



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

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MEMORANDUM

SUBJECT: Detailed Guidance: 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

The purpose of this detailed memorandum is to provide further clarification of EPA's roles and expectations, in coordinating with our federal and state partners, to assure more consistent, effective, and timely compliance of Appalachian surface coal mining operations with the provisions of the Clean Water Act (CWA), National Environmental Policy Act (NEPA), and the Environmental Justice Executive Order (E.O. 12898).^{1,2} This memorandum reflects reviews of past practices and emerging science to improve and strengthen permit decision-making in order

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.

² In addition to this memorandum, EPA is working with other federal agency partners to develop and implement an interagency environmental justice strategy to more fully evaluate environmental justice considerations in review of Appalachian surface coal mining activities. This strategy will provide more detailed information and specific actions to avoid and mitigate adverse impacts to low-income and minority populations.

to better ensure compliance with federal environmental statutes, implementing regulations, and policies.³ We hope this memorandum will also be helpful to our federal and state partners, the regulated public, and others in clarifying EPA's expectations regarding the need to reduce harmful impacts on public health and the environment associated with Appalachian surface coal mining and to more effectively include the voices of adversely affected communities in the Appalachian coalfields, including low-income or minority populations.⁴ We expect you to begin using this interim final guidance immediately in your review of Appalachian surface coal mining activities.

II. Introduction

A. Background

The CWA entrusts EPA with overall responsibility to administer its provisions, including protection of human health, water quality, and the environment in coalfield communities throughout Appalachia. CWA protections, including water quality requirements, extend to all waters of the United States, from headwater streams to the larger downstream systems that they feed. In particular, EPA's CWA responsibility includes preserving the long-term integrity of Appalachian watersheds, which is important in protecting their ecological condition and maintaining safe, clean, and abundant water for local communities. We make every effort to fulfill these responsibilities without compromising the economic and energy benefits that coal mining provides to both the Appalachian region and the entire nation.

In recent months, the Obama Administration has worked to ensure timely review of permit applications that have faced delays in the courts for many years. It is our hope that our efforts to make responsible and expeditious decisions on these applications will reduce the likelihood of judicial challenges to the permits and thus will be seen as a demonstration of our commitment to an Appalachian coal industry that provides economic security and protects the health of Appalachian communities, without violating environmental standards established under the law.

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 that were largely unknown 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

³ The CWA and NEPA provisions and regulations described in this document contain legally binding requirements. This guidance does not substitute for those provisions or regulations, nor is it a regulation itself. It does not impose legally binding requirements on EPA, the U.S. Army Corps of Engineers (Corps), the States, or the regulated community, and may not apply to a particular situation depending on the circumstances. Any decisions regarding a particular permit will be based on the applicable statutes, regulations, case-specific facts and circumstances, and case law. Therefore, interested persons are free to raise questions about the appropriateness of the application of this guidance to a particular situation, and EPA and/or the Corps will consider whether or not the recommendations or interpretations of this guidance are appropriate in that situation based on the statutes, regulations, and case law.

⁴ The discussion of the provisions of the CWA, NEPA, and E.O. 12898 in this memorandum focuses on their applicability to Appalachian surface coal mining operations in Kentucky, West Virginia, Virginia, Ohio, Tennessee, and Pennsylvania.

surface mining practices. A recent EPA study found that nine out of every 10 streams downstream from surface mining operations were impaired based on a genus-level assessment of aquatic life.⁵ Another federal study found elevated levels of highly toxic and bioaccumulative selenium in streams downstream from valley fills.⁶ 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. Further, the estimated scale of deforestation from existing Appalachian surface mining operations is equivalent in size to the state of Delaware. Appalachian deforestation has been linked to significant changes in aquatic communities as well as to modified storm runoff regimes, accelerated sediment and nutrient transport, reduced organic matter inputs, shifts in the stream's energy base, and altered thermal regimes.⁷ Such impacts have placed further stresses on water quality and the ecological viability of watersheds.

It has been a high priority of this Administration – and EPA Administrator Lisa P. Jackson – to reduce the substantial environmental and human health consequences of surface coal mining in Appalachia, and minimize further impairment of already compromised watersheds. Administrator Jackson has also made working toward environmental justice a priority. EPA seeks to enhance water quality and environmental protection in close partnership with the states and other federal agencies, which have key implementation roles under the CWA, and under NEPA and E.O. 12898, respectively. As scientific evidence grows, EPA has a legal responsibility to address the environmental consequences of Appalachian surface coal mining.

In June 2009, the Department of the Army, EPA, and the Department of the Interior (DOI) signed a Memorandum of Understanding (MOU) to minimize the harmful consequences of Appalachian surface coal mining practices. The MOU reflects an agreement among the agencies to strengthen the environmental reviews of Appalachian surface coal mining projects under the CWA, NEPA, and the Surface Mining Control and Reclamation Act (SMCRA). EPA committed to improve its review of permits issued under Section 404 and to bolster coordination with states on both Section 402 permits for pollutant discharges from valley fills and state water quality certifications (Section 401) for mining operations. The Corps committed to reassess Nationwide Permit 21, a general permit used to authorize some surface coal mining activities, and to work with EPA to clarify Section 404 policies for environmental review and mitigation. DOI committed to evaluate how the Office of Surface Mining Reclamation and Enforcement (OSM) can more effectively oversee state permitting and enforcement activities under SMCRA.

⁵ 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.

⁶ 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.
<http://www.epa.gov/region03/mtntop/eis2003appendices.htm#appd>

⁷ Webster, J.R., S.W. Golladay, E.F. Benfield, J.L. Meyer, W.T. Swank, and J.B. Wallace. 1992. Catchment disturbance and stream response: an overview of stream research at Coweeta Hydrologic Laboratory. In P.J. Boon, P. Calow, and G.E. Petts (eds.). *River Conservation. and Management*. John Wiley and Sons, New York, N.Y.

B. CWA, NEPA, and E.O. 12898

The CWA, 33 U.S.C. 1251 *et seq.*, establishes a comprehensive program designed “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.” 33 U.S.C. Section 1251(a). To achieve that objective, CWA Section 301(a) prohibits the “discharge of any pollutant” – defined as the addition of any pollutant to the waters of the U.S. from any point source – except “as in compliance with” specified provisions of the CWA. 33 U.S.C. Sections 1311(a), 1362(7), 1362(12). In most cases, regulated entities achieve compliance with the relevant CWA provisions by obeying the terms of a permit issued under one of the CWA’s two complementary permitting programs: (1) a permit program for discharges of dredged or fill material, which is administered primarily by the Corps pursuant to Section 404 of the CWA, 33 U.S.C. 1344; or (2) the National Pollutant Discharge Elimination System (NPDES), which is administered by the EPA and authorized states pursuant to Section 402 of the CWA, 33 U.S.C. 1342. Section 401 of the CWA also applies where federal permits are issued, enabling states to certify (or waive) that discharges from permitted operations are in compliance with state environmental regulations. Typically, surface coal mining operations in the steep slopes of Central Appalachia require Section 404 permits for the discharge of mining overburden into waters of the United States (e.g., valley fills, mine-through operations), mine faceups, stream diversions, road crossings, coal process waste impoundments, and for discharges to create sediment ponds. Discharges from the sediment ponds and any other stormwater discharges require Section 402 permits. Because the Corps issues Section 404 permits in Appalachia, states have authority to condition those permits under Section 401.

In addition, NEPA requires an assessment of the environmental impacts of federal actions, including the preparation of an Environmental Impact Statement (EIS) for federal actions that have a significant effect on the quality of the human environment. For example, the Section 404 review by the Corps of a proposed mining operation with discharges into waters of the U.S. triggers review under NEPA. An EIS presents a comprehensive and transparent evaluation of the wide range of potential environmental and human health impacts associated with a federal action, as well as project alternatives that may avoid and minimize significant adverse impacts.

E.O. 12898 and the Presidential Memorandum that accompanies it also need to be addressed appropriately in the context of any federal action – such as federal permitting under the CWA and SMCRA – including federal actions that are subject to NEPA. E.O. 12898 provides that: “To the greatest extent practicable and permitted by law... each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.”

Consideration of environmental justice concerns is vital to understanding the potential human health and environmental impacts of surface coal mining during the CWA and SMCRA permitting and NEPA review processes. The Presidential Memorandum articulates the role of federal environmental statutes in securing human health and environmental protection of vulnerable populations and assuring their participation in the process.

E.O. 12898 calls for actions that can address several key environmental justice issues associated with surface coal mining. These include: conducting research, data collection, and analysis on direct, indirect and cumulative impacts; identifying patterns of subsistence consumption of fish and wildlife; and providing effective public participation and access to information. EPA will implement the E.O. by identifying and addressing, as appropriate, any adverse effects of proposed federal activities on low-income and minority populations, including ways or measures to mitigate any adverse effects.

C. Recent Program Reviews and Emerging Science

Three key considerations have motivated the Agency's development of this memorandum. First has been the collection and publication of technical information documenting the scope and significance of adverse environmental and water quality effects associated with surface coal mining practices. Second, EPA has recently completed reviews of permitting actions under CWA Sections 402 and 404 for Appalachian surface coal mining. These reviews demonstrate that current permitting practices can be more effective in addressing adverse environmental and water quality effects associated with coal mining by more robustly conducting analyses required by the CWA. Third, EPA scientific offices are conducting extensive work evaluating the relationship between pollutants in streams associated with surface coal mining and impacts from these pollutants on aquatic ecosystems. As a result of this work, EPA is poised to initiate additional independent technical review and public evaluation of potential new water quality values for conductivity based on effective science and the need to improve protection of water quality, public health, and the environment.

Numerous studies, data submitted to permitting authorities for proposed mining activities, and some state impaired waters lists published pursuant to CWA Section 303(d), have shown that high levels of conductivity, dissolved solids, and sulfates are a primary cause of water quality impairments downstream from mine discharges. These studies build upon existing research from other regions that demonstrated the toxicity of specific ions, such as sulfate, as well as the complex interplay of ionic constituents associated with coal mining operations.⁸ Dissolved solids contained in waters draining from valley fills are a primary cause of biological impairment resulting from changes in benthic species richness and diversity (particularly species of mayflies, a key component of headwater stream communities). An example of these studies is Pond et al. (2008), which found evidence that mining activities have subtle to severe impacts on downstream aquatic life and the biological conditions of a stream.⁹ A 2003 published study by Kennedy et al. linked elevated conductivity levels in coal effluent to impaired, sensitive aquatic fauna.¹⁰ A 2004 Kentucky Department for Environmental Protection study found that the loss of mayflies in streams below mined sites indicates that these organisms are especially sensitive to

⁸ Soucek, D.J. and A.J. Kennedy. 2005. Effects of hardness, chloride, and acclimation on the acute toxicity of sulfate to freshwater invertebrates. *Environmental Toxicology and Chemistry* 24:1204-1210.

⁹ Pond et al. 2008.

¹⁰ Kennedy, A.J., DS. Cherry, and R.J. Currie. Field and laboratory assessment of a coal processing effluent in the Leading Creek Watershed, Meigs County, Ohio. *Archives of Environmental Contamination and Toxicology* 44:324-331.

coal mine drainage.¹¹ A 2005 published study by Kennedy et al. linked impairment of aquatic life to elevated levels of Total Dissolved Solids (TDS).¹² Finally, a 2010 published study by Pond links specific conductance as the most strongly correlated factor to a reduction of *Ephemeroptera* in streams impacted by mining and residential development.¹³

In addition, an analysis of peer-reviewed studies recently published in the journal *Science* shows that ecological losses downstream of coal mining valley fills are associated with increased levels of TDS and conductivity, sulfates, and selenium.¹⁴ EPA's Office of Research and Development (ORD) recently completed a review of the scientific literature on surface coal mining and found effects that included resource loss, water quality impairment, and adverse effects on aquatic ecosystems. This report is being submitted to the EPA Science Advisory Board (SAB) for review and is also publicly available.

EPA recently conducted assessments of permitting practices under CWA Sections 402 and 404 for surface coal mining projects in Appalachia. The Permit Quality Review of Section 402 permits in West Virginia, Kentucky, Tennessee and Ohio, conducted in September and October 2009, identified concerns related to effective protection of downstream water quality consistent with requirements of the CWA. The concerns focus on the interpretation of narrative and numeric criteria in CWA Section 402 permits for surface coal mining projects. In addition, the evaluation of pending coal mining projects under the EPA-Corps Section 404 Enhanced Coordination Procedures (ECP) found that many of these projects may not be consistent with EPA and Corps regulations, including the Section 404(b)(1) Guidelines. As many as 80% of these permits raised concerns with respect to compliance with state narrative water quality standards, while more than half raised concern for the potential for significant degradation of aquatic ecosystems.

The emerging science related to adverse environmental and water quality effects is based on data and analyses subjected to the rigors of peer-reviewed science and quality assurance reviews. EPA places a high priority on quality assurance and agency policy specifies necessary quality assurance activities be performed to ensure data are of sufficient quantity and adequate quality for their intended use. EPA's reviews of ambient chemical and biological data and analyses that support some permitting decisions have revealed consistent and serious issues with underlying data quality, such as erroneous field meter readings, biological samples collected outside of state index periods or during extreme low flows, and inclusion of non-endemic taxa in taxonomic lists. Analyses of these data also have demonstrated concerns, such as inappropriate aggregation of biological data from several stream types (headwater to larger river) or several

¹¹ Kentucky Department for Environmental Protection, Division of Water, Water Quality Branch. Effects of Surface Mining and Residential Land Use on Headwater Stream Biotic Integrity in the Eastern Kentucky Coalfield Region.

¹² Kennedy A. J., D.S. Cherry and C.E. Zipper. Evaluation of Ionic Contribution to the Toxicity of a Coal-Mine Effluent Using *Ceriodaphnia dubia*. Archives of environmental contamination and toxicology vol. 49.2:155-162.

¹³ Pond, G.J. "Patterns of *Ephemeroptera* taxa loss in Appalachian headwater streams (Kentucky, USA)." *Hydrobiologia* 641(1):185-201.

¹⁴ Palmer, M.A., 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(5962):148-149.

seasons, failing to reflect natural data variability, and inappropriately including several samples from one site as independent samples in a statistical analysis (pseudoreplication).

Regions should ensure that the environmental data supporting CWA decision-making are carefully scrutinized to ensure they are of sufficient quality to support their intended use. Regions should encourage the incorporation of Quality Assurance Project Plans (QAPPs) for sampling data and Quality Assurance/Quality Control (QA/QC) data within data submitted to EPA through the permitting process. For guidance in ensuring environmental data are of sufficient quality, Regions should consult the agency's quality assurance policy at <http://www.epa.gov/quality/index.html>.

EPA has made substantial progress in recent months in the development of high-quality scientific information to support new numeric water quality values for conductivity, which is regularly observed at high levels in streams downstream from Appalachian surface coal mining operations. EPA expects, consistent with the requirements of the CWA, that the use of these values and the extensive scientific information that supports these numbers will be extremely helpful to states in the development of water quality-based effluent limits for Section 402 permits. Establishing enforceable numeric limits for conductivity, selenium, and other parameters in state Section 402 permits will help to improve water quality and better protect public health and aquatic life in streams downstream from Appalachian surface coal mining operations.

III. EPA Oversight of NPDES Permitting for Surface Coal Mining Operations in Appalachia

EPA has reason to believe that discharges from surface mining activities have a significant potential to cause nonattainment of applicable water quality standards downstream from valley fills, impoundments, and sediment ponds. Discharges from Appalachian surface coal mining activities have been found to have a high potential to impact aquatic life uses.¹⁵ Numerous studies, data submitted to permitting authorities for proposed mining activities, and some state Section 303(d) lists have shown high levels of conductivity and dissolved solids and sulfates to be a primary cause of water quality impairments downstream from such mine discharges.

The Office of Water has been working closely with Regions 3, 4, and 5 to assess the quality of state-issued CWA Section 402 (NPDES) permits for surface coal mining operations with respect to the requirements of each state's permitting program in the Appalachian states of Tennessee, Ohio, Kentucky, and West Virginia. EPA has also been assessing permits for their compliance with applicable federal requirements. The goal of this assessment is to strengthen these state-issued NPDES permits to better address the impacts discussed above.

The CWA and EPA's implementing regulations require NPDES permits to contain technology-based effluent limits and, where necessary to protect water quality, water quality-based effluent limits. All permits reviewed by EPA included appropriate technology-based

¹⁵ Pond et al. 2008.

limits for pollutant parameters listed in the effluent limitation guidelines for coal mining (40 CFR Part 434). However, based on observations from both ongoing program oversight and a focused Permit Quality Review of permits for surface coal mining activities, including detailed discussions with state permit writers, EPA has identified certain concerns common to many of the reviewed permits that warrant immediate attention to ensure that water quality is protected. Therefore, when Regional offices exercise their authority to review draft or proposed state NPDES permits for discharges to waters of the U.S. associated with Appalachian surface coal mining operations, Regions should evaluate several aspects of those permits as detailed below.

The sections below detail requirements of the Act and issues identified during EPA's recent Permit Quality Review. Should Regions identify similar concerns when reviewing draft or proposed permits in the future, we encourage you to work with your authorized states to resolve these concerns. As noted below, however, where discussions with the state do not produce a proposed permit that, in the Region's judgment, satisfies the requirements of the Act, an objection to the issuance of the proposed permit would be an appropriate response. We encourage the Water Division Directors of the three Regions to work together to ensure a comparable level of review and response across Appalachia.

A. Completion of Required Reasonable Potential Analyses

As noted above, the CWA requires NPDES permits to contain water quality-based effluent limits when necessary to meet water quality standards (CWA Section 301(b)(1)(C); 40 CFR Section 122.44(d)(1)). In order to determine whether water quality-based effluent limits are necessary, the permitting authority is required to conduct a "reasonable potential analysis." A reasonable potential analysis determines whether a discharge will cause, or has the reasonable potential to cause or contribute to, an excursion above a numeric or narrative water quality standard. EPA's regulations, EPA's 1991 Technical Support Document (TSD) for Water Quality-based Toxics Control (EPA/505/2-90-001 PB91-127415)¹⁶, and established state procedures explain how to conduct this analysis.

EPA's review of NPDES permit administrative records found that parameters known to be present in the effluent, based on data submitted with the permit applications, were often not assessed for the reasonable potential to cause or contribute to an excursion above water quality standards. Although each permit requires a case-specific analysis, in general, an NPDES permit that fails to show evidence of a parameter-specific reasonable potential analysis will be inconsistent with the requirements of the CWA. Furthermore, EPA expects that in many, if not most, cases the available science will demonstrate that there is a reasonable potential for these discharges to cause or contribute to an excursion above numeric or narrative water quality standards, thus making water quality-based effluent limits necessary.

To characterize the effluent, existing dischargers applying or reapplying for NPDES permit coverage should provide the permitting authority with screening data for a suite of pollutants and pollutant parameters listed in the applicable NPDES permit application form. However, for new (proposed) discharges, the application form for an individual permit requires

¹⁶ This publication is available at <http://www.epa.gov/npdes/pubs/owm0264.pdf>.

only an estimate of the effluent characteristics. In addition to data specifically required by permit applications, 40 CFR Section 122.21 allows permitting authorities to request any additional data as necessary to support an assessment of potential water quality impacts (e.g., conductivity and total dissolved solids). Facilities applying for coverage under an NPDES general permit are required to submit information specifically identified in the Notice of Intent provisions of the general permit. EPA's review of permits and associated records found that states generally did not adequately document or explain how information submitted by applicants was used to characterize the nature of their actual or proposed discharges. In particular, where facilities had proposed to discharge, but had not yet begun construction or operation, the files contained little discussion of how the permitting authority projected or anticipated the types and concentrations of pollutants expected in the effluent.

Where effluent data are available (i.e., for existing discharges), EPA's expectation is that permitting authorities will use all valid and representative data to determine whether the discharge causes, has the reasonable potential to cause, or contributes to an excursion of numeric and/or narrative water quality criteria and standards. For new (proposed) discharges, the permitting authority should require the applicant to characterize the anticipated pollutant concentrations and loads using data from similar discharges and/or based on characteristics of local soils and geology. For example, these data may be from mining facilities located adjacent to or having similar geologic characteristics as the mine under review, or from ambient data collected as part of the Section 404 or SMCRA permit applications. Permitting authorities should independently seek to obtain such data if not submitted by the applicant or can reject the application as not sufficient. Ambient water quality data collected as part of the SMCRA and Section 404 permitting processes should be included in the NPDES permit development process and, where appropriate, should be incorporated as "background" conditions in reasonable potential analyses.

B. Incorporation of Numeric Water Quality Standards in Terms of NPDES Permits

Where a surface coal mining discharge is found to have reasonable potential to exceed a numeric water quality standard, the regulations require that NPDES permits include water quality-based effluent limits (WQBELs) based on the existing numeric water quality criteria in state water quality standards. While EPA's Permit Quality Review found that many permits did incorporate all relevant numeric water quality standards, some permits omitted them. As one example, all Appalachian states have adopted a chronic numeric criterion for selenium of 5 µg/l for the protection of aquatic life. Should a reasonable potential analysis indicate that the discharge of selenium (or another parameter) has the potential to cause or contribute to an excursion above any state standard and a state fails to include a WQBEL based on the existing state water quality standard, EPA expects that such a permit would not be consistent with the CWA.

It is the responsibility of the applicant to characterize the wastewater to be discharged from the permitted facility. In order to have a complete NPDES permit application, data must be presented by the applicant to properly characterize its discharge to enable a reasonable potential analysis to be completed by the permit writer at the time of permit issuance. Data may be

secured through evaluation of similarly situated facilities in adjacent watersheds or similar practices in the same ecological or geological setting.

Where there is an approved Total Maximum Daily Load (TMDL) for the receiving waterbody, the receiving waterbody is listed as impaired on the state's approved Section 303(d) list, or a downstream waterbody may be affected by the discharge, it will be important that the reasonable potential analysis include an analysis of the pollutants for which the TMDL was established or for which the waterbody is listed as impaired, or for pollutants that may affect downstream waters.

1. Specific Guidance Regarding Compliance Schedules

Compliance with all NPDES permit terms is required at the time of permit issuance. However, federal regulations at 40 CFR Section 122.47 allow for NPDES permits to include compliance schedules for the achievement of WQBELs, when determined to be appropriate under discharger-specific circumstances. When determined to be appropriate, a compliance schedule must require compliance with the WQBEL within a time determined to be "as soon as possible" based on a discharger-specific evaluation. Compliance schedules are only available for WQBELs based on water quality standards that have been newly adopted after July 1, 1977, and where the applicable water quality standards authorize the use of such schedules. For further guidance regarding considerations for Regions when evaluating compliance schedules, please see the May 10, 2007, Memorandum from James Hanlon, Director, Office of Wastewater Management to Alexis Strauss, Director, Water Division, EPA Region IX, and the November 16, 2007, Letter from Jon M. Capacasa, Director, Water Protection Division, US EPA Region III, to Lisa A. McClung, Director, Division of Water and Water Management, West Virginia DEP, and Randy Huffman, Director, Division of Mining And Reclamation, West Virginia DEP.¹⁷

C. Incorporation of Narrative Water Quality Standards in the Terms of NPDES Permits

In addition to those parameters for which there are numeric water quality standards, all Appalachian states have adopted narrative water quality standards. Of particular relevance here, nearly all Appalachian states do not currently have applicable numeric water quality criteria that account for the effects associated with high levels of conductivity, total dissolved solids, and sulfates. In lieu of such numeric criteria, all Appalachian states have applicable narrative water quality criteria. EPA regulations are clear that NPDES permits must contain provisions that implement both numeric water quality standards and narrative water quality standards and that the same reasonable potential analysis completed for numeric standards must be completed for narrative standards as well. 40 CFR Sections 122.44(d)(1) and (d)(1)(vi).

EPA's review of permits found that states did not incorporate provisions that would implement the relevant narrative water quality standards relating to discharges that increase the levels of conductivity, total dissolved solids, and sulfates. The permits do not contain limits based on whole effluent toxicity (WET) and/or a chemical-specific numeric interpretation of the

¹⁷ These documents are available at <http://www.epa.gov/owow/wetlands/guidance/mining.html>

narrative criteria as required by 40 CFR Sections 122.44(d)(1)(v) and (vi). In addition, the permits' statements of basis or fact sheets do not provide information indicating that the narrative criteria were considered as part of the determination of which effluent limitations are necessary. Although EPA's review of each permit is case-specific, EPA expects that a permit that fails to include provisions implementing the narrative water quality standards and fails to explain why such omission is appropriate under the regulations will not be consistent with the requirements of the CWA.¹⁸

1. Documentation on How States Will Derive Effluent Limits Based on Narrative Water Quality Standards

EPA Regions should request that states provide documentation describing how the states will perform a reasonable potential analysis and, where necessary, develop effluent limits (or other permit conditions), to ensure compliance with the state's narrative water quality standards. The state should provide a detailed description of the decision-making process, including the types and sources of data used to characterize both expected effluent quality and receiving water quality with respect to narrative water quality standards. Baseline water quality analyses required for SMCRA permit applications and projected or estimated effluent concentrations characterizing expected effluent quality are expected to be used to inform each state's decisions.

In documenting how they will interpret and implement their narrative standards, the states should take into account that the NPDES regulations at 40 CFR Section 122.44(d)(1)(vi) require the consideration of relevant information pertaining to a pollutant that may cause or contribute to an excursion above an applicable state narrative water quality standard. 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 Central 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 observed to have been adversely impacted based on a genus-level multi-metric biological index.¹⁹ In addition, EPA's draft report, *A Field-Based Aquatic Life Benchmark for Conductivity in Central Appalachian Streams*,²⁰ also recognizes stream-life impacts associated with conductivity. This study, which is publicly available and will undergo external peer review by the SAB, applies EPA's standard method for

¹⁸ In the limited cases in which a state determines that it is infeasible to calculate a numeric effluent limit to implement a narrative water quality standard, the state should include in the permit appropriate WET limits and best management practices (BMPs) to control or abate the discharge of pollutants, consistent with 40 C.F.R. Section 122.44(k)(3). In these limited circumstances, the state would need to document the basis for its determination that a numeric effluent limit for the narrative standard was infeasible to calculate, and would need to include associated provisions for monitoring the effectiveness of BMPs. Monitoring should include in-stream conditions of aquatic biota consistent with state biocriteria. Should downstream impacts exceed biocriteria, provisions for adaptive remedial action should be included.

¹⁹ Pond et al. 2008.

²⁰ This methodology and benchmark were developed in a parallel but unrelated track to a literature review summary of the effects of mountaintop mining and valley fills produced by EPA that has also been issued for Science Advisory Board review and consultation.

deriving water quality criteria to field measurements and concludes that genus-level impacts to the biological community occur at conductivity levels of 300 $\mu\text{S}/\text{cm}$.²¹

During the SAB review process, EPA believes that this report should be considered by Appalachian states as relevant information per 40 CFR Section 122.44(d)(1)(vi) in implementing applicable state narrative water quality standards in NPDES permits, and by Regions in your review of these permits. Documentation of how each state will interpret and implement its narrative water quality standards (in light of the data and conclusions of this conductivity report and other relevant information) will help ensure that the public and the regulated community have a better understanding of the state's decision-making process and increased certainty that narrative water quality standards are adequately met. As a general matter, EPA expects that the conductivity impacts of projects with predicted conductivity levels below 300 $\mu\text{S}/\text{cm}$ generally will not cause a water quality standard violation 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.²² 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 SAB review, we will evaluate whether changes to the conductivity benchmarks identified here are appropriate.

At a minimum, should the record indicate that a reasonable potential exists, the permitting authority must demonstrate in the administrative record, based on site- or receiving-water-specific information, how the permit implements the narrative water quality standards in a manner that is consistent with the CWA, and Regions are encouraged to review such a record carefully. For new (proposed) discharges, the permitting authority should require the applicant to characterize the anticipated pollutant concentrations and loads using data from similar discharges and/or based on the characteristics of local soils and geology. As noted above, as a general matter, EPA expects that in-stream conductivity levels above 500 $\mu\text{S}/\text{cm}$ are likely to be associated with adverse impacts to water quality. The scientific literature has identified conductivity levels above this level in impaired streams below surface coal mining operations in Appalachian ecoregions 68, 69, and 70 and, therefore, it is generally likely that such surface coal mining operations will have a reasonable potential to cause or contribute to an exceedance of

²¹ As described in the report, this study may be applied to all waters in the Appalachian region that are dominated by salts of SO_4^{2-} and HCO_3^- at circum-neutral pH and low levels of chloride.

²² 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.

water quality standards.²³ Permits for discharges associated with activities other than surface coal mining should also be evaluated to determine whether they are likely to result in in-stream conductivity levels above 500 µS/cm. We believe that circumstances unique to surface coal mining, however, are principally responsible for the increase in conductivity levels observed in surface waters downstream of mining practices. Surface coal mining involves disturbing large volumes of rock and dirt, land clearing, and spoil disposal activities at a scale not typically associated with activities such as development practices or forestry. We do not have studies of other non-mining activities demonstrating a likelihood that they will have a reasonable potential to cause or contribute to an exceedance of water quality standards. EPA should coordinate with the permitting authority to consider relevant information when conducting a reasonable potential analysis for other activities on a case by case basis.

The state must provide adequate documentation in the permit fact sheet or statement of basis to demonstrate that it has assessed reasonable potential and, where necessary, developed effluent limits (or other permit conditions) adequate to protect all applicable water quality standards, including narrative water quality standards. EPA will review the adequacy of the state's explanation in its fact sheet or statement of basis, considering the available scientific and other information. Where EPA concludes that the state's explanation is not adequate, or the state fails to provide an explanation of how it has interpreted or applied its narrative water quality standards, EPA may object to the permit in accordance with the provisions of 40 CFR Section 123.44(c).

D. Completing an Appropriate Antidegradation Analysis

As EPA increases its oversight of permits associated with surface coal mining activities, EPA will also focus on ensuring that permits are issued consistent with water quality standards-related antidegradation regulations, policies and procedures. State antidegradation policies provide protection of waters from degradation. EPA will, in its oversight of NPDES permits, ensure that adequate antidegradation reviews have been conducted for the receiving water consistent with applicable state water quality standards.

Antidegradation regulations require that all permits include limits sufficient to maintain and protect existing uses (Tier 1). For outstanding national resource waters (Tier 3), antidegradation requires the maintenance and protection of ambient water quality (e.g., no lowering of water quality). For high quality waters (Tier 2), where the quality of waters exceeds the level necessary to protect the use, EPA will particularly focus on ensuring that the state has made the finding that allowing lower water quality is "necessary to accommodate important social or economic development in the area in which the waters are located." 40 CFR Section 131.12(a)(2). This amounts to a two-part test: demonstration of the extent to which the discharge is "necessary" in the manner and magnitude proposed, and of its importance for social or economic development.

²³ Ecoregions 68, 69, and 70 include portions of the six Appalachian states referenced earlier in this memorandum. A map of these ecoregions is available at http://www.epa.gov/wed/pages/ecoregions/level_iii.htm.

The finding of necessity is among the most important and useful aspects of an antidegradation program. EPA expects an alternatives analysis to evaluate whether the proposed discharge is “necessary.” This analysis should include consideration of a range of less-degrading or non-degrading alternatives to the direct discharge or to the manner of discharge (e.g., non-discharging options, relocation of discharge, alternative processes, and innovative treatments). In the finding of social or economic importance of the proposed activity, EPA expects the state to analyze the social and/or economic impact associated with the lowering of water quality. The state should provide documentation to support its antidegradation analysis.

There are similar analyses of alternatives performed under CWA Sections 401, 402, and 404; NEPA; and SMCRA. To the extent that a Section 402 antidegradation analysis has been completed concurrently or in advance of analyses performed under these related authorities, Regions should encourage permitting authorities to use the Section 402 antidegradation analysis to inform similar analyses under these related authorities.

E. Conclusions Regarding Improved NPDES Permitting

Initially, we want to encourage the Regions to continue to work proactively with authorized states to improve the quality of state-issued NPDES permits for surface coal mining. In that regard, we offer eight specific suggestions:

1. Regions should request information from each state as to how that state is interpreting and incorporating applicable numeric and narrative water quality standards within its permitting decisions.
2. The permitting authority must demonstrate in the administrative record, based on site- or receiving-water-specific information, the reasonable potential determination and the basis for any limits or other permit requirements including how the permit implements the narrative water quality standards in a manner that is consistent with the CWA.
3. In recognition of the fact that during discussions with state permitting staff, some state permit writers indicated they did not have sufficient tools to interpret the narrative water quality standards for these discharges, Regions should foster additional dialogue on information and tools EPA could provide to assist the states in translating their narrative criteria into numeric effluent limits.
4. Permitting authorities should consider data from similarly situated mines in their reasonable potential analyses for new facilities. In addition, as noted in Chapter 3.2 of EPA’s “Technical Support Document for Water Quality-based Toxics Control,”²⁴ permitting authorities may determine reasonable potential based on information other than effluent data, such as the nature of the operation and its potential impact on the receiving water. Regions should evaluate whether required and appropriate data are

²⁴ “Technical Support Document for Water Quality-based Toxics Control.” EPA Office of Water, March 1991.

- submitted with permit applications and encourage permitting authorities to consider permit applications incomplete if the data characterization is not sufficient.
5. Regions should consider objecting to permits that do not assess reasonable potential effectively or fail to implement numeric and narrative standards.
 6. Regions should review, as appropriate, general permits, notices of intent, individual permits, and public participation efforts, and provide comments on eligibility, WQBELs, and antidegradation in particular.
 7. In situations where an NPDES permit has already been issued, but other permits or authorizations are required before a project may proceed, we encourage Regions to work with the other permitting or authorizing authorities to address any concerns left unaddressed by the NPDES permit, as appropriate.
 8. Regions should evaluate the consistency of a permit's monitoring provisions with the statutory and regulatory requirements.

When reviewing state-issued permits, we strongly encourage you to ensure that the items discussed above are addressed in a manner consistent with the CWA and EPA's implementing regulations. In instances in which the Region concludes that a proposed permit is not consistent with the CWA and EPA's implementing regulations, Regions should work closely with the state to make improvements. Historically, Regions have used several tools to try and resolve concerns regarding the sufficiency of state NPDES permits, ranging from comment letters to face-to-face meetings. We encourage Regions to continue to utilize those tools. If, however, in the Region's judgment discussions with the state do not produce a proposed permit that satisfies the requirements of the Act, an objection to the issuance of the proposed permit would be an appropriate response.²⁵

1. Specific Guidance Regarding Oversight of General Permits

Some discharges at surface coal mining sites are authorized through state-issued general NPDES permits. In light of the case-specific analysis necessary to ensure that surface coal mining activities will achieve water quality standards, general permits will often be inadequate. Regions are strongly encouraged to advise the permitting authorities whether the Region agrees that general permits are appropriate for these discharges or whether the Region believes that, in light of the environmental impacts caused by these discharges and the need for tailoring permit conditions by receiving water, permitting authorities should require individual permits in all instances.

²⁵ Following such an objection, the state or other interested parties may request a hearing and provide additional information supporting their position. After such a hearing is held (if requested), EPA can reassert its objection, modify its objection, or withdraw its objection. If EPA continues to object (or if no hearing is requested) and if EPA's objections are not satisfactorily resolved by the state permitting authority, authority to issue the permit will pass to EPA (40 CFR Section 123.44(h)).

When reviewing a general permit, Regions should review it closely to ensure that it includes all relevant CWA requirements. Some general permits and state NPDES Memoranda of Agreement (MOAs) provide EPA with the opportunity to review notices of intent to be covered under a general permit. When you have that opportunity, we encourage you to review the notices of intent. For example, EPA and Kentucky have entered into a MOA that sets out EPA's role in reviewing both individual NPDES permits and individual NOIs to be covered under a general permit. As provided for in the MOA, EPA notified Kentucky in a June 16, 2009, letter that EPA was exercising its option to review and comment, prior to issuance or modification, on all draft NPDES individual permits, and NOIs for all proposed coverages under an NPDES general permit for proposed projects being evaluated under the ECP process. As a result, under the MOA, EPA will review the general permit NOIs and has 10 days to notify the Kentucky Division of Water of any objection to the applicant's suitability for coverage under the General Permit.

2. Specific Guidance on Environmental Justice Considerations under CWA Section 402

There are important provisions under CWA Section 402 that may be relevant to environmental justice issues stemming from surface coal mining and its impact on human health and the environment. EPA will address the adequacy of the technical and scientific aspects of the permit, as well as public participation, in reviewing NPDES draft permits. In particular, EPA will consider whether the public has been given meaningful opportunity for participation in development of the permit pursuant to 40 CFR Section 124.11.

As explained above, when EPA determines that a draft or proposed permit fails to comply with the CWA, EPA has the authority to object to the issuance of that permit. When Regions review draft or proposed permits for compliance with the Act, we encourage you to also review those permits to determine the extent to which issuing the permit may result in adverse human health or environmental effects on low-income and minority populations. For example, a Region may determine that the issuance of a permit will have adverse effects on drinking water supplies or fisheries that are relied on by subsistence fishers, or wildlife used as a subsistence food source by the local population. If EPA determines that issuing the NPDES permit may result in adverse human health or environmental effects, EPA will consider such effects when determining whether to exercise its discretion to object to a draft state permit under CWA Section 402(d) and EPA's implementing regulations.

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

EPA has long played a role in assessing environmental and water quality implications of proposed Section 404 permits, and is authorized to prohibit or deny projects that do not meet the criteria in the CWA and implementing regulations. While states are responsible, in coordination with EPA, for establishing state water quality standards, EPA has the critical authority under CWA Section 404(b)(1) to make independent judgments about threats to water quality. In

addition to the documented impacts from increased sediment loading, a growing body of data demonstrates that high conductivity and/or selenium levels in streams downstream from mining operations contribute to the impairment of biological diversity and ecological integrity of these streams and can lead to significant adverse impacts on the aquatic ecosystem and contamination of drinking water supplies. EPA and Corps regulations require consideration of these environmental and water quality concerns in the evaluations of applications for permits under CWA Section 404.

Under Section 404(a) of the CWA, the Corps is authorized to issue permits, after notice and opportunity for public hearings, for the discharge of dredged or fill material into waters of the U.S., including wetlands. Under Section 404(b)(1), EPA is authorized to develop guidelines, in conjunction with the Corps, to ensure that the goals of the CWA are met. These regulations are located at 40 C.F.R. Section 230. These Section 404(b)(1) Guidelines (Guidelines) are applicable to all discharges of dredged or fill material to waters of the U.S, and the Corps issues Section 404 permits after evaluating proposed discharges for consistency with the Guidelines and its own implementing regulations. 40 C.F.R. Section 230.2. EPA also reviews public notices and general permit pre-construction notifications for Section 404 permits for consistency with the Guidelines. Under Section 404(q) of the CWA, the Agencies have entered into a Memorandum of Agreement (404(q) MOA) governing the sharing of information and elevating of decisions when there is a dispute between regional and district offices over implementation of the Guidelines.²⁶ Finally, under Section 404(c) of the CWA, the Administrator is authorized to “veto” a permit if the Administrator determines that a discharge will have an unacceptable adverse effect.²⁷

When reviewing Corps public notices and general permit pre-construction notifications for CWA Section 404 authorizations for surface coal mining-related discharges to waters of the United States in Appalachian states, Regions should be guided by the following sections.

A. Principles for Regional Review of Appalachian Surface Coal Mining Section 404 Permit Applications

The fundamental premise of the Guidelines is that no discharge of dredged or fill material may be permitted if: (1) it causes or contributes, after consideration of disposal site dilution and dispersion, to violations of any applicable state water quality standard; (2) a practicable alternative exists that is less damaging to the aquatic environment; or (3) the nation’s waters

²⁶ Clean Water Act Section 404(q): Memorandum of Agreement Between the Environmental Protection Agency and the Department of the Army (1992). Available at http://www.usace.army.mil/CECW/Documents/cecwo/reg/mou/moa_epa404q.pdf.

²⁷ “The Administrator is authorized to prohibit the specification (including the withdrawal of specification) of any defined area as a disposal site, and he is authorized to deny or restrict the use of any defined area for specification (including the withdrawal of specification) as a disposal site, whenever he determines, after notice and opportunity for public hearings, that the discharge of such materials into such area will have an unacceptable adverse effect on municipal water supplies, shellfish beds and fishery areas (including spawning and breeding areas), wildlife, or recreational areas. Before making such determination, the Administrator shall consult with the Secretary. The Administrator shall set forth in writing and make public his findings and his reasons for making any determination under this subsection.” CWA Section 404(c).

would be significantly degraded. 40 C.F.R. Section 230.10. In addition, if the proposed discharge is associated with a non-water-dependent activity, upland alternatives are presumed to exist. 40 C.F.R. Section 230.10(a)(3). Avoidance and minimization of the direct, indirect, and cumulative adverse environmental and water quality impacts to streams, wetlands, and other aquatic resources should be required. A demonstration must first be made that there is no practicable alternative to the proposed discharge to the waters of the United States that would have less adverse impact on the aquatic ecosystem. If there is no less damaging practicable alternative, then all appropriate and practicable steps to minimize potential adverse impacts of the discharge must be taken. Finally, mitigation is required to compensate for any remaining aquatic impacts.

To better ensure that surface mining proposals meet these requirements, Regions should affirm in their review that mining projects are consistent with the following principles:

1. Mining activities will not cause or contribute to violations of water quality standards, contaminate drinking water supplies, or add toxic pollutants that kill or impair stream life. 40 C.F.R. Section 230.10(b). Mining discharges must also not result in significant degradation of the aquatic environment, including contamination of water supplies. 40 C.F.R. Section 230.10(c).
2. Applicants have evaluated a full range of potential alternatives to discharging into waters of the U.S., including off-site and/or other disposal alternatives, with clear documentation regarding practicability for each alternative. 40 C.F.R. Section 230.10(a). Alternative mining methods that reduce generation of excess spoil should also be analyzed. Practicable, modern engineering and materials handling practices should be used to reduce the size and number of valley fills or the extent of streams impacted as a result of mine-through operations that bury, eliminate, and pollute local streams.
3. Mining companies have avoided and minimized their direct, indirect, and cumulative adverse environmental impacts to streams, wetlands, watersheds, and other aquatic resources. 40 C.F.R. Sections 230.10(a) and 230.10(d).
4. Remaining mining-related aquatic impacts have been effectively mitigated by establishing, restoring, enhancing, or preserving streams and wetlands; protecting water quality, including drinking water; and reclaiming watersheds when mining is completed. 40 C.F.R. Section 230.10(d).

Water quality standards are fundamental to achieving the purposes of the CWA. EPA has a role and responsibility for ensuring that water quality standards are not exceeded because of discharges regulated under Section 404 from Appalachian surface coal mining operations. In their review to determine whether a proposed discharge will cause or contribute to an exceedance of water quality standards, Regions should be guided by the principles articulated in Sections III.B. and III.C. of this memorandum addressing implementation of both numeric and narrative water quality standards. EPA retains its responsibility for ensuring that neither numeric nor narrative water quality standards are exceeded due to discharges of fill material even if a state has issued a water quality certification under Section 401 of the CWA. State certifications of

compliance with applicable water quality standards will be considered conclusive by the Corps with respect to water quality considerations unless the Regional Administrator advises the Corps of other water quality aspects to be taken into consideration. 33 C.F.R. Section 320.4(d). Thus, Regions should convey their conclusions with respect to possible exceedances of water quality standards to the Corps and, if appropriate changes to the permit are not made in response to these water quality concerns, may proceed under the 404(q) MOA and/or Section 404(c).

Similarly, with respect to the four review principles identified in this section and the guidance for applying the Guidelines in the next section, Regions should convey the results of their reviews to the Corps, the permit applicant, and the state and, if appropriate changes to the permit are not made in response to these water quality concerns, may proceed under the 404(q) MOA and/ or Section 404(c).

B. Key Information for Evaluating Permit Applications for Appalachian Surface Coal Mining

Because of the complexity, size, and scale of surface coal mining projects, in reviewing proposed Section 404 permit applications for these activities, it is essential that federal and state agencies have appropriate data to fully review the aquatic ecosystem impacts anticipated to occur. EPA Regions should evaluate project-specific data including, but not limited to, the following information. Where such data are also required by other federal and state regulatory partners, the agencies are encouraged to collaborate in sharing this information among one another to increase efficiency and better ensure regulatory decisions are being made using the same base of technical information.

- Geospatial information – Digital geospatial boundaries for the proposed project and individual valley fills. Location of nearby, reference, or unmined tributaries in the same catchment.
- Surface area disturbed – Total acreage of surface disturbance area (mineral extraction area).
- Spoil material – Volume of overburden excavated and volume of excess spoil (in cubic yards).
- Disposal location – Detailed as on site, off site, or a combination or percentage.
- Spoil for each valley fill – In cubic yards, where applicable.
- Drainage area – Above each toe of fill and each sediment pond, whichever is further downstream (in acres).
- Impacts – Aquatic resource impacts resulting from, but not limited to, valley fills, sediment ponds, slurry ponds, in-stream mining, or other mining operation features, in linear feet by type of stream (perennial, intermittent, ephemeral) or acres for other resource types, and by type of impact (permanent or temporary).
- Baseline monitoring – Pre-mine (land disturbance) sampling data and sampling location for total suspended solids, total dissolved solids, conductivity, sulfates, bicarbonate, chloride, magnesium, potassium, calcium, sodium, pH, selenium, and list of the presence and abundance of aquatic organisms identified to the lowest

practicable taxonomic level, usually genus-level for invertebrates and species-level for vertebrates.

- Hydrology – Cumulative Hydrologic Impact Assessments (CHIAs) and Probable Hydrologic Consequences (PHC).
- Watershed condition – Any sampling data for total suspended solids, total dissolved solids, conductivity, sulfates, bicarbonate, chloride, magnesium, potassium, calcium, and macroinvertebrate presence and abundance for adjacent mines included with the CHIA or other sources.
- Geology – Geologic strata information from core samples, including analysis of selenium, pyrite, calcium carbonate, acid-producing strata, and any strata that may cause or contribute to conductivity.
- Drinking water supplies – Location of drinking water supplies that could be affected, including private wells.
- Subsistence consumption – Patterns of local consumption of fish and wildlife that may be affected by loss of waters and impacts to surface water quality.

C. Applying the 404(b)(1) Guidelines for Surface Coal Mining Activities

The Section 404(b)(1) Guidelines prohibit issuance of a permit that will cause or contribute to excursions from applicable state water quality standards or to significant degradation of the aquatic ecosystem. 40 C.F.R. Sections 230.10(b) and (c). While issuance of the Section 402 permit is required to control discharges of pollutants into waters of the United States from surface mining operations, the discharge of fill material resulting in physical modification and elimination of portions of headwater streams may have water quality impacts that are not addressed in the NPDES permit. For example, elimination of all or even part of a headwater stream may remove from the overall watershed system an important source of freshwater dilution that contributes to water quality. Accordingly, even where a NPDES permit has been issued, the Section 404 permit must independently ensure that water quality is protected. The applicant should be required to demonstrate up front, based on proposed mining techniques, best management practices, or other actions, that the project will not cause or contribute to an excursion from applicable water quality standards or to significant degradation. The permit should include a condition, pursuant to 40 C.F.R. Sections 230.10(b) and (c), prohibiting the project from causing or contributing to an excursion from applicable water quality standards or to significant degradation.

The following discussion represents EPA's expectations for the analyses necessary to ensure compliance with water quality standards, prevention of significant degradation, and full analysis of avoidance, minimization, and (where necessary) mitigation, to achieve full compliance with the 404(b)(1) Guidelines.

1. Preventing Violations of Water Quality Standards

The Section 404(b)(1) Guidelines require that Section 404 permits must not cause or contribute, after consideration of site dilution and dispersion, to violations of applicable state

water quality standards. 40 CFR Section 230.10(b)(1). As explained more fully above in Section III, Appalachian states have narrative water quality standards that protect the native aquatic community, including protection from adverse effects associated with elevated levels of in-stream conductivity. Nearly all Appalachian states, however, have not established numeric water quality criteria for conductivity or TDS and historically have not included numeric effluent limitations to address conductivity or TDS in state-issued NPDES permits. The absence of necessary WQBELs in 402 permits has meant that EPA has needed to consider whether issuance of a 404 permit would be inconsistent with the Guidelines because authorization of a particular mining project would result in exceedances of a state's narrative standards. Section III.C. of this memorandum provides specific guidance to the Regions on how to evaluate whether provisions of NPDES permits are adequate to protect against violations of water quality standards, and that guidance also applies to how Regions should conduct that evaluation for Section 404 permits. As discussed below, even where a Section 402 permit has addressed protection of water quality standards, the Guidelines establish an independent obligation to address potential violations of water quality standards associated with discharges of dredged or fill material and to protect against significant degradation.

2. Preventing Significant Degradation

In addition to the provision in the Section 404(b)(1) Guidelines requiring that Section 404 permits must not cause or contribute, after consideration of site dilution and dispersion, to violations of applicable state water quality standards (Section 230.10(b)(1)), a separate, additional provision prohibits the permitting of a discharge that will cause or contribute to significant degradation of the waters of the U.S. (Section 230.10(c)). The Corps and EPA therefore have a responsibility to ensure sufficiently protective requirements are included when reviewing mining projects in draft Section 404 permits. To date, this has involved coordination with the Corps to develop adequate numeric action triggers in 404 permits. Our general approach has been to rely on peer-reviewed studies (including those by EPA) examining the relationship between conductivity values and water quality impairment in Appalachia. These studies point to a strong relationship between conductivity values in the range of 400-500 $\mu\text{S}/\text{cm}$ in headwater streams and significant degradation of benthic communities in Appalachian streams as a result of mining activity. In response to these studies, the Corps and EPA included conditions in the recent Section 404 permit for the Hobet 45 mine that trigger remedial action requirements when conductivity levels in streams associated with this mine reach the 400-500 $\mu\text{S}/\text{cm}$ level.

A recently prepared EPA ORD study, which is being noticed in the Federal Register for public comment and which will be submitted for SAB review, augments existing studies and provides an additional analysis of the relationship between impairment of stream quality in Appalachia and conductivity levels. This study identifies conductivity levels of 300 $\mu\text{S}/\text{cm}$ or below in Appalachian headwater streams as a benchmark for retaining 95% of native benthic species. The study also identifies substantial impacts to native invertebrate species at conductivity levels exceeding 500 $\mu\text{S}/\text{cm}$. Because the study will be reviewed by the SAB, it does not represent a final Agency position at this time. However, EPA will need to continue reviewing 404 permits while this external peer review process is underway.

For purposes of Section 230.10(c) of the Guidelines, the Regions should consider the ORD report when examining whether a draft 404 permit is likely to result in significant degradation of waters of the U.S. During this interim period, the Regions should make a case-by-case determination based upon all available relevant scientific information including the ORD report. EPA anticipates that the conductivity impacts of projects with predicted conductivity levels below 300 $\mu\text{S}/\text{cm}$ generally will not cause a water quality standard violation or significant degradation of the aquatic ecosystem. On the other hand, EPA expects that in-stream conductivity levels above 500 $\mu\text{S}/\text{cm}$ are likely to be associated with adverse impacts that could rise to the level of significant degradation of the aquatic ecosystem. 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, and individual mining operators should be coordinating, in the context of a "sequenced" permitting approach (see IV.C.4 below), or other similarly protective measures, to ensure conductivity levels remain at levels not likely to contribute to degraded water quality, as discussed above in III.C.1. 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 from rising to levels that may contribute to water quality degradation, as discussed in III.C.1. After EPA's draft conductivity report is finalized after peer review, we will reexamine this approach.

In conjunction with the conductivity threshold, ORD's review of the scientific literature on surface coal mining (as mentioned above, scheduled to be reviewed by the SAB) and *Science* magazine found effects, including resource loss, water quality impairment, and adverse effects on aquatic ecosystems, that could support a conclusion of significant degradation of waters of the U.S. under applicable regulations.

3. Ensuring Effective Monitoring

To ensure compliance with these provisions of the Guidelines, the permit should effectively require water quality and biological monitoring in streams below surface coal mining operations to ensure permit conditions are being met and to collect data to inform continued operations as described below. Monitoring should be conducted during construction and post-construction. The permittee should be required to submit baseline monitoring data for biological condition, conductivity, total dissolved solids, sulfates, bicarbonate, chloride, magnesium, potassium, calcium, sodium, pH, and selenium to help provide information necessary to assure compliance with water quality standards and prevent significant degradation. The permittee should use the methodology employed by the state for assessing its waters pursuant to Section 303(d) or other methodology utilized by the state. In addition, with respect to biological data, the permittee should identify taxa to the genus level where the state methodology does not do so. The permittee should implement a monitoring plan for the foregoing parameters at appropriate locations upstream and downstream of the project, where applicable. As set forth in more detail below, the permit should include clear requirements for remedial actions to protect water quality

in the event monitoring reveals a trend toward excursion from water quality standards or a trend toward significant degradation.

4. Ensuring Independent Water Quality Protection from Section 404 Permits

Regions should ensure that, if a Section 402 permit has already been issued and does not address current science-based values for contaminants, the Section 404 permit includes needed conditions to protect water quality and to prevent significant degradation of the aquatic ecosystem. In addition to the monitoring requirements discussed in #1 above, additional conditions should explicitly address the levels of specific contaminants that must be achieved. These conditions should also address the adaptive remedial actions that will be implemented if water quality protection values are exceeded.

5. Ensuring Adequate Cumulative Impact Assessment Consistent with the 404(b)(1) Guidelines

Regions should ensure that watershed-scale (e.g., Hydrologic Unit Code 12 (HUC-12)) cumulative impact analyses are conducted as an element of the factual determinations required by the 404(b)(1) Guidelines. 40 CFR Section 230.11(g). These analyses should assess the consequences of past, present, and reasonably foreseeable future discharges of dredged or fill material (federal and non-federal) in the affected watersheds, on water quality and the aquatic environment. To the extent the cumulative impacts to water quality and the aquatic environment also affect human use characteristics, such as water supplies or fisheries, those impacts also should be addressed. Regions are encouraged to ensure that cumulative impact assessments conducted pursuant to the Guidelines are coordinated with required NEPA evaluations described in Section VI. below.

6. Assessing and Mitigating for Affected Stream Functions

Regions should ensure that applicants or the Corps conduct functional stream impact assessments and ensure they are effectively used to quantify the environmental effects of individual mining projects on streams. Regions are encouraged to work with and provide technical assistance to the Corps and states on the development and implementation of effective assessment methods. These assessments should be used to ensure that compensatory mitigation adequately replaces lost stream functions. For example, EPA should recommend alternatives to drainageways (e.g., groin ditches) as methods of stream mitigation, as they do not replace lost stream functions and are therefore not an acceptable form of compensatory mitigation. Some additional specific expectations for compensatory mitigation consistent with the agencies mitigation regulations include:

- a. Timeframe – An expected timeframe for success should be identified and the mitigation should be monitored for that length of time in order to ensure success.

- b. Mitigation monitoring – A detailed monitoring plan outlining the observable and measureable physical, chemical and biological criteria, and expected standards to be achieved, should be incorporated into permit conditions.
- c. Adaptive remedial action – Include an adaptive remedial action plan that identifies specific triggers in the performance standards and alternate plans and strategies should the desired targets not be achieved. The plan should require additional actions and/or supplemental mitigation in the event success criteria are not achieved within an appropriate timeframe.
- d. Stream establishment – Created stream channels should be designed to develop good water quality, healthy and diverse biological communities, and similar hydrologic regimes as streams to be impacted by mining activities. The goal of these compensation projects is to replace the lost stream functions impacted through mining activities; therefore, they should be designed to achieve designated uses for aquatic life support.
- e. Ditches – No Section 404 compensation credit should be given for sediment, groin, or other water control ditches required for mining projects under SMCRA and CWA Section 402.

7. Ensuring Environmental Justice in Section 404 Permitting

Regions should identify whether issuing a permit would result in adverse human health or environmental effects on low-income and minority populations, including impacts to water supplies and fisheries. Where such effects are likely, EPA Regions should suggest ways and measures to avoid and/or mitigate such impacts through comments to the Corps.

In addition to the principles outlined above, EPA expects that the following best management practices will help to reduce or eliminate potential increases in conductivity levels in surface waters downstream of mining-related discharges to levels consistent with meeting narrative water quality standards and preventing significant degradation, as discussed in this memo, and to minimize associated impacts to the aquatic environment.

1. Sequencing Multiple Valley Fills for Projects Proposing More Than One Fill

Many of the proposed best management practices associated with the design of mining operations are currently unproven in their effectiveness to protect water quality and to prevent significant degradation. As a general matter, an effective approach for managing this uncertainty is to sequence multiple fills on a project. The sequenced approach, or another comparably effective measure, should be employed to account for uncertainty regarding the ability of current project best management practices to address the potential adverse impacts of multiple fills. In this context, the term "sequenced" means:

- a. Valley fills that are part of the same project or complex should generally be constructed one at a time, unless site-specific data suggest no potential downstream water quality concerns; and
- b. The permittee should demonstrate compliance with applicable water quality standards, and that significant degradation has not occurred, at each valley fill before the permittee may begin construction of subsequent valley fills.

EPA encourages applicants to fully sequence fills (e.g., one at a time) where monitoring and watershed-specific factors suggest water quality impacts may occur. On a case-by-case basis, if available data suggest that concurrently constructing more than one initial fill would not be likely to lead to water quality concerns, such an approach may be evaluated. A trends analysis as referenced above should be performed from the conductivity monitoring data. The trends analysis should then be evaluated against two threshold conductivity values established within the permit. The first value would establish a threshold at which a trend toward causing or contributing to water quality exceedances and significant degradation is identified, and the operator would be required to implement an adaptive remedial action plan to prevent further degradation. The second value would establish a threshold at which an excursion from applicable water quality standards and/or significant degradation is likely, and the permittee would be prohibited from constructing additional valley fills until such time as the excursion from water quality standards and/or significant degradation has been remediated and the permittee has demonstrated that no further excursion from water quality standards and/or significant degradation will occur. As discussed above, for many Appalachian streams, available scientific evidence supports using thresholds of 300 and 500 uS/cm in this context, though site-specific evidence may support alternate thresholds.

2. Protecting Water Quality for Projects Proposing One Valley Fill

For operations proposing a single valley fill, the sequencing as described above is not an option. As stated above, the applicant should be required to demonstrate prior to authorization and construction, based on proposed mining techniques, best management practices, or other actions, that the project will not cause or contribute to an excursion from applicable water quality standards or to significant degradation. The permit should include a condition, pursuant to 40 CFR Sections 230.10(b) and (c), prohibiting the project from causing or contributing to an excursion from applicable water quality standards or to significant degradation. In order to carry out this requirement and to assure that the permit will not cause or contribute to an excursion from applicable state water quality standards or to significant degradation of downstream waters, a monitoring plan as described above should generally still be required. Such permit conditions are also applicable and should be required for projects proposing multiple valley fills.

3. Minimizing Spoil Generation and Water Quality Impacts Through Avoidance and Minimization

Because larger and more numerous valley fills in waters of the U.S. are associated with increasing both direct adverse impacts to streams and watersheds and indirect downstream water quality impacts, projects should incorporate cost effective and technologically feasible limits on the quantity of excess spoil being generated per ton of coal produced by conducting a robust alternatives analysis. By relying on more efficient mining practices, impacts to streams and watersheds can be reduced. High-ratio mining operations generally do not represent the least environmentally damaging alternative. Consistent with the June 2009 interagency surface coal mining MOU, applicable federal and state regulatory agencies should coordinate environmental reviews of pending permit applications under the CWA and SMCRA to require practicable mining techniques that maximize the amount of spoil returned to the mine bench and minimize the amount of excess spoil that must be disposed of in streams and other aquatic systems. For mine-through operations, stream impacts should be avoided to the maximum practicable extent and spoil placement should be controlled to reduce drainage through overburden into streams. Options for disposing of mine waste in uplands, including relying on remaining excess spoil capacity at adjacent mine sites, must be fully evaluated. “Piecemealing” of multiple small mines to replace fewer large mines should be carefully evaluated to ensure that substitution of smaller mines is not resulting in greater direct, secondary, and cumulative adverse environmental impacts, which is not consistent with the Guidelines.

Projects should also incorporate environmentally effective limits on the linear extent of stream impacts per ton of excess spoil produced through a robust alternatives analysis. Such limits provide for improved efficiencies in spoil handling to minimize impacts to streams and is applicable to most mining operations, including mine-through projects. Where valley fills are necessary to accommodate disposal of excess spoil, overburden should be configured to maximize disposal as far up the valley as is feasible from an engineering perspective. To reduce direct stream impacts, valley fill construction should generally be from the head of the valley downwards instead of beginning at a point downstream and moving back upstream.

4. Certifying Mine Plan and Ensuring Full Utilization of Fill Disposal Sites

It is EPA's experience that permitted mine plans do not always reflect the "on-the-ground" construction and operation of a mine project. For many reasons, as construction and operation of the mine is underway, it is possible that the mine plan may change and that an operation may not fully utilize authorized capacity in valley fills. To prevent under-utilization of fills and to encourage additional avoidance and minimization of impacts to waters of the United States during construction, EPA should recommend that an issued permit be conditioned to require the operator to certify the mine plan and provide such certification to the Corps and EPA prior to construction of each valley fill. The operator should also be required to provide post-mining “as-built” plans.

5. Minimizing Conductivity Impacts and In-Stream Impoundments

Projects should fully evaluate and, where feasible, incorporate the following specific aspects of effective impacts avoidance and minimization:

- a. Materials handling plans – Ensure that soils and rock on the mine site have been tested for concentrations of acid-, selenium- or heavy-metals-bearing or soluble strata that are likely to lead to high conductivity concerns. Overburden with high concentrations of these pollutants should be handled to minimize exposure to rainwater and groundwater and subsequent drainage into surface waters.
- b. Fill construction – To prevent infiltration of surface runoff into the fill mass whenever possible, overburden should be compacted, leaving the top six feet unconsolidated. The use of end dumps should be discouraged whenever possible.
- c. Sedimentation ponds – While achieving adequate sediment control, minimize the number of sediment ponds placed in waters of the U.S. and ensure that post-mining reclamation plans remove such ponds and restore affected streams.

6. Reducing Drainage Area Flowing Through Fills

Projects should reduce the drainage area flowing through valley fills to the maximum practicable extent consistent with sound engineering and safety considerations. Recent studies have suggested that water (e.g., precipitation and groundwater) flowing through valley fills contributes significantly to downstream water quality concerns as infiltrating water accumulates metals, dissolved solids, and sulfates. Designing mines (including mine-through operations) and valley fills to minimize drainage through mining spoil can contribute significantly to protecting downstream water quality. Regions should ensure that projects evaluate and, where feasible, incorporate current best mining practices that reduce infiltration and protect water quality, such as constructing valley fills as “side-hill” fills to reduce infiltration by precipitation, incorporating drains in valley fills to intercept and divert groundwater, and designing mines to take more consistent advantage of natural drainage through coal and rock formations that divert flow away from surface waters.

D. Addressing a Broad Range of Environmental Impacts

While the Guidelines evaluation process addresses impacts to the aquatic environment and the consequences of those impacts, we recognize that issuance of Section 404 permits can have other important environmental and human health impacts that are considered by the Corps as part of the “public interest review” process (33 CFR Section 320.4(a)). The public interest review process explicitly requires a “careful weighing” of up to 21 relevant public interest factors, including economics, aesthetics, energy needs, safety, and the general “needs and welfare of the people.” In that light, we recommend that Regions provide comments to the Corps that address relevant public interest factors associated with the discharge of fill material

into waters of the United States, with a particular emphasis on ways or measures to mitigate potential adverse impacts to low-income and minority populations.

E. Conclusion

We encourage the Regions to discuss these general strategies with Corps Districts and states. Consistent with long-standing practice, we encourage Regional staff to offer specific recommendations to permit applicants who want to work with EPA to resolve individual permit issues. We have, in fact, engaged in productive dialogues with several permit applicants. Experience has shown that these discussions can provide an efficient and effective path to agreement on permit conditions that meet the requirements of the law while allowing mining companies to proceed on a cost-effective and environmentally responsible basis. We encourage more interaction between industry and EPA to resolve permit issues through dialogue and technical cooperation.

V. CWA Section 401 Certifications by States

Section 401 conveys to states directly and eligible Tribes the authority to approve (certify), condition, or deny all federal permits or licenses authorizing a discharge to waters of the U.S., including wetlands, including CWA Section 404 permits and federally issued SMCRA permits. States and Tribes may choose to waive their Section 401 certification authority and, if they fail to respond to a request for certification within the proscribed time (generally one year), their Section 401 authority is waived by default.

States and Tribes most commonly make their decisions to deny, certify, or condition permits or licenses primarily in consideration of whether the activity will comply with state water quality standards. However, they also look at whether the activity will violate effluent limitations, new source performance standards, toxic pollutant controls, or other appropriate requirements of state or Tribal law or regulation. EPA is in the process of developing an updated handbook on the basics of state Section 401 certification actions, which is intended to help clarify how states and tribes can most effectively employ this statutory water quality management tool for applicable projects, including surface coal mining projects permitted under Section 404.

Although Section 401 certification authority rests with the jurisdiction where the discharge originates, neighboring states and tribes downstream or otherwise potentially affected by the discharge have an opportunity to raise objections to, and comment on, the federal permit or license. EPA should determine if a discharge subject to Section 401 certification may affect the water quality of other states or tribes and, if there may be such an effect, EPA Regions should notify other jurisdictions whose water quality may be affected. The other jurisdictions should then be provided an opportunity to submit their views and objections, including opportunities for public hearings, consistent with CWA Section 401(a)(2). Although, the nature of recommendations from neighboring jurisdictions do not have the same force as conditions from a

Section 401 certifying state, the federal agency must develop measures to address the downstream jurisdictions' concerns.

Section 401(a)(1) requires that a state "establish procedures for public notice in the case of all applications for certification by it and, to the extent it deems appropriate, procedures for public hearings in connection with specific applications." 33 U.S.C. Section 401(a)(1). To enable meaningful participation by affected communities, we recommend that Regions work with the states to ensure that these public participation procedures are in place, and encourage the states to provide appropriate opportunities for public hearings on specific certifications.

VI. National Environmental Policy Act Considerations

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.

We also recommend that Regions work with the Corps and OSM to help establish opportunities for early and meaningful community input. These opportunities for increased community input may include Regions requesting that Corps Districts and OSM make draft Environmental Assessments (EAs) readily available to the public using a variety of methods, including online and print media, as early in the permitting process as possible. In addition, it is important that all agencies work with local communities, including low-income and minority populations, to identify potential adverse human health and environmental impacts and mitigation measures and improve the accessibility of meetings, crucial documents, and notices.

As discussed earlier, the NEPA process is also an effective vehicle for considering the potential cumulative effects of mining proposals. Using a watershed-scale analysis (e.g., HUC-12 analyses) would be an effective way to examine the cumulative environmental and human health impacts from past, present and reasonably foreseeable actions, including federal and non-federal actions. When working with the Corps and OSM to help define the proper scope of a NEPA cumulative impact assessment, Regions should be clear that while cumulative hydrological impact assessments (CHIAs) prepared as part of the SMCRA process can provide useful information regarding impacts to the hydrologic balance of an area, a NEPA cumulative impact assessment should consider the full suite of relevant environmental impacts.

When an agency develops and makes a commitment to require mitigation measures to avoid, minimize, rectify, reduce, or compensate for significant environmental impacts, NEPA

compliance can be accomplished with an EA, coupled with a Finding of No Significant Impact (FONSI) (“Forty Most Asked Questions Concerning CEQ’s National Environmental Policy Act Regulations,” 46 FR 18026 (March 23, 1981)). The Regions should, in evaluating permit applications and NEPA analyses, carefully evaluate any proposed mitigation measures to ensure that they will not only be effective at eliminating or reducing impacts, but also that they are clearly stated, include binding commitments and monitoring plans, and include provisions for public access to monitoring results and related documents. Recent scientific evidence referenced earlier in this memorandum, as well as field experience with surface coal mining mitigation projects, has raised technical concerns about the capacity of some forms of mitigation to reduce on-site and downstream impacts associated with Appalachian surface coal mining to below levels of significance. For example, as noted earlier, EPA believes that no mitigation credit should be given for sediment, groin, or other water control ditches. Consequently, construction of these ditches should not be used as a basis for supporting a FONSI. Moreover, mitigation measures that rely on establishing or re-establishing streams, rather than rehabilitating or enhancing existing streams, have less certainty of successfully offsetting impacts and should generally not be used to support a FONSI.

While no specific regulatory thresholds exist for determining whether a potential impact is significant under NEPA, it is EPA’s general experience with surface coal mining projects in Appalachia that there are a number of factors that should be considered. First, the scale of the proposed impacts to stream habitats is of primary importance. While smaller projects should be reviewed to determine whether potential impacts warrant preparation of an EIS, it is EPA’s experience that projects that involve more than one mile of stream loss or more than one valley fill are likely to result in significant adverse impacts.

Finally, consistent with EPA’s *Policy and Procedures for the Review of Federal Actions Impacting the Environment*, the Regions should consult with the Office of Federal Activities (OFA) when recommending to the Corps or OSM that an EIS be prepared. OFA can also provide assistance when Regions are unable to reach agreement with Corps Districts or OSM on whether an EIS should be prepared in a particular case. Further, although the decision to prepare an EIS rests with the Corps and OSM, under EPA’s Clean Air Act Section 309 authority, EPA must “refer” to CEQ matters that the Administrator finds are “unsatisfactory from the standpoint of public health or welfare or environmental quality.” OFA will work with Regions to determine an appropriate course for resolving such disputes, including the potential for a referral to CEQ, if appropriate.

VII. Conclusions

EPA will continue to work with our federal regulatory partners, state agencies, the mining industry and the public to fulfill our common goals of reducing adverse impacts to water quality, aquatic ecosystems, and human health. We will also communicate effectively with local communities and mining companies to provide the transparency, consistency, and efficiency expected of government agencies in dealing with issues of such importance to health, the environment, and the economy. 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.

cc: Regional Water and Enforcement Division Directors, Regions 3, 4, and 5
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