MAYFLY MAYDAY: THE WEST VIRGINIA LEGISLATURE ATTEMPTS TO REDEFINE COMPLIANCE WITH THE NARRATIVE WATER QUALITY STANDARDS THROUGH SENATE BILL 562

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I. INTRODUCTION

Over the past two years, citizen environmental groups have used portions of often-overlooked West Virginia water quality standards,[1] known informally as the "narrative water quality standards," to challenge the issuance of surface coal mining and water discharge permits and launch Clean Water Act ("CWA") citizen lawsuits against coal companies. These actions have created legal uncertainty and increased overhead costs for West Virginia's coal industry.[2] In the 2012 Regular Legislative Session, the West Virginia Legislature passed, by near unanimous margins, Senate Bill 562 ("S.B. 562") to clarify the scope of the state's ambiguous narrative water quality standards.[3] This Article seeks to explain West Virginia's narrative water quality standards, discuss how environmental activist groups have utilized these standards to file lawsuits against coal mining operators, and describe the West Virginia Legislature's response through S.B. 562.

Part II of this Article briefly outlines the basic structure of the Clean Water Act to familiarize the reader with the structure and purpose of water quality standards. Part III then explains the traditional methods used by individual states and the United States Environmental Protection Agency

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[1] The narrative standards prohibit discharges into streams that add "materials in concentrations which are harmful, hazardous or toxic to man, animal or *aquatic life*" or present a "significant adverse impact to the chemical, physical, hydrologic, or *biological* components of aquatic ecosystems . . . ." W. VA. CODE R. §§ 47-2-3.2.e, -3.2.i (2012). These narrative standards are discussed in greater detail below.

[2] West Virginia's coal industry has experienced a marked decline in recent years in light of the emergence of record-low natural gas prices and strict new federal regulations on the burning and mining of coal. For an in-depth discussion of these threats to the coal industry, see Matthew Tyree, *A Coal Kill Shot?*, COAL USA, June 2012, at 22–23, *available at* http://www.jacksonkelly.com/jk/pdf/Killshot.pdf.

[3] S.B. 562, 2012 Leg., Reg. Sess. (W. Va. 2012). S.B. 562 passed in the West Virginia Senate by a vote of thirty-four to zero. *Senate Votes*, WEST VIRGINIA LEGISLATURE (Feb. 29, 2012), http://www.legis.state.wv.us/legisdocs/2012/RS/votes/senate/03100050.pdf. S.B. 562 passed in the West Virginia House of Delegates by a margin of ninety-four to six. W. VA. H.D., *Passage of Senate Bill 562: Establishing DEP Procedure for Biologic Component Compliance of Narrative Water Quality Standard* (March 10, 2012), *available at* http://www.legis.state.wv.us/legisdocs/2012/RS/votes/house/00453.pdf. S.B. 562 was approved by the Governor on April 2, 2012, and was effective upon passage.

("EPA") to develop new water quality standards for pollutants. West Virginia's existing narrative water quality standards, and the methods used to enforce them, are detailed in Part IV.

Part V chronicles recent efforts by EPA to publicly encourage—and illegally require—coal-producing states in Appalachia to severely restrict discharges of conductivity from surface coal mines to protect sensitive aquatic insects like mayflies. Parts VI and VII describe the efforts of the West Virginia Department of Environmental Protection ("WVDEP") and the West Virginia Legislature to oppose the conductivity limits promoted by EPA and strike a more pragmatic balance between environmental protection and the needs of the state's coal industry. Finally, Part VIII details a recent dispute between EPA and WVDEP over West Virginia's list of biologically impaired streams that illustrates the ongoing importance of S.B. 562.

II. THE CLEAN WATER ACT ABRIDGED

While a thorough discussion of the Federal Water Pollution Control Act, better known as the Clean Water Act, is beyond the scope of this Article,[4] a brief outline of the Act's structure is necessary to understand the important role played by water quality standards in the protection of the nation's waters.

The CWA's current framework dates back to 1972.[5] The 1972 legislation required states to develop water quality standards for all "navigable waterways" within their borders.[6] Relatively permanent tributaries that flow into larger navigable rivers fall under the CWA's jurisdiction.[7]

Water quality standards make up the heart of the CWA and serve as the baseline for evaluating the quality of waterways. If a stream fails to meet a water

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[4] For a more detailed discussion of the evolution of the CWA, see Kenneth M. Murchinson, *Learning From More Than Five-And-A-Half Decades of Federal Water Pollution Control Legislation: Twenty Lessons For The Future*, 32 B.C. ENVTL. AFF. L. REV. 527, 527–73 (2005); William L. Andreen, *The Evolution of Water Pollution Control in the United States-State, Local and Federal Efforts, 1789–1972: Part II*, 22 STAN. ENVTL. L.J. 215, 220–22 (2003).

[5] EPA Water Pollution Control Act of 1972, Pub. L. No. 92-500, 86 Stat. 816, 816–904 (codified as amended at 33 U.S.C. §§ 1251–1387 (2006)).

[6] EPA Clean Water Act (CWA) of 1972 § 502(7), 33 U.S.C. § 1362(7) (2012) (defining "navigable waters" as "waters of the United States").

[7] *See* Rapanos v. United States, 547 U.S. 715 (2006) (holding that wetlands are jurisdictional "waters of the United States" when they have a "significant nexus" to downstream navigable waters by "significantly affect[ing] the chemical, physical, and biological integrity" of the downstream waters). *See also* EPA, U.S. EPA AND ARMY CORPS OF ENGINEERS, CLEAN WATER ACT JURISDICTION FOLLOWING THE U.S. SUPREME COURT'S DECISION IN *RAPANOS V. UNITED STATES* & *CARABELL V. UNITED STATES* (2008), *available at* http://water.epa.gov/lawsregs/guidance/wetlands/upload/2008_12_3_wetlands_CWA_Jurisdiction_Following_Rapanos120208.pdf (asserting CWA jurisdiction over relatively-permanent tributaries that flow into traditional navigable streams or are found to have a "significant nexus" to downstream navigable rivers).

quality standard, the state or federal government must work to bring the stream into compliance. Water quality standards consist of three distinct parts: designated uses, enforceable water quality criteria, and an anti-degradation policy.[8]

A. Designated Uses

The first component of water quality standards is designated uses. All jurisdictional streams are assigned to at least one designated use category, which range from public drinking water sources to trout streams to industrial use.[9] At a minimum, all streams must be able to meet the designated uses of Propagation and Maintenance of Fish and Other Aquatic Life (Category B) and Water Contact Recreation (Category C).[10]

B. Water Quality Criteria

Water quality criteria, the second component of water quality standards, describe the characteristics a stream must have, or the undesirable characteristics it cannot have, in order for the stream to achieve its designated use.[11] Water quality criteria can describe physical, chemical, or biological stream characteristics. Water quality criteria come in various forms, including numeric limits, narrative statements, or biocriteria.[12] A brief description of each type of water quality standard follows below.

Numeric criteria establish the exact concentrations of specific chemical pollutants that cannot be exceeded for a stream to attain a designated use. The numeric criteria for a given pollutant can vary depending on a stream's designated use. For example, West Virginia has an iron criteria of 1.0 mg/l for trout streams, which is more stringent than the 1.5 mg/l standard for streams designated for use as public drinking water.[13]

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8 *Water Quality Standards*, EPA REGION 7, http://www.epa.gov/region07/water/wqs.htm (last updated May 22, 2012); *Water Quality Standards*, W. VA. DEP'T ENV'T PROT., http://www.dep.wv.gov/WWE/Programs/wqs/Pages/default.aspx (last visited Mar. 6, 2013) (WVDEP describes water quality standards as having a fourth component, termed "general policies," that are rules for practically implementing water quality standards).

9 West Virginia has twelve different water use categories. W. VA. CODE R. § 47-2-6 (2012).

10 *Id.* § 47-2-6.1; *see also* 33 U.S.C. § 1251(a)(2) (2012) (setting national goal that all waters should be of sufficient quality to provide for the protection and propagation of aquatic life and recreation); EPA Water Programs, 40 C.F.R. § 131.10(j)(2) (2012) (requiring states to have designated uses capable of meeting the original CWA goals expressed at 33 U.S.C. § 1251(a)(2));

11 *Water Quality Criteria*, EPA, http://water.epa.gov/scitech/swguidance/standards/crit.cfm (last visited Mar. 6, 2013).

12 *Id.*

13 W. VA. CODE R. § 47-2-8.15, app. E, tbl. 1 (2012).

Narrative criteria describe conditions that must—or must not—exist in order for a stream to attain a designated use. Narrative standards are not mathematically precise like numeric standards and are therefore more difficult to enforce. EPA recommends that states establish narrative criteria only "where numerical criteria cannot be established or to supplement numerical criteria."[14]

Biocriteria are narrative or numeric descriptions of the desired biological integrity a stream must have to meet a designated use. Biocriteria reduce compliance with a stream's designated use to the "presence, condition and numbers of types of fish, insects, algae, plants and other organisms" that are indicative of a stream's health.[15]

C. Anti-Degradation Policy

The third component of water quality standards is an anti-degradation policy. Anti-degradation policies prevent streams that are achieving water quality criteria and meeting designated uses from significantly declining in quality.[16] The degree of protection a waterbody receives from degradation depends on the existing quality of the water.[17]

Water quality standards are enforced through the National Pollutant Discharge Elimination System ("NPDES").[18] It is unlawful for any person to discharge pollutants from a point source into waters of the United States without being authorized to do so by an NPDES permit.[19] NPDES permits contain terms and conditions designed to meet technology-based limits[20] and ensure that

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[14] 40 C.F.R. § 131.12.

[15] *Biocriteria*, EPA, http://water.epa.gov/scitech/swguidance/standards/criteria/aqlife/biocriteria/index.cfm (last visited Mar. 6, 2013).

[16] 40 C.F.R. § 131.12 (2012); *see also* W. VA. CODE R. § 47-2-4 (2012) (West Virginia's anti-degradation policy); W. VA. CODE R. § 60-5-1.1–1.5d (2012) (rules for enforcing West Virginia's anti-degradation policy).

[17] Outstanding Natural Resource Waters, designated as Tier 3 waters in West Virginia, are not allowed to be permanently lowered in quality to any degree by new or expanded industrial discharges. W. VA. CODE R. § 60-5-6.1 (2012). New or expanded discharges into High Quality Waters, designated as Tier 2 waters in West Virginia, cannot reduce the assimilative capacity of the stream, which is the difference between the baseline concentration of a pollutant of concern and the water quality criteria, by ten percent or more. W. VA. CODE R. § 60-5-5.6.c (2012). Streams that are unable to support the designated use of recreation, wildlife, and the propagation and maintenance of fish and other aquatic life, designated as Tier 1 streams, are not allowed to be worsened by a new or expanded discharge for any pollutant parameters causing the stream's impairment. W. VA. CODE R. § 60-5-4.7 (2012).

[18] Clean Water Act (CWA) of 1972 § 402, 33 U.S.C. § 1342 (2012); *see also* W. VA. CODE R. § 47-10 (2012) (West Virginia's NPDES program).

[19] CWA § 301(a), 33 U.S.C. § 1311(a); *see also* W. VA. CODE R. § 47-10-3.1 (2012).

[20] Technology-based effluent limits in NPDES permits set minimum pollution standards for discharges from various categories of industry dischargers based on currently available treatment technologies. *Water Quality and Technology Based Permitting*, EPA,

receiving streams meet applicable water quality standards.[21] Permit conditions can be as simple as requiring a discharger to monitor the pollutants in their discharge or as strict as imposing numeric limitations on individual pollutants in the effluent discharge. A discharger who exceeds a numeric effluent limitation in their permit can be subjected to a government enforcement action or, in the absence of a diligent government enforcement action, a private enforcement lawsuit led by affected citizens.[22]

While EPA was originally the only entity authorized to issue NPDES permits, the CWA allows EPA to concede its primary authority to issue NPDES permits and enforce water quality standards to individual states.[23] EPA granted West Virginia primacy to administer its own NPDES program in 1982.[24] Accordingly, West Virginia has authority to establish new water quality standards, subject to EPA review and approval.[25]

III. THE DEVELOPMENT OF NUMERIC AND NARRATIVE WATER QUALITY STANDARDS

Establishing a water quality standard can be a lengthy and expensive process. EPA protocols for developing numeric water quality standards to protect human health require extensive (and expensive) laboratory studies to be conducted on mice or other species before the results can be extrapolated to determine what level of pollutant exposure is safe for a human swimming in a river, for example.[26] The process for developing a numeric water quality standard to protect aquatic life is equally difficult, requiring laboratory tests on aquatic life across a range of freshwater organisms.[27] If the appropriate

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http://cfpub.epa.gov/npdes/generalissues/watertechnology.cfm (last visited Feb. 17, 2013). Coal mining is one of dozens of industrial categories of dischargers for which EPA developed technology based effluent standards. The technology-based effluent standards applicable to coal mining are found at 40 C.F.R. § 434 (2012).

21 CWA § 302(a), 33 U.S.C. § 1313(a); *see also* W. VA. CODE R. § 47-10-6 (2012).

22 CWA § 505, 33 U.S.C. § 1365.

23 CWA § 402(b), 33 U.S.C. § 1342(b).

24 Notice of Approval of the State of West Virginia's Application to Participate in the National Pollutant Discharge Elimination System (NPDES) Program, 47 Fed. Reg. 22,363 (May 24, 1982).

25 CWA § 303; 33 U.S.C. § 1313.

26 EPA, HANDBOOK FOR DEVELOPING WATERSHED PLANS (EPA 841-B-08-002) 2-11 (2008), *available at* http://water.epa.gov/polwaste/nps/upload/2008_04_18_NPS_watershed_handbook_ch02.pdf; *see also* 40 C.F.R. § 131.11 (2012) (requiring water quality criteria to be "based on sound scientific rationale").

27 *See* CHARLES E. STEPHEN ET AL., EPA, GUIDELINES FOR DERIVING NUMERICAL NATIONAL WATER QUALITY CRITERIA FOR THE PROTECTION OF AQUATIC ORGANISMS AND THEIR USES (EPA 822-R-85-100) (1985), *available at* http://water.epa.gov/scitech/swguidance/standards/criteria/aqlife/upload/85guidelines.pdf. Laboratory tests must be performed "with at least one species of freshwater animal in at least eight different families . . . ." *Id.* at 11–12.

laboratory tests cannot be performed, the numeric standard should not be developed.[28]

To assist states in their efforts, Section 304(a) of the CWA requires EPA to "develop and publish" and "from time to time revise" recommended water quality criteria for pollutants "reflecting the latest scientific knowledge."[29] When EPA publishes a recommended criterion, states must either adopt the criterion, adopt a similar criterion that has been modified to reflect site-specific conditions in the state, or adopt a different criterion using a scientifically defensible method.[30] To date, EPA has developed recommended water quality criteria for approximately 150 pollutants.[31] For this Article, it is important to note that EPA has not developed a recommended criterion for conductivity.[32] In light of the absence of a conductivity criterion, environmental activists have filed lawsuits, detailed in Part VII below, to regulate conductivity surreptitiously using West Virginia's narrative water quality standards.

To avoid the high cost of developing extensive numeric standards, states have historically put in place catch-all narrative water quality standards that describe—often vaguely—the conditions the state's waters must possess or cannot possess to meet designated uses. While EPA requires states to develop numeric standards for certain priority toxic pollutants,[33] states are otherwise free to use narrative criteria to protect streams from pollutants, or complex mixtures of pollutants, for which no numeric standard exists.

IV. WEST VIRGINIA'S NARRATIVE WATER QUALITY STANDARDS

Like most other states, West Virginia employs narrative water quality standards to serve as a catchall provision that can be used to prevent unregulated pollutants from adversely affecting water quality. West Virginia's narrative water quality standards are found at § 47-2-3 of the West Virginia Code of State Regulations. The two narrative standards that protect aquatic life, often called the "biologic narrative water quality standards," are at issue here.

The following conditions are not allowed in state waters:

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[28] *Id.* at 3.

[29] *National Recommended Water Quality Criteria*, EPA , http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm (last visited Mar. 6, 2013); *see also* 33 U.S.C. § 1314(a).

[30] 40 C.F.R. §131.11 (2012).

[31] *National Recommended Water Quality Criteria*, EPA, http://water.epa.gov/scitech/swguidance/standards/criteria/current/index.cfm (last visited Mar. 6, 2013) (displaying list of current EPA recommended criteria).

[32] *Id.*

[33] 40 C.F.R. § 131.11(b)(2012); Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants; States' Compliances, 57 Fed. Reg. 60,848 (Dec. 22, 1992) (codified at 40 C.F.R. pt. 131 (2012)).

> 3.2.e. Materials in concentrations which are *harmful, hazardous or toxic to* man, animal, or *aquatic life*;
>
> 3.2.i. *Any other condition*, including radiological exposure, which adversely alters the integrity of the waters of the State including wetlands; *no significant adverse impact* to the chemical, physical, hydrologic, or *biological* components of aquatic ecosystems shall be allowed . . . .[34]

A. Determining Compliance with West Virginia's Narrative Water Quality Standards

While developing generic narrative water quality standards can save states time and money by eliminating the need to do extensive laboratory tests for the development of unique water quality standards for countless individual pollutants, compliance with these broad narrative standards is difficult to define and enforce. Whereas compliance with a numeric standard can be determined by collecting a sample of a discharger's effluent and analyzing it at a laboratory, determining compliance with a narrative standard requires much more time and effort.

EPA has never officially defined what constitutes a violation of a narrative standard designed to protect aquatic life. In 1983, EPA created a Water Quality Standards Handbook to help states develop numeric standards to enforce their narrative criteria.[35] CWA regulations indicate that this is still the authoritative text on this topic.[36] While EPA's handbook relies heavily on the "professional judgment of the evaluators," it also recommends that states obtain "as much information as possible . . . on the following categories of organisms (fish, macroinvertebrates, microinvertebrates, phytoplankton, periphyton and macrophytes)" to determine if a stream is complying with narrative standards to protect aquatic life.[37] To avoid letting the perfect stand in the way of the good, EPA Handbook states that collecting data from all six categories of organisms is not necessary. However, the Handbook recommends that data from fish should be included because the general public often evaluates the health of a stream through the stream's ability to support fish populations.[38]

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[34] W. Va. Code R. §§ 47-2-3.2.e, -3.2.i (2012) (emphasis added).

[35] EPA, WATER QUALITY STANDARDS HANDBOOK 1-5 (1983), *available at* http://water.epa.gov/scitech/swguidance/standards/handbook/index.cfm [hereinafter WATER QUALITY STANDARDS HANDBOOK].

[36] 40 C.F.R. § 131 (2012).

[37] WATER QUALITY STANDARDS HANDBOOK, *supra* note 35, at 3-5 to 3-8.

[38] *Id.*

To enforce its biologic narrative standards, WVDEP currently uses the West Virginia Stream Condition Index ("WVSCI")[39] in conjunction with Whole Effluent Toxicity ("WET")[40] testing.[41] Historically, however, WVDEP used the WVSCI alone to determine which streams are biologically impaired. A brief description of the WVSCI and WET test methods are set forth below.

1. WVSCI

The WVSCI is a biological index that evaluates a stream's health by looking solely at quality and quantity of aquatic insects, known generally as macroinvertebrates[42] that are living in a stream. WVDEP conducts WVSCI sampling in all West Virginia watersheds on a rotating, five-year schedule.[43] At each sample site, biologists use a kick-net to collect aquatic insects from small areas of the stream.[44] The macroinvertebrates collected in the kick-net are then identified in a laboratory to the family level and the stream is given a WVSCI score that describes the stream's "biological integrity"[45] compared to relatively undisturbed "reference" conditions.

The WVSCI does not value all macroinvertebrates equally. A stream's WVSCI score is compiled from six different metrics of aquatic life[46] and can

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[39] *See* W. VA. DEP'T ENV'T PROT., A STREAM CONDITION INDEX FOR WEST VIRGINIA WADEABLE STREAMS 1 (2001), *available at* http://www.dep.wv.gov/WWE/watershed/bio_fish/Documents/WVSCI.pdf.

[40] Whole Effluent Toxicity: Guidelines Establishing Test Procedures for the Analysis of Pollutants, 60 Fed. Reg. 53,539, 53,539 (Oct. 16, 1995) (codified at 40 C.F.R. § 136.3 (2012)).

[41] *See* W. VA. DEP'T ENV'T PROT., PERMITTING GUIDANCE FOR SURFACE COAL MINING OPERATIONS TO PROTECT WEST VIRGINIA'S NARRATIVE WATER QUALITY STANDARDS, 47 C.S.R. 2 §§ 3.2.e AND 3.2.i (2010), *available at* http://www.dep.wv.gov/pio/Documents/Narrative/2010-08-18.%20Narrative%20Standards%20Permitting%20Guidance%20(Rev.%201).pdf [hereinafter WVDEP NARRATIVE GUIDANCE DOCUMENT].

[42] Macroinvertebrates are organisms which are visible to the human eye and which do not have backbones. If one flips over a rock in any stream in Appalachia, the small, insect-like organisms seen clinging to the bottom of the rock or floating downstream are macroinvertebrates. *See Guide to Benthic Macroinvertebrates*, W. VA. DEP'T ENV'T PROT., http://www.dep.wv.gov/WWE/getinvolved/sos/Pages/Benthics.aspx (last visited Mar. 6, 2013).

[43] W. VA. DEP'T ENV'T PROT., A STREAM CONDITION INDEX FOR WEST VIRGINIA WADEABLE STREAMS 1 (2000), *available at* http://www.dep.wv.gov/WWE/watershed/bio_fish/Documents/WVSCI.pdf.

[44] W. VA. DEP'T ENV'T PROT., WATERSHED BRANCH 2012 STANDARD OPERATING PROCEDURES: BENTHIC MACROINVERTEBRATE COLLECTION PROTOCOLS 169 (2012), *available at* http://www.dep.wv.gov/WWE/watershed/Documents/2012_WAB_SOP/WBBenthics.pdf.

[45] *The Impacts of Mountaintop Removal Coal Mining on Water Quality in Appalachia: Hearing before the S. Comm. On Env't and Public Works, Subcommittee on Water and Wildlife*, 111th Cong. 4 (2009) (statement of WVDEP Cabinet Secretary Randy Huffman).

[46] The six metrics consider the total number of taxa of ephemeroptera, plecoptera, and trichoptera (EPT); total taxa overall; percentage of EPT; percentage of chironomidae; top two

range from 0.0 to 100.0.[47] The presence or absence of macroinvertebrates that are especially sensitive to pollution, such as the mayfly, have a larger impact on a stream's WVSCI score than a pollution tolerant species such as a midge. By compiling a database of WVSCI scores from thousands of different streams from throughout the state, WVDEP has determined that a WVSCI score of 68.0 or above is biologically unimpaired, a score below 60.6 is impaired, and a score between 60.6 and 68.0 falls into a sampling error "gray-zone."[48]

Surface coal mines in West Virginia seeking NPDES discharge permits must now conduct in-stream biological monitoring to generate a WVSCI score before they discharge pollutants into the stream and then regularly conduct monitoring over the life of the discharge permit.[49] If the stream has an acceptable pre-mining WVSCI score of 68.0 or higher, WVDEP is satisfied as long as subsequent WVSCI scores do not fall below a 68.0 into the "impaired" category. If a stream that will receive a new surface coal mining discharge has an impaired WVSCI score of below 68.0, future WVSCI scores greater than or equal to that baseline score are deemed satisfactory.[50] It is worth noting, however, that WVDEP's current use of the WVSCI to interpret the state's narrative water quality standard has never gone through legislative rulemaking. WVDEP's Secretary Randy Huffman has acknowledged that "[West Virginia's narrative standard has] been defined over 13, 14 years by internal DEP policy as a 68 WVSCI score. But it hasn't been defined in any kind of legislative or rulemaking process."[51]

2. Whole Effluent Toxicity Tests

WET tests measure the toxicity of water to aquatic organisms by exposing surrogate test species to discharge effluent or water collected from a stream. A sample of water is deemed to be acutely toxic if 50% or more of the surrogate organisms die when they are exposed to the effluent. The water is considered to be chronically toxic if it harms the reproduction rates of the

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percentage of dominant taxa; and the Hilsenhoff's Biotic Index (HBI), which measures the percent of pollution sensitivity of the macroinvertebrate families found. W. VA. DEP'T ENV'T PROT., A STREAM CONDITION INDEX FOR WEST VIRGINIA WADEABLE STREAMS 1–2 (2000), *available at* http://www.dep.wv.gov/WWE/watershed/bio_fish/Documents/WVSCI.pdf.

47 *Id.*

48 *Benthic Macroinvertebrate and Fish Information*, W. VA. DEP'T ENV'T PROT., http://www.dep.wv.gov/WWE/watershed/bio_fish/Pages/Bio_Fish.aspx (last visited Mar. 6, 2013).

49 WVDEP NARRATIVE GUIDANCE DOCUMENT, *supra* note 41, at 3.

50 *Id.* at 4.

51 Pam Kasey, *DEP Bills Would Refine Narrative Water Quality Standards*, STATE J., Feb. 23, 2012, http://www.statejournal.com/story/17005194/dep-bills-would-refine-narrative-water-quality-standards.

surrogate organisms.[52] While several different species may be used as surrogates, *Ceriodaphnia dubia* (*C. dubia*) is almost exclusively used in WET tests in West Virginia. WVDEP requires new surface mine discharges to have WET limits in their NPDES permits if the discharge is determined to have "reasonable potential to cause or contribute to an excursion above the narrative criteria."[53]

B. Effectiveness of West Virginia's Narrative Water Quality Standards Questioned

In recent years, several scientists have observed that streams downstream of surface coal mining operations often host less diverse macroinvertebrate communities.[54] Of particular concern to these scientists is the disappearance of mayflies of the scientific order Ephemeroptera.[55] These scientists have questioned whether WVSCI scores and WET tests on *C. dubia* accurately measure the harm that effluent from surface coal mines can cause to downstream macroinvertebrate communities.[56] A 2008 study by Gregory Pond and his colleagues at EPA suggested that the WVSCI failed to document the impairment to the aquatic life in streams below surface coal mine sites with valley fills.[57] Pond suggested that the WVSCI fails to detect harm to macroinvertebrates in many Appalachian streams because the WVSCI identifies macroinvertebrates on the family level rather than the more specific genus level. Looking at macroinvertebrates on the genus level, he explained, provides a "finer taxonomic resolution" capable of detecting more subtle adverse impacts to the aquatic life in streams.[58] Pond also summarized previous research that found the commonly used surrogate species in WET tests, such as *C. dubia*, "are more tolerant of pollutants than are resident Appalachian biota," and concluded that WET tests "might not translate into protective criteria."[59]

In essence, Pond's paper called into question the legitimacy of the tools WVDEP uses to measure compliance with its narrative water quality standards.

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[52] Whole Effluent Toxicity: Guidelines Establishing Test Procedures for the Analysis of Pollutants, 60 Fed. Reg. 53,539 (Oct. 16, 1995) (codified at 40 C.F.R. § 136.3 (2012)).

[53] *Id*. at 1 (citing Establishing Limitations, Standards, and Other Permit Conditions, 40 C.F.R. § 122.44(d)(1)(v) (2012)).

[54] *See* Gregory J. Pond et al., *Downstream Effects of Mountaintop Coal Mining: Comparing Biological Conditions Using Family-and Genus-Level Macroinvertebrate Bioassessment Tools*, 27 J. N. AM. BENTHOLOGICAL SOC'Y 717 (2008), *available at* http://www.epa.gov/region03/mtntop/pdf/downstreameffects.pdf.

[55] *Id.* at 729.

[56] *Id.* at 725–26.

[57] *Id.* at 722–24, 728–30.

[58] *Id.* at 718.

[59] *Id.* at 726.

Pond also suggested that macroinvertebrates in Appalachian streams might be harmed by levels of conductivity as low as 500 µS/cm,[60] a level that is exceeded by most Appalachian surface coal mines. Importantly, Pond's study did not show that elevated levels of conductivity from surface mines definitely cause declines in macroinvertebrate diversity.[61]

Gregory Pond's research got the attention of other aquatic ecologists and environmental activists who have long been concerned about the potential effects of surface coal mining on the environment. Perhaps most importantly, however, Pond's work attracted the attention of his employer, the Environmental Protection Agency.

V. EPA CONDUCTIVITY GUIDANCE AND BENCHMARK

On April 1, 2010, a mere two years after the publication of Gregory Pond's study on the potential impacts of surface coal mining on downstream macroinvertebrate diversity, EPA released a draft guidance document that "advised" Appalachian coal mining states to place conductivity effluent limits on all surface coal mining discharges with conductivity above 500 µS/cm and to consider placing effluent limits on discharges of conductivity above 300 µS/cm.[62] EPA's Conductivity Guidance relied on the study by Gregory Pond discussed above and a Conductivity Benchmark document developed by EPA[63] to justify these "recommended" effluent limits.[64] The impetus for EPA's Conductivity Guidance was the alleged change in macroinvertebrate composition in streams below surface mines, "particularly species of mayflies, a key component of headwater stream communities."[65] Though the document was

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60 *Id.* at 731.

61 *Id.* at 726 ("[E]levated specific conductance might simply be an indicator of mining disturbance, and other mining related variables (e.g., metal concentrations) might be causing or contributing to the impairment."). *Id.* at 727–28 ("Future research should focus on the impairment mechanism . . . . It is necessary to identify the specific parameters causing impairment to develop appropriate water quality standards and control solutions.").

62 EPA, *Improving EPA Review of Appalachian Surface Coal Mining Operations under the Clean Water Act, National Environmental Policy Act, and the Environmental Justice Executive Order* (Apr. 1, 2010) (on file with the authors) [hereinafter *EPA Conductivity Guidance*]. For reasons that will be explained below, EPA no longer makes this document publicly available.

63 EPA, A FIELD-BASED AQUATIC LIFE BENCHMARK FOR CONDUCTIVITY IN CENTRAL APPALACHIAN STREAMS, (2011), *available at* http://cfpub.epa.gov/si/si_public_file_download.cfm?p_download_id=502333 [hereinafter CONDUCTIVITY BENCHMARK]. EPA "[b]enchmarks are meant to be used *for screening purposes only*; they are *not* regulatory standards . . . ." Rather, benchmarks are designed to provide risk assessors, in this case WVDEP, with a tool to identify a level above which there is a possibility of harm to aquatic life. *Water Quality Benchmarks for Aquatic Life: What are Benchmarks?*, EPA, http://www.epa.gov/bpspill/water-benchmarks.html#gen2 (last updated Feb. 14, 2013).

64 *EPA Conductivity Guidance*, *supra* note 62, at 3, 5–7, 11.

65 *Id.* at 5.

merely guidance and was still in *draft* form, the document purported to be "effective immediately."[66]

EPA released its final Conductivity Guidance on July 21, 2011. Legal challenges from West Virginia, Kentucky, and the National Mining Association soon followed. These cases were consolidated in the United States District Court for the District of Columbia.[67] The challengers claimed EPA's Conductivity Guidance created an illegal water quality standard for conductivity by coercing states to place effluent limits on conductivity without creating an official water quality standard through the formal rulemaking procedures necessary under Section 303(b) of the CWA.[68]

The Court agreed. As an initial matter, the Court ruled the language in the guidance stating that the document was merely a non-binding recommendation to states was mere "boiler-plate," as the rest of the document used "mandatory terminology such as 'must' and 'required.'"[69] The Court noted that the guidance "caused EPA field offices and the state permitting authorities to believe that permits should and will be denied if its 'suggestions' and 'recommendations' are not satisfied."[70] Finding that EPA had started requiring states to abide by its *de facto* conductivity water quality standard rather than develop a water quality standard through formal notice and comment rulemaking as required by the CWA, the Court ruled EPA "overstepped the authority afforded it by Section 303 of the CWA" and threw out EPA's guidance as illegal rulemaking.[71]

VI. WVDEP'S NARRATIVE GUIDANCE

In August of 2010, months after EPA unveiled its draft Conductivity Guidance and draft Conductivity Benchmark, WVDEP published guidance that explained that it measures compliance with the narrative standards through a combination of WET tests, WVSCI scores, and Aquatic Ecosystem Protection Plans ("Narrative Guidance").[72] WVDEP also published a document outlining its rationale behind the Narrative Guidance ("Justification Document").[73]

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66 *Id.* at 1.

67 Order of Mar. 4, 2011, Nat'l Mining Ass'n v. Jackson, 880 F. Supp. 2d 119 (D.D.C. 2012) (No. 1:10-cv-1220) (order consolidating the challenges brought by WVDEP, Kentucky, and the National Mining Association).

68 *Nat'l Mining Ass'n*, 880 F. Supp. 2d at 127.

69 *Id.* at 130.

70 *Id*.

71 *Id.* at 138.

72 WVDEP NARRATIVE GUIDANCE DOCUMENT, *supra* note 41, at 1–8.

73 *See* W. VA. DEP'T ENV'T PROT., JUSTIFICATION AND BACKGROUND FOR PERMITTING GUIDANCE FOR SURFACE COAL MINING OPERATIONS TO PROTECT WEST VIRGINIA'S NARRATIVE WATER QUALITY STANDARDS, 47 C.S.R. 2 §§ 3.2.e AND 3.2.i (Aug. 12, 2010), *available at*

WVDEP's Justification Document explained that the agency does not have evidence that discharges of elevated conductivity from surface coal mines cause stream impairment or should be regulated through effluent limits. Specifically, WVDEP claims the causal relationship between conductivity and stream impairment is "loose and questionable,"[74] that calculating a numeric effluent for conductivity is "infeasible,"[75] and that "native aquatic life is protected at various values and ranges of specific conductance."[76]

WVDEP's Justification Document also countered the claim made by environmentalists that a shift in the macroinvertebrate community below surface mines constitutes a violation of West Virginia's narrative standards.

> The Pond-Passmore study found a shift in the benthic macroinvertebrate community downstream from mining activity, but did not otherwise correlate this finding with any significant or adverse impairment of the ecosystem. Where the only impacts to this component of the ecosystem are diminished numbers of certain mayflies, without evidence that this has had any adverse impact of any significance on the rest of the ecosystem, the State cannot say that there has been a violation of its narrative standard.[77]

In other words, WVDEP does not consider the loss of mayflies alone, without further effects on aquatic life or the overall aquatic ecosystem, to be a violation of the narrative water quality standards.

VII. THE WEST VIRGINIA LEGISLATURE RESPONDS TO LAWSUITS ALLEGING VIOLATIONS OF NARRATIVE WATER QUALITY STANDARDS WITH SENATE BILL 562

Not content with WVDEP's statement that the loss of mayflies alone does not constitute a violation of West Virginia's narrative water quality standards, environmental activist groups have seized upon studies by Pond and other scientists as well as EPA's Conductivity Benchmark to take the issue of the interpretation of the narrative standards to court. These activists have challenged the issuance of new surface mining permits,[78] water discharge

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http://www.dep.wv.gov/pio/Documents/Narrative/Narrative%20Standards%20Guidance%20Justification.pdf.

74 *Id.* at 8.

75 *Id.* at 7.

76 *Id.* at 6.

77 *Id.*

78 Complaint for Declaratory and Injunctive Relief and for Civil Penalties, W. Va. Highlands Conservancy v. Coresco, LLC., No. 1:12-00025 (N.D. W. Va. Feb. 2, 2012), ECF No. 3, *available at* http://publicjustice.net/sites/default/files/downloads/CorescoComplaintFeb2012_0.pdf (alleging

permits,[79] and have brought CWA citizen suits against coal companies claiming that the mining operations are discharging elevated levels of conductivity in violation of the narrative water quality standards.[80] Most of these suits are still working their way through the courts, but at least one coal operator has settled.[81]

In light of the mounting number of lawsuits accusing coal companies of violating the narrative water quality standards, the West Virginia Legislature amended § 22-11-7b(f) of the West Virginia Water Pollution Control Act through S.B. 562.[82] S.B. 562 commands WVDEP to develop new rules for measuring compliance with the biologic component of the narrative water quality standards that will deem a stream to be meeting the narrative standards if the stream:

> (i) Supports a balanced aquatic community that is diverse in species composition; (ii) contains appropriate trophic levels of fish, in streams that have flows sufficient to support fish populations; and (iii) the aquatic community is composed of benthic invertebrate assemblages sufficient to perform the biological functions necessary to support fish communities within the assessed reach, or, if the assessed reach has insufficient flows to support a fish community, in those downstream reaches where fish are present.[83]

In a letter to EPA, WVDEP Secretary Randy Huffman made clear that "efforts to develop a more robust protocol are already underway under the auspices of West Virginia University. WVDEP will diligently proceed with that mandate and expects to present proposed rules to the Legislature within a

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violations of narrative water quality standards based on WVSCI scores below 68 in the stream into which Coresco discharges).

79 Complaint, Sierra Club v. Thomas L. Clarke, Director, Division of Mining and Reclamation, West Virginia Department of Environmental Protection, Appeal No. 10-34-EQB (on file with the authors). In this appeal before the West Virginia Environmental Quality Board, which reviews permitting decisions of WVDEP pursuant to W. Va. Code § 22B-3-1, Sierra Club opposed a proposed 150 acre surface mine expansion on the grounds that the mine will discharge levels of conductivity, sulfate, and total dissolved solids (TDS) at levels that will violate the narrative water quality standards.

80 Complaint for Declaratory and Injunctive Relief and Civil Penalties, Ohio Valley Envtl. Coal. v. Elk Run Coal Co., No. 3:12-cv-0785 (S.D.W. Va. Mar. 20, 2012), ECF No. 1.

81 Ken Ward Jr., *CONSOL Agrees to Stream Cleanup Settlement*, CHARLESTON GAZETTE, Nov. 30, 2011, *available at* http://sundaygazettemail.com/News/201111300155. In the interest of full disclosure, as part of this settlement, a subsidiary of CONSOL Energy paid $200,000 to West Virginia University College of Law's Land Use and Sustainable Development Clinic. *Id.*

82 S.B. 562, 2012 Leg., Reg. Sess. (W. Va. 2012).

83 *Id*.

year."[84] Secretary Huffman wants the individual elements of S.B. 562 to be quantifiable and applicable throughout West Virginia. "'You have to be able to quantify all the things that we list in there'—the balanced aquatic community, appropriate levels of fish, sufficient stream-bottom bugs—'in some systematic way to have uniform application across the state.'"[85]

The Legislature's hope is that the methods WVDEP develops will allow the narrative standards to be more easily quantifiable and thereby erase the current ambiguity regarding what conditions indicate that a stream is meeting—or failing to meet—these standards. As things stand, environmental activist groups point to the fact that a receiving stream may lack sensitive mayfly genera to claim that a discharge is violating the narrative water quality standards. By requiring WVDEP to assess the narrative water quality standards by looking primarily at hardier fish populations rather than mayfly genera that appear to be particularly sensitive to slightly elevated levels of conductivity, S.B. 562 may provide some much needed relief to the state's coal industry.

VIII. FALLOUT FROM SENATE BILL 562: EPA PARTIALLY REJECTS WVDEP'S 303(d) LIST OF IMPAIRED STREAMS

Though WVDEP has not yet unveiled the new methods for measuring compliance with the state's narrative water quality standards that it is developing pursuant to S.B. 562, this legislation has already produced an ongoing legal standoff between the state and EPA.

Section 303(d) of the CWA requires states to identify waters within their jurisdictions that are failing to meet applicable water quality standards and are therefore impaired.[86] States submit a 303(d) list for EPA to review every two years.[87] States must develop a remedial strategy, called a Total Maxiumum Daily Load ("TMDL"), for every stream included on the 303(d) list.[88]

A TMDL is a calculation of the maximum quantity of the pollutant(s) currently causing the stream to be impaired that the stream can tolerate without being impaired. [89] Once a state calculates the total pollution load that a stream can tolerate, the state identifies all of the sources currently contributing that pollutant to the stream and assigns those sources a new, lower pollutant load,

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[84] Letter from Randy Huffman, Cabinet Secretary of West Virginia Department of Environmental Protection, to Jon M. Capacasa, Director of U.S. EPA Region III Water Protection Division (Apr. 6, 2012) (on file with authors).

[85] Kasey, *supra* note 51 (quoting DEP Secretary Randy Huffman).

[86] CWA § 301(d), 33 U.S.C. § 1313(d) (2012).

[87] *Id.*

[88] *What is a TMDL?*, EPA, http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/overviewoftmdl.cfm (last visited Apr. 7, 2013).

[89] *Id.*

which must be met under threat of government fines and enforcement actions.[90] Once impaired streams begin to achieve their applicable water quality standards, they are no longer considered to be impaired and are removed from the 303(d) list.[91]

WVDEP is responsible for compiling West Virginia's 303(d) list. When WVDEP submitted its list in December 2012, it did not add new streams for "biologic impairment" given that the S.B. 562 criticized the agency's former method of evaluating biological impairment, the WVSCI, and ordered it to develop a new methodolgy.

> Passage of Senate Bill 562 in the 2012 regular legislative session requires DEP to develop and secure legislative approval of new rules to interpret the narrative criterion for biological impairment found in 47 CSR 2-3.2.i. *** 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.[92]

On March 25, 2013, EPA rejected the portion of WVDEP's 303(d) list related to biological impairment.[93] EPA also added 255 streams to the list for "biological impairment" that it determined would have been added under WVDEP's former methodology of evaluating a stream's biologic health using WVSCI scores.[94]

> WVDEP has interpreted SB 562 as a legislative instruction to indefinitely cease assessing waters against West Virginia's narrative water quality criteria as applied to the aquatic life uses pending future development of a new assessment methodology, and EPA acknowledges that is WVDEP's interpretation as a matter of state law. Nevertheless, even assuming that SB 562 as a matter of state law precludes WVDEP from assessing state waters against West Virginia's narrative water quality criteria as applied to the aquatic life uses, SB 562 is a state law that does not override federal requirements.

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90 *Id.*

91 *Id.*

92 W. VA. DEP'T ENV'T PROT., WEST VIRGINIA DRAFT 2012 SECTION 303(d) LIST 13, *available at* http://www.dep.wv.gov/WWE/watershed/IR/Documents/2012_Draft_303(d)_Documents/2012_303(d)_Complete_Document_M112012.pdf (last visited Apr. 9, 2013).

93 Letter from Shawn M. Garvin, EPA Regional Administrator, to Randy C. Huffman, Secretary of WVDEP (Mar. 25, 2013), http://www.epa.gov/reg3wapd/pdf/pdf_tmdl/WV303d/2012WV303dList_Ltr-3-25-13.pdf.

94 *See* EPA, ENCLOSURE 3: WATER WITH WVSCI SCORES LESS THAN 60.6, *available at* http://www.epa.gov/reg3wapd/pdf/pdf_tmdl/WV303d/2012WV303dList-Encl3-3-25-13.pdf (last visited Apr. 9, 2013).

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> Recognizing WVDEP's view that it is unable to carry out the requirement set forth in 40 CFR 130.7(b)(5) to assemble and evaluate all existing and readily available water quality, EPA has an obligation to take action to ensure that the federal requirement is satisfied. Since the state law, in this case SB 562, does not override the federal requirement, EPA is taking action to partially disapprove West Virginia's 2012 Section 303(d) list to the extent that it omits water quality segments for which biological data were not evaluated by WVDEP.[95]

In partially rejecting WVDEP's 303(d) list, EPA was careful to explain that it is not preemptively rejecting any methods of measuring compliance with the narrative water quality standards that WVDEP might develop pursuant to S.B. 562, but is merely stepping in to fill the methodological void created by S.B. 562.

> It is important to note that EPA's action is limited to its partial disapproval of the omission of certain WQLSs from West Virginia's 2012 Section 303(d) list caused by WVDEP's failure to evaluate certain existing and readily available data. It is unnecessary for purposes of this action for EPA to take any position as to whether SB 562 does or does not constitute a change in West Virginia's water quality standards that must be submitted to and approved by EPA before becoming effective for purposes of Federal law. *** It is also important to note that EPA's action should not be considered as pre-judging any future assessment methodology that may be developed by WVDEP pursuant to SB 562. If and when WVDEP develops an assessment methodology and such methodology is incorporated into West Virginia's regulations and applied in connection with future Section 303(d) lists, EPA will consider WVDEP's evaluation of existing and readily available information at that time. [96]

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[95] *See* EPA, ENCLOSURE 1: REVIEW OF WEST VIRGINIA'S 2012 SECTION 303(d) 14, *available at* http://www.epa.gov/reg3wapd/pdf/pdf_tmdl/WV303d/2012WV303dList-Encl1-3-25-13.pdf (last visited Apr. 9, 2013).

[96] *Id.* at 15.

IX. CONCLUSION

In the past two years, environmental activist groups determined to bring about the demise of coal[97] have argued that West Virginia's ambiguous and undefined narrative water quality standards are meant to protect all forms of aquatic life equally from a native brook trout to a sensitive genus of mayfly. Through S.B. 562, WVDEP has an opportunity to bring common sense back to West Virginia's narrative water quality standards by acknowledging the fact that society values fish more than sensitive mayfly genera. S.B. 562's approach of measuring compliance with a water quality standard by looking at fish populations mirrors the advice of EPA's 1983 Water Quality Standards Handbook, detailed in Part IV above, which recognized that the public associates the health of a stream with the communities of fish—not mayflies—that it can support.

While the public is likely as uninterested in mayflies today as it was in 1983, the same cannot be said for EPA. EPA's Conductivity Benchmark, which advocated for effluent limits to be placed on discharges containing conductivity as low as 300 µS/cm, was premised on the notion that those levels of conductivity contribute to the disappearance of 5% of macroinvertebrate genre.[98] In other words, to save a mere 5% of aquatic insects, the agency did not hesitate to advocate for effluent limits that, if implemented, will be devastating to one of the most important industries in Appalachia.

Similarly, EPA has started to move away from its historical policy, embodied in the 1985 Guidelines detailed in Part III above, of using only reliable laboratory experiments to develop water quality criteria.[99] EPA's Conductivity Benchmark was not based on any laboratory experiments, but instead relied exclusively on field data. In a recent editorial, several EPA scientists who worked on developing EPA's Conductivity Benchmark defended the lack of laboratory data[100]:

> For 30 years, nearly all water quality criteria in the United States and elsewhere have been derived using standard

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97 Sierra Club, one of the nation's largest environmental advocacy groups, has had a "Beyond Coal" campaign since 2002. Sierra Club credits the campaign with retiring 143 existing coal-fired power units and preventing many coal-fired power units from being built. *Victories*, SIERRA CLUB, http://content.sierraclub.org/coal/victories (last visited Mar. 10, 2013).

98 CONDUCTIVITY BENCHMARK, *supra* note 63.

99 CHARLES E. STEPHEN ET AL., *supra* note 27, at 3.

100 Susan M. Cormier & Glenn W. Suter II, Editorial, *Sources of Data for Water Quality Criteria* 32 ENVTL TOXICOLOGY AND CHEMISTRY 254, 254 (2013), *available at* http://onlinelibrary.wiley.com/doi/10.1002/etc.2082/pdf (explaining that "[l]aboratory data were not appropriate [for the development of the Conductivity Benchmark] because the mixture had not been sufficiently tested. In particular, genera and life stages that were sensitive in the field were not tested in the laboratory.").

> laboratory toxicity tests. Those criteria have played an important role in improving water quality and protecting aquatic communities. But now it is time to avoid ourselves of all sources of knowledge. [101]

In order for S.B. 562 to slow the pace of lawsuits claiming violations of West Virginia's narrative standards, WVDEP must develop and propose a method of measuring compliance with the narrative standards that will protect the state's streams while still allowing the practice of surface coal mining. At the same time, WVDEP's methods may have to be approved by EPA as a modification to the state's existing water quality standards pursuant to 40 C.F.R. § 131.20(c). The stage is set for a legal showdown between EPA and WVDEP to determine which agency has the ultimate authority to define compliance with West Virginia's narrative water quality standards.

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[101] *Id.*