

OGMCOAL - Re: West Ridge IBC PHC

From: Steve Christensen
To: petersen@relia.net
Date: 6/6/2011 10:36 AM
Subject: Re: West Ridge IBC PHC
CC: Dana Dean; Daron Haddock; OGMCOAL; dshaver@coalsource.com
Attachments: West Ridge IBC PHC textsc.doc

Hi Erik,

Thanks for making those changes. I understand and appreciate the importance of the IBC amendment in terms of keeping the mine going and keeping the prospect alive as to extending the life of the mine and providing the cities of East Carbon and Sunnyside a new reservoir, but from a SMCRA stand point, I'm increasingly uncomfortable with my task of making a finding that the reg.'s have been satisfied given the lack of data on the groundwater systems at West Ridge.

For example the last paragraph on the 1st page discusses the intercepted groundwater. You indicate that based on 'previous experience' the water is not in good hydraulic communication with shallow recharge sources and that the mine inflows are generally short lived with the mine inflow waters 'drying up' behind mining operations.

Please correct me if I'm off base, but from reviewing the MRP, isotopic and C14 analyses were conducted on samples obtained from monitoring well DH86-2 only? Is that correct? Has there been testing of the encountered groundwater since that time? I have to ask given the mine discharge characteristics that we've seen. The mine discharge has increased from approximately 200 gpm in 2003 to almost 1,500 gpm as of the 4th quarter of 2010.

I'm not sure where I'm going with this aside from again, making the case that much more data and understanding is needed for any proposed expansion into the Right Fork of Grassy Trail. A much clearer understanding as to the intermittent component of the Right Fork as well as the proximity, nature and quantity of ground water systems relative to the coal seam are going to be vital.

I apologize for the long e-mail. We'll obviously have much more discussion as we move forward. In terms of getting us over the hump with the IBC, if you can, please address the significant increase in mine-water inflows (i.e. is it from the fault system only? potential for connection to surface water? etc.). I apologize for not identifying this last week. I've had a lot going as of late.

Regards,
Steve

>>> <petersen@relia.net> 6/3/2011 8:24 AM >>>
Hi Steve,

I have made changes to the West Ridge PHC to address the presence of the Right Fork of Grassy Trail Creek in the area adjacent to the proposed IBC.

Let me know what you think.

Thanks,
Erik

Proposed mining activities in the IBC area located in Section 7, Township 14 South, Range 14 East (shown on Map 7-8) will likely have no adverse impacts to the hydrologic balance or to groundwater or surface-water resources in the area. This conclusion is based on several factors. Firstly, the proposed mining in the IBC area will consist exclusively of full-support development mining for entries associated with Panel #20. Using these mining techniques, no subsidence of the land surface is anticipated and the potential for fracturing of overlying strata is minimized. Secondly, the coal seam in the proposed IBC area is isolated from the land surface by more than 2,200 feet of bedrock overburden. This overburden is made up of a heterogeneous sequence of bedrock formations which creates alternating horizons of mostly impermeable rocks and relatively permeable rocks (See Appendix 7-1). This heterogeneity likely prevents significant vertical or horizontal movement of groundwater within the overburden in the IBC area.

Appreciable groundwater resources have not been identified within the IBC area. In a spring and seep survey performed by Mayo and Associates (2000), no springs or seeps were identified in the region overlying the proposed IBC mining area (or within approximately 0.25 miles of the IBC boundary). The IBC area consists principally of a steep, upland mountainous terrain. Water supply wells have not been identified in the IBC or adjacent area.

It should be noted that, while no perennial or intermittent streams flow across the proposed IBC area, the Right Fork of Grassy Trail Creek is present immediately northwest of the IBC area (See Map 7-8). The development entries that are proposed for mining in the IBC area will extend from the existing West Ridge Mine workings beneath the Right Fork of Grassy Trail Creek to the IBC area.

It is considered very unlikely that the proposed development entry mining activities will have detrimental impacts to water quantity or water quality in the Right Fork of Grassy Trail Creek. As discussed above, because the proposed mining activities will consist of development mining only, subsidence of the land surface beneath the Right Fork of Grassy Trail Creek is not anticipated. Additionally, the proposed development mining entries in the lower Blackhawk Formation will be effectively hydraulically isolated from the overlying stream channel by more than 2,000 feet of bedrock overburden (which bedrock does not support significant vertical or horizontal movement of groundwater; See Appendix 7-1). Accordingly, the potential for diversion of surface-water flows from the intact, unsubsidized stream channel is considered remote.

It should also be noted that, as shown on Map 7-8, the portion of the Right Fork watershed in and adjacent to the IBC area comprises only a small percentage of the total Right Fork watershed surface area.

It has been the previous experience at the West Ridge Mine that most groundwater intercepted during mining operations has originated from sandstone channels in the mine roof. Because these sandstone channels are not in good hydraulic communication with shallow recharge sources, *the mine inflows associated with these sandstone channels are generally short lived, with the mine inflow waters characteristically “drying up”*

behind mining operations. Seasonal variability in the mine inflow rates has not been observed. Groundwater has also been encountered in a fault system that was intercepted by the West Ridge Mine workings. It should be noted that if a water-bearing fault system were to be intercepted by the mine workings in the IBC area, appreciable groundwater inflows from the fault system could potentially occur. However, significant faulting in the proposed IBC area has not been identified. Additionally, because of the thickness of the overburden in the IBC area (> 2,200 feet), and the poor vertical water transmitting potential of the clay-rich overburden lithologies (which are known regionally to contain clay minerals that have the tendency to heal mining-induced fractures when wetted), the potential for a possible fault system to intercept shallow groundwater systems that could support springs or provide baseflow to streams (See Appendix 7-1) is considered low.

Accordingly, impacts to the hydrologic balance, to groundwater and surface-water availability, or to State appropriated waters as a result of the development entry mining in the proposed IBC area is considered unlikely.

An additional IBC area is proposed for mining in areas where the depth of cover exceeds 3,200 feet in the southwest corner of Section 31, Township 13 South, Range 14 East (See Map 7-8). Mining activities proposed within this area are to occur in a very small region in the extreme southwest corner of Section 31. For reasons similar to those discussed above, detrimental impacts to the hydrologic balance, to groundwater and surface-water availability, or to State appropriated waters as a result of mining-related activities are not anticipated. This conclusion is based on 1) the extreme depths below the surface at which mining will occur (greater than 3,200 feet), and 2) the lack of groundwater or surface-water resources (springs, seeps, or streams) overlying this proposed mining area (See Mayo and Associates 2000 spring and seep survey).