



May 28, 2020

Richard Mittasch
Calais Resources Colorado, Inc.
P.O. Box 3395
Nederland, CO 80466

RE: Cross Gold Mine, Permit No. M-1977-410, Technical Revision No. 7 (TR-07), Preliminary Adequacy Review

Mr. Mittasch:

On May 7, 2020, the Division of Reclamation, Mining and Safety (Division) received your Technical Revision application (TR-07) for the Cross Gold Mine, addressing the following:

To present geotechnical stability analyses for the slopes adjacent to the Idaho Tunnel Portal.

After reviewing the materials submitted, the Division has identified the following adequacy items that must be addressed before an approval of TR-07 can be issued:

- 1) Please address all adequacy concerns identified in the enclosed Memorandum from Peter Hays, DRMS.
- 2) In Section 4.0 Analysis Results, the analysis states that including the collapse void in the stability section reduces the minimum factor of safety (FOS) to 0.74 for a non-circular and 0.90 for a circular failure surface respectively, indicating a condition of instability. Given the collapse void has not yet been stabilized (that proposal is being reviewed through TR-05), this means there is significant potential for off-site damage and impacts to Caribou Road.

Per Rule 6.3.12, where the affected lands are within two hundred (200) feet of any significant, valuable and permanent man-made structure, the applicant shall:

- (a) provide a notarized agreement between the applicant and the person(s) having an interest in the structure, that the applicant is to provide compensation for any damage to the structure; or
- (b) where such an agreement cannot be reached, the applicant shall provide an appropriate engineering evaluation that demonstrates that such structure shall not be damaged by activities occurring at the mining operation.

At this time, the operator has not provided a notarized agreement with Boulder County for Caribou Road, which is located within 200 feet of the affected lands. The Division realizes the operator is already pursuing a structure agreement for this road through the Succession of Operators application



(SO-2) currently under review. However, regardless of how SO-2 proceeds, the operator must demonstrate through TR-07 that a notarized structure agreement has been obtained for the road in accordance with Rule 6.3.12(a), or that an agreement was attempted but could not be reached, and therefore, an appropriate engineering evaluation is provided demonstrating the road shall not be damaged by activities occurring at the mining operation in accordance with Rule 6.3.12(b).

Please be advised, the geotechnical stability analysis provided in TR-07 does not sufficiently demonstrate that Caribou Road will not be damaged by activities occurring at the mining operation. Therefore, if a structure agreement cannot be reached for the road, an updated engineering evaluation that meets the requirements of Rule 6.3.12(b) must be submitted.

- 3) In Section 5.0 – Conclusions, the analysis states the shotcrete facing should be provided with weep holes to prevent the buildup of water pressure in the slope behind the shotcrete. Please commit to constructing adequate weep holes in the shotcrete facing per this recommendation.
- 4) In Section 5.0 – Conclusions, the analysis states the slope stability evaluation presented was based largely on observation and professional judgement as limited engineering data was available. It is the Division's understanding the operator must first perform the collapse repair (proposed in TR-05) before the tunnel can be safely accessed to collect additional data for producing a more sufficient stability analysis. Based on the enclosed Memorandum by Peter Hays, DRMS, the stability analysis provided in TR-07 cannot be verified by the Division and the minimum FOS produced by the operator's analysis for the portal slope does not meet the requirements of MLRB policy.

The Division will not be able to approve TR-07 without an updated analysis that meets the minimum FOS requirements provided in the enclosed Memorandum from Peter Hays, DRMS. Therefore, once the operator is able to collect and analyze the necessary data to provide a sufficient stability analysis for the portal slope, this revised analysis must be submitted to the Division through TR-07.

- 5) The enclosed Memorandum from Peter Hays, DRMS recommends a monitoring program be prepared for monitoring and measuring the collapse void to prevent and/or prepare for damage to Caribou Road. Given the significant potential for off-site damage and impacts to Caribou Road due to current slope conditions (including the collapse void), the Division recommends this proposed monitoring program be submitted as soon as possible in a separate Technical Revision that can be reviewed and approved outside of the review process for TR-07 (which may be extended to allow for additional data collection and analysis).

Please be sure the proposed monitoring program includes the following:

- a) Describes the monitoring method(s) to be utilized.
- b) Specifies thresholds or trigger points for implementing risk mitigation actions.
- c) Describes mitigation activities required if the thresholds or trigger points are reached, including any special processes or procedures required to implement actions (e.g., roadway closure, sign placement).

- d) Lists any permissions or notifications that would be required (e.g., from Boulder County) to implement actions as necessary to meet public safety requirements (e.g., signs or guards for temporary traffic control operations).
- e) Identifies who will take the identified actions, including making any required notifications to authorities, communities, local or state governments, etc.

Please be advised, the failure or imminent failure of the portal slope beneath Caribou Road would require emergency notification to the Division in accordance with Rule 8 (see enclosed). Per Rule 8.1(a), the operator shall notify the Division as soon as reasonably practicable, but no later than 24 hours, after the operator has knowledge of a failure or imminent failure of any impoundment, embankment, stockpile, or slope that poses a reasonable potential for danger to human health, property, or the environment.

This completes the Division's preliminary adequacy review of the materials submitted for TR-07. The decision date for TR-07 is currently set for **June 6, 2020**. If additional time is needed to address the adequacy items, an extension request must be received by our office prior to the decision date.

If you have any questions, you may contact me by telephone at (303) 866-3567, ext. 8129, or by email at amy.eschberger@state.co.us.

Sincerely,



Amy Eschberger
Environmental Protection Specialist

Encls: Memorandum from Peter Hays, DRMS, dated May 27, 2020
Rule 8 - Emergency Notification by all Operators

Cc: Peter Hays, DRMS
Jeff Graves, DRMS
Michael Cunningham, DRMS



MEMORANDUM

Date: May 27, 2020

To: Amy Eschberger; Division of Reclamation, Mining and Safety

From: Peter Hays; Division of Reclamation, Mining and Safety

**RE: Calais Resources Colorado, Inc.; Cross Gold Mine; Permit No. M-1977-410
Exhibit 6.5 - Geotechnical Stability Analysis Review; TR-07**

The Division of Reclamation, Mining and Safety (Division/DRMS) reviewed the Geotechnical Stability Analysis from Dave Hallman, PE, PG, dated May 7, 2020 for the Cross Gold Mine, Permit No. M-1977-410, submitted in Technical Revision No. 7 (TR-07).

In Section 1.0 Introduction, the Operator states the stability evaluation is based largely on observation and professional judgement as limited engineering data was available. The Division does not believe the use of observation and professional judgement is adequate to evaluate the slope stability due to the assumed geotechnical data, the presence of the collapse void and the proximity of the portal slope to Caribou Road. Therefore, the Division is unable to verify the geotechnical stability analysis provided by the Operator.

The Division recommends the Operator perform the following actions:

- Pursue a structure agreement with Boulder County for Caribou Road with an acknowledgement of the proximity of the road to the collapse void.
- Prepare a monitoring program for the collapse void to monitor and measure the void to prevent and/or prepare for damage to Caribou Road.
- Perform the stabilization of the collapse void as soon as possible to provide protection to Caribou Road.
- When the collapse void is backfilled and stabilized and the Operator is able to collect and analyze geotechnical data for the Idaho Tunnel, submit a revised geotechnical stability analysis based on the updated data.



In accordance with Table 1 - Recommended Minimum Factors of Safety for Slope Stability Analyses for Operations and Reclamation within Section 30.4 of the Policies of the Mined Land Reclamation Board (MLRB), effective May 16, 2018, the Division will require the Operator to comply with the minimum factor of safety (FOS) of 1.5 for critical structures (roads) in static conditions since the Operator utilized limited engineering data in the current analysis.

The Operator's analysis of the slope under drained conditions (best case scenario) indicates a minimum FOS of 1.36 for a non-circular failure of the excavation slope. The produced FOS under drained conditions does not meet the requirements of MLRB policy. The additional analyses performed by the Operator incorporating a perched water table at varying depths and the open void produced significantly lower FOS values.

In Section 5.0 Conclusions, the report states the deficiencies of the analysis as; as-built configuration of the portal excavation, accurate topographic data for the slope and road, and subsurface geology beneath the slope. The report states the study should be updated and reassessed once additional data such as the as-built slope geometry becomes available. The Division recommends the Operator comply with the recommendations above and provide an updated geotechnical stability analysis as recommended in the report's conclusions once additional data is obtained for the Idaho Tunnel.

If you have any questions regarding these adequacy items, please contact me at peter.hays@state.co.us or at (303) 866-3567, ext. 8124.

RULE 8: **EMERGENCY NOTIFICATION BY ALL OPERATORS, EMERGENCY RESPONSE
PLAN FOR DESIGNATED MINING OPERATIONS AND EMERGENCY RESPONSE
AUTHORITY OF THE OFFICE**

8.1 SITUATIONS THAT REQUIRE EMERGENCY NOTIFICATION BY THE OPERATOR

Operators shall notify the Office, as soon as reasonably practicable, but no later than twenty-four (24) hours, after the Operator has knowledge of a failure or imminent failure of any of the following:

- (a) any impoundment, embankment, stockpile or slope that poses a reasonable potential for danger to human health, property or the environment;
- (b) for a designated mining operation, any Environmental Protection Facility designed to contain or control designated chemicals or process solutions as identified in the permit;
- (c) for in situ leach mining operations, any structure designed to prevent, minimize, or mitigate the adverse impacts to human health, wildlife, ground or surface water or the environment; and
- (d) for in situ leach mining operations, any structure designed to detect, prevent, minimize, or mitigate adverse impacts on groundwater.

**8.2 OPERATOR'S GENERAL NOTIFICATION RESPONSIBILITIES FOR REPORTING
EMERGENCY CONDITIONS**

8.2.1 Emergency Reporting Procedure

Telephone notice shall be given to the Office staff as follows:

- (a) during regular business hours (8:00 am to 5:00 pm, on working days), the notice shall be given to the Office.
- (b) outside regular business hours, or if the Office cannot be contacted, notice shall be given to the Colorado Department of Public Health and Environment 24 hour Colorado Emergency and Incident Reporting Line. Specify to this agency, that the emergency authority is coordinated through the Division of Reclamation, Mining and Safety, and to activate that Division's response network.

8.2.2 Emergency Notification Information Required

Notice required pursuant to this Rule 8 shall contain the following information (to the extent known at the time of the notice, and so long as no delay occurs in reporting results):

- (a) that this is notification of an emergency condition as required by Rule 8;
- (b) the nature of the condition including any chemicals and toxic or acid producing materials involved;

- (c) an estimate of the quantity of any chemical, toxic or acid-forming material that has been or could be released;
- (d) the time and duration of the occurrence and if it is on-going, or urgency of the pending situation;
- (e) any known or anticipated impacts to human health, property or the environment;
- (f) precautions and corrective actions taken by the Operator; and
- (g) the Operator's name(s) and contact number(s) for persons to be contacted for further information and response by the Office.

8.2.3 Follow-up Notice Requirements

As soon as practicable after an emergency situation or condition is reported and addressed, but no later than five (5) working days, the Operator shall provide a written report of the event to the Office. The report shall provide a description of:

- (a) actions taken to respond to and correct the emergency situation or condition;
- (b) any known or anticipated adverse impacts to human health, property or the environment;
- (c) name(s), address(s), telephone numbers and e-mail address of the Operator's contact person for additional information and follow-up by the Office;
- (d) monitoring and analyses that are necessary to evaluate the situation and corrective actions, copies of all pertinent data; and
- (e) results of the Operator's investigation to assess the conditions or circumstances that created the emergency situation, and what corrective or protective measures will be taken to prevent a similar event from occurring in the future.

8.3 EMERGENCY RESPONSE PLAN FOR DESIGNATED CHEMICALS AND URANIUM OR URANIUM BY-PRODUCTS

In compliance with Rule 6.4.21, describing the purpose of an Environmental Protection Plan, Operators/Applicants of Designated Mining Operations shall be required to have on file with the Office an up-to-date Emergency Response Plan for designated chemicals. It shall be the Operator's/Applicant's sole responsibility to provide timely updates of responsible personnel and their phone numbers to the Office.

8.3.1 Non-Designated Mining Operations Exempted