COLORADO
Division of Reclamation, Mining and Safety
Department of Natural Resources

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DRMS
1313 Sherman Street, Room 215
Denver, CO 80203

30 March 2020

Mr. Forest Luke
Environmental Manager Trapper Mining Inc.
P.O. BOX 187
Craig, CO 81626

RE: Trapper Mine, Permit No. C1981010
DRMS review of Trappers Technical Revision 124 (TR124): Adequacy Two

Dear Mr. Luke:

The Division has completed its review of Trapper Mine Inc's (TMI), submission of Technical Revision 124. The application was received by the Division on 10 January 2020. The Division provided the preliminary adequacy review to TMI on 11 February 2020 and received TMI's response on 4 March 2020. This constitutes DRMS review of Trapper's response to the preliminary adequacy questions posed by DRMS.

DRMS's reviewed the application against TMI's permit with regards to the Colorado Surface Coal Mining Reclamation Act (Act), the Regulations of the Colorado Mined Land Reclamation Board for Coal Mining (Regulations; Rules), and the following specific rules during DRMS's preliminary adequacy review:

2.10 Maps and Plans	2.04.7 (1), (3) Hydrology	2.05.3(1), (2), (3c), (5), (6) Operations Plan
2.05.4(2) Reclamation Plan	2.05.6(5) Mitigation of Impacts	4.03.1 Haul Roads
4.05.1 Hydrologic Balance	4.05.6 and 4.05.9 Sedimentation Ponds	4.05.11 Ground Water Protection
4.14.1 General Grading	4.14.2 General Grading	Auger Mining 4.23.2

All Rules referenced within this document are contained within the Regulations.

Rule: 2.10 Maps and Plans

2020 February DRMS: DRMS finds that Trapper addressed this rule adequately **with the exception of:**

1. As it appears that over time pit nomenclature has changed, please update Map M4A, *Pit Boundaries,* to show contemporary pit naming conventions as well as original pit names. Please put the original pit names in parentheses. The M4A map was not included in the submission.

2020 March DRMS: Trapper provided an updated M4 Map.

Rule: 2.04.7 (2), (3) Hydrology Surface Water

2020 February DRMS:

2. DRMS understands that mining in the N pit is anticipated to occur at significant depths (1,600 feet may be possible), that may not have previously been considered and that additional dewatering wells will be installed. Please discuss to what extent if any, as per Rules 2.07(1)(a) and 4.05.11, any possible negative impacts to ground water due to depth of miming that could occur.

Trapper Response: Trapper will not be mining at the significant depths indicated above. It appears the Division is confusing length of highwall mining cuts with ground depths. Maximum depth of the actual open pit will be 235 feet; maximum depth below surface of highwall mining panels will be 320 feet. We will be mining in the same coal seams with N Pit surface and highwall mining that we mined in F Pit. We will simply be following those same seams down dip. As with F Pit, pit dewatering is anticipated in N Pit, but no additional impacts are expected. As discussed in Section 4.8.2 of Trapper's permit document (refer to page references under Comment 3. below), there are no identified negative impacts to ground water due to depth of mining.

2020 March DRMS: DRMS finds Trappers response **adequate.**

2020 February DRMS:

3. Also include in this discussion possible impacts to developed water wells and water rights in the area as per Rules 2.05.6 (below), and 4.05.11; Mitigation of Impacts and Ground Water Protection respectively. To what extent if any, could wells be impacted by heavy equipment operations, blasting, augering and deep mining?

Trapper Response: Permit pages 4-225, 4-226, 4-226a, 4-226c, 4-226d and 4-238h, and Table 2.7-22c (permit page 2-524e) address your comments 2 and 3. All of these pages were updated to include N Pit discussion in the PR9 application and can be referenced there. A more recent

review of the Division of Water Resources well completion data base indicated no new developed wells have been completed in the N Pit area since the PR9 submittal.

2020 March DRMS: DRMS finds Trappers response **adequate.**

Rule: 2.05.3(1),(2),(3c),(5),(6) Operational Plan

2020 February DRMS: DRMS finds the submitted revised pages address this rule adequately **with the exception of the following**:

4. No overburden volumes nor swell factors were included in the Reclamation Plan discussion on revised pages 3-15b and 3-15c. Please include this information in the discussion.

Trapper Response: Overburden swell factors used at Trapper can be found on page 3-49 of Trapper's permit. A discussion of the redisturbed spoils in A pit has been added to Section 3.1.5, page 3-15b and is enclosed.

2020 March DRMS: DRMS finds Trappers response **adequate** and understands that the swell factor for the redisturbed spoil is 10% compared with original swell of 25%. DRMS has requested TMI's Agapito report. Once DRMS has the opportunity to assess stability conclusions DRMS will proceed with volumetric verification. Thus adequacy question 4 remains outstanding.

5. If any blasting is foreseen to take place in the N pit, please include pertinent information addressing Rule 2.05.3(6).

Trapper Response: Blasting will occur in N Pit as we remove overburden and interburdens to access coal seams to be surface and auger mined. Trapper's mine-wide blasting plan is located in Section 3.4 of the Trapper permit document. There are no site-specific blasting issues in N Pit that are not addressed in Section 3.4.

2020 March DRMS: DRMS finds Trappers response **adequate** and notes that the February 2020 blasting public notification includes N Pit blasting and was received by DRMS.

6. Aside from hauling spoil for cover of the A Pit ash dump please map where spoil will be stored that may impact adjacent soil as per Rule 2.05.3(6).

DRMS notes that topsoil laydown is delineated on maps M10A and M10B. DRMS also notes that revised page 3-44 states that "some of the dragline boxcut spoils to be regraded without contamination of adjacent soils". DRMS infers from this statement that storage of boxcut spoils is foreseen as contaminating adjacent soil. There is a narrative description of spoil storage however, spoil storage is not called out on any maps. It appears that spoil storage may occur to

the west as illustrated by the ridge outline (Ash Pit), on map M12 although it is not called out as such.

Trapper Response: Revised Map M10A is enclosed and gives the location of the temporary N Pit spoil storage area.

2020 March DRMS: DRMS finds Trappers response **adequate with exceptions,** and notes M10A map illustrates mining and regrade limits outlined to the east and south of the proposed pit and that the PMT map, M12, indicates the outline and crossections of the proposed Npit and temporary spoil pile, meeting the requirements of this rule.

DRMS finds that the PMT in the temporary stockpile area has changed since the original submission.

6a. Please provide updated profiles for any crossections affected by PMT changes, and specifically crossection E142600.

7. Demonstrate that temporary overburden storage will meet the performance standard of Rule 4.09.

Trapper Response: A recently completed geotechnical study by Agapito Associates, Inc. demonstrates that Trapper's proposed temporary overburden storage dump satisfies the performance standards of Rule 4.14.1 (2) (e)& (h), 4.14.2 (1), and 4.09 and 4.10. Enclosed are revised permit pages 3-15c referencing the results of the AAI study that determine the proposed spoil pile is likely to be stable over its projected life of 4- 6 years.

2020 March DRMS: Per this section of the Rule, "[t]he results of a geotechnical investigation of the proposed disposal area…" is required. It appears that Agapito Associates, Inc. has prepared a geotechnical study to assess the global stability of the proposed spoil pile however, it does not appear that it was provided with TR-124.

To demonstrate that the temporary storage will meet performance standards please provide the associated geotechnical investigation for the proposed N Pit temporary spoil pile.

Rule: 2.05.4 (2a,c,h) Reclamation Plan

This is a review of the reclamation plan to achieve post mining land use. Map series M10A provides the mining and regrade time table for the five year permit term through 2022 for N Pit.

DRMS notes that the revised pages submitted with this application proposes to modify the shrub density standard to include a 550 stems/acre alternative standard, and making it optional to utilize shrub clumps.

February 2020 DRMS: DRMS finds the new standard acceptable and requests, if available, a copy of any correspondence with CPW on this subject.

Trapper Response: TMI held a meeting with Brett Smithers and Evan Jones of CPW on August 2, 2018 at the Trapper Mine office to discuss a proposed shrub density alternative standard. It was agreed in that meeting that the shrub density standard should be 550 stems/acre for the no shrub clumps alternative. There was no correspondence from CPW following that meeting.
2020 March DRMS: DRMS finds Trappers response **adequate.**

DRMS's cost estimate (Rule 4(2)(b)), is provided with this adequacy review. As additional back and forth regarding the cost estimate may occur, DRMS foresees the possibility of additional adequacy questions relating to this topic.

2020 February DRMS: DRMS reviewed TMI's Appendix A as submitted with the TR124 permitting action and made the following findings:

8. On Page 1 of Appendix A Task J: The topsoil replacement cost is listed as $493,998.43 while the topsoil replacement cost on Table A-9.1 is listed as $904,559.67. Please clarify the discrepancy.

Trapper Response: The $493,998.43 cost referenced is the result of subtracting the Topsoil Replacement cost submitted in TR-119 (and subsequent performance bond increase), from the TR-124 "N Pit Only" Topsoil Replacement cost. The TR124 Topsoil Replacement Cost includes the topsoil stripping costs already accounted for in TR119. This was done to expedite the incorporation of the N Pit Bond reclamation costs into the upcoming PR9 submittal, which would replace both the TR119 and TR124 revisions. In that the performance bond was increased with the TR-119 submittal, it is necessary to exclude it from the proposed performance bond for TR124, otherwise there may be a double accounting for the bond estimate.

The TR119 revegetation costs for N Pit, although not referenced above, was also subtracted from the TR-124 Bond estimate in like manner.

2020 March DRMS: DRMS finds Trappers response **adequate.**

Trapper Response: In addition, upon review of DRMS's Circes TR124 Bond estimate, specifically (Task A002 "N Pit"), a brief table has been provided below, representing a comparison between TMI's Bond Estimate and DRMS's Circes Estimate. Comments and questions pertaining to the assumptions used in the Circes estimate are included below the table:

Task A002 N Pit (Dozer Grading)

	Units	Circes Bond Estimate	TMI's Bond Estimate	Difference
Quantity	LCY	371,699	371,699	0
Equip. Used		D-10Ts	D-11T's	
Unit Cost	$/Hr.	$ 317.20	$ 452.13	$ (134.93)
Ave. Push Distance	Ft.	650	324	326
Ave. Push Gradient	%	10%	-10%	20%
Dozer Correction		0.442	0.663	-0.22
Productivity	LCY/Hr.	154.7	684	-529.30
Task Hours	Hrs	2402.71	669	1734
Cost	$	$ 762,132.00	$ 302,448.00	$459,684.00

As shown above, the cost of dozer grading in N Pit is $459,684 more in the Circes estimate than TMI's estimate of$302,448.00. The following observations appear to have negatively impacted the costs for this task:

- **Equipment:** TMI's estimate utilizes D-11T's which, although the unit cost is higher, operates at a higher productivity, which results in performing the work in less time (i.e. 669 hours vs. 2402.71 hours in the Circes estimate).
- **Productivity:** Several factors appear to have influenced the productivity for this task:
  - Push Distance: It appears that a longer push distance was used in the Circes estimate (650') vs a weighted average push distance of 324' used in the TMI estimate. TMI desires to understand how this distance was obtained.
  - Push Gradient: The 10% push gradient, which may be an honest error (maybe even a typo) used in the Circes estimate, represents an uphill push which, intuitively, results in a lower productivity. TMI's grading is almost always downhill (i.e. negative or, -10% as used in TMI's estimate for this taskI. It would appear that this uphill, 10% gradient may be part of the dozer correction factor (Circes Est. 0.442 vs. TMI 0.663) which would, again, negatively impact the dozer productivity.
  - The Circes Estimate of 154.7 LCY/Hr. appears to be the result of the utilization of a smaller dozer, longer push distances, and positive push gradient/lower dozer correction factor. The TMI estimated 684 LCY/Hr. was derived from the CAT D11T "Estimated Dozing Production" curves found in the Caterpillar Performance handbook- January -2017.

- Task Hours: The Circes estimated 2,402.77 hours for this task, is assumed to be the result of the lower productivity (through the application of a smaller dozer (D-10T), a longer push distance, and an uphill push gradient).

- Cost: Finally, because of the longer duration of the task (as a result of the lower productivity), the Circes estimated cost ($762,132.00) for the project is $459,684 greater than TMI's estimate ($302,448).

TMI requests that DRMS re-evaluate this task and utilize the TMl recommended push distances and "negative" push gradients to re-estimate the cost for this task.

2020 March DRMS: DRMS finds Trappers response reasonable. DRMS has run the task with TMI's inputs. TMI observed that the new results require further discussion as it appears DRMS's new model does not completely fill the trucks. DRMS provided the new model to TMI on 23 March and all parties agreed it could be finalized. DRMS also updated revegetation Task N14B. The updated CIRCES is included with this response.

9. Font size on numerous pages was too small to read efficiently. In the future please utilize a font size of no less than 12p and if necessary increase the paper size to accommodate a legible font.

Trapper Response: In the future, as with the upcoming PR9 submittal, TMI will utilize a font size of no less than 12p and if necessary increase the paper size to accommodate a legible font.

2020 March DRMS: DRMS finds Trappers response **adequate.**

Rule 2.05.6 Mitigation of Impacts

DRMS finds this section of the rule adequately addressed. Required plans (Air Quality and Fish and Wildlife) are in place as per Rule 2.05.6(1),(2).

Numerous water wells exist in the vicinity of N Pit on private land, as shown in the illustration below. As per Rule 2.05.6(3), the water rights and water quality must be protected. Please see above adequacy question 3 per Rule 2.04.7 and Rule 4.05.11, with respect to the well locations illustrated below.

Rule 2.06.1(8) Augering special category of mining

February 2020 DRMS: Please refer to Rule 4.23.2 below for adequacy questions on this topic

Rule: 4.05.6 Sedimentation Ponds

Update to tables 4.8-6 and 4.8-7 were submitted as revised pages/tables as were Engineer Certifications for ponds. DRMS reviewed as build designs for the following ponds:

Deacon #1 Deacon #2 Deal #2 Jeffway #1

DRMS, in review of the above mentioned sediment ponds as built information, specifically tables 4.8-6 and 4.8-7 notes that the storage capacity changed (decreased), other design parameters also changed from those proposed in PR8. DRMS has the following questions related to these four ponds, the updated tables submitted.

February 2020 DRMS:

10. Please explain the various changes to the design parameters in tables 4.8-6 and 4.8-7.

Trapper Response: Revised Tables 4.8-6 and 4.8-7 are enclosed. Review of these tables identified several needed updates that were completed.

2020 March DRMS: DRMS finds Trappers response **adequate.**

February 2020 DRMS:

11. Please specifically address the storage capacity decreases noted by DRMS in the associated table as mentioned above.

Trapper Response : Some Table 4.8-6 water storage numbers were found to be in error and were rectified in the enclosed revised table.

2020 March DRMS: DRMS finds Trappers response **adequate.**

February 2020 DRMS:

12. If any ponds were relocated from the proposed location to a new location, please update the associated maps, Map M51.

Trapper Response: All of the subject ponds were correctly placed in the proposed locations as given on Map M51.

2020 March DRMS: DRMS finds Trappers response **adequate.**

February 2020 DRMS:

13. If appropriate, due to the design changes from the proposed pond designs, please submit SEDCAD modeling in accordance with rules 4.05.2, 4.05.3, 4.05.4 and 4.05.9.

Trapper Response to Comment 13: Enclosed are the SEDCAD as-built models for the subject ponds. The SEDCAD model information packets should replace existing information in Appendix Q, Sections XXXVIII (Deal), XXXIX (Deacon) and XXXX (Jeffway) except for the proposed information for Jeffway #2 as it has not been constructed as of yet.

2020 March DRMS: DRMS finds Trappers response **adequate.** All information required by this section of the Rule has been provided.

Rule 4.05.11: Groundwater Protection

2020 February DRMS: Please see adequacy question #3 above.

Rule: 4.14.1 General Requirements Backfilling and Grading

2020 March DRMS: DRMS finds Trappers response **adequate.** All information required by this section of the Rule has been provided.

Rule: 4.14.2 Backfilling and Grading, General Grading Requirements

2020 March DRMS: DRMS finds Trappers response **adequate.** All information required by this section of the Rule has been provided.

Rule: 4.23.2 Auger Mining

February 2020 DRMS: DRMS notes that no description of the auger mining process was presented in the revised pages of the application. Such a description would include leaving periodic spaces of undisturbed coal.

14. Please address this topic as per the above Rule if it is relevant to Trapper's mining scenario.

Trapper Response: An updated discussion of the proposed highwall mining addressing rule 4.23.2 (1) (b) is provided in section 3.14.2 Highwall Mining on enclosed permit page 3-15b.

2020 March DRMS: DRMS finds Trappers response **adequate.** All information required by this section of the Rule has been provided or is not applicable. Trapper has committed to optimize coal recovery based on the proposed highwall mining plan, ensuring access for removal of reserves by future underground mining activities, and has provided all performance standards as required per this section of the Rule