

**ENVIRONMENTAL QUALITY BOARD
CHARLESTON, WEST VIRGINIA**

SIERRA CLUB,

Appellant,

v.

Appeal No. 10-34-EQB

**THOMAS L. CLARKE, DIRECTOR
DIVISION OF MINING AND
RECLAMATION, DEPARTMENT OF
ENVIRONMENTAL PROTECTION,**

Appellee,

and

PATRIOT MINING COMPANY, INC.,

Intervenor.

FINAL ORDER

On September 3, 2010, the Sierra Club ("Appellant") filed the above referenced appeal of West Virginia decision by the Department of Environmental Protection ("WVDEP" and/or "Appellee") to approve National Pollutant Discharge Elimination System ("NPDES") Permit Number WV1017535 Modification Number 9 ("the Permit") on August 9, 2010.

An evidentiary hearing on the matter was held before a court reporter and a quorum of the Environmental Quality Board ("EQB" and/or "Board") on December 14, 15, 16, and 17, 2010. Peter Morgan, Esquire, and Joe Lovett, Esquire, represented the Sierra Club at the hearing. Jennifer Hughes, Esquire, represented the WVDEP. Robert McLusky, Esquire, and James Snyder, Esquire, represented Patriot Mining Company, Inc. ("Intervenor" and/or

“Patriot”). Prior to that hearing, the Board granted Appellant’s motion for a stay of the permit pending final order of the Board. Bd.’s Order of 11/18/10.

At the evidentiary hearing, Appellee filed a motion in limine to preclude testimony, evidence, and argument regarding a guidance document from the federal Environmental Protection Agency (“EPA”) that WVDEP argues is inapplicable to this appeal. The Board first denied the Motion as untimely, and then upon reconsideration agreed to allow the parties to brief the question as part of the filing of findings of fact and conclusions of law. The Board reviewed the briefs and arguments of counsel and DENIES the Motion in Limine and finds that it will give the guidance documents no more weight than deserved and given that the documents are cited as guidance and draft the Board provides no merit more than the scientific literature that is cited in the exhibits.

The Board heard testimony from twelve witnesses during the December hearing: Evan Hansen, Margaret Palmer, Ph.D., Emily Bernhardt, Pd.D., Pat Campbell, Paul Ziemkiewicz, Ph.D., Robert Gensemer, Ph.D., Scott Mandirola, Ronald Hamric, Jessica Yeager, Carys Mitchelmore, Ph.D., Vaughn Miller, Ryan King, Ph.D., and Jeffrey Parsons. Exhibits admitted included: Board’s Exhibit 1; Appellant’s Exhibits 1-43; Appellee’s Exhibits 1-7, and Intervenor’s Exhibits 1-15. Ed Snyder, Ph.D., Chairman of the Board, conducted the meeting with other members in attendance: Scott Simonton, Ph.D., James Van Gundy, Ph.D., Ted Armbrecht, and William Gillespie.

At the conclusion of the hearing and after the transcript was received the Board set forth a time frame for the parties to submit proposed findings of fact and conclusions of law for consideration. The Board reviewed the arguments of counsel, statutes, regulations,

transcript, and briefs and **REMANDS** the modification for action consistent with this order.

STANDARD OF REVIEW

The Environmental Quality Board was created by the legislature to hear appeals of permitting and enforcement decisions made by the West Virginia Department of Environmental Protection. The statute creating the Board states, “[i]ndividuals appointed to the board shall be persons who by reason of previous training and experience are knowledgeable in the husbandry of the state's water resources and with at least one member with experience in industrial pollution control.” *W.Va. Code* § 22B-3-1(B). Board Chairman, Dr. Ed Snyder is a professor of geology at Shepherd University and has a Ph.D. in Geology. Dr. Scott Simonton is a former permit writer at WVDEP and currently teaches Environmental Sciences at Marshall University and has a Ph. D. in engineering. Dr. James Van Gundy is Emeritus Professor of Environmental Sciences at Davis and Elkins College and has a Ph. D. in aquatic ecology. Mr. William Gillespie is a former professor of geology and geography at West Virginia University and is a renowned expert in paleobotany, geology, and forestry. Mr. Ted Armbrecht is a Yale graduate and former Chief Executive Officer of Stone & Thomas Department Store, on the Board of the Mountain Institute, and an active member of the Nature Conservancy.

The Board hears appeals of orders issued by Appellee in accordance with W.Va. Code § 22B-1-7. The Board does not afford deference to the Director’s decision, but rather, the Board acts independently on the evidence before it. *W.Va. Division of Env'tl. Protection v. Kingwood Coal Co.*, 200 W.Va. 734, 745, 490 S.E.2d 823, 834 (1997). Under W.Va. Code § 22B-1-7(g), the Board “shall make and enter a written order affirming, modifying

or vacating the order, permit or official action of the chief or secretary, or shall make and enter such order as the chief or secretary should have entered.”

To prevail in this appeal, Appellant must raise an issue with sufficient evidence to support a finding that the Appellee’s decision was incorrect. *Wetzel County Solid Waste Auth. v. Chief, Office of Waste Management, Div. Of Env’tl. Protection*, Civil Action No. 95-AA-3 (Circuit Court of Kanawha County, 1999). If Appellant does so, then the burden shifts to the Appellee to produce evidence demonstrating that its decision was sound, regardless of Appellant’s evidence, *Id.* Appellant then has an opportunity to show that the evidence produced by the Appellee is pre-textual or otherwise deficient. *Id.* The Kanawha County Circuit once again approved the use of the *Wetzel County* burden shifting rule in environmental appeals in *Sierra Club v. Benedict*, Civ. Action No. 07-AA-42, Slip Op. At 6 (Kanawha County Circuit Ct. June 29, 2007).

STATEMENT OF ISSUES

The issues raised by this appeal of Modification Number 9 of WV NPDES Permit WV1017535 included:

- A.) The WVDEP erred by not performing a reasonable potential analysis, and not setting effluent discharge limitations based on this analysis, for specific conductivity, total dissolved solids, or sulfate;
- B.) The WVDEP erred by not performing a reasonable potential analysis, and not setting effluent discharge limitations based on this analysis, for Coal Combustion Waste (“CCW”) constituents including but not limited to

antimony, arsenic, barium, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, thallium, and zinc.

C.) The WVDEP erred by not performing a reasonable potential analysis, and not setting effluent discharge limitations based on this analysis, for whole effluent toxicity, and

D.) The WVDEP erred by not including effluent discharge limitations for manganese for outlet 001.

DISCUSSION

At hearing and in brief, Appellants argued that the Clean Water Act requires WVDEP to include effluent limits in all West Virginia NPDES permits sufficient to ensure compliance with all applicable water quality standards, including both numeric and narrative water quality standards. The Board agrees and finds the process for determining what limits to include in a permit requires WVDEP to conduct an analysis of the reasonable potential for a discharge to cause or contribute to an excursion of a standard. In this case, however, the WVDEP overlooked or discounted information that, had it been considered, would have compelled WVDEP to include effluent limits in the permit for conductivity, sulfate, and total dissolved solids in order to prevent violations of West Virginia's narrative water quality standards. WVDEP also overlooked or discounted information that, had it been considered, would have compelled the agency to include effluent limits in the permit for selenium and possibly arsenic.

The Board finds that WVDEP may not avoid consideration of narrative water quality standards when issuing discharge permits. The limits WVDEP sets forth in a WV/NPDES permit must ensure compliance with all applicable water quality standards, including narrative water quality standards. See 33 U.S.C. § 1311(b)(1(A) and (C); 40 C.F.R. § 122.44(a)(1) and (d)(1).

West Virginia's narrative standards prohibit discharges of "[m]aterials in concentrations which are harmful. . . to. . . aquatic life" (47 C.S.R. § 2-3.2.e) or that cause "significant adverse impacts to the . . . biological components of aquatic ecosystems." (47 C.S.R. §§ 2-3.2.i).

The Board finds that a growing body of science has demonstrated that discharges from surface coal mines in Appalachia are strongly correlated with and cause increased levels of conductivity, sulfate, and total dissolved solids in water bodies downstream from mines. The science also demonstrates that these discharges cause harm to aquatic life and significant adverse impacts to aquatic ecosystems in these streams. The harm and significant adverse impacts include the extirpation of entire genera and the disruption of community composition crucial to functioning ecosystems.

The Board finds that Appellant demonstrated that discharges from the New Hill West Surface Mine and other similar mines in the Scotts Run watershed contain levels of conductivity, sulfate, and total dissolved solids above the limits known to cause harm to aquatic life and significant adverse impacts to aquatic ecosystems.

FINDINGS OF FACT

All proposed findings submitted by the parties have been considered and reviewed in relation to the adjudicatory record developed in this matter. All argument of counsel, proposed findings of fact and conclusions of law have been considered and reviewed in relation to the aforementioned record, as well as to applicable law. To the extent that the proposed findings of fact, conclusions of law and arguments advanced by the parties are in accordance with these findings of fact, conclusions and legal analysis of the Board and are supported by evidence, they have been adopted in their entirety. To the extent that the proposed findings, conclusions, and arguments are inconsistent therewith, they have been rejected. Certain proposed findings and conclusions have been omitted as not relevant or necessary to a proper decision. To the extent that the testimony of the various witnesses is not in accord with the findings stated herein, it is not credited.

1. The New Hill West Surface Mine is a surface coal mining facility located in the Scott's Run watershed and operated by the Patriot Mining Company ("Patriot"). Appellant (hereafter "At.") Ex. 3 at p. 1.
2. The West Virginia Division of Mining and Reclamation, Department of Environmental Protection ("DEP"), issued WVNPDES permit WV1017535, Modification No. 9 ("the permit"), to Patriot on August 9, 2010. *Id.*
3. The site of the New Hill West Surface Mine was partially mined previously. Tr. 4, 8:4-9 (Hamric Direct); Intervenor (hereafter "Int.") Ex. 1.

4. Modification 9 addresses discharge from four outlets – Outlets 001, 006, 026, and 027 – which discharge to an unnamed tributary of Scotts Run and to Scotts Run, which ultimately flows into the Monongahela River. At. Ex. 3, pp. 1-5. Outlet 001 was originally constructed as part of previous surface mining operations on the site. Tr. 4, 11:17-18 (Hamric Direct).
5. The permit contains report-only requirements for arsenic, barium, cadmium, copper, lead, nickel, and zinc. At. Ex. 3, pp. 2-5.
6. The permit does not contain an enforceable effluent limit for conductivity. *Id.*
7. The permit does not contain an enforceable effluent limit for sulfate. *Id.*
8. The permit does not contain an enforceable effluent limit for total dissolved solids. *Id.*
9. The permit does not contain an enforceable effluent limit for selenium. *Id.*
10. The permit does not contain an enforceable effluent limit for arsenic. *Id.*
11. The permit does not contain an enforceable effluent limit for barium, cadmium, copper, lead, nickel, zinc, or any other chemical pollutant associated with coal combustion waste. *Id.*
12. The permit does not contain an enforceable effluent limit for whole effluent toxicity. *Id.*
13. The permit does not contain an enforceable effluent limit for manganese at outlet 001. *Id.*

14. Appellant filed a Notice of Appeal of WVNPDES permit WV1017535, Modification No. 9 on September 3, 2010.
15. The Board held a four-day hearing on December 14, 15, 16, and 17, 2010, at which the parties presented testimonial and documentary evidence.

Conductivity, Sulfate, Total Dissolved Solids:

16. Numerous scientific studies show that streams located below surface mines in West Virginia and other parts of Appalachia experience increased levels of conductivity and total dissolved solids (TDS) due to elevated concentrations of sulfate, calcium, magnesium, and bicarbonate ions. At. Ex. 22 at p. 1; At. Ex. 23 at p. 718.
17. Surface mining in Appalachia fragments and exposes rock and releases high concentrations of sulfate and other ions. At. Ex. 33 at p. 4; At. Ex. 23 at p. 717.
18. Conductivity – also referred to as specific conductance – is a measure of the presence of these ions in discharges or receiving streams. At. Ex. 33 at p. 4.
19. A high correlation between levels of sulfate and levels of conductivity in a waterbody indicate that surface mining is the primary source of the elevated conductivity in that waterbody. At. Ex. 33 at p. 4, 7; Tr. 1, 211:8-23 (Palmer Direct); Tr.1, 276:8-18, 277:11-24, 278:1-8 (Bernhardt Direct).
20. Numerous scientific studies have documented significant changes in stream macro invertebrate communities directly downstream of surface mining operations and have shown that these declines are caused by the combined effects of heightened concentrations of ions – including sulfate – as indicated by elevated levels of

conductivity and TDS. At. Ex. 33 at p. 4; At. Ex. 22; At. Ex. 23; Tr. 1, 218:1- 219:20 (Palmer Direct).

21. Elevated levels of conductivity, sulfate, and TDS associated with mine discharges cause direct impacts to aquatic organisms by acting as a stressor, and by disrupting water and ion balance. At. Ex. 22 at p. 1; Tr.1, 305:11- 306:13 (Bernhardt Direct).
22. EPA has indicated, including in a comment letter submitted to WVDEP on the draft permit, that levels of total dissolved solids (TDS) should be kept below 500 mg/l in order to avoid biological impairment. At. Ex. 6.
23. Macro invertebrate community composition is a very important component of the health of aquatic ecosystems in West Virginia streams. Tr. 1, 246:7- 249:5 (Palmer Direct).
24. Different macro invertebrate genera play very different roles in aquatic ecosystems. Tr. 1, 236:13- 237:4 (Palmer Direct).
25. In healthy West Virginia streams, mayflies make up approximately 30% of the insects in the streams (Tr.1, 242:12-16 (Palmer Direct); At. Ex. 26); whereas in streams below coal mines with conductivity levels above 500 μ S/cm the percentage of mayflies drops to 11% (Tr.1, 247:11-13 (Palmer Direct); At. Ex. 26).
26. At the hearing, Dr. Palmer testified that when such a shift occurs, “there’s no question” that “the stream will function differently from the way it functioned before you lost the mayflies.” Tr.1, 247:17-20 (Palmer Direct).

27. A reduction in macro invertebrate genera in stream ecosystems in West Virginia can have major impacts on stream function, including reduced primary production (food creation) and increased sedimentation (Tr. 1, 232:5-17, 236:18- 237:4 (Palmer Direct)), which in turn can have a significant impact on higher trophic levels like birds and fish, as a reduction in their food supply can cause reductions in bird and fish abundance and diversity (Tr. 1, 227:13-20 (Palmer Direct)).
28. If too much biodiversity is lost, ecosystem function collapses. Tr. 1, 246:7-22, 248:20- 249:5 (Palmer Direct).
29. Increased levels of conductivity, sulfate, and TDS lead to significant disruptions to macro invertebrate communities, including the extirpation of ecologically important macro invertebrate taxa, and to population shifts toward more pollution-tolerant taxa. At. Ex. 33; At. Ex. 23; Tr. 1, 245:2- 249:5 (Palmer Direct); Tr. 1, 295:17-23 (Bernhardt Direct).
30. The loss of stream macro invertebrate communities, in turn, leads to substantial effects on fish, amphibian, and bird populations that rely on these communities as a food source. Tr. 1, 232:5-17, 233:1-15, 249:23- 250:4 (Palmer Direct); At. Ex. 25.
31. Direct impacts from coal mining associated with elevated levels of conductivity are not restricted to macro invertebrates. An analysis of a data set from Kentucky that includes information on fish taxa, and that was analyzed in the same manner as the West Virginia macro invertebrate data, demonstrates a community level response for

- the fish taxa at conductivity levels of approximately 200 $\mu\text{S}/\text{cm}$. At. Ex. 38; Tr. 2, 167:4- 168:24 (King Direct).
32. The scientific studies that have addressed the issue have established an “exceptionally strong correlation between both sulfates and conductivity with degradation of aquatic life.” Tr. 4, 128:23- 129:1 (Palmer Rebuttal).
33. It is a fundamental principle of scientific inquiry that a relationship initially described as a strong correlation will eventually be considered a causal relationship when, as here, that result is supported by multiple lines of evidence. Tr. 4, 130:7- 132:14 (Palmer Rebuttal).
34. The consistency of the correlations identified in the research on the relationship between elevated conductivity from mine discharges and impacts to aquatic organisms has been so strong that it has led scientists to conclude that “collectively, there’s a considerable amount of evidence that strongly suggests that conductivity associated with mine drainage is causing impairment – biological impairment in streams.” Tr. 156:3-6 (King Rebuttal).
35. WVDEP considers streams with levels of conductivity above 1,500 $\mu\text{S}/\text{cm}$ to be potential sites for golden algae outbreaks. Tr. 3, 24:20- 25:4 (Campbell Cross).
36. The high correlation between levels of sulfate and conductivity in the Upper Monongahela indicates that coal mining is the source of conductivity in this watershed. At. Ex. 29; Tr. 1, 292:8- 293:4 (Bernhardt Direct).

37. Conductivity levels measured at monitoring station TS237 in Scotts Run near the mouth of the stream where it enters the Monongahela River between January 2002 and January 2010 range from approximately 500 to 2,000 $\mu\text{S}/\text{cm}$. At. Ex. 16 at p. 1; Tr. 1, 112:7-12 (Hansen Direct).
38. Conductivity levels in the effluent from outlet 001, one of the outlets covered by the permit, measured 1,316 $\mu\text{S}/\text{cm}$ on April 21, 2007. At. Ex. 17; Tr. 1, 115:9-10 (Hansen Direct).
39. Conductivity levels measured at instream monitoring point WVM 6-F-0 just downstream from the New Hill Mine complex between June 2009 and May 2010 ranged from approximately 1,300 to 2,100 $\mu\text{S}/\text{cm}$. At. Ex. 17; Tr. 1, 116:11-12 (Hansen Direct).
40. Sulfate levels measured at monitoring station TS237 between January 2002 and January 2010 ranged as high as 1,100 mg/l. At. Ex. 16 at p. 2; Tr. 1, 112:15-20 (Hansen Direct).
41. Sulfate levels in the effluent from outlet 001, one of the outlets covered by the permit, measured 390 mg/l on April 21, 2007. At. Ex. 17.
42. Sulfate levels measured at instream monitoring point WVM 6-F-0 just downstream from the New Hill Mine complex between June 2009 and May 2010 ranged from approximately 670 to 1170 mg/l. At. Ex. 17.

43. Total dissolved solids (TDS) levels measured at monitoring station TS237 between January 2002 and January 2010 range from approximately 250 to 1,600 mg/l. At. Ex. 16 at p. 3; Tr. 1, 113:2-6 (Hansen Direct).
44. TDS levels in the effluent from outlet 001, one of the outlets covered by the permit, measured 908 mg/l on April 21, 2007. At. Ex. 17.
45. TDS levels measured at instream monitoring point WVM 6-F-0 just downstream from the New Hill Mine complex between June 2009 and May 2010 ranged from approximately 1,060 to 1,740 mg/l. At. Ex. 17.
46. Water quality and macro invertebrate data from sites in the Upper Monongahela watershed indicate that macro invertebrate community health in this region has declined in areas with high conductivity and high sulfate. At. Exs. 30, 31, 32; Tr. 1, 293:17- 295:23 (Bernhardt Direct).
47. Benthic macro invertebrate data from Scotts Run demonstrates that certain tributaries upstream from recent mining activities, including tributaries upstream from the New Hill West Surface Mine, host a wider diversity of macro invertebrates, including several sensitive genera, than areas downstream of recent surface mining. Tr. 4, 158:14 - 160:13 (King Rebuttal).
48. There are no barriers to the repopulation of downstream areas by the upstream communities should levels of conductivity, sulfate, and TDS in the downstream areas be brought back below levels that are harmful to these communities. Tr. 4, 160:24- 161:1 (King Rebuttal).

49. New discharges that contribute to and perpetuate elevated levels of conductivity, sulfate, and TDS prevent the repopulation of stream areas by diverse assemblages of native macro invertebrates and the reestablishment of healthy aquatic ecosystems. Tr. 4, 160:44 - 161:1 (King Rebuttal).

Whole Effluent Toxicity:

50. EPA's "Technical Support Document for Water-quality Based Toxics Control" identifies WET limits of 1.0 chronic toxicity unit (TUc) and 0.3 acute toxicity unit (TUa). At. Ex. 8 at p. 35.
51. The permit at issue in this appeal was issued three days before WVDEP issued its "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" ("DEP permitting guidance"). At. Ex. 27; Tr. 3, 298:13-16 (Mandirola Cross).
52. WVDEP did not apply its permitting guidance to this permit. Tr. 3, 264:13-23 (Mandirola Cross).
53. WVDEP's permitting guidance recognizes the importance of including WET limits in discharge permits for surface coal mining operations, and applies the same limits required by the EPA Technical Support Document. At. Ex. 27 at p. 2-3.
54. WET is a lab-based method for evaluating the toxicity of water samples taken in the field by exposing laboratory-raised test species to these water samples in varying concentrations. Tr. 2, 121:10 - 122:16 (Mitchelmore Direct).

Selenium and Other Pollutants Associated with Coal Combustion Waste:

55. The New Hill West Surface Mine intends to place coal combustion waste ("CCW") from the Morgantown Energy Associates plant on the mine site. Tr. 3, 76:9-11 (Ziemkiewicz Direct).
56. The alkaline CCW will be used as a hydrologic barrier to prevent water from coming into contact with acid-producing material generated or exposed through the surface mining process, as well as to neutralize the acidity of water that does come into contact with the mine spoil. Tr. 3, 72:4-7, 13-19, 105:9-11 (Ziemkiewicz Direct).
57. CCW has been used in a similar manner at other mines in the Scotts Run watershed, including other operations mining the same Waynesburg coal seams mined at the New Hill West mine. Tr. 1, 75:3- 76:15, 77:2-5 (Hansen Direct); Tr. 3, 76:14-20 (Ziemkiewicz Direct).
58. No studies have been conducted on the long-term performance of encapsulation with CCW. Tr. 3, 128: 5-14 (Ziemkiewicz Cross); Tr. 3, 142:14- 143:4, 148: 11-24 (Ziemkiewicz Cross (Board)).
59. Among other constituents, CCW is known to contain arsenic, selenium, barium, cadmium, copper, lead, nickel, and zinc. At. Ex. 4 at p. 42-43.
60. West Virginia maintains numeric water quality standards for arsenic of 10 µg/l and selenium of 5 µg/l (chronic). 47 CSR 2, App'x. E, Table 1.

61. Discharge monitoring reports from the New Hill Surface Mine Complex, where CCW has been placed as part of recent mining operations, show discharges of selenium at or above the 5µg/l standard. At. Ex. 7; Tr.1, 63:12-23 (Hansen Direct).
62. Calculations of the reasonable potential for discharges from outlet 001 at the New Hill West Surface Mine, based on previous discharges from this outlet and performed in strict compliance with the EPA guidelines for such calculations, show that there is a reasonable potential for such discharges to cause or contribute to an excursion above the state numeric water quality criterion. At. Ex. 9; At. Ex. 8; Tr.1, 64:11-16, 69:7- 73:22 (Hansen Direct).
63. Discharge monitoring reports from a surface mine in the Scotts Run watershed that is mining the same coal seam and is using CCW in a similar manner to the New Hill West mine show levels of arsenic many times higher than the 10 µg/l standard, including levels over 250 µg/l. At. Ex. 10; Tr.1, 76:4- 78:5 (Hansen Direct).
64. The permit does not contain enforceable effluent limits for chemical pollutants associated with CCW, including arsenic and selenium. At. Ex. 3.
65. The permit record shows no evidence that WVDEP performed a reasonable potential analysis for any of the chemical pollutants associated with CCW, despite the availability of discharge monitoring data from the New Hill Surface Mine Complex and other similar facilities in the Scotts Run watershed, including data from one of the outlets covered by the permit modification. Tr.1, 69:2-6 (Hansen Direct); Tr. 3, 109:17- 110:15 (Ziemkiewicz Cross).

66. WVDEP's program manager for the Division of Mining and Reclamation's NPDES Permitting Section, Jeff Parsons, testified that, had WVDEP considered the additional monitoring data and performed the reasonable potential analysis, WVDEP would have included enforceable effluent limits for selenium in the permit. Tr.2, 293:14-18 (Parsons Cross)
67. Instead of performing the required reasonable potential analysis, WVDEP only considered leachate studies, including a TCLP test. At. Ex. 3, Rational Page 1; Tr.1, 79:1-12 (Hansen Direct); Tr.2, 278:9-12 (Parsons Cross).
68. A report prepared by WVDEP's expert witness Dr. Paul Ziemkiewicz indicates that, in terms of evaluating the effect of CCW placement, "[f]ield observations are the best measure of the extent to which [CCW] is either improving or degrading water quality." Ae. Ex. 6; Tr. 3, 109:6-11, 111:6-9 (Ziemkiewicz Cross).

Manganese:

69. The final permit does not impose any effluent limit for manganese for outlet 001, even though all other outlets covered by the permit have enforceable effluent limits for manganese of 2.00 mg/l average monthly and 3.47 mg/l maximum daily. At. Ex. 3.
70. At the hearing, all parties stipulated that the permit should have contained an effluent limit for manganese for outlet 001. Tr. 1, 6:19- 8:4.

CONCLUSIONS OF LAW

Standard of Review/Burden of Proof:

1. The Board hears appeals of orders issued by Appellee in accordance with W. Va. Code § 22B-1-7.
2. The Board does not afford deference to the Director's decision, but rather, the Board acts independently on the evidence before it. *W. Va. Division of Env'tl. Protection v. Kingwood Coal Co.*, 200 W. Va. 734, 745, 490 S.E.2d 823, 834 (1997).
3. Under W. Va. Code § 22B-1-7(g), the Board "shall make and enter a written order affirming, modifying or vacating the order, permit or official action of the chief or secretary, or shall make and enter such order as the chief or secretary should have entered."
4. To prevail in this appeal, Appellant must raise an issue with sufficient evidence to support a finding that the Appellee's decision was incorrect. *Wetzel County Solid Waste Auth. V. Chief, Office of Waste Management, Div. of Env'tl. Protection*, Civil Action No. 95-AA-3 (Circuit Court of Kanawha County, 1999).
5. If Appellant does so, then the burden shifts to the Appellee to produce evidence demonstrating that its decision was sound, regardless of Appellant's evidence. *Id.* Appellant then has an opportunity to show that the evidence produced by the Appellee is pre-textual or otherwise deficient. *Id.*

6. The Kanawha County Circuit once again approved the use of the *Wetzel County* burden-shifting rule in environmental appeals in *Sierra Club v. Benedict*, Civ. Action No. 07-AA-42, Slip Op. at 6 (Kanawha County Circuit Ct. June 29, 2007).

Standing:

7. Appellant has standing to prosecute this appeal.
8. Sierra Club, through its members, has concrete recreational and aesthetic interests in the streams affected by Intervenor/ Appellee's discharges.
9. W. Va. Code § 22-11-21 provides Appellant with a procedure through which it can protect those interests from encroachment by unlawful WVDEP permitting decisions.
10. Consequently, the requirements for standing, including immediacy of injury and redressability, are met.

Appellee's Motion In Limine:

11. WVDEP is required to ensure that all WV/NPDES permits achieve compliance with all applicable water quality standards, including narrative water quality standards. *See* 33 U.S.C. § 1311(b)(1)(A) and (C); 40 C.F.R. § 122.44(a)(1) and (d)(1).
12. WVDEP is further required by 40 C.F.R. § 122.44(d)(1)(vi) to consider all "relevant information" when determining what effluent limits to include in a WV/NPDES permit to ensure compliance with applicable water quality standards.

13. The EPA guidance, and the scientific studies on which it relies, offer information directly relevant to the determination of whether discharges from the New Hill West mine will meet West Virginia's narrative water quality standards. The Board considered the information, as draft and guidance information, and gave it the weight it deserved in demonstrating the science contained in the draft and advisory documents.
14. The Board's de novo review of standard allows the Board to consider evidence even when WVDEP argues that it did not consider the information when making its determination. Therefore, it was proper for this Board to allow testimony, evidence, and arguments regarding the EPA guidance.

Sufficiency of the Permit to Ensure Protection of State Water Quality Standards:

15. The permit is unlawful because it fails to include enforceable effluent limits sufficient to ensure protection of West Virginia's narrative and numeric water quality standards.
16. The CWA and its implementing regulations require that the limits WVDEP sets forth in an NPDES permit must ensure compliance with all applicable water quality standards, including narrative water quality standards. *See* 33 U.S.C. § 1311(b)(1)(A) and (C); 40 C.F.R. § 122.44(a)(1) and (d)(1).
17. The WV/NPDES rules for coal mining facilities specifically apply and carry out this federal requirement, stating "The discharge or discharges covered by a WV/NPDES permit are to be of such quality so as not to cause violation of applicable water

quality standards adopted by the Department of Environmental Protection, Title 47, Series 2.” 47 C.S.R. § 30-5.1.f.

18. The U.S. Court of Appeals for the District of Columbia Circuit has observed, “the rubber hits the road when the state-created standards are used as the basis for specific effluent limitations in NPDES permits.” *American Paper Institute, Inc. v. U.S. E.P.A.*, 996 F.2d 346, 350 (D.C. Cir. 1993).
19. The effluent limits in a WV/NPDES permit “must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which [DEP] determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.” 40 C.F.R. § 122.44(d)(1)(I).
20. West Virginia’s narrative standards prohibit discharges of “[m]aterials in concentrations which are harmful . . . to . . . aquatic life” (47 C.S.R. § 2-3.2.e) or that cause “significant adverse impacts to the . . . biological components of aquatic ecosystems.” (47 C.S.R. §§ 2-3.2.i).
21. The permit does not contain effluent limits sufficient to ensure compliance with the West Virginia standard prohibiting discharges of materials in concentrations which are harmful to aquatic life. 47 C.S.R. § 2-3.2.e.

22. The permit does not contain effluent limits sufficient to ensure compliance with the West Virginia standard prohibiting discharges that cause significant adverse impacts to the biological components of aquatic ecosystems. 47 C.S.R. § 2-3.2.i.

Limits on Conductivity, Sulfate, and Total Dissolved Solids:

23. West Virginia's water quality standards do not include numeric standards for conductivity, sulfate, or total dissolved solids.
24. For pollutants or pollutant parameters for which the state has not promulgated a numeric standard, WVDEP must conduct a reasonable potential analysis to determine whether that pollutant or pollutant parameter will cause, have the reasonable potential to cause, or contribute to an excursion above a narrative standard. 40 C.F.R. § 122.44(d)(1)(I).
25. If a reasonable potential exists for an excursion above a narrative standard, WVDEP must establish effluent limits for that pollutant. 40 C.F.R. § 122.44(d)(1)(vi).
26. The process for establishing permit-specific effluent limits to ensure compliance with narrative standards is distinct from the process for establishing generally applicable numeric standards, and "does not supplant – either formally or functionally – the CWA's basic statutory framework for the creation of water quality standards; rather, it provides alternative mechanisms through which *previously adopted* water quality standards containing narrative criteria may be applied to create effective limitations on effluent emissions." *American Paper Institute*, 996 F.2d at 351 (emphasis in original).

27. Because high levels of conductivity cause conditions that violate state narrative water quality standards, because the discharge from surface coal mining facilities similar to the New Hill West Surface Mine are known to contain high conductivity levels, and because of scientific data establishing that discharges such as those proposed by the New Hill West Mine will lead to conductivity levels in the higher range than background in un-impacted streams, WVDEP should have concluded that the discharge of effluent from the New Hill West Surface Mine authorized by the permit had the reasonable potential to cause or contribute to an excursion above a narrative water quality standard.
28. WVDEP erred when it failed to conduct such a reasonable potential analysis, and when it failed to include effluent limits for conductivity in the permit.
29. Because high levels of sulfate violate state narrative water quality standards and the discharge from surface coal mining facilities similar to the New Hill West Surface Mine have been demonstrated to have higher sulfate levels than background streams, and because instream monitoring in Scotts Run indicates that the stream sulfate levels exceed background levels of un-impacted streams, WVDEP should have concluded that the discharge of effluent from the New Hill West Surface Mine authorized by the permit had the reasonable potential to cause or contribute to an excursion above a narrative water quality standard.
30. WVDEP erred when it failed to conduct such a reasonable potential analysis, and when it failed to include effluent limits for sulfate in the permit.

31. Because high levels of total dissolved solids cause conditions that violate state narrative water quality standards, because the discharge from surface coal mining facilities similar to the New Hill West Surface Mine are known to exceed total dissolved solids levels of background levels of un-impacted streams, because actual discharges from at least one outlet covered by the permit have exceeded total dissolved solids levels at higher levels, and because instream monitoring in Scotts Run indicates that the stream already exceeds total dissolved solids levels of un-impacted streams, WVDEP should have concluded that the discharge of effluent from the New Hill West Surface Mine authorized by the permit had the reasonable potential to cause or contribute to an excursion above a narrative water quality standard.
32. WVDEP erred when it failed to conduct such a reasonable potential analysis, and when it failed to include effluent limits for total dissolved solids in the permit.
33. The inclusion in the permit of twice monthly report-only monitoring requirements for conductivity, sulfate, and total dissolved solids does not excuse these errors because these monitoring requirements are not enforceable effluent limits.

Limits on Whole Effluent Toxicity:

34. Where WVDEP determines – “using the procedures in paragraph (d)(1)(ii) of [40 C.F.R. § 122.44], toxicity testing data, or other information” – that a reasonable potential exists for an excursion above a narrative standard, WVDEP must include effluent limits for whole effluent toxicity in the permit. 40 C.F.R. § 122.44(d)(1)(v).

This requirement may only be waived where WVDEP “demonstrates in the fact sheet or statement of basis of the NPDES permit, using the procedures in paragraph (d)(1)(ii) of [40 C.F.R. § 122.44], that chemical-specific limits for the effluent are sufficient to attain and maintain applicable numeric and narrative State water quality standards.” *Id.*

35. Because the evidence presented in this case demonstrates that levels of conductivity, sulfate, and total dissolved solids in discharges authorized under the permit support a finding that there is a reasonable potential for these discharges to cause or contribute to an excursion above narrative water quality standards, WVDEP was required to include effluent limits for whole effluent toxicity (“WET”) in the permit unless it could demonstrate in the WVNPDES permit that chemical-specific limits for the effluent are sufficient to attain and maintain these standards.
36. Consistent with EPA’s “Technical Support Document for Water-quality Based Toxics Control,” WVDEP should have included WET limits in the permit.
37. If WVDEP had followed its own recently issued permitting guidance, it would have placed WET limits in the permit.
38. WVDEP erred when it failed to include WET limits in the permit, or alternatively to demonstrate that the pollutant-specific effluent limits in the permit are sufficient to attain and maintain West Virginia’s narrative water quality standards.

Limits on Selenium and Other Pollutants Associated with Coal Combustion Waste:

39. When issuing a WVNPDES permit, WVDEP is required to ensure that the effluent limits in the permit “control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which [DEP] determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.” 40 C.F.R. § 122.44(d)(1)(I).
40. In conducting this “reasonable potential” analysis, DEP must “use procedures which account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity), and where appropriate, the dilution of the effluent in the receiving water.” 40 C.F.R. § 122.44(d)(1)(ii).
41. For those pollutants for which the state has promulgated a numeric standard, should WVDEP determine that there is a reasonable potential that a discharge will “cause[], ha[ve] the reasonable potential to cause, or contribute[] to an in-stream excursion above the allowable ambient concentration . . . , the permit must contain effluent limits for that pollutant.” 40 C.F.R. § 122.44(d)(1)(iii).
42. Where discharge monitoring data is available for a facility that has applied for a new, expanded, or modified WVNPDES permit, WVDEP must consider that data in conducting the required reasonable potential analysis.

43. Where discharge monitoring data is available for a facility similar to one that is applying for a new, expanded, or modified WVNPDES permit, WVDEP must consider that data in conducting the required reasonable potential analysis.
44. Evidence presented at the hearing demonstrates that, based on existing monitoring data from outlet 001, there is a reasonable potential for discharges authorized under the permit to cause or contribute to violations of the numeric water quality standard for selenium.
45. Because discharge monitoring data was available from the existing New Hill West Surface Mining Complex – including data from outlet 001 which is covered under the permit that is the subject of this appeal for selenium and because the permit record demonstrates that WVDEP did not perform a reasonable potential analysis for selenium or otherwise consider this data in setting effluent limits in the permit, WVDEP erred when it failed to conduct this analysis, and when it failed to include enforceable effluent limits for selenium in the permit.
46. Because discharge monitoring data was available from other coal surface mine facilities in the Scotts Run watershed that mined the same coal seams and utilized CCW in a manner similar to the New Hill West Surface Mine for arsenic and additional chemical pollutants associated with coal combustion waste, and because the permit record demonstrates that WVDEP did not perform a reasonable potential analysis for arsenic or otherwise consider this data in setting effluent limits in the permit, WVDEP erred when it failed to conduct this analysis for arsenic.

47. The inclusion in the permit of report-only monitoring requirements for selenium, and arsenic does not excuse these errors because these monitoring requirements are not enforceable effluent limits.

Limits on Manganese for Outlet 001:

48. WVDEP erred when it failed to provide an effluent limit for manganese at outlet 001 in the permit.

CONCLUSION

The Board allowed the parties to brief the Appellee's Motion in Limine because the Motion was filed hours before the hearing and did not provide adequate time for all parties to prepare to make argument on the Motion. The Board **DENIES** the Appellee's Motion in Limine and considered these documents to be draft documents and recognized the documents solely for the scientific literature cited within.

The Board has carefully considered the arguments of counsel, evidence and statutes and regulations in making this decision and therefore issues the following order. In this regard, the Board understands the weight of its decisions and the implications that its decisions have on the people of this state.

The Board finds that the mining operation has the opportunity and potential to improve water quality. The Board agrees with the Appellant on the majority of the issues presented. However, does not agree that 300 $\mu\text{S}/\text{cm}$ is necessarily an appropriate limit for this permit. Investigation and data review, coupled with the scientific evidence presented

at hearing, should lead the WVDEP to quickly develop appropriate permit limits for Scotts Run.

The Board finds there is a strong positive correlation between conductivity and diminished macro-invertebrate community health. While this decision is permit specific, the Board understands that head water stream communities may require a more strict conductivity standard than streams of higher stream order such as Scotts Run.

The Board finds that DEP erred in issuing the Permit without conducting a reasonable potential analyses and without including effluent limits necessary to ensure compliance with the state narrative and numeric water quality standards.

The Board **REMANDS** this permit Modification Number 9 to the WVDEP to modify the Permit to take action within 45 days consistent with the written order of this Board. The Board **REMANDS** this permit Modification Number 9 to WVDEP to modify the permit to require a reasonable potential analyses to be conducted for Arsenic, Conductivity, Sulfate, and Total Dissolved Solids.

The Board finds that there is evidence of impairment for conductivity of Scotts Run according to the WVDEP's use of the WV Stream Condition Index. The Board **REMANDS** the permit Modification Number 9 to WVDEP for modification to require appropriate and enforceable limits for conductivity, sulfate, and Total Dissolved Solids.

The Board **REMANDS** the permit Modification Number 9 to WVDEP to include an appropriate limit for Manganese based on the agreement of the parties and selenium based on the evidence offered.

The Board **REMANDS** the permit Modification Number 9 to WVDEP modify to include WET limits consistent with the WVDEP's *Justification and Background for Permitting Guidance for Surface Coal Mining Operations to Protect West Virginia's Narrative Water Quality Standards*.

It is so **ORDERED** and **ENTERED** this 25th day of March 2011.

A handwritten signature in black ink, appearing to read 'E. Snyder', is written over a horizontal line.

Dr. Edward Snyder, Chairman
Environmental Quality Board