



## State of Utah

DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

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TO: Sue Linner, Permit Supervisor

FROM: R. Harden, Reclamation Engineer 

RE: Sowbelly Reclamation Plan, Revised Comments, Castle Gate Mine, Castle Gate Coal Company, ACT/007/004, Folder #2, Carbon County, Utah

Summary:

The following comments reflect reclamation requirements for Sowbelly reclamation:

Analysis:

UMC 783.24-25 Maps: General Requirements, Cross Sections, Maps, and Plans - JRH

1. Numerous abandoned mine sites and facilities are within and adjacent to the permit area. The operator must clearly delineate and identify these facilities so that they may be determined to be outside of the operator's disturbed area. The operator shall also indicate the dates of disturbances and the date of their last use as part of mining operations. In some cases, facilities which were used by the previous permittee must still be included in the disturbed areas even though the current operator has had no activity in those areas. This determination will be made in accordance with the conditions of the permit transfer to Castle Gate Coal.
2. The operator has only delineated those areas of the previously disturbed areas which are the flat surface portions of the pads and roads. Cut slopes, highwalls and outcrops of these facilities have been excluded from the disturbed area boundary. The operator must incorporate into the disturbed area boundaries, all portions of those prior mining facilities which are used in conjunction with and associated with current mining activities. Those pads and roads currently in use by the operator could not exist without the cut slopes and embankments associated with them

and must be incorporated into the permit area. In order to more completely resolve this matter, it is recommended that the operator and the Division inspect the site and delineate the disturbed area boundaries in accordance with these requirements. Upon delineation of the disturbed area boundaries in the field, the operator shall be required to submit revised drawings showing the correct surface disturbed areas in which the operator is liable.

3. The operator need to provide identification as to the date and the use of those areas and facilities within the permit area which have been incorporated into the underground mining activities. This identification shall be in accordance with UMC 771.23. Those areas affected by previous mining operations and used in conjunction with current underground coal mining facilities are to be included in the disturbed areas.
4. The location of all buildings in and within 1,000 feet of the proposed permit area with identification of the current use of the buildings
5. The location of surface and subsurface man made features within, passing through, or passing over the proposed permit area, including but not limited to, major power transmission lines, pipelines, gas lines, etc.
6. Maps and plans presented in the MRP showing the operations and the facilities must include the disturbed area boundaries for reference. The boundaries should also include those areas in which proposed facilities are scheduled for construction as well as borrow areas which may be required for reclamation. Primarily, this information needs to be provided on the operational plans to ensure that the operator is conducting mining activities within the approved permit areas of the plan. These boundaries should coincide with their perimeter markers and other boundary requirements as provided in the approved mining and reclamation plans.
7. Maps used to show the final reclamation of the facilities are not clear. The disturbed areas on the drawings need to be outlined in a manner which will clearly show the disturbed area boundaries. Each map should also delineate and indicate the number of acres relevant to that specific area and specific reclamation treatment (seed mix, topsoil coverage, borrow area, etc.). Those facility to be left as part of the post mining land use should also be clearly identified on the drawings.

8. Maps and plans regarding the backfilling and grading of the site do not clearly depict the reclamation contours, final slopes and the extent to which cuts and highwalls are to be backfilled.
9. Pads and roads shown on the reclamation plan appear to be essentially identical to their existing contours. A plan for backfilling, soil stabilization, compacting and grading with contour maps or cross section that show the anticipated final surface configuration must be provided as part of the reclamation plan.
10. Cross sections of the facilities are not provided or referenced by the operator for the final surface plot plan of the areas to be reclaimed. No calculations could be found referencing the cross sections for earthwork calculations. These calculations are required for backfilling and grading design for reclamation and determination of the bond amount.
11. Maps or the cross sections should also indicate final reclamation slopes particularly noting the maximum slopes to be left upon final reclamation. In those areas where final slopes exceed 2h:lv, the operator needs to justify the final configuration for the earthwork and provide sufficient design calculations to ensure long term stability of the slopes. The extent of the maps and cross sections should extend at least 100 feet beyond the disturbed area to indicate the aspect and the slope of the adjacent areas.
12. Reclamation drawings must be enlarged to sufficiently show detail of different reclamation treatments, including but not limited to slope and contour, disturbed area acreage, delineation of soils and vegetation treatments, identification of structures, mine openings, and other surface facilities, and appropriate cross sections in order to determine cut and fill requirements for reclamation. These drawings should be typically set at a scale of 1"=40' and a two foot contour interval used to locate and identify the facilities and determine the amount of earthwork required for reclamation.
13. An attempt was made on the drawings to identify the locations of the various seed mixes to be used in conjunction of the reclamation. No definition of their respective acreages were found on the drawing, nor, was the acreage identified for the total disturbed area included on the map.

14. No grid, coordinates or references were found on some of the drawing to specify the location of the map with respect to the permit area or other topographic boundaries or features.
15. Contour intervals of 100 feet are not suitable for reclamation design as currently shown of those drawings presented by the operator for reclamation of the facilities. Cross sections are not found or referenced on the drawings which show the final configuration of the area as it is to be reclaimed. No detailed plans for the closure of the mine openings or sufficient cross sections could be found to ensure highwall reduction at the site.
16. Maps provided to determine the existing facilities and the reclaimed contours of the site must be of sufficient scale and detail to determine the reclaimability of the site.
17. The operator has not demonstrated the stability of slopes and embankments. This may be accomplished in some cases by the performance of the structure in the past with a commitment to maintain and monitor those embankments and slopes throughout the permit term. In some cases however, it may be necessary to provide geotechnical information in order to satisfy the requirements of this section. Upon detailed technical review of the mine plan, the Division shall determine which areas, if any will require further geotechnical analysis to ensure stability.

UMC 784.13 Reclamation Plan: General Requirements - JRH

1. The operator's drawings should include sufficient details for; backfilling, compacting and grading, with contour maps that show the final anticipated surface of the proposed permit area.
2. A plan for the removal, storage and redistribution of topsoil, subsoil, and other materials to meet the requirements of UMC 817.21-25 must be provided.
3. 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 or other boreholes, wells and other openings within the permit area in accordance with UMC 817.13-15 must be provided in the plan.
4. Those facilities such as sediment ponds, embankments, cut slopes, pads, highwalls, roads and other facilities used in conjunction with mining operations must all be proven to conform to the performance standards and be included in the disturbed area for the operations.

5. Backfilling and grading calculations in order to determine the amount of earthwork required during reclamation are required. Cross sections from the maps should show the existing contours and the proposed contours for final reclamation. These cross sections should be of sufficient number and scale so as to determine the amount of earthwork required on the site, maximum slopes to remain upon reclamation, any retainage of highwalls from portals or other cut slopes, and suitability of the reclaimed slopes in achieving approximate original contour requirements.

UMC 800 Bond and Insurance Requirements - JRH

Bonding calculations do not include the following information:

1. A map as specified under UMC 784.23(b)(3) specifying each area of land for which bond will be posted under Subchapter J of the regulations.
2. Mass balance calculations showing backfilling and grading requirements for distribution and disposal of excess spoil and mine development waste, backfilling to meet AOC requirements, subsoil, topsoil and substitute topsoil distribution and quantities for each sub area of the permit.
3. Calculations for determination of quantities, equipment selection and productivity used in determining the bond amount.
4. Determination of Phase I and Phase II reclamation activities including a map showing those facilities to be constructed and/or removed during each phase of reclamation.
5. Costs associated with reclamation were not included in the cost estimate, these costs include but are not limited to the construction of permanent channel reclamation, sediment pond removal, soil sampling and analysis, and water monitoring costs.