SMCRA Requirements for Stream Protection
Presentation Outline

- 30 CFR Reg Review – 2008 Rule!
- SPR concepts
- Stream Specific Requirements
  - Baseline
  - Avoidance/minimiziation
  - Restoration
  - Enhancement
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
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 deminimus 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 deminimus 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, SO$_4$, HCO$_3$)
  - 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 re-planted 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