

H. Subsidence Control Plan (734.20)

1. Include a survey which shows what structures or renewable resource lands exist within the proposed permit and adjacent area and whether subsidence, if it occurred, could cause material damage or diminution of reasonably foreseeable use of such structures or renewable resource lands. If it is determined that no material damage will occur to surface structures or renewable resource lands from subsidence, the application shall include supporting evidence of such a finding.

Revision No. 33 adds the Lolley Mine in the Clark Coal seam. The Pre-Subsidence Control and Timing Map in the Subsidence Control Plan shows the area overlying the planned workings of the proposed mine showing all features that could be affected.

A survey of structures, features, or renewable resource lands has been conducted. The limits of the survey were determined by a 30<sup>0</sup> angle of draw from the limits of the mining area. The survey found several coal bed methane gas wells, pipelines and infrastructure associated with the coal bed methane business. There are two power transmission lines within the mine boundary. The supports for these power lines are pole structures either concrete or wood.

There are three occupied dwellings within Year 5 of the mine plan in the SE/SE of Section 26-21S-4W. Several small out buildings are associated with these dwellings.

There is one refuse disposal facility located within the 30<sup>0</sup> angle of draw of the mining limits. The mining proposed in this area is main entries.

The mine proposes to use the room and pillar mining method. No secondary recovery is proposed therefore no subsidence is anticipated.

There are no known users of surface or groundwater within the proposed mine area.

The surface overlying Lolley Mine is predominantly privately owned forest/woodlands.

See the [Subsidence Control Plan for Lolley Mine](#)

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2. If the study shows that structures or renewable resource lands could be adversely effected by subsidence, the applicant shall address the following:

Within the survey area, does the applicant intend to implement planned subsidence?

Yes  No

If yes, provide information requested under "Planned Subsidence", Subsection (a) ,

If no, provide information requested under "Unplanned Subsidence", Subsection (b) .

(a) Planned Subsidence.

- (1) Using maps, plans, or cross- sections, as needed, locate the area(s) where planned subsidence is occurring or is intended to occur. Clearly show on a map and correlate the information and the relationship to critical surface features, renewable, resources lands and structures called for in Parts (i-v) below:
  - (i) Provide a detailed mine plan map. Describe the method of mining used to implement planned subsidence, such as longwall, room and pillar - high extraction (pillar removal), or other methods.
  - (ii) Locate extraction panels, give geometric sizes, dimensions and orientation, and include details of length, width and height of panels. Give percent of coal left as support in ratio to percent of coal removed within the extraction panel. Include similar information concerning any secondary recovery that is planned.
  - (iii) Provide details locating all permanent coal block and barrier pillars outside the actual extraction panels. Give geometric shapes, dimensions and orientation of these blocks and barrier pillars.

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(iv) Give anticipated date (month/year) in which mining will be conducted in each area and/or panel within the planned subsidence area(s).

(v) Show areas that will be affected by subsidence. Provide details on the horizontal extent and vertical drop of the surface as it relates to the effectiveness of the proposed Subsidence Control Plan. Supply information detailing expected subsidence profiles.

(2) Provide a detailed description of measures to be taken to prevent planned subsidence from causing material damage or lessening the value or reasonable foreseeable use of the surface. Locate and describe in detail how, when, and where measures, if any, are to be applied. Include the following information:

(i) Locate areas in which coal removal is not planned, including its relationship to overlying area(s) to be protected by leaving coal in place.

(ii) Describe measures to be taken on the surface to prevent material damage or diminution of the value or reasonable foreseeable use of the surface, including, but not limited to:

(A) Reinforcement of sensitive structures or features.

(B) Installation of footers or other techniques designed to reduce damage caused by movement.

(C) Change of location of pipelines, utility lines or other features.

(D) Relocation of moveable improvements to sites outside the angle of draw.

(E) Monitoring, to determine the commencement and degree of subsidence so that appropriate measures can be taken to prevent or reduce damage.

(F) Describe any other prevention measures taken.

(3) Provide a detailed description of measures that are to be taken to mitigate the effects of any material damage or diminution of value or reasonable foreseeable use of lands which may be caused by planned subsidence. Describe how these measures are to be promptly applied in accordance with 817.124. Measures include, but are not limited to, one or more of the following:

(i) Restoration or rehabilitation of damaged structures including surface and underground agricultural drainage systems, features and lands after subsidence to a condition capable of supporting and suitable for foreseeable use, including restoration of approximate land surface contours to premining conditions in order to assure proper surface drainage.

(ii) Replacement of structures, including surface and underground agricultural drainage systems destroyed or damaged by subsidence.

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- (iii) Purchase of structures prior to raining or purchase of damaged structures after subsidence at pre-subsidence value.
  - (iv) Purchase of non-cancellable insurance policies as described in 817.124(c), payable to surface owners in full amount of the possible material damage or other comparable measures.
  - (v) Describe other mitigation measures that are to be taken.
- (4) Provide a detailed description of measures to be taken to determine the degree of material damage or diminution of value or foreseeable use of the surface, including, but not limited to, such measures as:
- (i) Conducting pre-subsidence surveys and inventories of all structures and surface features which might be materially damaged by subsidence.
  - (ii) Monitoring to treasure deformations near specified structures or features or otherwise appropriate locations.
- (b) Unplanned Subsidence.
- (1) Using maps, plans, and cross sections, as-needed, locate the areas where coal extraction is to take place and where subsidence, if incurred, cannot be considered planned subsidence. Clearly show on a map the relationship of parts (i - v) below to critical surface features, renewable resource lands, and structures.
    - (i) Provide a detailed mine plan map. Describe the methods of mining used, such as room and pillar, checker board, blind room or other methods.
    - (ii) Locate extraction panels, give geometric sizes, dimensions and orientation, and include details of length, width and height of panels. Give percent of coal left as support in ratio to percent of coal removed within the extraction panel. Provide information on crosscut and room dimensions, and both driven on what centers. Include similar information concerning any secondary recovery that is planned.
    - (iii) Provide details locating all permanent coal blocks and barrier pillars outside the actual extraction panels. Give geometric shapes, dimensions, and orientation of these blocks and barrier pillars.

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- (iv) Give anticipated date (month/year) in which mining will be conducted in each area and/or panel.
  - (v) Characterize variations in claystone layers immediately below the extracted coal seam(s). Include data on varying claystone thicknesses throughout the area covered by the subsidence control plan. Provide assurances that measures have been adopted concerning the maximization of mine stability as it relates to claystone floor conditions.
- (2) Provide a detailed description of measures to be taken to prevent unplanned subsidence from causing material damage or lessening the value or reasonable foreseeable use of the surface. Describe how these measures are to be applied. Include the following information.
- (i) Locate area(s) in which coal removal is not planned, including its relationship to overlying area(s) to be protected by leaving coal in place.
  - (ii) Locate area(s) to be backfilled or backstowed.
  - (iii) Describe measures to be taken on the surface to prevent material damage or diminution of the value or reasonable foreseeable use of the surface including, but not limited to:
    - (A) Reinforcement of sensitive structures or features;
    - (B) Installation of footers or other techniques designed to reduce damage caused by movement;
    - (C) Change of location of pipelines, utility lines or other features;
    - (D) Relocation of moveable improvements to sites outside the potential angle-of-draw;
    - (E) Monitoring to determine the commencement and degree of subsidence so that appropriate measures can be taken to prevent or reduce damage; and
    - (F) Describe any other prevention measures to be taken.
- (3) Provide a detailed description of measures that are to be taken to mitigate the effects of any material damage or diminution of value or foreseeable use of lands which may occur as a result of unplanned subsidence. Describe how these measures are to be promptly applied in accordance with S17.124. Measures include, but are-not limited to, one or more of the following:
- (i) Restoration or rehabilitation of damaged structures (including surface and underground agricultural drainage systems), features and lands after subsidence to a condition capable of supporting and suitable for foreseeable use including restoration of approximate land surface contours to premining conditions in order to assure proper surface drainage.

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- (ii) Replacement of structures, including surface and underground agricultural drainage systems destroyed or damaged by subsidence.
  - (iii) Purchase of structures prior to mining or purchase of damaged structures at pre-subsidence value.
  - (iv) Purchase of non-cancellable insurance policies, as described in 817.124(c), payable to the surface owner in the full amount of the possible material damage or other comparable measures.
  - (v) Describe other mitigation measures to be taken.
- (4) Provide a detailed description of measures to be taken to determine the degree of material damage or diminution of value or foreseeable use of the surface, including, but not limited to such measures as:
- (i) Conducting of pre-subsidence surveys of all structures and surface features which might be materially damaged by subsidence.
  - (ii) Monitoring to measure deformation near specified structures or features or other appropriate locations.