

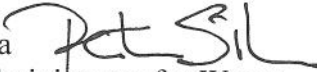
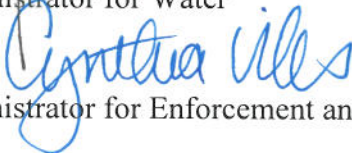


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

APR - 1 2010

MEMORANDUM

SUBJECT: Guidance Summary: Improving EPA Review of Appalachian Surface Coal Mining Operations under the Clean Water Act, National Environmental Policy Act, and the Environmental Justice Executive Order

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I. Purpose

This summary memorandum clarifies how EPA is carrying out our responsibilities, in coordination with our federal and state partners, to assure that the environmental impacts of Appalachian surface coal mining operations comply with the Clean Water Act (CWA), National Environmental Policy Act (NEPA), and the Environmental Justice Executive Order (E.O. 12898).¹ Our goal is to identify the steps permittees and implementing state agencies should take to prevent harmful public health, water quality, and other environmental impacts associated with Appalachian surface coal mining and to more effectively consider the voices of adversely affected communities in the Appalachian coalfields.

¹ This memorandum is effective immediately. Concurrent with its release, however, EPA is seeking public comment on this interim final document. We fully understand the importance of this memorandum to our federal and state partners, the coal industry, and the public, and we recognize the value in receiving their input based on experience with its implementation. The public comment period will conclude on December 1, 2010. No later than April 1, 2011, EPA will issue final guidance after consideration of public comments and the results of the Science Advisory Board (SAB) review, and consistent with our experience in implementation of this memorandum. EPA may revise the guidance sooner, as appropriate, consistent with the SAB review. EPA is publishing a notice in the *Federal Register* that provides additional details on the public comment process.

II. Introduction

The environmental legacy of mining operations in the Appalachian region is far-reaching. Recent studies, as well as the experiences of Appalachian coalfield communities, point to new environmental and health challenges from surface coal mining that we were largely unaware of even ten years ago. Since 1992, nearly 2,000 miles of Appalachian streams have been filled at a rate of 120 miles per year by surface mining practices. A recent EPA study found that nine out of every 10 streams downstream of surface mining operations exhibit significant impacts to aquatic life.² Another federal study found elevated levels of highly toxic and bioaccumulative selenium in streams downstream of valley fills.³ These impairments are linked to contamination of surface water supplies and resulting health concerns, as well as widespread impacts to stream life in downstream rivers and streams.

The CWA entrusts EPA with responsibility for protection of human health, water quality, and the environment in coalfield communities throughout Appalachia. This responsibility includes preserving the long-term health and biological integrity of Appalachian watersheds, which is important to sustain aquatic populations and maintain safe and abundant water supplies for local communities. It also includes the need to assure human health and environmental protection of vulnerable populations and to increase opportunities for their participation in the permitting process. We will make every effort to fulfill these responsibilities without compromising the economic and energy benefits that coal mining provides to both the Appalachian region and our entire nation.

III. EPA Review of NPDES Permitting

Although much of the focus to date has been centered on the Section 404 permits associated with surface coal mining, mining operations are also required to obtain NPDES permits for their discharges. EPA recently conducted a Permit Quality Review (PQR) in West Virginia, Kentucky, Tennessee, and Ohio. During that Review, it became clear that many of the state-issued NPDES permits failed to comply with the requirements of the CWA in several respects. In particular, the permits often lacked any water quality based effluent limits (WQBELs) to implement applicable numeric or narrative water quality standards.

The scientific literature is increasingly recognizing the relationship between conductivity levels in Appalachian streams and impacts to aquatic biota in streams below surface coal mining operations. Based on field measurements comparing unmined and mined watersheds in Appalachia, the peer-reviewed 2008 "Pond-Passmore" study concluded that aquatic life at sites with specific conductance greater than 500 $\mu\text{S}/\text{cm}$ were determined to have been adversely impacted based on a genus-level multi-metric biological index. In addition, EPA's draft report, *A Field-based Aquatic Life Benchmark for Conductivity in Central Appalachian Streams*, also recognizes stream-life impacts associated with conductivity. This study, which is publicly

² 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.* 27(3):717–737.

³ Bryant, G., S. McPhillamy, 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.

available and set to undergo external peer review by EPA's Science Advisory Board, applies EPA's standard method for deriving water quality criteria to field measurements and concludes that genus-level impacts to the biological community can occur at conductivity levels of 300 $\mu\text{S}/\text{cm}$.

Based on this PQR, when reviewing proposed permits, EPA Regions will ensure that appropriate WQBELs are included in order to meet the relevant narrative and numeric water quality standards. Available data for determining reasonable potential to cause or contribute to a violation of water quality standards include data from mining discharges from similar mines, as well as recent science documents developed by EPA. Based on the science, as a general matter, EPA expects that in-stream conductivity levels maintained at or below 300 $\mu\text{S}/\text{cm}$ will meet water quality standards and that in-stream conductivity levels above 500 $\mu\text{S}/\text{cm}$ are likely to be associated with adverse impacts that may rise to the level of exceedances of narrative state water quality standards.⁴ If water quality modeling suggests that in-stream levels will exceed 500 $\mu\text{S}/\text{cm}$, EPA believes that reasonable potential likely exists to cause or contribute to an excursion above applicable water quality standards; unless, based on site-specific data, the state has an alternative interpretation of their water quality standards that is supported by relevant science. Similarly, if water quality monitoring suggests that in-stream levels will exceed 300 $\mu\text{S}/\text{cm}$ but will be below 500 $\mu\text{S}/\text{cm}$, EPA should work with the permitting authority to ensure that the permit includes conditions that protect against conductivity levels exceeding 500 $\mu\text{S}/\text{cm}$. In circumstances where conductivity levels in waters proposed for new mining related discharges already exceed 500 $\mu\text{S}/\text{cm}$, EPA will coordinate with the permitting authority on a site-specific basis to ensure these new discharges will not cause or contribute to a violation of water quality standards. Once EPA's draft conductivity report is finalized following Science Advisory Board review, we will evaluate whether changes to the conductivity benchmarks identified here are appropriate. Regions should evaluate whether NPDES permits appropriately incorporate provisions related to conductivity, as well as the other parameters contained in the effluent. Under the CWA, NPDES permits are required to ensure compliance with the permit terms upon issuance of the permit, unless an appropriate compliance schedule is included.

Regions have authority under the CWA to object to proposed NPDES permits that fail to comply with the requirements of the Act. When Regions review surface coal mining permits, in situations where proposed permits fail to incorporate any required WQBELs, an objection would be an appropriate response. Regions should work with States to assess Notices of Intent (NOIs) and work with States on denying coverage under the general permit if applicants have not fully characterized their discharges or where coverage under the general permit would be otherwise inappropriate. Regions should also work with States to ensure their antidegradation procedures are effective and are fully implemented.

IV. EPA's Environmental Review Under CWA Section 404 in Coordination with the Corps of Engineers

1. Water Quality and Environmental Integrity Must Be Protected – Consistent with the CWA, EPA's Section 404 regulations (the Guidelines) provide that no discharge of

⁴ In certain fact-specific circumstances, conductivity levels above 500 $\mu\text{S}/\text{cm}$ may not be associated with adverse aquatic impacts. EPA will work with permitting authorities on a site-specific basis to assess reasonable potential.

dredged or fill material may be permitted if it causes or contributes to violations of any applicable state water quality standard or if the nation's waters would be significantly degraded.

EPA anticipates that projects with predicted conductivity impacts below 300 $\mu\text{S}/\text{cm}$ generally will neither significantly degrade the aquatic ecosystem nor cause or contribute to a water quality violation. As a general matter, however, EPA expects that instream conductivity levels above 500 $\mu\text{S}/\text{cm}$ are likely to be associated with adverse impacts that rise to the level of significant degradation of the aquatic ecosystem and an excursion from narrative water quality criteria. At a minimum, should a proposed section 404 permit allow for increases in levels of conductivity above 500 $\mu\text{S}/\text{cm}$, the administrative record for the permit should demonstrate, based on site or receiving water specific information, how the permit is consistent with the CWA and the 404(b)(1) Guidelines, and Regions are encouraged to review such a record carefully. EPA, the Corps of Engineers (Corps), and individual mining operators should be coordinating to ensure conductivity levels remain below 500 $\mu\text{S}/\text{cm}$ (e.g., by adopting a sequenced permitting approach). Projects projected to increase conductivity levels above 300 $\mu\text{S}/\text{cm}$ should include permit conditions requiring adaptive remedial action to prevent conductivity levels that exceed 500 $\mu\text{S}/\text{cm}$.

- 2. Mining Projects Must Avoid and Minimize Environmental Impacts:** Mining companies must avoid and minimize their direct, indirect, and cumulative adverse environmental impacts to streams, wetlands, watersheds, and other aquatic resources. Thus, mining companies must first demonstrate that there is no practicable alternative to the proposed discharge to the waters of the United States which would have less adverse impact on the aquatic ecosystem. If there is no practicable alternative, then all appropriate and practicable steps to minimize potential adverse impacts of proposed discharges must be taken.

Mining projects that are able to eliminate or significantly reduce the number and size of valley fills associated with their projects are expected to have lesser impacts than projects with multiple valley fills. As such, we expect that, generally, it will be easier for projects with no or few valley fills to demonstrate that they comply with the requirements of the CWA and the 404(b)(1) Guidelines. Conversely, projects with multiple valley fills will generally raise serious questions about their compliance with CWA requirements and may require permit objection under 402 or elevation and possible veto under 404.

For surface coal mining operations, EPA believes that the following technically feasible and cost-effective methods should be used to minimize the size and number of valley fills and the linear feet of stream impacts associated with by mine-through operations, in order to reduce potential water quality impacts:

- Use available spoil disposal alternatives in uplands or adjacent mine sites.
- Improve efficiency of mining practices to reduce production of overburden and minimize stream impacts (avoidance and minimization).
- Construct fills as high up the valley as possible. Fills should generally be constructed from the head of the valley downstream instead of vice versa.

- Require certification of mine plan and verification of valley fill capacity for each phase of mining to ensure that the size of final valley fills are consistent with the amount of coal actually mined
- Minimize contact between rainwater/groundwater and spoil by chemically analyzing overburden and utilizing materials handling plans, drains, and “side-hill” fills.
- Minimize use of in-stream sediment ponds. Require full stream reclamation after mining.

In addition to best management practices, permits should incorporate conditions to protect water quality and prevent significant degradation (e.g., adopting a sequenced permitting approach). In this context, the term "sequenced" means: (1) only one valley fill should be authorized before subsequent fills may go forward, unless site-specific data suggest no potential downstream water quality concerns; and (2) the permittee must demonstrate compliance with applicable water quality standards and that there is no significant degradation associated with the first valley fill before the permittee may begin construction of subsequent valley fills.

3. **Mining Impacts Must Be Effectively Mitigated:** Unavoidable mining-related environmental impacts must be effectively mitigated by establishing, restoring, enhancing, or preserving streams and wetlands; improving water quality; addressing drinking water impacts; and reclaiming watersheds when mining is completed.

To assure effective mitigation, permit applicants should conduct functional stream impact assessments and ensure these assessments are effectively used to quantify the environmental effects of individual mining projects on streams. Also, Regions should work with and provide technical assistance to the Corps and state agencies on the development and implementation of effective assessment methods. These assessments should be used to ensure that compensatory mitigation replaces lost stream functions. Mine operators must not rely on drainageways (e.g., groin ditches), which do not replace lost stream function and structure and are therefore not an acceptable form of compensatory mitigation. Stream restoration is the preferred method for replacing lost stream function and structure.

4. **Water Quality and Biological Parameters Must Be Monitored:** Permits must require in-stream water quality and biological monitoring to ensure compliance with permit conditions and to inform adaptive remedial action. Consistent with the attached memorandum, the applicant should be required to submit robust baseline monitoring data; ensure consistency with State Section 303(d) assessment methodology; and ensure that genus-based biological assessments are conducted. Monitoring must occur both upstream and downstream of each valley fill and at one or more appropriate locations downstream of the project, both during and after construction.

V. National Environmental Policy Act (NEPA)

NEPA requires preparation of an Environmental Impact Statement (EIS) for major federal actions significantly affecting the quality of the human environment. The purpose of an EIS is to comprehensively evaluate the wide range of potential environmental, human health,

social and economic impacts associated with the proposed project, consider alternatives that may avoid and minimize adverse impacts, and provide for public involvement in the agency's evaluation.

The Regions should work with the Corps and OSM to ensure that the NEPA analyses associated with federal permit decisions provide, through an open and accountable process, a comprehensive evaluation of the potential impacts associated with proposed actions, as well as an analysis of reasonable alternatives that may avoid or minimize adverse impacts. The Corps has announced its intention to issue a notice of proposed rulemaking expanding the Corps NEPA scope of review to consider all of the effects of proposed surface coal mining "valley fills" on the aquatic environment. EPA will work with the Corps toward that objective, and furthering the purpose of NEPA to provide information to the decision maker, other federal and state agencies, and the public. In the interim, EPA will work with the Corps on a case by case basis to review permit applications and ensure that all relevant environmental information, as well as potential alternatives that may avoid or minimize the extent of the valley fills, is fully considered.

VI. Environmental Justice Considerations

Surface coal mining can have adverse environmental and health impacts on neighboring communities. The federal statutes and regulations under which EPA, the Corps, OSM, and the states evaluate permit applications for surface coal mining require consideration of the full range of potential impacts on the environment, human health, and communities. Executive Order 12898 requires federal agencies to give particularly careful consideration to potential impacts on low-income or minority populations. Federal laws and regulations also require that meaningful opportunities be provided for public participation in the permit decision-making process.

EPA will work collaboratively with the Corps, OSM, and the states, through permitting and NEPA (both EISs and environmental assessments), to identify and address the potential adverse human health and environmental effects of proposed projects on low-income and minority populations. In addition, EPA will work with the other agencies to ensure that the decision making process is more transparent, with increased opportunities for meaningful community input and broad access to information.

VII. Conclusions

EPA's Regional offices will continue to be the Agency's primary field representatives to co-implementing agencies, mining companies, affected communities, and interested members of the public as we work to respond to CWA, NEPA, and environmental justice issues associated with Appalachian surface coal mining permits. We look forward to your leadership as we coordinate to develop environmentally effective, scientifically sound, and economically responsible approaches for meeting the requirements of the law.