

MARYLAND DEPARTMENT OF THE ENVIRONMENT

Land and Materials Administration • Bureau of Mines

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**APPLICATION FOR MINING OPERATIONS
MODULE IV
MINING AND RECLAMATION PLAN**

Permit Application No.: _____

Date: _____

1. GENERAL MINING INFORMATION

1.1 Indicate the coal seam(s) to be mined:

1.2 Provide the anticipated coal production for this proposed operation:

Annual tons: _____

Total tons: _____

1.3 Describe the measures to be used to maximize the use and conservation of the coal resources to be mined. Label Attachment IV-1.3.

1.4 Does this application propose to conduct surface mining operations within 100 feet of the right-of-way of any public road?

YES NO.

If YES, provide a description and plans of the measures to be used to insure that the interests of the public and landowners affected are protected. Label Attachment IV-1.4.

1.5 a) Are there any surface mining activities proposed within 500 feet of an active or abandoned underground mine?

YES NO

b) Will the underground mine workings be encountered?

YES NO

If YES, to a) or b) above, provide a description and plans of the measures to be used to comply with the requirements in COMAR 26.20.24.07. Label Attachment IV-1.5.

1.6 Will any of the following special practices be utilized during the mining operations?

YES NO

Experimental Practices

Mountaintop Removal

Steep Slope Mining

Prime Farmlands

Variance for Delay in

Contemporaneous Reclamation

Augering

In Situ Processing

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1.6 (Continued)

If YES, submit the plans necessary to meet the requirements of COMAR 26.20.24 for each. Label Attachment IV-1.6.

- 1.7 Submit a list of the major equipment to be used for all aspects of the proposed operation, include number, size or model of each unit and identify, with an asterisk, the equipment that will remain on the operation at all times, unless otherwise approved by the Bureau, for the purpose of backfilling and regrading and spreading of topsoil. Label Attachment IV-1.7.
- 1.8 Provide a plan for fugitive dust control for the proposed mining and reclamation operation, including haulroad and coal preparation facilities. Label Attachment IV-1.8.
- 1.9 Describe the method of marking the perimeter of the permit boundaries. Label Attachment IV-1.9.
- 1.10 Describe the method of marking each increment that will be bonded separately. Label Attachment IV-1.10.
- 1.11 For the following facilities, provide a description explaining the construction, modification, use, maintenance, and removal (unless retention is necessary for post-mining land use). Label Attachment IV-1.11.
- a) Coal removal; handling, storage, cleaning, and transportation areas and structures.
 - b) Coal processing waste and non-coal waste removal; handling, storage, transportation, and disposal areas and structures.
 - c) Mine facilities, i.e., shop areas, etc.
- 1.12 Describe the method utilized for site preparation, including the procedure for clearing and grubbing and disposal of trees, brush, structures and debris. Label Attachment IV-1.12.
- 1.13 Submit a description, including appropriate cross-sections and maps, of the measures to be used to seal or manage mine openings, and to plug, case, or manage exploration holes, other bore holes, wells, and other openings within the proposed permit area. Label Attachment IV-1.13.

2. METHOD OF OPERATION PLAN

- 2.1 Describe the proposed method of operation and show on a separate sheet at the same scale as the Mining Plan Map, a plan for the method of operation indicating the extent and sequence of cuts. Label Attachment IV-2.1.
- 2.2 Describe the measures to be used to dispose of debris, acid-forming and toxic-forming materials, and materials constituting a fire hazard, including a description of the contingency plans which have been developed to preclude sustained combustion of these materials. Label Attachment IV-2.2.

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- 2.3 Will the proposed mining operation incorporate the use of an excess spoil disposal site?
 YES NO

If YES, submit drawings, maps, and narratives necessary to meet the requirements of COMAR 26.20.02.13 and 26.20.26, which describe the geotechnical investigation, design, construction, operation, maintenance and removal, if appropriate, of the site and structure. Label Attachment IV-2.3.

3. ROAD AND TRANSPORTATION PLAN

- 3.1 Provide a detailed description of each primary road to be constructed, used, or maintained within the proposed permit area. The description shall include a map, profiles, cross-sections, design drawings, and construction specifications necessary to meet the requirements of COMAR 26.20.02.13BB and 26.20.19, including:
- a) A scaled profile that indicates:
 - 1) Final construction grades,
 - 2) Road cut and fill embankments,
 - 3) Road ditch grade if it differs from road surface grade,
 - 4) The total ditch depth,
 - 5) The ditch lining, i.e., riprap, grass, bare and
 - 6) The location and size of culverts, head required and available;
 - b) A scaled cross-section at a typical culvert location, if applicable, that includes:
 - 1) The total road width,
 - 2) Location of the roadside ditch, if applicable,
 - 3) All cut and fill slopes in horizontal to vertical measurements,
 - 4) The protection used to prevent erosion of cut and fill slopes,
 - 5) The cross-sectional slope of the road and culvert,
 - 6) Culvert entrance, outlet, and the protective measures used for each, and
 - 7) Road base, surface materials, and surface width;
 - c) Bridge and low water crossings design specifications, if applicable;
 - d) Operation and maintenance and procedures for the road(s);
 - e) The location and method of stockpiling and protecting topsoil removed from the construction area;
 - f) A method and procedure for seeding areas disturbed during construction of the road(s);
 - g) A report of appropriate geotechnical analysis, where approval from the Bureau is required for alternative specifications, or steep cut slopes;
 - h) A description of measures to be taken for alteration or relocation of a natural drainway;
 - i) Drawings and specifications for each proposed road that is located in the channel of an intermittent or perennial stream, as necessary for approval of the road by the Bureau in accordance with COMAR 26.20.19; and

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- j) Certification of the plans and drawings for each primary road by a qualified registered professional engineer in accordance with COMAR 26.20.19.01F.

Label Attachment IV-3.1.

- 3.2 Will any primary roads constructed, used, or maintained within the proposed permit area be retained as part of the postmining land use?

YES NO

If YES, provide a plan for maintenance and drainage control for each road and the consent of the surface owner for retaining the road. Label Attachment IV-3.2.

If NO, provide a description of the plans to remove and reclaim each road that will not be retained under the approved postmining land use, and the schedule for removal and reclamation. Label Attachment IV-3.2.

- 3.3 Provide a detailed description, including a map, profiles, cross-sections, design drawings, and construction specifications for conveyor or rail system to be constructed, used, or maintained within the proposed permit area. Label Attachment IV-3.3.

- 3.4 Are any existing haulageways or access roads to be used on the proposed surface mining operation?

YES NO

If YES, attach a narrative and plans that the structure will meet the requirements of COMAR 26.20.17 and 26.20.19. Label Attachment IV-3.4.

4. **TOPSOIL HANDLING PLAN**

- 4.1 Indicate the depth of topsoil to be removed and stockpiled prior to surface mining operations:

_____ inches

- 4.2 Indicate the location(s) where topsoil will be stored during surface mining operations:

- a) Above the active highwall
- b) On the backfill area
- c) On areas designated on the Mining Plan Map
- d) Other (explain)

- 4.3 Describe the plan for the removal, storage, and protection from erosion, including the method used to identify topsoil stockpiles. Label Attachment IV-4.3.

- 4.4 Will selected overburden materials to be substituted for, or used as a supplement to topsoil?

YES NO.

(continue on page 5)

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If YES, describe the material and its location stratigraphically and submit an analysis, and explain how the material will be segregated, stockpiled, protected, and placed on the backfilled area in place of, or in conjunction with, topsoil. Label Attachment IV-4.4.

5. BLASTING PLAN

5.1 Do you plan to conduct blasting operations on the proposed permit area?
 YES NO.

If YES, submit a blasting plan. Label Attachment IV-5.1. The plan shall include:

- a) Types of explosives to be used for each type of blasting operation to be conducted.
- b) A description of procedures and plans for recording and retaining information, including a sample copy of the blasting log to be used and the location where they will be retained. The sample log shall contain all information necessary to meet the requirements of COMAR 26.20.22;
- c) A description of blasting warning and site access control equipment and procedures;
- d) A description of types, capabilities, sensitivities, and locations of use of any blast monitoring equipment and procedures proposed to be used;
- e) A description of plans for accomplishing and reporting to the Bureau the results of pre-blasting surveys, if required, and
- f) A description of unavoidable hazardous conditions for which deviations from the blast schedule will be needed.

5.2 Provide a list of names and addresses of all property owners, or owners of structures, within one-half mile of the proposed permit area. Label Attachment IV-5.2. The list shall identify:

- a) Those property owners within 1,000 feet;
- b) Those property owners who own dwellings or structures within 1,000 feet (indicate dwelling or type of structure on list); and
- c) Those persons who own wells and springs within 1,000 feet (indicate well and/or spring on the list).

5.3 Will blasting operations be conducted within:

- a) 1,000 feet of any building used as a dwelling, public building, school, church, or community or institutional building?
 YES NO
- b) 500 feet of an active or abandoned underground mine?
 YES NO

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If YES, to 5.3a) or 5.3b) above, submit a blast design in accordance with COMAR 26.20.02.13F(8) prepared and signed by a certified blaster. Label Attachment IV-5.3.

6. DRAINAGE CONTROL PLAN

6.1 Indicate below the number of structures to be used for drainage control for the proposed surface mining operation.

- | | |
|--|--------------------------------------|
| <input type="checkbox"/> Sedimentation Ponds | <input type="checkbox"/> Dams |
| <input type="checkbox"/> Coal Processing Waste Banks | <input type="checkbox"/> Embankments |
| <input type="checkbox"/> Other, Specify _____ | |

6.2 For each structure identified above, provide detailed design plan. Label Attachment IV-6.2. The plan shall include:

- a) Scaled cross-sections and profiles that show the embankment, principal spillway, emergency spillway, and entrance channel including at a minimum:
 - 1) Cut and fill slopes,
 - 2) Design flow and total depths, and
 - 3) Elevations;
- b) A scaled plan view of each structure showing at a minimum:
 - 1) A benchmark location and elevation, and
 - 2) Site topography at five foot control intervals;
- c) Hydrologic and geologic information required to assess the hydrologic impact of each structure;
- d) Geotechnical investigation, as required by COMAR 26.20.02.13(v) and 26.20.21.08, for each structure;
- e) Design and construction requirements for each structure;
- f) A description of the operation and maintenance requirements for each structure;
- g) A description of the timetable and plans to remove each structure, if appropriate;
- h) Design calculations (e.g. storage volume, runoff computations); and
- i) The information necessary to meet the requirements in COMAR 26.20.02.13V and 26.20.27 for coal processing waste dams and embankments, if applicable.
- k) A description of the potential effect on the structures from subsidence of the subsurface strata resulting from past underground mining operations, if applicable.

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- 6.3 Are there any water impoundments or coal processing waste dams proposed in excess of 15 feet in height as measured from the upstream toe of the embankment to the crest of the emergency spillway, or with a storage volume in excess of 20 acre feet?
 YES NO.

If YES, submit the information required for each structure as described in COMAR 26.20.02.13 OR 26.20.21. Label Attachment IV-6.3.

- 6.4 Are all pond designs and/or coal processing waste dam designs certified by a qualified registered professional engineer?
 YES NO.

IF NO, provide an explanation. Label Attachment IV-6.4.

- 6.5 Will any of the structure(s), identified in Item 6.1, be retained as permanent impoundment(s)?
 YES NO

If YES, attached a narrative(s) and plan(s) that demonstrates the structure(s) will meet the requirements of COMAR 26.20.21. Label Attachment IV-6.5.

- 6.6 Are there any existing structures to be used on the proposed surface mining operation?
 YES NO.

If YES, include a plan for the existing structures that meets the requirements of COMAR 26.20.17. Label Attachment IV-6.6.

- 6.7 Submit a plan for the construction, modification, maintenance and removal, which includes profiles and cross-sections, of each diversion and stream channel diversion that meets the requirements of COMAR 26.20.21. The cross-sections and profiles should show, as a minimum, fill and cut slopes, total and flow depth, and channel protection. Label Attachment IV-6.7.

- 6.8 Will surface or ground water drainage from the permit area require treatment?
 YES NO.

If YES, submit a plan for treatment. Label Attachment IV-6.8.

7. **RECLAMATION PLAN**

- 7.1 Describe a plan for:

- a) Backfilling;
- b) Soil Stabilization;
- c) Compaction;
- d) Grading;
- e) Redistributing topsoil and subsoil; and
- f) Controlling surface drainage following regrading.

Support your description with contour maps or cross-sections that indicate the existing slope of the final backfilled surface. Label Attachment VI-7.2.

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7.2 Will rough backfilling and grading:

- a) In contour mining operations, follow coal removal by not more than 1,500 linear feet?
 YES NO
- b) In area mining operations, follow coal removal by not more than three spoil ridges?
 YES NO

If NO, to a) or b), submit a detailed written explanation why a variation is necessary. Label Attachment IV-7.3.

7.3 On the following table, indicate the estimated time for the completion of each major step in the reclamation plan:

Time Period	Year	Acres Backfilled	Topsoiled	Planted
Start to December	20			
December	20			
December	20			
December	20			

If permit term exceeds five (5) years, submit on a separate sheet and label Attachment IV-7.1.

7.4 Submit a plan for revegetation for each land use and/or landowner that identifies each of the following (submit on format as outlined below): Label Attachment IV-7.4.

- a) A method of soil testing.
- b) Application of soil amendments:
 - 1) Lime (tons per acre) _____
 - 2) Fertilizer: Analysis _____ (tons per acre) _____
 - 3) Other
- c) Seed bed preparation (also address how compaction will be prevented).
- d) Species to be seeded and/or planted:
 - 1) Grasses:
 - Temporary (rates/acre)
 - Permanent (rates/acre)
 - 2) Legume:
 - Temporary (rates/acre)
 - Permanent (rates/acre)

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3) Other:
Temporary (rates/acre)
Permanent (rates/acre)

4) Trees and/or Shrubs:
Species (rates/acre)

e) Time of Seeding:

1) March 2 to June 15
2) June 16 to July 31
3) August 1 to March 1

f) Proposed Method of Seeding:

1) Conventional
2) Hydroseeder
3) Helicopter
4) Other

g) Explain how seed will be covered.

h) Name of the person responsible for seeding: _____

Associated with: _____

i) Mulching:

1) Will mulch be used? YES NO
2) If YES, describe type and rates/acre and method of anchoring.
3) If NO, describe alternative method, including rates/acre.
4) Will chemical soil stabilization be used? YES NO
5) If YES, describe substance, method and rate/acre.

j) Standards for Success:

1) Will the reference area method be used? YES NO
2) If YES, submit detailed description.
3) Will alternative standards of the Bureau be used? YES NO