

STATE OF  
COLORADO

Zuber - DNR, Rob &lt;rob.zuber@state.co.us&gt;

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**DRMS letter related to Coors Energy solar farm by Keenesburg**

1 message

**Zuber - DNR, Rob** <rob.zuber@state.co.us>

Wed, Dec 4, 2024 at 4:07 PM

To: daungst@weld.gov, "Moline, Ben" &lt;ben.moline@molsoncoors.com&gt;

Good afternoon, Ms. Aungst.

Please see the attached letter, and let me know if you have questions or comments. If the map is not clear, I can resend it, separately.

I am sending our Findings document as a separate attachment.

Rob

Rob Zuber, P.E.  
Environmental Protection Specialist  
Active Mines Regulatory Program

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

*I am working remotely and can be reached by cell at 720.601.2276.*

**Physical Address:**

1313 Sherman Street, Room 215  
Denver, CO 80203

**Mailing Address:**

Division of Reclamation, Mining and Safety, Room 215  
1001 East 62nd Avenue  
Denver, CO 80216

[rob.zuber@state.co.us](mailto:rob.zuber@state.co.us) | <http://drms.colorado.gov>

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**2 attachments**

**C1981028\_DRMS Letter to Weld County\_regarding solar farm project near Coal permit\_with maps.pdf**  
1362K



**PR3\_Findings\_FINAL.pdf**  
559K



## COLORADO

Division of Reclamation,  
Mining and Safety

Department of Natural Resources

December 4, 2024

Ms. Diana Aungst  
Weld County Planning Services  
1402 N 17<sup>th</sup> Avenue  
Greeley, CO 80631

**RE: Keenesburg Strip Mine, C-1981-028**  
**Planned solar project - location and DRMS permit status**

Dear Ms. Aungst:

Ben Moline at Coors Energy Company has informed me that you would like my Division to provide information to you related to the permit boundary for the Keenesburg Strip Mine (DRMS Permit No. C-1981-028).

Please see the first enclosure, the Permit Area Map (Appendix A-1) for this permit. It clearly shows that all but a very small portion of the permit boundary is north of Section 36 of Township 3 North, Range 64 West (6<sup>th</sup> Principal Meridian). The second enclosure, Site Geometry Plan for the Keenesburg Solar project, illustrates that the project is entirely south of the line delineating Section 25 and Section 36. It also shows that within the area where the Division permit extends slightly into Section 36 (near the northeast corner of the project), there will be no construction activity.

In addition, Coors Energy Company filed for a Permit Revision (PR-03). The relevant permit modification was to Section XVI. Rule 4.16 Post-Mining Land Use that now allows for Industrial and Commercial uses. Attached is the Final Findings for PR-03. The Division's final approval of PR-03 is scheduled for December 17, 2024, barring any objections from the public. Once this permit revision is approved, the Division will not have any concerns with the project presented by Coors Energy Company.

If you have any comments or questions, feel free to contact me at [rob.zuber@state.co.us](mailto:rob.zuber@state.co.us) or 720.601.2276.

Sincerely,

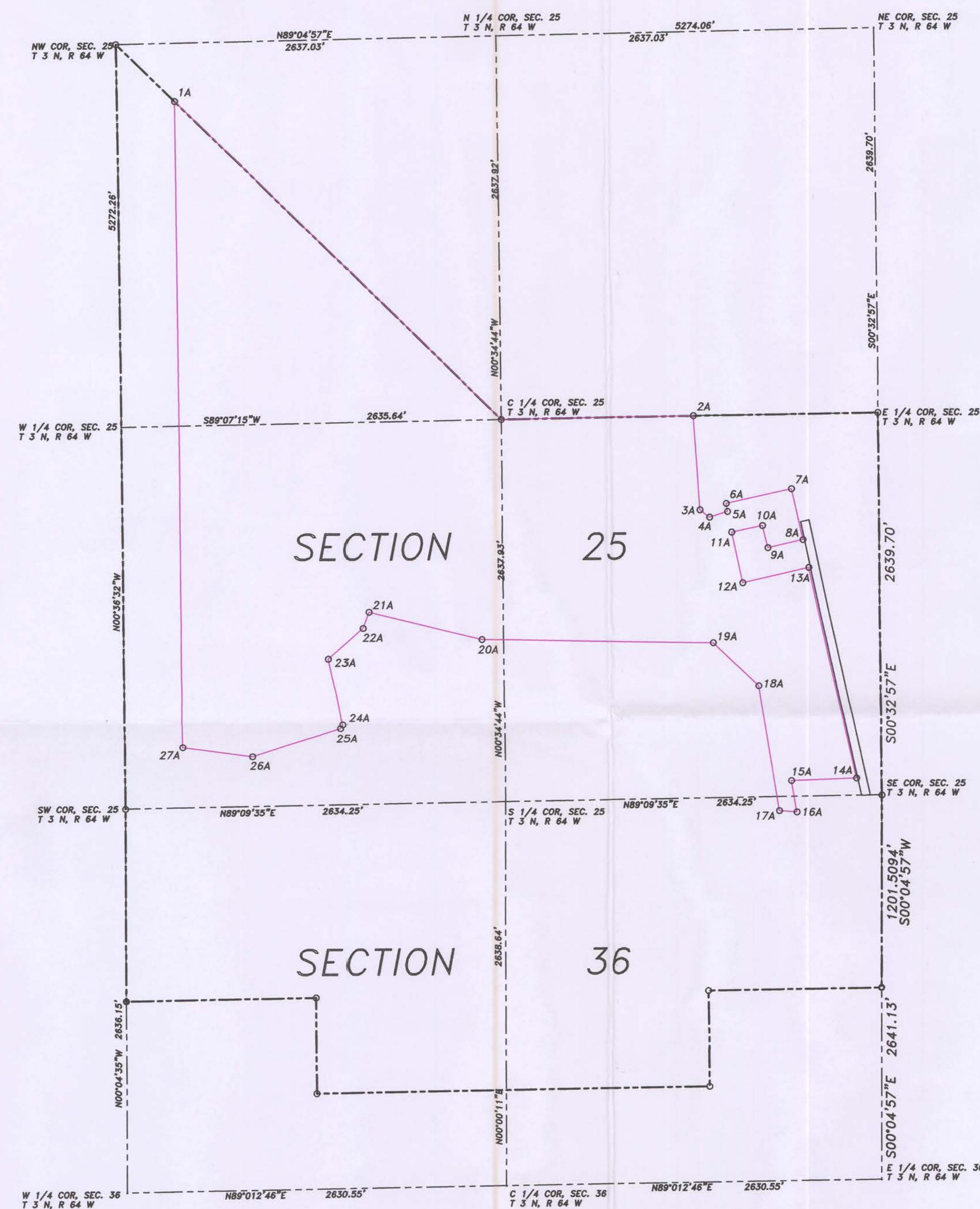
Robert D. Zuber, P.E.  
Environmental Protection Specialist

Enclosures: Appendix A-1, Permit Area Map,  
Site Geometry Plan for the Keenesburg Solar project,  
Findings for PR-03

EC: Ben Moline, Coors Energy Company







--- PROPERTY LINE/PERMIT BOUNDARY  
--- PERMIT BOUNDARY  
--- SECTION LINE/ 1/4 SECTION LINE

# COORS ENERGY PERMIT AREA

SECTIONS 25 & 36 TOWNSHIP 3 NORTH  
RANGE 64 WEST OF THE 6th P.M.  
KEENESBURG, WELD COUNTY, COLORADO.

## DESCRIPTION

A tract of land in Sections 25 and 36, Township 3 North, Range 64 West of the 6th P.M., Weld County, Colorado, described as follows:

Base Beginning at the Northwest corner of Section 25; THENCE South 45°44'19" East, 564.46 feet to a point 1A The Permit Beginning; THENCE South 45°44'19" East, 3154.45 feet to the Center 1/4 corner of Section 25; THENCE North 89°07'15" East, 1350.93 feet along the East-West centerline of said Section Reference point 2A; THENCE South 3°21'44" East a distance of 642.91 feet Reference point 3A; THENCE South 53°16'39" East a distance of 83.35 feet Reference point 4A; THENCE North 73°11'21" East a distance of 130.75 feet Reference point 5A; THENCE North 9°42'10" West a distance of 55.71 feet Reference point 6A; THENCE North 77°40'10" East a distance of 465.51 feet Reference point 7A; THENCE South 13°4'48" East a distance of 354.82 feet Reference point 8A; THENCE South 77°24'50" West a distance of 249.13 feet Reference point 9A; THENCE North 14°18'32" West a distance of 154.34 feet Reference point 10A; THENCE South 78°29'44" West distance of 218.37 feet Reference point 11A; THENCE South 12°47'57" East a distance of 352.4 feet Reference point 12A; THENCE North 77°17'57" East a distance of 469.45 feet Reference point 13A; THENCE South 12°40'46" East a distance of 1501.75 feet Reference point 14A; THENCE South 87°54'7" West a distance of 451.35 feet Reference point 15A; THENCE South 9°45'28" East a distance of 220.05 feet Reference point 16A; THENCE North 85°18'24" West a distance of 121.82 feet Reference point 17A; THENCE North 9°12'59" West a distance of 888.42 feet Reference point 18A; THENCE North 46°41'2" West a distance of 433.06 feet Reference point 19A; THENCE North 89°4'6" West a distance of 1625.6 feet Reference point 20A; THENCE North 76°23'12" West a distance of 809.23 feet Reference point 21A; THENCE South 19°59'5" West a distance of 116.87 feet Reference point 22A; THENCE South 48°53'44" West a distance 316.34 feet Reference point 23A; THENCE South 12°15'41" East a distance of 471.68 feet Reference point 24A; THENCE South 30°49'42" West a distance of 32.04 feet Reference point 25A; THENCE South 72°12'3" West a distance of 640.23 feet Reference point 26A; THENCE North 22°11'29" West a distance of 486.72 feet Reference point 27A; THENCE North 0°34'36" West a distance of 4447.96 feet to point 1A the Beginning.

Said Permit tract contains 225.55 acres, more or less.

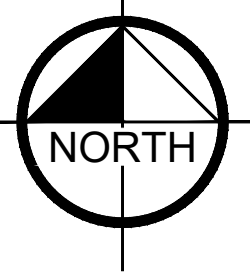
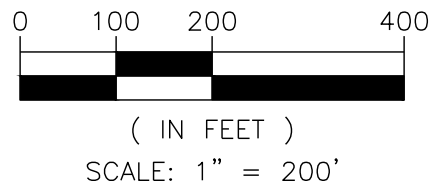
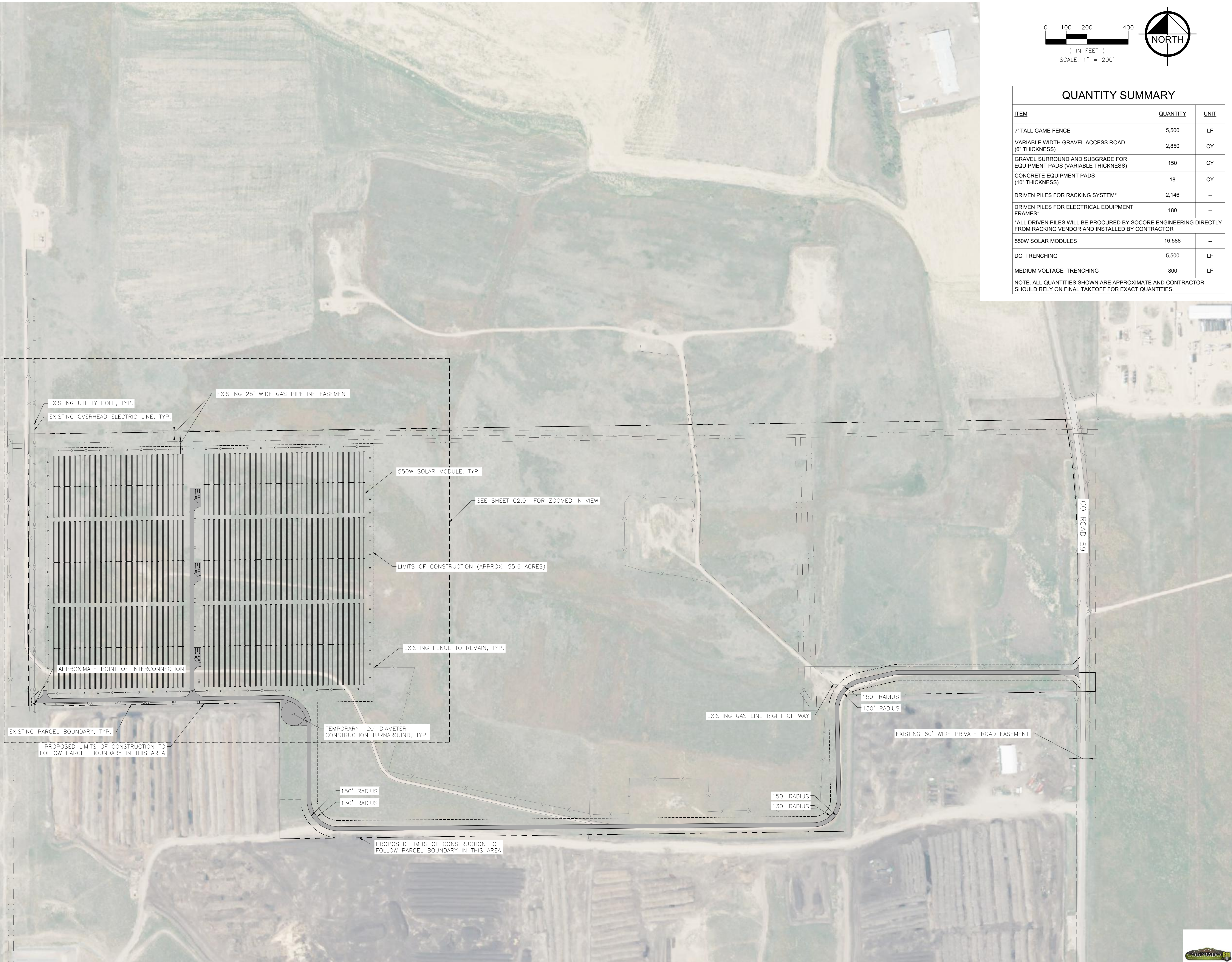
RECEIVED  
JUN 02 2016  
DIVISION OF RECLAMATION  
MINING AND SAFETY

TR-46  
Approved 11/1/16

## APPENDIX A-1

COORS ENERGY COMPANY GOLDEN, COLORADO PERMIT AREA MAP KEENESBURG MINE PERMIT AREA 2.03.4	
CLIENT: COORS ENERGY COMPANY	
PROJECT: SECTION 2.03.4	
DESIGNED BY: GRL	DATE COMPLETED: 3/00
DRAWN BY: CSL	APPROVED BY: JJK
REVISION:	DWG NAME: A-1-COORS PERMIT AREA MAP REV2016.dwg
1 REVISE EASEMENT BOUNDARY/ADD SAE 2A	REVISED BY: JGN/CJA [DATE: 05/2016]
2 REVISED PERMIT BOUNDARY	
3 PERMIT BOUNDARY REVISION	
AEC AMERICAN ENVIRONMENTAL CONSULTING, LLC.	





QUANTITY SUMMARY		
ITEM	QUANTITY	UNIT
7' TALL GAME FENCE	5,500	LF
VARIABLE WIDTH GRAVEL ACCESS ROAD (6" THICKNESS)	2,850	CY
GRAVEL SURROUND AND SUBGRADE FOR EQUIPMENT PADS (VARIABLE THICKNESS)	150	CY
CONCRETE EQUIPMENT PADS (10" THICKNESS)	18	CY
DRIVEN PILES FOR RACKING SYSTEM*	2,146	--
DRIVEN PILES FOR ELECTRICAL EQUIPMENT FRAMES*	180	--
*ALL DRIVEN PILES WILL BE PROCURED BY SOCORE ENGINEERING DIRECTLY FROM RACKING VENDOR AND INSTALLED BY CONTRACTOR		
550W SOLAR MODULES	16,588	--
DC TRENCHING	5,500	LF
MEDIUM VOLTAGE TRENCHING	800	LF
NOTE: ALL QUANTITIES SHOWN ARE APPROXIMATE AND CONTRACTOR SHOULD RELY ON FINAL TAKEOFF FOR EXACT QUANTITIES.		

ENGIE North America Inc.  
225 West Hubbard St. Suite 200  
Chicago, IL 60654

DEVELOPER

**SoCore Engineering**  
225 West Hubbard St. Suite 200  
Chicago, IL 60654  
1-877-SOCORE1

ENGINEER

REV.	DATE	ISSUANCE	DESCRIPTION
A	06.08.2024	ISSUE FOR CONTRACTOR PRICING	CONTRACTOR PRICING
B	03.06.2024	ISSUE FOR CONTRACTOR PRICING	REVISED DESIGN
C	03.06.2024	REISSUE FOR CONTRACTOR PRICING	REVISED EQUIPMENT PAD LOCATIONS
D	06.17.2024	REISSUE FOR CONTRACTOR PRICING	NO CHANGES

PROJECT NAME

KEENESBURG SOLAR

COUNTY ROAD 59

KEENESBURG, CO 80643

(40.185819, -104.490732)

SHEET NAME

SITE GEOMETRY PLAN - OVERALL

DESIGNER

WMM

REVIEWER

DBC

SCALE

AS NOTED

SHEET SIZE

24" X 36"

STAMP

PRELIMINARY

FOR REVIEW ONLY  
Not for Construction Purposes

**SoCore Engineering**

Engineer: TOMISLAV PULJIC, PE  
P.E. Number: 0061323  
Date: 06.17.2024

FOR:

CIVIL

TOMISLAV PULJIC, PE

SHEET NUMBER

C2.00





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

Proposed Decision  
and  
Findings of Compliance  
for the

Keenesburg Strip Mine  
C-1981-028

Permit Revision No. 3



November 5, 2024

Michael A. Cunningham, Director

Prepared by  
Robert D. Zuber, P.E.  
Environmental Protection Specialist

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## Introduction

This document is the decision package prepared by the Colorado Division of Reclamation, Mining and Safety (the Division) for the Keenesburg Strip Mine (Permit No. C-1981-028). This document includes:

1. The proposed decision to **approve** the permit revision application
2. A summary which includes a history of the review of the permit application, a description of the mine history and the environment affected by the operation, and a description of the mining and reclamation plan
3. The written findings of compliance the Division has made as required by the Colorado Surface Coal Mining Reclamation Act

Detailed information concerning the findings of compliance can be found in the Regulations of the Colorado Mined Land Reclamation Board for Coal Mining.

The Division has received an application for a permit revision related to surface coal mining and reclamation operations at the Keenesburg Strip Mine. The application was submitted by Coors Energy Company (CEC) and is assigned Permit Revision No. 3 (PR-03). This permit revision alters the mining plan to state that an option for the approved post-mining land use for the entire permit area is Industrial/Commercial. This will allow for renewable energy development at the site.

The Mine has been and will be operated by CEC. The mine is located on private lands within Weld County, Colorado. The lands included within the permit area are located within Township 3 North, Range 64 West, Sections 25 and 36 of the Sixth Principal Meridian.

## Proposed Decision

The Division proposes to **approve** the application for a permit revision (PR-03) for the Keenesburg Strip Mine.

This decision is based on a finding that the operations will comply with all requirements of the Colorado State Program as found in the Colorado Surface Coal Mining Reclamation Act, Section 34-33-101 *et seq.*, C.R.S., and the Regulations promulgated pursuant to the Act. If no request for a formal hearing is made within thirty (30) days of the first publication of the issuance of this proposed decision, then this decision becomes final. The revised permit application package (PAP), all supporting documentation, and any stipulations or conditions will become a binding part of the permit.

## **Summary**

### **The Review Process**

The PR-03 application was received by the Division on June 11, 2024. On July 11, 2024, the Division called the application complete, and notifications of the filing of a complete application for a permit revision were sent to the applicant, the Weld County Planning Department, the Weld County Commissioners, the Southeast Weld Conservation District, and the Hazardous Materials and Waste Management Division (within the Colorado Department of Public Health & Environment). CEC published notice of the PR-03 application once a week for four consecutive weeks in the Fort Lupton Press beginning on September 5, 2024 and ending September 26, 2024.

No comments were received by the Division regarding this application.

The Division issued one adequacy review letter dated July 12, 2024. CEC addressed all the adequacy review issues identified by the Division.

### **Mine History and Description of the Environment**

The Keenesburg Strip Mine is nearing the final phases of reclamation.

Coal extraction operations began in 1980 and ceased by 2001. During active surface coal extraction, the Number 7 Coal Seam of the Laramie Formation was mined.

Previous activity at the site included the controlled disposal of ash and mine waste rock as a portion of the backfill of mine pits. The importing of ash was completed by CEC in April 2016.

Some information on the mine's environment, operations, and reclamation activities are provided below. More detailed information about the mining and reclamation operations can be found in the PAP on file at the Division offices, located at 1313 Sherman Street, Room 215, in Denver, Colorado. The PAP is also available at <https://dnrweblink.state.co.us/drms/search.aspx>.

The current permit boundary contains approximately 226 acres. According to the 2023 Annual Reclamation Report, approximately 443 acres have been disturbed over the life of the mine. Per records for bond releases, approximately 263.7 acres have been previously approved for Phase III bond release at the Keenesburg Strip Mine. An additional release of 30.55 acres is pending with Bond Release No. 12 (SL-12).

#### *Geology, Soils and Topography*

The permit area is located on level to gently rolling topography consisting of fine sand, which is wind-deposited material overlying weathered residual shale. The sand varies in depth from about 5 feet to 20 feet, is highly to moderately permeable, and is highly susceptible to wind erosion. The flat-lying Number 7 coal seam was overlain by 60-180 feet of overburden.



consisting of yellow-brown and gray to blue gray soft carbonaceous shale and clay interbedded with sandstone and shaley sandstone. At the base of the Laramie formation is the Fox Hills member, a cross-bedded gray to buff sandstone, which is slightly or well cemented.

#### *Surface and Groundwater*

Because of the low relief and deep, well-drained soils, there is virtually no surface runoff. No streams, springs, or seeps exist in the area. All water flows subsurface through aeolian deposits to Ennis Draw, a topographic swale (ephemeral drainage) located along the eastern boundary of the permit area. Ennis Draw appears to be a complex, braided, ancient stream bed that has been covered by windblown sand. The draw discharges several miles to the north into Box Elder Creek.

Groundwater moves laterally toward the northeast, and apparently discharges into the sands and stream deposits in Ennis Draw.

At the time the mine was originally permitted, groundwater in neither the coal nor overburden was known to provide a water supply for any purpose in the vicinity of the mine. Since that time, groundwater is being drawn for industrial uses at the mine, and several other wells have been drilled in the vicinity of the mine (per a review of State Engineer Records). However, no adverse impact from the mine has been observed or is expected, due to the geologic and hydrologic conditions of the site.

#### *Climate*

The mine site is situated in an area which has a “continental” type of climate, characterized by low relative humidity, a large amount of sunshine, light rainfall, moderately high winds, and large daily range in temperature. Average monthly temperatures are presented in the following table. The data are from Weather Trends (<https://www.weather Trends360.com>). These data are all within a couple degrees of data for Brighton, Colorado from the Western Regional Climate Center ([wrcc@dri.edu](mailto:wrcc@dri.edu)), which is affiliated with NOAA and a leading authority on Colorado weather and climate. (WRCC data does not include an extensive dataset for Keenesburg itself.)

#### **Average Monthly Temperature at Keenesburg, Colorado**

*(All values in degrees Fahrenheit.)*

	J	F	M	A	M	J	J	A	S	O	N	D
Average high	45	47	57	63	72	84	90	87	80	67	55	45
Average low	19	21	28	35	44	53	59	57	49	38	27	19

For the years 2008 through 2023, annual precipitation ranged from 8.31 to 21.88 inches with a mean of 14 inches (from National Weather Station data for nearby Brighton, Colorado).

#### *Vegetation, Wildlife and Land Use*

The undisturbed lands in the permit area are moderately to well stabilized by a sandsage-prairie sandreed plant association that is used primarily for grazing by cattle in summer months.

Using the United State Fish and Wildlife Service’s (USFWS) IPaC program available through the USFWS website, there are three endangered plant species that have the potential to be found



within the permit area. These species include Colorado Butterfly Plant, Ute Ladies' Tresses Orchid, and Western Prairie Fringed Orchid.

Wildlife is limited to small rodents, primarily field mice, and birds, including an owl that is often seen at Sediment Pond 2. Deer and pronghorn are rare, as are most higher order vertebrates, but pronghorn and coyotes have been seen at the site. There are no known threatened or endangered animal species, nor habitats for these species, in the area. The IPaC program states that there are no critical habitats within the permit area.

The premining land use classification of the area was rangeland, as shown on the general soil map of Weld County (from the Soil Conservation Service and included in the PAP on page 37). The current postmining land use of the permit area is also rangeland. The land cannot support a variety of uses under existing technologies and local resources. All attempts at dryland farming on the area have been abandoned. If approved, this permit revision would alter the postmining land use for the site to include the option of industrial/commercial.

The premining soil capability class is VIe for irrigated and non-irrigated Valent soils. Osgood soils have capability classes of IVe for irrigated crops and VIe for non-irrigated conditions.

## **Description of the Operation and Reclamation Plans**

Mining activities and ash disposal activities have been terminated at the site. Most of the site reclamation has been performed, including the spreading of topsoil (referred to as topsand in CEC's permit) and seeding.

### *Topsoil Stripping and Replacement Depths*

No further stripping of topsoil or topsand is anticipated at the site. Only reclamation activities are anticipated. Replacement depths of topsand are:

- Two feet over overburden spoil cover (on ash disposal areas)
- Two feet over roads
- Fifteen inches over the long-term spoil area
- Six inches over facilities and topsand storage areas

### *Revegetation Techniques*

The approved revegetation plan emphasizes native species planting resulting in a diverse, permanent, effective plant community capable of self-regeneration. The current seed mix is included in Section 2.05.4 of the PAP.

Manure or organic mulch was spread on the topsand. The approved seed mix was drill seeded through the organic mulch. Small areas that require reseeding may be broadcast. Two seeding windows have been used at the site:

1. March 15 to June 1 (spring)
2. September 15 to December 15 (autumn).



The reclamation plan states that a stubble mulch (e.g., sorghum) may be applied in the spring or fall prior to seeding of the permanent seed mix. Hay/straw mulch, hydromulch and tackifier, soil amendments, and compost products may also be used. No irrigation is proposed.

The site is currently inspected at least quarterly for pests and diseases. No infestations of pests or plant diseases have been identified.

Grazing is prohibited during the first two years of vegetation establishment on reclaimed areas. Grazing may be allowed thereafter. Grazing will not be allowed to interfere with vegetation sampling for monitoring or bond release purposes, and eligible areas will not be grazed during the growing season prior to sampling.

Revegetated areas that have experienced three or more growing seasons are monitored for success standards of cover and production. Eligible areas are sampled in the last two consecutive growing seasons prior to final bond release, but not earlier than years nine and ten of the extended liability period.

#### *Disposal of Waste*

There are no coal processing wastes or mine development wastes on site, nor will any be generated by current or anticipated future activities. Non-coal waste generated by demolition of facilities was placed in the pits between the limits of five feet above the local ground water table and four feet below Approximate Original Contour (AOC). Ash generated off-site at the Trigen Colorado Steam Plant in Golden, Colorado and mine waste rock from other sites was permitted for placement in pits, and this activity continued for many years. The ash was placed five feet above the local ground water table and covered with six feet of overburden spoil and two feet of topsand.

#### *Other Reclamation*

The main facilities area was approved for an Industrial/Commercial postmining land use at the site. This area was released with SL-08.

The Dugout Pond, Sediment Pond 2, and associated drainage ditches have been approved to remain permanently. The explosive storage facilities have been demolished. Monitoring wells will be sealed with a cement grout plug.

#### *Water Rights and Usage.*

Historically, two wells on the site were permitted with the Division of Water Resources (PAP, Section 2.03.10). One well was for domestic use and one for fire protection. Currently, no water usage is required for the reclamation activities.



# **Findings of the Colorado Division of Reclamation, Mining and Safety for the Keenesburg Strip Mine**

## **Explanation of Findings**

Pursuant to Rule 2.07.6(2) of the Regulations of the Colorado Mined Land Reclamation Board for Coal Mining, and the approved state program, the Division of Reclamation, Mining and Safety or the Board must make specific written findings prior to issuance of a permit, permit renewal, or permit revision. These findings are based on information made available to the Division that demonstrates that the applicant will be able to operate in compliance with the Colorado Surface Coal Mining Reclamation Act and the Regulations promulgated pursuant to the Act.

The findings in the following sections required by Rule 2.07.6(2) are listed in accordance with that Rule. The findings and specific approvals required pursuant to Rule 2.07.6(2)(m) are listed in accordance with Rule 4 and are organized under subject or discipline subtitles.

This findings document has been updated for this permit revision (PR-03). The following findings have been reevaluated and updated if necessary to reflect changes which will occur as a result of this permit revision.

## **Section A - Rule 2.07.6**

1. The permit application is accurate and complete. All requirements of the Act and these rules have been complied with [2.07.6(2)(a)].
2. Based on information contained in the permit application and other information available to the Division, the Division finds that surface coal mining and reclamation can be feasibly accomplished at the Keenesburg Strip Mine [2.07.6(2)(b)].
3. The assessment of the probable cumulative impacts of all anticipated coal mining in the general area on the hydrologic balance, as described in 2.05.6(3), has been made by the Division. This assessment entitled "Cumulative Hydrologic Impact Assessment Boulder/Weld Coal Field CHIS Coors-Keenesburg," is available for inspection at the offices of the Division. The Division finds that the operations proposed under the application have been designed to prevent damage to the hydrologic balance outside the proposed permit area. Please refer to Section B.V. of this document (Hydrologic Balance) for additional discussion of the predicted hydrologic consequences of mining operations at the Keenesburg Strip Mine [2.05.6(3) and 4.05].
4. The Division finds that the affected area is, subject to valid rights existing as of August 3, 1977, not within:



- a) An area designated unsuitable for surface coal mining operations [2.07.6(2)(d)(i)];
  - b) An area under study for designation as unsuitable for surface coal mining operations [2.07.6(2)(d)(ii)];
  - c) The boundaries of the National Park System, the National Wildlife Refuge System, the National System of Trails, the National Wilderness Preservation System, the Wild and Scenic Rivers System including rivers under study for designation, and National Recreation Areas [2.07.6(2)(d)(iii)(A)];
  - d) Three hundred feet of any public building, school, church, community or institutional building, or public park [2.07.6(2)(d)(iii)(B)];
  - e) One hundred feet of a cemetery [2.07.6(2)(d)(iii)(C)];
  - f) The boundaries of any National Forest [2.07.6(2)(d)(iii)(D)];
  - g) One hundred feet of the outside right-of-way line of any public road except where mine access or haul roads join such line and excepting any roads for which the necessary approvals have been received, notices published, public hearing opportunities provided, and written findings made [2.07.6(2)(d)(iv)];
  - h) Three hundred feet of an occupied dwelling [2.07.6(2)(d)(v)].
5. On the basis of information submitted by CEC in the form of a letter (written by Cultural Resource Consultants, Inc., November 10, 1978, on file as Appendix E-1 in the PAP), the Division finds that subject to valid existing rights as of August 3, 1977, the mining operation will not adversely affect any publicly owned park or place listed on or eligible for listing in the National Register of Historic Places as determined by the State Historic Preservation Office [2.07.6(2)(e)(i)].
  6. For this surface mining operation, private mineral estate has been severed from private surface estate. Therefore, the documentation specified by Rule 2.03.6(2) has been provided in Section 2.03.6 of the PAP [2.07.6(2)(f)].
  7. On the basis of evidence submitted by the applicant and received from other state and federal agencies as a result of the Section 34-33-114(3) compliance review required by the Act, the Division finds CEC does not own or control any operations that are currently in violation of any law, rule, or regulation of the United States (including any provision of the Surface Mining Control and Reclamation Act). Nor does CEC own or control any operations that are currently in violation of any State law, rule, or regulation (including any provision of the Act) [2.07.6(2)(g)(i)].
  8. CEC does not control and has not controlled mining operations with a demonstrated pattern of willful violations of the Act of such nature, duration, and with such resulting



irreparable damage to the environment as to indicate an intent not to comply with the provisions of the Act [2.07.6(2)(h)].

9. The Division finds that surface coal mining and reclamation operations to be performed under this permit will not be inconsistent with other such operations anticipated to be performed in areas adjacent to the permit area [2.07.6(2)(i)].
10. The Division estimates the reclamation liability for mining operations in this permit term to be \$687,020.00. The Division currently holds a \$818,446.00 performance bond for the Keenesburg Strip Mine. CEC need not submit an additional performance bond at this time.
11. The Division has made a negative determination for the presence of prime farmland within the permit area. The decision was based on a letter from the Natural Resources Conservation Service (formerly the SCS) dated May 29, 1981. This letter (included in the PAP, page 101) states that no prime farmland mapping units are found within the permit area [2.07.6(2)(k)].
12. The Division has made a negative determination for the existence of alluvial valley floors within the permit area. This determination is based on information provided by the applicant and included in the PAP in Section 2.06.8 and in Appendixes I-1 and I-2 [2.07.6(2)(k) and 2.06.8(3)(c)].
13. The Division has approved the post-mining land uses of the operation as Industrial/Commercial and Rangeland. It was determined that a rangeland designation meets the requirements of Rule 4.16 for the permit area [2.07.6(2)(l)].
14. Specific approvals have been granted or are proposed. These approvals are addressed in Section B below [2.07.6(2)(m)].
15. The Division finds that the activities proposed by the applicant would not affect the continued existence of endangered or threatened species or result in the destruction or adverse modification of their critical habitats [2.07.6(2)(n)].
16. The Division has contacted the Office of Surface Mining, Reclamation Fees Branch. As of this time, CEC is current in the payment of reclamation fees required by 30 CFR Chapter VII, subchapter R [2.07.6(2)(o)].

## **Section B - Rule 4**

The PAP for the Keenesburg Mine does not have section names that correspond to Section 4 of the Rules. However, the operations plan, found under Section 2.05.3 of the PAP, contains the necessary information as discussed below.

### ***I. Rule 4.01 General Provisions***

The Division finds that performance standards and design requirements of the permit will provide for the scope and objectives of general provisions of Rule 4.01.

### ***II. Rule 4.02 Signs and Markers***

Signs and appropriate permit markers are erected and in place at the site. An entrance sign in compliance with Rule 4.02 is in place.

### ***III. Rule 4.03 Roads***

#### Haul Roads

Hauling of coal, spoil, and coal mine waste has been terminated at the Keenesburg Mine, and there are no plans to resume these activities. Ash importation into the mine ceased in April 2016. Haul roads at the site have been re-classified as access roads [4.03.1].

#### Access Roads

Access roads were designed, constructed, and certified by a registered professional engineer [4.03.2(1)(d)]. The access roads onsite have been reclaimed.

#### Light Use Roads

Light use roads have been designed and constructed in accordance with Rule 4.03.3(7). Some light use roads are permitted to be left in support of approved post-mining land use.

### ***IV. Rule 4.04 Support Facilities***

No new support facilities are anticipated on the site. The construction of existing support facilities has not damaged or caused disruption of any pipelines, railroads, or utility lines that pass over, under, or through the permit area. The Division approved onsite support facilities [4.04(6)].



Within the current boundary of the permit for the Keenesburg Strip Mine, there are no gas wells or related facilities. Several gas wells were installed within the previous permit area by third parties, but these areas have been released from the permit.

## ***V. Rule 4.05 Hydrologic Balance***

### Water Quality Standards and Effluent Limitations

CEC has established drainage systems, including sediment ponds, to meet the applicable State and Federal water quality requirements for downstream receiving waters (Rule 4.05.2).

There is currently no surface water monitoring at the Keenesburg Mine Site, because there is no point of surface water discharge. On December 18, 1989, Technical Revision 23 approved the deactivation of the Colorado Discharge Permit System (CDPS) permit, and the Department of Health (former name of CDPHE) concurred with this decision. Permit COG-850038 was later reinstated with an expiration date of June 30, 1997. CEC again proposed, and CDPHE approved, the expiration of the CDPS permit without renewal (the CDPHE letter regarding the Request for Inactivation of this permit can be found in Section 2.03 of the PAP).

Because of the limited size of certain small, disturbed areas, (topsand storage and reference area sites), the Division proposes to continue the approved exemption from the requirement to have runoff from these areas report to sediment ponds. Also, ponds and treatment facilities are not necessary for drainage to meet the effluent limitations of Rule 4.05.2 and applicable State and Federal water quality standards for receiving streams. The small areas to be exempted are described in the Index Maps and Legal Description sections of the PAP [4.05.2(3)(b)(i)].

### Ground Water Monitoring Plan

The following ground water monitoring plan is required by Rule 4.05.13(1).

## Monitoring Wells

The table below summarizes well information. Elevations are top of casing elevations.

Well	Elev.	Aquifer	Location
FPW	4780	Ennis Draw	Mine
DH-96	4764	Ennis Draw	Downstream from Mine
DH-122	4814	Ennis Draw	Upstream from Mine
SMW-2	4803	Reclaimed Spoil	Mine
AMW-1	4804	Undisturbed Overburden	Downstream of B Pit
AMW-2	4811	Reclaimed Spoil	Downstream of A Pit

Well sampling and water levels of subsurface water are taken from these six wells quarterly.

The sampling parameters are:

- Calcium - dissolved
- Iron - dissolved
- Magnesium - dissolved
- Manganese - dissolved
- Molybdenum - dissolved
- Sodium - dissolved
- Selenium - dissolved
- Lead - dissolved
- Hardness (as  $\text{CaCO}_3$ )
- Alkalinity, total (as  $\text{CaCO}_3$  to pH 4.5)
- Carbonate (as  $\text{CO}_3$ )
- Bicarbonate (as  $\text{HCO}_3$ )
- pH (pH units)
- Specific conductance (mmhos/cm)
- Chloride
- Hydroxide (as  $\text{OH}^-$ )
- Sulfate ( $\text{SO}_4$ )
- Total dissolved solids (at 180 degrees C)
- SAR (sodium absorption ratio)
- Barium (added in 1998)
- Arsenic (added in 2000)
- Cadmium (added in 2000)



The Division requires the sealing of drilled holes. Each hole, well, or other underground opening shall be capped, sealed, backfilled, or otherwise properly managed (Rule 4.07.3).

#### Diversions and Conveyance of Overland Flow

There are two approved permanent diversion ditches for the conveyance of overland flow from disturbed areas to Permanent Sediment Pond 2.

There are no, and there is no requirement for, diversions on an existing landslide [4.05.3(5)].

#### Stream Channel Diversions

There are no, and there is no requirement for, stream channel diversions [4.05.4(1) and (4)].

#### Sedimentation Ponds

Permanent Sedimentation Pond 2 is in compliance with Rule 4.05.6.

#### Acid-forming and Toxic-forming Spoil

No acid-forming or toxic-forming spoils are known to exist on the site [4.05.8(3)].

#### Impoundments

Both the Dugout Pond and Sediment Pond 2 have been approved as permanent in accordance with Rule 4.05.9(13).

#### Transfer of Wells

No transfer of wells is proposed in the Application [4.05.14 (2)].

#### Discharge of Water into an Underground Mine

There is no discharge of water into an underground mine at the site [4.05.16(2)].

#### Stream Buffer Zones

There are no, and there is no requirement for, stream buffer zones on the site (Rule 4.05.18(1)).

#### Probable Hydrologic Consequences

Probable hydrologic consequences are presented in the Water Resources and Impact Evaluation Report, Appendix I of the PAP, as well as the Annual Hydrology Reports. It is the Division's opinion that mining and reclamation activities at the Keenesburg Strip Mine have had no appreciable effect on the hydrologic balance of the area, and future activities will not significantly impact the hydrologic balance.

## ***VI. Rule 4.06 Topsoil***

The mine operated in compliance with the general requirements (Rule 4.06.1), removal (Rule 4.06.2), and storage (Rule 4.06.3) of topsoil. No additional stripping operations of undisturbed topsand (topsoil) are anticipated. CEC proposes to continue reclamation activities in compliance with redistribution requirements (Rule 4.06.4).

## ***VII. Rule 4.07 Sealing of Drilled Holes and Underground Openings***

All former drill holes at the mine site have been changed to ground water monitoring sites, mined through, or permanently plugged. CEC plans to continue to comply with the requirement of Rule 4.07 regarding the sealing of drilled holes.

## ***VIII. Rule 4.08 Use of Explosives***

Explosives (for mining) are no longer used on the site.

## ***IX. Rule 4.09 Disposal of Excess Spoil***

All spoil has been redistributed over disturbed areas [4.09.1(1)].

## ***X. Rule 4.10 Coal Mine Waste Banks***

There are no coal mine waste banks on the site. No coal mine waste is anticipated to be generated as the site is in the reclamation phase [4.10.1(1)].

## ***XI. Rule 4.11 Coal Mine Waste***

There is no coal processing waste or underground development waste generated, and none is anticipated, at the site. Thus, the disposal of coal mine waste is not applicable to the permit.

## ***XII. Rule 4.12 Slides and Other Damage***

No slides or other damage (other than minor erosion) have been recorded at the site.



### ***XIII. Rule 4.13 Contemporaneous Reclamation***

Variances to contemporaneous reclamation were granted during mining operations for the backfilling and grading of Pit A and Pit B. The Backfilling and Grading section below describes this in more detail.

### ***XIV. Rule 4.14 Backfilling and Grading***

CEC requested additional time for backfilling and grading following coal removal from the contour strip mine. A detailed written analysis provided by CEC in accordance with Section 2.05.4(2)(c) has demonstrated that additional time was necessary. Therefore, the Division approved the additional time [4.14.1(1)]. A variance was granted on February 28, 1989 to allow for use of the A and B pits as ash and mine waste rock disposal sites (Technical Revision 20). Disposal of ash has been discontinued.

The Division approved a minor modification of the general requirements of Rule 4.14.2 for reclamation of Pits A and B to approximate original contour to accommodate the disposal of ash and mine waste rock (PAP, Section 2.05.4, page 114). Slopes are slightly steeper to reduce infiltration to the buried ash.

### ***XV. Rule 4.15 Revegetation***

The approved revegetation plan emphasizes native species as illustrated in the seed mix on page 118. A sorghum mulch was approved as an optional means to meet soil stabilization requirements until vegetation is re-established (Rule 4.15.4).

Approved methods to measure herbaceous cover, production, and species diversity are discussed in the PAP, Section 2.04.10. Reclamation success for vegetative cover and herbaceous productivity are determined using two approved equations that accounts for effective precipitation. These equations for reclamation success were derived from data collected on the Osgood reference area over a ten-year period. The Osgood reference area itself is no longer needed for comparison upon approval of TR-37 (PAP, Section 2.05.4).

The reclamation success criteria for species composition are:

- A minimum of four perennial species
- A minimum of three warm season perennial grass species
- For each species, a relative importance of no more than 40 percent or less than three percent

For this permit, there is no density standard for woody plant reestablishment.

To determine if these success criteria were met, vegetation monitoring must be conducted as described in Section 2.05.4.

## ***XVI. Rule 4.16 Post-mining Land Use***

Throughout the history of the permit for the Keenesburg Strip Mine, the majority of the site has been classified as rangeland (with exceptions for mine facilities and oil and gas facilities, which have been removed from the permit). With PR-03, CEC is proposing an alternative post-mining land use of industrial/commercial. The Division finds that both land uses meet the criteria of Rule 4.16.3

## ***XVII. Rule 4.17 Air Resource Protection***

The Colorado Department of Public Health and Environment (CDPHE) administers emission permits in Colorado. Air emission permits for the Keenesburg Strip Mine have been canceled, and reclamation activities were redesignated to Air Pollution Emission Notice (APEN) required status.

## ***XVIII. Rule 4.18 Protection of Fish, Wildlife and Related Environmental Values***

There is no fish habitat on the site. The PAP describes the habitat for terrestrial wildlife. Potential impacts to many species of mammals, birds, and reptiles are also described in the PAP, as well as their recovery after reclamation (Section 2.04.11). There are no known endangered species in the area.

The applicant has selected appropriate plant species and distributions to benefit wildlife [4.18(5)(i)].

## ***XIX. Rule 4.19 Protection of Underground Mining***

There were no underground mining activities at the site, and none are planned [4.19(1) and 4.22.4(1)].

## ***XX. Rule 4.20 Subsidence Control***

No potential for subsidence exists at the site, thus no control plan is required.

## ***XXI. Rule 4.21 Coal Exploration***

There is no longer any coal exploration on site.

## ***XXII. Rule 4.22 Concurrent Surface and Underground Mining***

There has never been underground mining at the site. Furthermore, all mining has ceased at the site, and there are no plans to re-initiate mining.

## ***XXIII. Rule 4.23 Auger Mining***

There was no auger mining at the site, and none is planned.

## ***XXIV. Rule 4.24 Operations in Alluvial Valley Floors***

The Division concurred that there is no alluvial valley floor on the site (PAP, Section 2.06.8).

## ***XXV. Rule 4.25 Operations on Prime Farmland***

The Division concurred that there is no prime farmland within the permit boundary (PAP, Section 2.04.12).

## ***XXVI. Rule 4.26 Mountaintop Removal***

No mountaintop removal operations are associated with the site.

## ***XXVII. Rule 4.27 Operations on Steep Slopes***

No operations on steep slopes are associated with the site.

## ***XXVIII. Rule 4.28 External Plants and Facilities***

There are no coal processing plants and support facilities located beyond the permit area for the mine that are associated with the permitted activity.

## ***XXIX. Rule 4.29 In Situ Processing***

No in-situ processing was or is planned for the site.



### ***XXX. Rule 4.30 Cessation of Operations***

Coal extraction has ceased at this mine. Reclamation activities are proposed to occur through the next five-year term.