



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4
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ATLANTA, GEORGIA 30303-8960

SEP 28 2011

Ms. Sandy Gruzesky
Director, Division of Water
Kentucky Department for Environmental Protection
200 Fair Oaks Lane, Fourth Floor
Frankfort, Kentucky 40601

Subject: EPA Comments and Recommendations Regarding the 35 Draft NPDES Permits
Listed in Enclosure 1

Dear Ms. Gruzesky:

On July 1, 2011, the Kentucky Division of Water (KDOW) transmitted to the U.S. Environmental Protection Agency 34 of the 35 draft National Pollutant Discharge Elimination System (NPDES) permits and fact sheets listed in Enclosure 1, for our review. Additionally, KDOW submitted for our review another draft NPDES permit and fact sheet, also listed in Enclosure 1, on September 1, 2011. The EPA has been reviewing these draft permits in accordance with the NPDES Memorandum of Agreement (MOA) with Kentucky and the EPA's regulations at 40 Code of Federal Regulations (CFR) § 123.44(a). We have now completed our review of the draft permits and we are providing comments and recommendations in accordance with MOA Section IV.B.3 and 40 CFR § 123.44(a).

We have significant concerns that these permits will allow discharges that may cause water quality impacts due to the absence of effluent limits based upon an appropriate reasonable potential analysis necessary to demonstrate that the permitted discharges will not cause or contribute to a violation of the Commonwealth's narrative or numeric water quality standards. We are eager to work with you to address our concerns, particularly as we coordinate on future applications for coal mining-related discharges in Kentucky.

I want to emphasize that our review of the draft permits has been guided by our mutual goal of protecting public health and water quality consistent with the requirements of the Clean Water Act (CWA) and reducing unnecessary duplication and delay in the permitting process. We recognize the important role that the CWA provides to states in administering NPDES programs. In 2008 the Commonwealth of Kentucky and the EPA Region 4 signed an updated NPDES MOA in which we agreed to maintain a high level of cooperation and coordination to ensure successful and effective administration of the NPDES program. Together we share an important responsibility to implement the CWA and we appreciate your efforts to work with us to address issues identified during our permit review.

Our review of the 35 draft permits has identified general concerns regarding the quality and detail of information contained in the permit applications, fact sheets and draft permits submitted to the EPA and provided to the public in accordance with 40 CFR Part 124. As a general matter, the efficiency and effectiveness of our oversight and review is dependent upon the quality, consistency and detail of

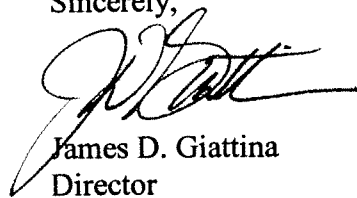
information provided to us. We are concerned that basic information regarding the nature, characteristics and potential effects of proposed discharges is missing from the permit applications making it difficult to assess compliance with CWA requirements. We understand that permit data is often difficult to collect and we are prepared to work immediately with you and the applicants to identify the discrepancies as well as the information that is most relevant and necessary for efficient and effective review of the proposed discharges and resolution of the draft permits.

In response to these concerns regarding the quality of information included with the permits submitted in July and September, I request that KDOW review and confirm that the information presented in the applications, draft permits, and fact sheets is complete and accurate prior to issuance of the permits. Where there is a discrepancy among the information supporting the NPDES permit application and information supporting a Surface Mining Control and Reclamation Act permit, or a CWA Section 404 permit, it is appropriate for KDOW to explain the reason for the discrepancy or require the applicant to update its application to reflect accurate project information. We are prepared to work with KDOW to identify existing discrepancies and other factual concerns in a timely manner so that the factual concerns can be resolved as quickly as possible.

A detailed statement of our comments and recommendations for the 35 permits is set forth in Enclosure 2. As a general matter, we are concerned that a reasonable potential analysis required in accordance with 40 CFR § 122.44(d), is either inadequate or missing for each of the draft permits with respect to applicable narrative or numeric water quality standards. A reasonable potential analysis is necessary to determine whether the proposed discharges will cause, or have the reasonable potential to cause or contribute to, a violation of the Commonwealth's water quality standards. The draft permits also do not include effluent limits necessary to ensure that the proposed discharges will not cause or contribute to a violation of the Commonwealth's water quality standards, as required by Section 301(b)(1)(C) of the CWA and the EPA's regulations at 40 CFR §§ 122.4(a) and (d), and 122.44(d)(1). We are prepared to work with you immediately to begin addressing these deficiencies in order to ensure that final permit decisions can be made as quickly as possible.

Thank you again for your willingness to work with us to protect public health and water quality consistent with the requirements of the CWA. I look forward to following up with you to resolve these issues and to make timely decisions on these mining operations. If you have any questions, please call me at (404) 562-9345 or Mark Nuhfer of the Municipal and Industrial NPDES Section at (404) 562-9390.

Sincerely,



James D. Giattina
Director
Water Protection Division

Enclosures

cc: Permit Applicants

#	AI #	NPDES #	SMCRA #	Company
1	33224	KY0105660	917-5017	Allied Resources Inc.
2	111111	KY0109746	898-8165	Apex Energy
3	39502	KY0107697	892-0105	Armstrong Coal Company
4	2312	KY0090123	858-9000	Beech Fork Processing, Inc.
5	35893	KY0043851	807-8050	Bell Co. Coal Corp
6	111308	KY0109410	913-0013	Camp Eleven Mining LLC
7	81522	KY0106666	898-4320	Clintwood Elkhorn Mining Co.
8	14499	KY0102008	898-8097	Clintwood Elkhorn Mining Co.
9	4182	KY0094994	917-5014	Cochise Coal Company
10	98885	KY0107158	889-8005	Covol Fuels No 2, LLC
11	1176	KY0098400	836-5341	Czar Coal Corp
12	1873	KY0067121	854-8011	Don Bowles Coal No 1 LLC
13	4203	KY0071471	918-8013	Emlyn Coal Processing
14	2669	KY0046035	Multiple	Enterprise Mining Company
15	1151	KY0078271	836-8071	Frasure Creek Mining, LLC
16	1128	KY0053546	836-8066 A2	Frasure Creek Mining, LLC
17	50315	KY0105597	833-9005	Fuel Recovery Partners
18	1723	KY0043133	848-8059	Harlan Cumberland Coal Company
19	83376	KY0108588	860-5350	KY Fuel Corp
20	2514	KY0094510	860-8020	KY Fuel Corp
21	108487	KY0109185	860-8019	KYZ Red Oak Resources
22	101782	KY0108391	898-9144	Landfall Mining, Inc.
23	126	KY0021547	Multiple	Left Fork Mining Company
24	3644	KY0000396	Multiple	Long Fork Coal
25	13148	KY0051551	898-8163	McCoy Elkhorn Coal Corp.
26	3657	KY0031402	Multiple	McCoy Elkhorn Coal Corp.
27	101892	KY0107611	836-9023	NFC Mining, Inc.
28	1828	KY0090913	851-8004	Patriot Coal Company
29	106710	KY0108634	898-9147	PB Dirtmovers, Inc.
30	1259	KY0059366	836-8057	Prater Creek Coal Corp
31	12525	KY0087327	848-5491	Resource Land Company
32	1706	KY0097608	848-8069	Sequoia Energy, LLC
33	104486	KY0104486	889-0145	Shaunaco LLC
34	3720	KY0025950	Multiple	Sidney Coal Company, Inc.
35	83386	KY0107034	830-0093 A1	Western KY Minerals, Inc

Comments and Recommendations for the 35 NPDES permits:**1. The draft permits and fact sheets do not include an adequate reasonable potential analysis (RPA) for some pollutants and do not include appropriate effluent limits.**

According to 40 CFR § 122.44(d), National Pollutant Discharge Elimination System (NPDES) permits must contain limitations for all pollutants that have the reasonable potential to cause or contribute to violations of numeric or narrative water quality standards (WQS). An adequate RPA is necessary to determine if the receiving water body has sufficient assimilative capacity to ensure that the proposed discharges do not cause or contribute to violations of applicable numeric and narrative WQS. As explained below, the draft permits and facts sheets do not include an adequate RPA for coal mining-related pollutants with narrative and numeric WQS. The draft permits and fact sheets do not consider available information indicating that the proposed discharges do have the reasonable potential to cause or contribute to violations of applicable WQS, and the draft permits do not include appropriate effluent limits. As a result, discharges that would be authorized by the permits listed in Enclosure 1 may cause or contribute to violations of WQS.

A. The draft permits and facts sheets do not include an adequate RPA for pollutants with narrative WQS that are generally known to be present at significant levels in coal mine discharges.

NPDES regulations at 40 CFR § 122.44(d)(1)(vi) require NPDES permits to contain provisions implementing narrative WQS, and the RPA that must be completed for numeric WQS must also be completed for narrative standards.¹ The draft permits and fact sheets do not include an RPA for pollutants with narrative WQS such as sulfate, conductivity or total dissolved solids (TDS) to ensure that the proposed discharges would not cause or contribute to a WQS excursion. The fact sheets state that “in order to determine if reasonable potential exists [for conductivity and TDS], the baseline biological conditions of the intended receiving streams are compared to the biological conditions of the receiving streams during active mining... If the annual score(s) are lower than the baseline score but within the baseline category, then reasonable potential may exist. If the annual score(s) indicate the receiving water has declined in category then reasonable potential has been demonstrated.” KDOW proposes to conduct the required RPA during the permit term after it receives the results of the required biological monitoring. This approach potentially allows water quality degradation during the period between the scheduled annual biological assessments.

While additional data on water quality is always welcome, this approach does not consider available, valid and representative data showing that the proposed discharges have the reasonable potential to cause or contribute to violations of WQS. In addition, for some of the draft permits and fact sheets, Kentucky Division of Water (KDOW) did not evaluate whether

¹ Kentucky’s WQS include narrative standards for the protection of aquatic life, conductivity, and total dissolved solids. “Total dissolved solids or specific conductance shall not be changed to the extent that the indigenous aquatic community is adversely affected.” 401 Kentucky Administrative Regulations (KAR) 10:031, Section 4(1)(f); and “Surface waters shall not be aesthetically or otherwise degraded by substances that ... injure, are chronically or acutely toxic to or produce adverse physiological or behavioral responses in humans, animals, fish and other aquatic life” 401 KAR 10:031, Section 2. In addition, Kentucky has narrative standards for TSS and settleable solids. See 401 KAR 10:031(4)(1)(g) and (h); (g) “Total suspended solids. Total suspended solids shall not be changed to the extent that the indigenous aquatic community is adversely affected;” (h) “Settleable solids. The addition of settleable solids that may alter the stream bottom so as to adversely affect productive aquatic communities is prohibited.”

the discharges that would be authorized under those permits have the reasonable potential to contribute to the existing impairments. Of the 53 permits currently under review, 24 discharge to receiving water bodies identified as impaired for coal mining related pollutants according to the 2008 or draft 2010 Clean Water Act (CWA) § 303(d) list. The impairments are for a number of pollutants with narrative WQS: conductivity, sedimentation/siltation (seattleable solids and total suspended solids), sulfate, and TDS.

Given the existence of information indicating that reasonable potential exists,² the proposal to conduct the RPA during the permit term, and not prior to authorization of discharge, is inconsistent with the CWA and its implementing regulations. These regulations require that the permits contain water quality-based effluent limits (WQBELs) for all discharges that have reasonable potential to cause or contribute to a violation of WQS at the time of permit issuance (40 CFR § 122.44(d)(1)(iii, iv, vi)).

B. The draft permits and fact sheets do not include an adequate RPA for pollutants with numeric WQS.

The draft permits and fact sheets do not include an adequate RPA for pollutants with numeric WQS (such as metals) as required by 40 CFR § 122.44(d)(1)(i, ii, iii). The fact sheets state that “the permittee was unable to submit complete and acceptable data prior to public notice” for the effluent and in-stream levels and “representative outfalls were proposed to be monitored to provide data to perform the RPA.” In some cases, the projects have existing discharges that could provide such data. Alternatively the applications could have been determined to be incomplete and the applicant could have been required to submit the data to appropriately characterize the effluent. In other cases, where projects do not have existing discharges from which to obtain data, similar projects and information from relevant studies could have been used as representative data. Furthermore, in some permits, representative outfalls and in-stream monitoring points were not identified, which results in effluent limitations and monitoring requirements that only apply to undefined representative outfalls.³ The draft permits and facts sheets are based on incomplete applications and do not include effluent data and information from the projects and/or from other similar projects. Conducting the RPA during the permit term, and not prior to authorization of discharge, does not comply with the CWA and its implementing regulations.

The draft permits and facts sheets also do not adequately characterize the frequency and duration of discharges in order to conduct an adequate RPA. Not all of the draft permits and fact sheets include available site-specific data to characterize the effluent flow frequency and

² A 2004 Kentucky Department for Environmental Protection, Division of Water, Water Quality Branch study, “Effects of Surface Mining and Residential Land Use on Headwater Stream Biotic Integrity in the Eastern Kentucky Coalfield Region” found that the wholesale loss of mayflies at mined sites indicated that these organisms are especially sensitive to coal mine drainage and dissolved solids emanating from hollow fills are a primary cause of biological impairment because of their severe impact to mayflies and other sensitive taxa. A 2008 published study, “Downstream effects of mountaintop coal mining: comparing biological conditions using family- and genus-level macroinvertebrate bioassessment tools” by Pond, et al. found evidence indicating that mining activities have subtle to severe impacts on aquatic life and the biological conditions of a stream at conductivity levels of 500 µS/cm. A final EPA report (2011), “The Effects of Mountaintop Mines and Valley Fills on Aquatic Ecosystems of the Central Appalachian Coalfields,” found effects that include resource loss, water quality impairment, and adverse effects on aquatic resources. Another final report by EPA (2011), “A Field-based Aquatic Life Benchmark for Conductivity in Central Appalachian Streams” concludes that 5% of native macroinvertebrate genera are extirpated where conductivity levels reached 300 µS/cm.

³ The fact sheets for these draft permits state that “the permittee did not submit a QAPP or representative outfall selection prior to this application. Therefore the permittee will be required to submit to DOW a QAPP within thirty (30) days of issuance of this permit. This QAPP must be found to be acceptable by DOW within ninety (90) days of permit issuance. DOW will reopen the permit as a minor modification to add representative outfalls and instream monitoring points at that time.

The draft permits and facts sheets also do not adequately characterize the frequency and duration of discharges in order to conduct an adequate RPA. Not all of the draft permits and fact sheets include available site-specific data to characterize the effluent flow frequency and duration such as existing discharge monitoring reports, surface water monitoring reports, the CWA § 404 application, information about the watershed size draining to specific outfalls that is contained in the Surface Mining Control Reclamation Act (SMCRA) application, and available information about the in-stream flow regime.⁴ For example, where available information indicates that a project's in-stream sediment pond is within an intermittent or perennial stream segment, or the scientific literature shows that the drainage area of the pond is well within the regionally documented intermittent or perennial flow regime, the in-stream pond is likely to flow intermittently at a minimum. Based on the foregoing, a more detailed analysis is necessary to support determinations that the discharges authorized under the permits will not cause or contribute to exceedances of acute or chronic WQS.

In some cases the projects have existing discharges, and applicants should have submitted the required data to appropriately characterize the frequency of discharge. Instead, the fact sheets state that "discharges from the outfalls covered by this permit only occur during precipitation events." This statement is not supported by data regarding frequency or duration of discharge, and does not ensure protection of chronic WQS that would apply to any continuous discharge or any intermittent discharge that occurs frequently enough to have reasonable potential to exceed a chronic WQS. Due to the applicants' failure to submit "complete and acceptable" effluent data and the assumptions that the discharges are precipitation-driven, the permits listed in Appendix A contain maximum daily effluent limits for all metals based on an application of acute WQS only. The effluent limits within the permit do not negate the fact that an appropriate RPA must be conducted for both acute and chronic WQS, and the permit must include effluent limits necessary to meet acute and chronic WQS based on the results of the RPA before permit issuance.

2. Additional effluent limits are necessary to ensure that discharges do not cause or contribute to violations of WQS.

NPDES permits must contain effluent limitations for all pollutants that have the reasonable potential for the discharge to cause or contribute to violations of numeric or narrative WQS according to 40 CFR § 122.44(d). To address these comments, KDOW should develop revised permits and fact sheets that characterize the effluent and the background conditions in the receiving water bodies for these permits using existing data (including where necessary representative data from other similar projects, or require additional data from the applicants for existing projects); include an adequate

⁴ Available scientific literature indicates that even small watersheds in central Appalachia can produce intermittent or perennial flow. A 2003 published study by Paybins, "Flow origin, drainage area, and hydrologic characteristics for headwater streams in the mountaintop coal-mining region of southern West Virginia," found that the median watershed size for intermittent streams was 14.5 acres and the median for perennially flowing streams was 40.1 acres. A 2005 published study by Svec, et al., "Defining perennial, intermittent, and ephemeral channels in Eastern Kentucky: application to forestry best management practices," monitored stream flow in 23 headwater catchments throughout the eastern Kentucky coal field region from 2000 to 2001. The flow duration in all catchments exceeded 50% of the period of record, indicative of at least intermittent stream flow in all catchments, including six watersheds draining less than 10 acres. Perennial stream flow was documented in watersheds as small as 32.2 acres. Another published study in 2008, "Physical indicators of hydrologic permanence in forested headwater streams" by Fritz and others categorized channel flow conditions in forested headwater streams located mostly, but not exclusively, in the central Appalachian states. The authors found that intermittent stream flow in central Appalachia was generated by a mean drainage area of approximately 126 acres and an average drainage area of approximately 210 acres generated perennial stream flow. Another study commissioned by the National Mining Association in 2011, "Variability of benthic invertebrate communities of headwater streams in southern West Virginia: final report to National Mining Association" by GEI, found highly diverse aquatic communities in West Virginia headwaters that drained between 12 and 25 acres with wetted stream widths of only one foot wide.

RPA; and include WQBELs that are as stringent as necessary to meet all narrative and numeric WQS based on the results of the RPA.

We would include in the permits effluent limits necessary to meet WQS based on the results of the RPAs. In performing the RPAs, the Environmental Protection Agency would consider relevant and available information, including the studies cited above in footnotes 2 and 4, and available data (including data from discharge monitoring reports, surface water monitoring reports, the CWA § 404 permit applications, the SMCRA permit applications, and representative data from other sites). As noted in footnote 2, relevant studies indicate that adverse impacts occur to the aquatic community at conductivity levels of 300 $\mu\text{S}/\text{cm}$ and substantial aquatic life effects have already occurred when conductivity reaches 500 $\mu\text{S}/\text{cm}$. If the EPA was issuing these permits, we would include effluent limits in the permits to ensure that all discharges from these projects do not exceed a conductivity level of 300 $\mu\text{S}/\text{cm}$, unless site-specific information suggests that an alternate WQBEL is appropriate.⁵

In addition to chemical-specific limits to meet a narrative WQS, 40 CFR § 122.44(d)(1)(v) specifies that, when a discharge has reasonable potential to cause or contribute to a violation of a narrative criterion within an applicable State WQS, “the permit must contain effluent limits for whole effluent toxicity (WET),” unless the permitting authority demonstrates in the fact sheet or statement of basis of the NPDES permit “that chemical-specific limits for the effluent are sufficient to attain and maintain applicable numeric and narrative State water quality standards.” Absent such a demonstration, the permits should be revised to include the appropriate WET limits. For outfalls that discharge greater than 96 hours in duration,⁶ the permits should be revised to include chronic WET limits, and limits for other coal-mining pollutants that may be discharged at levels exceeding chronic WQS.

3. Recommendations regarding the reliability of permitting information.

Our review of the 35 permits has raised questions about the accuracy of information in the applications, draft permits and fact sheets. The uncertainty regarding the accuracy of permitting information makes it difficult, if not impossible, to confirm that the permits contain effluent limits as stringent as necessary to meet state water quality standards. For example, if permit information does not reliably characterize the location, type or number of outfalls, the frequency or duration of discharge and the existing water quality in receiving water bodies, it is not possible to perform an adequate RPA. Our review of the 35 draft permits revealed a sufficiently pervasive pattern of inconsistencies, discrepancies and questions regarding permit information to lead us to recommend that KDOW conduct a review of all of the permitting information for accuracy and completeness before issuance of the final permits. We recommend that KDOW conduct a review of information in the applications, draft permits and fact sheets to ensure that its permitting decisions are based on accurate permitting information. This may involve informing permit applicants of our concerns regarding the accuracy of permit information and requiring applicants to review the information in applications and certify its accuracy or, if necessary, submit revised applications with updated

⁵ Application of narrative WQS in the context of a specific permit is a case-by-case determination taking into account the specific circumstances of each permit. Conductivity levels outside the range of 300 – 500 $\mu\text{S}/\text{cm}$ may be consistent with meeting applicable narrative WQS in some water bodies, depending on their characteristics. Different conductivity levels might be appropriate for waters that are different from those on which the EPA reports were based, such as those with dissimilar ionic mixtures or aquatic life communities. Whenever limits for conductivity are set at numeric values above 300 – 500 $\mu\text{S}/\text{cm}$, site-specific data and high-quality scientific information should be used in order to ensure that they fully protect applicable aquatic life uses.

⁶ This duration is consistent with the way that the EPA expresses numeric criteria.

information, certified in accordance with 40 CFR § 122.22. We recommend that KDOW also ensure that the application information is reconciled with information in the draft permits and fact sheets, and that adequate RPAs are conducted based on this information.

4. Recommendation for supplemental permit conditions.

In addition to the foregoing comments and recommendations for the permits, we also recommend that if KDOW continues to use the proposed supplemental permit conditions (best management practices (BMPs) and biological-based limits), the conditions be revised in order to ensure that the permits are protective of Kentucky WQS and consistent with the CWA. These revised limits would provide greater assurance that water quality will be protected and that degradation resulting from coal mine discharges will be promptly identified and addressed.

We recommend that BMP-based effluent limits as authorized by 40 CFR § 122.44(k)(3) should include clear, specific and enforceable measures to ensure that the BMPs are performing as expected. We recommend that action levels be set at levels sufficient to identify problems and require that adaptive action be taken promptly if it appears that WQS may be exceeded. An appropriate action level to protect narrative WQS would be an effluent conductivity level of 300 $\mu\text{S}/\text{cm}$, unless site-specific information suggests that an alternate action level is appropriate. When such action levels are exceeded, we recommend that the permit require implementation of an enforceable adaptive management plan to better control discharges before they degrade water quality.

We also recommend revisions to the biological-based limits that are applied in-stream to ensure they are as stringent as necessary to achieve Kentucky's WQS in accordance with 40 CFR § 122.4(d) and CWA § 301(b)(1)(C). The permit requirements for the biological-based limits should be designed to ensure that the effects from existing sources can be quantified and distinguished from the effects from other permitted discharges and baseline stream conditions. The permit conditions should include measurable and enforceable thresholds representing a violation of the permit that places the responsibility on the permittee to take action and avoid long-term noncompliance with the permit and WQS. The biological-based limits should be consistent with applicable WQS. As currently structured in the draft permits, the biological limits only require maintenance (no worsening) of an existing degraded condition. A biological-based limit that maintains and contributes to an existing impairment is not protective of applicable WQS. For example, if a headwater stream in the Eastern Kentucky coal region has been identified as impaired on Kentucky's CWA § 303(d) list or by the project's baseline biological assessment, a macroinvertebrate biological index score of 72 (consistent with meeting applicable WQS) is the minimal acceptable future condition to ensure that the discharge will not cause or contribute to an exceedance of Kentucky's narrative standards.

In accordance with the MOA and 40 CFR § 123.44, the EPA submits these comments and recommendations for the draft permits. The EPA requests that KDOW revise the draft permits and fact sheets to address these recommendations before issuing final permits.

