EPA Acts to Reduce Harmful Impacts from Coal Mining

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(Washington, D.C. – March 24, 2009) The United States Environmental Protection Agency has sent two letters to the U.S. Army Corps of Engineers expressing serious concerns about the need to reduce the potential harmful impacts on water quality caused by certain types of coal mining practices, such as mountaintop mining. The letters specifically addressed two new surface coal mining operations in West Virginia and Kentucky. EPA also intends to review other requests for mining permits.

"The two letters reflect EPA's considerable concern regarding the environmental impact these projects would have on fragile habitats and streams," said Administrator Lisa P. Jackson. "I have directed the agency to review other mining permit requests. EPA will use the best science and follow the letter of the law in ensuring we are protecting our environment."

EPA's letters, sent to the Corps office in Huntington, W.Va., stated that the coal mines would likely cause water quality problems in streams below the mines, would cause significant degradation to streams buried by mining activities, and that proposed steps to offset these impacts are inadequate. EPA has recommended specific actions be taken to further avoid and reduce these harmful impacts and to improve mitigation.

The letters were sent to the Corps by EPA senior officials in the agency's Atlanta and Philadelphia offices. Permit applications for such projects are required by the Clean Water Act.

EPA also requested the opportunity to meet with the Corps and the mining companies seeking the new permits to discuss alternatives that would better protect streams, wetlands and rivers.

The Corps is responsible for issuing Clean Water Act permits for proposed surface coal mining operations that impact streams, wetlands, and other waters. EPA is required by the act to review proposed permits and provides comments to the Corps where necessary to ensure that proposed permits fully protect water quality.

Because of active litigation in the 4th Circuit challenging the issuance of Corps permits for coal mining, the Corps has been issuing far fewer permits in West Virginia since the litigation began in 2007. As a result, there is a significant backlog of permits under review by the Corps. EPA expects to be actively involved in the review of these permits following issuance of the 4th Circuit decision last month.

EPA is coordinating its action with the White House Council on Environmental Quality and with other agencies including the Corps.

More information on wetlands and the letters: http://www.epa.gov/owow/wetlands/

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MEMORANDUM OF UNDERSTANDING AMONG THE
U.S. DEPARTMENT OF THE ARMY,
U.S. DEPARTMENT OF THE INTERIOR,
AND U.S. ENVIRONMENTAL PROTECTION AGENCY

IMPLEMENTING THE INTERAGENCY ACTION PLAN ON APPALACHIAN SURFACE COAL MINING[1]

JUNE 11, 2009

PREAMBLE

The mountains of Appalachia possess unique biological diversity, forests, and freshwater streams that historically have sustained rich and vibrant American communities. These mountains also contain some of the nation's richest deposits of coal, which have been mined by generations of Americans to provide heat and electricity to millions in the U.S. and around the world. After generations of mining, however, the region's most readily available coal resources have diminished, and the remaining coal seams are less accessible to non-surface mining methods.

In response, a surface mining technique commonly referred to as "mountaintop mining"[2] has become increasingly prevalent in the Appalachian region. Although its scale and efficiency has enabled the mining of once-inaccessible coal seams, this mining practice often stresses the natural environment and impacts the health and welfare of surrounding human communities. Streams once used for swimming, fishing, and drinking water have been adversely impacted, and groundwater resources used for drinking water have been contaminated. Some forest lands that sustain water quality and habitat and contribute to the Appalachian way of life have been fragmented or lost. These negative impacts are likely to further increase as mines transition to less accessible coal resources within already affected watersheds and communities.

With this Memorandum of Understanding (MOU), the Department of the Interior (DOI), U.S. Environmental Protection Agency (EPA), and the U.S. Army Corps of Engineers (Corps)

[1] For purposes of this MOU, "Appalachian surface coal mining" refers to mining techniques requiring permits under both the Surface Mining Control and Reclamation Act (SMCRA) and Section 404 of the Clean Water Act (CWA), in the states of Kentucky, Ohio, Pennsylvania, Tennessee, Virginia, and West Virginia.

[2] The term "mountaintop mining" may also be referred to as "mountaintop removal" or "valley fill mining."

are announcing this Interagency Action Plan (IAP) designed to significantly reduce the harmful environmental consequences of Appalachian surface coal mining operations, while ensuring that future mining remains consistent with federal law. This IAP includes a set of short-term actions to be implemented in 2009 to existing policy and guidance, and a longer term process for gathering public input, assessing the effectiveness of current policy, and developing regulatory actions.

The Federal government has made a commitment to move America toward a 21st-century clean energy economy based on the recognition that a sustainable economy and environment must work hand in hand. Federal Agencies will work in coordination with appropriate regional, state, and local entities to help diversify and strengthen the Appalachian regional economy and promote the health and welfare of Appalachian communities. This interagency effort will have a special focus on stimulating clean enterprise and green jobs development, encouraging better coordination among existing federal efforts, and supporting innovative new ideas and initiatives.

Interagency Action Plan

I. COORDINATION ON REGULATORY PROGRAMS

This MOU formalizes the agencies' IAP for coordinating the regulation of Appalachian surface coal mining. The elements of the plan are:

- A series of interim actions under existing authorities to minimize the adverse environmental consequences of Appalachian surface coal mining;
- A commitment by the agencies to investigate and, if appropriate, undertake longer term regulatory actions related to Appalachian surface coal mining;
- Coordinated environmental reviews of pending permit applications under the Clean Water Act (CWA) and Surface Mining Control and Reclamation Act (SMCRA); and
- A commitment to engage in robust public participation, through public comment mechanisms and Appalachian public outreach events, helping to inform Federal, State, and local decisions.

In addition to the steps taken above, the Federal government will help diversify and strengthen the Appalachian regional economy. This effort will include the agencies to this MOU, and other Federal agencies, as appropriate, and will work to focus clean energy investments and create green jobs in Appalachia.

Coordination of interagency policy discussions and assessment of policy effectiveness will be achieved in consultation with the Council on Environmental Quality.

II. SHORT-TERM ACTIONS TO MINIMIZE ENVIRONMENTAL HARM

The signatory agencies will take the following short-term actions under existing laws, regulations, and other authorities to reduce the harmful environmental consequences of Appalachian surface coal mining.

Before the end of 2009, the Corps and EPA will take the following steps:

- Within 30 days of the date of this MOU, the Corps will issue a public notice pursuant to 33 C.F.R. § 330.5 proposing to modify Nationwide Permit (NWP) 21 to preclude its use to authorize the discharge of fill material into streams for surface coal mining activities in the Appalachian region, and will seek public comment on the proposed action.
- EPA and the Corps, in coordination with DOI's Fish and Wildlife Service (FWS), will jointly develop guidance to strengthen the environmental review of proposed surface coal mining projects in Appalachia under the CWA Section 404(b)(1) Guidelines.
- Recognizing that the regulation of surface coal mining extends beyond CWA Section 404, EPA will improve and strengthen oversight and review of water pollution permits for discharges from valley fills under CWA Section 402, and of state water quality certifications under CWA Section 401, by taking appropriate steps to assist the States to strengthen state regulation, enforcement, and permitting of surface mining operations under these programs.
- The Corps and EPA, in coordination with FWS and consistent with the agencies' regulations governing compensatory mitigation, will jointly issue guidance clarifying how impacts to streams should be evaluated and how to evaluate proposed mitigation projects to improve the ecological performance of such mitigation implemented to compensate for losses of waters of the United States authorized by Section 404 permits.
- EPA, in coordination with the Corps, will clarify the applicability of the CWA waste treatment exemption for treatment facilities constructed in waters of the United States in order to minimize the temporary impacts of mining operations on streams.

Before the end of 2009, DOI will take the following steps:

- If the 2008 Stream Buffer Zone Rule is vacated by the U.S. District Court for the District of Columbia in Coal River Mountain Watch et al v. Kempthorne, 1:08-cv-02212-HHK C, as requested by the Secretary of the Interior on April 27, 2009, the Office of Surface Mining Reclamation and Enforcement (OSM) will issue guidance clarifying the application of the 1983 stream buffer zone provisions to further reduce adverse stream impacts.
- OSM will reevaluate and determine how it will more effectively conduct oversight of State permitting, State enforcement, and regulatory activities under SMCRA.
- OSM will remove impediments to its ability to require correction of permit defects in SMCRA primacy states.

III. DEVELOPMENT OF LONGER TERM REGULATORY ACTIONS TO BETTER MANAGE APPALACHIAN SURFACE COAL MINING

A. OBJECTIVES

The signatory agencies will review their existing regulatory authorities and procedures to determine whether regulatory modifications should be proposed to better protect the environment and public health from the impacts of Appalachian surface coal mining. At a minimum, the agencies will consider:

- Revisions to key provisions of current SMCRA regulations, including the Stream Buffer Zone Rule and Approximate Original Contour (AOC) requirements;
- Eliminating use of Nationwide Permit 21 in connection with surface coal mining in the Appalachian region when the Nationwide Permit Program is reauthorized in 2012; and
- Revisions to how surface coal mining activities are evaluated, authorized, and regulated under the CWA.

B. PROCESS

The signatory agencies will create an interagency working group to coordinate the development of short-term actions, longer term regulatory actions, and coordination procedures for Appalachian surface coal mining. The group will ensure robust public involvement in the development of any proposed actions or regulatory reforms.

For any proposed regulatory revision or other action under this MOU that is a major federal action significantly affecting the quality of the human environment (and is an action subject to NEPA), an Environmental Impact Statement (EIS) will be prepared to inform the decision-making process. At an early stage in the interagency coordination process, the working group will determine whether coordinating these NEPA processes programmatically would more effectively guide regulatory development and decision-making. The interagency group will coordinate with CEQ regarding the implementation of the National Environmental Policy Act (NEPA) in the development of regulatory reforms.

IV. INTERIM INTERAGENCY COORDINATION PROCEDURES

A. Clean Water Act

EPA and the Corps will begin immediately to implement enhanced coordination procedures applicable to the Clean Water Act review of Section 404 permit applications for Appalachian surface coal mining activities that have been submitted prior to execution of this MOU. The goal of these procedures is to ensure more timely, consistent, transparent, and environmentally effective review of permit applications under existing law and regulations. The agencies are issuing these

enhanced joint procedures concurrently with this MOU. Also concurrently, EPA is clarifying the factual considerations it is using to evaluate pending CWA permit applications under the 404(b)(1) Guidelines.

Pending Clean Water Act Section 404 permit applications for Appalachian surface coal mining activities will continue to be evaluated by the Corps and EPA on a case-by-case basis. The agencies will focus their reviews of Appalachian surface coal mining permit applications based on likely environmental impacts with the goal of avoiding, minimizing, and mitigating such impacts to the extent practicable under the CWA Section 404(b)(1) Guidelines and consistent with NEPA. This approach will enable the continued permitting of environmentally responsible projects.

B. Surface Mining Control and Reclamation Act

During 2009, OSM will issue guidance concerning appropriate application of the Stream Buffer Zone rule and other related rules and will ensure that states are implementing their counterpart provisions and SMCRA regulatory programs consistent with the guidance.

V. PUBLIC INVOLVEMENT

This IAP will be accompanied by robust public comment on its short- and longer term actions. The agencies will hold public meetings in Appalachia during 2009 to gather on-the-ground input and encourage ongoing local engagement in the environmental assessment and decision-making process. Additional public participation will occur as agency actions move forward.

VI. GENERAL

A. The policy and procedures contained within this MOU are intended solely as guidance and do not create any rights, substantive or procedural, enforceable by any party. This MOU does not constitute final agency action on any issue, and any actions contemplated by this MOU will be carried out in an appropriate administrative process by the action agency in accordance with all applicable laws and regulations.

B. This document does not, and is not intended to, impose any legally binding requirements on Federal agencies, States, or the regulated public, and does not restrict the authority of the employees of the signatory agencies to exercise their discretion in each case to make regulatory decisions based on their judgment about the specific facts and application of relevant statutes and regulations.

C. Nothing in this MOU is intended to diminish, modify, or otherwise affect statutory or regulatory authorities of any of the signatory agencies. All formal guidance interpreting this

MOU and background materials upon which this MOU is based will be issued jointly by the appropriate agencies.

D. Nothing in this MOU will be construed as indicating a financial commitment by DOI, the Corps, EPA, or any cooperating State agency for the expenditure of funds except as authorized in specific appropriations.

E. This MOU will take effect on the date shown above and will continue in effect until permanent procedures are established, or unless earlier modified or revoked by agreement of all signatory agencies. Modifications to this MOU may be made by mutual agreement of all the signatory agencies. Modifications to the MOU must be made in writing.

Signed,

Lisa P. Jackson
Administrator
U.S. Environmental Protection Agency

Ken Salazar
Secretary
U.S. Department of the Interior

Terrence "Rock" Salt
Acting Assistant Secretary
of the Army (Civil Works)
U.S. Department of the Army

To: William C. Early, Acting Regional Administrator, EPA Region III
A. Stanley Meiburg, Acting Regional Administrator, EPA Region IV
Bharat Mathur, Acting Regional Administrator, EPA Region V
COL Dionysios Anninos, District Commander, USACE Norfolk District
COL Dana R. Hurst, District Commander, USACE Huntington District
COL Michael P. Crall, District Commander, USACE Pittsburg District
COL Keith A. Landry, District Commander, USACE Louisville District
LTC Bernard R. Lindstrom, District Commander, USACE Nashville District

From: Lisa P. Jackson
Administrator
U.S. Environmental Protection Agency

JUN 11 2009

Terrence "Rock" Salt,
Acting Assistant Secretary (Civil Works)
Department of the Army

Re: Enhanced Surface Coal Mining Pending Permit Coordination Procedures

The Environmental Protection Agency (EPA) and the Department of the Army have developed enhanced coordination procedures to respond to the unique challenge before us in reviewing pending surface coal mine permit applications in Appalachia. The purpose of this enhanced coordination process is to provide for timely resolution of issues for those permits about which the agencies have substantial environmental concerns, ensure effective coordination among the agencies and consistent compliance with the requirements of the Clean Water Act (CWA), its regulations and relevant policy, and to expedite review and final decisions regarding pending permits for surface coal mining operations in Appalachian states (OH, PA, WV, VA, TN, and KY). It is also important that we provide additional transparency to the public during the enhanced coordination process. The attached Enhanced Coordination Procedures should be implemented immediately.

In accordance with the attached procedures, this process will apply to those permits for which the Corps of Engineers (Corps) has issued a public notice or coordinated with EPA through the Nationwide Permit coordination process by March 31, 2009. 108 CWA section 404 permit applications for surface coal mining activities in Appalachia will be subject to review in accordance with these procedures. (List attached) The timeframes established in the procedures will ensure timely coordination among the agencies and applicants as we make decisions under the CWA and our regulations.

We understand and appreciate the significant work already undertaken by you and your staff to coordinate in the review of pending CWA permits in Appalachia. We look forward to supporting your efforts as the Enhanced Coordination Procedures are implemented. Your staff should contact Mr. Brian Frazer, EPA Regulatory Branch Chief, or Meg Smith, Corps Regulatory Community of Practice, Chief, with any questions about these procedures.

Attachments

EPA/Corps of Engineers

Enhanced Coordination Process

for

Pending Clean Water Act Permits Involving Appalachian Surface Coal Mining[1]

Issue:

The Corps of Engineers (Corps) has determined there are 108 CWA section 404 permit applications under review for surface coal mining activities proposing to discharge fill material into the waters of the U.S. These applications are being reviewed in 5 Corps Districts covering 6 states (OH, PA, WV, VA, TN, and KY) in Appalachia where the mining is proposed. Many of these permits have been pending for over a year as a result of ongoing litigation and other issues. The review and evaluation of these pending permits poses a unique challenge for EPA and the Corps requiring an enhanced coordination process.

To deal with this unique challenge, EPA and the Corps hereby establish a process for enhanced coordination that:

1. expedites review and final decisions regarding all pending permits,
2. provides for timely resolution of issues for those permits about which EPA has raised substantial environmental concerns,
3. ensures effective coordination among the agencies and consistent compliance with applicable provisions of the Clean Water Act, its regulations and relevant policy, and
4. provides additional transparency to the public during the enhanced coordination period.

The procedures below will apply to applications for individual and Nationwide general permits for which the Corps has issued a public notice or coordinated with EPA through the NWP coordination process by March 31, 2009. These procedures will apply to EPA Regions 3 (Philadelphia), 4 (Atlanta), and 5 (Chicago), and Corps Districts Pittsburgh, Huntington, Louisville, Nashville, and Norfolk. The agencies will continue to rely on existing coordination and review procedures for permit applications public noticed or coordinated after March 31, 2009.

General Review and Coordination Procedures:

- In early March 2009, the Corps districts noted above prepared a list of pending permit applications where the districts anticipated reaching a final permit decision within 60 days. Of this list of 48 permit applications, EPA identified 6 permit applications for which they had substantial environmental concerns. Additional review and coordination was undertaken for these 6 permits. EPA notified the Corps that it did not have concerns about the remaining 42 permit applications. Normal processing of these applications is continuing and permits for several of these 42 have been issued.
- There are 108 permits (List Attached) for which public notices or pre-construction notifications were issued prior to March 31, 2009 that are being reviewed by EPA Regions 3, 4, and 5 in coordination with EPA HQ. Corps Districts will provide EPA Regions with additional available information, including additional information requested from permit applicants, as necessary, regarding these

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applications in response to EPA's written request. Within 45 days[2] of receipt of the additional data requested by EPA for these of permit applications, EPA Regions 3, 4, and 5, after review by EPA headquarters, will propose an initial list of permit applications about which the Regions have concerns and permit applications with which the Corps may proceed without further action by EPA. This initial list will identify the nature of environmental concerns EPA has identified, any steps recommended to be consistent with the Section 404(b)(1) guidelines, and actions EPA is recommending to respond to its concerns. EPA's evaluation of these permit applications will be based on the factual considerations shared previously with the Corps and EPA's views concerning compliance with existing statutory, regulatory, and policy provisions.

- The initial list developed by EPA will be transmitted to the Corps and made available to the public on the Websites of the EPA Region involved. Within 14 days after the proposed list is posted on the EPA Website, each EPA Region will identify to EPA headquarters those permit applications raising concern and applications that may proceed without further action by EPA. EPA HQ will then promptly submit to Corps HQ a consolidated EPA list of these permit applications. Permit applications raising concern will be subject to additional coordination and review following the procedures and timeframes identified below. Permit applications not subject to additional review and coordination may be acted on by the Corps without further coordination with EPA.

Enhanced EPA/Corps Coordination Procedures for Permit Applications of Substantial Concern:

- In order to facilitate timely resolution, each Corps District and EPA Region is encouraged to begin discussions immediately (i.e., before the 60 day clock is triggered below) on those permit applications requiring additional review and coordination. This coordination may include phone conversations, field visits, exchange of new information, and other steps that help to reduce the total time necessary to reach agreement on each permit.

- When a permit application is ready for enhanced coordination consistent with the procedures below, each Corps District will provide written notice to the EPA Region. This Corps determination will be based on workload considerations, completeness of information available on each application, and other factors to ensure that the following 60 day coordination process will be as effective as possible. Corps' determinations that particular permits are ready for coordination will be promptly posted on the relevant EPA Regional website.

- Upon receipt of notification from the Corps, each District and Region will begin immediately to coordinate to discuss permit applications EPA has identified as having remaining concerns in an effort to reach timely resolution. Other relevant parties including state agencies, permit applicants, and involved consultants shall be encouraged to participate to facilitate resolution. Each Corps District and EPA Region will have 60 days to coordinate and resolve each permit application of concern. The 60 days begins on the date EPA receives the Corps' written notice described above. Meetings may include face to face discussions or teleconferences. The agencies will coordinate to ensure that a sufficient number of meetings are held to provide an effective opportunity for resolution. Meetings should include all relevant parties including mining companies and their consultants, other state or federal agencies, and agency HQs. EPA and the Corps will strive to adhere to the 60 day timeframe for interagency coordination; however, when workload dictates or issue resolution warrants, EPA or the Corps may seek a 15 day time extension.

- Should the Corps choose to issue a permit after the conclusion of the coordination period and where there are unresolved issues, the Corps will provide, within 10 days after the close of the 60 day period,

[2] If any timeframes in this memo fall on a weekend or Federal holiday, that timeframe is automatically extended to the next business day.

their Regional counterpart a written notice of decision to issue a permit which details how the District is responding to concerns raised by EPA. Such responses may include, for example, revisions to approved discharges, special conditions, or mitigation requirements. The Corps is encouraged to provide EPA with a draft of the permit and decision documents during this period.

- Within 10 days after receipt of the written notice of decision, the EPA Region will either (1) advise the Corps District that it does not intend to pursue further action and the Corps, therefore, is free to make a permit decision or (2) initiate action under CWA Section 404(c)

Considerations:

- These procedures and timeframes are intended to facilitate effective and timely coordination and the agencies will work to adhere to them to the maximum practical extent, recognizing that flexibility may be needed under particular circumstances. The timeframes may be shortened or extended by mutual agreement among the agencies.
- Full and open sharing of information among the agencies is necessary for efficient review of proposed projects.
- This document does not, and is not intended to, impose any legally binding requirements on Federal agencies, States, or the regulated public, and does not restrict the authority of the employees of the signatory agencies to exercise their discretion in each case to make regulatory decisions based on their judgment about the specific facts and application of relevant statutes and regulations.
- The policy and procedures contained within this document are intended solely as guidance and do not create any rights, substantive or procedural, enforceable by any party. This document does not constitute final agency action on any issue, and any actions contemplated by this document will be carried out in an appropriate administrative process by the agencies in accordance with all applicable laws and regulations.

Effective Date: June 11, 2009

Attachment: List of 108 Permits

LIST OF 108 PENDING 404 PERMIT APPLICATIONS

District	Corps Number	SMCRA Number	Applicant name	Project Name
Huntington	200300065	S-5027-99	Hobet Mining	Hewett
Huntington	200400336	898-0715	Bear Fork	Bear Fork
Huntington	200400624	S-5025-97	Independence Coal Company	Constitution Surface Mine
Huntington	200400867	S-45014-04	Central Appal Mining	Remining No. 3
Huntington	200401152	10296	Buckingham Coal	Buckingham Wash Plant
Huntington	200401155	S-2001-05	Brooks Run Mining	Brandy St & Cove Mtn
Huntington	200401451	S-5001-02	Independence Coal Company	Glory Surface Mine
Huntington	200500167	U-3004-06	Catenary Coal Co.	Tenmile Fork Deep Mine
Huntington	200500217	S-4014-01	Bluestone	Contour Auger 1
Huntington	200500421	D-2295	Oxford	Peabody 3
Huntington	200500753	D-2290-1	Oxford Mining	Long Sears Adjacent
Huntington	200500934	898-5694 Am5	Premier Elkhorn	U/T Old Beefhide
Huntington	200501115	O-10-83IBR9	Green Valley Coal Company	Blue Branch Refuse
Huntington	200501198	S-5008-02 S-5021-01	Marrowbone Development	Taywood W & Marrowbone
Huntington	200501211	S-5020-99 AM3	Premium Energy, Inc.	Premium Mills Surface Mine
Huntington	200501275	10397	Oxford	Mizer
Huntington	200501385	10400	Oxford	Halls Knob

LIST OF 108 PENDING 404 PERMIT APPLICATIONS

District	Corps Number	SMCRA Number	Applicant name	Project Name
Huntington	200600100	S-5009-00	ICG Eastern, LLC	Jenny Creek Surface Mine
Huntington	200600126	860-0390 Am4	Consol of KY	Area 80
Huntington	200600127	860-5260 Am1	Consol of KY	Slone Br Mine
Huntington	200600821	U-3001-98 IBR5	Catenary Coal Co.	Laurel Fork
Huntington	200602033	S-3016-06	Wildcat	No. 2 Surface
Huntington	200602256	10379	Oxford Mining	Horn
Huntington	200602290	S-7-81	Colony Bay Coal Co.	Colony Bay Surface Mine
Huntington	200700182	S-3011-07	Alex Energy, Inc.	Federal Surface Mine
Huntington	200700282	U-4012-06	Pioneer Fuel	Little Eagle
Huntington	200700285	S-3009-07	Alex Energy, Inc.	Lonestar Surface Mine
Huntington	200700286	S-3010-06	Pioneer Fuel	MT5B
Huntington	200700499	10372	Oxford Mining	Page
Huntington	200700708	10391	Surface Mining Inc	Young Property
Huntington	200701021	10405	Oxford Mining	Kaiser Mathias
Huntington	200800114	U-3016-95	Performance Coal Company	Upper Big Branch Deep Mine
Huntington	200800491	S-5002-07	CONSOL of Energy	Buffalo Mt. Surface Mine
Huntington	200800562	S-4004-07	Eastern Associated Coals	Huff Creek Surface Mine

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District	Corps Number	SMCRA Number	Applicant name	Project Name
Huntington	200800791	S-5002-07	Hobet Mining	Surface Mine No. 45
Huntington	200800805	S-3001-08	Coyote Coal Company	Joes Creek Surface Mine
Huntington	200800830	S-5006-07	CoalMac, Inc.	Pine Creek Surface Mine
Huntington	200800935	U-5010-08	Hampden Coal	Harrys Br
Huntington	200801098	S-5018-08	Frasure Creek Mining	Spring Fork Surface Mine No. 2
Huntington	200802160	10403	B&N Coal	Whigville III
Huntington	200900427	U-5023-92	Argus Energy WV, LLC	Devils Trace No. 2 Punchout
Huntington	200900428	U-5031-08	Consol of Kentucky	Spring Branch No. 3 Deep Mine
Louisville	200301276	897-0430 A1	Candle Ridge Mining	Candle Ridge Mining
Louisville	200500851	867-0440	Cheyenne Resources	Cheyenne Resources
Louisville	200501893	895-0171	Sturgeon Mining	Sturgeon Mining
Louisville	200600756	897-0457 A2	ICG Hazard	ICG Hazard
Louisville	200601124	836-5488, 836-0317	Matt/Co	Matt/Co
Louisville	200601290	877-0167, 877-0168	Licking River Resources	Licking River Resources
Louisville	200601296	898-4150 A1	Clintwood Elkhorn	Clintwood Elkhorn
Louisville	200700069	898-0803	CAM Mining	Cane Branch
Louisville	200700193	898-0400	Premier Elkhorn Coal	Premier Elkhorn Coal

LIST OF 108 PENDING 404 PERMIT APPLICATIONS

District	Corps Number	SMCRA Number	Applicant name	Project Name
Louisville	200700217	897-0480	Leeco, Inc.	Stacy Branch Surface Mine
Louisville	200700335	898-0607	Apex Energy	Apex Energy
Louisville	200700393	867-0456	Consol of KY	Razorblade Surface Mine
Louisville	200700400	895-0177	Candle Ridge Mining	Candle Ridge Mining
Louisville	200700400	864-0195	Argus Energy	Argus Engergy
Louisville	200700594	898-0800	Premier Elkhorn Coal	Premier Elkhorn Coal
Louisville	200700595	860-0455	Leeco, Inc.	Elk Lick
Louisville	200700669	836-0338	Miller Bros. Coal	Miller Bros. Coal
Louisville	200700706	858-0206	Johnson Floyd Coal	Johnson Floyd Coal
Louisville	200700733	880-5071	Martin County Coal	Martin County Coal
Louisville	200700815	877-0176	Licking River Resources	Licking River Resources
Louisville	200700867	898-0779	CAM Mining	CAM Mining
Louisville	200701026	836-0341 A1	Frasure Creek Mining	Frasure Creek Mining
Louisville	200701044	898-0712	Apex Energy	Apex Energy
Louisville	200701104	836-0292 A1	The Raven Co.	The Raven Co.
Louisville	200701131	836-0335 A2	Miller Bros. Coal	Miller Bros. Coal
Louisville	200701132	836-0349	Miller Bros. Coal	Frasure Branch Mine

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District	Corps Number	SMCRA Number	Applicant name	Project Name
Louisville	200701190	897-0355 A3	Pine Branch Coal	Pine Branch Coal
Louisville	200701205	836-0307	Matt/Co	Matt/Co
Louisville	200701206	877-0782	Frasure Creek Mining	Frasure Creek Mining
Louisville	200701224	860-5304	Miller Bros. Coal	Miller Bros. Coal
Louisville	200701230	860-8012	ICG Knott Co.	ICG Knott Co.
Louisville	200701301	836-0335	CAM Mining	Tom's Branch Surface Mine
Louisville	200701397	836-0350	FCDC	FCDC
Louisville	200701406	860-0462	ICG Hazard	Bearville North
Louisville	200701445	836-0339	FCDC	FCDC
Louisville	200701504	898-0783 A3	CAM Mining	CAM Mining
Louisville	200701515	897-0456 A10	ICG Hazard	ICG Hazard
Louisville	200701518	898-0799	Clintwood Elkhorn	Clintwood Elkhorn
Louisville	200701582	813-0319	Miller Bros. Coal	Miller Bros. Coal
Louisville	200701644	877-0166	Consol of KY	Consol of KY
Louisville	200701660	880-0066	Martin County Coal	Findlay Branch Mine
Louisville	200800095	898-0817	Premier Elkhorn Coal	Premier Elkhorn Coal
Louisville	200800114	897-0445 A1	BDCC Holdings	Cherries Branch

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District	Corps Number	SMCRA Number	Applicant name	Project Name
Louisville	200800115	836-0356	Wolverine Resources	Jake Fork and Stoney Branch Surface Mine
Louisville	200800138	807-0352	Chas Coal	Chas Coal
Louisville	200800139	898-0646 A1	Apex Energy	Apex Energy
Louisville	200800226	880-8002 A4	Czar Coal	Czar Coal
Louisville	200800239	813-0328	Frasure Creek Mining	Frasure Creek Mining
Louisville	200800408	880-0156	Czar Coal	Czar Coal
Louisville	200800525	877-0191	Middle Fork	Middle Fork
Louisville	200800654	860-0464	Enterprise Mining	Enterprise Mining
Louisville	200800727	813-0310 A1	Miller Bros. Coal	Miller Bros. Coal
Louisville	200800777	897-0455 A3	ICG Hazard	ICG Hazard
Louisville	200800781	836-0348	Wolverine Resources	Wolverine Resources
Louisville	200801368	919-0067	North Fork Collieries	Gilmore Surface Mine
Nashville	200201435	3064	Premium Coal	Refuse Area No.3
Nashville	200400062	3143	Premium Coal	Area 19
Nashville	200400609	3112	Appolo Fuels	Jellico Strip
Nashville	200401108	918-0392	Ikerd Coal	Ikerd Coal
Nashville	200401391	861-0467	CH Development	CH Development

LIST OF 108 PENDING 404 PERMIT APPLICATIONS

District	Corps Number	SMCRA Number	Applicant name	Project Name
Nashville	200501691	3191	Appolo Fuels	Buckeye Springs Mine No. 2
Nashville	200601647	807-0342	Nally & Hamilton	Nally & Hamilton
Nashville	200700820	807-0355	Nally & Hamilton	Nally & Hamilton
Nashville	200900382	8502	Tennessee Land Reclamation	Cherry Branch Reclamation Project
Pittsburgh	200600660	10395	Ohio American Energy	Red Bird South
Pittsburgh	200701180	10399	Oxford Mining Company LLC	Ellis Area

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

JUN 11 2009

THE ADMINISTRATOR

Mr. Terrence Salt
Acting Assistant Secretary (Civil Works)
Department of the Army
108 Army Pentagon
Room 3E446
Washington, D.C. 20310-0108

Dear Acting Assistant Secretary Salt:

As you know, the U.S. Environmental Protection Agency, the U.S. Department of the Interior, and the U.S. Army Corps of Engineers, in coordination with the Council on Environmental Quality, have developed a new Memorandum of Understanding and "Interagency Action Plan" designed to significantly reduce the harmful environmental consequences of Appalachian surface coal mining operations, while ensuring that future mining is consistent with federal law. One component of the IAP is the establishment by EPA and the Corps of enhanced coordination procedures to improve the joint review of pending Clean Water Act permit applications. EPA has given thought to how we intend to conduct the review of the approximately 110 pending permit applications subject to these enhanced procedures, and I am writing to provide you with a summary of the regulations and key factual considerations that will form the basis for our identification of pending permit applications that will require further coordination between EPA and the Corps.

The Section 404(b)(1) Guidelines promulgated by EPA in conjunction with the Secretary of the Army establish the substantive environmental standards applied in the review of projects proposing to discharge dredged or fill material in waters of the United States. The Guidelines establish a "sequence" of review requiring: (1) an evaluation of all practicable alternatives that meet the project's basic purpose to ensure that only the least environmentally damaging alternative is permitted; (2) taking all appropriate and practicable steps to minimize potential adverse impacts; and (3) compensation for all remaining unavoidable impacts to aquatic resources. In addition, the Guidelines require that no discharge may be permitted that would cause or contribute to "significant degradation" of the waters of the United States. The Guidelines, therefore, will guide our review of the pending permit applications, and we have highlighted particularly relevant provisions below:

- Guidelines Section 230.10(a) provides that no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge that would have

less adverse impact on the aquatic ecosystem. The Guidelines require consideration of project alternatives to eliminate and/or reduce the number of discharges of dredged or fill material occurring in the waters of the United States. When evaluating permit applications in light of this provision, key factual considerations include: the adequacy of the alternatives analysis submitted; the number of valley fills; the number of streams to be impacted; and the number and location of sediment ponds.

- Guidelines Section 230.10(b) provides that no discharge may be permitted that would cause or contribute to an exceedance of an applicable water quality standard, violate any applicable toxic effluent standard, or jeopardize the existence of threatened or endangered species. When evaluating permit applications in light of this provision, key factual considerations include: the pre-mining water quality and potential for water quality impacts downstream of proposed sediment ponds, including impacts from selenium, conductivity, pH, turbidity, dissolved solids, and manganese; and potential impacts to biotic integrity and to threatened and endangered aquatic species.

- Guidelines Section 230.10(c) provides that no discharge shall be permitted that will cause or contribute to significant degradation of the waters of the United States. When evaluating permit applications in light of this provision, key factual considerations include: the cumulative effects of the proposed mine in consideration of previous and reasonably foreseeable future impacts; a watershed assessment of total length of streams to be impacted and/or total area of valley fills in waters of the United States; the extent of high-value streams to be impacted, including extent of impacts to critical headwater streams and/or perennial reaches; the geographic location of the proposed mine; and an assessment of impacts based on a watershed-scale evaluation of stream quality, water temperature, stream diversity, etc.

- Guidelines Section 230.10(d) provides that no discharge shall be permitted unless appropriate and practicable steps have been taken which will minimize potential adverse environmental impacts of the discharge on the aquatic ecosystem. When evaluating permit applications in light of this provision, key factual considerations include: the total length of streams to be impacted by the proposal; the total length of instream mining-related discharges; the total length of waters affected between the toe of valley fill and sediment ponds; and the adequacy of proposed mitigation to fully compensate for impacts consistent with the requirements of the recently revised mitigation regulations.

These are factors EPA intends to use to screen and evaluate the pending permit applications to determine which permit applications require further coordination between EPA and the Corps. To expedite this process and assist in making EPA's decisions efficient, consistent, and transparent, we intend to utilize a database containing information on each of the pending permit applications. We will review the database's parameters and data requirements with your staff in the near future.

I hope that our agencies will be able to reach agreement on the pending permit applications. While this letter lays out factual considerations EPA expects to review when evaluating the pending permit applications, any action EPA takes, including, if appropriate, any

exercise of EPA's authority under Section 404(c) of the CWA to restrict or prohibit the use of a site for disposal of dredged or fill material, will be based on the statute and regulations.

I look forward to this enhanced cooperation and coordination between our two agencies.

Sincerely,

Lisa P. Jackson

Q: How many permit applications did EPA put on its final list as requiring further coordination?

EPA identified the need for further review of all 79 applications identified in EPA's initial Enhanced Coordination Procedure (ECP) list published September 11, 2009. EPA determined that there are remaining water quality and/or regulatory compliance issues with all of the applications. However, EPA further concluded that some applications are clearly not ready for processing, and that others are likely to be readily resolved upon further discussion with the Corps.

Q: What is the ECP?

The Enhanced Coordination Procedure (ECP) is a coordination process that establishes procedures by which the Corps and EPA will evaluate pending surface coal mine projects that were initially coordinated prior to March 31, 2009. The goal of these procedures, jointly developed by EPA and the U.S. Army Corps of Engineers (Corps), is to strengthen the environmental review and ensure timely, consistent, transparent, and environmentally effective review of permit applications under existing law and regulations.

Q: Why has the Corps' list changed since June 11?

An initial list of 108 pending Clean Water Act permit applications for proposed coal mines was provided by the Corps and published at the same time as the June 11, 2009 MOU. The original group of 108 projects included 13 projects whose permit applications have subsequently been withdrawn by the mining company, 8 projects for which permit issuance was imminent and occurred prior to, or concurrent with, the publication of the list, 3 projects for which an ongoing enforcement action currently precludes a permit decision, 1 permit application not complete, 1 project for which the work does not require a permit, and 5 underground mining projects determined not appropriate for the ECP. Also, 2 additional projects were added to the original list. In summary, 31 projects were removed from the original list of 108, and 2 were added, resulting in a total of 79 projects identified as remaining on the ECP list

Q: Will EPA stop some projects from being authorized?

EPA's action today does not prohibit any project, nor does it reflect a judgment about the likelihood that a project will or will not be authorized. EPA's action identifies projects that require additional coordination and review in cooperation with the Corps and mining companies before a permit decision can be made. Projects that the Corps determines to be in compliance with Section 404 of the Clean Water Act may be authorized by the Corps.

Q: Does EPA's action today mean that mountaintop mining activities can not be authorized under Section 404 of the Clean Water Act?

No. The recommendations made as part of the ECP do not constitute a determination by EPA under its CWA Section 404(c) authority that surface coal mining can not be permitted under CWA Section 404, nor does it represent a final recommendation from EPA to the Corps on these proposed projects. Instead, EPA's decision will help to ensure that mining

projects approved under the CWA are fully consistent with the requirements of the law and will protect water quality and the environment.

Q: How has EPA addressed surface coal mining since the 4th Circuit Court Appeals decision?

Since the 4th Circuit Court decision, EPA and the Corps worked with Council on Environmental Quality to address 48 mining permits that the Corps identified for immediate issuance. After review, EPA raised environmental concerns with six out of the 48 permits. Following that effort, EPA, Corps and DOI issued a MOU which identified a pending application list of 108 projects (now 79) for screening. EPA continues to work with the Corps on permit applications that have been submitted after March 31, 2009. Where EPA believes the information contained in the public notice raises environmental concerns, we are submitting comments to the Corps explaining these concerns and our recommended actions to resolve the concerns.

Q: Is the screening process too difficult for any mining application to be approved?

The screening process itself does not establish any standard for evaluating mining projects. CWA standards used by the Corps to make permit decisions about proposed mining projects are established in the Clean Water Act's Section 404 (b)(1) Guidelines and the Corps' permit implementing regulations. EPA relies on these standards in our review of mining projects and in making decisions about which projects are consistent with the law.

Q: Does the ECP constitute a policy change for EPA regarding surface coal mining?

No. Proposals subject to the enhanced coordination procedures were evaluated for compliance with existing regulations and policies. In order to receive authorization under the Clean Water Act, proposed projects must comply with all requirements of the Section 404 regulations, regardless of activity type. Nationwide, EPA reviews proposed Clean Water Act permits through public notices and other coordination with Corps Districts and submits comments and recommendations when appropriate. The ECP protocol was designed to strengthen the environmental review of surface coal mining proposals.

Q: How did EPA develop the final list? Were any actions taken during the 14-day availability period?

Between the time when the initial ECP list was made public and the announcement of the final list, EPA has been receiving comments from the public on the initial list, coordinating with the Corps and other agencies on the plans for the ECP, and responding to inquiries from stakeholders. EPA has reviewed all comments submitted, updated project-specific information based on comments received, and finalized our review of available information on these pending projects. Following this review, EPA concluded there was no new information which warranted a change in the initial ECP list.

Q: How did EPA decide that all of the permit applications should be on the list for enhanced coordination?

Decisions regarding which applications will be subject to enhanced coordination were made based upon the Clean Water Act and its implementing regulations. Specifically, EPA based its determinations on the Section 404(b)(1) Guidelines. The Section 404(b)(1) Guidelines are a set of regulations developed jointly by EPA and the Corps pursuant to Section 404(b)(1) of the Clean Water Act. They can be found in Title 40, Part 230 of the Code of Federal Regulations (http://www.epa.gov/owow/wetlands/pdf/40cfrPart230.pdf). The Section 404(b)(1) Guidelines establish a number of requirements for determining whether to issue a Section 404 permit and what conditions to place in a permit. All of the permits on the list showed the potential to violate one or more of the requirements in the Guidelines.

Q: What comments did EPA receive on the initial list of applications published on September 11, 2009?

Between September 11 and September 28, 2009, EPA received approximately 150 written comments on the initial ECP list. In addition, approximately 1,181 comments were received as identical form letters. Approximately 13 comments were individual submissions which provided specific information on the permits or the environmental condition in an affected area. Two (2) mining companies submitted comments regarding one or more of their projects on the initial ECP list and the Governors of Kentucky and Ohio submitted letters to EPA Administrator Lisa P. Jackson . Overall, 99% of the comments received indicated support for EPA's actions in proposing enhanced coordination for 79 pending applications. 42% of the comments submitted included information indicating that the commenter resides in one of the Appalachian States, as defined in the MOU (KY, OH, PA, TN, VA, WV)

Q: What environmental concerns does EPA have?

The review of pending surface mining applications indicated potential compliance issues with the Guidelines for avoidance and minimization of impacts to aquatic resources, water quality, cumulative effects, and/or mitigation.

- The majority of the proposals recommended for further evaluation may not have adequately demonstrated avoidance and minimization of impacts in accordance with the Guidelines.
- Over 80% of the proposals recommended for further evaluation exhibited the potential for excursions from state narrative water quality standards.
- Over 50% of the proposals recommended for further evaluation raise concerns regarding the potential for significant degradation of the aquatic ecosystem, either individually or cumulatively.
- The scientific literature, EPA field experience, and available project information suggest that the mitigation proposed may not be adequate to offset proposed impacts.

EPA reviewed all proposals in light of available project data, the current science, and with regard to Clean Water Act regulations and has identified opportunities for benefits to the environment, while advancing the Administration's interest in a clean energy economy.

Q. Does EPA have concerns about the approach the Corps is using to comply with NEPA for these pending permits?

The Corps is ultimately responsible for demonstrating compliance with National

Environmental Policy Act (NEPA) for the pending permits. However, as EPA works with the Corps to review the permits in more detail, EPA will evaluate and discuss the Corps' plans for NEPA compliance, as well as the Clean Water Act Section 404 permitting factors.

Q: What happens next?

EPA Regions and Corps Districts should begin discussions immediately in order to resolve EPA's concerns on those applications that will be ready for processing in the near future. When an application is ready for formal coordination under the ECP, the Corps District will notify the appropriate EPA Region in writing, which begins the 60-day review period. During this time, the Region and Corps District will coordinate with applicants, relevant State agencies, and consultants, as necessary, to reach a timely resolution of the environmental concerns identified.

Q: How long will this enhanced coordination take?

The environmental, technical and procedural circumstances associated with each of these 79 applications vary. As such, the time needed to commence and complete review will also vary. It is expected that for some applications, the environmental concerns will be resolved in less than 60 days. In some instances, EPA and the Corps have already begun discussions on the proposals to identify methods for resolution of environmental concerns. Based on these discussions with the Corps, EPA has also come to understand that some proposals may not be at the stage of evaluation where they are ready for coordination.

Q: Will EPA meet with the individual companies involved to try to resolve concerns with these permit applications?

EPA, together with the Corps, expects to meet with some of the applicants. The enhanced application review process envisions these meetings and EPA believes they can be valuable in effectively addressing environmental concerns. In order to ensure only the least environmentally damaging practicable alternative will be authorized, EPA and the Corps may need to confirm project-specific information on mine design and minimization of impacts to aquatic resources. In some cases, EPA has already initiated communication with project applicants and consultants in order to verify data and project status. We appreciate the willingness these applicants have demonstrated to work with EPA under the ECP.

Q: Does the ECP usurp the Corps' authority?

No, the Corps makes final permit decisions. The Corps has not made any decisions on the proposals subject to the enhanced coordination procedures, and the MOU is not intended to alter the Corps' decision authority for Clean Water Act Section 404 permits. Corps permitting regulations provide for coordination with other Federal agencies in order to seek a better understanding of that agency's concerns. According to Corps regulations, "If comments relate to matters within the special expertise of another federal agency, the district engineer may seek the advice of that agency" (33 CFR 325.2(a)(3)).

Q: How does EPA plan to deal with the magnitude of these impacts?

EPA will coordinate with the Corps to make sure that the applications comply with the 404(b)(1) Guidelines. During the 60-day individual application review period called for in the MOU, EPA will discuss the basis for environmental concerns, recommend methods to resolve those concerns, and work with the Corps Districts and project applicants to improve environmental protection consistent with the Clean Water Act. The Clean Water Act does not prohibit all environmental impacts in order to comply with the requirements of the 404(b)(1) Guidelines, but generally requires the applicant for a proposed activity to first avoid impacts to aquatic resources, minimize any unavoidable impacts, and then evaluate the need to compensate for any remaining impacts.

Q: How is EPA dealing with surface coal mining applications outside the ECP list?

Clean Water Act permit applications submitted to the Corps after the March 31, 2009, cutoff for the ECP are being processed according to the Corps' permitting process, which includes coordination with the EPA via either a Public Notice or a Pre-Construction Notification. This means that public notices are being published for proposed standard permits and EPA is continuing to review these public notices as usual, and pre-construction notifications are being provided to the EPA by the Corps for any projects being considered under a Nationwide Permit. Where EPA believes the information contained in the public notice raises environmental concerns, we are submitting comments to the Corps explaining these concerns and our recommended actions to resolve the concerns. A list of comment letters regarding proposed coal mine projects that EPA has submitted to the Corps Districts since March 31, 2009 can be found on the EPA headquarters website (http://www.epa.gov/owow/wetlands/guidance/mining-letters.html).

Q: What was EPA's process for identifying environmental concerns in applications?

EPA reviewed all available data regarding the proposed mine, the existing environmental condition in the watershed where the mine is proposed, and the nature of environmental impacts predicted to result from construction and operation. This review is in keeping with the requirements of the 404(b)(1) Guidelines, which contain evaluations of a proposed activity's direct impacts, as well as the potential for significant degradation of the broader aquatic ecosystem, either individually or through cumulative effects.

Q: Where did you get the data to conduct this review?

The majority of information on the proposed mines was extracted from the Corps' permit applications and from SMCRA permits. In order to ensure consistent and up-to-date information, mine applicants and/or consultants were contacted in order to verify available data. We appreciate the companies' willingness to work with EPA, their timely responses, and the updated information provided. Data on watershed condition was provided by EPA programs and State reporting data (water quality sampling data, impaired waters, etc.). The U.S. Fish and Wildlife Service and U.S. Geological Survey provided data on the presence of federally listed threatened and endangered species, critical habitat, land use and land cover.

Q: How was the data used to develop the list?

Gathering basic mine and watershed data from the sources discussed above allowed EPA

staff to perform an analysis of the potential direct, secondary, and cumulative effects of the proposed mine, without subjecting all the applications to a full case-specific review, which would have increased the time needed to develop the initial list. EPA Regional experts reviewed all available data on an individual and watershed basis in order to identify potential environmental concerns with water quality, cumulative impacts, fill minimization, and significant degradation of the aquatic ecosystem.

Q: I've heard that EPA used something called "MIRA" to identify the permit applications that would be subject to enhanced coordination. Is that true?

MIRA (Multi-criteria Integrated Resource Assessment) is a data-gathering and analysis approach used by EPA decision makers to help them evaluate the permit applications. MIRA was used by EPA officials to screen the permit applications to help identify which would be subject to enhanced coordination.

Q: What is MIRA?

MIRA is a tool that EPA has developed to assist program managers' consideration of a broad array of scientific and technical information in their program and policy decisions. MIRA assists program managers by organizing and comparing pieces of relevant project data and information. It allows decision makers to compare different decision options based upon one or more common criteria and become more informed regarding the various criteria and how those criteria can be considered. With respect to Appalachian surface coal mining, MIRA was used to process an extensive set of technical data and generate summary information to facilitate program management decisions. In this case, the MIRA approach promoted consistency by allowing decision makers from three EPA regions to review, discuss and reach consistency and consensus using a common set of data for discussion and analysis.

Q: Was MIRA developed specifically for coal mining?

No. MIRA is an existing approach that EPA decision makers have utilized in a variety of contexts, including developing budgets and making certain designations under the Clean Air Act. More information about MIRA can be found on the EPA Region 3 website (http://www.epa.gov/reg3esd1/data/mira.htm).

Q: How was MIRA used to decide which permit applications would be subject to enhanced coordination?

MIRA was used by EPA officials to screen available information on the proposed projects and assist them in their decisions about which applications to further evaluate. This process allowed EPA to organize the relevant data for all mines into a central location. Using the data, EPA reviewers were able to better understand the mining impacts, including cumulative impacts. Data that is relevant to evaluation under the Section 404(b)(1) Guidelines was gathered and input into MIRA. MIRA was then used to assist program managers in considering the data in various combinations to identify potential areas of concern, and analyze the proposed mines in the context of the Section 404(b)(1) Guidelines. After reviewing the information provided through the MIRA screening and conducting

additional analysis, EPA decision makers determined which permit applications would be on the initial list.

Q: Did EPA use MIRA to create a new standard for proposed permit review?

No. MIRA does not create a new standard. The data input into MIRA are the same data and criteria that would be considered pursuant to the Section 404(b)(1) Guidelines. In the end, each permit application is subject to review under the Section 404(b)(1) Guidelines. MIRA was not used as a substitute or surrogate for the Section 404(b)(1) Guidelines analysis. The advantage of using MIRA in this particular circumstance is to provide a consistent and timely initial review of all permit applications subject to the enhanced coordination procedures.

Q: How was the use of MIRA appropriate given that MIRA is not designed to make discrete decisions, such as decisions about a permit application?

The MIRA process did not make discrete decisions about particular permit applications. Rather, it facilitated the analysis and supported the discussions regarding the aquatic ecosystem, the proposed applications' effects on that ecosystem, and potential compliance with the Section 404(b)(1) Guidelines.

Q: Do the Section 404(b)(1) Guidelines apply only to coal mining permits?

No. The Section 404(b)(1) Guidelines apply to all applications for permits pursuant to Section 404 of the Clean Water Act, regardless of the project purpose. That includes applications for Section 404 permits for discharges of dredged and/or fill material associated with mining activities.

Q: What kinds of factors are in the Section 404(b)(1) Guidelines?

Because they apply nationally, the Section 404(b)(1) Guidelines are designed to address a wide variety of permit applications and site-specific environmental conditions. Some of the key requirements are:

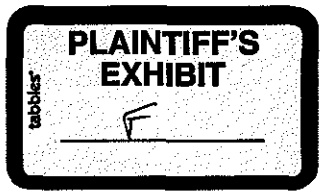
- The Corps may not authorize a discharge if there is another less environmentally damaging way by which the permit applicant can accomplish the same project purpose (40 CFR § 230.10(a)).
- The Corps must ensure that the proposed project has avoided and minimized to the maximum extent practicable the discharge of fill to waters of the United States (33 CFR 332.1(c); 40 CFR 230.10(a)(1)(i); 40 CFR 230.10(d); 40 CFR 230.70-.77).
- The Corps may not issue a permit if the discharge will cause or contribute to a violation of any applicable State water quality standard (40 CFR 230.10(b)(1)).
- The Corps may not issue a permit if the discharge will cause significant degradation to waters of the United States, including significant adverse effects on the aquatic ecosystem. This includes adverse effects on life stages of naturally occurring aquatic organisms, and aquatic ecosystem diversity, productivity and stability (40 CFR 230.10(c); 40 CFR 230.31; 40 CFR 230.61(b)(3); 40 CFR 230.22(b)).
- The Corps must consider both the impacts from the project individually and its impacts

in combination with other known existing or planned activities that will affect the same ecosystem. Although the impact of a particular discharge may be minor, the cumulative effect of numerous discharges can result in a major impact to water resources and the aquatic ecosystem (40 CFR 230.1(c); 40 CFR 230.11(g)).

Q: What evaluation was conducted outside of MIRA?

Throughout the 45-day review period, EPA Regional experts have been evaluating available data on the proposed mines and condition of the watersheds in which they are proposed. This review focused on placing available data on environmental effects in the context of the 404(b)(1) Guidelines and evaluating the reasonable potential for the proposed action to violate one or more of the requirements of the Guidelines. Representatives from EPA Regions 3, 4, and 5 met on multiple occasions to discuss concerns and ensure all permit applications were evaluated in a consistent manner and using consistent criteria. EPA also consulted with representatives of the U.S. Fish and Wildlife Service, U.S. Geologic Service, and the Corps to solicit their professional knowledge and feedback.

Permit Number Listed in ECP	Revised Permit Number	Applicant Name	Project Name	County	State
LRH-2004-00336		Bear Fork	Bear Fork S.M	Pike	KY
LRH-2005-00934		Premier Elkhorn	U/T Old Beefhide	Letcher	KY
LRH-2006-00126		Consol of KY	Area 80	Knott	KY
LRH-2006-00127		Consol of KY	Slone Br Mine	Knott	KY
LRL-2005-00851		Cheyenne Resources	Cheyenne Resources	Letcher	KY
LRL-2006-01124		Matt/Co	Matt/Co	Floyd	KY
LRL-2006-01290		Licking River Resources	Licking River Resources	Magoffin	KY
LRL-2006-01296		Clintwood Elkhorn	Clintwood Elkhorn	Pike	KY
LRL-2007-00069		CAM Mining	Cane Branch	Pike	KY
LRL-2007-00193		Premier Elkhorn Coal	Premier Elkhorn Coal	Pike	KY
LRL-2007-00217		Leeco, Inc.	Stacy Branch Surface Mine	Perry	KY
LRL-2007-00335		Apex Energy	Apex Energy	Pike	KY
LRL-2007-00400		Argus Energy	Argus Energy	Lawrence	KY
LRL-2007-00400	LRL-2007-00401	Candle Ridge Mining	Candle Ridge Mining	Owsley	KY
LRL-2007-00594		Premier Elkhorn Coal	Premier Elkhorn Coal	Pike	KY
LRL-2007-00595		Leeco, Inc.	Elk Lick	Knott	KY
LRL-2007-00706		Johnson Floyd Coal	Johnson Floyd Coal	Johnson	KY
LRL-2007-00867		CAM Mining	CAM Mining	Pike	KY
LRL-2007-01026		Frasure Creek Mining	Frasure Creek Mining	Floyd	KY
LRL-2007-01044		Apex Energy	Apex Energy	Pike	KY
LRL-2007-01104		The Raven Co.	The Raven Co.	Floyd	KY
LRL-2007-01131		Miller Bros. Coal	Miller Bros. Coal	Floyd	KY
LRL-2007-01132		Miller Bros. Coal	Frasure Branch Mine	Floyd	KY
LRL-2007-01205		Matt/Co	Matt/Co	Floyd	KY
LRL-2007-01206		Frasure Creek Mining	Frasure Creek Mining	Magoffin	KY
LRL-2007-01224		Miller Bros. Coal	Miller Bros. Coal	Knott	KY
LRL-2007-01230		ICG Knott Co.	ICG Knott Co.	Knott	KY
LRL-2007-01301		CAM Mining	Tom's Branch Surface Mine	Floyd	KY
LRL-2007-01397		FCDC	FCDC	Floyd	KY
LRL-2007-01406		ICG Hazard	Bearville North	Knott	KY
LRL-2007-01445		FCDC	FCDC	Floyd	KY
LRL-2007-01504		CAM Mining	CAM Mining	Pike	KY
LRL-2007-01515		ICG Hazard	ICG Hazard	Perry	KY



Permit Number Listed in ECP	Revised Permit Number	Applicant Name	Project Name	County	State
LRL-2007-01518		Clintwood Elkhorn	Clintwood Elkhorn	Pike	KY
LRL-2007-01582		Miller Bros. Coal	Miller Bros. Coal	Breathitt	KY
LRL-2007-01660		Martin County Coal	Findlay Branch Mine	Martin	KY
LRL-2008-00095		Premier Elkhorn Coal	Premier Elkhorn Coal	Pike	KY
LRL-2008-00114		BDCC Holdings	Cherries Branch	Perry	KY
LRL-2008-00115		Wolverine Resources	Jake Fork and Stoney Branch Surface Mine	Floyd	KY
LRL-2008-00139		Apex Energy	Apex Energy	Pike	KY
LRL-2008-00226		Czar Coal	Czar Coal	Martin	KY
LRL-2008-00239	LRL-2009-00239	Frasure Creek Mining	Frasure Creek Mining	Breathitt	KY
LRL-2008-00408		Czar Coal	Czar Coal	Martin	KY
LRL-2008-00525		Middle Fork Dev.	Middle Fork Dev.	Magoffin	KY
LRL-2008-00654		Enterprise Mining	Enterprise Mining	Knott	KY
LRL-2008-00727		Miller Bros. Coal	Miller Bros. Coal	Breathitt	KY
LRL-2008-00781		Wolverine Resources	Wolverine Resources	Floyd	KY
LRN-2006-01647		Nally & Hamilton	Nally & Hamilton	Bell	KY
LRN-2007-00820		Nally & Hamilton	Nally & Hamilton	BELL	KY
LRH-2004-01152		Buckingham Coal	Buckingham Wash Plant	Perry	OH
LRH-2005-00421		Oxford	Peabody 3	Coshocton / Muskingum / Guernsey	OH
LRH-2005-01385		Oxford	Halls Knob	Guernsey	OH
LRH-2007-01021		Oxford Mining	Kaiser Mathias	Tuscarawas	OH
LRP-2006-00660		Ohio American Energy	Red Bird South	Belmont	OH
LRP-2007-01180		Oxford Mining Company LLC	Ellis Area	Jefferson	OH
LRN-2004-00062		Premium Coal	Area 19	ANDERSON	TN
LRH-2003-00065		Hobet Mining	Hewett	Boone	WV
LRH-2004-00624		Independence Coal Company	Consitution Surface Mine	Boone	WV
LRH-2004-01155		Brooks Run Mining	Brandy St & Cove Mtn	Webster	WV
LRH-2004-01451		Independence Coal Company	Glory Surface Mine	Boone	WV
LRH-2005-00217		Bluestone	ContourAuger1	Wyoming	WV
LRH-2005-01115		Green Valley Coal Company	Blue Branch Refuse	Nicholas	WV
LRH-2005-01198		Marrowbone Development	Taywood W & Marrowbone	Mingo	WV
LRH-2005-01211		Premium Energy, Inc.	Premium Mills Surface Mine	McDowell	WV
LRH-2006-00756	LRH-2006-00100	ICG Eastern, LLC	Jenny Creek Surface Mine	Mingo	WV
LRH-2006-02033		Wildcat	#2 Surface	Kanawha	WV

Permit Number Listed in ECP	Revised Permit Number	Applicant Name	Project Name	County	State
LRH-2006-02290		Colony Bay Coal Co.	Colony Bay Surface Mine	Boone	WV
LRH-2007-00182		Alex Energy, Inc.	Federal Surface Mine	Nicholas	WV
LRH-2007-00285		Alex Energy, Inc.	Lonestar Surface Mine	Nicholas	WV
LRH-2007-00286		Pioneer Fuel	MT5B	Raleigh	WV
LRH-2008-00491		CONSOL of Energy	Buffalo Mt. Surface Mine	Mingo	WV
LRH-2008-00562		Eastern Associated Coals	Huff Creek Surface Mine	Wyoming/ Logan	WV
LRH-2008-00791		Hobet Mining	Surface Mine No. 45	Lincoln	WV
LRH-2008-00805		Coyote Coal Company	Joes Creek Surface Mine	Boone/ Kanawha	WV
LRH-2008-00830		CoalMac, Inc.	Pine Creek Surface Min	Logan	WV
LRH-2008-01098		Frasure Creek Mining	Spring Fork Surface Mine NO. 2	Mingo	WV
LRH-2009-00428		Consol of Kentucky	Spring Branch No. 3 Deep Mine	Mingo	WV
	LRH-2006-00760	Paynter Branch Mining	Paynter Branch South Surface Mine	Wyoming	WV
	LRH-2007-00134	Atlantic Leasco	Muddlety Surface Mine No. 1	Nicholas	WV

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

APR 01 2010

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.

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[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

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[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 µS/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 µS/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 µS/cm generally will not cause a water quality standard violation and that in-stream conductivity levels above 500 µS/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 µS/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 µS/cm but will be below 500 µS/cm, EPA should work with the permitting authority to ensure that the permit includes conditions that protect against conductivity levels exceeding 500 µS/cm. In circumstances where conductivity levels in waters proposed for new mining related discharges already exceed 500 µS/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 µS/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 µS/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 loweset

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 µS/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 µS/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 µS/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 µS/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 µS/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 µS/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 µS/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 µS/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
Robert Sussman, Senior Policy Counsel to the Administrator
C. Scott Fulton, General Counsel

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

APR - 1 2010

MEMORANDUM

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

FROM: Peter S. Silva
Assistant Administrator for Water

Cynthia Giles
Assistant Administrator for Enforcement and Compliance Assurance

TO: Shawn Garvin
Regional Administrator, EPA Region 3

A. Stanley Meiburg
Acting Regional Administrator, EPA Region 4

Bharat Mathur
Acting Regional Administrator, EPA Region 5

I. Purpose

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

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

II. Introduction

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

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

III. EPA Review of NPDES Permitting

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

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

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[2] Pond, G.J., M. E. Passmore, F.A. Borsuk, L. Reynolds, and C. J. Rose. 2008. Downstream effects of mountaintop coal mining: comparing biological conditions using family- and genus-level macroinvertebrate bioassessment tools. J. N. Am. Benthol. Soc. 27(3):717–737.

[3] Bryant, G., S. McPhillamy, and H. Childers. 2002. A Survey of the Water Quality of Streams in the Primary Region of Mountaintop / Valley Fill Coal Mining. Mountaintop Mining Valley Fill Programmatic Environmental Impact Statement. USEPA Region 3. Wheeling, WV.

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

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

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

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

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

[4] In certain fact-specific circumstances, conductivity levels above 500 µS/cm may not be associated with adverse aquatic impacts. EPA will work with permitting authorities on a site-specific basis to assess reasonable potential.

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

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

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

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

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

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

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

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

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

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

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

V. National Environmental Policy Act (NEPA)

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

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

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

VI. Environmental Justice Considerations

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

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

VII. Conclusions

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

RELEASE DATE: AUGUST 12, 2010
REVISED: AUGUST 18, 2010

west virginia department of environmental protection

Permitting Guidance for Surface Coal Mining Operations to Protect West Virginia's Narrative Water Quality Standards, 47 C.S.R. 2 §§ 3.2.e and 3.2.i

INTRODUCTION

The purpose of this Permitting Guidance ("Guidance") is to assist West Virginia Department of Environmental Protection ("DEP") permit writers in developing site-specific National Pollutant Discharge Elimination System ("NPDES") permit conditions for surface coal mining operations using a holistic watershed management approach through the use of biological and chemical monitoring, whole effluent toxicity ("WET") testing, and the development of Aquatic Ecosystem Protection Plans ("AEPP") and, where necessary, Adaptive Management Plans ("AMP") to protect the State's narrative water quality standards. These standards are found in West Virginia's *Code of State Rules*, which states, in pertinent part, "No significant adverse impact to the chemical, physical, hydrologic, or biological components of aquatic ecosystems shall be allowed."[1] These new procedures shall take effect immediately.[2]

This Guidance does not apply to outlets that are primarily precipitation induced, or for which the activities associated with those outlets have been substantially completed.[3]

REASONABLE POTENTIAL ANALYSIS

In deciding which permit conditions to include in a permit, the first thing a permit writer must do is perform a reasonable potential analysis and document the same in the Statement of Basis for the permit. If the applicant cannot demonstrate, by means of its chemical and biological monitoring and the control measures outlined in its AEPP, that it does not have reasonable potential ("RP") to cause or contribute to an excursion above the narrative criteria, the permit writer should treat new or expanded discharges as if they have RP and include WET limits in the permit, in accordance with 40 C.F.R. § 122.44(d)(1)(v).

At permit reissuance, DEP will use all valid and representative data to determine, on a case-by-case basis, whether an existing discharge causes, has the reasonable potential to cause, or contributes to an excursion from the narrative water quality criteria. Where DEP concludes that an existing outlet has RP, the permit will include WET limits. In cases where insufficient data is available to make a determination of RP upon permit reissuance, the permit writer will place WET monitoring requirements and triggers in the permit in order to determine RP (or lack of

[1] 47 C.S.R. 2 § 3.2.i

[2] In light of the changing nature of the policy concerns addressed herein, this document is intended to be dynamic and will likely be modified in the future as technology and best management practices develop and improve.

[3] The term "substantially complete" shall mean that the operation is past the point when measures that could be undertaken under either an AEPP or an AMP could be effective in reducing the operation's impact on the aquatic ecosystem.

RP). If the monitoring shows RP, the permit writer will reopen the permit to include WET limits.

PERMIT CONDITIONS

If the applicant has RP, the permit writer should use best professional judgment to establish permit terms and conditions and determine whether the proposed control measures are sufficient to protect the narrative water quality standards. The permit writer should, depending on the type of permit being issued, establish the following conditions in the permit, each of which is discussed more completely below:

New and Expanded Discharge Permits

- WET Limits
- Chemical Monitoring
- In-Stream Biological Monitoring
- Aquatic Ecosystem Protection Plan (AEPP)
- Adaptive Management Plan (AMP), if necessary
- Reopener Clause

Permits at Reissuance

- WET Monitoring
- Chemical Monitoring
- In-Stream Biological Monitoring
- Aquatic Ecosystem Protection Plann (AEPP)
- Adaptive Management Plan (AMP), if necessary
- Reopener Clause

NEW AND EXPANDED DISCHARGE PERMITS

This Guidance does not apply to outlets that are primarily precipitation induced.

WET Limits

If the applicant cannot demonstrate, by means of its chemical and biological monitoring and the control measures outlined in its AEPP, that it does not have RP, the permit writer should treat new and expanded mining discharges as if they have RP and include WET limits in the permit, as prescribed by 40 C.S.R. § 122.44(d)(1)(v).

The permit writer shall establish WET limits using all applicable rules and guidance, including the EPA's 1991 *Technical Support Document for Water Quality-based Toxics Control* ("TSD").[4] To develop the WET limits, the permit writer shall consider the in-stream waste concentration of the effluent in the immediate receiving stream and calculate it so as to result in no greater than 1.0 chronic toxicity unit (TU_c) and 0.3 acute toxicity unit (TU_a) at the edge of the appropriate mixing zones, where applicable.

[4] EPA/505/2-90-001 PB91-127415

The permittee is required to perform WET testing quarterly. The TSD requires use of the most sensitive available surrogate organism (ceriodaphnia dubia) for chronic toxicity testing of effluents. DEP requires TDS, conductivity, sulfate, and bicarbonate analyses for each aliquot used in WET testing.

If WET testing shows noncompliance with the specified limitations prescribed in the permit, the permittee shall resample and test the effluent within 30 days. If the second test shows compliance, the permittee shall continue WET testing in accordance with the permit requirements. However, if the second test shows noncompliance, the permittee must, within 60 days, submit an AMP (as more fully described below) identifying actions it will take to achieve compliance with the WET discharge limitations. If WET testing shows noncompliance with the specified limitations prescribed in the permit, but the aquatic ecosystem remains healthy (as evidenced by acceptable data retrieved at the biological monitoring stations), the DEP shall reevaluate the WET limits placed in the permit to assure that such limits take into consideration the appropriate dilution factors, mixing, and the effects of the discharge on the downstream monitoring stations.

Chemical Monitoring

In addition to what is required for monitoring associated with the protection of numeric standards, the permit will require twice-per-month effluent monitoring for TDS, specific conductance, sulfate, alkalinity, pH, calcium, magnesium, sodium, and potassium upon commencing the permitted activity. The same sampling suite is required for all established biological assessment stations ("BAS"), as described below. The results of concurrent monitoring of WET, dissolved ions, and biological conditions will provide a wealth of information to guide future decisions and possible refinements to this Guidance.

In-Stream Biological Monitoring

The permit will require the maintenance of acceptable ecosystem health in waters of the State. Biological monitoring will be required prior to, and then regularly over the life of, the permitted activity. An applicant must submit a monitoring plan for agency approval that proposes in-stream BAS that allow a holistic assessment of the aquatic ecosystem and a determination of the impacts of the permitted activity.

The applicant should work with the permit writer and the DEP biologist to establish a monitoring strategy with the most appropriate monitoring locations for a holistic evaluation of the aquatic ecosystem. All biologic sampling shall be done in accordance with the West Virginia Division of Natural Resources' scientific collection permit and DEP's West Virginia Stream Condition Index ("WVSCI") protocol. The applicant shall submit to DEP for approval a monitoring plan that is consistent with WVDEP's Watershed Assessment Branch 2009 Standard Operating Procedures, Chapter 4,[5] which must include the following:

[5] http://www.dep.wv.gov/WWE/watershed/wqmonitoring/Documents/SOP%20Doc/WAB%20SOP.pdf

- An in-stream BAS shall be located at the first appropriate riffle/run habitat downstream of each new outlet in a perennial stream segment. Ideally, the BAS will be located such that future impacts to the stream are attributable solely to the permitted activity.
- Additional stations should be situated on a site-specific basis, but generally should be located upstream and downstream of the confluence of the immediate receiving stream and the stream into which it drains, which allows the aquatic ecosystem's health to be assessed in its entirety.
- If the first available location for a BAS is potentially influenced by other watershed activities and stressors, then a clear link between the permit controls and biological conditions at the station may not be possible. Those scenarios will require baseline documentation of the other potential stressors and tracking of watershed activities over time. The applicant will also have to submit a monitoring plan in accordance with the provisions set forth in "Chemical Monitoring" above.
- Additional monitoring stations may be designated further upstream or downstream at points that are useful in determining the entire aquatic ecosystem's health. Such stations may be beneficial in identifying actions the applicant can take to improve the overall health of the aquatic ecosystem.
- The plan should include chemical and biological monitoring at the BAS prior to the start of the permitted activity.

If the agency finds the condition of the aquatic ecosystem at the assessment stations prior to initiation of the permitted activity to be satisfactory, taking into account all potentially applicable criteria, then the acceptable future biological condition is a WVSCI score greater than or equal to the WVSCI value representing the 5th percentile of reference (currently 68.0). If the agency finds the condition of the aquatic ecosystem at the assessment stations is less than satisfactory, taking into account all potentially applicable criteria, then the applicant shall identify existing conditions within the watershed that may be contributing to the problem. If a TMDL addressing biological impairment for ionic stress is not in effect, a WVSCI score greater than or equal to the baseline value would represent an acceptable future condition.

However, permit writers should be aware that a single point in a stream may not represent the overall health of the aquatic ecosystem. WVSCI is a tool to be used as a primary indicator of stream health, but not the sole criteria; if the WVSCI score suggests a potential problem, DEP shall conduct an assessment of the health of the aquatic ecosystem as a whole. In determining whether a lower WVSCI score represents an unacceptable condition, the DEP will utilize best professional judgment in a manner comparable to the discretion it exercises in listing streams as biologically impaired pursuant to § 303(d) of the Clean Water Act, including a holistic examination of the health of the aquatic ecosystem.

Aquatic Ecosystem Protection Plan (AEPP)

New and expanded discharge permit applications shall include an AEPP for agency review and approval, and the permit writer shall use the control measures outlined therein as part of his or her RP analysis, as outlined more fully above. The permittee shall use

the measures outlined in its AEPP as a means of maintaining the health of the aquatic ecosystem and complying with the State's narrative water quality standards.

An AEPP describes control measures the applicant will implement to achieve WET limitations and minimize adverse biological impacts to the aquatic ecosystem surrounding the permitted activity. The plan should also include controls designed to lower the magnitude of pollutant loading associated with mining activities. If the agency cannot conclude that the proposed measures are reasonably expected to result in compliance, then the permit will not be issued. The applicant should consider all appropriate options when selecting and implementing control measures. Where an initial AEPP fails to achieve WET compliance and acceptable ecosystem conditions, the applicant must amend its AEPP to include additional measures that enable it to comply with WET limits.

The applicant can implement any of a number of controls in an attempt to protect the aquatic ecosystem and to reduce or minimize the ionic strength in the stream. Some examples of control measures that may be included in the AEPP include, but are not limited to, the following:

- Test overburden to determine the material that contains sulfur or other ionic strength-bearing material, so it can be isolated through material handling;
- Minimize the amount of area disturbed at one time;
- Minimize stormwater contact with pulverized material;
- Increase stream buffer zones;
- Minimize fill areas;
- Mine down-dip instead of up-dip;
- Cap fills and spoil so as to minimize pass-through of rain water;
- Revegetate any disturbed areas to minimize runoff;
- Develop a plan to reduce or prevent ionic stress;
- If necessary, conduct TRE/TRI pursuant to EPA's TSD;
- Segregate weathered rock and return to surface;
- Expedite reclamation;
- Enhance riparian plantings;
- Limit the number of active fills;
- Restore natural streams.

Because many of the controls outlined in the AEPP are related to best management practices, they will need to be addressed in the mining permit issued pursuant to the *West Virginia Surface Coal Mining & Reclamation Act* ("Article 3 permit"). The AEPP must be included as an attachment to the NPDES permit application to allow for agency review and evaluation.

Adaptive Management Plan (AMP)

A "new and expanded discharge" permittee shall submit an AMP to DEP within 60 days of failing two WET tests in a 30-day period. An AMP is more than merely monitoring activities and occasionally changing them; it involves exploring alternative ways to meet environmental objectives, predicting the outcomes of alternatives based on the current

state of knowledge, implementing one or more of these alternatives, monitoring to learn about the impacts of management actions, and then using the results to update knowledge and adjust management actions.[6] For purposes of this Guidance, the AMP outlines the measures the permittee will take to achieve the chronic toxicity permit limitations (1.0 TU_c). This plan shall include, at a minimum, a thorough review of the AEPP to determine what, if any, changes can be made to the control measures outlined therein that will bring the permittee back into compliance with its WET limits.

The permittee may also implement a Toxicity Reduction Evaluation (TRE)/Toxicity Identification Evaluation (TIE)[7] plan to obtain compliance with final effluent limits or triggers for chronic toxicity. The purpose of a TRE is to investigate the causes and to identify corrective actions for difficult effluent toxicity problems.[8] A TRE is a site-specific study conducted in a stepwise process to narrow the search for effective control measures for effluent toxicity. TREs are designed to identify the causative agents of effluent toxicity, isolate the sources of the toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in effluent toxicity. The ultimate objective of a TRE is for the permittee to achieve the limits or requirements for effluent toxicity contained in the permit and thereby attain the water quality standards for the receiving waters.[9]

A TIE is a set of procedures to identify the specific chemicals responsible for effluent toxicity, and TIE methods are an integral part of the protocols for TREs. TIE procedures are performed in three phases: characterization, identification, and confirmation. In each phase, the permittee shall use aquatic organism toxicity tests to track toxicity at each step of the procedure. In most cases, these are abbreviated or shortened toxicity tests.

If the TRE/TIE identifies toxic pollutants that can be regulated through the use of numeric limits, the permit writer shall put a numeric limit for those pollutants in the permit, in accordance with 47 C.S.R. 2 § 9 and 40 C.F.R. § 122.44(d)(1)(vi)(A). If the TRE/TIE does not identify toxic pollutants that can be regulated through the use of numeric limits, the WET limits shall remain in the permit.

Reopener Clause

The permit will contain an explicit reopener clause allowing DEP to modify or revoke the permit if prescribed controls do not attain and maintain applicable water quality standards. The permittee may also request that the permit be reopened if, after a sufficient amount of data has been collected, the agency determines that RP does not exist, and the permittee can request an adjustment to its monitoring activities through a modification of the permit.

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[6] *See*, U.S. Department of the Interior's *Technical Guide: Adaptive Management*

[7] Although TRE/TIE is briefly outlined in this document, permit writers and permittees shall refer to EPA's TSD and the guidance documents listed therein for specific direction on how to conduct these evaluations.

[8] EPA's TSD, p. 114

[9] Id.

PERMITS AT REISSUANCE

These permit conditions ~~are only to be established for~~ do not apply to outlets that are primarily precipitation induced or for which the activities associated with the outlets are substantially complete at the time of reissuance. If the agency determines at the time of reissuance that permitted outlets have not been constructed, the requirements outlined in "New and Expanded Discharge Permits" above will apply. Otherwise, DEP will establish the following permit conditions:

Wet Monitoring and Limits

Where there is not sufficient WET, chemical, and/or biological assessment data to perform a reasonable potential analysis at permit reissuance, the permit writer will assign WET monitoring to determine reasonable potential to cause or contribute to an excursion above the narrative criteria, as prescribed by 40 C.F.R. § 122.44(d)(1)(ii).

The permit writer will establish WET monitoring triggers using all applicable rules and guidance, including EPA's TSD. In developing the WET trigger, the permit writer will consider the in-stream waste concentration of the effluent in the immediate receiving stream and calculate it so as to result in no greater than 1.0 chronic toxicity unit (TU_c) and 0.3 acute toxicity unit (TU_a) at the edge of the appropriate mixing zones, where applicable.

The permittee is required to perform WET monitoring quarterly. The TSD requires use of the most sensitive available surrogate organism (ceriodaphnia dubia) for chronic toxicity testing of effluents. DEP requires TDS, conductivity, sulfate, and bicarbonate analyses for each aliquot used in WET testing.

If WET monitoring shows an exceedance of the specified triggers prescribed in the permit, the permittee shall resample and test the effluent within 30 days. If the second test shows compliance, the permittee shall continue WET monitoring in accordance with the permit requirements. However, if the second test shows an exceedance, the permittee must, within 60 days, submit an AMP identifying actions it will take to achieve compliance with the WET triggers. The permittee must also submit a permit modification to place WET limits in the permit.

Chemical Monitoring

The permit will require enhanced effluent and receiving water monitoring of dissolved ions for permits upon reissuance.

The permit will require twice-per-month effluent monitoring for TDS, specific conductance, sulfate, alkalinity, pH, calcium, magnesium, sodium, and potassium. The same sampling suite is required for all established stream monitoring stations. The results of concurrent monitoring of WET and dissolved ions testing at the discharge and in-stream monitoring locations will provide a wealth of information to guide future decisions and possible refinements to this protocol.

In-Stream Biological Monitoring

The permit will require the maintenance of acceptable ecosystem health in waters of the State. DEP will require in-stream biological monitoring regularly over the remaining life of the permitted activity. The permittee must submit a monitoring plan for agency approval that proposes in-stream BAS that allow a holistic assessment of the aquatic ecosystem and a determination of the impacts of the permitted activity. To that end, biological monitoring as discussed above may be applied as appropriate.

Adaptive Management Plan (AMP)

A permittee with a reissued permit shall submit an AMP to DEP within 60 days of exceeding two WET triggers in a 30-day period. The AMP shall include appropriate control measures as outlined in "Aquatic Ecosystem Protection Plan" above that are designed to obtain compliance with WET triggers, maintain the health of the aquatic ecosystem, and comply with the State's narrative water quality standards. If the WET testing results continue to exceed the established permit trigger(s), then the permittee has exhibited a reasonable potential to cause or contribute to an excursion above West Virginia's narrative water quality standards (specifically, 47 C.S.R. 2 §§ 3.2.e and 3.2.i), and the permit writer will reopen the permit to impose WET limits. Alternatively, the AMP may allow the permittee to conduct TRE/TIE (as outlined above), in an effort to identify toxic pollutants that can be regulated through the imposition of numeric limits in the permit.

Reopener Clause

The permit will contain an explicit reopener clause allowing DEP to modify or revoke the permit if prescribed controls do not attain and maintain applicable water quality standards. The permittee may also request that the permit be reopened if, after a sufficient amount of data has been collected, the agency determines that RP does not exist, and the permittee can request an adjustment to its monitoring activities through a modification of the permit.

REFERENCES

EPA's *Policy on the Use of Biological Assessments and Criteria in the Water Quality Program* (May 1991)

EPA's *Technical Support Document for Water Quality-based Toxics Control*, EPA/505/2-90-001 (March 1991)

EPA's *NPDES Permit Writers' Manual*, EPA-833-B-96-003

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west virginia department of environmental protection

Justification and Background for Permitting Guidance for Surface Coal Mining Operations to Protect West Virginia's Narrative Water Quality Standards, 47 C.S.R. 2 §§ 3.2.e and 3.2.i

PURPOSE

The West Virginia Department of Environmental Protection ("DEP") adopts this Justification and Background for its "Permitting Guidance for Surface Coal Mining Operations to Protect West Virginia's Narrative Water Quality Standards" (the "Guidance"). The Guidance is intended to facilitate compliance with applicable statutory and regulatory requirements and to provide reasonable means of effectuating the intent of the narrative criteria, as well as to enforce the mandate of the Clean Water Act ("CWA") that every permit contain effluent limitations that reflect the practicable pollution reduction a state can achieve.[1]

The Guidance was developed in accordance with the West Virginia Water Pollution Control Act ("WVWPCA"), which states that "the public policy of the State of West Virginia to maintain reasonable standards of purity and quality of the water of the State consistent with (1) public health and public enjoyment thereof; (2) the propagation and protection of animal, bird, fish, aquatic and plant life; and (3) the expansion of employment opportunities, maintenance and expansion of agriculture and the provision of a permanent foundation for healthy industrial development."[2]

As it must, the Guidance also recognizes the intent of the West Virginia Legislature, which has formally resolved as follows:

- That any interpretation and implementation of West Virginia's narrative water quality standards is the responsibility of the West Virginia Department of Environmental Protection;
- That the requirements of the narrative criteria are met when a stream (a) supports a balanced aquatic community that is diverse in species composition; and (b) contains appropriate trophic levels of fish (in streams with sufficient flows to support fish populations); and (c) the aquatic community is not composed only of pollution tolerant species or

[1] *American Paper Institute, Inc. v. United States Environmental Protection Agency*, 996 F.2d 346, 349 (D.C. Cir., 1993)

[2] W. Va. Code § 22-11-2(a).

the aquatic community is composed of benthic invertebrate assemblages sufficient to perform the biological functions necessary to support fish communities within the assessed reach (or, if the assessed reach has insufficient flows to support a fish community, in those downstream reaches where fish are present); and

- That interpretation of West Virginia's narrative water quality standards must faithfully balance the protection of the environment with the need to maintain and expand opportunities for employment, agriculture, and industry as set forth in the Legislature's statement of public policy as contained in the West Virginia Water Pollution Control Act.[3]

BACKGROUND

West Virginia has had primacy of the NPDES program since 1982 and has narrative water quality standards that predate its NPDES primacy. These criteria are found in West Virginia's *Code of State Rules*, which states, in pertinent part, "No significant adverse impact to the chemical, physical, hydrologic, or biological components of aquatic ecosystems shall be allowed."[4]

In light of its goals to advance, wherever attainable, water quality that provides for recreation and the protection and propagation of fish, shellfish, and wildlife,[5] and to assure that surface mining operations are conducted so as to protect the environment,[6] DEP reviewed its NPDES permitting and compliance assessment protocols vis-à-vis West Virginia's narrative water quality standards and solicited public comment regarding these issues. As a result, DEP adopts the Guidance, which describes the procedures DEP will implement in the development of NPDES permits for the coal mining industry. These new procedures shall take effect immediately. In light of the changing nature of the policy concerns addressed herein, this document is intended to be dynamic and will likely be modified in the future as technology and best management practices develop and improve.

While DEP appreciates EPA's recent effort to assist the states in interpreting their various narrative water quality standards, DEP finds that the Guidance is the more appropriate approach for West Virginia for several reasons. First, it involves subject matter uniquely within DEP's expertise and special knowledge. Further, while this document specifically addresses concerns related to the mining industry, it is designed to be adapted in the future to address all discharges to water bodies that will cause, or that have the reasonable potential to cause or contribute to, excursions from water quality standards. Finally, it does not use an overbroad, generic criterion (i.e. conductivity) to set unattainable limits, but instead identifies specific pollutants that can be managed through the inclusion of appropriate whole effluent toxicity ("WET") monitoring and/or limits and best management practices ("BMPs") in NPDES permits, where there is reasonable potential to cause or contribute to excursions from water quality criteria. If the

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[3] H.C.R. 111 (2010 Regular Session).
[4] 47 C.S.R. 2 § 3.2.i
[5] *See* 33 U.S.C. § 1251(a)(2)
[6] *See* 30 U.S.C. § 1202(d)

applicant cannot demonstrate, by means of its chemical and biological monitoring and the control measures outlined in the plans it will submit with its application, that it does not have reasonable potential ("RP") to cause or contribute to an excursion above the narrative criteria, the permit writer should treat new or expanded discharges as if they have RP and include WET limits in the permit, in accordance with 40 C.F.R. § 122.44(d)(1)(v). Alternatively, if the operator identifies toxic pollutants that can be regulated through the use of numeric limits, DEP will put a regulatory control number for those pollutants in the operator's permit.

PROTECTION OF THE AQUATIC ECOSYSTEM

As stated above, the narrative water quality criteria set out in 47 C.S.R. 2 § 3.2.i prohibits the introduction of wastes that cause significant adverse impact to the chemical, physical, hydrologic or biological components of aquatic ecosystems. These criteria are valid components of West Virginia water quality standards that have been properly promulgated by the West Virginia Legislature and approved by the EPA. The phrase "significant adverse impact" is not defined in the CWA or the WVWPCA, the regulations promulgated thereunder or in any literature or guidance published by the EPA. DEP has determined that "significant adverse impact" is more than a change in the numbers or makeup of the benthic macroinvertebrate community in a segment of a water body downstream from a point source discharge. It is, instead, a material decline in the overall health of an aquatic ecosystem.[7] A goal of the CWA and the WVWPCA is to protect the aquatic ecosystem as a whole; it is a holistic standard that requires a holistic approach to ecosystem assessment. In contrast to numeric water quality criteria, which can be applied by analysis of samples of water taken at any discharge or monitoring point in a stream, compliance with a standard that protects the aquatic ecosystem must be assessed in the broader area comprising the ecosystem. An ecosystem does not exist at a single point and, accordingly, its health cannot be assessed at a single point.

The Pond-Passmore Study, upon which EPA relied in the development of its guidance on this subject, concludes that West Virginia's narrative standard is violated by surface coal mining operations based on the Study's application of two biologic assessment tools, the West Virginia Stream Condition Index ("WVSCI") and the draft Genus Level Index of Most Probable Stream Status ("GLIMPSS"), to samples of benthic macroinvertibrate life taken from these streams. This conclusion is flawed for two reasons. First, West Virginia does not use the draft GLIMPSS in its assessment of the biologic health of State streams. Second, these tools are just that – tools. They are not stand-alone determinants of compliance with the narrative standard. Any application of these assessment tools in determining compliance with the narrative standard must faithfully apply the language of the standard itself, which prohibits significant adverse impacts on the chemical, physical, hydrologic or biological components of the aquatic ecosystem. Thus, DEP's Guidance follows long-standing EPA guidance, which indicates that biosurveys cannot fully characterize an entire aquatic community and its many attributes, and accordingly suggests that "State standards should contain biological criteria that consider various components (e.g.

[7] An aquatic ecosystem is a dynamic complex of plant, animal, and microorganism communities and their non-living environment interacting as a functional unit within water. *See*, Coweeta Long Term Ecological Research "Glossary of Terms."

algae, invertebrates, fish) and attributes (measures of structure and/or function) of the larger aquatic community."[8]

Through implementation of the Guidance, DEP continues its existing practice of using WVSCI in addition to consideration of other factors affecting the aquatic ecosystem to enforce its narrative water quality standards. By way of background, WVSCI was developed for EPA by national experts to assess biological integrity in West Virginia's waterways through "careful measurement of the natural aquatic ecosystem and its constituent biological communities,"[9] including the evaluation of benthic macroinvertebrate communities. It was specifically designed for assessment of the biological component of the 47 C.S.R. 2 § 3.2.i narrative criteria and has been used as a tool in developing the Impaired Streams List ("303(d) List") and the TMDLs resulting therefrom for almost a decade.[10] WVSCI acknowledges that "[i]t is the responsibility of West Virginia's [Department] of Environmental Protection to maintain and protect the ecosystem health of the state's waters[,]" and "[i]n keeping with the Clean Water Act and technical guidance from USEPA, DEP developed water quality standards for the protection of ecosystem health."[11]

DEP's Guidance is the appropriate methodology for implementing West Virginia's narrative water quality standards, because it is consistent with the Federal Regulations regarding establishing limitations, standards, and other permit conditions for NPDES programs, and it incorporates a holistic approach to ecosystem assessment and protection. The CWA's implementing regulations require WET testing and limits when the State finds that a discharge has RP to cause or contribute to excursions from water quality standards.

> [W]hen the permitting authority determines . . . that a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative criterion within an applicable State water quality standard, the permit must contain effluent limits for whole effluent toxicity. Limits on whole effluent toxicity are not necessary where the permitting authority demonstrates in the fact sheet or statement of basis of the NPDES permit . . . that chemical-specific limits for the effluent are sufficient to attain and maintain applicable numeric and narrative State water quality standards.[12]

WET testing allows flexibility where appropriate (e.g. allowing time to collect additional data for RP determination to supplement limited data sets) and is consistent with DEP's policy that

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[8] EPA's *Policy on the Use of Biological Assessments and Criteria in the Water Quality Program* (May 1991) ("1991 Policy")

[9] A Stream Condition Index for West Virginia Wadeable Streams, March 28, 2000 (Rev. July 21, 2000) ("Stream Condition Index").

[10] However, a stand-alone WVSCI score has never been the sole determinant of compliance or non-compliance with the narrative standard. This is because WVSCI scores are influenced by many factors (e.g. habitat, geology, and pH).

[11] Stream Condition Index

[12] 40 C.F.R. § 122.44(d)(1)(v)

permittees develop robust monitoring plans with the intention of identifying any causative pollutants and adjusting their methods of operation so that those problems may be remedied before the aquatic community suffers a significant breakdown.

WVSCI considers various components (e.g. algae, invertebrates, fish) and attributes (measures of structure and/or function) of the larger aquatic community. "Because biological integrity is a strong indicator of overall ecological integrity, it can serve as both a meaningful goal and a useful measure of environmental status. . . ."[13] Based on the 5th percentile of reference values, the current WVSCI score that indicates the integrity of a benthic macroinvertebrate community in West Virginia's wadeable streams is 68.0. The threshold for inclusion on the 303(d) List has historically been 60.6. That value subtracts a precision estimate from the 5th percentile of reference values, and its historical use was intended to take into account sampling error and to aid DEP in allocating its resources so as to avoid misclassifying non-impaired waters as impaired. WVSCI and its application in the 303(d) listing process are consistent with methodologies implemented to assess protection of aquatic ecosystems by all of West Virginia's neighboring states.

CAUSATIVE POLLUTANTS / PROTECTIVE THRESHOLDS

EPA has recently set a numeric limit on conductivity at 500 µS/cm, finding that conductivity levels below 300 µS/cm generally will not cause a water quality standard violation and that in-stream conductivity levels above 500 µS/cm are likely to be associated with adverse impacts that may rise to the level of exceedances of narrative state water quality standards.[14] However, DEP's data shows that more than a simple conductivity measurement is necessary to determine the health of a stream. As proof that a number for specific conductance is an inappropriate gauge, FIGURE 1 below illustrates that a stream can have a low level of specific conductance and a WVSCI score firmly within the range for impairment; conversely, a stream can have a high level of specific conductance and a WVSCI score that indicates the stream is above the threshold for impairment. WVSCI scores are affected by many factors: habitat, other uses of the stream and the surrounding land, other pollutants unrelated to conductivity (e.g. fecal coliform), *inter alia.* Certain stream reaches simply cannot attain a "good" WVSCI score because of those factors.

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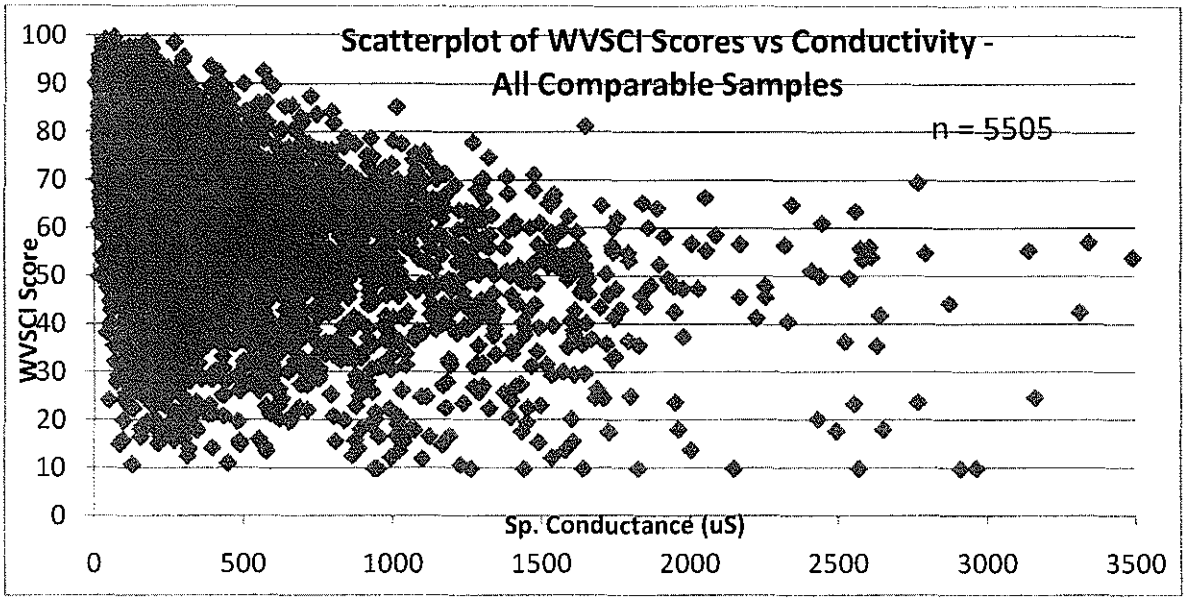
[13] 1991 Policy

[14] EPA's *Detailed Guidance: Improving EPA's Review of Appalachian Surface Coal Mining Operations under the Clean Water Act, National Environmental Policy Act, and the Environmental Justice Executive Order* (April 1, 2010) ("April 1 Memo")



The Pond-Passmore Study found a shift in the benthic macroinvertibrate community downstream from mining activity, but did not otherwise correlate this finding with any significant or adverse impairment of the ecosystem. Where the only impacts to this component of the ecosystem are diminished numbers of certain genera of mayflies, without evidence that this has had any adverse impact of any significance on the rest of the ecosystem, the State cannot say that there has been a violation of its narrative standard. Various scientific studies and evaluations performed by DEP indicate that lowered biological condition is associated with increased ionic strength, but scientists remain less than certain about the specific causative pollutant(s) and the concentration(s) responsible for impairment. Additional uncertainty is present in correlative studies, because the effects of increased ionic strength cannot be completely distinguished from the effects of other stressors that often co-occur (e.g. organic enrichment, sedimentation). In fact, most available information attempts to relate biological condition to a surrogate parameter, such as specific conductance.

Because conductivity represents the combined concentrations of all different dissolved ions, each with potential varying toxic effects, regulation solely via an indicator such as specific conductance is not the best way to protect against excursions from narrative standards. For example, the elevated dissolved pollutants most commonly associated with mining discharges are sulfate and bicarbonate alkalinity. EPA has not published national recommended aquatic life protection criteria for those pollutants. Similarly, chloride, for which West Virginia has adopted EPA's recommended numeric aquatic life protection water quality criteria, may also be present in some cases. But because chloride seldom exists in the absence of sulfates or alkalinity, singular control of chloride cannot be expected to resolve all ionic stress.

DEP has performed a correlative evaluation of benthic condition and specific conductance. This evaluation suggests that native aquatic life is protected at various values and ranges of specific conductance. This finding supports the basic scientific principle that correlation is not cause and effect. Even though the DEP evaluation applied various filters to the

evaluated dataset to address complicating factors listed above, the biological condition of a stream may be different from the condition predicted by specific conductance. In situations such as these, where DEP has determined that it is infeasible to calculate a numeric effluent limit to implement a narrative water quality standard, DEP will include in the permit appropriate WET limits and BMPs to control or abate the discharge of pollutants, in accordance with 40 C.F.R. § 122.44(k)(3).

DEP routinely identifies biological stressors when developing TMDLs for biologically impaired waters. Stressor identification employs a strength-of-evidence approach that considers multiple information sources. Researchers evaluate water quality monitoring data, physical habitat data, field notes, and the composition of the biological assemblage concurrently to identify significant stressors. DEP's most recent stressor identification protocols, as used in the EPA-approved TMDL process, include the guidelines shown in FIGURE 2 below for evaluating water chemistry to determine if ionic strength is a significant stressor:

Candidate Cause	**Parameter**	**Elimination (Rule out stressors at these thresholds)**	**Strength of Evidence (Evidence for each Candidate Cause as stressor)**	
		Elimination Threshold	**Candidate Stressor Thresholds**	
4. Ionic strength	Conductivity	< 326.9 umhos	Consider as independent stressor in non-acidic, non-AMD streams, when conductivity values met threshold ranges and sulfates and chloride violate conditions listed as follows.	
			>1533	Definite Stressor
			1075-1532.9	Likely stressor
			767-1074.9	Possible stressor
			517-766.9	Weak stressor
			327-516.9	Equivocal or No Trend
	Sulfates	< 56.9 mg/l	>417	Definite Stressor
			290-416.9	Likely stressor
			202-289.9	Possible stressor
			120-201.9	Weak stressor
			57-119.9	Equivocal or No Trend
	Chloride	< 60 mg/l	>230.0	Definite Stressor
			160.1-229.9	Likely stressor
			125.1-160	Possible stressor
			80.1-125.0	Weak stressor
			60.1-80.0	Equivocal or No Trend

Based on FIGURE 2, it is clear the EPA limits of 300 – 500 µS/cm established in the April 1 Memo are far more stringent than what it has long approved for West Virginia's TMDL process. As shown above, conductivity in the 300 – 500µS/cm range is "Equivocal or No Trend" as a stressor. Conductivity does not even become a "Likely Stressor" of a stream under this EPA-approved approach until it reaches three to five times these limits: 1075-1532.9 µS/cm. This is additional support for the State's conclusion that reliance on the single surrogate of specific conductance to implement and/or enforce the State's narrative water quality standards is improper. It also demonstrates that EPA's proposed limits are too narrowly focused on a single parameter and single aquatic species to determine the health of the impacted watershed.

Only the West Virginia Legislature can adopt a numeric water quality standard for conductivity (or any other pollutant); DEP has no authority to immediately or unilaterally

implement numeric standards. Through adoption of H.C.R. 111, the West Virginia Legislature has given DEP direction as to how it should implement its narrative water quality standards. Even if the Legislature does adopt a numeric standard for conductivity, DEP cannot implement it until after it is approved by the EPA. Based on the loose and questionable causal relationship between conductivity and stream impairment, it remains unclear whether EPA would approve such a numeric limit. EPA's duly promulgated regulation endorses establishment of WET limits where, as here, a state is unable to use a limit for a surrogate parameter. DEP can implement new permitting controls based on the agency's best professional judgment of actions necessary to protect the State's waters using its narrative criteria, with follow-up monitoring and contingencies for unsatisfactory outcomes. Thus, DEP is protecting against excursions from its narrative water quality standards by establishing WET limits and verifying impacts to a stream (or lack thereof) by requiring an extensive, comprehensive monitoring plan for the entire watershed.