Record of Decision
Stream Protection Rule

U. S. Department of the Interior
Office of Surface Mining Reclamation and Enforcement

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I. Introduction

This document records the decision of the Assistant Secretary for Land and Minerals Management on the U.S. Department of the Interior (DOI), Office of Surface Mining Reclamation and Enforcement (OSMRE) Stream Protection Rule (SPR). This Record of Decision (ROD) was drafted pursuant to the National Environmental Policy Act of 1969 (NEPA), 42 U.S.C. 4321, et seq., and in compliance with the Council on Environmental Quality's (CEQ) implementing regulations for NEPA, 40 CFR parts 1500 through 1508, and DOI's implementing regulations for NEPA, 43 CFR part 46.

OSMRE is revising the regulations at 30 CFR Chapter VII that implement the Surface Mining Control and Reclamation Act of 1977 (SMCRA). This rulemaking constitutes a major Federal action affecting the quality of the natural and human environment under NEPA. In accordance with NEPA, OSMRE prepared draft and final environmental impact statements (DEIS and FEIS) for the rulemaking.

The Surface Mining Control and Reclamation Act of 1977 (SMCRA) was enacted for many purposes, including the protection of "society and the environment from the adverse effects of surface coal mining operations." 30 U.S.C. 1202(a). SMCRA establishes a program of cooperative federalism that allows the states to enact and administer their own regulatory programs within limits established by federal minimum standards and with oversight authority exercised by OSMRE. A state may assume primary jurisdiction ("primacy") over the regulation of surface coal mining and reclamation operations within that state's borders by submitting a program proposal to the Secretary of the Interior. 30 U.S.C. 1253. State programs must consist of elements that are no less stringent than SMCRA and no less effective than its implementing regulations. 30 U.S.C. 1255(b); 30 CFR 732.15(a). At a state's discretion, the state programs may be more stringent with regard to land use, environmental controls, and regulation of surface mining. 30 U.S.C. 1255(b). Once a state regulatory program has been approved by the Secretary, the state law and regulations become operative for the regulation of surface coal mining and reclamation operations in the state, and the state officials administer the program. When appropriate, a state SMCRA regulatory authority (state RA) may request OSMRE's approval of amendments to its program under the procedures in 30 CFR 732.17. SMCRA also allows tribes to apply for and attain primacy. 30 U.S.C. 1300(j). If a state or tribe does not assume primary regulatory authority, OSMRE will operate a federal regulatory program within that state.

The majority of OSMRE's regulations implementing SMCRA were adopted in the late 1970s and early 1980s and have not been updated over the intervening three decades to incorporate advancements in science, technology, policy, and the law that impact coal communities and natural resources. Despite the enactment of SMCRA and the promulgation of federal regulations implementing the statute, scientific studies published since the adoption of our regulations in 1983 indicate that surface coal mining operations continue to have significant negative impacts on streams, fish, and wildlife. As a result coal mining operations continue to have adverse impacts on streams, fish, and wildlife, and the people who live in these areas. Those impacts include loss of headwater streams, long term degradation of water quality in streams downstream of a mine, displacement of pollution-sensitive species of fish and insects by pollution tolerant species, fragmentation of large blocks of mature hardwood forests, replacement of native species by highly competitive non-native species that inhibit reestablishment of native plant communities, and improper construction of post-mining soils that reduce site productivity and cause adverse impacts on watershed hydrology.

Therefore, there is a need for OSMRE to update and revise the regulations to reflect the best available science in order to avoid or minimize these negative impacts and provide regulatory certainty to industry. Further evidence is available through several decades of OSMRE experience regulating and observing the impacts of coal mining operations, including as a regulatory authority in certain states and on Indian lands. In addition, since the previous rulemakings, there have been significant improvements in

technologies and methods for prediction, prevention, mitigation, and reclamation of coal mining impacts on hydrology, streams, fish, wildlife, and related resources. See Chapter 1 of the FEIS.

On November 30, 2009, OSMRE published an Advance Notice of Proposed Rulemaking soliciting comments on ten potential rulemaking Alternatives. Approximately 32,750 comments were received during the 30-day comment period on various issues related to stream protection. After evaluating the comments, OSMRE determined the development of a comprehensive SPR that was broader in scope than OSMRE's 2008 Stream Buffer Zone (SBZ) rule was appropriate.

II. NEPA Review

The purpose of the SPR is to update and revise OSMRE regulations to provide a better balance between the Nation's need for coal as an essential energy source with the need to prevent or mitigate adverse environmental effects of present and future surface coal mining operations. The SPR will apply to both surface mines and underground mines that have surface impacts and will protect, minimize, and mitigate adverse impacts on surface water, groundwater, and site productivity, with particular emphasis on protecting or restoring streams, aquatic ecosystems, riparian habitats and corridors, native vegetation, and the ability of mined land to support the uses that it was capable of supporting before mining.

OSMRE published a notice of intent (NOI) to prepare an EIS in the *Federal Register* on April 30, 2010, at 75 FR 22723, followed by an additional notice on June 18, 2010, at 75 FR 34666. The June 18, 2010 notice offered the public additional opportunities to provide comments, including public scoping meetings and the principle elements and potential alternatives under consideration. Nine public open houses were conducted between July 19-29, 2010 in Beckley, West Virginia; Birmingham, Alabama; Carbondale, Illinois; Evansville, Indiana; Fairfield, Texas; Farmington, New Mexico; Gillette, Wyoming; Hazard, Kentucky; and Morgantown, West Virginia. In addition to other stakeholder input, over 20,500 scoping comments were received and considered during the development of the alternatives, environmental analyses, and evaluations.

On July 16, 2015, OSMRE announced that advance copies of the proposed rule, DEIS, and Draft Regulatory Impact Assessment (RIA) were available for review at www.regulations.gov, on our website (www.osmre.gov), and at selected OSMRE offices. OSMRE published a notice in the *Federal Register* announcing the availability of the DEIS for the SPR on July 17, 2015, at 80 FR 42535-42536.[1] The U.S. Environmental Protection Agency (EPA) notice of availability for the SPR DEIS was published July 24, 2015 in the *Federal Register*, at 80 FR 44103. In response to requests for additional time to review and prepare comments, OSMRE extended the comment period for the Proposed Rule, DEIS, and Draft RIA through October 26, 2015, at 80 FR 54590-54591 (Sept. 10, 2015). Interested parties, therefore, received slightly more than 100 days to review the Proposed Rule, DEIS, and supporting documents. During that time, OSMRE also held six public hearings in Colorado, Kentucky, Missouri, Pennsylvania, Virginia, and West Virginia.

OSMRE considered the comments received on the DEIS and coordinated closely with federal and state cooperating agencies to address concerns raised during the comment period. As a result, OSMRE made several revisions to the information in the DEIS for inclusion in the FEIS. These revisions included updates to the affected environment in Chapter 3 and the analysis of alternatives and impacts based on more recent coal production data in Chapter 4. In addition, as a result of comments received on the DEIS, proposed rule, and supporting documents, Alternative 8 (the Preferred Alternative) in the FEIS differs somewhat from Alternative 8 in the DEIS. OSMRE used the FEIS to identify the potential environmental impacts of the alternatives, including the revised Alternative 8.

[1] OSMRE published the Proposed Rule and the Notice of Availability of the Draft RIA in the *Federal Register* on July 27, 2015, at 80 FR 44436-44698 and 80 FR 44700, respectively.

OSMRE and the EPA published notices of availability of the FEIS on November 16, 2016, at 81 FR 80592 and 81 FR 80664, respectively. At that time, the FEIS was made available on the Internet at www.regulations.gov, Docket ID number OSM-2010-0021. A copy of the FEIS was also available on the OSMRE website at www.osmre.gov and in the South Interior Building, Room 101 located at 1951 Constitution Avenue, N.W., Washington, D.C., 20240 and various other OSMRE offices. In accordance with 40 CFR 1506.10(b)(2), no final decision was made on the SPR until 30 days after publication of the EPA's notice of availability of the FEIS.

III. Alternatives Considered

In the DEIS and FEIS, OSMRE analyzed eight action alternatives and a No Action Alternative (Alternative 1) in detail. Three other distinct alternatives were also considered, but OSMRE ultimately determined that they did not adequately meet the purpose and need. Therefore, OSMRE did not carry these three alternatives forward for further analysis in the FEIS. No additional alternatives were added to the FEIS in response to comments on the DEIS. The following four functional groups were used to describe the nine alternatives analyzed in detail in the FEIS:

- Protection of the Hydrologic Balance;
- Activities in or near Streams;
- Approximate Original Contour (AOC) and AOC Variances; and
- Revegetation, Topsoil, and Fish and Wildlife Protection and Enhancement.

These four groups represent common or related characteristics and were used in the FEIS to assist with identification and comparisons of the alternatives. The development and detailed descriptions of all nine alternatives considered are provided in Chapter 2 of the FEIS and summarized as follows:

A. Alternative 1 - No Action Alternative

The No Action Alternative consists of maintaining our current regulatory requirements, policies, and practices under the SMCRA, the Clean Water Act, and other federal and state laws that are relevant to this federal action. If this Alternative were selected, the current rules under SMCRA would not be revised and mining under Alternative 1 would continue to occur under OSMRE existing regulations for both surface mining and underground mining. Below is a summary of Alternative 1 by each of the four functional groups.

1. Protection of the Hydrologic Balance (No Action Alternative)

- Baseline Data Collection and Analysis - Under the existing 30 CFR 816.43(b)(1), the applicant for a mining permit is required to submit, at a minimum, certain baseline information for groundwater, surface water, geology, and any additional hydrologic or geologic information required by the regulatory authority.
- Monitoring During Mining and Reclamation - Monitoring is required for the quantity and quality of surface water and groundwater. At a minimum, pH, total iron, total manganese, total dissolved solids (TDS) or specific conductance, water levels (for groundwater), flow (for surface water), and total suspended solids (TSS) (for surface water) must be monitored every three months until final bond release. The permittee must monitor point-source discharges in accordance with their National Pollutant Discharge Elimination System permit. The monitoring plan must identify the monitoring locations, but the regulations do not establish criteria for the number or placement of monitoring locations.
- Definition of Material Damage to the Hydrologic Balance Outside the Permit Area - The existing regulations do not define material damage to the hydrologic balance outside the permit area. Each regulatory authority should establish criteria to measure material damage

to the hydrologic balance for purposes of cumulative hydrologic impact assessments (48 FR 43973, Sept. 26, 1983). States, such as West Virginia, Montana, and Wyoming, have defined and adopted regulations incorporating material damage to the hydrologic balance definitions into their programs. However, few other states have clearly adopted a definition or established programmatic criteria for material damage to the hydrologic balance outside the permit area.

- Evaluation Thresholds - The existing regulations contain no requirement for specific evaluation thresholds. However, permit applicants proposing to conduct surface or underground coal mining are required, under sections 780.21(h) or 784.14(g) respectively, to provide a plan of measures the applicant would take to avoid adverse potential adverse hydrologic consequences, including preventative and remedial measures.

2. Activities in or near Streams (No Action Alternative)

- Stream Definitions - The existing regulatory definitions of perennial, intermittent, and ephemeral streams rely on hydrologic characteristics and watershed size (30 CFR 701.5). The existing definition has sometimes been incorrectly applied and does not include biological or chemical characteristics.
- Activities in or near Streams (Including Disposal of Excess Spoil and Coal Mine Waste Facilities) - The rule, 30 CFR 816.57, provides that mining activities may not disturb land within 100 feet of a perennial or an intermittent stream unless the regulatory authority specifically authorizes activities closer to, or through, such a stream. The regulatory authority may authorize such activities only after finding that the proposed activities would not cause or contribute to a violation of applicable federal or state water quality standards under the Clean Water Act and would not adversely affect the water quantity and quality or other environmental resources of the stream. Notwithstanding this language, most states allowed streams to be mined through or buried. The existing rule also does not specifically mention placement of excess spoil and coal mine waste in or within 100 feet of streams. The existing regulations require that excess spoil fills be constructed by controlled placement of the excess spoil in lifts no greater than four feet thick, except that durable rock fills may be constructed by end-dumping, which is intended to result in the formation of underdrains by gravity segregation. Policies related to the Clean Water Act have reduced both the number of excess spoil fills and the length of stream covered by those fills. For instance, the Clean Water Act section 404(b)(1) Guidelines promulgated by the U.S. EPA in conjunction with the U.S. Army Corps of Engineers provide 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 as long as the alternative does not have other significant adverse environmental consequences.
- Mining Through Streams - The existing rule states that the regulatory authority may approve diversion of perennial or intermittent streams within the permit area only after making the finding related to stream buffer zones in section 816.57 that the diversion would not adversely affect the water quantity and quality and related environmental resources of the stream.

3. Approximate Original Contour (AOC) and AOC Variances (No Action Alternative)

- Surface Configuration - Each permit application must include a plan for backfilling, soil stabilization, and compacting and grading. Contour maps or cross-sections must show the anticipated final surface configuration. The performance standards require that disturbed areas be backfilled and regraded to closely resemble the premining surface configuration, with exceptions for thin and thick overburden situations, previously mined areas, and certain other circumstances. The regulations allow permanent impoundments, including final-cut impoundments, provided they do not otherwise create conflicts with achieving AOC and they

meet the design, construction, maintenance, postmining land use, and other requirements in 30 CFR 800.40(c)(2), 816.49(b), and 816.133.

- AOC Variances - The regulations provide for the approval of permits for mountaintop removal mining operations, which are exempt from AOC restoration requirements if the postmining land use and postmining surface topography requirements of paragraphs (3) and (4) of section 515(c) of SMCRA are met. The regulations also provide for the approval of AOC variances for steep-slope mining operations under certain conditions. In addition, to obtain a permit for mountaintop removal mining operations, the proposed postmining land use must be a commercial, industrial, residential, agricultural, or public facility land use. The regulations do not require implementation of the approved postmining land use prior to final bond release. The regulatory authority may approve a permit for a mountaintop removal mining operation only upon a demonstration that there would be no damage to natural watercourses below the lowest coal seam to be mined. The regulations do not define the term "no damage." Natural watercourses above the lowest coal seam mined are not protected from damage. Furthermore, the existing rule requires the permittee to leave an outcrop barrier in place at the toe of the lowest coal seam mined to ensure stability. To obtain an AOC variance for steep-slope mining operations (slopes more than 20° or a lesser slope dependent on site characteristics), the proposed postmining land use must meet the requirements for approval of alternative postmining land uses, which, among other things, means that the postmining use must be an equal or better economic or public use. The applicant must demonstrate that the proposed operation will improve the watershed when compared to either premining conditions or the conditions that would exist if the applicant restored the area to AOC after mining. The regulatory authority can concur that the operation would improve the watershed only if the operation would reduce the amount of total suspended solids or other pollutants discharged from the permit area to surface water or groundwater or reduce the flood hazards within the watershed by a reduction of the peak-flow discharge from precipitation events or thaws. In both cases, the total volume of flow from the proposed permit area during every season of the year must not vary in a way that adversely affects the ecology of any surface water or any existing or planned use of surface water or groundwater.

4. Revegetation, Topsoil, Fish, and Wildlife Protection and Enhancement (No Action Alternative)

- Revegetation, Reforestation and Topsoil Management - Under 30 CFR 816.133(a), the applicant must restore all disturbed areas to a condition in which they are capable of supporting before any mining or higher or better uses. The applicant must salvage and redistribute all topsoil (the A and E soil horizons), unless alternative overburden materials are approved as being equal to or better than the existing available topsoil to support vegetation. Under 30 CFR 816.116, revegetation success standards must be based upon the effectiveness of the vegetation to support the approved post mining land use, the extent of ground cover compared to the cover provided by the natural vegetation of the area, and the general requirements of 30 CFR 816.111. These general requirements provide that the vegetative cover must be diverse, effective, and permanent; comprised of species native to the area (with certain exceptions); at least equal in extent of cover to the natural vegetation of the area; capable of stabilizing the soil surface from erosion; compatible with the postmining land use; have the same seasonal characteristics of growth as the original vegetation; be capable of self-regeneration and plant succession; be compatible with the plant and animal species of the area; and meet the requirements of state and federal laws and regulations concerning seeds, poisonous and noxious plants, and introduced species. The regulations provide limited exceptions to some of these requirements for agricultural crops and for plantings used to establish temporary cover.

- Fish and Wildlife Protection and Enhancement - Under 30 CFR 780.16(a), each permit application must include fish and wildlife resource information for the proposed permit area and the adjacent area. Paragraph (b) of 30 CFR 780.16 requires that the permit application also include a fish and wildlife protection and enhancement plan. Paragraph (c) of 30 CFR 780.16 requires that the regulatory authority provide the fish and wildlife resource information and the fish and wildlife protection and enhancement plan to the U.S. Fish and Wildlife Service upon request. Under the regulations at 30 CFR 816.97(a), the mine operator must, to the extent possible using the best technology currently available, minimize disturbances and adverse impacts to fish, wildlife, and related environmental values and enhance such resources where practicable.

  On September 24, 1996, the U.S. Fish and Wildlife Service issued a Biological Opinion and Conference Report and an associated incidental take statement (1996 Biological Opinion) on the continuation and approval and conduct of surface coal mining and reclamation operations under state and federal regulatory programs adopted pursuant to SMCRA. The incidental take statement associated with the 1996 Biological Opinion provided incidental take coverage to OSMRE, state RA, and operators for any take resulting from a proposed coal mining and reclamation operation, provided that all terms and conditions of the incidental take statement are followed. The 1996 Biological Opinion also required reinitiation of formal consultation when (1) new information reveals that the agency action may affect listed species or critical habitats in a manner or to an extent not considered in this opinion, or (2) the agency action is modified in a manner that causes an adverse effect to listed species or critical habitat that was not considered in this opinion.

  Under 30 CFR 816.97(f), the permittee must avoid disturbances to wetlands and riparian vegetation along rivers and streams and bordering ponds and lakes; permittees must enhance where practicable, restore, or replace these resources. Likewise, surface mining activities must also avoid disturbances to habitats of unusually high value for fish and wildlife; these resources must be restored or enhanced where practicable. Where fish and wildlife habitat is to be a postmining land use, 30 CFR 816.97(g) requires that the plant species to be used on reclaimed areas be selected based upon their proven nutritional value for fish or wildlife, their use as cover for fish or wildlife, and their ability to support and enhance fish or wildlife habitat after bond release. Paragraph (g) also requires that the plants selected be grouped and distributed in a manner that optimizes edge effect, cover, and other benefits to fish and wildlife. The remaining paragraphs of 30 CFR 816.97 identify assorted other measures that permittees must implement during and after mining to minimize damage to fish and wildlife resources and their habitats or to ensure that all postmining land uses provide some fish and wildlife habitat or travel corridors to the extent practicable.

B. Alternative 2 - Environmentally Preferred Alternative

Alternative 2 would result in the most significant changes to permit requirements and mining operations under SMCRA. Under Alternative 2, and all the Action Alternatives, the proposed regulatory changes pertain to SMCRA and the regulations implementing SMCRA. They would not directly affect any other federal, state, or tribal laws.

Alternative 2 would change water monitoring and reporting requirements before and during mining operations and during reclamation. The regulatory authority would be required to coordinate with Clean Water Act implementing agencies to harmonize baseline data collection and monitoring requirements to the extent consistent with each agency's statutory authority and responsibilities. This Alternative would prohibit mining operations in or through perennial streams; it also would prohibit the placement of excess spoil in intermittent or perennial streams. In addition, it would prohibit all variances from AOC, which could require amendment of SMCRA. Proposed modifications under Alternative 2 are characterized below.

1. Protection of the Hydrologic Balance (Alternative 2)

- Baseline Data Collection and Analysis - Alternative 2 differs from the No Action Alternative by establishing minimum sample collection intervals and by expanding the suite of parameters for which permittees must analyze all water samples. It also requires documentation of the biological condition of perennial and intermittent streams and the sediment load of the watershed, as well as precipitation. Under this Alternative, the applicant must collect and submit the baseline data during the application process for surface water, groundwater, biological condition of streams, precipitation, form and function of streams, and geology.
- Monitoring During Mining and Reclamation - Under Alternative 2, monitoring of surface water and groundwater during mining and reclamation must occur at least quarterly. The permittee must analyze each sample for the same parameters measured during baseline sampling. The permittee must monitor groundwater and surface water at locations designated in the permit.

  The permittee must monitor the biological condition of streams annually until the data demonstrate full restoration of the premining biological condition of the stream. The permittee must review all monitoring data annually to identify adverse trends and sample analyses that approach evaluation thresholds. The permittee must collect on-site precipitation measurements using self-recording rain gages. The regulatory authority would review the monitoring data midway through the permit term and during permit renewal cycles. The surface water runoff control plan for designing and monitoring the control structures requires an inspection following a one-year or greater recurrence-interval storm event.

  The permittee must then submit to the regulatory authority within 48 hours a report prepared by a certified professional engineer. The report must describe the performance of the hydraulic control structures, assess and describe any potential material damage to the hydrologic balance, and address any remedial measures taken. Monitoring must continue until final bond release. The regulatory authority may not release the bond until monitoring results document that there are no adverse trends that could result in material damage to the hydrologic balance outside the permit area.
- Definition of Material Damage to the Hydrologic Balance Outside the Permit Area - Section 510(b)(3) of SMCRA provides that the regulatory authority may not approve a permit for surface coal mining operations unless it first finds that the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area. However, neither SMCRA nor the current regulations implementing SMCRA define the term "material damage to the hydrologic balance outside the permit area."

  Alternative 2 would define material damage to the hydrologic balance outside the permit area as any adverse impact from surface or underground mining operations on the quantity or quality of surface water or groundwater, or on the biological condition of a perennial or intermittent stream, that would preclude attainment or continuance of any designated surface water use under sections 101(a) and 303(c) of the Clean Water Act or any existing or reasonably foreseeable use of surface water or groundwater outside the permit area.

  This definition would also apply to adverse impacts from subsidence and to other adverse impacts resulting from underground mining operations (e.g., permanent dewatering of a stream by mining through a fracture zone) that result in material damage to the hydrologic balance. Thus, the definition would not be limited to the impacts from surface mining activities or the impacts of activities conducted on the surface of land (i.e., where surface facilities are located) in connection with an underground coal mine.
- Evaluation Thresholds - Under Alternative 2, the regulatory authority must establish permit-specific or regional evaluation thresholds for key water-quality parameters based on baseline data and the cumulative hydrologic impact assessment (CHIA). The permittee must conduct

a water-quality trend analysis of the monitoring data on a quarterly basis. If the analysis of the monitoring data indicates that trends in values for any surface water or groundwater parameter or analyte have reached the evaluation threshold specified in the permit, the permittee must notify the regulatory authority and evaluate the conditions that caused the threshold parameter to be met or exceeded. If the permittee finds, and the regulatory authority agrees, that the increase was due to the permittee's mining activity, the permittee must develop and implement corrective measures to prevent environmental degradation (i.e., material damage to the hydrologic balance outside the permit area as defined under Alternative 2). Evaluation plans are subject to regulatory authority approval. The requirement to institute corrective measures would not apply if the permittee demonstrates, and the regulatory authority concurs in writing, that the adverse values or trends for the parameters of concern are not the result of the permittee's mining operation.

2. Activities in or Near Streams (Alternative 2)

- Stream Definitions - Instead of using the definitions of streams in the current SMCRA regulations, Alternative 2 would use "waters of the United States" as defined and interpreted under 40 CFR section 230.3(s) and section 404(b)(1) of the Clean Water Act. This Alternative would protect all waters defined as "waters of the United States." The definition of an intermittent stream would no longer include the one-square-mile watershed criterion.
- Activities in or near Streams (Including Excess Spoil Fills and Coal Mine Waste Disposal Facilities) - Alternative 2 would prohibit all mining activities in or within 100 feet of perennial streams. It would also prohibit the construction of excess spoil fills in or within 100 feet of intermittent streams. However, it would allow the construction of excess spoil fills in or within 100 feet of ephemeral streams and the construction of coal mine waste disposal facilities in or within 100 feet of intermittent or ephemeral streams, provided the operation meets certain conditions. Furthermore, this Alternative would allow the regulatory authority to approve operations that propose to mine through intermittent or ephemeral streams, provided the operation meets certain conditions.

  Under this Alternative, an applicant for a permit that proposes to conduct any other type of mining activities in or within 100 feet of an intermittent or ephemeral stream must demonstrate that the proposed activity will not cause material damage to the hydrologic balance outside the permit area. That is, the applicant must demonstrate that the proposed activity would not preclude attainment or maintenance of an existing or reasonably foreseeable designated use of the affected stream segment under section 101(a) or section 303(c) of the Clean Water Act after reclamation and that it will not result in conversion of an intermittent stream segment to an ephemeral stream segment. The applicant must demonstrate that the operation would not have more than a minimal adverse effect on the biological condition of the affected stream segment after reclamation.

  Alternative 2 requires that applicants design proposed mining operations to minimize the amount of excess spoil generated. It also requires that the permittee design excess spoil fills and coal mine waste disposal facilities to minimize their footprints. Both requirements are intended to reduce the length of stream that the operation will cover. Each applicant proposing to place excess spoil in or near an ephemeral stream or to place coal mine waste in or near an intermittent or ephemeral stream must identify and analyze a range of reasonable operational alternatives. The applicant must select the alternative that would have the least adverse impact of all reasonable operational alternatives on fish, wildlife, and related environmental values.

  Under Alternative 2, the permittee must construct any excess spoil fills in lifts not to exceed four feet in thickness. The current regulation at 30 CFR 816.73 allowing construction of durable rock fills that rely upon end-dumping and the construction of underdrains by gravity segregation of the end-dumped material would be eliminated. This Alternative

requires daily monitoring during excess spoil placement. It would revise the existing rules to require that the quarterly inspection reports filed with the regulatory authority include the daily monitoring logs.

Under Alternative 2, the regulatory authority would no longer allow construction of excess spoil fills and coal waste disposal facilities with flat decks on top. The final surface configuration must resemble the surrounding terrain. Alternative 2 provides that, to the extent that stability considerations allow, the permittee must construct excess spoil fills with aquitards as a barrier to groundwater infiltration, and in a manner that facilitates stream construction. Placement of a layer of lower-permeability spoil or other material near the surface but below the root zone for trees and shrubs could provide the subsurface flow needed to restore flow in intermittent and ephemeral stream segments.

- Mining Through Streams - Alternative 2 prohibits all mining activities in or within 100 feet of perennial streams. Mining through an intermittent stream would be allowed if the hydrologic form and ecological function of the stream can and will be restored. The regulatory authority could permit mining through an ephemeral stream only if the applicant could and would restore the hydrological form of the stream.

  To obtain a permit to mine through or divert an intermittent stream, the applicant must demonstrate that the operational design would minimize the length of stream disturbed. The applicant also must demonstrate that the hydrologic form and ecological function of the stream segment can and would be fully restored. With respect to ephemeral streams, the applicant would only need to restore the hydrologic form of the stream segment. The bond posted for the permit must specifically include the cost of restoration of both the form and function of intermittent streams and the hydrologic form of ephemeral streams.

  Alternative 2 requires the use of natural-channel design techniques when constructing restored stream channels or permanent stream-channel diversions. The reclamation plan must provide for the establishment or preservation of a permanent streamside vegetative corridor, comprised of native non-invasive species (or other native species for non-forested areas), at least 100 feet in width along both banks of the entire reach of restored or permanently diverted ephemeral or intermittent stream channels.

  Alternative 2 would require the design and construction of all permanent stream-channel diversions, all temporary stream-channel diversions in use for two or more years, and all restored stream channels to adhere to natural-channel design techniques. Permanent stream-channel diversions and restored intermittent stream channels must approximate the premining characteristics of the original stream channel, including the natural riparian vegetation and the natural hydrological characteristics of the original stream. Alternative 2 would require that the hydraulic capacity of all temporary and permanent stream-channel diversions be at least equal to the hydraulic capacity of the unmodified stream channel immediately upstream of the diversion and no greater than the hydraulic capacity of the unmodified stream channel immediately downstream of the diversion.

3. AOC and AOC Variances (Alternative 2)

- Surface Configuration - Alternative 2 would require the use of landforming principles, when consistent with stability and postmining land use considerations, to establish a postmining surface configuration within specific tolerances from the premining surface configuration. Landforming would ensure restoration of dendritic ephemeral drainages and result in a more varied, natural-looking topography. Alternative 2 would require that the applicant use digital terrain modeling to document and restore the premining surface configuration. It also would require use of digital terrain modeling during backfilling and grading and upon completion of final grading to document restoration of the approved final surface configuration. Under this Alternative, the regulatory authority would determine the allowable deviation in the elevation of the backfilled and graded area postmining in comparison to the premining elevation based

on the lowest coal seam mined. The allowable deviation in the postmining elevation could be no more than ±20 percent of the difference between the premining surface elevation and the premining bottom elevation of that lowest coal seam, with allowances for slope stability and minor shifts in the location of premining features. This tolerance would apply only to those portions of the mine site that are subject to the AOC restoration requirement; e.g., the tolerance would not apply to excess spoil fills or coal mine waste disposal facilities.

AOC restoration requirements for steep-slope mining permits would allow the placement of what would otherwise be excess spoil on the mined-out area to heights in excess of the premining elevation if safety and stability requirements were met, and if the final surface configuration would be compatible with the surrounding terrain and consistent with natural premining landforms. This exemption would allow the permittee to exceed premining elevations and otherwise applicable tolerances to achieve the desired topography and would minimize the need to place excess spoil in streams.

Compliance with the ±20 percent tolerance is not practicable in contour mining on steep slopes (defined as slopes greater than 20 degrees) because of stability and equipment constraints. Therefore, the ±20 percent tolerance requirement does not apply to that portion of a contour mine permit where steep-slope mining is conducted. The tolerance and digital terrain modeling requirements also would not apply to remining sites, permits 40 acres or smaller in size, or operations that qualify for the thin overburden standards of 30 CFR 816.104.

This Alternative would allow permanent impoundments, including final-cut impoundments, provided they would not otherwise create conflicts with achieving AOC and they met the approved postmining land use. This Alternative would encourage the construction of aquitards within the backfill to act as a barrier to groundwater infiltration and to facilitate stream construction. Alternative 2 would prohibit flat decks on excess spoil fills and coal waste disposal facilities.

- AOC Exceptions - Alternative 2 would eliminate all exceptions from the requirement to return the mined area to its approximate original contour. Thus, Alternative 2 would preclude both mountaintop removal mining operations and AOC variances for steep-slope mining operations. Implementing this Alternative could require an amendment to SMCRA.

4. Revegetation, Topsoil, and Fish and Wildlife Protection and Enhancement (Alternative 2)

- Revegetation, Reforestation and Topsoil Management - Alternative 2 includes provisions similar to those of Alternative 1, the No Action Alternative with respect to soil management and revegetation, but with a greater emphasis on restoration of the site's ability to support the uses it supported before any mining, regardless of the approved postmining land use. Alternative 2 also places greater emphasis on construction of a growing medium with an adequate root zone for deep-rooted species and on revegetation with native tree and plant species, especially reforestation of previously forested areas.

  Like the No Action Alternative, Alternative 2 requires salvage and redistribution of all topsoil (the A and E soil horizons). However, it also requires salvage and redistribution of the B and C soil horizons (or other suitable overburden materials) to the extent necessary to achieve a growing medium with the optimal rooting depths required to restore premining land use capability or comply with revegetation requirements.

  Alternative 2 allows use of selected overburden materials as substitutes for (or supplements to) either topsoil or subsoil or both only if the applicant demonstrates that either the quality of the existing topsoil and subsoil is inferior to that of other overburden materials, or the quantity of the existing topsoil and subsoil is insufficient to provide the optimal rooting depth or meet other plant growth requirements. In the latter case, all existing topsoil and

favorable subsoil must be salvaged and redistributed together with the substitute material. As in the No Action Alternative, the applicant also must demonstrate that the resulting soil medium will be more suitable than the existing topsoil and subsoil to sustain vegetation and that the selected overburden materials are the best available within the permit area for that purpose. Alternative 2 differs slightly from the No Action Alternative in that the No Action Alternative allows the use of topsoil substitutes or supplements when the resulting soil medium will be equally or more suitable than the existing topsoil to sustain vegetation, while Alternative 2 allows their use only when the resulting soil medium will be more suitable to sustain vegetation.

Under Alternative 2, the permittee must salvage and redistribute all organic matter above the A soil horizon to increase the moisture retention capability of the soil and provide a source of the seeds, plant propagules, mycorrhizae, and other soil flora and fauna needed to support and enhance reestablishment of locally adapted and genetically diverse plant communities as well as to improve soil productivity. Alternative 2 prohibits burning or burying vegetation or other organic materials.

Under Alternative 2 the permittee must reforest lands that were previously forested, or that would naturally revert to forest under conditions of natural succession, in a manner that would enhance recovery of the native forest ecosystem as expeditiously as possible. Prime farmland is exempt from this requirement.

The permittee must revegetate the entire reclaimed area (other than water areas and impervious surfaces like roads and buildings) using native species to restore or reestablish the plant communities native to the area unless a conflicting postmining land use is actually implemented before the end of the revegetation responsibility period.

- Fish and Wildlife Protection and Enhancement - Alternative 2 would require incorporation of any Clean Water Act mitigation plan for the operation as a condition of the SMCRA permit. Bond release under SMCRA could not occur until completion of successful mitigation as determined by the regulatory authority and the agency implementing the Clean Water Act. Implementing this Alternative could require an amendment to SMCRA.

  Alternative 2 is similar to the No Action Alternative with respect to the protection of threatened and endangered species. However, Alternative 2 would codify the dispute resolution provisions of the 1996 Biological Opinion concerning protection of threatened and endangered species. It also would expressly require that the fish and wildlife protection and enhancement plan in the permit application include any species-specific protective measures developed in accordance with the Endangered Species Act and any biological opinions implementing that law.

  Alternative 2 is similar to the No Action Alternative with respect to the fish and wildlife resource information and protection and enhancement plan and the performance standards for protection of fish and wildlife. The principal difference is that Alternative 2 would require creation of a streamside vegetative corridor at least 100 feet in width, comprised of native non-invasive species, along the entire reach of any ephemeral, intermittent, or perennial streams that are restored or permanently diverted.

C. Alternative 3

Alternative 3 differs from Alternative 2 in that it would prohibit the placement of excess spoil or coal mine waste in perennial streams but not in intermittent streams. Otherwise, Alternative 3 contains no categorical prohibition on mining activities in or near perennial, intermittent, or ephemeral streams.

1. Protection of the Hydrologic Balance (Alternative 3)

- Baseline Data Collection and Analysis - Same as Alternative 2, except that Alternative 3 would require discrete measurement of streamflow and groundwater levels whereas Alternative 2 would require continuous measurements.
- Monitoring During Mining and Reclamation - Alternative 3 has all monitoring requirements the same as under Alternative 2, with the exception of precipitation monitoring. The engineer would be required to conduct an inspection of the surface water runoff control system after each storm event with a two-year or greater recurrence-interval, rather than after each storm event with a one-year or greater recurrence interval as under Alternative 2.
- Definition of Material Damage to the Hydrologic Balance Outside the Permit Area – The definition is the same as Alternative 2
- Evaluation Thresholds - Same as Alternative 2.

2. Activities in or near Streams (Alternative 3)

- Stream Definitions - Same as Alternative 1, the No Action Alternative.
- Activities In or Near Streams (Including Excess Spoil Fills and Coal Mine Waste Disposal Facilities) - Same as Alternative 2 except that Alternative 3 would allow the placement of excess spoil in intermittent streams. Alternative 3 lacks Alternative 2's categorical prohibition on mining activities in or near perennial streams, but it would prohibit the construction of excess spoil fills and coal mine waste disposal facilities in perennial streams. Alternative 3 would require that the permittee establish permanent streamside vegetative corridors along the banks of restored or diverted perennial or intermittent stream channels, but, unlike Alternative 2, it would not require establishment of streamside vegetative corridors along the banks of restored or diverted ephemeral streams. Alternative 3 would require that the streamside vegetative corridor be at least 300 feet in width, compared to the minimum 100-foot width under Alternative 2. Unlike Alternative 2, Alternative 3 would not require that the SMCRA permit incorporate any mitigation plan under section 404 of the Clean Water Act. Alternative 3 would also allow the permittee to construct excess spoil fills with flat decks, rather than requiring the use of landforming principles as under Alternative 2.
- Mining Through Streams - Same as Alternative 2, except that Alternative 3 would not prohibit mining through perennial streams. Nor would it require the regulatory authority to make special findings for mining through ephemeral streams, although it would require the permittee to restore the hydrologic function of ephemeral streams to the extent required by geomorphic reclamation principles.

3. Approximate Original Contour (AOC) and AOC Variances (Alternative 3)

- Surface Configuration - Same as Alternative 2, except that Alternative 3 would not include any numerical limits or tolerances on differences between premining and postmining elevations. In addition, there is no requirement to use landforming principles on the surface of excess spoil fills.
- AOC Variances - Alternative 3 would allow mountaintop removal mining operations and AOC variances for steep-slope mining operations under conditions generally similar to those in Alternative 1, the No Action Alternative. However, Alternative 3 would impose additional requirements to better protect streams, aquatic ecology, and biological communities. In addition, it would require that the permittee post bond in an amount sufficient to return the site to AOC if the permittee has not implemented the approved postmining land use before expiration of the revegetation responsibility period.

  In addition, the permittee must reforest the site with native species if the site was forested before submission of the permit application or would revert to forest under natural succession. This requirement would not apply to permanent impoundments, roads, and other

impervious surfaces to be retained following mining and reclamation or to those portions of the permit area covered by the variance.

4. Revegetation, Topsoil, and Fish and Wildlife Protection and Enhancement (Alternative 3)

- Revegetation, Reforestation and Topsoil Management - Alternative 3 has the same requirements for soil management and revegetation as Alternative 2, except that Alternative 3 requires salvage and redistribution of all organic matter from native species in accordance with an approved plan developed by a qualified ecologist or similar expert. Alternative 3 prohibits the burning of native vegetation and vegetative debris, but, unlike Alternative 2, it would allow the permittee to bury these materials.
- Fish and Wildlife Protection and Enhancement - Alternative 3 is similar to Alternative 1, the No Action Alternative, with respect to the protection of threatened and endangered species. However, Alternative 3 would codify the dispute resolution provisions of the 1996 Biological Opinion concerning protection of threatened and endangered species. It also would expressly require that the fish and wildlife protection and enhancement plan in the permit application include any species-specific protection and enhancement plans developed in accordance with the Endangered Species Act and any biological opinions implementing that law.

  Alternative 3 is similar to the No Action Alternative with respect to the fish and wildlife resource information and protection and enhancement plan required in the permit application. It also includes similar performance standards for protection of fish and wildlife. However, Alternative 3 would require that the permittee establish permanent streamside vegetative corridors at least 300 feet wide, comprised of native, non-invasive species, along the banks of restored or diverted perennial or intermittent stream channels. The permittee must use appropriate species of woody plants if the land would naturally revert to forest under natural succession.

  In addition, fish and wildlife enhancement measures would be mandatory whenever the proposed operation would result in the long-term loss of native forest, loss of other native plant communities, or filling of a segment of an intermittent stream. The enhancement measures must be commensurate with the long-term adverse impact to the affected resources and they must be located in the same watershed as the proposed operation (or the nearest appropriate adjacent watershed if there are no opportunities for enhancement within the same watershed). The permit area would include these areas of enhancement.

  Finally, Alternative 3 would allow the regulatory authority to prohibit mining of high-value habitats within the proposed permit area.

D. Alternative 4

Alternative 4 is similar to Alternative 2 except that it would have slightly more relaxed requirements for the collection of baseline data and monitoring, it would define streams based on different criteria than Alternative 2, and it would be more permissive than Alternative 2 in activities in or near streams, and mining through streams. However, Alternative 4 would impose additional permitting requirements on operations involving factors that OSMRE has determined pose additional risk to the environment and warrant enhanced permitting requirements. The text below discusses Alternative 4 proposed requirements for each element. These requirements would apply to all operations, including those involving enhanced permitting (at a minimum).

1. Protection of the Hydrologic Balance (Alternative 4)

- Baseline Data Collection and Analysis - Alternative 4 would require the same baseline data collection and analysis as Alternative 2, except that Alternative 4 requires discrete, rather than continuous measurements of streamflow and groundwater levels.

- Monitoring During Mining and Reclamation - Under Alternative 4, all monitoring requirements are the same as under Alternative 2 with the exception of precipitation monitoring.
- Definition of Material Damage to the Hydrologic Balance Outside the Permit Area - Same as Alternative 2.
- Evaluation Thresholds - Same as Alternative 2.

2. Activities in or near Streams (Alternative 4)

- Stream Definitions - Alternative 4 defines perennial, intermittent, and ephemeral streams in terms of flow regime, channel and substrate characteristics, and the biological community, if any, found in the stream. The definition of an intermittent stream would no longer include the one-square-mile watershed criterion.

  Alternative 4 would be the same as Alternative 2, except that Alternative 4 lacks Alternative 2's categorical prohibition on mining activities in or near perennial streams, and it would not prohibit the placement of excess spoil in intermittent streams. Similar to Alternative 2, Alternative 4 would require the permittee to establish permanent streamside vegetative corridors along both banks of the entire reach of restored or diverted perennial or intermittent stream channels, but it would not require establishment of streamside vegetative corridors along the banks of restored or diverted ephemeral streams. Alternative 4 would require that the streamside vegetative corridor be at least 300 feet in width, compared to the minimum 100-foot width under Alternative 2. Unlike Alternative 2, Alternative 4 would not require that the SMCRA permit incorporate any mitigation plan under section 404 of the Clean Water Act.
- Mining Through Streams - Same as Alternative 2, except as described in the Activities in or near Streams section for Alternative 4 above. Unlike Alternative 2, Alternative 4 would not prohibit mining through perennial streams. Nor would it require the regulatory authority to make special findings to approve mining through ephemeral streams. It would require restoration of the hydrologic function of ephemeral streams only to the extent required by geomorphic reclamation principles.

3. Approximate Original Contour (AOC) and AOC Variances (Alternative 4)

- Surface Configuration - Same as Alternative 2.
- AOC Variances - Same as Alternative 3.

4. Revegetation, Topsoil, and Fish and Wildlife Protection and Enhancement (Alternative 4)

- Revegetation, Reforestation and Topsoil Management - Same as Alternative 2.
- Fish and Wildlife Protection and Enhancement - Same as Alternative 3.

E. Alternative 5

This Alternative applies to surface and underground coal mining operations that would generate or dispose of excess spoil or coal mine waste outside the mined-out area, including the storage of material resulting from the creation of the face-up area for an underground mine. It also applies to all operations that would dispose of coal mine waste in perennial or intermittent streams. This Alternative would apply to the entire permit area whenever any portion of the operation met the criteria set forth above. It would also apply to contiguous permits if they were operated as a single operation with a permit that met the criteria. However, this Alternative would not apply to any operation that would otherwise not meet the criteria set forth above. These operations would remain under the existing requirements of Alternative 1, the No Action Alternative.

1. Protection of the Hydrologic Balance (Alternative 5)

- Baseline Data Collection and Analysis - Same as Alternative 2, with the exception that discrete measurements of streamflow and groundwater levels would be required as in Alternative 4.
- Monitoring During Mining and Reclamation - Under Alternative 5, all monitoring requirements are the same as under Alternative 2, with the exception of precipitation monitoring. In that case, the engineer would be required to conduct an inspection of the surface water runoff control system after each storm event with a two-year or greater recurrence-interval, rather than after each storm event with a one-year or greater recurrence interval as under Alternative 2.
- Definition of Material Damage to the Hydrologic Balance Outside the Permit Area - Same as Alternative 1, the No Action Alternative.
- Evaluation Thresholds - Same as Alternative 1 - the No Action Alternative.

2. Activities in or near Streams (Alternative 5)

- Stream Definitions - Same as Alternative 1, the No Action Alternative.
- Activities in or near Streams (Including Excess Spoil Fills and Coal Mine Waste Disposal Facilities) - Same as Alternative 2, except that Alternative 5 lacks Alternative 2's categorical prohibition on mining activities in or near perennial streams and it would not prohibit the placement of excess spoil in intermittent streams. Unlike Alternative 2, Alternative 5 would not require that the SMCRA permit incorporate any mitigation plan under section 404 of the Clean Water Act.
- Mining Through Streams - Same as Alternative 2, except as described in the Activities in or near Streams section for Alternative 5 above. Unlike Alternative 2, Alternative 5 would not prohibit mining through perennial streams. Nor would it require special findings for mining through ephemeral streams, although it requires restoration of the hydrologic function of ephemeral streams to the extent required by geomorphic reclamation.

3. Approximate Original Contour (AOC) and AOC Variances (Alternative 5)

- Surface Configuration - Same as Alternative 2, except that Alternative 5 does not require the use of landforming principles. Nor would it establish any numerical limits or tolerances with respect to the extent to which the postmining elevation may differ from the premining elevation. Alternative 5 would require the permittee to return as much spoil material to the mined-out area as possible to minimize the need for and creation of excess spoil fills.
- AOC Variances - Same as Alternative 3.

4. Revegetation, Topsoil, and Fish and Wildlife Protection and Enhancement (Alternative 5) –

- Revegetation and Soils - Same as Alternative 1, the No Action Alternative.
- Fish and Wildlife Protection and Enhancement - Same as Alternative 1, the No Action Alternative.

F. Alternative 6

This Alternative is limited to mining activities conducted in intermittent or perennial streams or within 100 feet of those streams. It would prohibit all mining activities within those areas unless the regulatory authority makes specific findings concerning the environmental impacts of the proposed operation. Alternative 6 would be the same as Alternative 1 (the No Action Alternative) for mining activities on all other areas of the permit, with the exceptions of new requirements proposed for baseline data collection and monitoring.

1. Protection of the Hydrologic Balance (Alternative 6)

- Baseline Data Collection and Analysis - Same as Alternative 2.
- Monitoring During Mining and Reclamation - Same as Alternative 2.
- Definition of Material Damage to the Hydrologic Balance Outside the Permit Area (Alternative limited to the Enhanced Stream Buffer Zone) - Same as Alternative 1, the No Action Alternative.
- Evaluation Thresholds Alternative limited to the Enhanced Stream Buffer Zone) - Same as Alternative 1, the No Action Alternative.

2. Activities in or near Streams (Alternative 6)

- Stream Definitions - Same as Alternative 1, the No Action Alternative.
- Activities in or near Streams (Including Excess Spoil Fills and Coal Mine Waste Disposal Facilities) - Alternative 6 would prohibit mining activities in or within 100 feet of perennial and intermittent streams unless the applicant demonstrates each of the following:
    - The ecological function of the stream would be protected or restored;
    - Placement of excess spoil or coal mine waste within that area would not result in the formation of toxic mine drainage as that term is defined at 30 CFR 701.5;
    - Long-term adverse impacts, including impacts within the footprint of any fill, to the environmental resources of the stream would be offset through fish and wildlife enhancement measures in the same or an adjacent watershed;
    - Mining activities to be conducted within 100 feet of the stream, but not in the stream itself, would not adversely affect the water quality or quantity or other environmental resources of the stream; and
    - The revegetation plan requires establishment of a permanent streamside vegetative corridor at least 100 feet in width along the entire reach of any restored or permanently diverted perennial, intermittent, or ephemeral stream segment.

  Alternative 6 would require the mining operation design to minimize the generation of excess spoil. It also requires the design of excess spoil fills and coal mine waste disposal facilities to minimize their footprints. The intent of both requirements is to reduce the length of stream that the operation would cover.

  Each applicant proposing to place excess spoil or coal mine waste in an intermittent or perennial stream or within 100 feet of such a stream must identify and analyze a range of reasonable operational alternatives. The applicant must select the alternative that would have the least adverse impact of all reasonable operational alternatives on fish, wildlife, and related environmental values.

  Under Alternative 6, the permittee must construct any excess spoil fills in lifts not to exceed four feet in thickness. Alternative 6 would eliminate the current regulation at 30 CFR 816.73, which allows construction of durable rock fills that rely upon end-dumping and the construction of underdrains by gravity segregation of the end-dumped material. This Alternative would require daily monitoring during excess spoil placement. It would revise the existing rules to require that the quarterly inspection reports filed with the regulatory authority include the daily monitoring logs. Alternative 6 would allow construction of excess spoil fills with flat decks on top, and includes no landforming requirements for excess spoil fills.
- Mining Through Streams - Same as Alternative 2, except that Alternative 6 would not prohibit mining through perennial streams. Nor would it require the regulatory authority to make special findings for mining through ephemeral streams, although it would require the permittee to restore the hydrologic function of ephemeral streams to the extent required by geomorphic reclamation principles. In addition, it would require the permittee to establish a

streamside vegetative corridor at least 100 feet in width along the entire reach of all streams, including ephemeral streams, within the permit area after completing mining.

3. Approximate Original Contour (AOC) and AOC Variances (Alternative 6)

- Surface Configuration - Same as Alternative 1, the No Action Alternative.
- AOC Variances - Same as Alternative 1, the No Action Alternative.

4. Revegetation, Topsoil, and Fish and Wildlife Protection and Enhancement (Alternative 6)

- Revegetation, Reforestation and Topsoil Management - Same as Alternative 1, the No Action Alternative.
- Fish and Wildlife Protection and Enhancement - Same as Alternative 1, the No Action Alternative, except Alternative 6 would require that the permittee establish permanent streamside vegetative corridors at least 100 feet wide, comprised of native, non-invasive species, along both banks of all perennial, intermittent, and ephemeral stream segments within the permit area after the completion of mining. The permittee must use appropriate species of woody plants to reforest the site if the site would naturally revert to forest under natural succession.

  In addition, fish and wildlife enhancement measures are mandatory whenever the proposed operation would result in the long-term loss of native forest, loss of other native plant communities, or filling of a segment of a perennial or intermittent stream. The enhancement measures must be commensurate with the long-term adverse impact to the affected resources and they must be located in the same watershed as the proposed operation (or the nearest appropriate adjacent watershed if there are no opportunities for enhancement within the same watershed). The areas upon which the enhancement measures are conducted must be included within the permit area. Finally, Alternative 6 would allow the regulatory authority to prohibit mining of high-value habitats within the proposed permit area.

G. Alternative 7

Similar to Alternative 4, this Alternative would impose additional requirements on the operations OSMRE have identified as warranting enhanced permitting. For these operations, Alternative 7 would also include new requirements based on the elements as discussed below. All other operations (i.e., those that did not fall under the list of operations identified as warranting enhanced permitting) would continue to fall under the existing regulations of Alternative 1, the No Action Alternative.

1. Protection of the Hydrologic Balance (Alternative 7)

- Baseline Data Collection and Analysis - Same as Alternative 2 but would apply only when the specified conditions exist that warrant enhanced permitting conditions. Otherwise baseline data collection and analysis requirements would be the same as Alternative 1, the No Action Alternative.
- Monitoring During Mining and Reclamation - Same as Alternative 2 but would apply only when the specified conditions exist that warrant enhanced permitting conditions. Otherwise baseline data collection and analysis requirements would be the same as the Alternative 1, No Action Alternative.
- Definition of Material Damage to the Hydrologic Balance Outside the Permit Area - Same as Alternative 1, the No Action Alternative. OSMRE would expect each regulatory authority to establish criteria to measure material damage to the hydrologic balance for purposes of cumulative hydrologic impact assessments.
- Evaluation Thresholds - In areas subject to enhanced permitting requirements, Alternative 7 would require the regulatory authority to develop evaluation thresholds. For these areas, the

regulatory authority would be required to establish evaluation thresholds for critical parameters centered on baseline data, and associated conditions, and the analysis conducted for the CHIA. The regulatory authority would define these thresholds based on the degree of environmental degradation that would require evaluation before the operation causes material damage to the hydrologic balance outside the permit area. The permittee would be required to conduct a water quality trend analysis of the monitoring data on a quarterly basis to determine environmental impacts from the site. If the analysis indicates that values or trends in values, for any surface water or groundwater parameter have reached the evaluation threshold specified in the permit, the permittee must notify the regulatory authority and evaluate the conditions that caused the threshold parameter to be met or exceeded. If the permittee finds, and the regulatory authority agrees, that the increase is due to the permittee's mining activity, then the operator must develop and implement corrective measures to ensure that material damage to the hydrologic balance outside the permit area does not occur. The requirement to institute corrective measure would not apply if the permittee demonstrates, and the regulatory authority concurs in writing, that the adverse values or trends for the parameters of concern are not the result of the mining operation.

2. Activities in or near Streams (Alternative 7)

- Stream Definitions - Same as the No Action Alternative, except that Alternative 7 would remove the one-square-mile criterion in the existing definition of an intermittent stream. Alternative 7 would require coordination with the Clean Water Act authority on defining stream flow condition. Both the permit applicant and the regulatory authority must seek input from the Clean Water Act authority for all new applications, and incorporate where applicable all Clean Water Act authority concerns and criteria.
- Activities in or near Streams (Including Excess Spoil Fills and Coal Mine Waste Disposal Facilities) - In areas warranting enhanced permitting requirements, Alternative 7 would place the same new limitations and requirements on activities in or near streams as would Alternative 2. For all other operations, the requirements of Alternative 1, the No Action Alternative would continue to apply.
- Mining Through Streams - In areas warranting enhanced permitting requirements, this Alternative would place the same limitations and requirements on mining through streams as Alternative 2. In all other areas outside those warranting the enhanced permitting conditions, the current requirements of Alternative 1, the No Action Alternative would continue to apply.

3. Approximate Original Contour (AOC) and AOC Variances (Alternative 7)

- Surface Configuration - In areas warranting enhanced permitting requirements, Alternative 7 would impose the same requirements as Alternative 2. In all other areas, the existing requirements of Alternative 1, the No Action Alternative would continue to apply.
- AOC Variances - Alternative 7 proposes no changes to the current regulations governing mountaintop removal mining operations and AOC variances for steep-slope mining operations. Requirements would be the same as they are under Alternative 1, the No Action Alternative.

4. Revegetation, Topsoil, and Fish and Wildlife Protection and Enhancement (Alternative 7)

- Revegetation, Reforestation and Topsoil Management - In areas subject to the enhanced permitting requirements, requirements for revegetation, topsoil management and reforestation would be the same as under Alternative 2. In all other areas, the existing requirements of Alternative 1, the No Action Alternative would continue to apply.

- Fish and Wildlife Protection and Enhancement - Under Alternative 7, for areas subject to the enhanced permitting requirements, the regulatory authority may prohibit mining of areas where high value habitats are present. All other requirements for fish and wildlife protection and enhancement within these areas would be the same as Alternative 3, except that under Alternative 7 the required streamside vegetative corridor width would be 100 feet versus 300 under Alternative 3.

H. Alternative 8 - Preferred Alternative

After evaluating the comments that OSMRE received on the DEIS and Alternative 8, OSMRE revised various aspects of Alternative 8 as initially proposed in the DEIS. Chapter 2 of the FEIS identifies the revisions that were made to Alternative 8. Alternative 8 in the FEIS is the Preferred Alternative, is comprised of selected stream protection elements of the other Action Alternatives analyzed, and is summarized in the following sections by each of the four functional groups.

1. Protection of the Hydrologic Balance (Preferred Alternative)

- Baseline Data Collection and Analysis - For the baseline data collection and analysis, the applicant must provide surface-water quantity descriptions for perennial and intermittent streams within the proposed permit and adjacent areas. The applicant must collect surface water samples and measure the levels of groundwater in perched, regional, and local aquifers for twelve consecutive months at approximately equally spaced monthly intervals. The applicant could modify the interval between samples to allow for adverse weather conditions that would make it unsafe to travel to sampling locations. The applicant must analyze surface water and groundwater samples for the multiple parameters, provide a detailed description of stream channel characteristics for perennial and intermittent streams, and a general description for the ephemeral streams located within the proposed permit area.

  The Preferred Alternative requires use of a scientifically defensible bioassessment protocol for perennial streams and for intermittent streams where such protocol exists, as accepted by the agencies responsible for implementing the Clean Water Act that will provide correlation to index values for both stream habitat and aquatic biota. The protocol must require identification of benthic macroinvertebrates to the genus level where possible, otherwise to the lowest practical taxonomic level.

  The Preferred Alternative requires use of continuous recording devices to record all precipitation and storm events to provide baseline data that is adequate to generate and calibrate a hydrologic model of the site. The permit applicant must identify the extent and quality of wetlands adjoining all streams within the proposed permit area, and wetlands adjoining perennial and intermittent streams that occur in adjacent areas. The Preferred Alternative also requires collection of geologic data for the proposed permit and adjacent areas, with a focus on geological characteristics and properties that influence the hydrologic regime or that could alter the availability or quality of groundwater and surface water.
- Monitoring During Mining and Reclamation - The Preferred Alternative requires monitoring of surface water and groundwater during mining and reclamation at least quarterly for the same parameters measured during baseline sampling at locations designated in the permit. The Preferred Alternative requires the permittee to monitor the biological condition of perennial streams and intermittent streams for which scientifically defensible bioassessment protocols exist annually until final bond release. The regulatory authority must establish threshold values for water quality and quantity parameters that, when exceeded, as documented by monitoring, would result in an evaluation by the regulatory authority and the Clean Water Act authority to determine the reason for the exceedance. Under the Preferred Alternative, OSMRE clarified that the regulatory authority must reevaluate the CHIA at intervals not to exceed three years. This evaluation must include a review of biological and

water monitoring data from both this operation and all other coal mining operations within the cumulative impact area.

The Preferred Alternative requires an inspection of the surface water runoff-control system following storm events that recur on a two-year or greater interval and requires the operator to submit a report after such an event. This alternative requires that monitoring continue until final bond release. OSMRE added a requirement for restoration of the hydrologic function of mined-through perennial and intermittent streams before the regulatory authority may approve a Phase II bond release application. The regulatory authority may not grant final Phase III bond release until the permittee demonstrates restoration of the ecological function of mined-through perennial and intermittent streams.

- Definition of Material Damage to the Hydrologic Balance Outside the Permit Area - OSMRE revised Alternative 8 definition of material damage to the hydrologic balance outside the permit area by removing all criteria. The Preferred Alternative now requires a list of factors that the regulatory authority, in consultation with the Clean Water Act authority, must consider in determining material damage thresholds. Those factors include baseline data and reasonably anticipated or actual effects that the operation may have with respect to compliance with any applicable state or federal water quality standards and the Endangered Species Act of 1973, as well as the effects on premining uses of surface water and groundwater.
- Evaluation Thresholds - The Preferred Alternative relies on existing regulations that require permit applicants proposing to conduct surface or underground coal mining under sections 780.21(h) or 784.14(g) respectively, to provide a plan of measures the applicant would take to avoid adverse potential adverse hydrologic consequences, including preventative and remedial measures. The Preferred Alternative also relied on existing requirements at 30 CFR 816.41(c)(2) and (e)(2) and 817.41(c)(2) and (e)(2) that state that if monitoring results demonstrate noncompliance with permit conditions or federal, state, or tribal water quality laws and regulations, the permittee must promptly notify the regulatory authority and then take all possible steps to minimize any adverse impact to the environment or public health and safety, and must immediately implement measures necessary to comply with permit conditions (30 CFR 773.17(e)).

  In the Preferred Alternative, the permit requirements include evaluation thresholds for critical water quality and quantity parameters as determined by the regulatory authority. An exceedance of an evaluation threshold, as documented by monitoring, would result in an evaluation by the regulatory authority and the Clean Water Act authority to determine the reason for the exceedance.

2. Activities in or near Streams (Preferred Alternative)

- Stream Definitions – The Preferred Alternative includes definitions of ephemeral, intermittent, and perennial streams to limit the scope of those terms to conveyances with channels that have a bed-and-bank configuration and an ordinary high water mark, consistent with the approach taken by the U.S. Army Corps of Engineers in implementing section 404 of the Clean Water Act. The Preferred Alternative will not classify an ephemeral drainage that does not have a bed-and bank configuration and an ordinary high water mark as an ephemeral stream. The Preferred Alternative clarifies that a stream with a bed that is always above the water table and with flows arising solely from snowmelt and precipitation events would be classified as ephemeral.
- Activities in or near Streams and Mining through Streams (Excess Spoil Fills and Coal Mine Waste Disposal Facilities) - The Preferred Alternative would prohibit mining activities in or through perennial and intermittent streams or on the surface of land within 100 feet of those streams unless the applicant makes specific outlined demonstrations and the regulatory authority makes the corresponding findings.

The Preferred Alternative would require the applicant demonstrate that (1) the operation has been designed to minimize, to the extent possible, the volume of excess spoil that the operation would generate, and (2) the designed maximum cumulative volume of all proposed excess spoil fills is no larger than the capacity needed to accommodate the anticipated cumulative volume of excess spoil that the operation would generate. Both requirements are intended to reduce the length of stream that the operation will bury.

The Preferred Alternative would prohibit construction of durable rock fills, which use end-dumping as a means of spoil placement and rely upon gravity segregation to form underdrains and require daily monitoring during excess spoil placement. It would revise the existing rules to require that the quarterly inspection reports filed with the regulatory authority include the daily monitoring logs. The Preferred Alternative would prohibit the construction of excess spoil fills with flat decks on the top surface.

- Mining through Streams - The Preferred Alternative would allow mining through any type of stream (perennial, intermittent, or ephemeral) under the conditions that the permittee must restore the form, hydrological function, and the ecological function of all perennial and intermittent stream segments that are mined through. The permittee must establish a 100-foot-wide or wider streamside vegetative corridor on each side of every perennial, intermittent, and ephemeral stream that is mined through and reconstructed. The corridor must be comprised of native species, including species with riparian characteristics when appropriate. Native trees and shrubs must be planted in areas that are forested at the time of permit application or that would revert to forest under conditions of natural succession. This revegetation requirement would not apply to prime farmland historically used for cropland or to situations in which revegetation would be incompatible with an approved postmining land use that is implemented during the revegetation responsibility period before final bond release.

3. Approximate Original Contour (AOC) and AOC Variances (Preferred Alternative)

- Surface Configuration - Same as Alternative 1, the No Action Alternative, with minor revisions to the definition of AOC to clarify its meaning, reflect state program amendment actions, and address implementation issues. Alternative 8 also specifies that the postmining drainage pattern of perennial, intermittent, and ephemeral stream channels be similar to the premining drainage pattern, unless the regulatory authority approves a different pattern to ensure stability; prevent or minimize downcutting of reconstructed stream channels; promote enhancement of fish and wildlife habitat; accommodate any anticipated temporary or permanent increase in surface runoff as a result of mining and reclamation; accommodate the construction of excess spoil fills, coal mine waste refuse piles, or coal mine waste impounding structures; replace a stream that was channelized or otherwise severely altered prior to submittal of the permit application with a more natural and ecologically sound drainage pattern or stream-channel configuration; or reclaim a previously mined area.
- AOC Variances - The Preferred Alternative would allow mountaintop removal mining operations and AOC variances for steep-slope mining operations under conditions generally similar to those in Alternative 1, the No Action Alternative. However, the Preferred Alternative 8 would establish additional standards to better protect streams, aquatic ecology, and biological communities. In addition, it would require that the permit include a condition prohibiting any bond release before substantial implementation of the approved postmining land use.

  For approval of mountaintop removal mining operations, the Preferred Alternative would require the permit applicant to demonstrate that no damage would result to natural watercourses within the proposed permit and adjacent areas. In addition, the permittee must reforest the site with native species if the site was forested before submission of the permit

application, unless reforestation would be inconsistent with the implemented postmining land use.

The permittee must install drains through the outcrop barrier to prevent saturation of the backfill and for approval of steep-slope variances. The Preferred Alternative would, in addition to the requirements in the existing rules, require permit applicants to demonstrate that all of the following criteria are met:

- The operation, including any fish and wildlife enhancement measures, will result in fewer adverse impacts to the aquatic ecology of the cumulative impact area than would occur if the site were mined and restored to AOC;
- The variance would not result in construction of an excess spoil fill in an intermittent or perennial stream; and
- Any deviations from the premining surface configuration are necessary and appropriate to achieve the postmining land use.

4. Revegetation, Topsoil, and Fish and Wildlife Protection and Enhancement (Preferred Alternative)

- Revegetation and Soils - The Preferred Alternative includes provisions similar to those of the No Action Alternative with respect to soil management and revegetation, but with a greater emphasis on restoration of the site's ability to support the uses it supported before any mining, regardless of the approved postmining land use. The Preferred Alternative also places greater emphasis on construction of a growing medium with an adequate root zone for deep-rooted species and on revegetation with native tree and plant species, especially reforestation of previously forested areas.

  Like the No Action Alternative, The Preferred Alternative requires salvage and redistribution of all topsoil (the A and E soil horizons). However, it also requires salvage and redistribution of the B and C soil horizons (or other suitable overburden materials) to the extent necessary to achieve a growing medium with the optimal rooting depths required to restore premining land use capability or comply with revegetation requirements.
- Fish and Wildlife Protection and Enhancement - The Preferred Alternative would make it a requirement that the applicant demonstrate to the regulatory authority that the proposal is in compliance with the Endangered Species Act of 1973, 16 U.S.C. 1531 et seq., through one of the mechanisms as prescribed by 30 CFR 773.15(j)(1)-(4).

  Additionally, the Preferred Alternative requires that the applicant describe the steps that the applicant has taken or will take to comply with the Endangered Species Act of 1973, 16 U.S.C. 1531 et seq. It also prescribes that the regulatory authority may not approve the permit application before there is a demonstration of compliance with the Endangered Species Act of 1973, 16 U.S.C. 1531 et seq., through one of the mechanisms identified in final rule section 773.15(j)(1)-(4).

  The Preferred Alternative requires that the permittee establish permanent streamside vegetative corridors at least 100 feet wide, comprised of native, non-invasive species, along the banks of restored or diverted ephemeral, intermittent or perennial stream channels. The permittee must use appropriate species of woody plants if the land would naturally revert to forest under natural succession. In addition, fish and wildlife enhancement measures would be mandatory whenever the proposed operation would result in the long-term loss of native forest, loss of other native plant communities, or filling of a segment of a perennial or intermittent stream.

I. Alternative 9

Alternative 9 is identical to the 2008 Stream Buffer Zone rule, which was vacated by court order on February 20, 2014. See 79 FR 76227-76233 (Dec. 22, 2014). This alternative is summarized in the following sections by each of the four functional groups.

1. Protection of the Hydrologic Balance (Alternative 9) -

- Baseline Data Collection and Analysis - Same as Alternative 1, the No Action Alternative.
- Monitoring During Mining and Reclamation - Same as Alternative 1, the No Action Alternative.
- Definition of Material Damage to the Hydrologic Balance Outside the Permit Area - Same as Alternative 1, the No Action Alternative.
- Evaluation Thresholds - Same as Alternative 1, the No Action Alternative.

2. Activities in or near Streams (Alternative 9)

- Stream Definitions - Same as Alternative 1, the No Action Alternative.
- Activities in or near Streams (Including Excess Spoil Fills and Coal Mine Waste Disposal Facilities) - The requirements in Alternative 9 differ depending upon whether the surface mining activities would occur in perennial or intermittent streams or whether they would be limited to the buffer zone for those streams (the surface of land within 100 feet, measured horizontally, of the stream). Under this Alternative, diversions of perennial and intermittent streams would be governed by a separate set of requirements. Also, as in Alternative 1, the No Action Alternative, coal preparation plants located outside the permit area of a mine would not be subject to these requirements.

  Before approving any surface mining activities in a perennial or intermittent stream (other than a diversion of that stream), the regulatory authority must find in writing that avoiding disturbance of the stream is not reasonably possible. The permit also must include a condition requiring a demonstration of compliance with the Clean Water Act before the permittee may conduct any activities in a perennial or intermittent stream that require authorization or certification under the Clean Water Act.

  Before approving any surface mining activities on the surface of land within 100 feet of a perennial or intermittent stream in situations where the activities would not take place in the stream segment itself, the SMCRA regulatory authority must find in writing that (1) avoiding disturbance of the surface of land within 100 feet of the stream either is not reasonably possible or is not necessary to meet the fish and wildlife and hydrologic balance protection requirements of the regulatory program and (2) that the measures proposed in the permit application constitute the best technology currently available to prevent the contribution of additional suspended solids to streamflow or runoff outside the permit area to the extent possible, and that the proposed measures would minimize disturbances and adverse impacts on fish, wildlife, and related environmental values to the extent possible There would be no requirement for the regulatory authority to make a separate finding approving activities such as disposal of excess spoil, coal mine waste, or construction of stream crossings or sediment ponds within the buffer zone for these stream segments.

  However, the operation must be designed to avoid placement of excess spoil or coal mine waste in or within 100 feet of a perennial or intermittent stream to the extent possible. If avoidance is not reasonably possible then the applicant must identify a reasonable range of alternatives and select the alternative with the least overall adverse impact on fish, wildlife, and related environmental values, including adverse impacts on water quality and aquatic and terrestrial ecosystems. However, an alternative with a cost substantially greater than the costs normally associated with this type of project need not be considered.

In addition, for excess spoil, the applicant must provide a demonstration that (1) the operation has been designed to minimize, to the extent possible, the volume of excess spoil that the operation would generate and (2) the designed maximum cumulative volume of all proposed excess spoil fills is no larger than the capacity needed to accommodate the anticipated cumulative volume of excess spoil that the operation would generate.

Excess spoil fill construction requirements are similar to those in Alternative 1, the No Action Alternative. Durable rock fills may be constructed by end-dumping and formation of underdrains by gravity segregation. Flat decks on the top surface of excess spoil fills are allowed. Inspections conducted at least quarterly and during critical stages of fill construction must be certified by a registered professional engineer. The permittee must submit to the regulatory authority an inspection report after every inspection specifying that the fill has been constructed and maintained as approved.

- Mining through Streams - Under Alternative 9, the regulatory authority may approve the diversion of perennial or intermittent streams within the permit area if the diversion is located and designed to minimize adverse impacts on fish, wildlife, and related environmental values to the extent possible, using the best technology currently available.

  Design and construction requirements for a permanent stream-channel diversion or a stream channel restored after the completion of mining are similar to those in Alternative 1, the No Action Alternative. The exception is that Alternative 9 would require the use of natural-channel design techniques to minimize adverse alteration of stream channels on and off the site, including channel deepening or enlargement, to the extent possible.

3. Approximate Original Contour (AOC) and AOC Variances (Alternative 9)

- Surface Configuration - Same as Alternative 1, the No Action Alternative.
- AOC Variances - Same as Alternative 1, the No Action Alternative.

4. Revegetation, Topsoil, and Fish and Wildlife Protection and Enhancement (Alternative 9)

- Revegetation and Soils - Same as Alternative 1, the No Action Alternative.
- Fish and Wildlife Protection and Enhancement - Same as Alternative 1, the No Action Alternative.

IV. Public Involvement and Agency Coordination

OSMRE engaged extensively with stakeholders, including the state RAs, in the development of the SPR. The public involvement began with the Advance Notice of Proposed Rulemaking and proceeded to include a Notice of Intent to prepare an EIS, 15 stakeholder outreach meetings, nine public scoping meetings, and two public comment periods for the scoping for the DEIS. The scoping process generated over 20,500 comments, including input from the states.

OSMRE invited the Hopi, Navajo, Crow, and Ute Mountain Ute Tribes to be cooperating agencies in the NEPA process due to the extensive coal reserves on tribal lands. The tribes declined this invitation, and instead opted to participate through government-to-government consultation (see Section VII of this ROD). A number of state agencies, including state RAs, participated as cooperating agencies in the early development of the DEIS for the SPR. In November 2010, OSMRE sent Chapters 1, 2, 3, and 4, which are the main sections of the DEIS, to all cooperating agencies. Those chapters included the statement of purpose and need, a description of the alternatives considered, a description of the affected environment, and an analysis of the environmental consequences of the alternatives. The cooperating agencies provided meaningful input and comments. OSMRE used this information to prepare the DEIS. In response to this and other feedback, OSMRE revised the DEIS over the next several years. Shortly before

OSMRE announced the availability of the DEIS for public comment, all but one of the state RAs, the Wyoming Department of Environmental Quality (Wyoming DEQ), voluntarily terminated their role as cooperating agencies. Two other state agencies, West Virginia Department of Natural Resources and Virginia State Historic Preservation Officer, also continued to participate as cooperating agencies.

The DEIS was made available for public comment from July 17, 2015 through October 26, 2015. During the comment period, OSMRE held six public hearings in Colorado, Kentucky, Missouri, Pennsylvania, Virginia, and West Virginia. Before the close of the comment period, OSMRE invited the former cooperating state agencies to re-engage as cooperating agencies under NEPA. None accepted this invitation. Ultimately, OSMRE received approximately 95,000 comments, including hundreds of pages of comments from state RAs, on the DEIS, draft Regulatory Impact Assessment (RIA), and the proposed SPR. OSMRE considered these comments in refining the Preferred Alternative in the FEIS.

The DOI's Assistant Secretary for Land and Minerals Management, the Director of OSMRE, and other OSMRE officials continued to meet with representatives of states after the close of the comment period, consistent with Congressional direction in a report accompanying the Consolidated Appropriations Act of 2016, Pub. L. 114-113. In addition to meetings with state RAs in conjunction with Interstate Mining Compact Commission meetings, DOI and OSMRE representatives have either met with or held telephone or video conferences with 14 different state RAs since the proposed rule was published. OSMRE also held six meetings between OSMRE staff and state RA technical personnel to discuss the scientific studies and other reference documents on April 14 and April 21, 2016. The meetings were held simultaneously in Denver, Colorado; Alton, Illinois; and Pittsburgh, Pennsylvania. Representatives from six state RAs participated in the meeting on April 14, 2016, and representatives from five state RAs participated in the meeting on April 21, 2016. OSMRE also provided electronic copies of reference materials relied upon to prepare the proposed rulemaking to the state RAs, except for copyrighted materials. OSMRE offered to assist the states in locating and obtaining library copies of copyrighted materials. No state asked for additional assistance in locating the resources.[2]

In a letter dated May 18, 2016, OSMRE sought input from Wyoming DEQ on comments that OSMRE received on the DEIS that were relevant to Wyoming DEQ's specific expertise and OSMRE's proposed responses to these comments. In a return letter dated June 3, 2016, the Wyoming DEQ expressed concern that the comments that OSMRE selected were not inclusive of all the comments provided on the DEIS. Their letter provided no further input or comments on the proposed corresponding responses provided by OSMRE. In a subsequent letter dated September 30, 2016, OSMRE provided the draft affected environment chapter of the FEIS (Chapter 3) to the Wyoming DEQ for review. The Wyoming DEQ responded with comments in a letter dated October 18, 2016; OSMRE made edits where necessary before finalizing the FEIS.

In September 2016, OSMRE provided similar materials associated with the preparation of the FEIS to the non-RA state cooperating agencies, the West Virginia Department of Natural Resources and Virginia State Historic Preservation Officer. These materials included comments received on the DEIS and OSMRE's draft responses to those comments that were related to each of their specific authority and expertise. No responses to the September 2016 correspondence were received. However, the Virginia State Historic Preservation Officer previously provided comments on the DEIS, which were incorporated into the FEIS.

As discussed in Section II of this ROD, notices of availability for the FEIS were published on November 16, 2016, and the FEIS was made available on the Internet at www.regulations.gov, the OSMRE website, and the OSMRE offices. CEQ regulations provide that an agency must wait at least 30 days after

[2] As part of the rulemaking process, the Office of Information and Regulatory Affairs within the White House's Office of Management and Budget also held at least 38 Executive Order 12866 meetings with interested parties on the proposed rule, including many state RAs. OSMRE and DOI staff participated in the large majority of these meetings. See https://www.reginfo.gov/public/do/eom12866Search (last accessed December 14, 2016).

publication of the EPA notice of availability before making a decision on a project requiring an environmental impact statement. 40 CFR 1506.10. The last day of the 30-day waiting period was December 15, 2016. No submissions from the public were received during the 30-day waiting period.

V. National Historic Preservation Act Compliance

Various Federal laws, regulations, and executive orders and the Navajo Nation Cultural Resource Protection Act (Title 19, Section 201) establish requirements for protecting cultural resources, but the primary requirements are those of Section 106 of the National Historic Preservation Act (NHPA) (54 U.S.C. 300101 et seq.). Section 106 of the NHPA and its implementing regulations require a Federal Agency with direct or indirect jurisdiction over a Federal, Federally assisted, or Federally permitted or approved undertaking to take into account the effects of the undertaking on historic properties included in or eligible for the National Register of Historic Places (NRHP). The head of any such Federal agency shall afford the Advisory Council of Historic Preservation (ACHP) a reasonable opportunity to comment on undertakings affecting resources, and consult with applicable Tribal Historic Preservation Officers, State Historic Preservation Officers, and Indian tribes.

Section 101(b)(4) of NEPA established a Federal policy of preserving not only important natural aspects of our national heritage but also historical and cultural aspects. Accordingly, regulations implementing NEPA (40 CFR part 1502.16(g)) stipulate that Federal agencies consider the consequences of their undertakings on historic and cultural resources. The regulations that govern NEPA and NHPA implementation allow for a parallel NEPA and section 106 process in an effort to streamline the environmental compliance process. The regulations also allow that if the lead agency determines that its activity is a type of activity that has no potential to affect historic properties, the agency has no further section 106 obligations.

OSMRE is the Lead Federal Agency for the section 106 process for the SPR. During the NEPA review process, OSMRE reviewed and evaluated the potential for the SPR to affect historic properties. The purpose of the SPR rulemaking is to update and revise the regulations to reflect the best available science in order to avoid or minimize these negative impacts and provide regulatory certainty to industry. Under the SPR, OSMRE continues to implement its federal responsibilities to implement section 106 of the National Historic Preservation Act and protect historic properties on or eligible for the NRHP. Nothing in the SPR substantively changes or revises previous requirements to protect historic properties during mining and reclamation. From this review, OSMRE determined that the SPR regulatory revisions and clarifications using plain language are not the type of activities that have the potential to affect the protection of historic properties included in or eligible for the NRHP. Therefore, OSMRE concluded that there are no further section 106 consultation obligations for the SPR.

VI. Endangered Species Act Consultation and Compliance

Under section 7 of the Endangered Species Act of 1973 (ESA), 16 U.S.C. 1536(a)(2), federal agencies must consult on any action that "may affect" a listed species with either the U.S. Fish and Wildlife Service (Service) or the National Marine Fisheries Service (NMFS), depending upon the species in question. Generally speaking, NMFS handles marine and anadromous species and the Service handles terrestrial and freshwater species. OSMRE contacted the Service in 2013 to begin its section 7 consultation on the proposed SPR because it determined that the SPR would have an effect on terrestrial and freshwater species under the jurisdiction of the Service.

OSMRE initiated and continued formal consultation and coordination throughout the NEPA process for biological resources potentially affected by the proposed SPR. As discussed in the FEIS at page 4-128, OSMRE initially sought to develop a process where a state RA could continue to rely on compliance with the terms and conditions of the 1996 Biological Opinion to obtain incidental take coverage for surface

coal mining and reclamation operations. This reliance on the 1996 Biological Opinion was anticipated to be effective until the states completed the process of updating their programs to be no less effective than the SPR and obtained approval for those updates from OSMRE. At that point, the terms and conditions of the incidental take statement from the 2016 Programmatic Biological Opinion associated with the SPR would have to be followed in order for a state regulatory to obtain incidental take coverage.

OSMRE worked with the Service to develop a Memorandum of Understanding (MOU) to outline this process for the SPR. However, during the course of the formal consultation, OSMRE and the Service determined that this approach was not viable because, as discussed in the final executed MOU and the 2016 programmatic Biological Opinion, significant new information became available during development of the SPR and the FEIS that revealed that surface coal mining operations affect listed species, proposed species, and proposed and designated critical habitats in a manner and to an extent not considered in the 1996 Biological Opinion. This information independently triggered reinitiating ESA section 7 consultation on the 1996 Biological Opinion. Therefore, OSMRE may not allow state RAs to rely on the 1996 Biological Opinion between the signing of the SPR and full implementation of the SPR in state programs. This ROD updates the information contained in the FEIS with the results of the completed section 7consultation process.

During the consultation, OSMRE and the Service determined that the ESA section 7 consultation needed to include:

- An evaluation of the potential impacts to species resulting from the continuation of existing permits approved under the 1996 Biological Opinion;
- The approval and conduct of future surface coal mining and reclamation operations by state RAs under the existing regulations between the effective date of the SPR and the time when state RAs update their programs to be to be no less effective than OSMRE's SPR and all program amendments are approved by OSMRE; and
- The approval and conduct of future surface coal mining and reclamation operations by state RAs after updating their programs to be no less effective than the SPR.

Therefore, the consultation addressed direct implementation and enforcement of the Preferred Alternative for the SPR in federal program states, oversight of state programs under the existing regulations until those state RAs amend their approved programs to be consistent with the SPR, and oversight of state programs as modified to be consistent with the SPR, including OSMRE's oversight of compliance with requirements related to the protection and enhancement of proposed or listed species and proposed or designated critical habitats.

On December 16, 2016, OSMRE and the Service entered into a MOU to improve interagency coordination and cooperation to ensure that proposed, threatened, and endangered species and proposed and designated critical habitat are adequately protected for all surface coal mining and reclamation operations and coal exploration conducted under SMCRA, including initial permit issuance, permit renewals, and significant permit revisions. The MOU complements the Service's 2016 Programmatic Biological Opinion. The MOU specifically addresses the permit review and approval processes when proposed or listed species or proposed or designated critical habitats are involved, also referred to as the technical assistance process, and provides detailed dispute resolution procedures should there be disagreement between the state RA and the relevant Service office under the 2016 Programmatic Biological Opinion.

The Service also issued a Programmatic Biological Opinion on December 16, 2016, finding that OSMRE's direct enforcement of the federal regulatory program, approval and conduct of surface coal mining and reclamation operations by primacy states, and oversight and enforcement of those state programs, as outlined in the MOU and modified by the SPR Preferred Alternative, is not likely to jeopardize the continued existence of proposed and listed species and is not likely to destroy or adversely

modify proposed or designated critical habitat. In the process of making this evaluation, the Service identified significant concerns about impacts to ESA-proposed and listed resources during the period between finalization of the SPR and its implementation nationwide. These concerns with the existing regulations include that they do not: require adequate estimation of the physical, chemical, or biotic stressors resulting from surface coal mining and reclamation operations; ensure that those effects on ESA-listed and proposed species and designated and proposed critical habitat are minimized; and ensure that those effects on species and critical habitat are continuously evaluated and monitored. The Service also stated that, based on its experience with the 1996 Biological Opinion, permit compliance was not adequately monitored or enforced. The Service's conclusion that surface coal mining and reclamation operations and coal exploration conducted during the period between finalization of the SPR and its implementation nationwide is not likely to jeopardize the continued existence of ESA-proposed and -listed species and is not likely to destroy or adversely modify designated or proposed critical habitat is based on the assumptions that the SPR will be in place nationwide prior to 2020 and that the 2016 MOU will be implemented immediately nationwide. The 2016 Programmatic Biological Opinion states that any delay in implementing the SPR or modification of the 2016 MOU would likely alter the conclusions in the 2016 Programmatic Biological Opinion about whether OSMRE's implementation of Title V of SMCRA would jeopardize the continued existence of ESA-proposed and -listed species or destroy or adversely modify designated or proposed critical habitat and would likely trigger reinitiation of the consultation.

State RAs will have to comply with the terms and conditions of the 2016 Programmatic Biological Opinion and the MOU where a proposed surface coal mining operation may affect proposed or federally-listed species or proposed or designated critical habitat and the proposed operation chooses to obtain incidental take coverage through compliance with the 2016 programmatic Biological Opinion.[3] Alternatively, where a proposed operation may impact proposed or federally-listed species or proposed or designated critical habitat, the applicant may demonstrate ESA compliance by completing a habitat conservation plan under section 10 of the ESA, by completing a separate section 7 consultation under the ESA if appropriate, or by modifying its project so that it no longer has the potential to impact ESA-listed species or critical habitat. The MOU and the 2016 Programmatic Biological Opinion are available on the regulations.gov website.

As discussed in greater detail in the FEIS, OSMRE determined that adoption of the SPR would have no effect on species under NMFS's jurisdiction because none of those species occur in the study area or in such proximity to the study area that there would be any direct or indirect effects on those species from this action. Therefore, no formal section 7 consultation on the SPR with NMFS was required under the ESA.

VII. Tribal Consultation

Consistent with Executive Order 13175 (65 FR 67249-67252), the President's Memorandum of April 29, 1994, entitled "Government-to-Government Relations with Native American Tribal Governments," (59 FR 22951-22952), the Department of the Interior Policy on Consultation with Indian Tribes (December 1 2011), and 512 Departmental Manual 2, OSMRE evaluated possible effects of the SPR on federally recognized Indian tribes and engaged in government-to-government consultations. On May 12, 2010, the

[3] While the incidental take statement accompanying the 1996 Biological Opinion will remain valid for all existing surface coal mining and reclamation permits that complied with the terms and conditions of the 1996 Biological Opinion to obtain incidental take coverage prior to the effective date of the SPR, any new permits, or revisions to previously approved permits where a revision would change the manner or extent of effects to species, would need to complete the technical assistance process identified in the new 2016 Biological Opinion and accompanying MOU, a separate ESA section 7 consultation (if appropriate), or a habitat conservation plan under section 10 of the ESA in order to demonstrate ESA compliance.

OSMRE Director met with the Chairmen of the Hopi and Crow Tribes and the President of the Navajo Nation to initiate consultation on the stream protection rulemaking and development of the DEIS. The tribes in attendance requested that they be kept informed of the rulemaking process and EIS development. The OSMRE Director met with tribal leaders in Washington, D.C. again on December 1, 2011. At that time, OSMRE provided additional information on the elements under consideration for the alternatives in the DEIS and discussed the expected impacts to the SMCRA regulatory program for Indian lands. From 2010-2016, the status of the SPR was periodically included during OSMRE quarterly government-to-government meetings with the Crow Tribe, the Hopi Tribe, and the Navajo Nation. The OSMRE Western Regional Office conducts these quarterly consultation meetings with the tribes to discuss topics of interest such as OSMRE rulemakings activities, coal mining operations on tribal lands, and development of tribal primacy.

On August 28, 2015, the Director of OSMRE sent letters to the Hopi Tribe, Crow Tribe, and Navajo Nation notifying them of the publication of the proposed SPR, DEIS and Draft RIA. The letters included an offer to meet with the tribes and discuss the proposed SPR on a government-to-government basis. On November 6, 2015, OSMRE again requested government-to-government consultation with the Hopi Tribe, Crow Tribe and Navajo Nation.

At the request of the Navajo Nation, the Director of OSMRE conducted government-to-government consultation with Tribal leaders in Window Rock, Arizona on January 13, 2016. During the meeting the tribal leaders were briefed on the proposed SPR. Subsequent to that meeting, OSMRE offered to continue government-to-government consultation, on an on-going basis at the request of the tribe. Additional consultation occurred on June 15, 2016, during which the tribe indicated they supported a letter previously sent by the Western States and beyond that they had no further comments on the SPR.

OSMRE conducted its additional consultation with the Hopi Tribe on June 28, 2016, at which time the tribal representative indicated that the Hopi Tribe had no further comments on the SPR.

OSMRE also sent letters to the Southern Ute Indian Tribe, Ute Mountain Ute Tribe and Northern Cheyenne Tribe on March 7, 2016 requesting government-to-government consultation on the SPR. The three tribes did not respond to this request.

On November 15, 2016, the day the FEIS was released to the public, OSMRE received a letter from the Crow Tribe asking for consultation starting in January 2017. On November 17, 2016, the Chairman of the Crow Tribe requested a meeting with the Assistant Secretary for Land and Minerals Management to discuss the rule and government-to-government consultation with the Crow Tribe. This meeting took place the following day on November 18, 2016, which was also attended by the Director and Deputy Director of OSMRE. The tribe did not raise any new issues at the meeting that had not already been considered. Additionally, we informed the Tribe that we did consider the comments of the Montana Department of Environmental Quality, Cloud Peak Energy, and Westmoreland Coal Company, which the tribe indicated that they concurred with and adopted pending further review. We also committed to the Chairman that we would continue to work with and meet with the tribe during implementation of the final rule.

VIII. U.S. Army Corp of Engineers and EPA Concurrence

During the FEIS 30-day waiting period, concurrence letters from the U.S. Army Corps of Engineers (USACE) and the EPA on the SPR were received. EPA also provided comments on the FEIS in relation to the Clean Air Act. These letters are attached to this ROD and summarized below.

A. U.S. Army Corps of Engineers

On December 6, 2016, USACE provided a concurrence letter in accordance with section 515(f) of SMCRA, which requires their concurrence with revisions to the standards and criteria for coal mine waste

piles. USACE provided comments to OSMRE on November, 1 2016 that were addressed with edits in the final rule (Preferred Alternative). Therefore, USACE concurred with the final SPR (Preferred Alternative) and applauded OSMRE's efforts to minimize the impacts of surface mining on downstream water quality.

B. U.S. Environmental Protection Agency

On December 8, 2016, the EPA provided a letter concurring with the promulgation of the SPR in accordance with section 501 of SMCRA. Section 501 requires that regulations issued by the Secretary of the Interior for surface coal mining and reclamation operations should not be promulgated and published by the Secretary until she has obtained the written concurrence of the Administrator of EPA when those regulations relate to air or water quality standards. Under section 501 of SMCRA, EPA's review is based on a determination that the final rule is not inconsistent with the Clean Water Act or the Clean Air Act standards and that the final rule does not inhibit the EPA's authority to ensure compliance with the applicable standards under Clean Water Act or Clean Air Act. [See H. Rep. No. 218, 95th Cong. 1st Sess. 142 (1977)]. As part of EPA's concurrence, it concluded that nothing in the SPR is inconsistent with the provisions of the Clean Air Act or the Clean Water Act and that the final rule (Preferred Alterative) does not inhibit the EPA's authority to require that surface mining activities comply with all provisions of the Clean Air Act and Clean Water Act, particularly those provisions related to water quality. As required by section 309 of the Clean Air Act, EPA reviews all DEISs prepared by other federal agencies, as well as other certain federal actions. EPA issued the SPR DEIS a rating of "EC2", or "Environmental Concerns due to Insufficient Information" and provided a letter containing their comments. OSMRE addressed these comments before publication of and within the FEIS. Following publication of the FEIS, the EPA provided a December 15, 2016 letter stating that the FEIS adequately addressed EPA's concerns raised in their 2015 comment letter on the DEIS. EPA also provided five additional technical comments. OSMRE satisfactorily coordinated and discussed these comments with EPA technical staff, as summarized below.

EPA Comment 1: "Methane emission calculations: Clarify the basis for the methane emission factors used to calculate methane emissions from coal and include in the ROD. The emissions factor given here is not created from the document cited, i.e., the US [greenhouse gases (GHG)] Inventory. Clarify the basis for the methane emission factors used to calculate methane emissions from coal and include in the ROD. See FEIS, p. 794."

> Response: The emissions factor was calculated using information from: (a) EPA's GHG inventory on total emissions of CH_4 from natural gas (in terms of short tons of CO_2equivalents) and total production of natural gas (in MMcf) in 2014; and from (b) EIA on total energy production from natural gas in 2014. Dividing the estimated emissions per MMcf by the estimated energy generation per MMcf gives us 17.9 tons of CO_2-Eq emissions per Gwh generated by natural gas. Of note, this emissions factor reflects fugitive methane emissions from field production of natural gas, methane emissions from vehicle and equipment use, and from transportation and storage. This does not reflect CO_2 emissions from natural gas combustion; those are included in the CO_2 emissions changes analysis and estimated via EVA's Aurora model.

EPA Comment 2: "Inconsistencies exist between the estimated GHG impacts reported in the rule's preamble and those reported in the FEIS. The preamble reports an annualized value, $57 million, which appears to be based on CO_2 impacts, while the FEIS reports both CO_2 and CH_4 impacts in only one year (2020). Specifically, the analysis estimates a reduction in greenhouse gas emissions on the order of 2.6 million tons of CO_2 equivalents in 2020, a benefit of $110 million in that year."

> Response: The FEIS reports the emissions for the period from 2020-2040, and the RIA provides the annualized value. The details and information regarding the analyses for the GHG can be

found in the Final RIA in addition to the FEIS. The FEIS is available on the OSMRE website and the Final RIA is available on regulations.gov.

EPA Comment 3: "The FEIS responds to some of EPA's SC-GHG comments; however, it incorrectly refers to the four SC-GHG values as "scenarios" (p. 799). The four values should be labeled as "values" or "estimates" rather than "scenarios." The selection of four SC- $CO_2$and four SC-CH_4 values for use in regulatory analysis is separate from the socio-economic emission scenarios. The four values are as follows: the average across all models and socioeconomic emission scenarios at a 5 percent discount rate, average across all models and socioeconomic emission scenarios at a 3 percent discount rate, the average across all models and socioeconomic emission scenarios at a 2.5 percent discount rate, and the 95th percentile estimate across all models and socioeconomic emission scenarios at a 3 percent discount rate. More accurate labeling would avoid confusion with the socioeconomic emission scenarios used to develop the SC-GHG estimates. The IWG developed the SC-GHG estimates based on five socioeconomic emission scenarios."

Response: The recommended revision clarifies the terminology but does not alter the methodologies or results of analyses. Therefore, no revisions were made to the FEIS.

Comment 4: "We recommend including a description of what non-use values are in the ROD, indicating the potential non-use values associated with some of the resources described in Chapter 3, and qualitatively describing potential changes in those non-use values due to the rule in Chapter 4. For example, Chapter 4 describes changes in surface water quality. Research on non-use values for water quality including stream quality, have shown that non-use values are often of comparable magnitude with use values and are sometimes larger (for examples, see Johnston et al, Env. and Res. Econ. Online April, 2016)."

Response: The detailed description of the non-use values are included in the Final RIA, which is listed as a reference in the FEIS and is available on regulations.gov.

Comment 5: "The FEIS on p. 4-202 states, 'Estimated increase in energy generation from natural gas. As identified by the EVA model, the total reduction in Gwh from coal is made up via additional production from natural gas.' It is unclear from this statement what assumptions were used to estimate the change in methane emissions from changes in natural gas production. For example, this could mean that the EVA model outputs of the change in gas consumption by the sector, and the location of where changes in production of gas occur, are used to estimate the change in methane emissions. Alternatively, it could mean that the analysis of methane changes simply assumes that the decrease in electricity production from coal is all displaced by electricity production from natural gas. We recommend this be clarified, as appropriate"

Response: The latter is the assumption. All lost electricity generation from coal is made up for with electricity production from natural gas.

IX. Decision

The refinement and identification of the Preferred Alternative for the final SPR were shaped by the direct input from State RAs, cooperating agencies, public involvement, Executive Order 12866 meetings, OSMRE's direct experience as a RA in certain states and on Indian lands, and the information OSMRE has gained through its oversight of the state programs. After consideration of all of the information available, including the agency input received during the 30-day waiting period for the FEIS, OSMRE has decided to implement the revisions to its regulations as outlined in the Preferred Alternative (Alternative 8) as presented in the FEIS and summarized in this ROD.

OSMRE has taken a hard look at the body of comments received and coordinated with the public, state RAs, and federal and state cooperating agencies to address concerns raised during the development of the SPR and throughout the NEPA process. As a result of comments OSMRE received on the DEIS and supporting documents, the Preferred Alternative (Alternative 8) in the FEIS differs somewhat from the Preferred Alternative in the DEIS. The FEIS documents the potential environmental impacts of the alternatives, including the revised Alternative 8.

Alternative 8 is the Preferred Alternative because, of the alternatives considered, it provides the best balance for the protection of the environment and production of coal needed to meet the Nation's energy needs, as required by SMCRA, and it meets the purpose and need to protect or restore streams, aquatic ecosystems, riparian habitats and corridors, native vegetation, and the ability of mined land to support the uses that it was capable of supporting before mining. Alternative 1, the No Action Alternative, does not meet the purpose and need for the action, but it does provide a baseline for comparison of the action alternatives. Alternative 2 is the environmentally preferable alternative under 43 CFR 46.30, because it "causes the least damage to the biological and physical environment and best protects, preserves, and enhances historical, cultural, and natural resources." While Alternative 2 would result in the greatest beneficial impacts to physical, biological, and natural resources, the FEIS also demonstrates that it potentially has the greatest adverse impacts on socioeconomic conditions. In comparison, Alternative 8 is expected to result in an overall moderate reduction in coal production, which is less than the overall major impacts expected from Alternative 2. The impacts to socioeconomic resources are generally expected to be similar across the other Action Alternatives. The adverse socioeconomic impacts associated with Alternative 2 would be of a magnitude that would be inconsistent with one of the purposes of SMCRA, which is to strike a balance between environmental protection and the need for coal as an essential source of energy. Because Alternative 2 does not strike an appropriate balance between the two competing interests, it was not selected. Details of the socioeconomic analyses and impacts associated with all the action alternatives are included in the FEIS and the Final RIA, which was also taken into consideration in this decision. For example, the RIA estimates that under the final SPR, total industry compliance costs per year during 2020-2040 would average $81 million, which is 0.1% or less of aggregate annual industry revenues, and that the rule will result in an average annual 0.08% reduction in coal production between 2020 and 2040, which equates to 0.7 million tons of coal.

Alternatives 3, 4, 5, 6, and 7 would provide benefits to the environment but would not achieve the same balance of protecting the environment while minimizing socioeconomic impacts as Alternative 8. In comparison, Alternative 9 would not clarify or significantly improve conditions compared to the current regulations. It would make minimal changes to current practices, have environmental benefits similar to the No Action Alternative, and would not meet the overall purpose and need.

Therefore, Alternative 8 is the best option for meeting the purpose and need of the proposed action and complying with the SMCRA charge to protect society and the environment from the adverse effects of surface coal mining operations while striking a balance between environmental protection and the need for coal as an essential source of energy.

X. Mitigation, Monitoring, and Enforcement

This decision adopts all practicable means to avoid or minimize harm to the natural and human environment from the Preferred Alternative through public and agency participation during the NEPA process. OSMRE received and considered input from the public, the states, and federal agencies throughout the development of the alternatives to identify areas to potentially minimize impacts. This input has been also considered in the analyses of the alternatives and ultimately resulted in several changes to the Preferred Alternative. Specifically, there was concern expressed from the public and state RAs regarding potential adverse economic impacts of the SPR to the mining industry. The Preferred Alternative, Alternative 8 as proposed in the FEIS, is more efficient and minimizes socioeconomic

impacts associated with the coal industry in relation to Alternative 8 in the DEIS. The details of the changes are provided in Chapter 2 of the FEIS. The public and agency coordination conducted during the NEPA process along with the DEIS comments and responses are provided in Chapter 5 of the FEIS.

SMCRA's permitting requirements and performance standards generally require avoidance or minimization of adverse impacts to important environmental resources, and our regulations do likewise. The Preferred Alternative, as described in the FEIS, further clarifies permitting requirements and improves the performance standards for surface and underground coal mining operations. As noted in the FEIS, all elements of the Preferred Alternative are intended to avoid or minimize environmental harm to the natural environment, and ultimately to human health and safety. For example, the implementation of the final rule will benefit the environment as a result of improved premining baseline data collection; enhanced groundwater and surface water monitoring during and after mining and reclamation; addition of a definition of "material damage to the hydrologic balance outside the permit area;" identification of material damage and evaluation thresholds for water quantity and quality; reduced filling of streams with spoil and coal mine waste; improved streamside vegetation practices; updated procedures to protect critical habitats and threatened and endangered species under the Endangered Species Act of 1973; and improved fish and wildlife protection and enhancement measures.

Each SMCRA regulatory program includes five major elements: (1) permitting requirements and procedures, (2) performance bonds to guarantee reclamation in the event that the permittee defaults on any reclamation obligations, (3) performance standards to which the operator must adhere, (4) inspection and enforcement to maintain compliance with performance standards and the terms and conditions of the permit, and (5) a process for the designation of lands as unsuitable for surface coal mining operations. Under 30 CFR 730.5, 732.15, and 732.17, each state regulatory program must include provisions that are no less effective than OSMRE regulations in achieving the requirements of the Act. In accordance with 30 CFR 733.12, OSMRE routinely evaluate each state's administration, maintenance, implementation, and enforcement of its approved regulatory program. These existing procedures and requirements for an evaluation and compliance will be part of implementing the final rule (Preferred Alternative) within the state regulatory programs.

XI. Conclusion and Approval:

OSMRE has assessed the impacts associated with the implementation of the Preferred Alternative, including alternative evaluations, consideration of public comments, input from RAs, and information obtained through coordination and consultations with agencies. Based on the consideration of this information, I hereby approve OSMRE's Preferred Alternative (Alternative 8) for the SPR, subject to the conditions identified in this ROD. My approval of this decision constitutes the final decision of the Department of the Interior. Any petition for review of this action must be filed in the United States District Court for the District of Columbia in accordance with section 526(a)(1) of SMCRA, 30 U.S.C. 1276(a)(1).

12-16-16

Janice M. Schneider
Assistant Secretary
Land and Minerals Management
U.S. Department of the Interior

Date

Appendix A – Concurrence and Coordination Letters

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

DEC 15 2016

OFFICE OF
ENFORCEMENT AND
COMPLIANCE ASSURANCE

Ms. Robin T. Ferguson
U. S. Department of the Interior
Office of Surface Mining Reclamation and Enforcement
Division of Regulatory Support
1591 Constitution Ave. NW
Washington, DC 20240

Dear Ms. Ferguson:

The U.S. Environmental Protection Agency has reviewed the November 2016 Final Environmental Impact Statement (FEIS) for the Stream Protection Rule (Rule), prepared by the Office of Surface Mining, Reclamation and Enforcement (OSMRE).

Our comments are provided for your consideration pursuant to our responsibilities and authority under Section 102(2)(C) of the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act (CAA).

We greatly appreciate OSMRE's responsiveness to our comments during the development of this EIS. The FEIS has adequately addressed the majority of EPA's concerns raised in our 2015 comment letter on the Draft EIS, which included water quality protection, stream restoration, and monitoring issues. As a cooperating agency, EPA appreciates OSMRE's continuing efforts to improve the accuracy, precision and clarity of models, analysis and results. We enclose a few suggestions for ways that OSRME can improve the document in the Record of Decision.

Sincerely,

FOR,

Robert Tomiak
Director
Office of Federal Activities

Enclosure

Technical Comments

1. Methane emission calculations: Clarify the basis for the methane emission factors used to calculate methane emissions from coal and include in the ROD. The emissions factor given here is not created from the document cited, i.e., the US GHG Inventory. Clarify the basis for the methane emission factors used to calculate methane emissions from coal and include in the ROD. See FEIS, p. 794.

2. Inconsistencies exist between the estimated GHG impacts reported in the rule's preamble and those reported in the FEIS. The preamble reports an annualized value, $57 million, which appears to be based on CO_2 impacts, while the FEIS reports both CO_2 and CH_4 impacts in only one year (2020). Specifically, the analysis estimates a reduction in greenhouse gas emissions on the order of 2.6 million tons of CO2-equivalents in 2020, a benefit of $110 million in that year.

3. The FEIS responds to some of EPA's SC-GHG comments; however, it incorrectly refers to the four SC-GHG values as "scenarios" (p. 799). The four values should be labeled as "values" or "estimates" rather than "scenarios." The selection of four SC-CO2 and four SC-CH4 values for use in regulatory analysis is separate from the socio-economic emission scenarios. The four values are as follows: the average across all models and socioeconomic emission scenarios at a 5 percent discount rate, average across all models and socioeconomic emission scenarios at a 3 percent discount rate, the average across all models and socioeconomic emission scenarios at a 2.5 percent discount rate, and the 95th percentile estimate across all models and socioeconomic emission scenarios at a 3 percent discount rate. More accurate labeling would avoid confusion with the socioeconomic emission scenarios used to develop the SC-GHG estimates. The IWG developed the SC-GHG estimates based on five socioeconomic emission scenarios.

4. We recommend including a description of what non-use values are in the ROD, indicating the potential non-use values associated with some of the resources described in Chapter 3, and qualitatively describing potential changes in those non-use values due to the rule in Chapter 4. For example, Chapter 4 describes changes in surface water quality. Research on non-use values for water quality including stream quality, have shown that non-use values are often of comparable magnitude with use values and are sometimes larger (for examples, see Johnston et al, *Env. and Res. Econ.* Online April, 2016).

5. The FEIS on p. 4-202 states, "Estimated increase in energy generation from natural gas. As identified by the EVA model, the total reduction in Gwh from coal is made up via additional production from natural gas." It is unclear from this statement what assumptions were used to estimate the change in methane emissions from changes in natural gas production. For example, this could mean that the EVA model outputs of the change in gas consumption by the sector, and the location of where changes in production of gas occur, are used to estimate the change in methane emissions. Alternatively, it could mean that the analysis of methane changes simply assumes that the decrease in electricity production from coal is all displaced by electricity production from natural gas. We recommend this be clarified, as appropriate.

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET, NW
WASHINGTON, DC 20314-1000

REPLY TO
ATTENTION OF

DEC 06 2016

Mr. Joe Pizarchik
Director, Office of Surface Mining Reclamation and Enforcement
United States Department of the Interior
Washington, DC 20240

Dear Director Pizarchik:

This is in reference to your October 21, 2016, letter to the U.S. Army Corps of Engineers regarding your agency's proposed Stream Protection Rule. I am responding on behalf of Lieutenant General Semonite. In accordance with Section 515(f) of the Surface Mining Control and Reclamation Act (SMCRA), your letter requests the Corps' concurrence with proposed revisions to the standards and criteria for coal mine waste piles.

Our dam safety personnel reviewed the proposed rule and suggested several minor technical revisions for discussion. During a November 1 conference call between members of our staffs, agreement was reached on the inclusion of most of our suggested edits. Based on the inclusion of those edits in the final rule text, we concur with the proposed regulations.

We appreciate the opportunity to comment on this important rule. We applaud your efforts to minimize the impacts of surface mining on downstream water quality. We also encourage you to continue to work closely with the state Regulatory Authorities to implement effective erosion control at mining sites to reduce downstream sedimentation, which can adversely affect not only water quality but also flood control storage capacity at Corps of Engineers reservoirs.

If you have additional questions or concerns, please contact me, or your staff may contact Mr. William L. James, National Mining Expert, at (615) 369-7508 or by e-mail at william.l.james@usace.army.mil.

Sincerely,

James C. Dalton, P.E.
Director of Civil Works

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

DEC 8 2016

THE ADMINISTRATOR

The Honorable Sally Jewell
Secretary
U.S. Department of the Interior
1849 C Street, N.W.
Washington D.C. 20240

Dear Secretary Jewell:

Section 501 of the Surface Mining Control and Reclamation Act requires that regulations issued by the Secretary of the U.S. Department of the Interior for surface coal mining and reclamation operations setting mining and reclamation performance standards shall not be promulgated and published by the Secretary until she has obtained the written concurrence of the Administrator of the U.S. Environmental Protection Agency when those regulations relate to air or water quality standards. Consistent with section 102 of SMCRA, the Office of Surface Mining Reclamation and Enforcement is promulgating a final rule, known as the Stream Protection Rule, to improve the balance between environmental protection and the Nation's need for coal as an energy source. The goal of the final rule is to better protect water supplies, surface water and groundwater quality, streams, fish, wildlife, and related environmental values from the adverse impacts of surface coal mining operations and provide mine operators with a regulatory framework to avoid water pollution and the long-term costs associated with water treatment. Following the EPA's review of OSMRE's final rule, I concur in the promulgation of these regulations based on the standard discussed below.

The SMCRA does not articulate a specific standard for the EPA concurrence on OSMRE regulations. However, based on the purpose of this provision as explained in the legislative history, the EPA's longstanding practice is to provide concurrence under section 501 of SMCRA based on a determination that the final rule is not inconsistent with the Clean Water Act or the Clean Air Act standards and that the final rule does not inhibit the EPA's authority to ensure compliance with applicable standards under the CWA or the CAA. See H. Rep. No. 218, 95th Cong., 1st Sess. 142 (1977). Given the scope of the Stream Protection Rule, EPA's review and concurrence is primarily focused on CWA related issues. Regarding revisions that relate to the CAA, the Stream Protection Rule only makes technical corrections and does not raise concerns about inconsistency, duplication, or conflict with the CAA. As discussed below, with regard to provisions related to water quality standards, we have concluded that nothing in the Stream Protection Rule is inconsistent with the provisions of the CWA and that the final rule does not inhibit the EPA's CWA authority to require that surface mining activities comply with all applicable provisions of the CWA, particularly those provisions related to water quality

standards. In addition, the EPA reviewed the Stream Protection Rule in light of Congressional intent, when enacting section 501 of SMCRA, that the agencies enhance coordination, and minimize duplication or conflict between SMCRA and CWA programs. *Id.* This is consistent with the standard used by the EPA in concurrence decisions on previous OSMRE regulations.

SMCRA and CWA program interaction occurs most significantly in the context of permitting proposed surface coal mining-related pollutant discharges in waters subject to the jurisdiction of the CWA, including monitoring and assuring compliance with issued CWA permits. Consistent with the requirements of section 702 of SMCRA, the Stream Protection Rule highlights the relationship between SMCRA and the CWA. In reviewing this rule, the EPA has focused on opportunities to provide for mutually supportive and constructive SMCRA and CWA reviews of proposed surface mining activities. Such an approach will help to ensure that surface mining activities are designed, permitted, and operated to minimize disturbances to the prevailing hydrologic balance, protect environmental resources (including the aquatic environment), and protect human health.

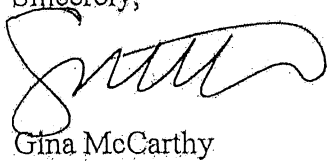
Consistent with this focus, the final Stream Protection Rule incorporates measures to limit duplication and avoid inconsistency in the implementation of SMCRA and CWA programs, while supporting complementary, comprehensive, and effective environmental reviews of proposed surface coal mining operations. These measures include providing common definitions for greater clarity and consistency between SMCRA and CWA programs. For example, revised definitions of perennial, intermittent, and ephemeral streams in the final rule are substantively similar to the long-standing definitions for these resources utilized in the CWA Section 404 program. This will help to ensure a common understanding of these terms for applicants, consultants, and agency staff involved in SMCRA and CWA reviews and maintain consistency.

The final rule encourages coordination and consultation between SMCRA and CWA program agencies in the sharing of technical information and efforts related to protection of water quality and the environment, while clarifying and preserving ultimate decision-making authorities under the CWA and SMCRA. For example, enhanced interagency coordination on baseline data collection points, parameters to be collected, monitoring locations, reporting requirements, and stream restoration standards will offer the opportunity for enhanced efficiencies in SMCRA and CWA permit application processes. The final rule also requires the SMCRA regulatory authority to coordinate with the appropriate CWA authority in circumstances when available information indicates that mining activities may be causing or contributing to a violation of water quality standards, or to a violation of permits under CWA sections 402 or 404. Consistent with section 702 of SMCRA, the Stream Protection Rule further clarifies that nothing in the SMCRA regulations supersedes or modifies the authority or jurisdiction of agencies responsible for the administration, implementation, and enforcement of the CWA.

In addition, the final Stream Protection Rule continues to require compliance with water quality standards. For example, it includes a new definition of material damage to the hydrologic balance outside the permit area and enhanced provisions about conducting activities in or within 100 feet of a perennial or intermittent stream which help to ensure that mining activities will not cause or contribute to a violation of applicable water quality standards under the CWA. The EPA acknowledges these and other important measures in the new regulations governing the review of proposed surface coal mining operations under SMCRA.

The EPA appreciates the U.S. Department of the Interior and OSMRE's coordination and engagement with the EPA during the process of developing the final Stream Protection Rule. The EPA looks forward to working with the U.S. Department of the Interior as this rule is implemented, and to coordinating with our CWA partners, including the U.S. Army Corps of Engineers, the states, and tribes, to ensure our programs continue to provide effective protection for the nation's public health and water resources.

Sincerely,



Gina McCarthy

cc: Joel Beauvais
Deputy Assistant Administrator for Water

Joe Pizarchik
Director, Office of Surface Mining