

GENERAL Qs & As

Q. Why did EPA issue this guidance memorandum to its Regions?

A. While EPA has been applying consistent criteria in its review of surface mining permits, the mining industry and others have asked EPA to further clarify our expectations and Clean Water Act requirements for Appalachian surface coal mining. The guidance reconfirms and explains more fully the approach we are now following in permit reviews and provides additional assurance that EPA Regions are using clear, consistent, and science-based standards in these reviews.

Q. What is the geographic scope of this memorandum?

A. This memorandum applies only to Appalachian States, including Ohio, Pennsylvania, West Virginia, Virginia, Tennessee, and Kentucky, consistent with the existing interagency Memorandum of Understanding on Appalachian surface coal mining. As the memorandum discusses, EPA's draft conductivity benchmark is limited to the parts of these same States within ecoregions 68, 69, and 70 in Appalachia. Ecoregions cover relatively large areas of land or water, and contain characteristic, geographically distinct assemblages of natural communities and species. The biodiversity of flora, fauna, and ecosystems that characterize an ecoregion tends to be distinct from that of other ecoregions. Ecoregion 68 includes the Southwestern Appalachians, Ecoregion 69 includes the Central Appalachians, and Ecoregion 70 includes the Western Allegheny Plateau.

Q. How is EPA applying draft conductivity numbers?

A. EPA's conductivity values come from existing peer-reviewed literature, including studies published by EPA scientists, as well as EPA Office of Research and Development's draft conductivity report. Based on this scientific information, EPA believes that in-stream conductivity levels below 300 microSiemens per centimeter will protect aquatic life, while evidence suggests that levels above 500 microSiemens per cm have serious water quality impacts. EPA will use these values as benchmarks in our work with States under Section 402 and with the Corps under Section 404 to ensure that permits are designed to meet the requirements of the Clean Water Act, including those designed to prevent loss of aquatic species.

Q. Will this memorandum stop mining?

A. No. EPA has recently approved permits for some surface mining projects in Appalachia and expects to continue to do so, where these projects are consistent with the guidance. EPA recognizes the importance of coal to Appalachia and to the nation's energy mix, but also has an obligation based on the law and emerging science to prevent harm to our waters and environment. Projects that are damaging to water quality will be closely scrutinized, but mining companies that employ the best management practices contained in this memorandum and meet water quality protection standards should expect favorable actions on their permits

EPA continues to believe that coal is an essential part of our energy future. Just this month, EPA was named Co-Chair of President Obama's Interagency Task Force on Carbon Capture and Storage. The task force is developing a Federal strategy to accelerate the creation and use of clean coal technologies.

Q. How will this memorandum impact jobs?

A. EPA remains committed to an Appalachian economy that provides coal mining jobs within a strong, diverse, and sustainable Appalachian regional economy. In January, EPA approved the Hobet 45 permit in West Virginia. Working with the mining company, EPA was able to eliminate any need for valley fills and reduce stream impacts by almost 50 percent. Those changes helped permanently protect local waters, maximize coal recovery, and reduce costs for the operators.

Q. How does this memorandum apply beyond mining?

A. Existing scientific studies clearly show that surface coal mining results in water quality impacts that are uniquely associated with the nature and scale of mining operations. Surface coal mining involves excavation and clearing of very large areas of land, crushing and moving huge quantities of dirt and rock, and disposal of this material directly into streams. EPA believes that surface coal mining is principally responsible for the increase in conductivity levels observed in surface waters downstream from surface mining operations. EPA is not aware of other scientific studies demonstrating similar water quality impacts associated with other types of development, forestry, or oil and gas activities in this region. EPA will, however, coordinate with the permitting authority on a case-by-case basis to evaluate potential water quality and human health impacts from other activities and to ensure that consistent, science-based standards are applied to all discharges regulated under the Clean Water Act.

Q. How will EPA apply this comprehensive memorandum to EPA-Army Corps Enhanced Coordination Procedures mining projects?

A. EPA will immediately begin applying this memorandum to its review of permit applications under the EPA-Corps Enhanced Coordination Procedures (ECP). The principles outlined in this memo are reflected in EPA's past permitting decisions, such as Peg Fork and Hobet 45.

Q. How many EPA-Corps Enhanced Coordination Procedures projects remain?

A. Of 79 projects subject to the Enhanced Coordination Procedures (ECP), 15 applications have been withdrawn by applicants, three projects have been authorized, three are undergoing 60-day ECP coordination, and 58 projects are awaiting coordination. Information on the status of these permit applications and related authorizations is available on EPA's enhanced permitting website.

Q. How many ECP projects will meet the memo's standards (e.g., conductivity)?

A. Some ECP projects have already been determined to meet the standards in the guidance and we expect that other ECP permits will likewise be deemed acceptable. Other projects, particularly those with multiple valley fills or large volumes of overburden, will raise concerns under the guidance. EPA has achieved some success working with companies who are willing to reconfigure their projects to reduce environmental impacts. We believe that the best management practices discussed in the guidance will be a helpful starting point for companies that wish to safeguard water quality in accordance with EPA's benchmarks for protecting aquatic life.

Q. Was the Spruce mine evaluated using these standards?

A. EPA's concerns about the adverse environmental impacts of the Spruce #1 mine are consistent with the concerns outlined in this memorandum. As announced last week, EPA has issued a Proposed Determination that seeks public comment on whether EPA should prohibit, restrict, or retain the Corps's specification of the Spruce #1 site for placement of dredged or fill material in waters of the United States.

Q. Why is EPA interpreting State narrative water quality standards?

A. EPA has independent authority under the Clean Water Act to ensure that water quality is protected has a responsibility to prevent violations of water quality standards when reviewing permits under Sections 402 and 404 of the Clean Water Act. EPA's Permit Quality Review demonstrated that Appalachian States are not giving appropriate effect to their own narrative standards in the permitting process as required by the Clean Water Act. The guidance draws on EPA's scientific conclusions to identify a range of conductivity values that we believe will satisfy water quality standards. EPA looks forward to working with States to incorporate emerging scientific information on conductivity and will ensure that States translate their narrative standards into numeric values in a scientifically defensible way in order to protect water quality.

Q. Why does this document not require rulemaking?

A. The guidance document is directed at EPA's regional staff and provides a framework for permit reviews that reflects current Agency practice and thinking regarding its existing authorities under the Clean Water Act, National Environmental Policy Act, and Executive Order 12898 on Environmental Justice. EPA is, however, submitting the guidance for public review and comment to maximize transparency and public participation in this process. EPA is publishing a notice in the Federal Register requesting public comment by December 1, 2010. EPA is also committing to consider revisions to the guidance based on comments we receive.

Q. Why is EPA relying on draft scientific information?

A. Conductivity values contained in this memorandum are based on existing peer-reviewed scientific literature, including published studies by EPA scientists, and reflect EPA's current approach to permit reviews for surface coal mining projects. These values have been further

confirmed by independent data analysis by EPA's Office of Research and Development. EPA has committed to examining the need for changes in this guidance memorandum following independent peer review of the draft ORD report along with public comment on the guidance itself.

Q. How does EPA expect mining companies to comply with these requirements?

A. The memorandum includes a set of specific best management practices designed to avoid, minimize, and (if necessary) mitigate impacts to the aquatic environment. EPA expects that better designed mines that utilize these practices will reduce potential downstream conductivity impacts and minimize environmental concerns raised by EPA and other agencies.

Q. Does EPA expect that most coal mining projects should require EISs?

A. Decisions on whether to prepare an Environmental Impact Statement (EIS) depend on project-specific circumstances. As outlined in the memorandum, where EPA believes that significant environmental impacts may occur based on affected stream length, size of valley fills, or other factors, EPA will recommend to the Corps of Engineers that an EIS be prepared.

Q. How does this memorandum affect other agencies?

A. EPA continues to coordinate on a daily basis with the Corps of Engineers and the Office of Surface Mining to evaluate permit applications and to undertake policy actions consistent with the June 11, 2009 interagency MOU. This memorandum is intended to provide EPA Regional offices with guidance based on the best available science for their use in reviewing pending permit applications in coordination with their fellow agencies.

Clean Water Act Section 402

Q. What information is required to support NPDES permitting decisions and how does the guidance affect the information needed to support permits for surface coal mines?

A. Applicants for NPDES permits are required to provide data to the permitting authority about the characteristics of their discharge, and permit authorities can request additional data to assess water quality impacts. General permits require information contained in the Notice of Intent for the general permit. This memorandum clarifies that EPA expects permitting authorities to use available, valid, and representative data to determine whether the discharge has reasonable potential to violate water quality criteria and standards. Data from adjacent or similar projects should be submitted and evaluated, and data from SMCRA or Section 404 permit applications should also be incorporated as appropriate.

Q. How do permitting authorities decide which pollutants and pollutant parameters to regulate in NPDES permits, and how does the guidance affect this decision-making process for surface coal mines?

A. EPA regulations require permitting authorities to conduct an analysis of whether a discharge has the reasonable potential to cause or contribute to a water quality standard exceedance, and to set permit limits for pollutants that have reasonable potential. The guidance clarifies that for surface coal mines EPA expects that permitting authorities will conduct a comprehensive reasonable potential analysis for all applicable numeric and narrative water quality standards. In particular, the reasonable potential analysis must incorporate an assessment of pollutants and pollutant parameters that have been demonstrated by recent scientific reports to cause or contribute to significant water quality impacts below surface coal mining operations in Central Appalachia, including conductivity and total dissolved solids.

Q. Is EPA subsuming the States' role in the review of NPDES permits?

A. No. The memorandum makes clear that Appalachian States retain the primary authority to issue NPDES permits for surface coal mining. EPA's responsibility is one of reviewing and commenting on State permits. However, based on the results of EPA's Permit Quality Review and emerging science, EPA plans to more effectively exercise its oversight responsibility to review draft permits to ensure they incorporate required Clean Water Act analyses and protect water quality. If States do not develop permits that are consistent with the Clean Water Act, the memorandum clarifies that an objection by the appropriate EPA Region is an appropriate response.

Clean Water Act Section 404

Q. How does the EPA guidance relate to the June 2009 interagency Memorandum of Understanding on Appalachian Surface Coal Mining (MOU)?

A. In the MOU, EPA and the Departments of Army and Interior committed to a number of actions designed to significantly reduce the harmful environmental consequences of Appalachian surface coal mining operations, while ensuring that future mining remains consistent with Federal law. Among those actions was a commitment to strengthen the environmental review of proposed surface coal mining projects in Appalachia under the Clean Water Act Section 404(b)(1) Guidelines. EPA also committed to more robustly overseeing State certifications under Clean Water Act Section 401 and water pollution permits under Section 402. This guidance is an outgrowth of these commitments and clarifies how EPA is carrying out our responsibilities, in coordination with our Federal and State partners, to ensure Appalachian surface coal mining operations meet the requirements of the law and will protect water quality and the environment.

Q. How does the EPA guidance relate to those projects currently being reviewed under Enhanced Coordination Procedures (ECP)?

A. EPA's guidance clarifies the considerations the Agency is using to evaluate pending Clean Water Act 404 permit applications under the 404(b)(1) Guidelines. Because these considerations are based on the requirements of the Guidelines, they are applicable to not only those projects subject to review under ECP, but also to other proposed surface coal mining projects in Appalachia where there is a discharge of dredged or fill material into waters of the U.S. The guidance will be consistently applied to Appalachian surface coal mining permit applications regardless of whether they are current proposals, as in the case of ECP projects, or future proposals.

Q. What are the Clean Water Act Section 404(b)(1) Guidelines?

A. The Guidelines (40 C.F.R. Part 230) 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, including discharges associated with surface coal mining operations in Appalachia.

Q. What does the 404(b)(1) Guidelines say?

A. The Guidelines presume that for activities which are not "water dependent," practicable alternatives that do not involve impacts to special aquatic sites are available, unless clearly demonstrated otherwise. The Guidelines establish a "sequence" of review requiring:

- (1) An evaluation of all practicable alternatives that meet the project's basic purpose, and selection of only the least environmentally damaging practicable alternative;
- (2) Ensuring that all appropriate and practicable steps are taken to minimize potential adverse impacts; and
- (3) Compensation for remaining unavoidable impacts to aquatic resources.

In addition, the Guidelines State that no discharge of dredged or fill material can be permitted if: (1) the discharge would cause or contribute to violations of any applicable State water quality standard, violate any applicable toxic effluent standard, or jeopardize the existence of threatened or endangered species, and (2) the discharge would cause or contribute to significant degradation. The memorandum applies these principles to the context of Appalachian surface coal mining.

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

A. 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. This guidance, however, is applicable only to those discharges associated with Appalachian surface coal mining operations.

Q. How will the EPA guidance better protect water quality?

A. Consistent with the Guidelines, no discharge of 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. 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. The guidance indicates that projects with predicted conductivity impacts below 300 $\mu\text{S}/\text{cm}$ generally will neither significantly degrade the aquatic ecosystem, nor cause or contribute to a water quality violation. As a general matter, however, the guidance indicates that instream conductivity levels above 500 $\mu\text{S}/\text{cm}$ are likely to be associated with adverse impacts that rise to the level of significant degradation of the aquatic ecosystem and an excursion from narrative water quality criteria. Should a proposed Clean Water Act Section 404 permit allow for increases in levels of conductivity above 500 $\mu\text{S}/\text{cm}$, the guidance indicates the administrative record for the permit should clearly demonstrate how the permit is consistent with the 404(b)(1) Guidelines. The guidance recommends that EPA, the Corps, and permit applicants coordinate to ensure conductivity levels remain below 500 $\mu\text{S}/\text{cm}$, including adopting permit conditions requiring monitoring and adaptive remedial action, as well as adopting a sequenced permitting approach.

Q. What is meant by “sequenced”?

A. In the context of this guidance, “sequenced” means: (1) only one valley fill should be authorized before subsequent fills may go forward, unless site-specific data suggest there are 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.

Q. What does the guidance say about avoiding and minimizing environmental impacts?

A. Consistent with the 404(b)(1) Guidelines, the guidance indicates that mining companies must first demonstrate that there is no practicable alternative to a proposed discharge to waters of the United States that would have less adverse impact on the aquatic ecosystem. As such, it is expected that, generally, it will be easier for projects with no or few valley fills to demonstrate that they comply with the requirements of the Guidelines. If there is no practicable alternative, then all appropriate and practicable steps to minimize potential adverse impacts of proposed discharges must be taken. The guidance suggests a number of methods which should be used to minimize the size and number of valley fills and associated stream impacts. These include:

- Using available spoil disposal alternatives on site, in uplands, or adjacent mine sites;
- Improving efficiency of mining practices to reduce production of overburden;
- Constructing fills as high up the valley as possible;
- Minimizing contact between rainwater/groundwater and spoil; and
- Minimizing the use of in-stream sediment ponds.

Q. What does the guidance say about compensating for unavoidable impacts?

A. To ensure effective compensatory mitigation, the guidance indicates that permit applicants should conduct functional stream assessments to quantify the environmental effects of individual mining projects on streams. Such assessments should be used to ensure that compensatory mitigation replaces lost stream functions. The guidance indicates Clean Water Act Section 404 permit conditions should identify an expected timeframe for mitigation success and include a detailed monitoring plan for that length of time in order to ensure success. Furthermore, drainageways such as sediment or groin ditches are not an acceptable form of compensatory mitigation.

Q. Does the EPA guidance suggest that surface coal mining activities cannot be authorized under Section 404 of the Clean Water Act?

A. No. The guidance clarifies the considerations EPA is using to evaluate pending Clean Water Act Section 404 permit applications, consistent with the 404(b)(1) Guidelines. The guidance does not prohibit any specific project, nor does it suggest that surface coal mining activities, in general, cannot be permitted under Clean Water Act Section 404. EPA's guidance is intended to help ensure that mining projects approved under the Clean Water Act are fully consistent with the requirements of the law and will protect water quality and the environment. The guidance identifies those factors that are being considered in the review of permit applications in cooperation with the Corps of Engineers (Corps), State regulatory partners, and mining companies before a permit decision can be made. Projects that are determined to be in compliance with Section 404 of the Clean Water Act may be authorized by the Corps.

Q. Does this guidance constitute a policy change for EPA regarding regulation of surface coal mining operations under Clean Water Act 404?

A. No. Appalachian surface coal mining proposals have always been evaluated for compliance with existing EPA regulations, including the Guidelines. In order to receive authorization under the Clean Water Act, proposed projects must comply with all requirements of the Section 404 regulations. This guidance clarifies the factual considerations EPA is using to evaluate pending Section 404 permit applications under the 404(b)(1) Guidelines to ensure Appalachian surface coal mining operations comply with the Clean Water Act. While the guidance does not reflect a policy change, recent scientific studies have prompted us to more clearly State our expectations for the review of proposed Section 404 permits to ensure water quality standards will not be exceeded and that aquatic resources are not significantly degraded.

Q. Does this guidance affect the Corps' authority under the Clean Water Act?

A. EPA's guidance is not intended to alter the Corps' decision-making authority for Clean Water Act Section 404 permits. The Corps will continue to make final permit decisions, pursuant to Section 404, for proposed surface coal mining operations in Appalachia. Corps permitting regulations specifically provide for coordination with other Federal agencies in order to seek a better understanding of other agencies' concerns. The guidance identifies those environmental factors that EPA is considering in the review of Clean Water Act Section 404 permit

applications, in coordination with the Corps, before a permit decision can be made. Projects that are determined to be in compliance with the Clean Water Act may be authorized by the Corps.

Q. Why does EPA discuss Clean Water Act Section 401 Certification in this guidance?

A. Clean Water Act Section 401 conveys directly to States 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 Clean Water Act Section 404 permits and Federally issued permits under the Surface Mining Control and Reclamation Act. This can be a very effective tool to ensure that projects will not negatively impact waters. EPA is developing an updated handbook on the basics of State Section 401 certification actions as well as a memorandum on how 401 certifications can be applied in the surface coal mining context. These documents are 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.

National Environmental Policy Act and Environmental Justice

Q. Does EPA expect that Environmental Impact Statements should be conducted for most coal mining projects?

A. Decisions on whether to prepare an Environmental Impact Statement (EIS) depend on project-specific circumstances. As outlined in the memorandum, where EPA believes that significant environmental impacts may occur based on affected stream length, size of valley fills, or other factors, EPA will recommend to the Corps of Engineers that an EIS be prepared.

Q. Why and how does this memorandum discuss environmental justice?

A. Executive Order 12898 requires Federal agencies to make environmental justice part of their mission, by identifying and addressing disproportionately high and adverse human health or environmental effects of their policies and activities on minority and low-income populations. EPA is working to ensure that potential impacts on low-income Appalachian communities are considered by Federal agencies in the permit decision-making process for surface coal mining permits and that those communities have a meaningful opportunity to participate in the decision-making process.

Permit Quality Reviews

Q: What is a Permit Quality Review?

A. A Permit Quality Review (PQR) is an evaluation of a select set of National Pollutant Discharge Elimination System (NPDES) permits to determine whether they are consistent with applicable Clean Water Act provisions and regulations. PQRs typically include reviews of permit files, fact sheets, and site visits, and have been conducted periodically since the mid-1980s to help EPA and States identify areas of weakness and improve overall permit quality.

Q: Why and how did EPA do a PQR for surface coal mining?

A. EPA conducted a PQR consistent with EPA's short-term commitment under the June 11 interagency MOU on Appalachian surface coal mining to improve and strengthen oversight and review of State-issued NPDES permits. EPA reviewed permits issued for projects being evaluated under the EPA-Corps Enhanced Coordination Procedures in Kentucky, Ohio, Tennessee, and West Virginia. EPA reviewed permits and permit documentation, and interviewed State NPDES permit writers, to assess the quality of NPDES permits and the permit issuance process. EPA developed findings and preliminary recommendations as a result of this review to improve the quality of State NPDES permits.

Q: What were EPA's findings as a result of the Permit Quality Review?

A. The review found that all of the States successfully implement the technology-based limits required by applicable national effluent limitations guidelines and that most States also adequately implement their numeric water quality standards. However, none of the States include requirements that would ensure compliance with narrative water quality standards. States often lacked documentation that would explain their permit decision-making process, did not document how or whether data produced under Clean Water Act Section 404 or the Surface Mining Control and Reclamation Act (SMCRA) are used in NPDES permitting, and lacked a fully integrated permitting process to share important information among NPDES, Section 404, and SMCRA. The limited number of staff allocated to permitting mines also limits States' ability to thoroughly review available data and fully analyze potential impacts to water quality.

Q: What recommendations for improving future permits resulted from the review?

A. All States need to develop procedures to implement narrative water quality standards in permits, and EPA should assist States with tools such as studies and potential criteria that can be used for that process. States should leverage their resources by coordinating NPDES permitting with the Clean Water Act Section 404 and Surface Mining Control Reclamation Act (SMCRA) processes so that available ambient data are better utilized in the decision-making process. Available data from all permitting processes should be documented in the administrative records for permits along with information that would help the public to understand how permitting

decisions are made. States should also allocate additional staff resources to ensure improved water quality analysis.

Office of Research and Development (ORD) Science Reports

Q. What is the relationship between the two ORD reports and the guidance memo?

A. Both reports have informed EPA's development of its guidance memo by augmenting the existing scientific literature, including studies published by EPA scientists. The mountaintop mining impacts report has helped inform EPA's assessment of the harmful water quality impacts that have occurred due to Appalachian surface coal mining. The methodology and benchmark in ORD's conductivity report, along with existing studies, has helped to inform the basis of EPA's approach for ensuring that water quality standards are not violated and that significant degradation does not occur in permitting decisions.

Q. What is the scope and purpose of the two ORD reports?

A. The first report, "The Effects of Mountaintop Mines and Valley Fills on Aquatic Ecosystems of the Central Appalachian Coalfields," is an assessment of the State of the science on the ecological impacts of Mountaintop Mining and Valley Fill (MTM-VF) operations on streams in the Central Appalachian Coal Basin. The study evaluated MTM-VF in the following areas:

- Impacts on headwater streams;
- Impacts on downstream water quality;
- Impacts on stream ecosystems;
- Cumulative impacts of multiple mining operations; and
- Effectiveness of mining reclamation and mitigation.

The second report, "A Field-based Aquatic Life Benchmark for Conductivity in Central Appalachian Streams," develops an aquatic life benchmark for total dissolved solids (or salts) in Central Appalachian streams. Conductivity can be used to measure the salt content of water because saltier water more readily conducts electricity. The conductivity benchmark value is applicable to the waters in the Appalachian Region that are near neutral or mildly alkaline in their pH and are primarily influenced by salts of sulfate and bicarbonate, typical of waters downstream from Appalachian surface coal mining.

Q. What does the report conclude are the main environmental impacts associated with mountaintop mining and valley fills?

A. EPA's draft conductivity report concludes the following:

- Burial of headwater streams by valley fills causes permanent loss of ecosystems that play critical roles in ecological processes such as nutrient cycling and production of organic matter for downstream food webs. These small Appalachian streams also support abundant and diverse aquatic organisms that are unique to this area.

- The flow of water at mining sites is altered by the removal of vegetation, changes in surface contours, loss of topsoil, soil compaction, disruption of subsurface paths, and placement of overburden in valley fills. The water that flows over and through these valley fills contains concentrations of dissolved chemical ions (salts) that are greatly elevated over background levels.
- Water's ability to conduct an electric current is commonly used as a measurement of salts dissolved in water. Conductivity is expressed in units known as Siemens.
- Concentrations of salts as measured by conductivity are, on average, 10 times higher downstream of mountaintop mines and valley fills than in un-mined watersheds. The dominant ions that make up the salts include sulfate, bicarbonate, calcium, and magnesium.
- The increased levels of salts disrupt the life cycle of freshwater aquatic organisms and some cannot live in these waters. Water with high salt concentrations downstream of mountaintop mines and valley fills is toxic to stream organisms.
- Levels of the chemical selenium are higher downstream of mining sites. Selenium exceeded the criterion established by EPA to protect aquatic life at more than half of the sites surveyed downstream of mountaintop mines and valley fills.
- To date, there is no evidence that streams that have been restored have returned to their normal ecological functions after the mining is completed.

Q. How did EPA determine the level of conductivity (total dissolved solids) that affects stream life?

A. The conductivity benchmark value is derived by a method modeled on EPA's standard method for deriving ambient water quality criteria to protect aquatic life. In particular, the method was adapted to use field data collected from Appalachian streams due to the availability of stream data and the lack of sufficient and appropriate laboratory data. EPA identified a conductivity benchmark of 300 microSiemens per centimeter ($\mu\text{S}/\text{cm}$) that protects 95% of the genera (closely related species) of aquatic organisms living in streams in central Appalachia.

EPA derived this benchmark using more than 2,000 field samples collected in West Virginia, and the result was validated using data from Kentucky. Although the method is applicable to any region, the 300 $\mu\text{S}/\text{cm}$ value is applicable only to Central Appalachian streams containing the salts characteristic of those streams. Additional analyses demonstrate that the observed effects on aquatic communities were not due to other variables like acidic waters, degraded stream habitat, excess nutrients, or stream size.

Q. Are the salts that make up conductivity common (like seawater or table salt)?

A. No; the dissolved solids in Appalachian streams impacted by mining are primarily salts of sulfate and bicarbonate, not sodium and chloride. These types of salts occur naturally but occur at much higher concentrations in discharges from surface coal mining operations.

Q. What is the "background" conductivity in Appalachian streams?

A. Based on EPA's Wadeable Stream Survey, the 25th percentile of conductivity levels in all wadeable streams in Southern Appalachia is 63 µS/cm, which is several times lower than the draft conductivity benchmark of 300 µS/cm.

Q. Why is EPA only focusing on central Appalachian streams? Don't mountaintop mining-valley fill operations occur in other parts of the United States?

A. Mountaintop mining and valley fill mining is a common practice in Central Appalachia and not elsewhere. EPA does not expect the conductivity impacts described in the draft conductivity report to be repeated due to mining or development practices outside Appalachia.

Q. What are the next steps in the development of these reports?

A. Both documents will be reviewed by an independent review panel convened by EPA's Science Advisory Board (SAB) and provided to the public for a 60-day review and comment period. The SAB's peer review meeting will be scheduled at a later date and announced in the *Federal Register*. EPA will forward the public comments that are submitted to the SAB review panel prior to the meeting for their consideration. When finalizing the draft documents, EPA will consider any public comments that it receives along with the comments of the SAB panel.

Permitting Website

Q. What additional information does the enhanced Federal permitting website include?

A. The enhanced site builds on EPA's existing site that provides permit status under the EPA-Corps Enhanced Coordination Procedures (ECP). In coordination with the Corps and the Office of Surface Mining, EPA has added a separate page of information on each ECP permit detailing the additional authorizations required to conduct surface mining activities (under Clean Water Act Sections 401 and 402, and the Surface Mining Control and Reclamation Act), as well as the agencies responsible for granting these authorizations.

Q. Why does the enhanced permitting website look incomplete?

A. Much of the additional information EPA is providing on the website is provided to EPA and the Corps by State agencies as part of the permitting process. In the interests of transparency, EPA and other Federal agencies are providing enhanced access to this information and are in the process of gathering a full picture of the permitting status of Appalachian surface coal mining projects. EPA expects to continue dialogue with other Federal agencies and affected States to fill in data that are currently missing from this enhanced site, and to ensure that information is regularly updated as the ECP process proceeds.