

SMCRA Requirements for Stream Protection

Presentation Outline

- 30 CFR Reg Review – 2008 Rule!
- SPR concepts
- Stream Specific Requirements
 - Baseline
 - Avoidance/minimization
 - Restoration
 - Enhancement

30 CFR Review and Requirements - 2008

- Exceptions: coal preparation plants, stream channel diversions
 - Governed by other provisions
- Separate by:
 - SBZ incursions – not in stream
 - In stream activities
 - Fills: Coal refuse, excess spoil
 - Mining through

SBZ Incursions 2008 – CRDA

Coal Refuse Disposal, Waste Impoundments

- Explain why avoidance is not possible
- Identify range of alternative locations and/or configurations
- Alternatives must:
 - Conform to engineering, safety, construction requirements
 - Be capable of being done considering cost, logistics, technology
 - Be consistent with coal recovery provisions of SMCRA
 - Analyze impacts on fish, wildlife and other environmental values
 - Consider both aquatic and terrestrial

SBZ Incursions 2008 – Surface Mining

Surface Mining

- Explain why avoidance is not possible
- Identify a lesser buffer
- Explain how lesser buffer will:
 - Prevent additional TSS
 - Minimize disturbance and adverse impacts on fish, wildlife, and related environmental values

SBZ Incursions 2008 – Excess Spoil

Excess Spoil

- Explain why placement within the SBZ is unavoidable
- Demonstrate volume of excess spoil has been minimized
- Maximum amount of spoil has been returned to mined out area considering PMLU, AOC, safety, stability, and environmental protection
- Identify range of alternative locations, size, and/or configurations
- Alternatives must:
 - Conform to engineering, safety, construction requirements
 - Be capable of being done considering cost, logistics, technology
 - Be consistent with coal recovery provisions of SMCRA
 - Analyze impacts on fish wildlife and other environmental values
 - Both aquatic and terrestrial

SBZ Incursions 2008 – Excess Spoil

- Perform Geotechnical Analysis on:
 - Character of bedrock and any adverse geologic conditions – i.e., faults or other structural concerns
 - Survey of all springs, seeps, ground water flows
 - Analysis of potential effects from subsidence
 - Description of rock materials used to construct rock chimney cores or rock drainage
 - Stability analysis of the fill
 - Fill construction must be certified by engineer

Activities in streams 2008 – Surface Mining

- Only perennial and intermittent – ephemeral exempt from protections
- Explain why avoidance is not possible
- Demonstrate that activity will not cause/contribute to violation of CWA standards under 402/404

Activities in streams 2008 – CRDA

- Explain why avoidance is not possible
- Evaluate impacts on physical, chemical, biological characteristics downstream of site
 - Analyze seasonal variation (temp, volume, TSS)
 - Introduction of contaminants
 - Affects to aquatics and wildlife that depend on stream
- Select alternative with least adverse impact on fish/wildlife
- Coal Waste Impoundments
 - Evaluate geotechnical characteristics of foundation
 - Id all springs, seeps, ground water flows
 - Consider possibility of mud/debris flows into impoundment

Activities in streams 2008– Excess Spoil

- Explain why avoidance is not possible
- Evaluate impacts on physical, chemical, biological characteristics downstream of site
 - Analyze seasonal variation (temp, volume, TSS)
 - Analyze introduction of contaminants to system
 - Affects of aquatics and wildlife that depend on stream
- Select alternative with least adverse impact on fish/wildlife

Performance Standards – 2008

Excess Spoil/Coal Refuse placement in SBZ or in streams:

- May not cause or contribute to the violation of applicable State/Federal water quality standards
- Minimize adverse effects of leachate and surface water runoff on surface and ground waters
- Ensure mass stability and prevent mass movement
- Ensure final fill is suitable for reclamation and vegetation and compatible with natural surroundings
- Minimize disturbance to and adverse impacts on fish, wildlife, and related environmental values to the extent possible and using BAT
- Construction shall be regularly inspected, certified by registered engineer, and photographed
- No permanent impoundments on top of completed fills
- Final configuration must be compatible with PMLU

Performance Standards - 2008

- Excess Spoil – Must have a 1.5 long term static safety factor
- Excess Spoil – When slope exceeds 2.8:1 (36%), operator must construct keyway cuts or rock toe buttress to ensure fill stability
- Excess Spoil – Underdrains must be constructed of durable rock
- Excess Spoil – transported and placed in lifts not to exceed 4 feet (durable rock fills/gravity separation still allowed)
- Excess Spoil – shall be non-toxic and non-acid forming
- Coal Refuse – prevent combustion
- Coal Refuse – must be covered with 4 feet of best available cover material, non-toxic, noncombustable

Performance Standards - 2008

Surface mining in SBZ or in stream:

- May not cause or contribute to the violation of applicable State/Federal water quality standards
- Must handle earth materials, ground water discharges, and runoff in a manner that prevents, to the extent possible using BAT, additional contributions of TSS, and prevents water pollution
- Must minimize disturbance to, enhance where possible, restore or replace wetlands, habitats of unusually high value for fish/wildlife, and riparian vegetation along rivers and streams and bordering ponds and lakes

Performance Standards -2008

Stream Channel Diversions

- Temporary
 - Must be promptly removed when no longer need to achieve purpose they were authorized for
- Permanent (Intermittent / Perennial)
 - Must use natural design techniques to restore original pre-mine characteristics of the channel, including natural vegetation and hydrologic characteristics, to promote and enhance aquatic habitat, and minimize adverse alteration of stream channels, both on and off the site
 - Must be certified design, construction, and restoration
 - RA may specify additional design requirements

SPR Concepts Under Consideration

Activities in/near streams

- Primarily aimed at fills
- Prohibition on fill placement within 100 feet of perennial and intermittent streams – unless applicant demonstrates and SRA finds:
 - No reasonable alternative to placement in stream
 - Minimize length of stream impacted
 - Enhancement fully offset impacts
 - Fill activity result in more than de minimus impact outside the permit boundary
 - Activity not cause/contribute to violation of CWA
 - Considering fill must be reforested

SPR Concepts Under Consideration

Activities in/near streams

- All other activities in/near streams
 - Not preclude pre-mining CWA designated use
 - Activity result in more than de minimus impact of the affected stream segment
 - Result in conversion of stream segment to next lower category (perennial to intermittent, intermittent to ephemeral)
 - Activity not cause/contribute to violation of CWA (TDS, Se)
 - Considering 300 foot forested buffer on each side of stream in previously forested areas

SPR Concepts Under Consideration

Mining through streams:

- All items listed under activities in/near streams, plus considering:
 - Alternatives analysis
 - Restoration of stream form and function
 - Bonding of restoration (full cost - form and function)

SPR Concepts Under Consideration

- Fill specific items under consideration:
 - Landforming principles when bringing site back to AOC to blend with topography
 - Elevation not vary by more than 20% of change
 - Post-mining elevation can exceed pre-mining elevation
 - Controlled placement, compacted 4 foot lifts (eliminates durable rock fills / gravity separation)
 - Requires ephemeral (drainage control) re-construction on fills
 - Elimination of flat topped fills – unless necessary to achieve PMLU

Specific Stream Items

- Baseline sample considerations
 - 12 regularly spaced monthly samples
 - Full chemical suite (Mg, Na, Ca, K, Cl, SO₄, HCO₃)
 - Location – minimum up/down stream, every stream within permit boundary to be mined
 - Biological condition
 - Applies to areas overlying underground mines (subsidence maybe allowed)
- Avoidance/minimization
 - All activities must explain why avoidance not possible
 - All fills must evaluate alternatives
 - All fills minimize footprint, volume, impact

Specific Stream Items

- Restoration
 - Considering mine throughs must restore stream form/function
 - All mine throughs require bonding (form and function)
- Enhancement
 - Considering enhancement leaving 300 foot buffer replanted with natives vegetation, preferably trees
 - Enhancement occur outside mined out area
 - Provisions for prohibition of mining in areas of exceptionally high value for fish and wildlife habitat



Questions/Comments