

Coal Mining Spatial Data ASTM Standards

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Coal mining spatial standards

- Development of 11 coal mining geospatial data standards that have been approved by the ASTM – More being added soon
 - Pre and post-SMCRA mining activities
- Voluntary consensus standards
- The FGDC is also reviewing the ASTM standards through their approval process

Standards will provide

- **Visualization & Utilization of Spatial Mining Data**
 - Surface and underground mines, spoil and refuse valley fills, impoundments, and monitoring locations
- **Accounting of post-SMCRA Mine Permits**
 - Status of disturbance and reclamation of mined acres, permit bonds released, and post mining land uses achieved
- **Public Awareness of pre-SMCRA Mining Hazards**
 - Locations of AML shafts, subsidence areas, and buried refuse

Once we have the standards, what's next?

Creation of near real-time national mining datasets will provide robust and compatible geospatial data that can be shared among all SMCRA programs, other agencies, and the public

**ASTM task group members
include: state RA's, federal,
industry, and environmental
sectors**

Task Group Members:

Coal Mining Spatial Data Standards ASTM Task Group

Tom Galya (Co-chair)	OSM- Charleston Field Office
Daniel Kestner (Co-chair)	VA Department of Mines, Minerals and Energy
Darren Blank	Mine Safety Health Administration (MSHA)
Robin Lighty	PA Department of Environmental Protection
Daryl Hines	Kentucky Division of Mine Permits
Arielle Avishai	OSM- Appalachian Region Office
Greg Jones	Peabody Western Coal Company (western coal industry rep.)
Robert Hughes	Lucerne PA Conservation District
Tara Shifflett	OSM- Headquarters
Todd Coffelt	Iowa Mines and Minerals Bureau
Karen Jass	OSM- Western Region Office
Mike Shank	WV Department of Environmental Protection
Bruce Johnson	ND Public Service Commission
Jo Gault	OSM- Knoxville Field Office
Kathy Rossmann	OH Division of Mineral Resources Management
Tim Browning	DR Allen and Associates, Abingdon, VA (eastern coal industry rep.)

[Joe Ritchey, Facilitator for the American Society of Testing Materials \(ASTM\)](#)
[Julie Maitra, USGS, Liaison with the Federal Geographic Data Committee](#)

Post-SMCRA ASTM Standards

Post-SMCRA mining spatial data ASTM standards

- Surface coal mining boundary, 2007:Revision 5/2010
- Underground mine extents, 2008: Revision 5/2010
- Land reclamation and performance bond status of a permitted coal mine, 5/2010
- Post Mining Land Uses, 5/2010
- Overburden spoil and coal refuse structures, 5/2010
- Coal mining environmental resources monitoring locations, 5/2010
- Lands unsuitable for mining petition and designated areas, 5/2010

Each ASTM Standard lists the attributes and their domains of mining spatial data that are required to meet that Standard

Surface coal mine boundary

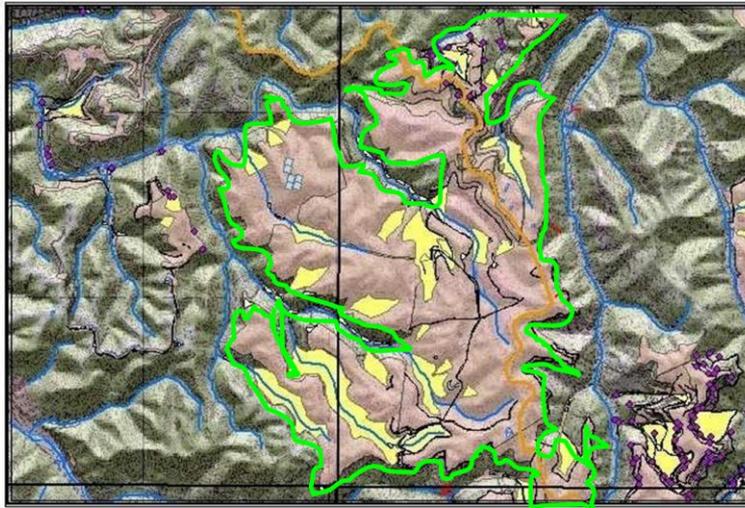
- Accurate location and description of data for defining a surface coal mine boundary



Mountaintop removal coal mine in southern WV encroaching on a small community.

Coal surface mine boundary

Proposed remote sensing project area, Magnum-Catenary, LLC, Kayford Mountain, WV



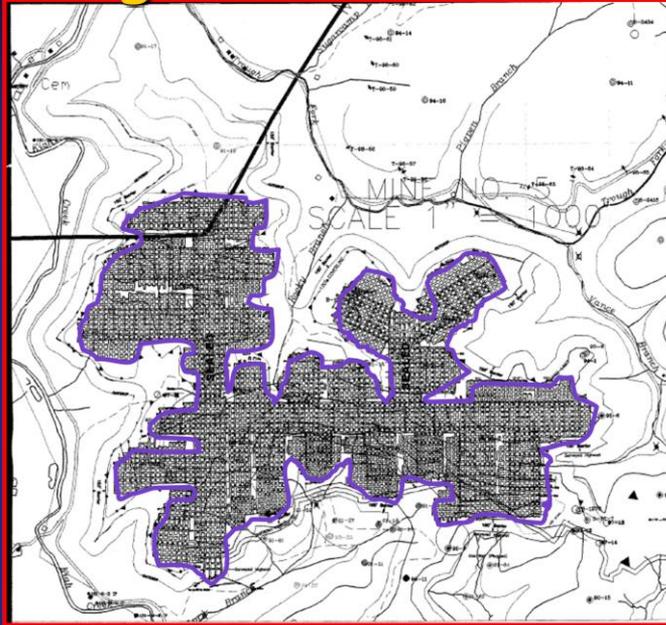
Underground coal mine extents standard

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Geospatial data for underground coal mining extents

- Accurate location and description of data for defining underground coal mining extents

Underground mine extents



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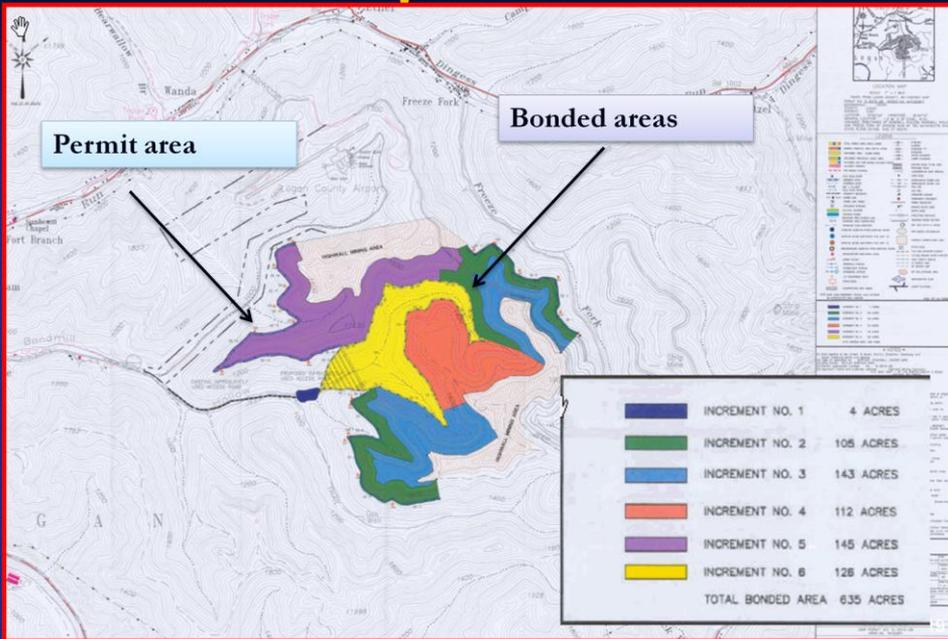




Land reclamation and performance bond status

- Location, description, and accounting of acres of land disturbance, coal removal, reclamation, and bond release status of the permit

Mine permit data



WV surface coal mine



Overburden spoil and coal and refuse structures standard

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Coal spoil and refuse structures

- Location and description of structures created for the disposal of excess overburden spoil, coal and slurry refuse, and associated preparation (processing) plants



Marfork Coal's (a Massey Energy subsidiary) Brushy Fork coal slurry impoundment, which, at its final stage, will hold 8 billions of gallon of coal waste sludge. The impoundment partially lies over old underground mines and is directly upstream from the town of Whitesville, WV.



Overburden Excess Spoil Structure (Valley Fill)

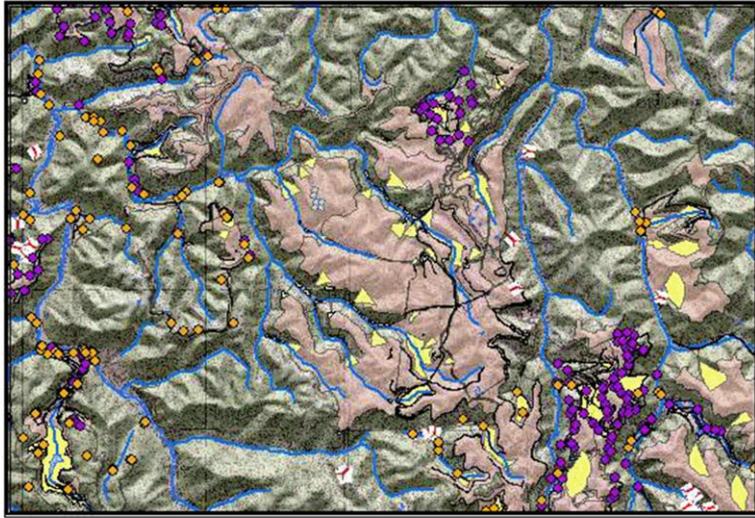
Coal mining environmental resource monitoring locations standard

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Environmental resource monitoring locations

- Location and description of environmental monitoring locations where surface, ground water, and rock geochemistry data are used to assess probable hydrologic consequences resulting from coal removal and reclamation activities

WV surface mine environmental monitoring locations



- Legend
- SBO RA monitoring sites
 - NPOB monitoring sites
 - SBOB planning test plots
 - ▲ All deep mine portals
 - Permitted area
 - Wetlands
 - Areas of concern
 - Magnum mine valley #1s
 - Magnum Coal Co permits



4,000 2,000 0 4,000 8,000 12,000 16,000 20,000 24,000 28,000 32,000 Feet

Post-mining land uses standard

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Approved post-mining land uses

Location and Description of Post-mining Land Uses: 30 CFR 816.133/817.133 and 30 CFR 701.5

Pasture or hay land
Grazing land
Forest Land
Residential
Fish and wildlife habitat
Developed water resources
Public utilities/facilities
Industrial and commercial services
Recreation

Recreational land use: golf course



Lands unsuitable for mining petitions and designated areas standard

- Boundary data and description of lands to be petitioned to be designated as well as determined to be unsuitable for all or certain types of mining

Lands unsuitable for mining



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Environmental Education
Agriculture
Students participate in environmental and cultural education classes at Pine Mountain Settlement School.



Kentucky Heartwood



Robinson Forest

Robinson Forest is the largest block of intact, native forest in the eastern Kentucky coal fields. It is surrounded almost entirely by strip mines, making it truly an island of functioning native forest with some of the cleanest running streams in this part of Kentucky. It is managed by the University of Kentucky which has chosen to whittle away this special place, first with strip mining and now with 800 acres of clearcut logging designed to see what happens to clean Appalachian streams when you log right up to the water's edge - as if you needed a PhD to figure that one out.

The University of Kentucky, as of 2002, had mined or leased for mining 3,885 acres of the 14,786 acres of forest left in the University's trust. UK did try to mine the main, 10,259 acre block of forest but met with stiff opposition, resulting in the lands being labeled "unsuitable for mining."



Pre-SMCRA mining spatial data standards approved

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Pre-SMCRA mining spatial data standards approved standards

- Abandoned Mine Land-Planning units, 2009
- Abandoned Mine Land-Problem area, 2009
- Abandoned Mine Land-Project site, 2010
- Abandoned Mine Land-Keyword Feature, 2010

Summary

The use of the standards

- Improved transparency and accountability of SMCRA-related activities
- Reduce burden of regulatory compliance
- Direct public access to mine information
- Enhanced public safety and awareness from historical and active mining features
- Public engagement in post-mining land use decisions

Questions?

