CHAPTER 6
GEOLGY

BANNING LOADOUT
MINE RECLAMATION PLAN

SOLDIER CREEK COAL COMPANY
BANNING LOADOUT PERMIT
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CHAPTER 6

GEOLOGY

R645-301-600  Geology

The rules in R645-301-600 present the requirements for information related to geology which is to be included in each permit application.

This chapter will provide geology information as required for the permit application.

R645-301-610  Introduction

This is a surface loadout operation. There are no mines, coal seams or outcrops to, this operation. The geologic information provided herein is therefore very limited in scope.

R645-301-611  General Requirements. Each permit application will include descriptions of:

The following sections will provide descriptions of the geology and proposed operations.

R645-301-611.100  The geology within and adjacent to the permit area as given under R645-301-621 through R645-301-627; and

The Banning Loadout is located in Castle Valley, a broad featureless plain between the Wasatch Plateau to the west, the Book Cliffs to the north and east, and the San Rafael Swell to the south. Castle Valley has been formed by erosion of flat lying sedimentary beds and is composed entirely of the Mancos Formation of Upper Cretaceous age. The Mancos Formation consists of approximately 5000 feet of dark blue-gray shale.

6-1
The Banning Loadout is situated on the Mancos Shale, within the watershed of Grassy Trail Creek. The sorts of the area have been classified by the SCS as one soil complex - the Ravola - Slickspots Complex - of which only the Ravola series has been identified on site. The Ravola soil is very deep and well drained. It was formed in alluvium derived from sandstone and shale. The soil is strongly alkali below 20 inches, which is typical of Mancos derived sorts in this area (See Chapter 2 for detailed Soils Data).

R645-301-611.200 Proposed operations given under R645-301-630.

There are no exploration holes or boreholes on this site. There is a sump located adjacent to the truck dump; however, this is not considered a well or borehole. The sump collects groundwater used for firefighting and dust suppression. The sump will be backfilled along with the final regrading during reclamation.

This is a surface loadout and no mining is done at this site; therefore, no subsidence is expected, nor is there a subsidence monitoring plan at this location.

R645-301-612 All cross sections, maps and plans as required by R645-301-622 will be prepared and certified as described under R645-301-512.100.

N/A - Since this is a surface loadout with no mining activity, no geologic maps, plans or cross sections are provided in this application.

R645-301-620 Environmental Description

6-2
R645-301-621 General Requirements. Each permit application will include a description of the geology within the proposed permit and adjacent areas that may be affected or impacted by the proposed coal mining and reclamation operations.

The geologic description of the site is provided in Section R645-301-611.100. Due to the singular nature of the soil type here, the only geologic impacts expected from this operation would be to the soil and potentially to the hydrology (surface and/or ground water). These potential impacts and probable consequences are discussed in the Soils Chapter (2) and the Hydrology Chapter (7).

R645-301-622 Cross Sections, Maps and Plans. The application will include cross sections, maps and plans showing:

N/A - This is a surface loadout. No mining or exploration is done here, and there are no coal outcrops or oil or gas wells within, or adjacent to, the permit area.

R645-301-622.100 Elevations and locations of test borings and core samplings;

N/A

R645-301-622.200 Nature, depth, and thickness of the coal seams to be mined, any coal or rider seams above the seam to be mined, each stratum of the overburden, and the stratum immediately below the lowest coal seam to be mine;

N/A

R645-301-622.300 All coal crop lines and the strike and dip of the coal to be mined within the proposed permit area; and

N/A
R645-301-622.400 Location, and depth if available, of gas and oil wells within the proposed permit area.

N/A

R645-301-623 Each application will include geologic information in sufficient detail to assist in:

N/A No mining is done at this site.

R645-301-623.100 Determining all potentially acid- or toxic-forming strata down to and including the stratum immediately below the coal seam to be mined;

N/A See Chapter 2 for soils characteristics.

R645-301-623.200 Determining whether reclamation as required by R645-301 and R645-302 can be accomplished; and

(See Chapters 2 & 3 for Reclamation Details).

R645-301-623.300 For the purposes of UNDERGROUND COAL MINING AND RECLAMATION ACTIVITIES preparing the subsidence control plan described under R645-301-525 and R645-521-142.

N/A

R645-301-624 Geologic information will include, at a minimum, the following:

N/A This section of the regulations is based on mining and mine related strata. This is a surface loadout and no mining is done at this site.

R645-301-624.100 A description of the geology of the proposed permit and adjacent areas down to and including the deeper of either the stratum immediately below the lowest coal seam to be mined or any aquifer below the lowest coal seam to be mined which may be adversely impacted by mining. This description will include the regional and structural geology of the permit and adjacent areas, and other parameters which influence the required reclamation and it will also show how the regional and structural
geology may affect the occurrence, availability, movement, quantity and quality of potentially impacted surface and ground water. It will be based on:

R645-301-624.110 through R645-301-624.340

Note: N/A This section of the regulations is based on mining and mine related strata. This is a surface loadout and no mining is done at this site.

R645-301-625 If determined to be necessary to protect the hydrologic balance, to minimize or prevent subsidence, or to meet the performance standards of R645-301 R645-302, the Division may require the collection, analysis and description of geologic information in addition to that required by R645-301-624.

As indicated in the ground water section of Chapter 7, coal samples have been analyzed for: acid-base potential; total non-sulfate sulfur; total organic sulfur; percent calcium carbonate; PH; S.A.R.; nitrate-nitrogen; E.C.; and water extractable boron, selenium, copper, molybdenum, arsenic, barium, cadmium, lead, mercury and zinc to evaluate the potential for contamination of local groundwater. In addition, coal samples are analyzed and submitted to the Division on an annual basis. As outlined in R645-301-521, ground water wells will be implemented if the need to monitor any possible contamination is deemed necessary by coal analysis.

R645-301-626 An applicant may request the division to waive in whole or in part the requirements of R645-301-624.200 and R645-301-624.300. The waiver may be granted only if the Division finds in writing that the collection and analysis of such data is unnecessary because other information having equal value or effect is available to the Division in a satisfactory form.

N/A Sections R645-301-624.200 and R645-301-624.300 pertain to sampling of strata connected with mining.
An application for a permit to conduct UNDERGROUND COAL MINING AND RECLAMATION ACTIVITIES will include, at a minimum, a description of overburden thickness and lithology.

N/A No mining is proposed for this site. The geologic description of the area is provided in Section R645-301-611.100.

**Operation Plan**

N/A There are no wells, exploration holes or boreholes at this site. No mining is done here; therefore there is no subsidence monitoring plan.

**Casing and Sealing of Exploration Holes and Boreholes**

N/A There are no exploration holes or boreholes at this site.

**Subsidence Monitoring**

N/A There is no mining at this site.

A determination of the commencement and degree of subsidence so other appropriate measures can be taken to prevent or reduce material damage; and

N/A

A map showing the locations of subsidence monitoring points within and adjacent to the permit area.

N/A
R645-301-640  Performance Standards

R645-301-641  All exploration holes and boreholes will be permanently cased and sealed according to the requirements of R645-301-631 and R645-301-631.200.

N/A  There are no exploration holes or boreholes.

R645-301-642  All monuments and surface markers used as subsidence monitoring points and identified under R645-301-632.200 will be reclaimed in accordance with R645-301-521.210.

N/A  There is no mining at this site.