaired by “metals” or “pollutants” indicates which metals or pollutants are present and contributing to impairment. And, WVDEP has not

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<sup>10</sup> For example, to protect most aquatic life chronic iron concentrations may not exceed 1.5 milligrams per liter (mg/l). *Id.* § 8.15.

<sup>11</sup> Conductivity is measured in “microsiemens per centimeter” (µS/cm).

established a water quality criterion for conductivity because it has determined that WVSCI scores and conductivity are poorly correlated. *See* Justification and Background for Permitting Guidance for Surface Coal Mining Operations to Protect West Virginia's Narrative Water Quality Standards, 47 CSR 2 §§ 3.2.e & 47 CSR 2 §§ 3.2.i, 5-7 (Aug. 12, 2010) (infeasible to calculate a numeric conductivity limit to implement narrative water quality standard because conductivity levels are poor predictors of WVSCI scores), available at <http://www.dep.wv.gov/pio/Pages/Commentsonnarrativewaterqualitystandards.aspx> (last accessed July 23, 2017). Accordingly, WVDEP proposed in 2012 to delay TMDL development for the 179 streams identified as impaired for ionic toxicity until the particular substance(s) causing impairment are identified. *See generally* JA 3079-3102 (App-\_\_\_\_-\_\_\_\_).

WVDEP also proposed to delay TMDL development because it has been directed by the West Virginia Legislature to use measures of attainment with aquatic life uses that do not rely exclusively on insects, but which rely primarily on the preservation of fish communities. JA 2332 (App-\_\_\_\_). WVDEP has a massive TMDL program underway. It has prepared some 500 TMDLs since 2016 and is in the process of preparing at least 180 TMDLs unrelated to the 179 streams at issue by 2020.<sup>12</sup> In light of that on-going effort, WVDEP reasonably chose to expend its

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<sup>12</sup> JA 2789-844 (App-\_\_\_\_-\_\_\_\_).

resources on other TMDL efforts and to delay TMDL development for streams listed as impaired based on a methodology (WVSCI) that WVDEP has been directed to change. *See id.* (“In response to the legislation, DEP is not adding new biological impairments to the 2012 Section 303(d) list. Previously listed impairments are being retained. When new rules become effective, delisting without TMDL development may occur if the application of the assessment methodology demonstrates a non-impaired condition.”).<sup>13</sup> Accordingly, EPA approved WVDEP’s delay in the development of TMDLs for waters with elevated conductivity. *See* EPA’s Memorandum Opposing Plaintiffs’ Motion for Summary Judgment and Supporting EPA’s Cross-Motion for Summary Judgment, Docket No. 39 at 12-15 (Feb. 19, 2016).

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<sup>13</sup> The district court erroneously found that Senate Bill 562 requires that any new assessment methodology must be at least as protective as the WVSCI and that any new methodology should therefore not result in the delisting of streams that have already been placed on the 303(d) list as biologically impaired. *Op.* at 11-12, 35. The statutory language cited by the district court merely states that any new methodology may not “establish standards less protective than requirements that exist at the time of enactment of the amendments to this subsection....” 2012 W. Va. Acts 562 (codified at W. Va. Code § 22-11-7b). The WVSCI is merely guidance. It has never been subjected to rulemaking or adopted as a water quality standard, and thereby cannot be a “requirement.” Further, the West Virginia Legislature has recently clarified that any new methodology may not “establish standards less protective than *legislatively-approved rules* that existed at the time of enactment....” 2017 W. Va. Acts 687 (codified at W. Va. Code § 22-11-7b). Accordingly, the district court incorrectly interpreted SB 562 as setting WVSCI “as a floor for whatever methodology is eventually developed.” *Op.* at 35.

The district court, however, swept all that away. It created an extra-statutory right of review. And, as it has done before, the court conducted that review without extending appropriate deference to the agencies charged with administering the complex program for developing water quality standards and for implementing CWA § 303(d). *See Aracoma Coal Co.*, 556 F.3d at 201 (reversing same court for failure to accord deference to Corps of Engineers in application of CWA § 404). Instead, it declared that EPA has already “concluded that when conductivity in a stream reaches 300  $\mu$ S/cm ... the stream is biologically impaired.” *Op.* at 10. Relying on this characterization of EPA’s Conductivity “Benchmark,” it rejected all suggestions that there was any reason to delay development of TMDLs. And, by doing so, it thereby implicitly ruled those TMDLs must achieve conductivity levels of 300  $\mu$ S/cm.<sup>14</sup>

The district court thereby declared that all streams with conductivity levels of 300  $\mu$ S/cm are impaired, and effectively crafted a new water quality standard for conductivity, and ordered EPA to use it as a basis for developing TMDLs that the State will convert into NPDES permits. *See Op.* at 3-5 (describing TMDL process and permitting and environmental programs for surface mining). That was error and as this Court should, as it has done at least four times previously, reverse the district court below for its failure to defer to the agencies charged with the

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<sup>14</sup> *See* footnote 5, *supra*.

complex legal scientific judgments required by the statutes regulating the effect of mining.<sup>15</sup> See *Aracoma*, 556 F.3d 177 (4th Cir. 2009) (reversing decision invalidating four “fill” permits where district court substituted own judgment for agency’s); *OVEC v. Bulen*, 492 F.3d 493 (4th Cir. 2005) (reversing order invalidating “nationwide” CWA “fill” permit for mining for failure to defer to reasonable agency construction); *Kentuckians for the Commonwealth, Inc. v. Rivenburgh*, 317 F.3d 425 (4th Cir. 2003) (reversing ruling that coal mine valley fills were not “fill material” under CWA after district court failed to defer to agency) & *Bragg v. West Virginia Coal Ass’n*, 248 F.3d 275 (4th Cir. 2001), *cert. denied*, 534 U.S. 1113 (2002) (reversing on 11th Amendment grounds ruling that SMCRA rule prohibited valley fills).

## DISCUSSION

Even if the judicial artifice used by the district court to review decisions to delay TMDL development survives scrutiny, its application of that artifice cannot. The delays proposed by WVDEP and accepted by EPA were not only entirely reasonable and appropriate, but arguably even required. Accordingly, the district court’s order that EPA prepare TMDLs for all biologically impaired streams should be vacated and reversed.

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<sup>15</sup> If OVEC and the Sierra Club have its way, the district court’s order will lead to the imposition of NPDES permit limits on conductivity at mined properties – limits that the district court has already determined cannot practicably be met using affordable treatment technologies.

CWA § 303(d)(1)(A) requires states to identify waters for which existing discharge limits “are not stringent enough to implement any [applicable] water quality standards.” 33 U.S.C. § 1313(d)(1)(A). Then, for those identified waters states shall establish TMDLs “for those *pollutants* which the [EPA] identifies under [33 U.S.C. §] 1314(a)(2) ... as suitable for such calculations.” Here, there were complexities with both the process for identifying streams and then with determining whether and how a pollutant could be identified and controlled to achieve water quality standards—complexities the district court was quick, and wrong, to discount.

**A. The District Court Erroneously Determined that EPA’s Conductivity Benchmark has Established a Conductivity Threshold for Ionic Toxicity.**

The district court embraced EPA’s 2011 “Conductivity Benchmark”<sup>16</sup> as conclusively proving that conductivities of 300  $\mu\text{S}/\text{cm}$  in typical mine waters will necessarily yield a flunking WVSCI score. Op. at 10. Accordingly, it concluded,

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<sup>16</sup> See *A Field-Based Aquatic Life Benchmark for Conductivity in Central Appalachian Streams*, EPA/600/R-10/1023F (March 2011), available at <https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=233809>. EPA described the report as using “field data to derive an aquatic life benchmark for conductivity that can be applied in the Appalachian Region that are dominated by [certain] salts.” *Id.* at xiv. There, EPA observed that its Benchmark “is provided as scientific advice....” *Id.* at 41. More recently, EPA has acknowledged that its “Benchmark” methodology is “*not a regulation* and do[es] not propose legally binding requirements.” See *Fact Sheet: Draft Field-Based Methods for Developing Aquatic Life Criteria for Specific Conductivity*, EPA 822-F-07-005 (Dec. 2016).

WVDEP had no reason to delay the development of TMDLs for conductivity. *Id.* at 34. But that conclusion ignored both important legal constraints and depended on a highly parsed review of technical documents without proper deference to contrary constructions by the implementing agencies. For several reasons, it was entirely lawful and reasonable of WVDEP to delay TMDL development of conductivity TMDLs pending identification of the specific pollutants that are contributing to biological impairment.

First, CWA § 303(d)(1)(C) requires states to establish TMDLs only for “those *pollutants* which [EPA] identifies under [33 U.S.C. §] 1314(a)(2) as suitable for such calculation.” 33 U.S.C. § 1313(d)(1)(C). Thus, while the identification of a causative pollutant is not a prerequisite for placing a stream on the § 303(d) list, it is a prerequisite for developing a TMDL. *Compare* 33 U.S.C. § 1313(d)(1)(A)(establishing listing criteria as identification of water not implementing water quality standards) with 33 U.S.C. § 1313(d)(1)(C)(imposing TMDL requirement only on “pollutants.”). The same district court has also previously ruled that conductivity is a metric or condition – *not* a “pollutant.” *See Ohio Valley Envt’l Coal., Inc. v. Fola Coal Co., LLC*, No 2:13-cv-5006, 2014 WL 4925492 at \*4 (S.D. W.Va. Sept 30, 2014) (“The Court further recognizes that conductivity is itself not a pollutant, but rather is a measure of ionic pollution....”).

The district court, unconcerned by this statutory limitation, forged ahead. It reasoned that identifying particular pollutants is unnecessary because the ionic mixture in waters discharged from the mines that EPA's Benchmark examined is relatively consistent. *See Op.* at 10. But the declaration that the ionic complexion of mine waters is relatively consistent does not address the statutory requirement that TMDLs be imposed on specific "pollutants" rather than on some non-pollutant metric. *See Va. Dept. of Transp. v. EPA*, No. 1:12-cv-775, 2013 WL 53741 at \*5 (E.D. Va. 2013) (EPA prohibited from regulating stormwater, a non-pollutant, as a surrogate for sediment where CWA restricts regulation to "pollutants").<sup>17</sup>

Second, it was error to *require* that WVDEP or EPA regulate conductivity because conductivity itself is not the cause of impairment and because WVDEP has reasonably concluded that it is poorly correlated with the WVSCI metric it historically used to measure impairment. The decision by WVDEP not to use conductivity for immediate TMDL development, and EPA's approval of that decision were entitled to deference. *See Aracoma Coal Co.*, 556 F.3d at 192 (courts

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<sup>17</sup> Before imposing an effluent limit on a surrogate parameter, the permitting authority must demonstrate that the proxy or surrogate parameter is a proper indicator for the pollutant(s) that actually cause the violation of the applicable water quality standard. 40 C.F.R. § 122.44(d)(vi) (requiring identification of a "specific chemical pollutant" for which the indicator is being used and the level at which the specific chemical pollutant causes an excursion of the water quality standard).

should be at their most deferential when reviewing complex matters involving special agency expertise).

Like WVDEP, EPA has also conceded that conductivity itself is neither a pollutant nor the “cause” of biological impairment. In 2011, EPA’s Science Advisory Board (“SAB”) reviewed a draft of EPA’s Conductivity Benchmark by which EPA correlated the presence or absence of aquatic insects with conductivity in an effort to infer a causal relationship between conductivity and the presence or absence of specific insects. There, the SAB observed that “[c]onductivity itself is *not a pollutant*, but is a surrogate for the major constituent ions in the mixture.” *Review of Field-Based Aquatic Life Benchmark for Conductivity in Central Appalachian Streams* at 20 (March 25, 2011), available at <https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=233809>. It noted further that “the scientific credibility of the benchmark would be strengthened by analysis relating the constituent ions to observed biological community changes.” *Id.* at 2.

EPA issued the Final Benchmark the following month without identifying the role of individual ions or “pollutants”. There EPA conceded that “[c]onductivity per se is not the cause of toxic effects....” U.S. EPA. *A Field-Based Aquatic Life Benchmark for Conductivity in Central Appalachian Streams (Final Report)*, EPA/600/R-10/023F, 2011 at 26, ¶ 1, available at <https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=233809> (“Benchmark”).

Further, EPA acknowledged in the “causal assessment” portion of its Final Benchmark that “[t]his causal assessment does not attempt to identify the constituents of the mixture that account for the effect.” *Id.* at A-40, ¶ A.3.<sup>18</sup>

Later, EPA employees authored a series of peer reviewed articles designed to justify the use of the Benchmark to establish a causal link between conductivity and impacts to aquatic insects used to measure aquatic health. The authors again observed that “conductivity per se is not the cause of toxic effects,” and noted that “waters with different mixtures of ions but the same conductivity may have different toxicities.” *See* Susan M. Cormier, et al, *Derivation of a Benchmark for Freshwater Ionic Strength*, 32 *Env’tl Toxicology & Chemistry* 263, 269 (2012). Likewise, they conceded that their “causal assessment does not attempt to identify

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<sup>18</sup> The district court stated that “[t]he Benchmark ... identified the constituent salts ... that contribute ions resulting in ionic toxicity....” *Op.* at 10. To the extent that the district court intended this to mean that the Benchmark determined that the four ions typically found in surface mine discharges (calcium, magnesium, sulfate and bicarbonate) are also the pollutants causing impairment, it was flatly wrong. The Benchmark made no such finding – rather, it used the four ions to simply “fingerprint” mine waters so that it could more precisely correlate conductivity from mine sites to field data on aquatic insect effects. That is, it used the “fingerprint” to exclude sites that exhibit elevated conductivity from ions such as chlorides, which are typically produced by gas wells or deep underground mines but not by surface mines. *See, e.g.*, Benchmark at 9 (noting that sites with elevated conductivity marked by high chloride and low sulfate were removed from EPA’s analysis to ensure that the drainage was mine-related and not related to gas development brines); *see also Review of Field-Based Aquatic Life Benchmark for Conductivity in Central Appalachian Streams*, at 2 (March 25, 2011), available at <https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=233809> (noting that Benchmark did not identify ions actually causing impairment).

constituents of the mixture that account for the effects.” Susan M. Cormier, et al, *Assessing Causation of the Extirpation of Stream Macroinvertebrates by a Mixture of Ions*, 32 *Env’tl Toxicology & Chemistry* 277, 285 (2012).

Compounding these limitations on the Benchmark is EPA’s concession that the statistical tools it used to infer a causal relationship *do not prove that any particular waterbody is impaired as a result of conductivity*. Instead, EPA scientists acknowledged that its work focused on the question of “general causation” (“Is agent C capable of causing effect E in the region?”) rather than a specific causation (“Did C cause E?”). Susan M. Cormier, et al., *A Method for Assessing Causation of Field Exposure-Response Relationships*, 32 *Env’tl Tox. & Chem.* 272 (2012). There, EPA scientists acknowledged “[t]he method described here determines whether an agent has caused a biological effect in a region, not that it causes all instances of the effect, ... *nor that it causes the effect at any particular site.*” *Id.* at 272. The district court improperly conflated these concepts to interpret the Benchmark as proving that conductivity is the specific cause of impairment for all of the particular streams on WVDEP’s § 303(d) list, and then used this conclusion to dismiss WVDEP’s delays in TMDL development as pretense.

WVDEP has previously and reasonably rejected the use of conductivity as a predictor of impairment. In addition to the fact that conductivity is neither a

pollutant nor a condition that “causes” impairment, WVDEP has determined that it is poorly correlated with WVSCI scores. *See* Justification and Background for Permitting Guidance for Surface Coal Mining Operations to Protect West Virginia’s Narrative Water Quality Standards, 47 CSR 2 §§ 3.2.e & 47 CSR 2 §§ 3.2.i, 5-7 (Aug. 12, 2010) (infeasible to calculate a numeric conductivity limit to implement narrative water quality standard because conductivity not good predictor of WVSCI scores. West Virginia Department of Environmental Protection, Narrative Water Quality Permitting Guidance, available at <http://www.dep.wv.gov/pio/Pages/Commentsonnarrativewaterqualitystandards.aspx> (last accessed July 23, 2017).

Beyond that, The Benchmark cannot be used to determine whether a stream is biologically impaired in West Virginia. EPA did not design the Benchmark to link conductivity levels to WVSCI scores. Instead, it correlated conductivity to the presence or absence of some 163 specific insects. *See* “Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses.” EPA, PB-227-049 (Stephen, et al.) (discussed *infra*). Only as an afterthought, and only after receiving comments on the draft benchmark, did EPA attempt to link conductivity to WVSCI. It included a single “regression” line purporting to show a correlation between conductivity and WVSCI scores. *See* Benchmark at A-36. But at least one expert hired by the Sierra

Club and OVEC has conceded that neither the Benchmark nor the regression line can be used to predict a WVSCI score at a particular conductivity level. *See* Trial Transcript at 325-26, *OVEC, et al. v. Fola Coal Company, LLC*, No. 2:15-cv-1371 (S.D.W.Va. Mar. 15, 2017), ECF No. 76 (Dr. Matthew Baker testifying that conductivity is not a great predictor of a specific WVSCI score).

The district court ignored all this in favor of its own construct of the Benchmark as establishing an enforceable water quality standard. As this Court has noted, “[e]specially in matters involving not just simple findings of fact but complex predictions based on special expertise, ‘a reviewing court must generally be at its most deferential.’” *Aracoma Coal Co.*, 556 F.3d at 192 (quoting *Baltimore Gas & Elec. Co. v. Natural Res. Def. Council*, 462 U.S. 87, 103, 103 S.Ct. 2246 (1983)). The district court should have granted deference to WVDEP’s reasonable decision to defer development of TMDLs for ionic toxicity until the scientific and regulatory community can better understand the causative factors of (and attendant management options for) such impairment. *See id.* at 201 (“‘Agencies are entitled to select their own methodology as long as that methodology is reasonable,’ and we must defer to such agency choices.” (quoting *Hughes River Watershed Conservancy v. Johnson*, 165 F.3d 283, 289 (4th Cir. 1999))).

**B. EPA's Conductivity Benchmark does not Form a Basis for Requiring EPA and/or WVDEP to Prepare Ionic Toxicity TMDLs.**

A review of the history surrounding development of EPA's Benchmark reveals the complexity and unsettled nature of the science regarding the effects of conductivity on water quality. In 1985, EPA published "Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses." ("Guidelines"). The Guidelines were intended to be used by EPA to issue recommended national water quality criteria pursuant to CWA § 304(a). 33 U.S.C. § 1314(a) (providing that EPA will develop and publish information on effects of pollutants for use by states in developing water quality standards). Those Guidelines are used to identify both continuous and maximum thresholds for particular pollutants above which aquatic impacts are considered unacceptable. Guidelines at 4. They rely on laboratory toxicity tests (*id.* at 2), and require test results for the effects of particular "toxicants" on cold and warm water fish, amphibians, planktonic crustaceans, insects and mollusks. *Id.* at 8–9, 12–13. EPA's Benchmark is completely different. It relied exclusively on field data collected by the WVDEP. It evaluated the correlations between water chemistry and some measure of stream habitat only on aquatic insects, but included no data or analysis on effects to fish, amphibians, mollusks or other families of animals. Benchmark at 34.

The Benchmark relies on the presence or absence of insects at varying conductivity levels in the WVDEP database. That database included over 500 genera<sup>19</sup> of aquatic insects, but EPA relied only on those genera that appeared in over 25 samples and at least one “reference” (undisturbed) stream. There were 163 such genera. For each, EPA plotted its presence or absence against conductivity levels.

The “extirpation threshold” for each genus was calculated as the conductivity level below which 95 percent of the observed incidents of that insect appeared in the database. Put another way, only 5 percent of a genus appeared in the database at a higher conductivity. EPA effectively assumed that the absence of more than 5% of an individual genus above that conductivity threshold was due to physiological limitations caused by the conductivity. EPA then determined that the conductivity at which 5 percent of the 163 genera (8 genera) of insects reached their extirpation threshold would mark the conductivity Benchmark for the state. That level was ~300  $\mu$ S/cm.

In other words, in WVDEP’s database, 8 of the 163 genera reached their extirpation threshold at ~300  $\mu$ S/cm. However, those 8 most sensitive genera used to define the Benchmark are not evenly distributed throughout the state—in fact,

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<sup>19</sup> “Genera” is defined as “a category of biological classification ranking between the family and the species, comprising structurally or phylogenetically related species or an isolated species exhibiting unusual differentiation....” Merriam-Webster (11th ed. 2016).

most are relatively rare. Thus, their absence from a sample was used to determine the point at which impacts are significant at a disturbed site even though those insects may never have inhabited the same site in its undisturbed state.

EPA's early efforts to use the Benchmark as a water quality criterion were quickly challenged. A successful challenge was reversed only when EPA conceded that the Benchmark could not be used as an enforceable standard. *National Mining Assoc. v. Jackson*, 816 F.Supp.2d 37 (D.D.C. 2011), *rev'd*, 758 F.3d 243, 252 (D.C. Cir. 2014) ("As EPA acknowledged at oral argument, 'The Guidance has no legal impact.'"). In late December 2016, drawing off of its 2011 Benchmark, EPA finally subjected its work to public comment when it published its draft "Field-Based Methods for Developing Aquatic Life Criteria for Specific Conductivity." 81 Fed. Reg. 94,370 (Dec. 23, 2016).

The draft "Field-Based Methods" document has proven to be controversial. Many comments have been submitted challenging both the basic assumptions used by EPA as well as the weight of the science.<sup>20</sup> For example, the Florida Department of Environmental Protection commented that the draft document fails to explain how the absence of 5% of the chosen insects relates to the "fishable, swimmable" goals of the CWA. Comments by the Fla. Dept. of Env'tl. Protection, ¶¶ 5 & 6, at 5. The National Council of Air & Stream Improvement, Inc.

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<sup>20</sup> Comments may be accessed at <https://www.regulations.gov/docket?D=EPA-HQ-OW-2016-0353> (last accessed July 23, 2017).

(“NCASI”) has noted that while all but four states use multi-metric indices of biological life to evaluate attainment with aquatic life “uses” under the CWA, EPA’s draft has done little to relate those indices to its field-based criterion. Comments by the NCASI at 6. The NCASI also commented that the field data used is not as precise in discerning clear impacts as are laboratory data, and EPA’s draft significantly undervalues the importance of factors other than conductivity, such as organic loading and habitat quality. *Id.*

Comments were also submitted concerning the draft’s stated “extirpation” threshold. Specifically, the comments noted that if genera are more or less tolerant to conductivity, then their relative sensitivity should be consistent across data sets. However, there are great and unexplained differences in the apparent extirpation threshold for the same genera in different databases and ecoregions. For example, the extirpation threshold for one particular insect is 193  $\mu\text{S}/\text{cm}$  in West Virginia Ecoregion 69, but is 805  $\mu\text{S}/\text{cm}$  in adjacent West Virginia Ecoregion 70. In Minnesota Ecoregion 47 the same genus exists at conductivities of 885 to 998  $\mu\text{S}/\text{cm}$ . These variances are greatest in the genera that occur in less than 100 samples, but decrease with increasing occurrence of a genus. This suggests that the thresholds are affected by sampling error, especially among the relatively rare insects found in lower conductivity waters. American Iron and Steel Institute Comments, Part 1 at 1-2, 5-17; Comments by Civil & Environmental Consultants,

Inc., Table 1 (comparing lists of salt-intolerant insects from West Virginia Ecoregions 69 & 70).

The National Mining Association noted that the 163 genera of insects used by EPA represent only about one-third of the taxa in Ecoregions 69 and 70 in West Virginia. There are many other insects never found in locations with conductivity below 300  $\mu\text{S}/\text{cm}$ . If the full list of insects is used to derive extirpation thresholds, then conductivity needs to *exceed* 1130  $\mu\text{S}/\text{cm}$  to protect 95% of the insects from the apparent effects of *low* conductivity. This results in an “impossible” zone for conductance between  $\sim 120$  to 1130  $\mu\text{S}/\text{cm}$  because the minimum conductivity required to protect 95% of the insects from low conductivity is higher than the maximum conductivity required to protect 95% from high conductivity. Comments by National Mining Assn., Figures 3-9 & 3-10.

Given the complexity of the science, the fact that the science is still in a state of flux, and the controversy surrounding EPA’s assumptions, the district court overstepped its bounds by relying on the Benchmark to create an enforceable duty to create TMDLs for ionic toxicity. *See Aracoma Coal Co.*, 556 F.3d at 192, 201 (courts should be at their most deferential when reviewing complex matters involving special agency expertise).

**C. WVDEP Reasonably Delayed TMDL Development for Streams Listed as Impaired Based on the WVSCI while it Develops an Assessment Tool for Biological Impairment in Favor of an Improved, More Holistic Methodology.**

Between 2002 and 2010, WVDEP used the WVSCI to identify impaired streams. JA 2597 (App-\_\_\_). WVSCI is an assessment tool; on a scale of 0 to 100 it measures the types, numbers, and proportions of certain aquatic insects in a stream and compares the measurements to those found in undisturbed “reference” streams. *Id.* A score of 100 represents the biological condition of reference streams. *Id.* Decreased WVSCI scores indicate impacts on aquatic life but provide no further information about the pollutant(s) responsible for those impacts (sometimes impacts are not caused by a pollutant at all). *See* Justification and Background for Permitting Guidance for Surface Coal Mining Operations to Protect West Virginia’s Narrative Water Quality Standards, 47 CSR 2 §§ 3.2.e & 47 CSR 2 §§ 3.2.i, 5-7 at 4 (Aug. 12, 2010).

Consistent with WVDEP’s determination that the WVSCI provides no measure of impacts to fish or higher order animals, both WVDEP and the West Virginia Legislature have rejected its continued use to measure compliance with the narrative water quality standards for aquatic life. *The Impacts of Mountaintop Removal Coal Mining on Water Quality in Appalachia: Hearing Before the Subcomm. on Water & Wildlife of the Subcomm. on Env’t. & Public Works*, 111th Cong. 95 (2009) (statement of Randy Huffman, Cabinet Sec’y, WVDEP), at 95

(“Without any evidence of any significant impact on the rest of the ecosystem beyond the diminished numbers of certain genus of mayflies, the State cannot say there has been a violation of its narrative standard.”).<sup>21</sup>

In 2010, the West Virginia Legislature declared that the narrative standards are met when there are sufficient aquatic insects to support fish, and that WVDEP is the entity responsible for interpreting and applying the narrative standards. H. Con. Res. 111, 79th Reg. Sess. (W.Va. 2010). And again, in 2012, the Legislature directed WVDEP to propose rules for measuring compliance with the narrative standards, stating that compliance must be tied to a determination that the aquatic community is “composed of benthic invertebrate assemblages sufficient to ... support fish communities” and is not to be determined by reference to insect indices alone. S.B. 562, 80th Leg., 2d Re. Sess. (W.Va. 2012) (now codified at W. Va. Code § 22-11-7b(f)). WVDEP has not yet completed that task.

It is entirely reasonable for WVDEP to defer TMDLs for ionic toxicity until an improved methodology is developed. TMDL development is an inherently complex process, and the lack of a sound assessment tool for determining biological impairment adds an extra layer of complexity. Here, WVDEP and the

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<sup>21</sup> WVDEP has also stated that “a stand-alone WVSCI score has never been the sole determinant of compliance or non-compliance with the narrative standard.” Justification and Background for Permitting Guidance for Surface Coal Mining Operations to Protect West Virginia’s Narrative Water Quality Standards, 47 CSR 2 §§ 3.2.e & 47 CSR 2 §§ 3.2.i, 5-7 at 4, n.10.

State Legislature have rejected the WVSCI due to its limitations as an assessment tool. The district court should have granted deference to WVDEP's decision to delay TMDL development for streams where the characterization of impairment can reasonably be expected to change as a result of a new assessment methodology. *Aracoma Coal Co.*, 556 F.3d at 201 (courts should defer to agencies' preferred methodology so long as the methodology is reasonable).

### CONCLUSION

For the foregoing reasons, as well as those articulated by EPA and other amici, the Court should reverse the district court's decision below.

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UNITED STATES COURT OF APPEALS FOR THE FOURTH CIRCUIT
Effective 12/01/2016

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