

PERMIT UPDATE:

Tyrone submitted an application for the Emma Pit Expansion, tracked as Revision 21-1, on October 22, 2021. This initial application was followed by the Closure/Closeout Plan for the Emma Project on November 12, 2021. A public hearing for Revision 21-1 was held on August 16, 2022, and MMD is nearing the end of their technical review process. The purpose of this inspection was to ground truth two springs identified on USGS topographical maps for White Signal, NM along Cherry Creek that have the potential to be affected by mining and long-term O&M activities as a result of the Emma Pit expansion project.

INSPECTION NARRATIVE:

The inspectors met at the Tyrone Reclamation information kiosk at the intersection of Hwy 90 and Tyrone/Burrow Mountain Rd at 1pm, then caravanned south to Tyrone/Apache Mound Rd to access the eastern-most spring identified on the USGS map (see attached map). MMD brought multiple years worth of USGS White Signal topographical georeferenced maps, which have slightly different GPS points for where the springs are located. As such, the inspectors walked the length of Cherry Creek to look for any signs of springs between the two spring locations on the USGS maps. The landowner stated that the springs run intermittently throughout the year, and aren't a consistent source of water, but he was aware of their existence.

Tyrone stopped at a point located east of the eastern spring location (see map) and discussed how they thought this may have been a point identified on an aerial map of where the eastern spring was located. There was no surface or groundwater observed at this point, only a large outcropping of igneous bedrock (Figure 1). The inspectors continued on foot to the point identified as the eastern-most spring on the USGS georeferenced map (see map) and observed no moist soil, surface water, or ground water in this location (Figure 2). Debris piled against tree trunks on the slopes leading down to Cherry Creek indicate that the flows along Cherry Creek could be significant during storm events (Figure 3).

MMD walked west along Cherry Creek and observed that the vegetation community consisted of species often associated with riparian areas, including mulefat (*Baccharis salicifolia*) and cottonwood (*Populus spp.*). The vegetation along Cherry Creek was significantly greener than the vegetation directly adjacent to Cherry Creek, and significantly more browsed by livestock (Figure 4). MMD inspectors observed high hoof traffic and manure within the creek, indicating that the cattle like to walk along the creek bed.

Southwest of the western spring (labeled *Exposed Ground Water* on the attached map) MMD discovered an approximately six (6) inch deep hole that appeared to have been created by a burrowing animal, exposing ground water (Figure 5). The soil was not wet on the surface in this location. As the inspectors walked west from this location, MMD found cottonwood trees and an increased number of green herbaceous plant species growing along the bottom of Cherry Creek where finer grained soil was deposited (Figure 6). Figure 6 was taken at the point identified as *Wet Soil* on the attached map. Farther to the west, MMD found a longer stretch of Cherry Creek with wet soils at the surface, and, upon digging down approximately four (4) to six (6) inches in a couple of locations, found ground water (identified as *Shallow Ground Water* on map; see Figures 8 & 9). Along the base of the stream bank at this location, MMD observed moist soils (Figure 7). Mosses were also found growing on the surface in this general area (Figures 10 & 11).

The final stop on this inspection was to walk to a large cottonwood tree west of the western spring (Figure 12). MMD did not dig down or observe moist surface soils at this location. MMD walked back east along Cherry Creek and left the site at approximately 3:45pm.

PHOTOS:



Figure 1. Igneous bedrock outcrop (photo by Kevin Myers ("KM"))



Figure 2. Area of first mapped spring (photo by KM)



Figure 3. Debris against oak from flow during storm events



Figure 4. mulefat and browsed vegetation along Cherry Creek



Figure 5. Exposed ground water



Figure 6. Increased vegetation on finer grained soils that were wet at the surface along Cherry Creek as you travel west



Figure 7. Wet soil along base of bank of Cherry Creek at western mapped spring



Figure 8. Ground water at *Shallow Ground Water* location



Figure 9. Ground water at *Shallow Ground Water* location



Figure 10. Moss growing at *Shallow Ground Water* (photo by Alaina Osimowicz (AO))



Figure 11. Browsed grass and moss growing at *Shallow Ground Water* (photo by AO)



Figure 12. One of the cottonwoods along Cherry Creek, west of the western mapped spring (photo by KM)

Additional photos are in the digital file:

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ACTION ITEMS:

- NM State Forestry will submit an amendment to their original comments to include the Cherry Creek area in their review of Revision 21-1.

MAINTENANCE ITEMS:

None.

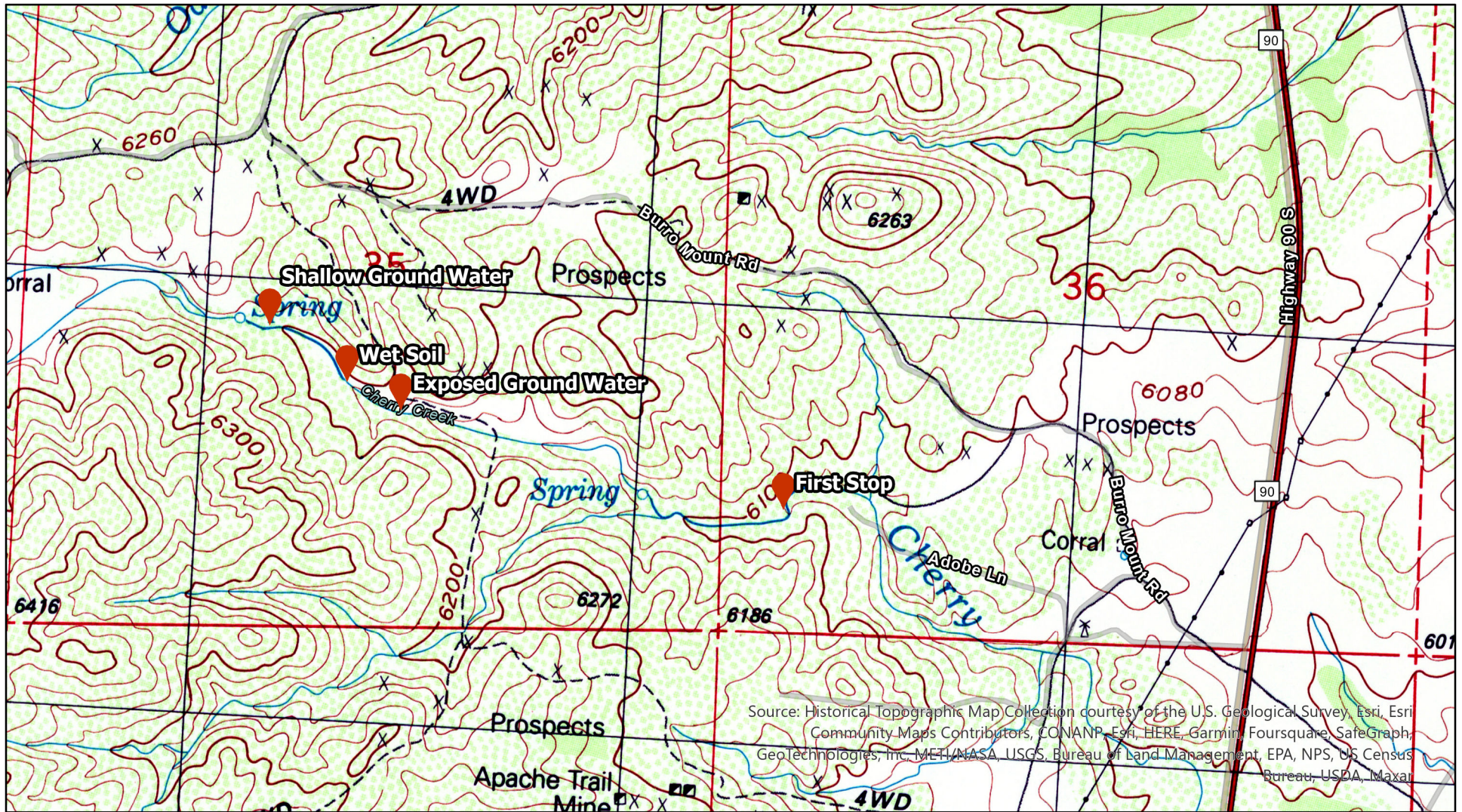
ENFORCEMENT ACTIONS TAKEN OR TO BE CONSIDERED:

None.

INSPECTOR'S SIGNATURE:

Liam H. Lee

DATE: 12/12/2023



**Emma Pit Pre-permitting Inspection
Tyrone Mine (GR010RE) Revision 21-1**

November 20, 2023

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Mining Act Reclamation Program

