



AppalachianVoices

Protecting the Central and Southern Appalachian Mountain Region

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Re: Docket ID:EPA-HQ-OW-2012-0315 EPA's specific objections to 36 Kentucky Energy and Environment Cabinet draft National Pollutant Discharge Elimination System (NPDES) mine-related discharge permits.

I. Introduction

Under the Clean Water Act, the EPA must ensure state compliance with clean water laws, in order to protect both public health and the environment. By reviewing KPDES permits and raising objections to inadequacies, the EPA is fulfilling its intended role. We commend the EPA for intervening in what would otherwise remain an intractable situation in Kentucky. Through our work in Kentucky, serious problems both with individual coal mines and with state oversight have become evident. Objecting to these permits is a step forward in terms of ensuring effective oversight and permitting of coal mines in Kentucky. We believe EPA should reaffirm their objections to these 36 inadequate permits.

II. Legal Actions Raise Concerns over Data Accuracy and State Oversight

In 2010, Appalachian Voices first became aware of inaccurate, potentially fraudulent discharge monitoring reports (DMRs) from Frasure Creek Mining and International Coal Group (ICG)¹ which both operate in Kentucky. Many of the reports contained identical "cut and pasted" data from one quarter repeated in another quarter. We later found similar issues with a third company, Nally & Hamilton Enterprises.² All three companies have submitted permits that fall under these objections.

The false and potentially fraudulent reporting on DMRs, which is the subject of our legal action, causes us to have serious concerns about the validity of water quality data submitted to the state of Kentucky. Figure 1 illustrates one example of the type of inaccurate reporting that appears to be commonplace in Kentucky and is disconcerting to us.

¹ The initial case against Frasure Creek and ICG is in Franklin Circuit Court, Case Numbers 10-CI-01867 and 10-CI-01868 consolidated. There are additional charges against both companies pending in the Kentucky Energy and Environment Cabinet Office of Administrative Hearings, DOW 33598. There is also a pending federal complaint containing all the above mentioned charges.

² There is a settlement in the Kentucky Energy and Environment Cabinet Office of Administrative Hearings, DOW 42445-039 covering these charges, an appeal of the settlement pending in Franklin Circuit Court CIVIL ACTION NO. 11-CI-01731, and a case pending in Federal Court, Civil No: 11-133-GFVT

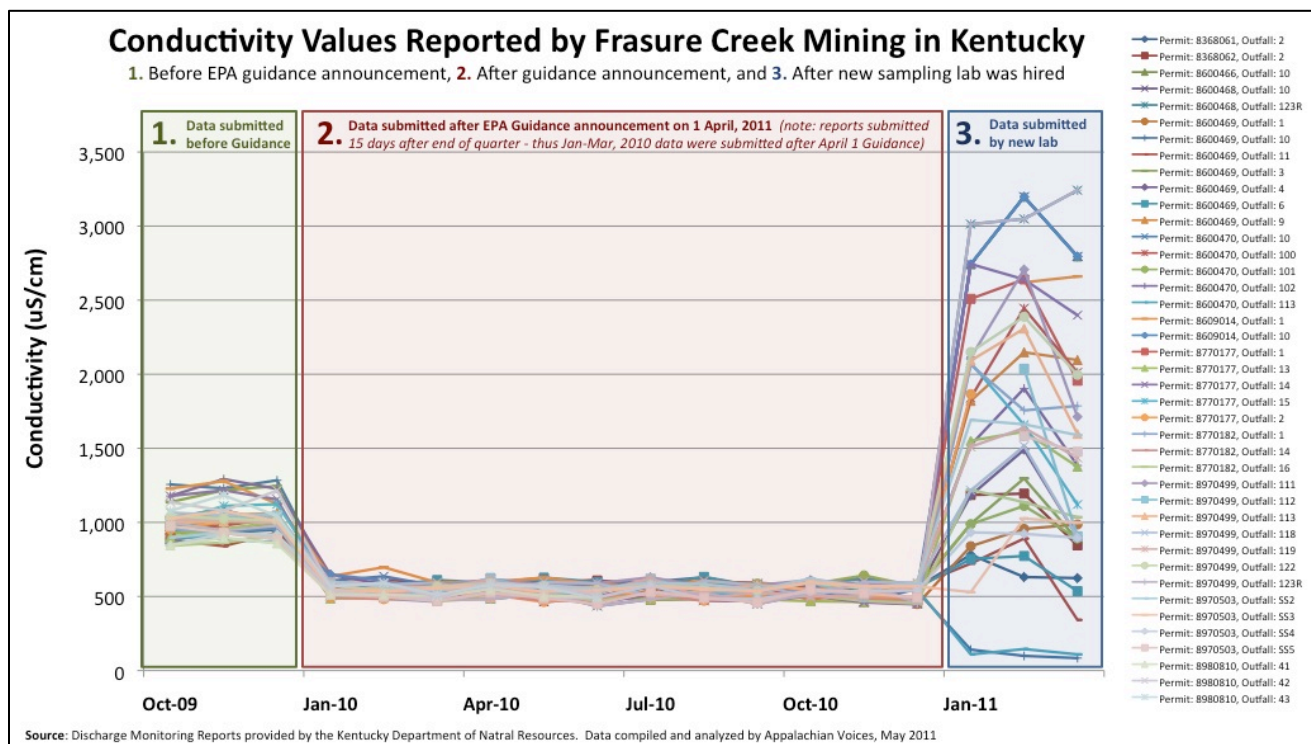


Figure 1: Conductivity Values Reported on Frasure Creek Mining DMRs.

In this graph each line represents the conductivity values reported for an individual outfall at one of Frasure Creek’s Kentucky facilities. Section 1 of the graph identifies data submitted prior to EPA’s April 1 2010 Conductivity Guidance. In section 2 of the graph, one can see a significant drop in reported conductivity values after the issuance of the guidance. It should be noted that data from January-March of 2010 should have been collected before the issuance of the guidance, but was not submitted to the state until after guidance was issued. Section 3 of the graph shows a more realistic distribution of data and represents data being submitted by new labs that were hired as a result of our legal action.

In addition to concerns about the accuracy of data being submitted to the state, our legal actions have also brought to light major problems in the Cabinet’s oversight of the KPDES program when applied to coal mining. Through requesting DMRs and filing these lawsuits, it became evident that the Kentucky Energy and Environment Cabinet was not identifying or addressing violations, and was likely not even reviewing DMRs. After we filed lawsuits against all three companies, the Energy and Environment Cabinet attempted to address the violations we identified through settlements with each of the companies. The cabinet failed to investigate the potential that misreporting was intentional and was masking actual pollution problems. Thus, their settlement failed to address the potential for future intentional misreporting and failed to account for the financial benefit that the companies received through inadequate monitoring and not reporting permit limit violations.

For example, during the first day of a state court trial in the case against ICG and Frasure Creek (C.A. NO. 10-CI-01867, consolidated with 10-CI-01868), Mark Cleland, an Environmental Control Manager at Cabinet's Division of Enforcement, described the method of penalty calculation as follows:

*The first method was an actual physical count of violations that were identified directly in the DMR review. The second method was for a subset of violations where we knew the permits that were involved but **we did not know the number of outfalls that were involved**. In those instances, we calculated the number of violations by counting the occurrence of the violations, counting the number of permits that were involved, and then we multiplied by an average of the number of outfalls that we had identified in the permits for the companies.*

The Cabinet did not have an accurate count of the number of outfalls involved in this legal action, and does not have an accurate count of the total number of outfalls it regulates. Knowing the number and location of facilities that are being regulated is a fundamental element, without which an agency cannot effectively oversee these facilities. The Cabinet clearly does not have either the motivation or the capability to effectively oversee coal mining in Kentucky.

III. Public Health and Water Quality Impacts

The quality of water is a powerful environmental determinant of health. Coal mining operations damage Appalachian waterways by discharging sediment, acid mine drainage, heavy metals, and other toxic chemicals. Valley fills are responsible for burying hundreds of miles of headwater streams. There is a growing body of scientific evidence linking mountain top removal coal mining to serious water quality and health problems. The regulations meant to protect people and waterways are not consistently or effectively enforced by the state of Kentucky. We commend the EPA for making strides towards protecting water quality and public health in the coal fields through these permit objections and other actions.

From 2007 to the present, 21 peer-reviewed scientific studies have found that coal mining has negative impacts on the economy, ecology, and human health in Central Appalachia. Several of these studies speak to the importance of monitoring and maintaining water quality. In 2009, a study conducted by an epidemiologist at West Virginia University, Dr. Michael Hendryx, analyzed the value of statistical life lost and showed that the costs associated with coal mining in Appalachia continue to exceed the economic benefits gained from mining. Hendryx went on to state that illnesses seen in coal mining areas of Appalachia, "are consistent with a hypothesis of exposure to water and air pollution from mining activities."³

Later, in 2010, in a landmark article in *Science* magazine, 12 scientists conducted an independent study and literature review on the impacts of environmental contamination from mountaintop removal mining. Results included evidence of water pollution even on reclaimed sites, increased

³Hendryx, M. (2009) "Mortality in Appalachian Coal Mining Regions: The Value of Statistical Life Lost." *Public Health Reports*. 124: 541-50

hospitalizations for chronic pulmonary disorders and hypertension, and increased incidence of lung cancer, chronic heart, lung and kidney disease, and overall mortality rates. As a result of these findings, the paper calls for the halting of all new mountaintop removal mining permits.⁴

Another study in 2010 found that, after controlling for covariates, residents in coal mining areas of West Virginia still had a higher risk of having a baby with a low birth weight. The authors state that the “persistence of a mining effect on low birth weight outcomes suggests an environmental effect resulting from pollution from mining activities,” and that air and water quality assessments are needed for mining communities.⁵

More recently, a 2011 study, titled “Cumulative Impacts of mountaintop mining on an Appalachian Watershed”, documented the cumulative impact of more than 100 mining discharge outlets and approximately 28 km² of active and reclaimed surface coal mines on the Upper Mud River of West Virginia. The researchers measured concentrations of major and trace elements within the tributaries and the main stem, and found that upstream of the mines water quality was equivalent to state reference sites. However, as eight separate mining-impacted tributaries contributed their flow, conductivity and the concentrations of selenium, sulfate, magnesium, and other inorganic solutes increased at a rate directly proportional to the upstream areal extent of mining. Researchers found strong linear correlations between the concentrations of these contaminants in the river and the proportion of the contributing watershed in surface mines. All tributaries draining mountaintop-mining-impacted catchments were characterized by high conductivity and increased sulfate concentration, while concentrations of some solutes such as Se, Sr, and N were lower in the two tributaries draining reclaimed mines. The results demonstrated the cumulative impact of multiple mines within a single catchment and provide evidence that mines reclaimed nearly two decades ago continue to contribute significantly to water quality degradation within this watershed.⁶

The Appalachian Voices citizen water monitoring program has independently verified continuing pollution issues in multiple headwater streams around Eastern Kentucky and Southwestern Virginia. Many streams below surface mines have conductivity values consistently above 1,000 µS/cm, with some streams measuring as high as 2,500 µS/cm. Some of the most egregious findings include streams with pH between 3 and 4, manganese greater than 13 mg/L, and iron greater than 60 mg/L. This data can be found at <http://www.appalachianwaterwatch.org/reports>.

⁴ Palmer, M.S., E. S. Bernhardt, W. H. Schlesinger, K. N. Eshleman, E. Foufoula-Georgiou, M. S. Hendryx, A. D. Lemly, G. E. Likens, O. L. Loucks, M. E. Power, P. S. White, P. R. Wilcock. (2010) “Mountaintop Mining Consequences.” *Science*, 327: 148-9.

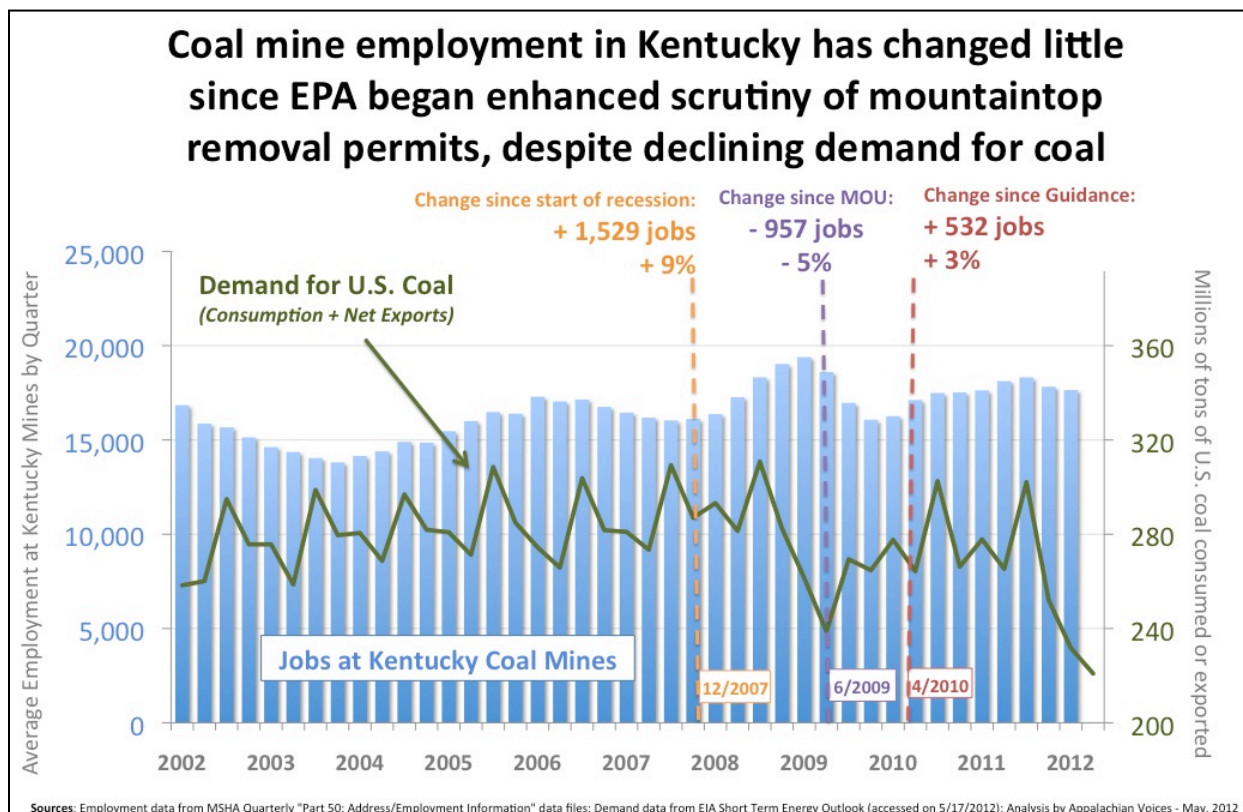
⁵ Ahern, M., M. Mullett, K. MacKay and C. Hamilton. (2010) “Residence in Coal-Mining Areas and Low Birth Weight Outcomes.” *Maternal Child Health*, Jan 2010.

⁶ T. Ty Lindberg, Emily S. Bernhardt, Raven Bier, A. M. Helton, R. Brittany Merola, Avner Vengosh, and Richard T. Di Giulio (2011) – [Proceedings of the National Academy of Sciences of the United States of America](#)

IV. Employment and the Economy

We maintain that EPA should not consider economic factors when making permitting decisions. Those arguing against stronger EPA water regulations of coal mines often cite job losses as resulting from enforcement measures. Although the objections raised by the EPA to the 36 Kentucky NPDES permits are not and should not be economically based, it is still important to clarify that the EPA is not responsible for coal industry employment trends.

Data from the Energy Information Administration (EIA) and the Mine Safety and Health Administration (MSHA) provide no evidence that recent EPA oversight has negatively impacted coal mining jobs. Across the region, coal jobs have increased by 6% since 2009, when the EPA began more stringent review of valley fill permits for mountaintop removal mines through the Enhanced Coordination Procedures (ECP)⁷. A similar trend is evident in Kentucky – coal mining employment in Kentucky has increased by 3% since the introduction of the conductivity guidance in 2010, even though demand has steadily declined in recent years (Figure 2).



⁷ U.S. Dept of Labor, Mine Safety and Health Administration Quarterly “Part 50: Address/Employment Information.”

Despite the job increase, coal use in the US energy market has decreased from 48.5% of total energy use in 2007 to 36.3% in the first quarter of 2012⁸. Environmental regulations are not the cause of coal's decline; it is the state of the market. The drastic drop in natural gas prices has led to a surge in utility use of this cheaper, domestic resource. In effect, coal consumption has decreased 20% between March 2011 and March 2012⁹. In their first Quarter 2012 earnings statements, two of America's largest coal producers, Alpha Natural Resources and Arch Coal, both announced major layoffs, while citing poor market conditions and low demand as the main reasons for poor earnings and job cuts. Because there is a projected decrease in coal consumption in the U.S., there will be even greater motivation for companies to cut corners wherever possible in order to remain profitable. It is now more important than ever to ensure that operating mines are in compliance with the Clean Water Act and related state laws. The EPA's oversight is necessary to guarantee Clean Water Act enforcement in Kentucky, due to the state's inability to require adequate, enforceable KPDES permits.

V. Objections to Specific Permit Provisions

Although the 36 KPDES permits in question appear to be an improvement over the previous individual permits issued for coal mining in Kentucky, there are still numerous specific problems with these permits. These issues make the permits inadequate to prevent major degradation of water quality below the mining facilities. In general, we share the EPA's specific concerns about these permits: that the Reasonable Potential Analysis (RPA) performed by the Cabinet is insufficient, and that the permit limits imposed will not be protective of water quality. We have additional specific objections to the permits detailed below:

1. It is inappropriate to develop permit limits after the permit has been issued. This allows water to be discharged that could cause violations of water quality standards during the period before limits are developed. It also provides no assurance to the public that the agency will ever develop the additional permit limits necessary to protect water quality. It is especially inappropriate to delay issuing permit limits when baseline data from the impacted streams and similar operations is or could be made available to the agency.
2. It is inappropriate to develop permit limits before or after the permit is issued based on monitoring data submitted by the coal companies themselves, without further measures to ensure that the data is accurate. It is concerning that limits would be developed based on data submitted by the companies, who have a vested interest in ensuring that the data they provide to the agency would not result in more stringent permit limits. The lawsuits Appalachian Voices and its partners have brought (discussed in greater detail above) bring into question the validity of the data being provided to the agency by the three largest producers of mountain top removal coal in eastern Kentucky, International Coal Group, Frasure Creek Mining, and Nally & Hamilton Enterprises. Each of these companies has applied for permits under review in this action. We know that these companies have submitted false water quality data in the past. We believe that these data

⁸ U.S. Energy Information Agency, *Electric Power Monthly* March 2012 Data, Chapter 1.1 Net Generation by Energy Source: Total - All Sectors <http://www.eia.gov/electricity/monthly/>

⁹ U.S. Energy Information Agency, *Electric Power Monthly* March 2012 Data <http://www.eia.gov/electricity/monthly/>

problems are not unique to these three companies, or the labs they hire (which are used by many other coal companies in eastern Kentucky). Kentucky currently has no lab certification program, and most water quality data provided to the agency came from laboratories that have not been accredited, and no have no formal oversight. It is our position that all water quality data being submitted to the Cabinet by coal companies in Eastern Kentucky should be viewed as highly suspect and should not be used as a basis for developing permit limits until Kentucky has taken further steps to ensure that the data being submitted to them is accurate.

3. Where permit limits were developed, in many cases they are inadequate to meet water quality standards. In many cases the fact sheets state that a RPA was done, but the results and work are not provided, calling into question the validity of the analysis.
 - a. The limits for metals fail to take into account chronic toxicity standards. Both EPA and Kentucky set the chronic freshwater standard for iron as 1 mg/L, yet the monthly average limit for iron in these permits is 3 mg/L, which is inadequate to meet the 1 mg/L standard in discharges from in-stream ponds where the entire flow of the stream is effluent. The permits also fail to take into account the chronic toxicity of metals other than iron and manganese. By failing to require other metals to be monitored twice per month, and failing to set monthly average limits, these permits provide no assurance that chronic water quality standards are being met. This is especially problematic for selenium, where the chronic toxicity level (5 µg/L) is substantially lower than the acute toxicity standard set by Kentucky (20 µg/l), which is used as the daily maximum permit limit.
 - b. Some of the permits have a monthly average limit for Total Suspended Solids (TSS) of 35 mg/L, while others have no monthly average limit. There is no apparent reason for this discrepancy, and no reason given for making this TSS limit in some of these permits less stringent than that of the general permit (KYG040000).
 - c. The whole effluent toxicity (WET) standards and enforcement mechanisms are too weak. Although chronic WET testing is required at some outfalls, there is no permit limit on it. WET testing is a direct measure of the toxicity of the effluent, and by not putting limits on the chronic WET scores these permits allow discharges that could kill everything in the receiving streams, so long as the discharge is only chronically toxic and not acutely so. Additionally, in Section 3 in the subsection titled *SC Benchmark and Management* (section numbers vary between permits) the permits state that two consecutive failed acute WET tests constitutes a violation of the permit. The fact sheets state no reason why two consecutive failed WET tests should only constitute a single violation rather than two violations. This provision is not protective of water quality because any failed WET test indicates that toxic effluent is being discharged, but a violation does not occur until the second failed test. This appears to be an unnecessary limit on the enforceability of the WET standards.

4. The provisions for precipitation-based alternate effluent limits are inadequate and unclear. Many of the outfalls on these permits, specifically those at “bench ponds” are likely to only flow during or just after precipitation events. The alternate precipitation limits are not stringent enough to prevent these outfalls from discharging water that could be acutely toxic. Additionally there are no standards or specific guidelines as to what constitutes a rainfall event significant enough to qualify for alternate limits other than the very general and basically unenforceable statement “any discharge or increase in the volume of a discharge caused by precipitation”. Some states set a minimum rainfall amount of 0.2 inches in the previous 24 hours, but in Kentucky there is no set minimum amount of precipitation required. It is commonplace for companies to abuse this lack of clarity and request alternate limits when they clearly should not be granted. Since granting alternate limits is at the discretion of the Cabinet and there are not clear guidelines on what constitutes a sufficient rainfall event, it is never clear to the public what the Cabinet would and would not consider acceptable. For example, in September of 2011 Frasure Creek Mining requested alternate precipitation based effluent limits for three of its outfalls (161, 163, and 167) on permit 860-0470 (KYG041006). Their DMRs state that there was a precipitation volume of 0.01 inches on September 27th and 29th 2011 (the two days for which alternate limits were requested). 0.01 inches of rain over 24 hours is clearly not enough to cause a significant increase in the flow of these outfalls, yet alternate limits were requested anyway, and it is not clear what action the Cabinet has taken.
5. The permits fail to set limits for conductivity. There is substantial scientific evidence including EPA’s own studies¹⁰ linking high conductivity in streams below mountain top removal to biological impairment in those streams. The EPA’s guidance issued April 1 2010 sets a benchmark of 500 $\mu\text{S}/\text{cm}^2$ in order to protect aquatic life. If the Cabinet had performed an adequate Reasonable Potential Analysis, numeric limits for conductivity would have been set.

VI. Conclusion

Through our examination of the discharge monitoring reports (DMRs) from the three largest surface mining companies, Frasure Creek, ICG, and Nally & Hamilton, we identified systemic problems in water pollution monitoring and control in the state of Kentucky. Through our subsequent lawsuits, it became evident that the Kentucky Energy and Environment Cabinet has done little to enforce the Clean Water Act, as it pertains to coal mining in the state. Recent peer-reviewed studies confirm that water pollution from coal mines is prevalent, has serious consequences for the surrounding ecosystem, and is likely linked to a wide range of human health consequences. The recent shift in the energy market toward the use of natural gas and other energy sources has resulted in a decreased demand for coal. In an effort to remain profitable, it is likely that many coal mining companies in

¹⁰ U.S. EPA. A Field-Based Aquatic Life Benchmark for Conductivity in Central Appalachian Streams (2010) (External Review Draft). U.S. Environmental Protection Agency, Washington, DC, EPA/600/R-10/023A, 2010.

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Kentucky will attempt to reduce operating costs at the expense of the environment and local people. The EPA has all but confirmed these trends in its review of and objection to the 36 NPDES permits now in questions. These permit applications, approved by a state agency unwilling or unable to properly oversee the coal industry, contain serious inadequacies that pose real threats to Kentucky's water quality. For these reasons, Appalachian Voices asks that the EPA reaffirm the objections to these permits.