

Topsoil Substitute Variance Update



Industry Workshop

Presented by:

WVDEP – Division of Mining and Reclamation

August 2017

Topsoil Substitute Policy



Why now?

March 2015 lawsuit

Code of Federal Regulations 30 (CFR 30)

Part 733 – Maintenance of State Programs and Procedures
for Substituting Federal Enforcement of State Programs
and Withdrawing Approval of State Programs

Topsoil Substitute Policy



- ❧ 38CSR2 7 pertains to Forest land
 - ❧ 7.6.c is Spoil placement, substitute material and grading
 - ❧ States material will be distributed four feet thick
 - ❧ A substitute can be approved if the volume of topsoil on the area cannot meet the depth requirement

Topsoil Substitute Policy



☞ 38CSR2 7 pertains to Forest land

☞ 7.6.c.1 states substitute material consists of at least 75% sandstone, composite past pH between 5.0 to 7.5, soluble salts less than 1.0 mmhos/cm

This information will be made part of the permit application

Topsoil Substitute Policy



38CSR2 14.3 pertains to Topsoil

States the topsoil will be removed, segregated, and stockpiled

States substitute material must be capable of supporting and maintaining the postmining landuse.

Topsoil Substitute Policy



Policy dated January 24, 2017 lists what regulations dictate these requirements

Policy dated January 24, 2017 also lists what sections of the SMA has to be addressed to fully comply with these regulations

How do I know?



Inspectors were asked to identify permits with 35% or more of their total mining acres remaining

Geologists reviewed the permits looking for waivers and their completeness

MR-6s were written for deficient permits

How do I know?



Active permits with no waiver priority

Active permits with deficient information

Not started permits

How do I know?



Each region is tracking the topsoil substitute revisions

Fayetteville - 46 total
28 submitted, 15 approved

Logan - 68
54 submitted, 26 approved

Philippi - 12
1 submitted

How do I know?



OSM is reviewing our lists to ensure we are making progress

Permit Number	Responsible Party Name	Permit Mine Status	PMLU	Topsoil Waiver	Inspector	Date Order issued on MR6	Date Submitted	Date Approved
		A2	Forestland	N	Jeremiah Carter	03/31/17	04/04/17	07/13/17
		A2	Forestland	N	Brett Stutler	04/06/17	05/04/17	05/18/17

SMA Section I-13



I-13.

Will topsoil substitute be utilized?

Yes

No

If Yes, include analysis of original topsoil, topsoil substitute, and appropriate certifications. Demonstrate that the proposed substitute material is of sufficient quantity and equally suitable for sustaining vegetation as the existing topsoil and the resulting soil medium is the best available in the permit area to support vegetation. *Identify as Attachment I-13.*

SMA Section I-13



- ❧ Adequate chemical and physical comparison to native soils?
 - ❧ %Sandstone, color, pH range, Soluble salts
- ❧ Specifically state the material is equally suitable for sustaining vegetation?
- ❧ Specifically state that the resulting soil medium is best reasonably available?
- ❧ Analyzed using standard procedures?
- ❧ Signed?

How do I get this information for an active job?



☞ Soil maps for pre-mining condition

☞ Cores

☞ Backstack



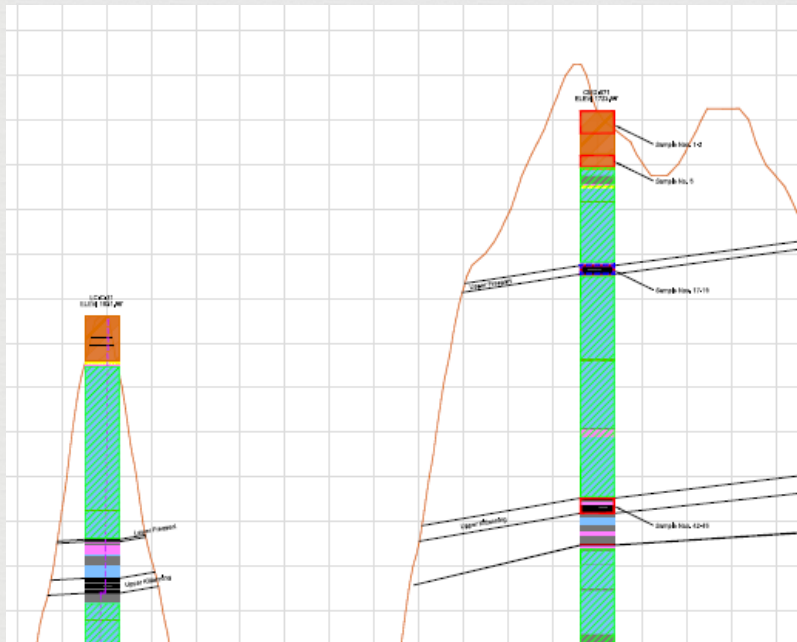
SMA Section I-7


















- I-7. Provide certified geologic cross-sections which include the following: *Identify as Attachment I-7.*
- A. Nature and depth of the various strata or overburden including geologic formation names and/or geologic members as described by the U.S. Geological Survey or other published geologic reports;
 - B. Presence of any known structural features such as faults, fractures, anticlines, synclines, and monoclines;
 - C. Depth of weathering identified during exploration and drilling;
 - D. Nature and thickness, in inches, of all coal or rider seams above and immediately below the proposed coal seam(s) to be mined;
 - E. Nature and thickness of the stratum immediately beneath the lowest coal seam to be mined;
 - F. Vertical distribution of aquifers and the name(s) of the stratum (or strata) in which the water is found. For each aquifer system, show the seasonal fluctuations in head and general water quality information. Also, provide appropriate cross-references to the detailed water quality information under the baseline ground water information section; and
 - G. Denote any potentially acid-producing materials, topsoiling, and durable materials.

SEE ATTACHMENT I-7

SMA Section I-7



LEGEND

	Casing/Chipped		CaCo3 Deficient > 5.00 tons/1000 tons (Specially Handled)
	Core Lost/Vold		Selenium Concentration > 1.00 mg/kg (Specially Handled)
	Sandstone		Targeted Soil Substitute Material (Suitable for Soil Substitute)
	Shale		Targeted Underdrain Material (Suitable for Underdrain Construction)
	Fire Clay/Clay Stone		Conglomerate
	Ironstone		pH < 4.00 s.u. (Specially Handled)
	Coal		Existing Ground
			Surface Extraction Limits

SMA Section N-1B 4



N-1. A. Indicate below the estimated timetable by month and year for each phase of the operation.

	Phase	Mine Start (MM/YYYY)	Mine End (MM/YYYY)	Mine Acres	Reclaim Start (MM/YYYY)	Reclaim End (MM/YYYY)	Reclaim Acres	Unreclaimed Acres
<input type="checkbox"/>	1	01/2015	04/2015	60.33	N/A	N/A	0	63.88
<input type="checkbox"/>	2	04/2015	08/2015	33.71	04/2015	08/2015	26.62	37.26
<input type="checkbox"/>	3	08/2015	12/2015	0	08/2015	12/2015	63.88	0

B. Provide a detailed narrative to describe the major mining and reclamation activities of each phase of the Proposed operation. The narrative shall also address the following: *Identify as Attachment N-1.*

- Consideration which was given to maximize the utilization and conservation of the solid fuel resource being recovered so that re-affecting the land in the future will be minimized;
- Appropriate steps which will be taken to comply with applicable air and water quality laws and regulations and applicable health and safety standards;
- Fugitive dust control plan to be employed during site preparation, mining and reclamation. When required, provide an air quality monitoring program and locate monitoring station(s) on proposal map;
- How topsoiling materials will be removed, stored, stabilized, protected, and redistributed;
- Include Phase Map(s) drawn to scale which indicates the sequence for each phase.

See Attachment N-1B and the Mining Sequence Map (Drawing No. B14-232-M2)

SMA Section N-1B 4



Policy dated January 24, 2017 states:

- 3. Does the mine plan in Section N-1B discuss the use of topsoil substitutes, and if so, are the aspects of §3.4.d.18, §3.6.b.2, §3.6.d adequately addressed?*

SMA Section N-1B 4



3.4 Maps

§3.4.d.18 “The location and extent of topsoil borrow areas, and the location of topsoil storage areas;

3.6 Operation Plans and Specifications

§3.6.b.2 “Overburden and topsoil handling and storage areas and structures;”

§3.6.d “A description of how the applicant will remove, store and redistribute topsoil, subsoils or topsoil substitutes and other materials...:

SMA Section N-1B 4



- Each mine phase discussion must include topsoil substitute discussion.
- Discussion must include volume calculations
- Must state the existing topsoil material will be reserved and added to substitute material
- Phase maps must show the location of topsoil substitute material storage

SMA Section O-9



- O-9. Provide a planting plan which includes the following:
- A. A prediction of the minesoil character based on overburden analysis, soil analysis, and other available information;
 - B. Proposed treatment to neutralize acidity;
 - C. Method of mechanical seed bed preparation;
 - D. Application rates and analysis of fertilization;
 - E. Application rates and types of mulch;
 - F. Application rates and species of perennial vegetation including herbaceous and woody plants;
 - G. Areas to be planted or seeded to trees and shrubs;
 - H. A maintenance schedule and procedures; and
 - I. A plan for temporary vegetation cover to include the following:
 - Species
 - Seeding rate; and
 - Timing.

Identify as Attachment O-9.

See Attachment O-9



SMA Section O-9



Needs to be consistent with other sections of the SMA

The proposed operations post-mining land use (PMLU) is forestland, defined as land with a twenty-five percent (25%) tree canopy or land at least ten percent (10%) stocked by forest trees of any size, including land formerly having had such tree cover and that will be naturally or artificially reforested. This PMLU is unchanged from the pre-mining land use for portions of the permit area that are currently forested and is anticipated to improve the areas of Pre-Law mining that are currently un-reclaimed.

A. *Prediction of minesoil character:*

Within the proposed permit area, the existing soil has been identified by USDA NRCS to be nearly entirely MHF (Matewan-Highsplint-Guyandotte association) with limited areas of FkC/FkF (Five Block Kaymine soils) and very limited areas of HgE (Highsplint channery loam) and UcB (Udorthents – Urban land Complex). The HgE and UcB soil types were only found along the valley floor in the receiving watersheds. A report taken from the USDA NRCS website and soils map have been included as attachment O-9.A. The average site index for Northern Red Oak for each soil type within the project area is shown in the table below:

Soil Series	Tree Species	Average Site Index
Matewan-Highsplint-Guyandotte assoc. (MHF)	Northern Red Oak ¹	76
Five Block Kaymine soils (FkC/FkF)	Northern Red Oak	80
Highsplint channery loam (HgE)	Northern Red Oak ²	100
Udorthents – Urban land Complex (UcB)	Northern Red Oak ³	--

¹ Within the Matewan-Highsplint-Guyandotte association, the Highsplint channery loam did not have Northern Red Oak listed in NRCS Websoil Survey Report for forestland productivity. The average site index is weight average of Matewan and Guyandotte for Northern Red Oak.

¹ Highsplint channery loam did not have Northern Red Oak listed in NRCS website report. The only species listed in the websoil survey report was the Yellow Poplar and it has been shown instead.

² Udorthents – Urban land Complex had no tree species listed in the NRCS Websoil Survey Report for forestland productivity.

Review of the NRCS data in association with the existing mining in the vicinity, the of the proposed operation, the post-mining soil is expected to be classified as Fiveblock and Kaymine soils. Please see supplemental "Attachment O-9.A" soil information provided.

Topsoil samples were collected in the area and those samples were analyzed to obtain information on available nutrients. Likewise, cores located within the mineral extraction area were sampled and tested for available nutrients. Several horizons that will be excavated during the mining process were analyzed to determine nutrient availability within any horizons that might be used as an alternate growth medium. In order to complete the topsoiling of the area upon final reclamation the total required for the permit area would be calculated as follows:

Supplement/Soil Substitute Required:

Disturbed Area less Valley Fill Ponds, Haulroads, and IUAR No. 1 Areas – 1276.1 acres
Average Depth of Soil Substitute – four (4') feet
Required Soil Substitute Volume – 8,235,099 Cu. Yds.

The applicant is proposing to utilize a soil substitute consisting of approximately 75% sandstone, with a composite paste pH between 5.0 and 7.5, with soluble salts of less than 1.0 mmhos/cm. The soil substitute material shall be blended with the available topsoil material generated during the mining sequence and will be placed on the regraded areas to provide a suitable growth medium for the proposed operation.

SMA Section O-9



Supplement/Soil Substitute Required:

Disturbed Area less Valley Fill Ponds, Haulroads, and IUAR No. 1 Areas – 1276.1 acres

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What do I need to remember??



☞ Requirements...

- ☞ Identify substitute material
- ☞ Meet required chemical properties
- ☞ Provide calculations

BE CONSISTENT

☞ Permit Sections...

- ☞ Section I-7
- ☞ Section I-13
- ☞ Section L
- ☞ Section N-1B
- ☞ Section O-9



Any questions?

THE END