



September 16, 2024

Keenesburg Town Hall
140 S Main
Keenesburg, CO 80643

**Re: Keenesburg Strip Mine (Permit No. C-1981-028)
Bond Release Application No. 12 (SL-12)**

Dear Sir or Madam:

The Colorado Division of Reclamation, Mining and Safety requests that you maintain the enclosed “Proposed Decision and Findings of Compliance” for the Keenesburg Strip Mine on file for public review for sixty (60) days.

If you have questions or need additional information, please contact me. Thank you for your cooperation.

Sincerely,

Robert D. Zuber, P.E.
Environmental Protection Specialist
Rob.zuber@state.co.us

Enclosure



Phase II/III Bond Release
SL-12

Proposed Decision and
Findings of Compliance for the

Keenesburg Strip Mine
PERMIT NUMBER C-1981-028



Area 31 – photo by R. Zuber, 25 June 2024

Michael A. Cunningham, Director

Prepared by
Robert D. Zuber, PE
Environmental Protection Specialist

Decision date: September 16, 2024

INTRODUCTION

This document presents the findings of compliance in support of a proposed decision of the Colorado Division of Reclamation, Mining and Safety (the Division or DRMS) in response to a request for Phase II and Phase III bond release on a portion of the Keenesburg Strip Mine, Division file number C-1981-028. With this application (SL-12), Coors Energy Company (CEC) requests Phase II bond release of 9.68 acres and Phase III release of 30.55 acres.

The document includes the following four parts after this introduction:

- I. Procedures and Summary of the Review Process
- II. Criteria and Schedule for Bond Release
- III. Observations and Findings
- IV. The Division's Proposed Decision

Regulations

Detailed information about the review process can be found in the Act and the Regulations of the Colorado Mined Land Reclamation Board for Coal Mining:

<https://drms.colorado.gov/rules-and-regulations>

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

Detailed information about the mining and reclamation operations can be found in the permit application on file at the Division offices (1313 Sherman Street, Room 215, Denver, Colorado) and accessible on the Division web site:

<https://drms.colorado.gov/data>

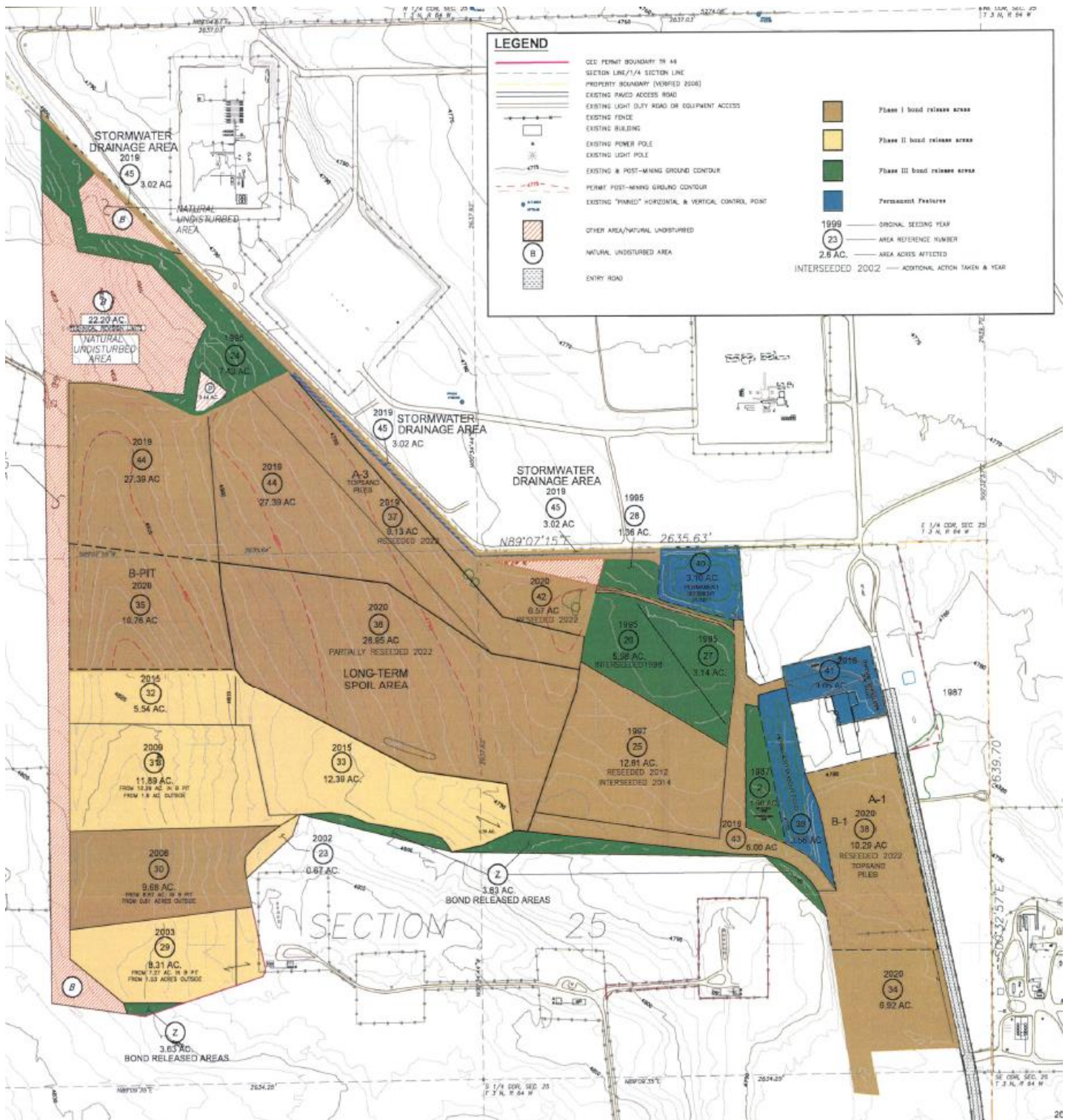
Location of Keenesburg Strip Mine and SL-12 Area

The Keenesburg Strip Mine is a surface mine permitted and operated by CEC and located approximately seven miles northeast of the Town of Keenesburg in Weld County, Colorado. The mine comprises a portion of Section 25, T3N, R64W (6th Prime Meridian). The ownership of the land proposed for bond release is private, and the coal ownership is state and private.

CEC requested Phase II bond release on 9.68 acres, Area 30 on the following map (Figure 1, from the SL-12 application). Seeding of Area 30 was conducted in 2006. Areas 23 and 29 achieved Phase II release in 2010 with the Division's issuance of SL-05. Area 31 achieved Phase II release in 2019 with the Division's issuance of SL-10.

CEC requested Phase III bond release on 30.55 acres, including Areas 23, 29, 30, and 31 (shown on Figure 1). Seeding of these areas was conducted from 2002 to 2009. All SL-12 areas can be found in the southwestern portion of the site.

FIGURE 1



I. PROCEDURES AND SUMMARY OF THE REVIEW PROCESS

With the SL-12 bond release application, CEC applied for Phase II and Phase III bond release of a portion of the Keenesburg Strip Mine under the Colorado Surface Coal Mining and Reclamation Act. CEC requested release of 30.55 acres and \$98,287.00.

CEC has previously requested and been approved for eleven bond releases as follows:

1. Bond release SL-01 was approved on August 11, 1998, for Phase I release on 179 acres and Phase II release on 111 acres. The Division approved the release of \$1,787,113.00 of the reclamation liability.
2. A second bond release application, SL-02, was approved on September 1, 2005. Bond release SL-02 was a Phase I bond release on 51.76 acres. The Division approved \$146,955.00 for release from the reclamation liability for Phase I bond release on ten reclamation parcels.
3. A third bond release application, SL-03, was approved on April 18, 2006. Bond release SL-03 was a Phase II bond release on 53.90 acres. The Division approved the release of \$157,573.80 of the reclamation liability for Phase II bond release on ten reclamation parcels.
4. A fourth bond release application, SL-04, was approved on October 19, 2009. Bond release SL-04 was a Phase III bond release on 165.29 acres. The Division approved the release of \$167,911.00 of the reclamation liability for Phase III bond release on 17 reclamation parcels.
5. A fifth bond release application, SL-05, was approved on September 10, 2010. Bond release SL-05 was a Phase II bond release on 51.05 acres. The Division approved the release of \$120,385.00 of the reclamation liability for Phase II bond release on 11 reclamation parcels.
6. A sixth bond release application, SL-06, was approved on January 4, 2012. Bond release SL-06 was a Phase III bond release on 42.29 acres. The Division approved the release of \$44,735.78 of the reclamation liability for Phase III bond release on nine reclamation parcels.
7. A seventh bond release application, SL-07, was approved on April 2, 2015. Bond release SL-07 was a Phase I bond release on 27.10 acres. The Division approved the release of \$342,547.09 of the reclamation liability for Phase I bond release on three reclamation parcels.
8. An eighth bond release application, SL-08, was approved on February 8, 2016. Bond release SL-08 was a Phase I, II, and III bond release on 56.12 acres. The Division approved the release of \$431,867.06 of the reclamation liability for Phase I, II, and III bond release of Areas P1 and P2, which had been approved for an industrial post-mining land use.
9. A ninth bond release application, SL-09, was approved on September 6, 2018. Bond release SL-09 was a partial Phase I bond release on 19.38 acres. The Division approved the release of \$16,418.87 of the reclamation liability for Phase I bond release of Areas 33 and 34.
10. A tenth bond release application, SL-10, was approved on May 26, 2020. Bond release SL-10 was a partial Phase II bond release on 29.84 acres. The Division approved the release of \$23,298.95 of the reclamation liability for Phase II release of Areas 31, 32, and 33.
11. An eleventh bond release application, SL-11, was approved on December 1, 2022. Bond release SL-11 was a partial Phase I bond release on 101.28 acres. The Division approved the release of \$383,157.00 of the reclamation liability for Phase I release of the B Pit, the reclaimed Long Term Spoil Area, roads, and other areas.

Submittal of Bond Release Application and Completeness Determination by the Division

CEC submitted the bond release application following the procedures described in the Act and Regulations. The application also utilized the Division's *Guideline Regarding Selected Coal Mine Bond Release Issues*, dated April 18, 1995.

The Division received CEC's SL-12 bond release application on May 14, 2024, and found the application complete on June 11, 2024, after the Division received proof of publication of the applicant's public notice. The completeness determination was made in accordance with Section 3.03.2(1)(d).

Public Notice

CEC published notice of the bond release application in the Fort Lupton Press once weekly for four consecutive weeks, beginning on May 16, 2024, and ending on June 6, 2024. CEC also notified landowners within and adjacent to the mine permit area, and other interested parties, of the application for bond release, as required by Section 3.03.2(1). The Division received no written comments, objections, or requests for an informal conference regarding the bond release application.

Bond Release Inspection

The Division scheduled and conducted a bond release inspection on June 25, 2024, in accordance with Rule 3.03.2(2). Present at the inspection were Ben Moline of CEC and Rob Zuber, Brock Bowles, and Joel Renfro of the Division. The Office of Surface Mining Reclamation and Enforcement (OSMRE) was invited but did not attend due to schedule conflicts.

The Division was able to assess the vegetation within the four areas that are the subject of this application. Details of the Division's observations during the inspection can be found in the inspection report issued by the Division on July 3, 2024, and the Observations and Findings Section of this document.

Adequacy Review

The following issues with the application were identified in the Division's Preliminary Adequacy Review letter sent to CEC on July 19, 2024:

1. The Division was unable to replicate the Vegetative Cover Standard found in the application.
2. The Division was unable to replicate the Herbaceous Production Standard found in the application.

On July 22, 2024, the Division received a letter from Habitat Management (consultant working for CEC) with the responses to the adequacy items. Both adequacy items were addressed and the application was revised to reflect those changes.

On September 4, 2024, the Division sent CEC a Second Adequacy Review letter identifying a

contradiction between the equation for the Vegetative Cover Standard in the Permit Application Package (PAP) and the one presented in the SL-12 bond release application. The contradiction lies in the use of a negative sign in the equation presented in SL-12 versus the absence of the negative sign in the equation approved in the PAP, which produces a large difference in the resulting y value. If the Division is to use the equation as presented in SL-12, it was recommended that a Minor Revision be submitted to clarify the correct equation to be used for the Vegetative Cover Standard and update the applicable page(s) of the PAP. CEC submitted a Minor Revision on September 13, 2024 (MR-48) to clarify that the correct equation to use for the Vegetative Cover Standard includes the negative sign, as presented in SL-12. MR-48 was issued on September 16, 2024. Therefore, all adequacy items identified in the SL-12 application were addressed by CEC.

II. CRITERIA AND SCHEDULE FOR BOND RELEASE

PHASE I

Phase I criteria were not evaluated for this bond release application. All parcels requested for Phase II/III bond release in SL-12 have previously been approved for Phase I bond release.

PHASE II

Rule 3.03.1(2)(b) states, "Up to eighty-five percent of the applicable bond amount shall be released upon the establishment of vegetation which supports the approved postmining land use and which meets the approved success standard for cover... based on statistically valid data collected during a single year of the liability period". Regarding Phase II bond release, Rule 3.03.1(3)(b) states, "No more than sixty (60) percent of the bond shall be released so long as the lands to which the release would be applicable are contributing suspended solids to streamflow or runoff outside the permit area in excess of premining levels as determined by baseline data or in excess of levels determined on adjacent nonmined areas."

The following information can be found in Section 2.05.4 of the PAP for the Keenesburg Strip Mine.

The approved revegetation plan emphasizes native species planting resulting in a diverse, permanent, effective plant community capable of self-regeneration.

Per the PAP, the required minimum topsoil replacement thickness is 24 inches over much of the site, including Area 30. Area 30 was graded, topsoiled (top-sanded) and seeded in 2006. CEC's topsoil replacement has been documented by CEC and verified by the Division during previous inspections. During reclamation activities, CEC placed a post with the soil laydown thicknesses marked on the post. Verification of the topsoil laydown consisted of photographing the topsoil thickness against the markings on the post. CEC maintains a notebook with photos, dates, and the location of the topsoil laydown. The particular Division inspection report that verifies topsoil depth at Area 30 is the May 31, 2006 report. This report indicates that the depth was 30 inches, which is well above the required minimum depth of 24 inches and acceptable to the Division.

Vegetative cover success is determined by factoring the previous 11 months precipitation data into an approved predictive formula to determine successful vegetative cover in percentage. Areas will be

considered successfully reclaimed if the total vegetation cover (percentage) is not less than 90 percent of y in the following equation:

$$y = -0.0127x^3 + 0.2115x^2 + 2.1772x.$$

In the equation, x is the September – July precipitation (in inches) during the previous year.

The bond release block requested in SL-12 has a post-mining land use of rangeland.

CEC used the Revised Universal Soil Loss Equation (RUSLE) to demonstrate acceptable soil loss on the reclaimed lands. The Division has previously approved CEC's use of this model for the Keenesburg Strip Mine to demonstrate acceptable sediment loading from the area to be released. Furthermore, this methodology has been widely used for Phase II bond release applications at other Colorado coal mines.

PHASE III

Rule 3.03.1(2)(c) states, "The remaining portion of the bond amount shall be released when the permittee has successfully completed all surface coal mining reclamation operations in accordance with this approved reclamation plan, and the final inspection and procedures of 3.03.2 have been satisfied. This shall not be before the expiration of the period specified for revegetation responsibility in 3.02.3." Rule 3.03.1(4) states, "No bond shall be fully released until all reclamation requirements of these Rules and the Act are fully met...". The same rule goes on to state, "No acreage shall be released from the permit area until all surface coal mining and reclamation operations on that acreage have been completed in accordance with the approved reclamation plan."

In addition to the Rules, the Division used the Keenesburg Strip Mine PAP to assess reclamation success.

Drainage Control and Reestablishment

In the bond release area for SL-12, there are no drainage control structures.

Topsoil Replacement

For Phase III bond release applications, no particular criteria are considered for topsoil. However, the replacement of topsoil can be assessed in the context of the overall success of the reclamation, including the presence of erosion (or lack of erosion) and the health of the vegetation.

Revegetation

Vegetation success standards for the area are as follows, taken from Section 2.05.4 of the PAP:

Total Vegetation Cover. Reclaimed areas will be considered successfully reclaimed if the total vegetation cover on the reclaimed area(s) is not less than 90 percent of the total vegetation cover value from the equation: $y = -0.0127x^3 + 0.2115x^2 + 2.1772x$ (where x is the cumulative September – July precipitation at the mine) with 90 percent statistical confidence using a one-tailed Student's t or

Confidence Interval test.

Herbaceous Production. Reclaimed areas will be considered successfully reclaimed if the total herbaceous production on the reclaimed area(s) is not less than 90 percent of the total herbaceous production value from the equation: $y = 0.4666x^{2.1405}$ (where x is the cumulative September – July precipitation at the mine) with 90 percent statistical confidence using a one tailed Student's t or Confidence Interval test.

Species Composition. Reclaimed areas will be considered successfully reclaimed if the species composition of any reclaimed area is such that there are at least four perennial grass species. No one component of the above species should compromise greater than 40% relative cover nor less than 3% relative cover. Any perennial grass species (native or introduced) may be used in the calculation of species composition except for those species defined as noxious by the Colorado Department of Agriculture.

Post-Mining Land Use

The approved post-mining land use is the same as the pre-mine land use of rangeland (as discussed in Section 2.05.5 of the PAP) for the SL-12 area.

Protection of the Hydrologic Balance

Consideration of a Phase III bond release application must assess compliance with the Probable Hydrologic Consequences section of the PAP (Section 2.05.6), namely whether offsite impacts and material damage have been prevented.

III. OBSERVATIONS AND FINDINGS

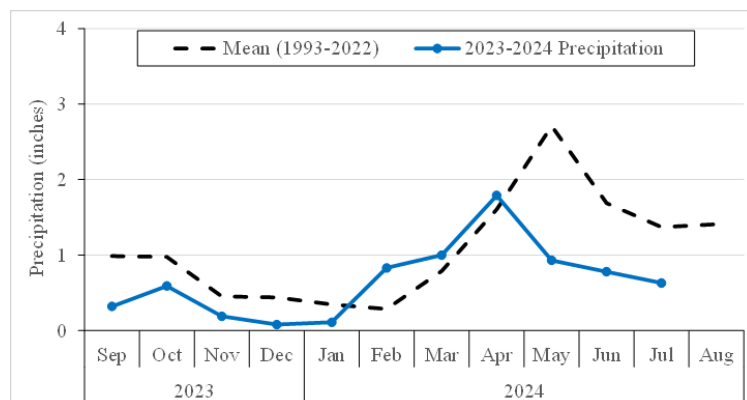
CEC sampled vegetation in August 2021 and 2022. These samples showed that each sampled area passed the Total Vegetation Cover, Herbaceous Production, and Species Composition standards for each year. The data showed a high frequency of warm season grasses, which is consistent with the time of year that the site was sampled.

Rob Zuber, Brock Bowles, and Joel Renfro with the Division inspected the site on June 25, 2024. Weather conditions were dry prior to and during the inspection. Very little new growth was observed during this inspection and many of the previous year's grasses were dormant. Some of the species observed include sand bluestem, prairie sandreed, sand dropseed, and redroot amaranth. Other desirable species such as common sunflower, sand sagebrush, and prairie ground cherry were also present. The only State-listed noxious weed species observed was cheatgrass.

Since warm season grasses were shown to be more dominant in the vegetation data of the application, the Division conducted a follow-up inspection on August 6, 2024. Conditions on site remained hot and dry, and the sandy soil appeared dry as well. The Division observed new growth of warm season grasses during this second inspection, especially in Area 31. The observed warm-season grasses included sand bluestem, sand dropseed, and prairie sandreed. The new growth grasses found during this inspection

appeared far more consistent with the prevalence of warm season grasses in the dataset of the application.

Since vegetative production on this site has been shown to be closely connected to precipitation, the Division suspected that 2023-2024 was a dry year, resulting in minimal new growth. This was confirmed by a CEC representative, who provided the following precipitation data. It can be seen on the graph that precipitation was well below average during the late spring and summer of 2024 (May – July).



These precipitation trends supported the Division’s observations and explained why there was little new growth this year. The new growth observed around the previous years stands and plants growing seed heads, especially in Area 31, suggest that the revegetated area is self-sustaining. The Division found that the data collected in 2021 and 2022 accurately reflect site conditions, based on observations during the inspection.

CEC used the Revised Universal Soil Loss Equation (RUSLE) to demonstrate acceptable soil loss on the reclaimed lands. The Division has previously approved CEC’s use of this model to demonstrate acceptable sediment solid demonstration.

The key factor in comparing the reclaimed area to the nearby undisturbed area is the Cover Factor, C. The C factor in RUSLE accounts for the effect of plant and litter cover on the ground surface in reducing erosion. For the undisturbed areas, the cover factor used in this analysis (0.036 for a sage sand community) is the same as approved by the Division in previous RUSLE analyses for this site. The C factor for the reclaimed area was determined using vegetation monitoring data. The C value used in the application is 0.013, which is in agreement with a check by the Division using Table 5.A.3 in Applied Hydrology and Sedimentology for Disturbed Areas (Barfield, Warner and Haan, 1981).

CEC’s calculations determined the undisturbed area would contribute 0.079 tons/acre/year of sediment. The reclaimed parcels were calculated to potentially contribute 0.049 tons/acre/year of sediment. The Division considers the demonstration acceptable, and it shows that the reclaimed areas are projected to contribute less sediment than the undisturbed condition. The results of CEC’s calculations are found in Table 3 in the Sedimentology Demonstration in the SL-12 application.

Two sediment ponds have been designated as permanent at the Keenesburg Strip Mine. These ponds were both constructed below grade. Inspections by the Division and CEC have shown for many years

that the ponds do not collect significant sediment and they never discharge, due to the flat topography and sandy soils of the site. The Division is confident that these ponds will not cause future problems, and no maintenance provisions are needed.

IV. PROPOSED DECISION

Based on the observations above, the Division proposes to approve Coors Energy Company's request for a Phase II and Phase III bond release for the Keenesburg Strip Mine. This proposed decision is for a Phase II bond release of 9.68 acres for Area 30 and a Phase III bond release of 30.55 acres for Areas 23, 29, 30, and 31. These areas are depicted on the map submitted with the SL-12 application, also included above (in Figure 1). This proposed decision will release CEC from all reclamation liability on 30.55 acres.

The current reclamation liability amount set for the site is \$818,406.00 (from SL-11, approved on December 1, 2022). The current bond held is slightly more than this amount (\$818,446.00). The midterm review conducted in 2024 identified the need to increase the required bond amount to \$861,855.00. The Division decided to not increase the required surety pending this bond release application.

To estimate the liability eligible for release with the approval of the SL-12 application, the site-wide cost estimate was updated with the most recent unit costs, and the reclamation tasks associated with seeding the SL-12 bond release parcels were removed from the estimate. The new reclamation liability is \$687,020.00. Enclosed is the summary of reclamation costs.

With the approval of SL-12, the Division will release \$131,386.00 (which is the difference between the current required bond amount of \$818,406.00 and the new required bond amount of \$687,020.00). The current bond is sufficient to assure completion of the remaining reclamation work at the site if the work had to be performed by the Division, including the cost of reestablishing vegetation on any revegetated areas, should those areas fail.

Reclamation Cost Estimate

COST SUMMARY WORK

Task description: COST SUMMARY

Site: Keenesburg Strip Mine

Permit Action: SL12

Permit/Job#: C1981028

PROJECT IDENTIFICATION

Task #: 000

State: Colorado

Abbreviation: None

Date: 8/15/2024

County: Weld

Filename: C028-000

User: RDZ

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

Task	Description	Form Used	Fleet Size	Task Hours	Cost
C02	Rip 10,480 feet of internal roads	RIPPER	1	6.49	\$3,155
E02	Topsoil Long Term Spoil Area	SCRAPER1	1	77.41	\$304,624
E03	Haul topsoil to "Other Areas" (parcel 42 and 43)	SCRAPER1	1	11.06	\$26,359
E05	Haul topsoil to interior access roads	SCRAPER1	1	21.01	\$50,058
F01	Seed 120.84 acres of disturbed area. (no PII bond rel)	REVEGE	1	70.00	\$103,703
F01a	Seed 17.93 acres Phase II release (parcels 32 and 33)	REVEGE	1	15.00	\$10,733
G01	Structural demolition	DEMOLISH	1	8.00	\$4,564
H01	Seal 7 wells	BOREHOLE	1	16.00	\$13,365
I01	Clean sediment from Pond 2, dispose in B-Pit	TRUCK1	1	1.38	\$1,514
I02	water monitoring	SITEMAINT ENANCE	1	30.00	\$27,642
J01	Mobilization and Demobilization of Equipment	MOBILIZE	1	15.60	\$23,002
<u>SUBTOTALS:</u>				271.95	\$568,719

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance: 2.02

Total = \$11,488

Performance bond: 1.05

Total = \$5,972

Job superintendent: 135.97

Total = \$10,778

Profit: 10.00

Total = \$56,872

TOTAL O & P = \$85,110

CONTRACT AMOUNT (direct + O & P) = \$653,829

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs): \$500

Total = \$500

Engineering work and/or contract/bid preparation: 0.00

Total = \$0

Reclamation management and/or administration: 5.00

\$32,691

CONTINGENCY: 0.00

Total = \$0

TOTAL INDIRECT COST = \$118,301

TOTAL BOND AMOUNT (direct + indirect) = \$687,020