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TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

January 11, 2012

TO: Internal File

THRU: Priscilla Burton, Team Lead *PWB by SAS*

FROM: April A. Abate, Hydrogeologist *AA*
1-20-2012

RE: Draft Environmental Impact Statement, Alton Coal Development, LLC, Coal Hollow Mine, C/025/0005, Task ID # 3949

SUMMARY:

The U S Department of the Interior / Bureau of Land Management (BLM) has prepared and forwarded a **DRAFT** environmental impact statement (DEIS) relative to the Alton Coal Tract Lease By Application (LBA). The document analyzes and discloses the potential impacts of leasing and mining the coal from the Alton LBA. The DEIS analyzes environmental impacts based on three different scenarios: Alternative A - a no action alternative (no lease awarded); Alternative B - lease of entire tract containing 3,581 surface acres and 44.9-49.1 million tons of recoverable coal reserves translating to a 25-year life of mine. Alternative C- is a reduced acreage tract eliminating the northwest corridor closest to the town of Alton. This tract represents 3,173 surface acres and 38.1-42.3 million tons of recoverable coal reserves translating to a 21-year life of mine. The public comment period has been extended to January 27, 2012 where all the comments of a substantive nature will be reviewed by the BLM in preparation of the Final EIS due out in September-October 2012.

This review primarily focuses on the water resources identified in Chapter 3.16 and the possible environmental impacts to these resources presented in Chapter 4.16.

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The following comments address sections in the DEIS as they are referenced in the section headers of the document.

4.16.2.1 Surface Water and 4.16.2.2 Groundwater

The 630-acre mine permitted by DOGM (permit #C/025/0005) has been operational for just over one year now. DOGM recognizes that the DEIS was in preparation prior to start up operations at the existing mine. The surface and groundwater sections prepared in the DEIS relied heavily on a report prepared by Petersen Hydrologic in 2007 "*Investigation of the Groundwater and Surface –Water Systems in the 630-Acre Proposed Coal Hollow mine Permit and Adjacent Area...*"). Data from the operational mine are now available to better estimate groundwater inflows rates produced from the water-bearing strata and also water quality impacts to surface water bodies in the proposed lease tract area. These data can be found in the DOGM online database found at: <http://linux1.ogm.utah.gov/WebStuff/wwwroot/wqdb.html> Access to all past and present permitting actions at the Coal Hollow Mine can be found at: <http://linux1.ogm.utah.gov/WebStuff/wwwroot/coal/filesbypermitinfo.php>

The Division has prepared a Cumulative Hydrologic Impact Assessment for the Alton area. That document can be referenced at:
<http://linux1.ogm.utah.gov/WebStuff/wwwroot/coal/chias.php>

The Coal Hollow mine has been operational for one year now where DOGM has had an opportunity to observe groundwater inflows into the active mine pit areas. The alluvial sediments consisting of silty sandy clayey material are the predominant surface layer at the mine site. This material overlies the tropic shale and is considered the principal water-bearing formation in the area of the mine. The Division of Oil, Gas, and Mining recommends that groundwater loss estimates be revised based on the current mine dewatering actions that have been undertaken at the ~658-acre Coal Hollow mine.

The mine is in the process of implementing a plan to divert groundwater originating from this alluvium zone since it has caused an unanticipated nuisance by flowing into the mine pits. At the time of the writing of this document, current pit operations are focused in the northeast corner of Section 30 and the southeast corner of Section 19 of T39S R6E. Original estimates of groundwater inflows were underestimated in these areas at rates of approximately 1-2 gallons per minute. Observed groundwater inflows originating in this alluvial material flows depend upon the season and climate cycles but have been observed at rates up to 25 gallons per minute.

Initially, the groundwater from the mine pits was pumped to the on-site sediment ponds; however, this was found to overwhelm the sediment pond network and prohibit them from

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functioning for their intended use, which is to collect storm water runoff from all disturbed areas within the mine permit boundary.

The mine is in the process of revising their plan to collect this alluvial groundwater upgradient of the mine pits and reroute it so that it will be diverted away from the mine pits. The plan includes collecting the water through trenches or piping to a settling impoundment where solids will be allowed to settle out prior to it being discharged to a location along Lower Robinson Creek (LRC). This discharge point was recently added to the existing Utah Pollution Discharge Elimination System (UPDES) permit for the Coal Hollow Mine Permit #UTG040027 for this purpose.

DOGM has particular concern in the area of Section 18 of T39S R5W where the amount of overburden increases up to 300 feet. It is presumed that the majority of this material is alluvial sediments. The alluvium in this area is likely coarser than what has been observed in the western sections of the active mine area where groundwater inflows have been estimated up to 25 gallons per minute. Coarser sediments will be more hydraulically conductive and capable of transporting large volumes of water to any high wall that is placed in this area, which is proposed for underground mining. Dewatering of the high wall area will require the groundwater to discharge to a surface water body. Discharge of large volumes of water from this alluvial material could affect the water quality discharging to a downstream water body and the integrity of the stream channel causing its morphology to change as a result of high volume discharges.

In the case of Lower Robinson Creek, more frequent discharge of alluvial groundwater to the channel will cause erosion and further degradation to an already unstable ephemeral channel, but increases in rates of groundwater discharged to LRC that otherwise would have been lost to evapotranspiration, could benefit downstream water users. Therefore, it is imperative for the BLM to factor these mine dewatering actions into the DEIS in evaluating any possible negative environmental impacts to downstream water users.

4.16.4.1.1 Stream Proper Functioning Condition

This section discusses the realignment of LRC as if this will happen under the proposed lease action. A realignment of LRC has already taken place as part of the existing Coal Hollow Permit (#C025/0005). This section discusses this realignment as if it is yet to occur. No map was provided referencing where this realignment area is location, but it was assumed based on the 0.49-0.81 mile segment of LRC, it was assumed to be the same segment already permitted and depicted on Map 5-20 in the Coal Hollow Mining and Reclamation Plan.

This diversion of LRC was intended to be temporary because planned coal extraction is to occur in the area where the natural channel of LRC was located. Open pit mining of this area is scheduled to occur within the next year. Once open pit mining in the area of the natural channel of LRC is complete, this area is to be reclaimed. It is very likely that by the time the

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BLM issues their decision to lease, this area will have already been reclaimed. Assuming this relocation of LRC discussed in the DEIS and the temporary diversion of LRC already permitted are one in the same, I would argue that this information is not relevant to the DEIS.

4.16.4.1.2 Surface Water Quality

The discussion in this section states that no direct adverse impacts to surface water quality are likely. The DEIS makes the assumption that all surface water runoff would be captured by the ponds and would not discharge to any downstream water body. Experience at the existing mine demonstrated that the occurrence of back-to-back high precipitation storms is plausible in the Alton area. Therefore, it should not be assumed that the ponds are designed for total retention and no discharge from the retention ponds will occur. A sediment pond network that will ultimately be proposed for the lease tract will require discharge outfall points to surface water bodies under a UPDES permit. A typical UPDES permit for a coal mine in Utah requires that parameters such as flow, total iron, total suspended solids, and oil and grease to be monitored. The UPDES effluent parameters establish effluent limits established in the permit. These effects could be temporary once the mine operator becomes aware of the problem and implements mitigation measures, but nevertheless, impacts are certainly possible.

4.16.4.2.1 Groundwater Hydrology

The discussion in this section states that the source of water used for dust suppression will originate from groundwater. Current mining operations on the existing private tract have demonstrated that water used for dust suppression has come from the water retained in sediment ponds and not pumped from groundwater wells. Based on the volumes of water that have been observed at the mine and the higher-than-estimated hydrologic conductivity of the alluvial sediments, it is unlikely that any groundwater will need to be pumped for dust suppression purposes.

RECOMMENDATIONS:

The above comments should be submitted during the BLM's public commenter period ending on January 6, 2012. *cao*

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