



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION III  
1650 Arch Street  
Philadelphia, Pennsylvania 19103-2029

OCT 16 2009

Colonel Robert D. Peterson  
District Engineer  
U.S. Army Corps of Engineers, Huntington District  
502 Eighth Street  
Huntington, West Virginia 25701

Re: Spruce No. 1 Surface Mine Permit 199800436-3 (Section 10: Coal River);  
Logan County, West Virginia; Mingo Logan Coal Company

Dear Colonel Peterson:

The U.S. Environmental Protection Agency (EPA) has received your September 30, 2009 response to our September 3 letter denying EPA's request, pursuant to 33 C.F.R. § 325.7, that you re-evaluate the decision to issue a Clean Water Act Section 404 permit for the Spruce No. 1 Surface Mine, particularly given that discharges authorized by the permit have not occurred while litigation is ongoing in Federal District Court. We recognize the issued permit contains several provisions that may be intended to address water quality and mitigation based upon information and data available at the time. However, in light of new data and information since permit issuance, EPA remains concerned with much of the analysis set forth in your letter, particularly as it relates to the potential for adverse water quality impacts, further avoidance and minimization measures, the potential for cumulative impacts, and identification and enforceability of success criteria for mitigation.

Consequently, this letter notifies you that, pursuant to 40 C.F.R. § 231.3(a), EPA has reason to believe that the Spruce No 1 mine, as currently authorized, may result in unacceptable adverse impacts to fish and wildlife resources. We intend to issue a public notice of a proposed determination to restrict or prohibit the discharge of dredged and/or fill material at the Spruce No. 1 Mine project site consistent with our authority under Section 404(c) of the Clean Water Act and our regulations at 40 C.F.R. Part 231. We are taking this unusual step in response to our very serious concerns regarding the scale and extent of significant environmental and water quality impacts associated with the Spruce No. 1 mine, which are explained below. The Spruce No. 1 mine represents the largest authorized mountaintop removal operation in Appalachia and occurs in a watershed where many streams have been impacted by previous mining activities. While we recognize that the project has been modified to reduce projected impacts, the project will still bury more than seven miles of streams and additional analyses by EPA and in a TMDL prepared by the West Virginia Department of Environmental Protection (WVDEP) and approved by EPA provide evidence that there is the potential for its associated discharges to cause further stream degradation. In addition to the cumulative adverse water quality impacts that include

those associated with the Spruce No. 1 mine, there are 12 additional surface mining projects either proposed or authorized but not built in the same watershed. The cumulative impacts on the degraded sub-basin of Spruce No. 1 together with these 12 additional projects, if all built, have not been assessed and factored in the regulatory context. In addition, the permit does not contain conditions sufficient to ensure effective compensation for stream functions destroyed by this mining project.

Region III is aware that EPA has never before used its Section 404(c) authority to review a previously permitted project since Congress enacted the Clean Water Act in 1972. That it is necessary in this circumstance to initiate Section 404(c) review reflects the magnitude and scale of anticipated direct, indirect, and cumulative adverse environmental impacts associated with this mountaintop removal mining operation – the largest strip mining operation ever proposed in Appalachia when it was first permitted by the Corps. EPA emphasizes that the Spruce No. 1 represents an unusual set of circumstances we do not expect to be repeated again.

EPA's regulations on Section 404(c) procedures provide for further coordination between EPA, and the Corps of Engineers and the applicant. Consistent with EPA regulations at 40 C.F.R. § 231.3(a)(2), EPA is providing the Corps and the applicant with an opportunity to submit any additional information for the record to demonstrate that no unacceptable adverse effects would occur from this project, either standing alone or in combination with operation of other mines proposed and/or authorized in the Coal River sub-basin, or that satisfactory corrective action will be taken to prevent such adverse effects.

EPA is available to meet with you and the applicant during the next 15 days to discuss options for further reducing adverse environmental impacts associated with the proposed project. We stand ready to work with you and your staff to modify the permit to address our concerns. We encourage you to contact us to schedule a discussion as soon as possible.

### **Key Background Information**

The Coal River sub-basin has approximately 283 miles of designated high quality streams, which are designated as such because they have five or more miles of desirable warm water fish populations or have native or stocked trout populations that are utilized by the public. Direct impacts to the macroinvertebrates, amphibians, and other aquatic fish and wildlife resources of the headwater streams that feed these systems are extensive and far ranging. In addition, disruptions in the biological processes of first- and second-order streams impact not only aquatic life within the stream, but also the functions aquatic life contribute to downstream aquatic systems in the form of nutrient cycling, food web dynamics, and species diversity (Cummins 1980, Merritt et al. 1984).

The Coal River Sub-basin has approximately 51 species listed as endangered, threatened or state rare species. Many of these species rely on the aquatic ecosystem for either habitat or foraging. Non-aquatic species such as avian and bat species rely on aquatic insects as their food source. Salamanders within the southern Appalachians, one of the richest areas of salamander faunas in the world (Petranka 1998, Stein et al 2000), require these aquatic systems for habitat.



Based on information available to EPA, the project as authorized includes construction of six valley fills for placement of excess spoil material generated through surface coal mining activities, associated sediment control structures, and one mine-through area. Since the project was originally proposed, it has been modified to reduce some adverse impacts to aquatic resources. The project has incorporated fill minimization techniques including a mine design that utilizes the Approximate Original Contour Plus (AOC+) policy. EPA acknowledges the West Virginia AOC+ policy was adopted as an approved method to minimize impacts to jurisdictional waters. However, the policy sets minimally acceptable methods and every effort should be employed to maximize avoidance to aquatic resources in consideration of safety and design stability. In addition, EPA believes opportunities exist to incorporate additional methods to avoid and minimize impacts to aquatic resources, such as sequencing fill construction, consideration of the direction of mining, use of side hill fills and placing the fill back to back to maximize the backfill. This list is not all inclusive, but rather examples of additional minimization considerations.

The Clean Water Act Section 404(b)(1) Guidelines require that “no discharge of dredged or fill material shall be permitted if it causes or contributes, after consideration of disposal site dilution and dispersion, to violation of any applicable State water quality standard.” In addition, the Guidelines prohibit any discharge of dredged or fill material that would cause or contribute to significant degradation of the aquatic ecosystem, with special emphasis placed on the persistence and permanence of effects, both individually and cumulatively. Recent scientific studies (references included) have consistently indicated that surface mining with valley fills in Central Appalachia are strongly related to downstream degradation often rising to the level of biological impairment. These studies show that surface mining impacts on aquatic life are strongly correlated with ionic strength in the Central Appalachian stream networks. This increase in conductivity impairs aquatic life use, is persistent over time, and cannot be easily mitigated or removed from stream channels. Based on available information, EPA is concerned the project may cause or contribute to a violation of the State’s water quality standards or antidegradation policy.

With respect to water quality, we recognize the Corps has followed applicable procedural steps; specifically, procuring a certification from the State pursuant to Section 401 of the Clean Water Act, relying upon the National Pollutant Discharge Elimination System (NPDES) permit, and reviewing analyses of hydrologic consequences prepared pursuant to requirements of the Surface Mining Control and Reclamation Act, that are intended to ensure water quality is protected. Nevertheless, EPA believes the analyses relied upon by the Corps did not sufficiently consider the potential impact of this project with respect to narrative criteria and downstream aquatic life uses. As described in more detail above, the collective science strongly suggests that projects similar to the Spruce No. 1 project are associated with impairment of downstream aquatic life use.

### **Water Quality Studies**

EPA has worked hard to assess the effects of surface coal mining on water quality in streams below mining activities. What we have learned is compelling and further substantiates the scientific literature that points to a high potential for downstream water quality excursions under current mining and valley fill practices. To assess the potential for each project to cause

excursions from water quality standards, we compared measured water quality data from streams within which valley fills are proposed, to the nearest stream within which valley fill discharges are already occurring. In over 80% of the cases, we found two results: first, in streams where valley fills were proposed but not yet constructed water quality was within scientifically defensible, acceptable levels to support native aquatic life; second, in the streams where valley fills or mining disturbances were evident, water quality as measured by conductivity levels was substantially above levels believed to cause excursion of water quality standards or significant degradation as that term is defined in the Section 404(b)(1) Guidelines. Similar data from nearby streams associated with existing mining operations strongly suggest that construction of the Spruce No. 1 mine has potential to cause or contribute to impairments downstream.

Once again, scientific literature, including EPA's own 2008 published study, show clear evidence that discharges associated with the construction of valley fills are very likely to elevate conductivity and thus negatively affect healthy aquatic communities. That 2008 study demonstrates that using West Virginia's approved methodology, the West Virginia Stream Condition Index, to assess down stream impacts to biological communities, EPA found that nearly 65% of the time, narrative water quality standards were exceeded. Using the more sensitive GLIMPSS, a genus-level multi-metric index methodology, the naturally occurring aquatic communities in more than 90% of streams below valley fills were degraded. Despite years of post-mining recovery time, many streams evaluated were degraded or exhibited an excursion from narrative standards 15 to 20 years after construction of the upstream facility was completed. A clear association of these adverse impacts with upstream mining and with conductivity measures above 500  $\mu\text{S}/\text{cm}$  (frequently less) was discovered.

### **Environmental and Water Quality Impacts**

Specific to Spruce No. 1, the Little Coal River watershed contains 98 miles of impaired streams, representing 33% of the watershed, and the Coal River sub-basin has 743 miles of impaired streams, representing 30% of the sub-basin. Spruce Fork, the Little Coal River, and Seng Camp Creek have approved total maximum daily loads (TMDLs). Both Pigeonroost Branch and Oldhouse Branch are not listed for water quality impairments and may be providing clean freshwater dilution to Spruce Fork which has measured conductivity readings above 500  $\mu\text{S}/\text{cm}$ . West Virginia Stream Condition Index scores indicate that Spruce Fork is in poor condition. In addition, the TMDL for the Coal River sub-basin provides evidence supporting this conclusion. When the TMDL was developed, the WVDEP identified several streams as biologically impaired due to conductivity from mining sources. Two of these streams, Rockhouse Creek and Left Fork/Beach Creek are in the Spruce Fork watershed where the Spruce No. 1 mine will be located. This is evidence that mining in this watershed is likely to be associated with elevated conductivity and impaired biological condition. The TMDL is designed to address then-existing impairment, not potential future impairment. While the TMDL may have considered discharges from the Spruce No. 1 project with respect to already impaired waters, it did not address the potential of the then-proposed Spruce No. 1 project to cause impairment in receiving waters that were not impaired at the time of the TMDL.

### **Cumulative Adverse Impacts**

We understand there are 12 mining operations either proposed or authorized but not constructed in addition to Spruce No. 1 in the Coal River Sub-Basin. The potential cumulative



impacts from these operations have not been sufficiently analyzed. The Section 404(b)(1) Guidelines require consideration of impacts individually and cumulatively. Our new understanding of potential mining-induced cumulative impacts within the sub-watershed, and even within the larger 8-digit HUC sub-basin, compels us to ensure a full understanding of watershed services, resiliency, and mitigation opportunities are achieved before appropriate decisions can be made to assure protection of the environment and public health. In addition to historic and ongoing mining, the 12 known additional mining projects proposed within the Coal River Sub-basin include four pending projects under consideration within the enhanced coordination review process established in the Memorandum of Understanding signed June 11, 2009, six other permits that have been issued by the Corps but for which work has not yet commenced due to ongoing litigation, and two new proposals recently issued on Public Notice. The Spruce No. 1 proposal along with these 12 additional projects in the Coal River Sub-basin, if constructed as proposed, would impact approximately 35.6 miles (188,353 linear feet) of stream channels. EPA wants to ensure that a robust cumulative impacts analysis has been undertaken.

### **Mitigation**

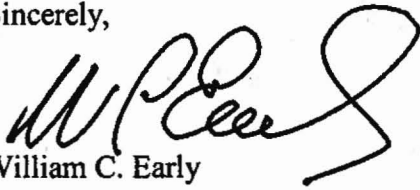
With respect to mitigation, we understand that the permit conditions include monitoring for biological and chemical function, as well as habitat. Nevertheless, it does not appear that the permit identifies actions to be taken when the monitoring being conducted indicates the biological and chemical parameters are being adversely impacted. For example, while Special Condition 13 suggests biological scores "should" be comparable to baseline scores, Special Condition 5 states that the compensatory mitigation obligation is satisfied when the Corps has verified that the mitigation area is "intended" to become jurisdictional waters functioning ecologically as set forth in the mitigation plan, rather than actually functioning as intended. In addition, in light of the potential for the mitigation areas to become conduits for exporting poor water quality, we believe that mitigation success criteria should include appropriate levels for conductivity and/or total dissolved solids.

### **Conclusion**

Section 404(c) authorizes EPA to prohibit, deny or restrict use of any defined area for specification as a disposal site. In this instance, while the permit contains some provisions designed to address some of EPA's concerns, further modifications to the permit are necessary if this project is to meet fully the requirements of the Clean Water Act and the agencies' regulations. Specifically, the applicant should be required to achieve further avoidance and minimization of anticipated project impacts, construct the project sequentially to allow monitoring data from each portion of the project to inform decisions regarding how and whether the remainder of the project should be constructed, that the permit should require specific actions in response to monitoring data showing adverse changes in water quality, that there must be a mechanism to respond to monitoring data showing significant degradation of waters of the United States or a violation of water quality standards, that the permit should more clearly specify success criteria for mitigation, and the permit should identify steps to be taken if mitigation success criteria are not achieved. In addition, the Coal River watershed should be assessed for the potential effects of this, and all other reasonably foreseeable projects, to the water quality and other ecological services provided.

I appreciate your prompt attention to this matter. If you have any questions or wish to arrange a meeting to discuss potential project modifications to reduce the adverse impacts, please contact me at 215-814-2900, or John R. Pomponio, Director of the Environmental Assessment and Innovation Division, EPA Region III at 215-814-2702.

Sincerely,



William C. Early  
Acting Regional Administrator

cc: Peter Silva  
Assistant Administrator  
Office of Water, EPA  
Randy Huffman  
Director, West Virginia DEP  
Mingo Logan Coal Company  
Allegheny Land Company  
United Affiliates Corp.  
Kelly Hatfield Land Company  
Penn Virginia Resources Corp.

#### References

- Bryant, G., S. McPhilliamy, and H. Childers. 2002. A Survey of the Water Quality of Streams in the Primary Region of Mountaintop / Valley Fill Coal Mining. Mountaintop Mining/Valley Fill Programmatic Environmental Impact Statement. USEPA Region 3. Wheeling, WV
- Cummins, K.W. 1980. The natural stream ecosystem, pp. 7-24. In: J.V. Ward and J.A. Stanford (eds). The ecology of regulated streams. Plenum Press. New York, NY.
- Fulk, F., B. Autrey, J. Hutchens, J. Gerritsen, J. Burton, C. Cresswell and B. Jessup. 2003. Ecological assessment of streams in the coal mining region of West Virginia using data collected by the U.S. EPA and environmental consulting firms. U.S. Environmental Protection Agency, National Exposure Research Laboratory, Cincinnati, OH.
- Green, J., M. Passmore, and H. Childers. 2000. A survey of the condition of streams in the primary region of mountaintop mining/valley fill coal mining. Mountaintop Mining/Valley Fill Programmatic Environmental Impact Statement. U.S. Environmental Protection Agency, Region III. Wheeling, WV.  
<http://www.epa.gov/region3/mtntop/index.htm>
- Hartman K.J., M.D. Kaller, J.W. Howell and J.A. Sweka. 2005. How much do valley fills influence headwater streams? Hydrobiologia 532: 91-102.
- Howard, H.S., B. Berrang, M. Flexner, G. Pond, S. Call. 2000. Kentucky mountaintop mining benthic macroinvertebrate survey. October 2001. U.S. Environmental Protection

- Agency, Science and Ecosystem Support Division, Ecological Assessment Branch, Athens, Georgia.
- Merrick, T.C., D.S. Cherry, C.E. Zipper, R.J. Currie, T.W. Valenti. 2007. Coal mine hollow fill and settling pond influences on headwater streams in southern West Virginia, USA. *Environmental Monitoring and Assessment* 129:359-378.
- Merritt, R.W., K.W. Cummins, T.M. Burton. 1984. The role of aquatic insects in the processing and cycling of nutrients, pp. 134-163. In: V.H. Resh and D.M. Rosenberg (eds). *The ecology of aquatic insects*. Praeger Publishers, New York, NY.
- Paybins, K.S., Messinger, Terence, Eychaner, J.H., Chambers, D.B., and Kozar, M.D., 2000, *Water Quality in the Kanawha–New River Basin West Virginia, Virginia, and North Carolina, 1996–98*: U.S. Geological Survey Circular 1204, 32 p., on-line at <http://pubs.water.usgs.gov/circ1204/>
- Petranka, J.W. *Salamanders of the United States and Canada*. Washington: Smithsonian Institution Press, 1998
- Pond, G.J., M.E. Passmore, F.A. Borsuk, L. Reynolds, and C.J. Rose. 2008. 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
- Pond, G.J. 2004. Effects of surface mining and residential land use on headwater stream biotic integrity in the eastern Kentucky coalfield region. Kentucky Department for Environmental Protection, Division of Water, Frankfort, Ky. [http://www.water.ky.gov/NR/rdonlyres/ED76CE4E-F46A-4509-8937-1A5DA40F3838/0/coal\\_mining1.pdf](http://www.water.ky.gov/NR/rdonlyres/ED76CE4E-F46A-4509-8937-1A5DA40F3838/0/coal_mining1.pdf) and [http://www.water.ky.gov/NR/rdonlyres/5EE3130F-8837-4B9F-8638-42BD0E015925/0/coal\\_mining2.pdf](http://www.water.ky.gov/NR/rdonlyres/5EE3130F-8837-4B9F-8638-42BD0E015925/0/coal_mining2.pdf)
- Stein, B.A., L.Kutner, and J.Adams (eds.) *Precious Heritage, The Status of Biodiversity in the United States*. Oxford: Oxford University Press, 2000.
- U.S. Geological Survey. 2001a. Benthic invertebrate communities and their responses to selected environmental factors in the Kanawha River Basin, West Virginia, Virginia, and North Carolina. *Water-Resources Investigations Report* 01-4021.
- West Virginia Department of Environmental Protection (WV DEP). 2007. *West Virginia Integrated Water Quality Monitoring and Assessment Report 2006*. Charleston, WV. <http://www.wvdep.org/item.cfm?ssid=11&sslid=720>
- West Virginia Department of Environmental Protection (WV DEP). 2008. *West Virginia Integrated Water Quality Monitoring and Assessment Report 2008*. Charleston, WV. [http://www.wvdep.org/Docs/16495\\_WV\\_2008\\_IR\\_Supplements\\_Complete\\_Version\\_EPA\\_Approved.pdf](http://www.wvdep.org/Docs/16495_WV_2008_IR_Supplements_Complete_Version_EPA_Approved.pdf)
- C. R. Ziegler, G.W. Suter II, B.J. Kefford, K.A. Schofield and G.J. Pond. 2007. Common Candidate Cause: Ionic Strength. In: U.S. EPA Causal Analysis and Diagnosis Decision Information System. [http://cfpub.epa.gov/caddis/candidate.cfm?section=138&step=24&parent\\_section=132](http://cfpub.epa.gov/caddis/candidate.cfm?section=138&step=24&parent_section=132)

**WVDEP Watershed Reports. For Examples (these are not all the reports available):**

- WVDEP. 2007. Tug Fork Watershed: A Summary of the Watershed Assessment Section's 1998 and 2003 Monitoring Efforts. Charleston, WV [http://www.wvdep.org/Docs/13229\\_Tug\\_printed\\_June\\_2007.pdf](http://www.wvdep.org/Docs/13229_Tug_printed_June_2007.pdf)
- WVDEP. 1997. *An Ecological Assessment of the Elk River Watershed*. Charleston, WV.



[http://www.wvdep.org/Docs/474\\_EAoftheElkRvrWatershed.pdf](http://www.wvdep.org/Docs/474_EAoftheElkRvrWatershed.pdf)

WVDEP. 1997. An Ecological Assessment of the Coal River Watershed. Charleston, WV.

[http://www.wvdep.org/Docs/5094\\_Coal%20Eco%20Assessment.pdf](http://www.wvdep.org/Docs/5094_Coal%20Eco%20Assessment.pdf)

WVDEP. 1997. An Ecological Assessment of the Upper Kanawha River Watershed. Charleston, WV.

[http://www.wvdep.org/Docs/529\\_upperkanrpt.pdf](http://www.wvdep.org/Docs/529_upperkanrpt.pdf)

WVDEP 303(d) lists. <http://www.wvdep.org/item.cfm?ssid=11&ssid=720>

WVDEP TMDL Reports. For Example:

Total Maximum Daily Loads for Selected Streams in the Gauley River Watershed, West Virginia. 2008. Prepared for: West Virginia Department of Environmental Protection Division of Water and Waste Management Watershed Branch, TMDL Section Prepared by: Water Resources and TMDL Center Tetra Tech, Inc. 405 Capitol Street, Suite 608 Charleston, WV 25301

[http://www.wvdep.org/Docs/14836\\_Final\\_Gauley\\_Final\\_TMDL\\_Report\\_03\\_27\\_08.pdf](http://www.wvdep.org/Docs/14836_Final_Gauley_Final_TMDL_Report_03_27_08.pdf)  
including specific watershed appendices, for example, Twentymile Creek:

[http://www.wvdep.org/Docs/14842\\_Final\\_Twentymile\\_Appendix\\_09\\_11\\_07.pdf](http://www.wvdep.org/Docs/14842_Final_Twentymile_Appendix_09_11_07.pdf)

