

MARYLAND DEPARTMENT OF THE ENVIRONMENT

Land and Materials Administration • Bureau of Mines

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**APPLICATION FOR MINING OPERATIONS
MODULE V
DEEP MINING**

Permit Application No.: _____

Application Fee Enclosed (\$200) ☐ Yes No ☐ Date: _____

1. ADDITIONAL APPLICATION INFORMATION

1.1 Indicate the method of coal removal:

- ☐ Long Wall
- ☐ Short Wall
- ☐ Room and Pillar
- ☐ Other (specify) _____

1.2 "Affected Area" Acreage (Mineral):

Existing _____ Requesting _____ Total _____

1.3 Attach a copy of the written notification with certification of mailing, sent to landowners within the proposed affected area and within 1,000 ft. of the proposed affected area. Label Attachment V-1.3.

2. FACE-UP AREA

2.1 Affected Area Acreage (Surface):

- Mine yard, face-up, other facilities _____
- Sediment and erosion control facilities _____
- Haulroad, conveyor, railroad, etc. _____
- Refuse disposal, spoil and topsoil storage areas _____
- Other disturbed area, power and fluid transmission lines, etc. _____

TOTAL: _____

2.2 Will the face-up area be developed in a:

- ☐ currently undisturbed area
- ☐ the final highwall of an existing surface mine
- ☐ an abandoned surface mine highwall
- ☐ other (specify): _____

2.3 What is the length of highwall face-up? _____

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- 2.4 What is the estimated amount of material to be removed during site development?
Overburden (yd³) _____ Coal (tons) _____
- 2.5 Where will the material for reclamation of the mine yard and face-up be obtained?
☐ Material excavated from face-up area (undisturbed area)
☐ Material reserved from surface mine reclamation (active surface mine)
☐ Available spoil from the abandoned mine
☐ Other (specify): _____
- 2.6 Describe how the material for reclamation will be stored and protected during the time the mine is open? If a fill bench is to be created, provided designs for site preparation, construction, maintenance, and removal of the structure. Label Attachment V-2.6.

3. **UNDERGROUND MINE AREA**

- 3.1 Provide lithologic logs of the material overlying the underground mine area, noting all strata where ground water was encountered. Label Attachment V-3.1.
- 3.2 Provide a geologic cross-section(s), based on the lithologic logs, for the area overlying the underground mine. Label Attachment V-3.2.
- 3.3 Describe the known conditions of any active or abandoned deep mines adjacent, overlying, or underlying the proposed operation, including information on impounded water, discharging water, and fires. Indicate any anticipated impacts resulting from the proposed operation. Label Attachment V-3.3.
- 3.4 Is any portion of the underground mine area proposed to be at a higher elevation than the mine entries?
☐ YES ☐ NO
- If YES, provide a justification with supporting information indicating why a waiver of this prohibition is warranted. Label Attachment V-3.4.
- 3.5 Describe the considerations and provide the calculations used to determine the width of mine barriers. Label Attachment V-3.5.
- 3.6 Describe the proposed method of operation including the technique of coal removal, percent of coal extraction (total mine area and per panel), and mine development layout. Label Attachment V-3.6.

4. **WATER HANDLING AND TREATMENT**

Designs for sediment and erosion control facilities, diversions and mine water treatment facilities, shall be included in Module IV in response to item IV-6.

- 4.1 What is the anticipated quantity and quality of water to be generated within the mine? Provide data and methodologies used to develop the estimate. Label Attachment V-4.1.

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- 4.2 Describe any measures to be used to limit water infiltration into the mine (e.g. surface water infiltration controls, aquifer dewatering wells). Label Attachment V-4.2.
- 4.3 Is there any existing mine drainage which may affect or be affected by the proposed operation?
☐ YES ☐ NO
- If YES, identify and provide data on quantity and quality of each discharge. Label Attachment V-4.3.
- 4.4 What is the estimated quantity (gallons per day) of water to be pumped from the mine for treatment (total quantity generated within the mine minus water stored or utilized underground)? Label Attachment V-4.4.
- 4.5 Provide a plan of the proposed mine water handling system including details on the method of conveyance from the mine to a treatment system. Label Attachment V-4.5.
- 4.6 Describe the method(s) of treatment to be used including neutralizing agents, method of aeration, monitoring of water quality and quantity, and method of preventing untreated discharge in the event of equipment failure. Label Attachment V-4.6.
- 4.7 How will uncontrolled inflow, e.g. surface water run-off, be controlled to prevent treatment system overloading? Label Attachment V-4.7.
- 4.8 Is room available for expansion or addition to the treatment system(s)?
☐ YES ☐ NO
- 4.9 List the stream(s) receiving discharge. Label Attachment V-4.9.
- 4.10 What is the watershed acreage of the receiving stream above point(s) of discharge? Label Attachment V-4.10.

5. **SUBSIDENCE**

- 5.1 What is the maximum amount of subsidence, in feet, predicted to result from the underground mining operation? Provide calculations and prediction plan assumptions. Label Attachment V-5.1.
- 5.2 Describe any measures to be taken in the mine to reduce the likelihood of subsidence, including:
- a) Backstowing or backfilling of voids.
 - b) Leaving support pillars of coal.
 - c) Areas in which no coal removal is planned.
- Label Attachment V-5.2.
- 5.3 Describe the extent of any area(s) where planned subsidence is intended and the anticipated effects of that subsidence. Label Attachment V-5.3.

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5.4 Provide a survey of structures and renewable resource lands for the affected area. Label Attachment V-5.4.

5.5 Does the survey indicate the existence of any structures or renewable resource lands that could be materially damaged or diminished in their reasonably foreseeable use by subsidence should it occur?

☐ YES

☐ NO

If YES, identify each structure or land. Label Attachment V-5.5.

5.6 Provide a detailed subsidence control plan for all structures and renewable resource lands identified in your survey, or separately by the Bureau, as susceptible to damage or diminution in reasonably foreseeable use from subsidence. Include as applicable:

a) A detailed description of surface measures to be taken to reduce the effects of subsidence, including:

- 1) Reinforcement of sensitive structures or features,
- 2) Installation of footers designed to reduce damage caused by movement,
- 3) Change of location of pipelines, utility lines, or other features,
- 4) Relocation of moveable improvements to sites outside the angle-of-draw, and
- 5) Monitoring, if any, to determine the commencement and degree of subsidence so that other appropriate measures can be taken to prevent or reduce material damage;

b) A detailed description of measures to be taken to mitigate damaging effects of subsidence, such as:

- 1) Restoration or rehabilitation of structures and features, including approximate land-surface contours to pre-mining conditions,
- 2) Replacement of structures destroyed by subsidence,
- 3) Purchase of structures before mining and restoration of the land after subsidence to a condition capable of supporting and suitable for the structures and foreseeable land uses, and
- 4) Purchase of non-cancellable insurance policies payable to the surface owner in the full amount of the possible material damage;

c) A detailed description of measures to be taken to assess the degree of damage or diminution of value of the foreseeable use of the surface as a result of subsidence, including:

- 1) The results of pre-subsidence surveys of all structures and surface features which might be materially damaged by subsidence, and
- 2) Monitoring, if any, proposed to measure deformations near specified structures or features or otherwise as appropriate for the operation; and

d) A detailed description for reclamation and/or repairs of subsidence damage.

Label Attachment V-5.6.

6. MINE CLOSURE AND ABANDONMENT PLAN

- 6.1 Provide a sequence and time schedule for mine closure procedures including placing of seals, demolition/removal of structures, regrading, seeding, and general reclamation of the area. Label Attachment V-6.1.
- 6.2 What is the anticipated final water elevation within the mine after mining is completed and what is the estimated period of time it will take to reach this level and stabilize? Label Attachment V-6.2.
- 6.3 Identify the most probable seepage areas considering the anticipated final water level and geologic conditions of the area. Label Attachment V-6.3.
- 6.4 Identify all openings to the mine (including boreholes and entries to other mines to be encountered during mining) and provide a sealing plan. Indicate the anticipated head of water on each seal. Attach design specifications. Label Attachment V-6.4.

Opening	Type of Seal Design	Water Head (feet)

7. MINE PROJECTION MAP

- 7.1 Mine projection maps, at a scale approved by the Bureau, must be submitted at the time of permit application and every six months thereafter until completion of the operation. The application map shall identify the area where mining is anticipated during the first six months of the operation.
- 7.2 Mine projection maps must be certified by a Registered Professional Engineer or Surveyor and identify the following:
- a) Operator's name and the name of the mine.
 - b) The period of time the projection covers (month/year).
 - c) The OPA number and permit number.
 - d) All contemplated workings to be undertaken or developed during the succeeding six months.
 - e) The area mined or excavated during the preceding six months.
 - f) The area mined prior to the area delineated as having been mined during the preceding six months.
 - g) The location and dimensions of all protected structures.
 - h) The support areas underlying protected structures.
 - i) The elevation of the coal seam at the working face.
 - j) Structural contours of the coal seam being mined.
 - l) Surface property lines, streams, water bodies, buried public utilities, etc. in the area overlying the mine boundary.
 - m) Adjacent, overlying, and underlying active or abandoned underground mines and the separation between them.
 - n) The date of last survey.

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8. MINERAL, SURFACE AND WELL OWNERSHIP

- 8.1 Complete the Surface Property and Well/Spring Ownership Form for all well or spring owners within the proposed affected area. Label Attachment V-8.1.
- 8.2 Complete the Mineral Ownership Form for all mineral owners within the proposed affected area. Attachment V-8.2.

9. TEST HOLE DATA

- 9.1 Complete the Test Hole Data Form for all test holes. Attachment V-9.1.

10. DEEP MINE MAP

- 10.1 Submit a deep mine map at the same or a larger scale as the mining plan map. The map shall include all types of information that is on a USGS 7.5 minute topographic map. The map shall also have the same certification requirements and certification statement as the mining map plan. Mines which require more than one sheet to cover the boundaries of the operation shall include a key map or index showing the arrangement of sheets in relation to the overall operation. The map(s) shall identify:
 - a) Date of preparation, North point, a legend and a vicinity sketch in such detail as to easily locate the area to be disturbed;
 - b) Boundaries of the area to be affected including disposal areas, and the land area from under which coal is to be removed;
 - c) Boundaries of surface properties within the area to be affected and within 1,000 feet of the area to be affected. (Properties listed in Attachment V-8.1 Surface Property and Well/Spring Ownership Form);
 - d) Names and locations of all streams, creeks, ponds, or other bodies of water with depth indicated, roads, railways, buildings, cemeteries, and public utilities within the area to be affected;
 - e) Locations of all active, plugged and abandoned oil, gas and water wells and springs within the area to be affected and within 1,000 feet of the area to affected. Locate all structures listed on Attachment V-8.1 (Surface Property and Well/Spring Ownership Form);
 - f) Locations of all test borings. (Borings listed on Attachment V-9.1, Test Hole Data Form);
 - g) Outcrop line of the seams to be mined and the strike and dip of the seams;

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- h) Estimated boundaries of any adjacent, overlying, or underlying active or abandoned deep mine areas and boundaries of any active or abandoned surface mined areas, including auger holes, adjacent to or affected by the proposed operation;
- i) Location of all discharge points from the affected area and the location of any treatment facilities;
- j) Location of all refuse disposal areas;
- k) Location of processing areas including buildings, tipples, coal storage yards, loading ramps, railroad sidings, docks, wharves, roadways, conveyors, washers, other structures or facilities to be used in storing and processing the coal to be recovered;
- l) Structural contours at the bottom of the mineral to be mined;
- m) Faults, joints, fractures;
- n) Axis of the structure, if within the map area;
- o) Direction of plunge of the structure, if axis is within map area;
- p) Extent to which mining operations presently have been completed and the extent to which mining operations will be conducted under the permit requested;
- q) All openings to the coal seam to be mined, existing and proposed, including boreholes, and adjacent active or abandoned mines;
- r) Size of the barriers around the perimeter of the proposed operation, wells, and under barriers in overlying deep mined seams;
- s) Support areas to be provided for surface structures, lands, ponds, streams, and other features or values to prevent damage or loss from subsidence;
- t) Maximum potential head of water on perimeter barriers at several locations around the mine;
- u) Maximum potential head of water at all mine openings, including boreholes; and
- v) Boundaries of mineral properties and the names of the owners of the mineral within the proposed affected area and adjacent to the proposed affected area. (Properties listed on Attachment V-8.2, Mineral Ownership Form).

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Attachment V-8.1

SURFACE PROPERTY AND WELL/SPRING OWNERSHIP FORM

List names and addresses within the proposed affected area and within 1,000 feet of the affected area.

Surface Ownership Reference Number ¹	Owners' Name and Address	Surface Acres Within Affected Area	Well Ownership Number	Spring Ownership Number	Remarks

¹Referenced Number on Deep Mine Map

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Attachment V-8.2

MINERAL OWNERSHIP KEY

List the names and addresses of mineral owners within the proposed affected area.

Mineral Ownership Number ¹	Owners' Name and Address	Acres to be Mined

¹Referenced Number on Deep Mine Map

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Attachment V-9.1

TEST HOLE DATA FORM

Number ¹	Drilled By:	Date	Elevation	Elevation	Thickness	Comments

¹Referenced to Number on Deep Mine Map.

Form Number MDE/LMA/ PER.026
Revision Date 8-24-2017
TTY Users 1-800-735-2258

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