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> Fri, Mar 1, 2019 at 1:12 PM
To: jared.ebert@state.co.us

Hi Jared,

Here's what we came up with. Hope this meets what DNR is looking for. If you need any thing else please let me know. Thanks for your time.

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Mike's Portable Welding
10422 Heinz Way, Unit C
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-----Original Message-----
From: Ebert - DNR, Jared <jared.ebert@state.co.us>
To: mikesportwelding <mikesportwelding@aol.com>
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MIKE JONES
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March 1, 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.2 Response - Blasting

Dear Mr. Ebert,

In response to the Colorado Division of Reclamation, Mining and Safety ("DRMS") Adequacy Review No.2 of February 28, 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.*

a. ***Applicant Response:*** *The applicant provided a demonstration based on the weight of explosives to be detonated within any 8 millisecond window. The applicant indicates the closest structure to the proposed blasting site is 1,600 feet and based the maximum weight of explosives to be detonated within any 8 millisecond window on this distance.*

b. ***DRMS Response:*** *Based on a review of the sites location, there appears to be man-made structures southeast of the site about 800 feet away. This reduces the maximum weight of explosives that can be detonated within any 8 millisecond window. Please commit to*

limiting the weight in pounds to be detonated within any 8 millisecond window to be protective of the structures identified within 800 feet of the operation. Also, please commit to keeping records of each blast for at least five years. DRMS recommends following the blasting records required in Article 6, Section 6-1(U) of 7 C.C.R. 1101-9. These records will need provided to the DRMS upon request and/or during a site inspection."

The nearest man-made structure not owned by the operator is a neighboring house at approximately 1600 feet away from the site. The DRMS has identified the operator's structures (away from the permitted area) as being within 800 feet from the planned mining area. 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 211 pounds of explosive per 8 millisecond delay and still not cause any damage to the nearest structures, which we own.

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

Scaled Distance Calculation

W = (800/55)^2 = 211 #/ 8ms delay, maximum.

As stated, 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. This translates into approximately 20-50 pounds of explosive detonated per delay.

Teton commits to limiting all blasting to less than 200 pounds of explosive per 8 millisecond delay. Teton also commits to creating and maintaining all blasting records per Article 6, Section 6-1(U) of 7 C.C.R. 1101-9 and to have these records available to DRMS upon request and/or during a site inspection.

We thank you and the DRMS for your attention and assistance in working with us as we move forward on the Dixie mine project.

Sincerely,

Mike Jones
President
Teton Drilling, Inc.