STATE OF COLORADO

Ebert - DNR, Jared <jared.ebert@state.co.us>

Dixie Mine, M-2015-028, Technical Revision No. 2 (TR02), Adequacy Review

mikesportwelding@aol.com <mikesportwelding@aol.com> Thu, Feb 28, 2019 at 6:21 PM
To: jared.ebert@state.co.us

Hi Jared,

Here's TR-2 Request. Please let me know if you need me to bring a copy down? I will If you need one Thanks.
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MIKE JONES
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February 28, 2019

Mr. Jared Ebert
Environmental Protection Specialist III
Division of Reclamation, Mining and Safety
1313 Sherman St., Room 215
Denver, CO 80203

RE: M2015-028, Technical Revision (TR-2), Adequacy Review No.1 Response

Dear Mr. Ebert,

In response to the Colorado Division of Reclamation, Mining and Safety ("DRMS") Adequacy Review No.1 of November 14, 2018, Teton Drilling, Inc. ("Teton") hereby submits the following information:

1. *"The applicant is proposing to conduct blasting at the site. In accordance with Rule 6.3.3(1)(o), an applicant who proposes to conduct blasting operations must demonstrate, through a geotechnical stability exhibit pursuant to Rule 6.5(4), that off-site areas will not be adversely affected by blasting during mining or reclamation operations. Please submit a geotechnical stability exhibit in accordance with Rule 6.5(4). Or, revise the mining plan to exclude blasting"*

Due to the small scale of planned operation (limited impact, 110(1)), Teton is hopeful that the DRMS will not require us to perform an unnecessarily costly engineering study of the rock stability of the site, only to confirm what is visible to the layperson. The general area of the site is characterized by steep slopes and rocky outcrops. Several photos of the site, natural and man-made rock slopes of larger vertical and horizontal extent than the mining plan proposed and located in the immediate vicinity are provided to demonstrate the significant slope stability.

The nearest man-made structure is a neighboring house at approximately 1600 feet away from the site. Planned blasting will consist of small rounds more

typical of underground operations, due to the narrow-vein nature of the deposit. This is akin to trench blasting. A typical blast may consist of 100-300 pounds of explosive. This would be spread over several 8 millisecond delays. Using scaled distance equations and Table 6-10 "Blasting Vibration and Air Over-Pressure Standards" of the Colorado Explosives Regulations (7 C.C.R. 1101-9) and an allowable maximum peak particle velocity ("PPV") of 1.55 inches per second, Teton could feasibly detonate 843 pounds of explosive per 8 millisecond delay and still not cause any damage to the nearest structures. This is far above the planned use of explosive on this small vein-type deposit. Using small pneumatic (hand-held) drills, trench depth in the 1 to 4-foot-wide vein would likely be 8 feet or less using 1.5-inch diameter drill holes. Using typical factors for burden (hole spacing), loading of explosives, 300 pounds of explosive would yield approximately 60 tons of rock. This is a significant amount of material for this operation. More likely, blasts would be closer to 100 pounds per blast, with several long-period (8ms or greater) delays. This translates into approximately 20 pounds of explosive detonated per delay.

The following equation shall be applied when utilizing the scaled distance calculations to control blast-induced vibration.

$$W = \left(\frac{D}{D_S}\right)^2$$

Where: Ds = Scaled distance (ft/lb)

D = Distance to the nearest structure (ft)

W = Weight of explosive detonated within any 8 millisecond window (lb)

Figure 1 - Scaled Distance Equation

Table 6-10	Blasting Vibration and Air Over-Pressure Standards	
Distance From Blast (Ft)	Option 1 MAPV (Maximum Allowable Particle Velocity) Measured As Inches/Second In Vertical, Transverse, or Longitudinal Directions	Option 2 Scaled Distance Factor Units Are Ft/Lb
0 to 300	2.00	50
301 to 5000	1.55	55
5001 and Greater	1.00	65

Figure 2 - Table 6-10, 7 C.C.R 1101-9

W = (1600/55)^2 = 843 #/ delay, maximum.

2. *"The Division's July 26, 2018 inspection report indicated the Operator had created a working pad area to facilitate the excavation of the trench. In creating the pad area, a two hundred foot highwall was created about 15 to 20 feet in height. This pad area and highwall was not discussed in the submitted technical revision. Please add a section to the mining plan to include the creation of the pad area. Please submit an updated Mining Plan Map in accordance with Rule 6.3.5(2) depicting this pad area."*

The "two hundred-foot highwall" is not part of the working pad, but rather the uphill hillside adjacent to the vein trenching (mining). The pad area is included in Exhibit E, Map #2, submitted in the original permit application and discussed in the original permit adequacy review submittals as part and parcel of the mining method (using a hydraulic excavator and its necessary working platform on such a steep slope). As a result of this, Teton did not include additional information in the requested Technical Revision. If necessary, to provide clarity to the DRMS, Teton would like to meet with you, on site at your earliest convenience, to discuss the reclamation, mining method and how the DRMS would like this documented in the permit and Technical Revision.

3. *"The proposed revised reclamation plan does not account for the pad area created as discussed above and in the Division's July 26, 2018 inspection report. Please include a narrative of how the pad area will be reclaimed. The Division understands the applicant may use the same topsoiling and revegetation plan currently approved but it is unclear how the highwall will be backfilled and graded and stabilized. Please clarify this. Please update the reclamation plan map to account for the work pad area reclamation."*

Teton will not reclaim the highwall slope other than the targeted application of hydromulch/hydroseeding, as it is unsuitable for manual revegetation (it is solid granite) and any further slope reduction would require blasting to reduce the slope or the placement of new fill, which would be placed on such a steep slope that retention and prevention of erosion would be difficult and/or impossible. It should be noted in the provided photographs that the rock slope is not vertical, unlike many rock faces in the area, but follows a general slope that comports well with the existing landscape. To access the vein on the steep slope, the slope is excavated above the vein and the vein is trenched from the working area (pad) created with the material excavated from the slope. This is the working mining area ("pad"). As stated in Section 6.3.4 of the Technical Revision, all disturbed areas will be hydromulched and revegetated. Additional re-contouring of the

working "pad" area is considered unnecessary and this area is included within the reclamation plan, as already presented.

4. *"The Applicant is now proposing to conduct processing operations at the site. Please explain what will happen to the waste rock/tailings that will be created through the processing operation. Please explain the reclamation treatment of any waste rock dumps or tailings impoundments. Please include the required information of Rule 6.3.4(1)(e)."*

As stated in the original and subsequent submittals, Teton plans to replace (backfill) the waste rock/tailings in the mined trench excavation, as discussed in all previous submittals. This material will not be processed using chemicals and has been analytically shown to have a net neutralizing and non-toxic characteristics (presented in Section 6.3.3 (k) of the Technical Revision).

5. *"Page 2 of the mining plan indicates that rocks of sufficient size and character may be stored and sold separately as by-product of the operation. If a significant amount of this type of material is removed this could impact how the site is reclaimed particularly in regards to the post mine topography. If a highwall is planned to remain on the site please supply an engineering stability analysis for the proposed final reclaimed slopes/highwall in accordance with Rule 6.5(2). If enough material will remain on site to eliminate and grade the highwall, please commit to this."*

The removal of erratic surface rocks will not impact the reclamation of the site. These rocks are valued for their lichen covered character and are not being excavated, but rather, removed from the surface of the site.

The "highwall" will remain in place and is analogous (but smaller) to the existing and long-established rock cuts in the Ute Creek and Viking roadways immediately below the property. These rock cuts, and the many cliffs and rock outcroppings are prima-facie evidence of the stability of the rock underlying the entire Ute Creek drainage. It is Teton's plan to excavate to solid rock (as has been shown in Photos 4, 5, & 6, below) and for this short rock face to remain, without additional reclamation. This rock face will be congruent with the steep, rocky topography of the Ute Creek drainage and is extremely unlikely to require any further stabilization. Teton believes that the obvious short (~15 feet) height of the final rock face, the obvious stability of the rock in the numerous faces, both naturally eroded and human excavated, obviate the need for an expensive engineering analysis.

Photo 1 - Working Pad, Trench Area and "Highwall"

Photo 2 - Ute Creek Road, Road Cut (Typical)

Photo 3 - Rock Slope Above Ute Creek Road (typical)

Photo 4 - Mining Area "Highwall"

Photo 5 - Mining Area "Highwall"

Photo 6 - Mining Area, Excavation to Expose Vein

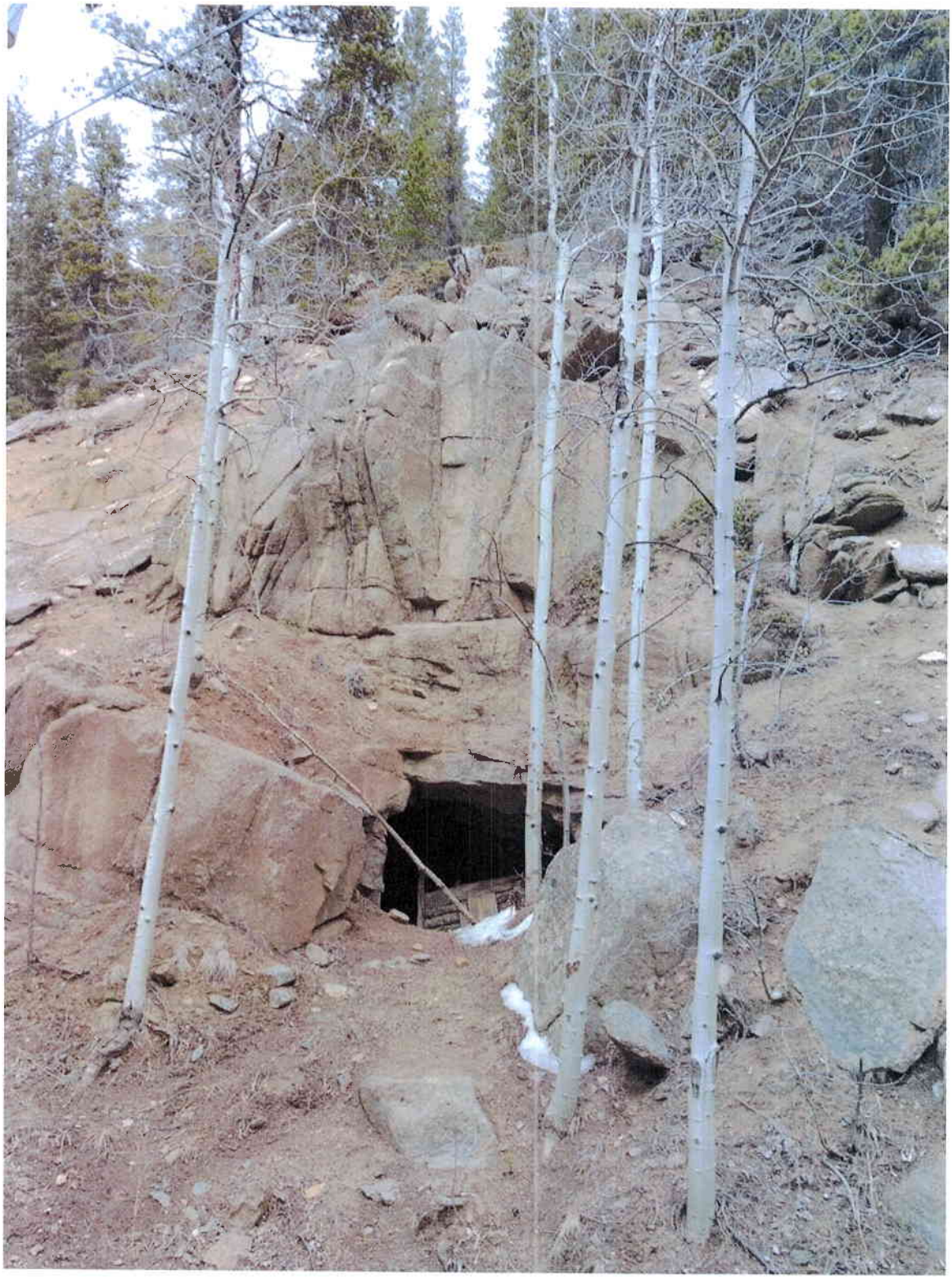

Photo 7 - Natural and Historic Mining Rock Faces on Ute Creek

Photo 8 - Typical Rock Outcrop/Cliff Face in Ute Creek Drainage

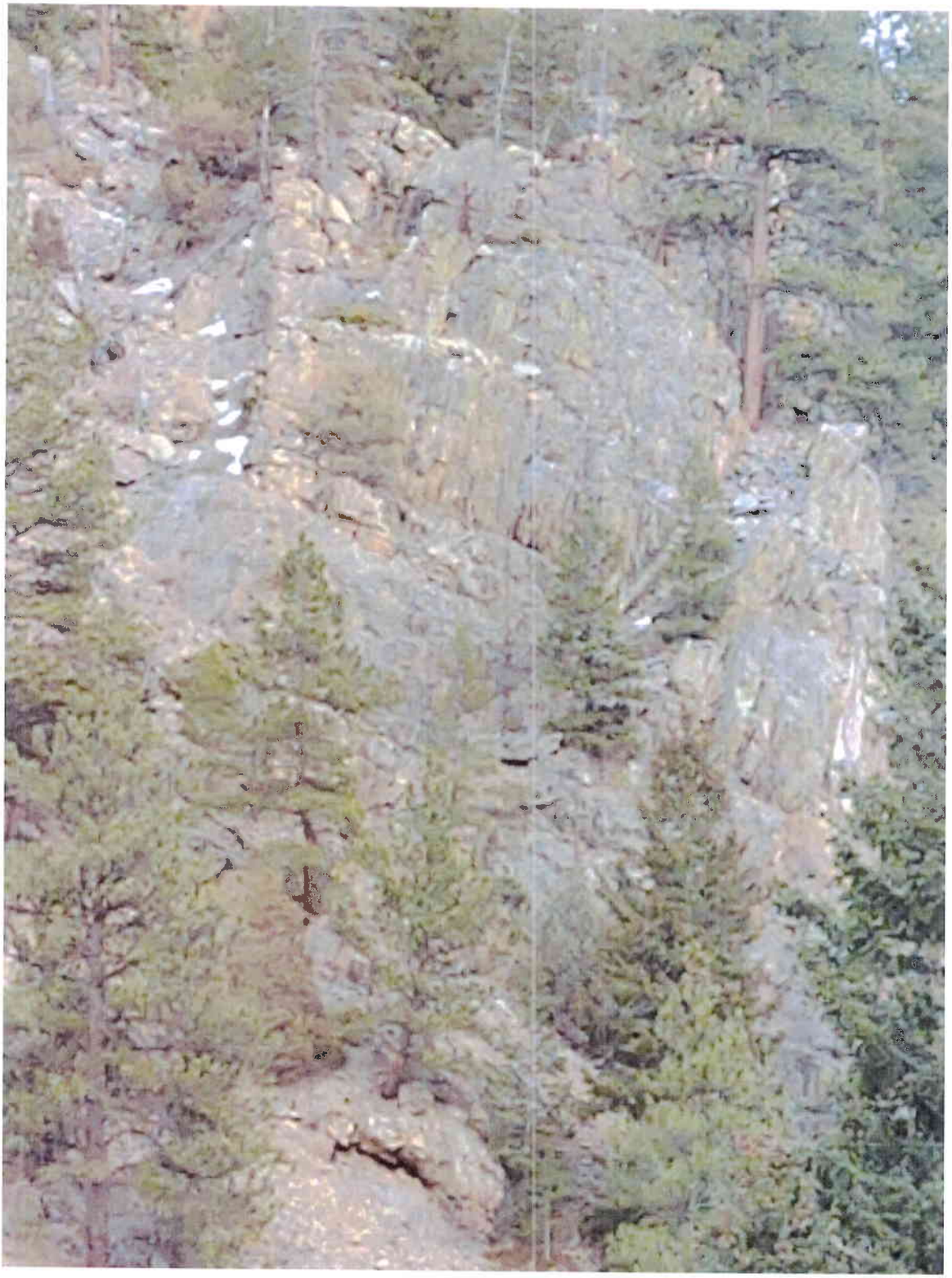

Photo 9 - Typical Cliff/Rock Face in Ute Creek Drainage

Photo 10 - Typical Cliff/Rock Face in Ute Creek Drainage

Photo 11 - Rock Cut on Ute Creek Road

Photo 12 - Rock Cut at Intersection of Ute Creek and Viking Roads

Photo 13 - Road Cut on Viking Road

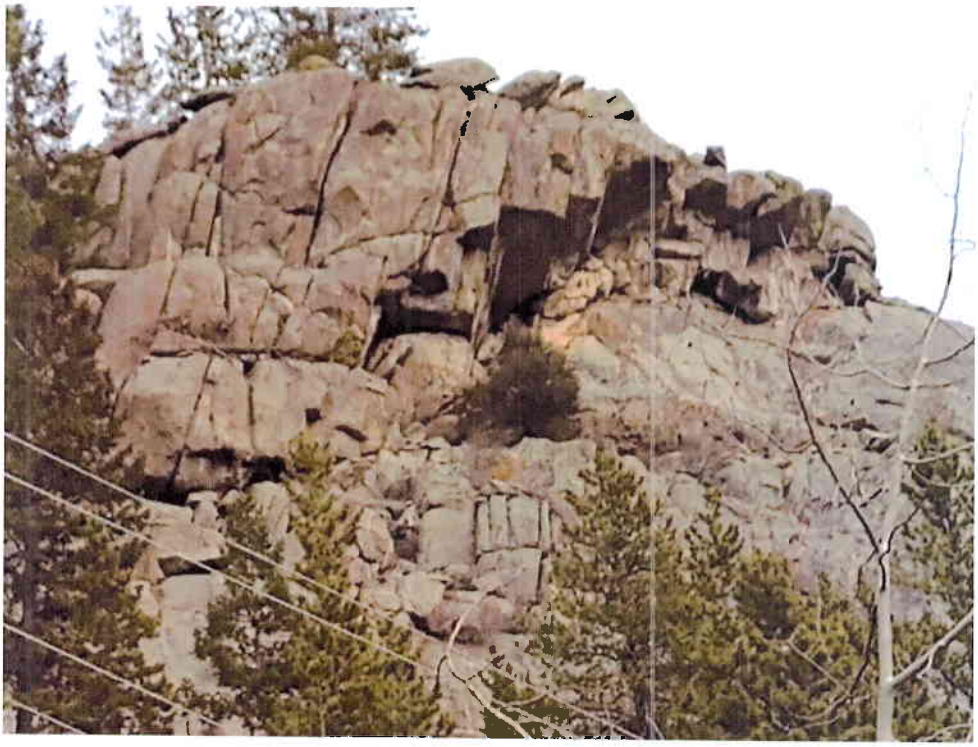

Photo 14 - Cliff/Rock Face Above Ute Creek Road

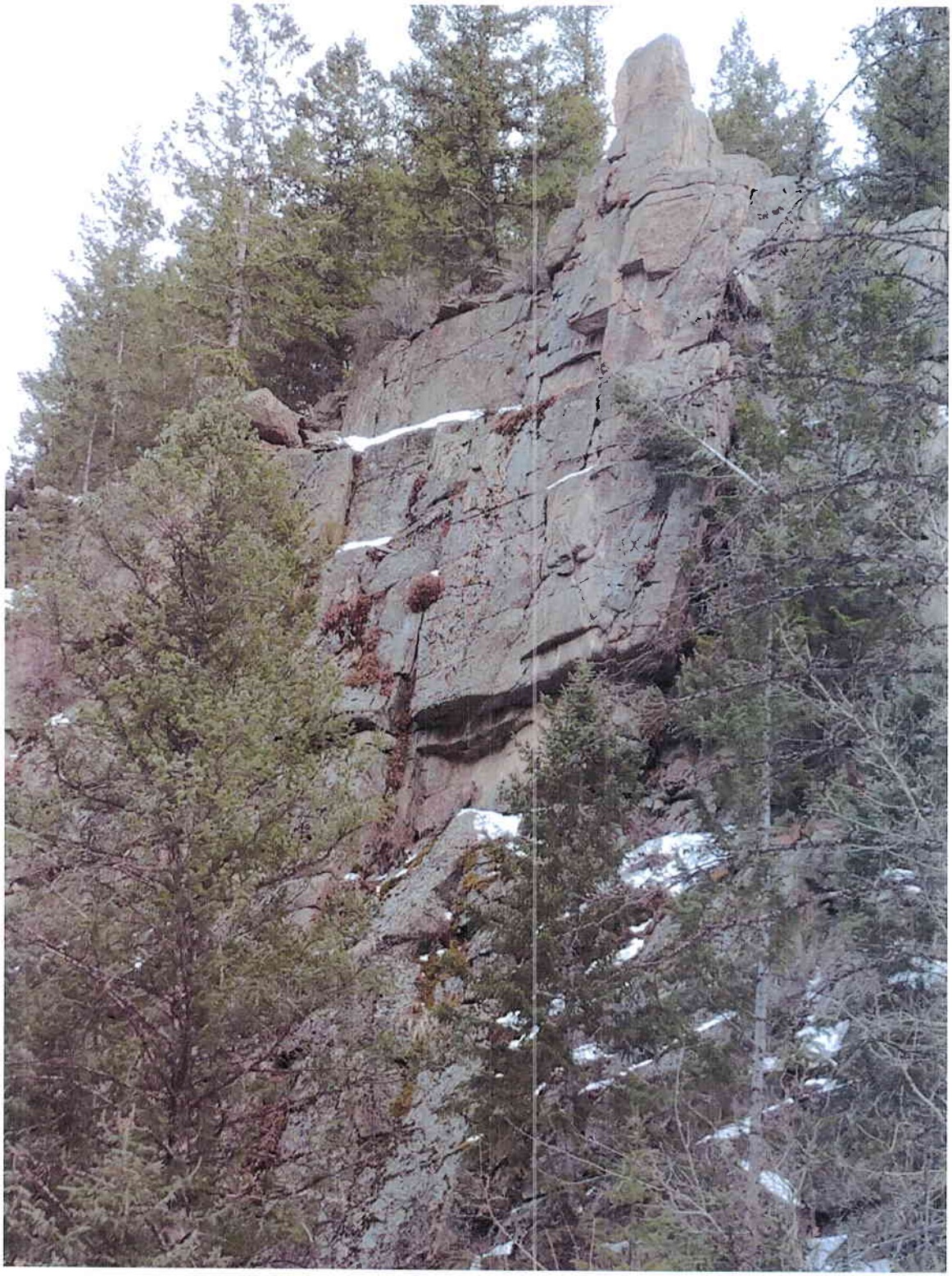

Photo 15 - Typical Rock Face Above Ute Creek Road.

6. *"Has a storm water permit been issued for this operation from the Colorado Department of Public Health and Environment? If so, please provide the Division a copy of the approved permit."*

Teton is preparing an application for "Stormwater Discharge Associated with Construction Activities Application" under the Colorado Discharge Permit System ("CDPS"). This application will be submitted following the approval of the current mining plan by the DRMS. Upon issuance of a CDPS permit, Teton will provide a copy to the DRMS.

7. *"Has Clear Creek County approved the operation, if so please provide documentation to this effect?"*

As provided in the letter from Clear Creek County to the DRMS on September 21, 2015: "*The subject property is zoned Mining-One (M-1) and allows for mining, prospecting, exploring, milling, processing, and/or placering of mineral resources that is covered by a Reclamation Permit pursuant to the Colorado Mined Land Reclamation Act…*" Clear Creek County Zoning Regulations: Section 7 describes the principle permitted uses of land classified for Mining as "***704.1** Any use or structure specifically required, used, or intended for the use of mining, prospecting, exploring, milling, processing, and/or placering of mineral resources.*"

Based on the Clear Creek County Zoning Regulations and the designated zoning of the property as M-1, there are no additional approvals necessary from Clear Creek County.

We thank you and the DRMS for your attention and assistance in working with us as we develop and extract the natural resources that Colorado is blessed with.

Sincerely,

Mike Jones
President
Teton Drilling, Inc.