From: Thomas Parker
To: Myers, Kevin, EMNRD
Subject: [EXTERNAL] Materials for LAC CCP hearing
Date: Friday, October 28, 2022 8:15:34 AM

Hi Kevin,

Thanks for taking on this chore. Attached are the digital files that I would like to have projected during my testimony. This is the order that I believe I will use them.

Figure 1. Map showing location of ...
Page 14 Open Pit Filling
Page 10 Table 2.
Page 21 Technical Feasibility
Page 26 Table 5.
Figure 8. Map showing surface-water diversion...

My printer is misbehaving. Please let me know if your hardware also has problems with these.

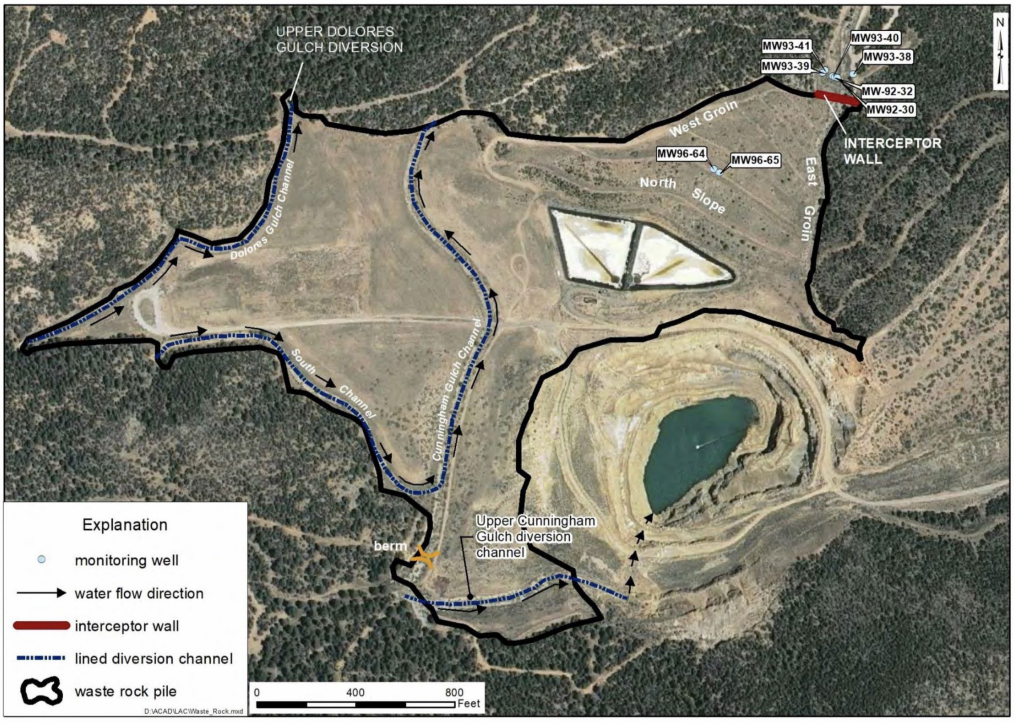

Figure 8. Map showing surface-water diversion channels, Waste Rock Pile, Cunningham Hill Mine Reclamation Project, Santa Fe County, New Mexico.

Table 5. Summary of open pit reclamation options

Open Pit reclamation option	technically feasible	economically feasible	environmentally sound
Fill with storm water	no ???	yes	yes
Fill with groundwater	no	no	no
Partial backfill	no	no	no
Backfill to 6,945 ft elev	no	no	no
Backfill to 6,990 ft elev	no	no	no

(p. 26)

All reclamation alternatives considered were deemed technically infeasible. There is not a demonstrated reliable and recurring source of storm-water flows, even with complete watershed restoration. Filling with groundwater results in a perpetual care condition where groundwater pumping is required to maintain the open pit water level, therefore does not achieve the SSE status. Backfilling options below 6,990 ft elevation potentially create a pit lake that receives stormwater runoff from the remaining unreclaimed open pit walls and benches. Infiltrated stormwater would also drain to groundwater (flow through system). Backfilling to 6,945 ft elevation is technical infeasible because it potentially creates that same present day condition without further reclamation. Backfilling to 6,990 ft elevation to allow stormwater to drain out of the open pit is technically infeasible because there is no known volume of suitable material, onsite or offsite.

Only filling with stormwater is considered economically feasible, if storm water were available. All other alternatives were considered economically infeasible due to the over burdensome costs. Likewise, all alternatives, other than filling with stormwater, are environmentally unsound, due to surface water and groundwater contamination issues or creating excessive carbon emissions.

Onsite storm water would be economically feasible if there was an adequate quantity for pit filling that was also reoccurring to maintain the open pit water level. LAC has implemented significant watershed restoration efforts (90 acres) at a cost of about $1,500 per acre. Restoration of the 1,260 acre watershed would cost $1,890,000, which maybe economically feasible if the enough storm water was generated for open pit reclamation and maintaining a SSE.

The only known groundwater sources are more than 25 miles away. Filling with groundwater would require perpetual care because groundwater pumping would be required annually after filling to maintain pit water levels required to achieve a SSE. Perpetual care does not meet the requirement for SSE.

3.5 Technical Feasibility of Open Pit Filling Alternatives (p. 21)

As proven from the last 20 years of site data, storm-water management has been deemed technically infeasible, and is not a viable source for pit filling and maintaining the open pit water level. The largest watershed yield recorded in the last 10 years was 20.15 ac-ft in 2019; which was likely due to above average precipitation and restoration (thinning) of 90 acres. An average 82 ac-ft/yr of stormwater is required fill and maintain the open pit, which is does not possible by watershed restoration alone. Furthermore, watershed restoration would need to be performed every 20 years, which is not self-sustaining.

The use of offsite groundwater is technically feasible for pit filling, however offsite groundwater will be required to maintain the open pit water level, which results in perpetual care and technical infeasibility.

Backfilling scenarios for backfilling to 6,945 ft elevation and partial backfilling are technically possible, however both scenarios result in capture of stormwater flows from unreclaimed pit walls and benches, possible creation of a pit lake, and a flow through system to groundwater. Creation of a pit lake with unreclaimed pit walls and benches that drain to the

involve continued maintenance and input by man will not be considered self-sustaining ecosystems." In other words, perpetual care for achieving post-mining land use and maintenance of source controls is not self-sustaining.

3.1 Open Pit Filling with Stormwater

Revised stormwater runoff scenarios were evaluated by JSAI (2011; 2020), and none of the scenarios generated enough stormwater to fill the Open Pit to the 6,945-ft-amsl elevation as anticipated in the original CCP. Significant changes to watershed conditions and above-normal precipitation for a prolonged time are required to fill the Open Pit. Given climate change, it is technically infeasible to rely on prolong periods of above-normal precipitation to achieve reclamation goals with set schedules.

LAC has invested in a watershed restoration program that involves selective thinning (JSAI, 2020a); however, it is unknown how much additional yield can be generated by watershed restoration and management. In addition, LAC property only includes a portion of the Upper Cunningham Gulch watershed. With partial ownership of the watershed, it is technically not feasible to fully implement restoration programs for increasing watershed yield. Furthermore, recurring watershed management practices for maintaining yield to the Open Pit may not be considered as self-sustaining.

Table 2. Summary of annual precipitation and measured Upper Cunningham Gulch storm-water diversions

year	total precipitation (inches)	Upper Cunningham Gulch diversion channel weir flow (ac-ft)	open pit watershed drain(s) (ac-ft)	comments
2011	11.17	0.00		
2012	8.72	0.00		
2013	16.51	0.01		
2014	13.09	0.00		
2015	18.55	0.79	1.13	fixed UCG diversion
2016	12.96	0.15	0.30	
2017	15.46	1.73		watershed thinning
2018	13.97	1.54		watershed thinning
2019	16.78	20.15		
2020	8.51	0.52		
2021	12.90	5.24		

ac-ft - acre-feet
UCG - Upper Cunningham Gulch

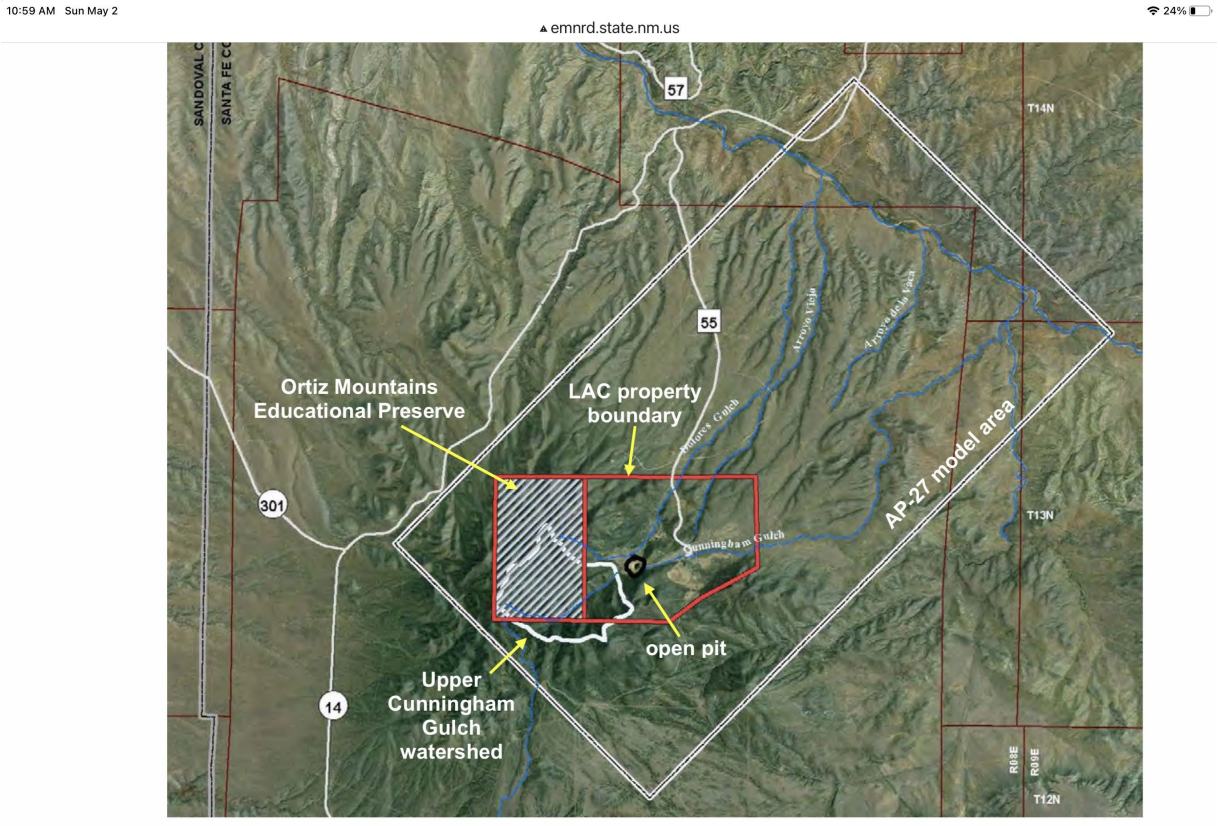

Figure 1. Map showing location of Cunningham Hill Mine Reclamation Project, the open pit and receiving watershed, Santa Fe County, New Mexico.