



P.O. Box 507
Lewisburg, WV 24901
ph: 304-645-9006
fax: 304-645-9008
email: info@appalachian-center.org
www.appalachian-center.org

March 15, 2010

The Honorable Lisa Jackson
Administrator
U.S. Environmental Protection Agency
Ariel Rios Building
1200 Pennsylvania Avenue, N.W.
Washington, D.C. 20460

Dear Administrator Jackson:

Enclosed is a Petition for withdrawal of the National Pollutant Discharge Elimination System program delegation from the State of Kentucky on behalf of the Appalachian Center for the Economy and the Environment, Sierra Club, Public Justice and Kentuckians for the Commonwealth. These groups petition EPA to evaluate the systematic failure of Kentucky to administer and enforce the National Pollutant Discharge Elimination System program and to withdraw the delegation of the program from the Kentucky Energy and Environment Cabinet.

Respectfully submitted,

JOSEPH M. LOVETT
Executive Director
Appalachian Center for the
Economy and the Environment
P.O. Box 507
Lewisburg, WV 24901
(304) 645-9006

MARGARET C. JANES
Senior Policy Analyst
Appalachian Center for the
Economy and the Environment
P.O. Box 507
Lewisburg, WV 24901
(304) 645-9006

///

JIM HECKER
Environmental Enforcement Director
Public Justice
1825 K Street, N.W. Suite 200
Washington, DC 20006
202-797-8600

AARON ISHERWOOD
Senior Staff Attorney
Sierra Club Environmental Law Program
85 Second Street, 2d Floor
San Francisco, CA 94105-3441
(415) 977-5680

cc:

The Honorable A. Stanley Meiburg
Acting Regional Administrator
US EPA, Region 4
Sam Nunn Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, GA 30303
(U.S. Mail, Electronic Mail: meiburg.stan@epa.gov)

James D. Giattina
Regional Director
Water Protection Division
US EPA, Region 4
Sam Nunn Atlanta Federal Center
61 Forsyth Street, SW
Atlanta, GA 30303
(U.S. Mail, Electronic Mail: giattina.jim@epa.gov)

Michael H. Shapiro
Acting Assistant Administrator
Office of Water
USEPA Headquarters
Ariel Rios Building
1200 Pennsylvania Avenue, N. W.
Washington, DC 20460
(U.S. Mail, Electronic Mail: shapiro.mike@epa.gov)

///

James A. Hanlon
Director
Office of Wastewater Management
Office of Water
USEPA Headquarters
Ariel Rios Building
1200 Pennsylvania Avenue, N. W.
(U.S. Mail, Electronic Mail: hanlon.jim@epa.gov)

Gregory Peck
Chief of Staff
Office of Water
USEPA Headquarters
Ariel Rios Building
1200 Pennsylvania Avenue, N. W.
(U.S. Mail, Electronic Mail: peck.gregory@epa.gov)

Dr. Len Peters
Secretary
Kentucky Energy and Environment Cabinet
500 Mero Street
12th Floor, Capital Plaza Tower
Frankfort, KY 40601
(U.S. Mail, Electronic Mail: len.peters@ky.gov)

R. Bruce Scott, Commissioner
Kentucky Department for Environmental Protection
300 Fair Oaks Ln
Frankfort, KY 40601
(U.S. Mail)

**PETITION FOR WITHDRAWAL OF THE
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM PROGRAM
DELEGATION FROM THE STATE OF KENTUCKY**

Appalachian Center for the Economy and the Environment, Sierra Club, Public Justice and Kentuckians for the Commonwealth through their undersigned lawyers, hereby petition the United States Environmental Protection Agency, (EPA) to initiate formal proceedings under 40 C.F.R. § 123.64(b) to withdraw approval of the State of Kentucky's National Pollutant Discharge Elimination System (NPDES) program. The Groups request that EPA formally respond to this petition in writing, as required by 40 C.F.R. § 123.64(b)(1); that EPA notify the State of Kentucky that it is not administering the permit program for discharges into the waters of Kentucky in accordance with the Clean Water Act; and that EPA schedule a public hearing regarding these violations. See 33 U.S.C. § 1342(c)(3); 40 C.F.R. § 123.64(b)(1). Because Kentucky has shown that it does not have the ability to administer or enforce its NPDES program in accordance with the Clean Water Act (CWA), EPA must withdraw its approval of the Kentucky NPDES delegation and assume administration and enforcement of the program. Id.

Introduction

We recognize we are asking EPA to take drastic action. Given the nearly complete breakdown of Kentucky's implementation and enforcement of its NPDES program, however, withdrawal of the State's NPDES program is the only remedy that will bring Kentucky into compliance with the Clean Water Act (CWA). In particular, the State's capitulation to the coal industry and its complete failure to prevent widespread contamination of state waters by pollution from coal mining operations leaves EPA no choice but to withdraw its approval of that program.

That breakdown is shown by the remarkable number of impaired stream miles in the state. "The Kentucky Division of Water's (KYDOW) own 2008 list of impaired waters provided to EPA under Section 303(d) of the CWA identified 1,199 stream miles in the Upper Kentucky River watershed, 487 stream miles in the Upper Cumberland River watershed, and 780 stream miles in the Big Sandy/Little Sandy/Tygarts Creek watershed as impaired with coal mining as a suspected source." (11 at 2)¹ We will show, however, that the nearly 2,500 listed miles of impaired streams in the coalfields of eastern Kentucky seriously underestimates the scope of actual stream impairment. Many more streams have been and are being impaired as a result of KYDOW's failure to promulgate protective water quality standards, assure adequate assessment of state waters, comply with EPA guidelines on total maximum daily load development, and issue protective NPDES permits. Recent Scientific studies (including the WET testing data attached to this Petition) make it clear the KYDOW's lack of stewardship has jeopardized the future of Kentucky's waters. EPA must step in now -- before even more irreversible damage is done to the State's waters.

Further, KYDOW does not have sufficient manpower or resources to adequately develop and review mining NPDES permits. In Kentucky just four NPDES permit writers manage 2,353

¹ References will be listed by number in a separate document and will include either the website look up or included on the CD accompanying this document.

mining NPDES permits (588 each).² In contrast, in West Virginia, fifteen mining NPDES permit writers manage 1,266 mining permits (84 each).³ Even West Virginia's staffing is woefully inadequate. NPDES permit writers in Kentucky therefore have to manage seven times as many permits as those managed by permit writers in neighboring West Virginia. This lack of capacity may help to explain why Kentucky's permitting program is so weak and has failed to prevent significant stream impairment.

Executive Summary

1. **Toxicity Testing.** Whole Effluent Toxicity (WET) tests are used to determine the cumulative and synergistic effects of toxic pollution on stream health. Eight recent EPA WET tests in the Kentucky coal fields showed that in all of the tests, streams downstream from surface coal mining sites had chronic toxicity that greatly exceeded the state standard of 1 toxicity unit. Results ranged from 3.9 to as high as 55.2 toxicity units. One of the most toxic streams was downstream from the Guy Cove Research Project site, showing that the claimed mitigation success at that site is a charade. (50) This study shows that coal mining NPDES permits should not be issued without WET limits, yet no such permits have those limits.

2. **Selenium.** Despite overwhelming and incontrovertible evidence of mining's harm to Kentucky's rivers and streams from selenium pollution, KYDOW has not issued a single coal NPDES permit with selenium limits. In fact, the agency has, for all intents and purposes, exempted the coal industry from the *chronic* selenium aquatic life criterion. (9 Fact sheet at 6) Further, even when a mining operation admitted to having a reasonable potential to cause a violation of the *acute* selenium criterion, the agency provided loopholes so that the company, ICG Hazard, was able to avoid restrictions on its selenium discharges. (40, 41, 42, 43) Further, KYDOW has completely failed to take measures such as requiring selenium analysis of geological core samples at mining sites in order to attempt to prevent selenium pollution.

No NPDES permits for surface mines should be issued until adequate core sampling has been conducted, selenium limits are placed on permits with reasonable potential and the operator has demonstrated before permit issuance that it has the ability and commitment to treat its effluent to comply with its permit limits in perpetuity.⁴ KYDOW fails on all three tasks.

3. **Water Quality Standards.** Kentucky's water quality standards program is failing to protect stream uses in three important respects. First, KYDOW has failed to implement and enforce its narrative criteria for conductivity, despite overwhelming scientific evidence that this pollutant is causing widespread biological impairment in streams. Second, KYDOW's chronic numeric criterion for iron has been rendered meaningless by KYDOW's requirement that the criterion does not apply until demonstrated harm to streams from iron has already occurred. Third,

² Data through Kentucky Open Records Law request March 2010.

³ From FOIA request to WVDEP March 2009.

⁴ In fact, to prevent creating discharges with the reasonable potential to cause or contribute to water quality standards violations, no NPDES permits should be issued for operations that will create a perpetual discharge. Economic realities make it certain that most mining operators will not exist nearly as long as the pollution that they create. Even if the operators have the ability to treat the discharges in the short term, it would be extremely difficult to show the ability to treat in perpetuity.

KYDOW has failed to promulgate numeric water quality criteria for aluminum even though it is known to be causing serious harm to aquatic life uses.

4. **General Permits.** Most coal mines in Kentucky are covered under a blanket general permit for their water pollution discharges, rather than site-specific individual permits. KYDOW's general permit procedures are inadequate to detect and prevent violations of water quality standards. For mines with existing permits, KYDOW only requires mine operators to take a single grab sample of their discharges once in five years. For new mines, one sample prior to permitting is all that is required. This testing is usually insufficient to demonstrate that there is no reasonable potential for violations. And even when tests do show that there is reasonable potential, KYDOW misapplies EPA guidance on that issue and ignores that potential. In every case, KYDOW wrongly concludes that no further monitoring is required and no permit limits are necessary. In fact, existing scientific studies, stream monitoring data, and mine permit applications demonstrate that coal mines in Kentucky have a reasonable potential of exceeding numerical and narrative water quality standards for several pollutants, including selenium, iron, aluminum, conductivity and toxicity. These mines should have numerical limits for these pollutants in their permits. Kentucky's general permit also shortchanges public participation requirements, because discharge samples for many pollutants are not required until after the comment period closes, and the comment period for antidegradation review is only fifteen days, rather than the required thirty days.

5. **Individual Permits.** KYDOW's procedures for issuing individual permits also violate the CWA. First, the agency for fifteen priority pollutants only analyzes discharges for compliance with acute water quality criteria, not chronic criteria. KYDOW assumes that the acute criterion is the most limiting one, and bases that assumption on its theory that discharges from mines depend entirely on precipitation. This theory seems to presume that mining discharges are too short and intermittent to compare to chronic criteria, which are based on four-consecutive-day averages. However, even if that theory were correct, EPA guidance requires application of both the acute and chronic criteria in such situations. In fact, KYDOW's theory is incorrect, because mining discharges are not entirely rainfall-dependent and can extend over longer periods when application of the chronic criterion is appropriate. Existing data shows that violations of chronic criteria for some pollutants are already occurring. Second, KYDOW's oversight of individual permit applications is inadequate because permittees use improperly high detection limits and fail to test for aluminum and conductivity.

6. **Impaired Streams.** KYDOW has only evaluated and assigned TMDLs for 51 impaired streams, while 2,000 other impaired streams have no TMDLs. KYDOW cannot meet EPA guidelines for establishing TMDLs for these unaddressed sites within 8-13 years because it has insufficient resources to do so. In addition, KYDOW's data requirements for stream listing automatically exclude many streams because KYDOW does not even assemble enough data to meet those requirements.

7. **Bond Forfeiture and AML Mine Sites.** KYDOW is violating the CWA by failing to require NPDES permits for discharges of acid mine drainage from bond forfeiture sites. For AML sites, KYDOW improperly uses a general permit that fails to set enforceable limits to prevent

violations of water quality standards and instead relies on unenforceable “best management practices.”

The net consequence of these regulatory failures is that toxic discharges from Kentucky coal mines are virtually unregulated and this is likely to be causing widespread stream impairment. The failure to enforce its NPDES program has already devastated Kentucky's waters. Mine discharges are not like conventional industrial discharges that can simply be "turned off" by closing a valve. Because of the perpetual nature of mining discharges, heightened care must be taken in approving permits. Once high selenium or high conductivity discharges are created, they cannot be stopped. The perpetual nature of surface mining discharges makes it essential that EPA steps in to stop the KYDOW from allowing mining operators from creating these problems before they begin. After the problems begin, remedies will likely not be available.

Whole Effluent Toxicity (WET) Testing

Recent studies show the severity of toxic water pollution in the coalfields. Between December 2007 and August 2009, the United States Environmental Protection Agency (EPA) collected water quality samples for chronic WET testing at selected sites in the coalfields of Kentucky and West Virginia. Site selection criteria included: 1) at or downstream from coal mining operations, 2) no intervening pollution sources identified by EPA, and 3) instream conductivity levels greater than 1000 $\mu\text{S}/\text{cm}$. (50 at 2) Eight of the sites tested were located in Kentucky. (50 at 3)

Remarkably all eight of the chronic WET tests collected from Kentucky coalfield streams exceeded the state standard of 1 allowable chronic toxic unit (TU_c). (50 at 4) In fact, two sites exceeded 50 TU_c , 50 times that allowed by the Kentucky water quality standards. Three sites were between 20 – 30 TU_c , and the remaining sites were between 3.9 and 13.2 TU_c . (50 at 3) Generally, a correlation between high conductivity and high TU_c 's was seen in this study. (50 at 4)

The data were derived from EPA standard toxicity testing methods for estimating the chronic toxicity of effluents and receiving waters to freshwater organisms (EPA-821-R-02-013). Since water samples may contain a mixture of many toxic compounds, these methods are designed to demonstrate the total toxicity of the water rather than the toxicity of a single compound contained in the water column. These standard WET methods are used to identify effluents and ambient receiving waters containing toxic materials that are present in concentrations that result in chronic toxicity. (50 at 2) Chronic WET tests measure the impact on survival and reproduction of a test organism over a seven day time period. (50 at 4)

The EPA technical support document (USEPA, 1991) recommends as a chronic criterion that for most water bodies waters should not exceed a chronic toxic unit (TU_c) of 1.0. Accordingly in Kentucky, the allowable instream concentration of toxic substances, or whole effluents containing toxic substances is also not permitted to exceed a TU_c of 1.0. (50 at 4); 401 KAR 10:031 Sec. 3 (j).

Federal regulations require permitting authorities to include WET testing limits in NPDES permits.

(ii) When determining whether a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative or numeric criteria within a State water quality standard, the permitting authority shall 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 CFR 122.44(d)(1)(ii)

And,

(iv) When the permitting authority determines, using the procedures in paragraph (d)(1)(ii) of this section, that a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above the numeric criterion for whole effluent toxicity, the permit must contain effluent limits for whole effluent toxicity. 40 CFR 122.44(d)(1)(iv).

Further EPA's Technical Support Document for Water Quality-Based Toxics Control⁵ recommends, "that States fully integrate chemical-specific, whole effluent, and bioassessment approaches into their water quality-based toxic control programs. It is EPA's position that the concept of "independent application" be applied to water quality-based situations. Since each method has unique as well as overlapping attributes, sensitivities, and program applications, no single approach for detecting impacts should be considered uniformly superior to any other approach."

Additionally, EPA outlines the importance of WET limits where there is low or zero flow during critical conditions (coal mining operations are assumed by KYDOW to have a 7Q10 of zero (9 Fact sheet at 6)).

Of particular concern is establishing permit limits for WET for discharges where the effluent flow comprises a high percentage of the available stream flow during critical conditions or otherwise lacks assimilative capacity. In such waters, effluent toxicity may be a source of measurable ambient toxicity (i.e., cause) excursions of numeric or narrative water quality criteria. In this guidance, EPA revises national guidance for establishing appropriate effluent limitations for WET for receiving waters with no assimilative capacity or where dilution is not available. For such situations, the limit derivation procedures described in Chapter 5 of this guidance would result in a maximum daily limit of 1.6 TU_c and an AML of 1.0 TU_c. The 1.0 TU_c AML should be expressed as a monthly median limit instead of an average monthly limit. (39 at 5)

One of the most toxic WET (TU_c = 55.2, August 2009) testing sites in the EPA dataset is located in Long Fork of Buckhorn Creek in the University of Kentucky's Robinson Forest. (50 at 3, maps) A neighboring tributary also is severely toxic and suggests geological characteristics in this region that contribute to the toxic conditions. *Id.* Frasure Creek Mining (SMCRA permit 813-0328, general NPDES permit KYG045943), one of the seventy-nine pending mining 404

⁵ See USEPA Office of Water. Technical Support Document for Water Quality-Based Toxics Control. March 1991. P. 22.

permits currently under review by EPA under the Surface Coal Mining Memorandum Of Understanding Enhanced Coordination Procedures, is located upstream of the test site. (49) Frasure Creek's proposed operation includes six valley fills and 14,005 feet of stream impacts. (38 at 1) Since the discharges from this operation are authorized under the Kentucky coal general permit (see below for a detailed discussion of that permit), there are no restrictions for many pollutants that will significantly contribute to the toxic condition of Long Fork nor are there limits for whole effluent toxicity. Because other mining operations in the same watershed have led to a violation of the state WET criterion, it is reasonable to expect the proposed discharges from the Frasure Creek mine will contribute to a violation of Kentucky's WET criterion. 401 KAR 10:031 Sec. 3 (j). Mining should not be allowed to proceed at that site unless, among other things: 1) the general NPDES permit authorization of the proposed discharges is revoked; 2) Frasure Creek applies for an individual permit that includes immediately effective water quality based WET limits; and 3) the NPDES permit is not issued until Frasure Creek has demonstrated that it has the ability and commitment to construct and operate a treatment facility that assures compliance with WET limits.

The neighboring toxic site is located in Laurel Fork of Buckhorn Creek ($TU_C = 54.1$, August 2009) and is also in Robinson Forest. (50 at 3, maps) This site is just downstream from the Guy Cove Research Project where University of Kentucky researchers are attempting to create a headwater stream to demonstrate viable mitigation to offset mining impacts to streams. (50 at maps) Despite a recent newspaper story that this mitigation has been successful, the WET score at this site is one of the highest in the EPA study and shows that serious cumulative downstream water quality impacts still remain. Researchers at Guy Cove constructed experimental, partially sealed channels that could carry water down the face of a valley fill but did not prevent the water quality problems downstream of the base of the fill. Other mining operations are also upstream of the test site.⁶

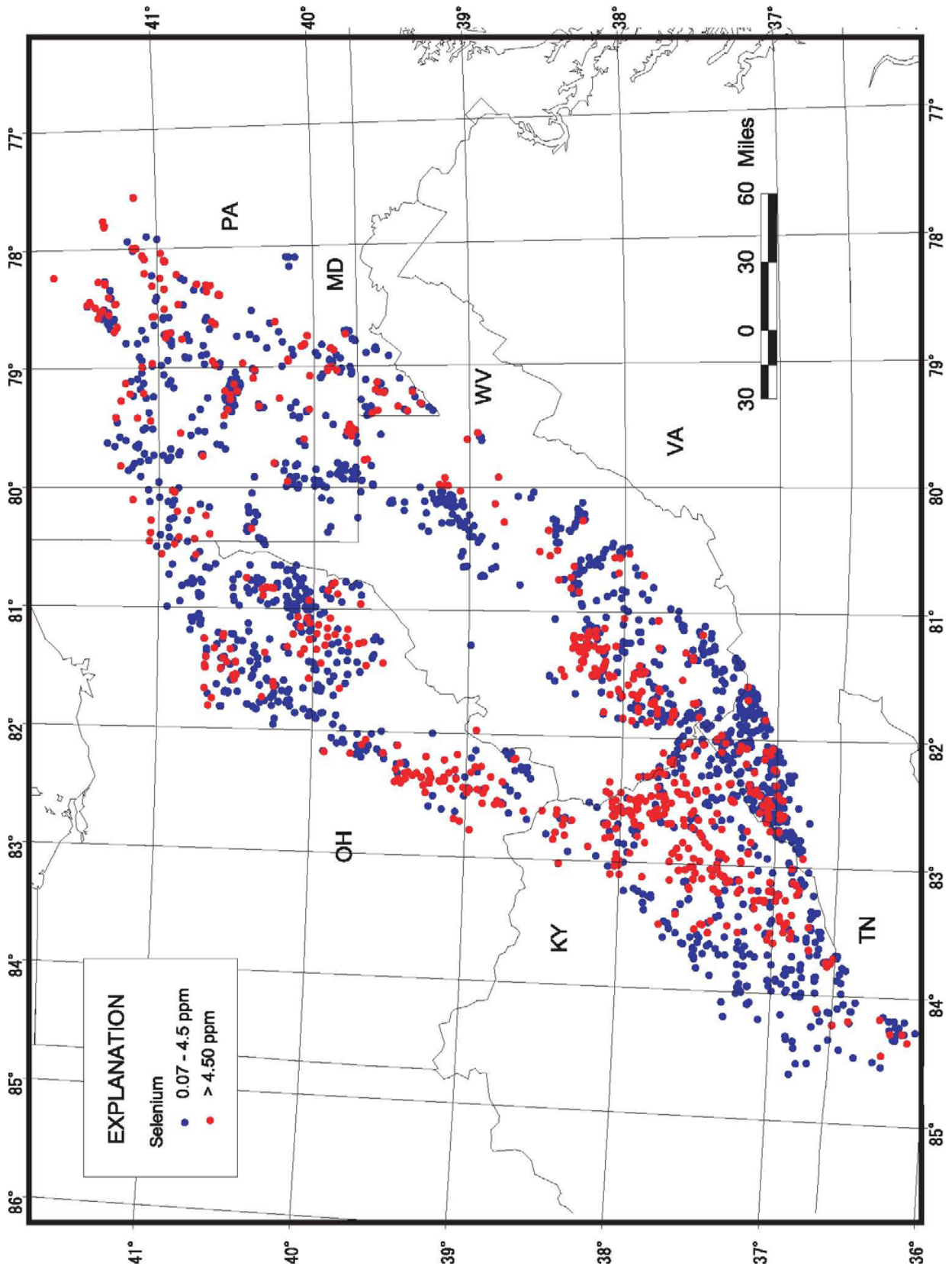
Selenium

As in West Virginia, coal seams in Kentucky are known to be high in selenium. The Mountaintop Mining/Valley Fills in Appalachia Programmatic Environmental Impact Statement (PEIS) found, "in the region [of] MTM/VF mining, the coals can contain an average of 4 ppm of selenium, normal soils can average 0.2 ppm, and the allowable limits in the streams are 5 ug/L (0.005 ppm). Disturbing coal and soils during MTM/VF mining could be expected to result in violations of the stream limit for selenium." (1 at 74)

A 2005 study by the U.S. Geological Survey of core samples taken from coal mines in central Appalachian states found that "[c]oal beds in the middle Middle Pennsylvanian series, from the Cedar Grove coal bed in West Virginia and the correlative Whitesburg coal bed in eastern Kentucky up through the Clarion coal bed in Pennsylvania and Ohio generally have an average selenium concentration greater than 3.9 ppm." (31 at 5) A map of the sampling sites from the USGS study is shown on the following page. *Id.*, Figure 1. The red dots show samples that exceed 4.5 ppm. An analysis of the table supporting this map reveals that, of the 700 samples from eastern Kentucky, 270 exceeded 4.5 ppm, 331 exceeded the 4 ppm average cited in

⁶ See KYSMIS at <http://www.minepermits.ky.gov/sminformationsystem/access.htm>

the PEIS as likely to cause violations of the stream limit for selenium, and 30 fell in the range of 9 to 18 ppm. Data from coal seams in Kentucky could thus be easily used to predict water quality standard exceedances in Kentucky.



KYDOW's own recent study of small headwater streams in eastern Kentucky⁷ shows bioaccumulation of selenium in fish above EPA's draft body burden threshold of 7.9 ug/g and exceedences of Kentucky's chronic selenium water quality standard of 5 ug/l at mining sites. The study looked at headwater tributaries at 13 sites, including six active mining sites, two reclaimed mine sites, and one abandoned mine site. At one active mining site, water downstream from the disturbance exceeded state water quality standards for selenium. Additional water quality data showed elevated levels of selenium on mining sites. Notably, researchers also found fish tissue exceeding EPA's draft recommended fish tissue criterion downstream from three of nine mining sites. Downstream from five other mining sites, researchers found fish with selenium levels of 4-8 ppm which scientists have found can cause adverse effects in sensitive species.

Despite all of the above evidence, there is not a single coal mining NPDES permit with selenium limits in the state of Kentucky. As shown below in the permitting section of the petition, many mining NPDES holders have submitted data to KYDOW that demonstrate a reasonable potential for their pollution discharges to cause or contribute to a selenium water quality standard violation. Despite that data, however, KYDOW has still failed to place selenium limits in a mining permit.

Kentucky's Water Quality Standards Fail to Protect Stream Uses

Each state must develop water quality criteria that protect designated stream uses. 40 C.F.R. § 131.11(a)(1). These criteria form part of the water quality standards for the State. 33 U.S.C. § 1313(c)(2). Criteria and standards form the foundation of each state's National Pollution Discharge Elimination System (NPDES) Program. Under that program, each NPDES permit must include discharge limitations that will "control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause or 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). Thus, the water quality criteria and standards are the mandatory floor of federal protection of water quality, and NPDES permit limits must be written so as to prohibit discharges which have "reasonable potential" of going below that floor.

Kentucky's water quality standards program related to coal mining pollutants violates these principles in several important respects. First, KYDOW has failed to implement and enforce its narrative criteria for total dissolved solids, despite overwhelming scientific evidence that this pollutant is causing widespread biological impairment in streams. Second, KYDOW's chronic numeric criterion for iron has been rendered meaningless by KYDOW's requirement that the criterion does not apply until demonstrated harm to streams from iron has already occurred. Third, KYDOW has failed to promulgate numeric water quality criteria for aluminum even though it is known to be causing serious harm to aquatic life uses.

1. Kentucky Has Failed to Promulgate a Numeric Criterion or Enforce the Narrative Criterion for Conductivity

⁷ Data from the study received through Kentucky Open Records Law August 2009.

Kentucky has included an improper harm prerequisite in its narrative criterion for conductivity/total dissolved solids (TDS). That criterion states that “[t]otal dissolved solids or specific conductance shall not be changed to the extent that the indigenous aquatic community is adversely affected.” 401 K.A.R. 10:031, Sec. 4(f). Kentucky continues to authorize operations that will violate those narrative criteria. EPA must assure that no permits are authorized in Kentucky that may lead to a violation of the narrative criteria.

Remarkably, despite the fact that mine-impacted streams are sometimes listed on the Kentucky 303(d) list as biologically threatened or impaired by TDS, (22 at 77), NPDES permits for mining operations never have TDS limits. This is in part because there are no numeric water quality criteria for TDS. In absence of numeric criteria, the agency still has a duty to enforce its narrative criterion.

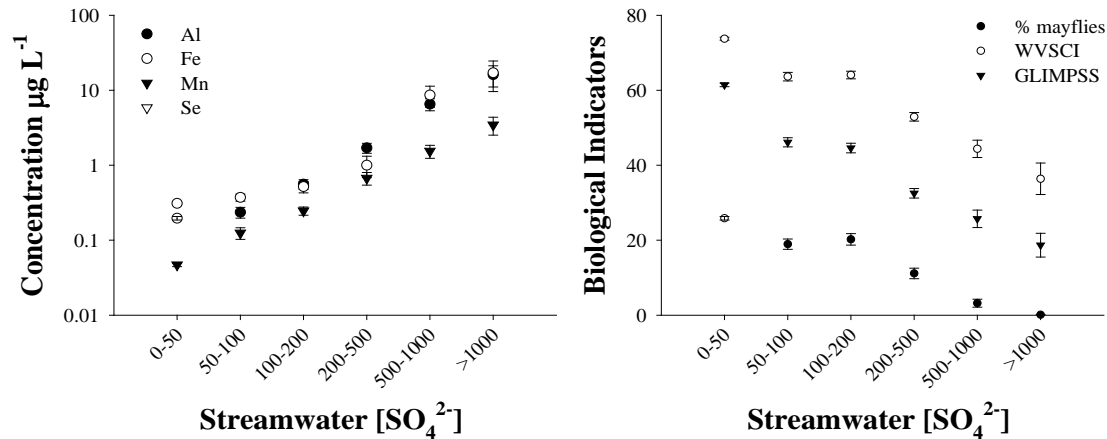
There is overwhelming evidence in an EPA peer-reviewed study that mining operations are strongly associated with biological impairment due to high TDS. (10 at 724) The study states that “[o]ur results indicate that MTM is strongly related to downstream biological impairment, whether raw taxonomic data, individual metrics that represent important components of the macroinvertebrate assemblage, or MMIs [multi-metric indices] are considered.” Id. Further, the study states that all sites with conductivities greater than 500 uS/cm were impaired. (10 at 725) The Mountaintop Mining/Valley Fills in Appalachia PEIS found that the median conductivity at filled sites exceeded that threshold and measured 585 uS/cm (1 at 25). Further, the Kentucky program allowing payment of fees in lieu of mitigation excludes streams for mitigation where conductivity exceed 400 uS/cm because the high level “threatens biological recovery”. (37 at 2)

Other experts reviewing water quality data have drawn the same conclusions. (2 at 3) Mining operations lead to increased concentrations of solutes weathered from exposed rock in stream water including sulfates, bicarbonate, magnesium, and calcium and an increased likelihood of elevated concentrations of trace elements and toxic metals. (2 at 13) In fact, the relationship between mining activities and high sulfate concentrations is so well established that the 2008 WVDEP West Virginia Integrated Water Quality Monitoring and Assessment Report suggested that sulfate concentrations >50 mg/l could be used as an indicator of mining activity:

While an increase in sulfate loading is the most predictable consequence of mountain top mining in the Appalachians, many other substances are released to surface waters as a result of mining activity. In these valleys, the presence of significant carbonate and base cations in parent material neutralizes the acidity of sulfate leaching, but leads to dramatic increases in Ca²⁺, Mg²⁺ and HCO₃ ions. This natural acid buffering potential leads to an increase in the pH of receiving streams (rather than the more well understood acidification associated with acid mine drainage). The release of these ions contributes to dramatic increases in the electrical conductivity and total suspended solids within the water column of receiving streams.

Id. “For many streams it is the cumulative or additive impact of elevated concentrations of multiple stressors that leads to biological impairment – and this is undoubtedly a part of the reason that conductivity (a cumulative measure of ionic strength) is such an effective predictor of biological impairment.” (2 at 16)

A graph using West Virginia Department of Environmental Protection water data downstream from mining operations and corresponding West Virginia Stream Condition Index scores shows the strong correlations between sulfates and associated ions and biological health. In West Virginia a WVSCI score below 60 indicates biological impairment. Id.



Despite the fact that these pollutants both *individually and cumulatively* are likely to harm aquatic life downstream from mining discharges, Kentucky has failed to deny permits that will cause violations of the narrative criteria or to promulgate protective numeric criteria for TDS.

2. Kentucky Has Failed to Promulgate Criteria for Aluminum

Despite the federal requirement that states promulgate criteria to protect stream uses, (See 40 C.F.R. § 131.11(a)(1)) Kentucky has no criteria at all for aluminum despite its association with coal mining⁸ and known harm. Aluminum can suffocate and kill fish by precipitating on their gills and can have deleterious metabolic effects by interfering with electrolyte balance.⁹ EPA has promulgated § 304(a) guidance for aluminum. (4) Neighboring West Virginia has established criteria for aluminum and frequently includes water quality based effluent limits (WQBELs) for it in coal mining NPDES permits. Most importantly as shown below, discharges of aluminum from mining operations in Kentucky exceed levels determined to be harmful by EPA. Thus, Kentucky has no valid basis for excluding this pollutant from regulation.

3. Kentucky Has Promulgated a Meaningless Iron Criterion

In the case of the chronic iron criterion, the state has shielded the coal industry from stringent WQBELs for iron by requiring a demonstration of an adverse effect on aquatic life before the State's 1 mg/l criterion applies to a stream. 401 KAR 10:031, Sec. 6. (Note: the 1 mg/l iron limit is the same as EPA's § 304(a) guidance value for this pollutant). (4) The State has it backwards. Criteria must be designed to "protect stream uses" from harm, not provide a cleanup plan for a

⁸ Aluminum is a parameter of concern at mining operations and is often elevated. (2 at 3)

⁹ Sparling, Donald W. Lowe, T. Peter. 1996. Environmental Hazards of Aluminum to Plants, Invertebrates, Fish and Wildlife. Reviews of Environmental Contamination and Toxicology. Vol. 145. p. 112.

stream already in trouble. 40 C.F.R. § 131.11(a)(1). In Kentucky, in the absence of a demonstration of adverse effects on aquatic life, 3.5 mg/l becomes the chronic iron criterion. That limit is even higher than the average new source performance standard of 3.0 mg/l in the coal mining acid mine drainage effluent guidelines. See 40 C.F.R. § 434.35. Thus, the default chronic iron limit in Kentucky is meaningless and provides no additional protection.

Kentucky's harm prerequisite for iron is especially egregious because the State admittedly lacks the resources or procedures to measure when harm is occurring. In its 2008 305(b) Report to Congress, the State stated that it needed substantial personnel and resources to establish a new biological monitoring program to assess the effectiveness of industrial and other point source monitoring. (5 at 16) In addition to having a shortage of government resources, Kentucky fails to mobilize private resources because it does not include biological monitoring requirements in coal NPDES permit applications. For the prior and newly reissued coal general permit, no biological assessments are required for either new facilities seeking coverage for the first time in a Notice of Intent or existing facilities seeking to renew coverage. (6) Similarly, no biological monitoring is required for coal mining operations applying for individual NPDES permits. (8) In fact, only one macroinvertebrate sample is required for either permit and that could be taken at anytime during the permit cycle. (7, 9) Kentucky has therefore created a Catch-22 situation where iron is controlled only when harm occurs, but iron will never be controlled because Kentucky cannot tell when harm occurs.

NPDES Permits for Coal Mining Operations Fail to Comply with the CWA

Many coal mining NPDES discharges are covered under the Kentucky Coal General permit, however, the state also issues individual NPDES permits for certain types of facilities. (7 Fact sheet at 1-2) Note that many of the defects outlined below for the coal general permit are also true for individual permits.

Coal General Permit

Regulations require that dischargers covered under a general permit “[d]ischarge the same types of waste,” “require the same effluent limitations” and are “subject to the same water quality based effluent limitations.” 40 C.F.R. § 128.28(a) (2) and (3); 401 KAR 5:055, sec. 5(b)2. In addition, “[l]imitations must control all pollutants...which will cause or contribute to a violation of a water quality standard.” 40 C.F.R. § 122.4(i); 401 KAR 5:055, sec. 2(7). Since the general permit does not contain any limits for selenium, TDS, aluminum or iron (based on the 1 mg/l chronic criterion), some discharges covered under the general permit will impermissibly cause or contribute to a water quality standard violation. These discharges are fundamentally different from others authorized under the permit and must be identified *prior* to authorization. This is the fatal flaw of the permit. If KYDOW persists in using a general permit to authorize most discharges from mining operations, the general permit must contain the most stringent water quality based effluent limits for coal related pollutants applicable to any discharger potentially covered by the permit in order to avoid permitting discharges that lead to water quality standard violations. Alternatively, KYDOW could issue only individual permits for these discharges. KYDOW, however, persists in ignoring certain pollutants and has impermissibly issued a permit that fails to comply with the most basic tenets of the CWA.

Further, as stated above, no permit can be issued to a new discharger if the discharge would “cause or contribute to a violation of a water quality standard.” 40 C.F.R. § 122.4(i); 401 KAR 5:055, sec. 2(7). EPA has interpreted this regulation as applying to general NPDES permits. 65 Fed. Reg. 64792 (“this regulation is applicable to all new dischargers irrespective of the type of permit they are seeking coverage under; there is no language in this regulation that exempts new dischargers seeking coverage under a general permit.”) The general permit violates these regulations in two respects.

First, the general permit does not exclude its applicability to new discharges that may cause violations of water quality standards. The Fact Sheet states that the general permit cannot be issued if the receiving water is listed as impaired in Kentucky’s 305(b) report or its 303(d) list, which show which waters are violating water quality standards. (7 at 2) If Kentucky’s assessment program were robust,¹⁰ that exception would prevent the issuance of general permits to dischargers who would otherwise “contribute” additional pollution to a stream that is in violation of a water quality standard. However, this is insufficient. The permit must also prevent the issuance of general permits to discharges that would cause new violations of water quality standards by discharging to streams that are currently assumed to be in compliance with water quality standards.

Second, KYDOW does not require itself or an applicant to determine or certify in its Notice of Intent that its discharge will not cause a violation of water quality standards. In contrast, for its general permits, EPA requires applicants to determine compliance. 65 Fed. Reg. 64793 (“The applicant must avail himself of all discharge characterization data or estimation of discharge character and determine compliance.”). Indeed, KYDOW will not know at the time of permit authorization whether or not a new applicant will cause a violation. KYDOW does not require an applicant to sample or estimate the full characteristics of its discharges prior to receiving permit authorization. Instead, “[i]f there are no existing discharges on the proposed activity then permittee may use data from an adjacent existing activity which is substantially identical. If there are no existing discharges or substantially identical adjacent activities then the permittee has two years following issuance of general permit coverage to submit the data.” (6 at 7)

General Permit – the Details

1. The Coal General Permit Does Not Contain Limits on Conductivity/Total Dissolved Solids

The permit fails to establish effluent limits for conductivity/TDS when some operations covered by the general permit will discharge amounts that will have a reasonable potential to cause biological impairment. (7 at 7) Conductivity has a monitor-only requirement. In its response to public comments, KYDOW stated that at the urging of EPA it is seeking additional information on conductivity discharges because it is “an indicator parameter that provides information relative to any adverse physiological or behavioral responses in humans, animals, fish, and other aquatic life.” (7 Res to comments at 2) In fact, that information already exists. It is well

¹⁰ See below for an assessment of the state’s 303(d) listing procedures.

established by EPA researchers that “based on bioassessment data and specific conductance levels, 93% of the mined streams and none of the unmined streams were impaired, and that there was a strong causal link between mountaintop mining and impairment. (10 at 731) And further, “[a]ll mined sites with specific conductance >500 µS/cm were rated as impaired.” (10 at 725) Effluent data submitted by a number of mining companies seeking coal general NPDES permit coverage show conductivity levels greatly exceeding the EPA conductivity level where all sites were impaired.¹¹

In addition, EPA recently wrote a letter to the Army Corps of Engineers in reference to Kentucky general NPDES permit holder, Apex Energy. (11)

EPA does not believe that a sufficient reasonable potential analysis has been conducted in accordance with Section 301(b)(1)(C) of the Clean Water Act and 40 C.F.R. 122.4(a, d, and i). Absent an analysis demonstrating that discharges from the proposed mining operations will not have a reasonable potential to cause or contribute to a water quality standards violation, EPA believes that sufficient evidence exists to conclude that it is reasonable to assume that significant water quality degradation will occur.

A growing body of evidence demonstrates that certain pollutants associated with coal mine discharges are causing or contributing to violations of narrative water quality standards. Recent studies have shown that there is a direct correlation between stream impairment and discharge of total dissolved solids (TDS)/specific conductivity (SC) due to coal mining and coal processing.

And further:

In addition to these studies, the Kentucky Division of Water’s own 2008 list of impaired waters provided to EPA under Section 303(d) of the CWA identified 1,199 stream miles in the Upper Kentucky River watershed, 487 stream miles in the Upper Cumberland River watershed, and 780 stream miles in the Big Sandy/Little Sandy/Tygarts Creek watershed as impaired with coal mining as a suspected source. The “2008 Integrated Report to Congress on Water Quality in Kentucky” (305(b) Report), Table 3.31-4, ranks TDS as the seventh leading cause of pollution to Kentucky rivers and streams and ranks SC (specific conductance) as seventeenth. (parenthesis note added)

Based on this strong causal relationship, KYDOW should have placed effluents limits for conductivity in the general permit.

In addition, high conductivities pose emerging threats to aquatic life in the coal fields of Kentucky because of the potential spread of golden algae from neighboring West Virginia. During September of 2009, Dunkard Creek in Monongalia County, West Virginia experienced a biological disaster. Over 130 species of aquatic organisms, including fish, mussels and amphibians died in massive numbers in a 38-mile stretch of stream. (12) The WVDEP identified the cause of the kill as a toxic golden algal bloom. The algae thrives only in waters with high salinity, i.e. high total dissolved solids (TDS). In the case of Dunkard Creek, the primary cause

¹¹ From data received from KYDOW through a January 26, 201 FOIA request.

of the algal bloom and resulting fish kill was unabated high levels of TDS and chlorides discharged by coal mining operations in Dunkard Creek. (13)

Golden algae are not dispersal limited and can readily be spread by birds, wind or human activities, in some cases for long distances over 100 miles. (14 at 155) Since conditions are conducive to additional toxic events downstream from many mining sites, state and federal agencies must address the increasing possibility of toxic algal blooms as they evaluate the impacts of additional sources of high conductivity discharges from mountaintop mining operations throughout the region.

2. The Coal General Permit Does Not Contain Limits on Selenium

The agency has impermissibly authorized under the coal general permit, discharges with a reasonable potential to cause or contribute to selenium water quality standard violations. Recent notices of intent submitted by mining operations requesting coverage under the July 1, 2009 general permit show a number of discharges with high selenium levels, compared to the selenium water quality standards of 20 ug/l for the acute standard and 5 ug/l for the chronic standard. (examples at 40, 41, 44, 47)

For example, on August 19, 2009 the ICG Hazard Thunder Ridge Mine, SMCRA permit 866-0281 Am. 9, KYG043540, submitted data on representative discharges from the Thunder Ridge Mine seeking authorization under the general permit for additional discharges from amendment 9. ICG first submitted data from three outfalls including outfall 020 with selenium at 29.2 ug/l, nearly 50% higher than the acute selenium standard. (41 at 8). Despite ICG's stated claim that the data was representative of stream discharges, KYDOW apparently determined that outfall 020 was not representative and asked ICG to submit additional data from outfalls discharging to Lower Bad Creek. (43 at 2) The second notice of intent also dated August 19, 2009 showed selenium levels in discharges to Lower Bad Creek as 29.2 µg/l at outfall 020, 8 µg/l at outfall 043, 6 µg/l at outfall 048, 11 µg/l at outfall 048, and 8 µg/l at outfall 52. (40 at 9-13) All of the new data submitted exceeded the chronic selenium standard. Nevertheless, on February 22, 2010, KYDOW sent a letter to ICG approving the new discharges for coverage under the general permit. (42) Thus, the agency with blatant disregard of permitting regulations impermissibly authorized discharges to Lower Bad Creek that will cause and or contribute to selenium water quality standard violations.

Similarly, as part of a notice of intent to seek coverage under the general permit, Clintwood Elkhorn submitted representative selenium data of 10 ug/l from Pond 1 discharging to an unnamed tributary of Dicks Fork of Feds Creek. (44) Then on January 28, 2010 KYDOW sent a letter to Clintwood Elkhorn authorizing general permit coverage for the discharges despite the reasonable potential for the discharges to cause or contribute to a violation of the chronic selenium criterion. (45) Again, in November of 2009, Leeco Inc. submitted effluent data as part of a general permit notice. The data showed selenium effluent levels of 15 ug/l at outfall 015. (47 at 2) Once again, despite exceedances of the chronic selenium standard, KYDOW authorized the discharges under the coal general permit. (48) These are just a few examples of KYDOW's intentional avoidance of enforcing the selenium water quality criteria.

Details on the KYDOW's possible rationale for some of these actions are outlined below in the individual permit section on the agency's handling of priority pollutants.

In addition, for the selenium data that is submitted, minimum detection limits are often 10 ug/l, too high to determine a reasonable potential to exceed the chronic selenium criterion of 5 ug/l.¹² In one instance Bear Branch Coal Company reported an unusual selenium detection limit of 32 ug/l and then simply stated that selenium was not detected in the discharge. (46 at 2)

Further, no assessment of geological cores samples taken from mining sites for selenium content is required to identify and *prevent selenium problems before they develop*. The Mountaintop Mining/ Valley Fills in Appalachia PEIS (1 at 74) first identified selenium as a problem at coal mining sites. The problem was later verified over and over again in neighboring West Virginia. (18)

3. The Coal General Permit Does Not Contain WET Limits

As shown above, some mining operations have a reasonable potential to cause or contribute to a violation of the Kentucky WET criterion. Thus, if KYDOW wants to continue to use a coal general NPDES permit to cover most mining operations, that permit must have water quality based WET limits. In addition, the agency must assure that mining operations are committed to constructing and operating a treatment facility that assures compliance with WET limits.

4. The Coal General Permit Does Not Address Harm to Aquatic Life Caused by Aluminum

The general permit does not address harm to aquatic life caused by aluminum. Effluent data submitted to KYDOW by mining companies seeking coverage under the coal general permit show harmful levels of aluminum that exceed EPA's National Recommended Water Quality Criteria.¹³ For example, in July of 2009 an ICG Knott County, LLC mine holding CWA permit KYG046395 submitted effluent data showing aluminum at 1000 ug/l which greatly exceeds EPA's recommend aluminum acute criterion of 750 ug/l.¹⁴ Since KYDOW assumes a 7Q10 of zero flow for mining receiving streams (9 Fact sheet at 6) and because the coal general permit contains no effluent limits for aluminum, (7) discharges from this mine would impermissibly "cause or have the reasonable potential to cause, or contribute to an excursion above ...State water quality standard, including State narrative criteria for water quality." 40 C.F.R. 122.44(d)(1)(i). Similarly in August of 2009, Raven Resources submitted data reporting aluminum discharges of 2330 ug/l. (3 at 6) Other mining operations are also discharging high levels of aluminum. KYDOW must place aluminum limits in the general permit and also must assure that mining operations are committed to constructing and operating a treatment facility that assures compliance with those limits.

5. KYDOW Does Not Identify Discharges Excluded from General Permit Coverage

¹² From numerous general permit applications received through KY Open Records request.

¹³ From data received through a January 26, 2010 FOIA request to KYDOW

¹⁴ Id.

The Fact Sheet (7 Fact Sheet at 2) for the coal general permit states, “[a]ny operation that is classified as an ‘Alkaline Mine’¹⁵ pursuant to 40 CFR 434.11” is excluded from coverage. Despite that exception, as long as a mining operation has not actively sought classification as an alkaline mine drainage facility (and few if any seek classification), KYDEP allows a facility that may discharge alkaline mine drainage to be covered under the general permit.¹⁶ Thus, mines with alkaline mine drainage can escape the additional scrutiny and public involvement of an individual NPDES permitting process by simply not submitting data that verifies their alkaline mine drainage status.

6. Existing Discharges Are Reauthorized Under the General Permit in a Data Vacuum

Existing discharges authorized under the general permit are automatically renewed without submitting effluent data at the time of permit reissuance.¹⁷ Thus, KYDOW is making permitting decisions in a near data vacuum without fully characterizing the effluent at literally thousands of outfalls. Discharge monitoring reports alone do not sufficiently characterize effluent quality. This failure not only further weakens the permitting process but is also in stark contrast to mining NPDES permit holders in West Virginia (most who hold individual NPDES permits) who are required to submit extensive water quality data at each renewal.

7. The Coal General Permit Includes an Illegal Compliance Schedule for Total Recoverable Iron

The permit includes an illegal compliance schedule for total recoverable iron. EPA has interpreted its regulations governing compliance schedules to require at least three findings, adequately supported by the record, *prior* to issuing a compliance schedule. First, the permitting authority must find that the compliance schedule will lead to compliance by the final compliance deadline. Second, the permitting authority must find that the use of the compliance schedule is “appropriate.” Third, the permitting authority must find that the compliance schedule requires compliance “as soon as possible.” 40 C.F.R. § 122.47. Specifically, EPA requires that compliance schedules:

- include interim requirements if the schedule is longer than one year in duration. 40 C.F.R. § 122.47(a)(3)
- include an “enforceable sequence of actions” leading to compliance (29 at 2)
- include an enforceable “final effluent limit in the permit” (29 at 2)
- include a “*reasonable finding, adequately supported by the administrative record*” that the compliance schedule will lead to compliance with the final effluent limits on schedule (emphasis added) (29 at 2)
- include assurances supported by the record that the schedule is “appropriate” and “as soon as possible” (29 at 2).
- Must be based on actions by the permittee and not an agency (such as a TMDL or establishing a water quality standard) (30 at 3)

¹⁵ The term “alkaline, mine drainage” means mine drainage which, before any treatment, has a pH equal to or greater than 6.0 and total iron concentration of less than 10 mg/l. 40cfr434.11(c)

¹⁶ Personal communication between Margaret Janes and KYDOW staff 2/3/10.

¹⁷ Personal communication between Margaret Janes and KYDOW 2/3/10.

Since neither the application nor the permit contain site specific information on compliance schedules, the agency has clearly failed to require a site specific analysis of the operators' ability to meet the new limits including an enforceable sequence of actions leading to compliance, assuring the compliance schedule is appropriate, compliance will be on schedule or as soon as possible. Thus, the permit fails to comply with CWA requirements.

8. Coal General Permit Fails to Comply with Public Participation Requirements of the CWA

The Clean Water Act provides that “[a] copy of each permit application and each permit issued under [the NPDES program] shall be available to the public” and before a permit is approved, the public must have an opportunity for public comment and a hearing. 33 U.S.C. §§ 1342(j), 1342(a)(1). KYDOW’s regulations require this public participation for draft general permits. 401 KAR 5:075, sec. 3. The draft permit must contain all required effluent limitations. Id., sec. 3(4)d. The proposed general permit contains no effluent limits for any of a number of pollutants (conductivity, aluminum, antimony, arsenic, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, thallium and zinc, cyanide and phenols) for which applicants must submit monitoring data. There is no reason to submit discharge data unless that data may be used to develop an effluent limit. However, Kentucky regulations prohibit issuance of a general permit unless all effluent limits are first published and circulated for public notice and comment in a draft permit accompanied by a fact sheet containing “[a]ny calculations or other necessary explanation of the derivation of specific effluent limitations and conditions.” 401 KAR 5:075, Sec. 4(2)g. KYDOW therefore cannot issue a general permit and later make case-by-case decisions that add new effluent limits for any of these sixteen chemicals without violating its own regulations. Only an individual permit, not a general permit, is designed or authorized to make case-by-case permitting decisions. In addition, the issuance of a general permit “mark[s] the completion” of the decision-making process. *National Ass’n of Home Builders v. U.S. Army Corps of Engineers*, 417 F.3d 1272, 1281 (D.C. Cir. 2005). KYDOW cannot combine an incomplete general permit with a later case-by-case analysis of discharge monitoring data at individual sites.

The coal general permit also fails to comply with CWA public notice requirements for antidegradation review of high quality streams. The permit states, “[p]ursuant to 401 KAR 5:029, Sec. 1(2) public participation is a requirement of a finding by EEC that allowing the lowering of water quality is necessary to accommodate important economic or social development” and further, that the agency “shall receive public comments for a period of 15 days.” (7 Fact sheet at 28) 401 KAR 5:029, Sec. 1(2) states, “[w]here the quality of the waters exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation in and on the water, that quality shall be maintained and protected unless the State finds, after full satisfaction of the intergovernmental coordination and public participation provisions of the State’s continuing planning process, that allowing lower water quality is necessary to accommodate important economic or social development in the area in which the waters are located.” 401 KAR 5:029 1(2) and 40 C.F.R. § 131.12(a)(2). The Kentucky Continuing Planning Process (32 at 3) and federal permitting regulations require a 30-day public and notice comment period for major permit decisions. 40 C.F.R. 124.10(b). Thus, the 15-day comment period fails

to comply with the state continuing planning process and federal regulations and must be revised.

Individual Coal Permits Do Not Address Priority Pollutants

KYDOW is violating the Clean Water Act (CWA) when it writes individual NPDES permits for coal mining operations. It does so because it systematically fails to conduct an analysis of the reasonable potential of coal mining discharges to exceed the chronic criteria of 15 priority pollutants. Mining operations are required to test for these pollutants as part of the application process. Even if a coal mining applicant submits data that would ordinarily trigger a reasonable potential analysis and effluent limits based on chronic criteria, the agency compares the data only to the acute criteria. (9 Fact sheet at 6) Referring to the list of toxic pollutants, KYDOW states in permit fact sheets:

The following table represents the Division of Water's evaluation of the reasonable potential that the discharge of these pollutants would violate water quality standards. Due to the discharges from the activities being precipitation dependant and the receiving waters having a 7Q10 low flow condition of zero (0) cfs the Division of Water has determined that effluent data shall be compared to the acute criterions for these pollutants. Id.

KYDOW's failure to carry out a reasonable potential for chronic criteria of toxic pollutants is impermissible for three major reasons. First, CWA regulations require a reasonable potential analysis for all pollutants of concern:

Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause or 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) (emphasis added).

EPA's Technical Support Document for Water Quality-Based Toxics Control (TSD), which states use to write water-quality based NPDES permits, details how states should develop NPDES effluent limits and requires that the most limiting criterion be applied.

Therefore, to prevent impacts to aquatic life or human health, the RWC (receiving water concentration) of the parameter effluent toxicity or an individual toxicant (based on allowable dilution for the criterion) must be less than the most limiting of the applicable criterion, as indicated below. (The RAC as used throughout this chapter incorporates EPA human health criteria and State standards as well.)

RWC < CCC (chronic aquatic life)
RWC < CMC (acute aquatic life)

RWC < RAC (human health)¹⁸

In contrast, KYDOW assumes that the acute criterion is always the most limiting criterion, even though (as we have shown above) the chronic criterion should also apply. The chronic criterion is also usually set at a much lower value. For example, for selenium, the acute criterion is 20 µg/l and the chronic criterion is 5 µg/l. And further,

For water quality-based requirements, the limits are based on maintaining the effluent quality at a level that will comply with water quality standards, even during critical conditions in the receiving water. These requirements are determined by the WLA (waste load allocation). The WLA dictates the required effluent quality which defines the desired level of treatment plant performance or target LTA (long term average).¹⁹

KYDOW defines the critical low-flow condition in the receiving water as that occurring during the 7-day, 10-year statistical interval known as the 7Q10. In this case KYDOW has stated that the 7Q10 flow at the point of the mine discharge is zero. This means that the mine discharge provides all of the flow into the receiving water. As a result, the WLA for that discharge must be set equal to the criterion in question and effluent limits must be determined using that WLA.

Second, even if rainfall were the only driver of mining discharges (which we show below is not the case), rainfall-driven discharges should be not limited based solely on acute criteria. Acute criteria are protective of aquatic life over very short exposures--those “based on one (1) hour exposure that does not exceed the criterion for a given pollutant.” 401 KAR 10:031 Sec. 6 (1) Footnote 6. In contrast, chronic criteria are protective over longer exposures—those “based on ninety-six (96) hour exposure that does not exceed the criterion of a given pollutant more than once every three (3) years on the average.” *Id.*, Footnote 7. Rainfall or snow melt can occur over several days or weeks and the resulting discharges will greatly exceed the one-hour time line for acute exposure thresholds. Thus, even based on KYDOW’s own assertions, its practice of only applying acute criteria is nonsensical and inconsistent with CWA requirements.

Third, while rainfall obviously has a great impact on surface mining NPDES discharges, those discharges are not solely rainfall-dependent. Various studies have documented “significantly higher unit discharge from valley fills than from adjacent unmined watersheds (Wiley and others, 2001). (15 at 17) Further, evidence indicates “that low flows were relatively greater in streams draining valley fills than in streams draining unmined watersheds.” *Id.* Researchers theorized that this happened in part because surface water “would infiltrate the fill instead of running into the stream” thus storing and then slowly draining the water from the fill material to the stream. *Id.* Other USGS studies indicate, “[d]aily streamflows from valley-fill sites generally are greater than daily streamflows from unmined sites during periods of low streamflow. Valley-fill sites have a greater percentage of baseflow and a lower percentage of flow from storm runoff than unmined sites.” (16). This means that sediment ponds downstream from valley fills are likely to discharge long after rainfall events and much longer than the one-hour time frame of acute criteria. In addition, even sediment ditches unassociated with valley fills or hollow fills may

¹⁸ See USEPA Office of Water. Technical Support Document for Water Quality-Based Toxics Control, March 1991, p. 48.

¹⁹ *Id.*, p. 95.

discharge as springs and seeps discharge water into those ditches and create a non-rainfall-driven discharge at the outfall.²⁰ Thus, when a surface mine site is at or near 7Q10 or more-frequently-occurring low-flow conditions, the mine's flow may totally dominate the flow in the receiving stream. Remarkably, this same policy appears to hold true for underground mines where discharges are often pumped. (33 Fact sheet at 6)

KYDOW has collected data demonstrating that coal mining discharges are causing and contributing to chronic water quality criterion exceedances for one of the 15 pollutants in question, selenium. In 2007, the agency sampled water downstream from a mining site at Smith Fork in Pike County. On September 19, 2007, selenium levels were 11.5 ug/l at the toe of the fill and 9.1 ug/l downstream of the outfall.²¹ National Oceanic and Atmospheric Administration data show that it did not rain at nearby Fishtrap Lake on that day. In fact, except for 0.2 inches of rain on September 17, it had not rained at or near this mine site for a week prior to the sampling date. (17) If the most recent rainfall event was two days before sampling, and there was flow at the time of sampling, one must conclude that the flow at this site is not ephemeral and only rainfall-induced, and is likely to last long enough to require measurement against the chronic criterion. Yet according to KYDOW policy, based on this data set, KYDOW would not have set any limits on selenium discharges.

This policy has resulted in permits with effluent limits that do not comply with CWA requirements. For example, in its February 27, 2008 application for individual NPDES permit KY0107140, Sidney Coal Company reported a value of 9 ug/l total selenium as representative of the discharges at its mine. (8 at 9) Yet KYDOW then issued a draft permit on September 23, 2009 with no selenium limits and no selenium monitoring despite the fact that the discharge had a reasonable potential to cause or contribute to the chronic selenium water quality criterion. (9 at 6) In August of 2009, in an application for individual NPDES permit, KY0001970, RiverView Coal reported a value of 13 ug/l total selenium as representative of the discharges at its underground mine and refuse disposal site. (35 at 8) The draft permit issued by KDOW based on this data also had no selenium limits or selenium monitoring. (34)

In sharp contrast, in neighboring West Virginia, the Department of Environmental Protection (WVDEP) routinely assigns water-quality based effluent limits for selenium at coal mine outfalls for discharges with a reasonable potential to cause or contribute to the selenium chronic criterion of 5 ug/l. In fact, as of April 2008, 1,234 coal mining outfalls in West Virginia were assigned selenium limits based on the identical situation described by the KYDOW when they justified the exemption from chronic criteria at Kentucky coal mines. In West Virginia, the assumption is a 7Q10 flow so that the WLA is identical to the chronic criterion, 5ug/l, resulting in effluent limits of 4.7 ug/l average monthly and 8.2 ug/l daily maximum. (18) Thus, KYDOW is impermissibly exempting coal mining discharges from the chronic criteria of the 15 priority (including selenium) pollutants listed in permit applications.

Individual Coal Permits - the Application

Individual permit applications show a variety of flaws that include:

²⁰ Personal communication between WVDEP and Margaret Janes January 19, 2010.

²¹ Data received through the KY Open Records Law

- As noted above for the coal general permit, detection limits for selenium data submitted in the permit applications are frequently too high. In one case, the detection limit for selenium data reported in permit application was 0.05 mg/l, two and one half times greater than the acute selenium criterion of 20 µg/l that KYDOW claims to enforce. (36 at 11)
- When filing out reports on effluent quality permittees frequently state that aluminum is believed absent. This is in marked contrast to data from coal general permits and research data previously discussed that demonstrate the aluminum content of mining effluent can be quite high and is harmful.
- Applicants do not appear to be required to submit conductivity data as part of their application. See applications at <http://www.water.ky.gov/publicassistance/notices/November-December.htm>.

These seemingly minor flaws have likely led to major deficiencies in at least some NPDES permits.

Kentucky Uses Impermissible 303(d) Listing Procedures and TMDL schedules

Kentucky's NPDES permitting program is undermined by flawed 303(d) listing procedures and long delays in the development of total maximum daily loads (TMDLs). Since 1986, Kentucky has completed and EPA has approved 51 TMDLs for various pollutants. (19) This is an average of only a few TMDLs per year. The existing backlog of TMDLs on the most recent TMDL schedule includes over 2,000 stream segments. The agency plans to complete all of these TMDLs by 2021 at an average rate of 167 TMDLs per year. (20) KYDOW admits that they will be unable to meet this schedule without "more staff, lab resources, and especially contractual monies without *continued loss of ambient monitoring resources.*" (5 at 16) (emphasis added) The implication is that the miles of assessed streams in Kentucky will fall as the agency struggles and likely fails to complete all TMDLs.

The earliest 303(d) list available online is from 1990. (21) A number of streams are listed for warm water aquatic life use impairment due to priority organics. (21 at 3) At least some of these streams have apparently been listed for 20 years without a TMDL being developed. Drakes Creek, Town Branch and Mud River are still listed today due to priority organics including PCBs and methylmercury. (22 at 482, 255, 271) The long delay in developing TMDLs does not comply with EPA guidance that requires TMDL to be developed within eight to thirteen years of listing. (23) It seems unlikely given Kentucky's resources and current pace that the long TMDL delays will be resolved even by 2021.

The delays in identifying pollution sources and developing cleanup plans for impaired streams cause significant delays in the development of water-quality based effluent limits.

Unfortunately, they are not the only major problem with Kentucky's 303(d)/TMDL program. At the same time the state complains about a lack of resources, it also creates excessively strict data requirements for identifying impaired streams.

303(d) Assessment protocols

The assessment protocols used for the 2008 Integrated Report to Congress are briefly summarized in the 305(b) report. (5 at 64-67) The report states that chemical data was assessed according to EPA guidance from 1997. (5 at 64) (24) In comparing the KYDOW protocol to EPA guidance, however, important differences are evident. EPA states, “at least 10 samples over a 3-year period” are preferred for toxic pollutants and, “[i]f fewer than 10 samples are available, the State should use discretion and consider other factors such as the number of pollutants having a single violation and the magnitude of the exceedance(s)” while making listing decisions. (24 at 3-22) KYDOW generally requires monthly samples over a three-year period in order to determine impairment based on chronic criteria for the priority pollutants and iron. (5 at 65) The only sites with that much data are the 71 large rivers included in Kentucky’s primary ambient network.²² Sites in the State’s rotating watershed ambient network have 12 monthly samples and may also be listed due to exceedance of the chronic criteria but there is reluctance to use data over a single year. (5 at 65).²³ Further discussion with KYDOW indicates that fewer than 12 samples over a three-year period would not be sufficient to support listing.²⁴ In addition, KYDOW states that “[o]bservations that equaled or were only slightly greater than chronic criteria were not considered to exceed water quality standards.” (5 at 65) All of these policies lead in the same direction—an underestimation of impaired streams and fewer WQBELs.

Pre and Post Law Abandoned Mine Sites

Kentucky has failed to issue NPDES permits for point source discharges at bond forfeiture mining sites and has issued an illegal general NPDES permit to cover discharges at abandoned mine land sites.

KYDEP Has Violated the CWA by Failing to Issue NPDES Permits for Coal Mining Bond Forfeiture Sites

Kentucky administers a bond forfeiture reclamation program. Before coal companies begin mining at a site, they must post a reclamation bond. A company’s bond may be forfeited to the State if the company fails to mine and reclaim a site to the standards specified in its mining permit. The forfeited funds are then used by the State to reclaim the site for which the bond was posted. (25) The majority of mining operations submit individual bonds. If reclamation does not resolve water pollution issues through land reclamation and passive water treatment (for example limestone ditches) at the site, the water pollution remains as a liability of the land owner.²⁵ These sites are not issued NPDES permits unless a mining company comes into re-mine or reclaim the site.²⁶

A number of Kentucky bond forfeiture sites produce acid mine drainage (AMD). (26) A 2008 inventory of forfeiture sites with ongoing reclamation needs shows at least 14 sites with offsite

²² Personal communication between KYDOW staff and Margaret Janes February 2, 2010.

²³ Id.

²⁴ Id.

²⁵ Personal communication between Margaret Janes and KYDEP staff in two offices 2/3/10.

²⁶ Id.

water quality AMD impacts that would not be resolved by land reclamation or passive treatment. Numerous other sites have less severe water quality impacts. None of the sites needing passive or active treatment are required to obtain NPDES permits.²⁷ Unpermitted discharges from bond forfeiture sites have frequently exceeded technology-based and water quality-based effluent standards for pH and iron. (26) Under similar circumstances, two West Virginia federal courts have ruled that WVDEP has violated the Clean Water Act by failing to obtain NPDES permits for discharges from such sites. West Virginia Highlands Conservancy v. Huffman, 588 F. Supp.2d 1678 (N.D. W.Va. 2009), and 651 F. Supp.2d 512 (S.D. W.Va. 2009). That same principle applies to unpermitted discharges from Kentucky bond forfeiture sites.

Abandoned Mine Lands (“AML”)

The Federal Surface Mining Control and Reclamation Act of 1977 (as amended) establishes a fund to reclaim abandoned mine lands (AML), which are unreclaimed mine sites that predate federal surface mining regulation. KYDEP has developed a general permit to cover those discharges. (27) The permit, however, fails to comply with the law in several important ways. First, the general permit authorizes discharges that may impermissibly cause or contribute to violations of water quality standards. (27 Fact sheet at 5) It does so by failing to establish numeric effluent limits for any pollutant and rather relies solely on best management practices to control pollution. (27 Fact Sheet at 3) Referring to the watersheds of receiving streams, KYDEP states:

Some of these watersheds may be listed in Kentucky’s most recent 303(d) list of impaired waters. Watersheds on this list may be impaired for a variety of reasons and may require the development of Total Maximum Daily Loads (TMDLs) for certain pollutants. Should a TDML be developed for a watershed covered by this permit, then sites covered by this permit may be required to obtain an individual permit to implement the recommendations of the TDML. (27 Fact Sheet at 2)

The agency states that some of the sites it anticipates will be covered by the general permit have a reasonable potential to cause or contribute to a water quality standard violation. Yet no effluent limits for parameters of concern, (Total Suspended Solids, Dissolved Solids, Settleable Solids, Total Recoverable Metals, Hardness, Sulfates, Sulfides, Nitrates, Nitrites, Phosphorous, ph, etc.), are included in the permit. (27 Fact Sheet at 3) For example, “On or around March 7, 2007, an abandoned mine had a blow out and now acid mine drainage is gushing into Little Dry Fork, just west of Whitesburg, KY .” (28) The blow out of an abandoned deep mine is covered by the AML general permit. According to the narrative of this piece the water is high in conductivity, iron, and manganese and is decimating aquatic life yet the permit places no limits or controls on the discharges.

The permit states that AML sites with few exceptions are automatically covered by the permit.

Due to the number of potential sites that are eligible for this permit, the wide variability of the surface owners/controllers and their resources, and the limited resources of the Division of Water, only large surface owners/controllers will be required to submit an

²⁷ Id

NOI for coverage under this permit. All others will receive automatic inclusion unless the Division of Water specifically requests a notice of intent. Large surface owners/controllers are those individuals or entities that control an accumulative 25% or more of the surface area within a watershed or control surface areas in more than one (1) watershed. (27 at III-1)

Thus, the agency has little to no control of this permit or what types of discharges it will authorize, including AMD blow outs with serious water quality impacts.

Secondly, as previously stated, Kentucky law authorizes the use of general permits only when all point sources within each category:

- a. Involve the same or substantially similar types of operations;
- b. Discharge the same types of wastes;
- c. Require the same effluent limitations or operating conditions;
- d. Require the same or similar monitoring; and
- e. In the opinion of the cabinet, are more appropriately controlled under a general permit than under individual permits.”

401 KAR 5:055, sec. 5(b)2. Thus, all five of these requirements must be satisfied before a general permit may be issued. Describing discharges potentially covered by the permit, the fact sheet states, “[t]he chemical composition is dependent upon the type mineral extracted, the overlying and underlying formations, and the processing of the extracted mineral. The quality of the discharge may vary from extremely poor to meeting the criteria established for the support of aquatic life. (27 Fact Sheet at 4) Thus, the discharges described in the AML general permit are admittedly not similar in quality or degree and thus do not qualify for inclusion in the general permit.

///

Conclusion

Because the harm associated with the State's failure to maintain and administer its NPDES program is severe, irreversible and ongoing, we ask EPA to respond to and take action based on this petition as soon as possible.

Respectfully submitted,



JOSEPH M. LOVETT
Executive Director
Appalachian Center for the
Economy and the Environment
P.O. Box 507
Lewisburg, WV 24901
(304) 645-9006

MARGARET C. JANES
Senior Policy Analyst
Appalachian Center for the
Economy and the Environment
P.O. Box 507
Lewisburg, WV 24901
(304) 645-9006

JIM HECKER
Environmental Enforcement Director
Public Justice
1825 K Street, N.W. Suite 200
Washington, DC 20006
202-797-8600

AARON ISHERWOOD
Senior Staff Attorney
Sierra Club Environmental Law Program
85 Second Street, 2d Floor
San Francisco, CA 94105-3441
(415) 977-5680

///

References:

- 1) EPA Region 3. Mountaintop Mining Environmental Impact Statement, Appendix D, Stream Chemistry. April 8, 2002. See <http://www.epa.gov/Region3/mtntop/eis2003appendices.htm#appd>
- 2) Palmer and Bernhardt, Mountaintop Mining Valley Fills and Aquatic Ecosystems: A Scientific Primer on Impacts and Mitigation Approaches. 2009.
- 3) General permit NOI for Raven Resources, KYG0463099, August 10, 2009.
- 4) See National Recommended Water Quality Criteria at <http://www.epa.gov/waterscience/criteria/wqctable/>
- 5) Kentucky Environmental and Public Protection Cabinet, Division of Water, 2008 Integrated Report to Congress on Water Quality in Kentucky, Volume 1, 305(b) Report. April 1, 2008. See <http://www.water.ky.gov/NR/rdonlyres/1A883375-82DB-46AD-A0DB-3A8BA43EE959/0/2008IntegratedReporttoCongressonWaterQualityinKentuckyVol1.pdf>
- 6) Notice of Intent application for 2009 Kentucky Coal General Permit.
- 7) Kentucky Coal General Permit issued July 1, 2009.
- 8) Individual NPDES application for Sidney Coal Company, CWA NPDES permit, KY0107140. February 27, 2008.
- 9) Individual Draft NPDES for Sidney Coal Company, CWA NPDES permit, KY0107140, September 23, 2009.
- 10) Gregory J. Pond, Margaret E. Passmore, Frank A. Borsuk, Lou Reynolds, Carole J. Rose, "Downstream effects of mountaintop coal mining: comparing biological conditions using family- and genus-level macroinvertebrate bioassessment tools," J. N. Am. Benthol. Soc., 2008, 27(3):717–737 Published online: 8 July 2008.
- 11) Letter from James D. Giattina, Director, Water Protection Division, EPA Region 4, to Col. Keith A. Landry, US Army Corps of Engineers, Louisville District, concerning 404 permit for Apex Energy, 898-0646, December 29, 2009.
- 12) See <http://blogs.wvgazette.com/coaltattoo/2009/10/01/friends-of-dunkard-creek-seek-epa-takeover-on-fish-kill/#more-1257>
- 13) See <http://www.dep.wv.gov/WWE/watershed/wqmonitoring/Pages/DunkardCreekFishKillInformation.aspx>
- 14) Kristiansen, J. 16. Dispersal of fresh water algae – a review. Hydrobiologia 336. 11996.
- 15) Water Resources Investigation Report 02-4303. Comparison of Storm Responses of Streams in Small Unmined and Valley Filled Watersheds, 1999-2001, Ballard Fork , West Virginia. 2003.
- 16) Water-Resources Investigations Report 01-4092. Geomorphology, Low Streamflow, and Stream Temperature in the Mountaintop Coal-Mining Region, Southern West Virginia, 1999-2000, 2001.
- 17) NOAA Kentucky rainfall data for Fishtrap Lake, KY purchased online for September 2007.
- 18) List of mining permit outfalls and limits for selenium from April 2008 FOIA request to WVDEP.
- 19) See <http://www.water.ky.gov/sw/tmdl/Approved+TMDLs.htm>
- 20) Kentucky TMDL schedule from FOIA July 23, 2009.

- 21) See 1990 303(d) list <http://www.water.ky.gov/NR/rdonlyres/B7F92908-FB33-4BA8-ABB9-D87557DAD614/0/303d90.pdf>
- 22) See 2008 303(d) list <http://www.water.ky.gov/NR/rdonlyres/58E97683-C9B7-4F9F-BA87-93671E6A02D9/0/2008volume2final.pdf>
- 23) See <http://www.epa.gov/OWOW/tmdl/ratepace.html>
- 24) See <http://www.epa.gov/owow/monitoring/305bguide/v2ch3.pdf>.
- 25) See <http://www.aml.ky.gov/>
- 26) Spreadsheet detailing water quality status of some bond forfeiture sites from information request May 14, 2009.
- 27) AML General NPDES permit.
- 28) See <http://www.youtube.com/watch?v=aMQCWUdWo1o>
- 29) Memo on compliance schedules from James A Hanlon, Director of Office of Wastewater management USEPA to Alexis Strauss, Director, Water Division, USEPA Region 9, May 10, 2007.
- 30) Letter from Alexis Strauss of USEPA to Celeste Cantu of California State Water Resources Control Board, RE: California SIP, compliance schedule provisions, October 23, 2006.
- 31) S.G. Neuzil, et al., "Spatial Trends in Ash Yield, Sulfur, Selenium, and Other Selected Trace Element Concentrations in Coal Beds of the Appalachian Plateau Region, U.S.A.," USGS Open-File Report 2005-1330 (2005).
- 32) Kentucky Continuing Planning Process, August 31, 2006.
- 33) Draft Permit for Czar Coal, KY0108049, 880-5139.
- 34) Draft permit for Riverview Coal, KY0001970, 913-5015.
- 35) Permit application for Riverview Coal, KY0001970, August 4, 2009.
- 36) Permit application for Czar Coal, KY0040495, August 24, 2007.
- 37) Letter from Mike Hardin KY Department of Fish and Wildlife Resources to Tim Guilfoile, Sierra Club, February 10, 2010.
- 38) Louisville District of the Army Corps of Engineers, Public Notice No. 2009-239, Frasure Creek Mining, April 10, 2009.
- 39) See http://www.epa.gov/npdes/pubs/wet_draft_guidance.pdf
- 40) Permit application number 2, ICG Hazard, Thunder Ridge Mine, KYG043540, August 19, 2009.
- 41) Permit application number 1, ICG Hazard, Thunder Ridge Mine, KYG043540, August 19, 2009.
- 42) General Permit authorization for ICG Hazard KYG043540 Am 8 & 9.
- 43) Letter to KYDOW from Kevin Bailey of Environmental Resources Management Consulting Company, December 29, 2009.
- 44) Effluent characteristics Clintwood Elkhorn 898-4330, KYG046362.
- 45) General permit coverage authorization for Clintwood Elkhorn 898-4330, KYG046362.
- 46) NOI Bear Branch Coal, 897-5100, KYG045353.
- 47) Effluent data NOI Leeco 867-0486 Am. 1, KYG045876.
- 48) General Permit authorization for Leeco, 867-0486 Am. 1, KYG045876.
- 49) Louisville District of the Army Corps of Engineers, Public Notice No. 2009-239, Frasure Creek Mining, April 10, 2009. Maps

50) Mitchelmore, Carys, University of Maryland Center for Environmental Science, Report on the USEPA Whole Effluent Toxicity Testing at Selected Sites in the Coalfields of Kentucky and West Virginia, February 2010 including maps of WET testing sites.