

Appendix 12(4)

King II

June 17, 2020 (TR-29 AR #2)



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

June 16, 2020

Mr. Tom Bird
GCC Energy, LLC
6473 County Road 120
Hesperus, CO 81326

Re: King Coal Mine, C1981-035, Reclamation Cost Estimate for TR29 Memo

Dear Mr. Bird:

The Division has conducted a reclamation cost estimate for the proposed technical revision No. 29.

The Division used similar methodologies and assumptions that were used for similar reclamation tasks during the 2017 Permit Renewal Reclamation Cost Estimate (RN7).

For example portal sealing costs for TR29, task 10, were calculated similarly to RN7 task 100, but adjusted for TR29 dimensions and volumes.

Equipment choices were based on similar tasks from the RN7 estimate.

Volumes and haul distances were determined from TR29 Map King II-010E (5/8/2020), TR29 Map King II -007M, and TR29 page 2.05.4-18.

Equipment mobilization/demobilization and maintenance costs were not included in the TR29 estimate, since only tasks specific to the proposed TR29 changes were included in this estimate. Equipment mobilization costs are included in the overall site-wide reclamation cost estimate.

The Division calculated that reclamation costs associated with this technical revision are \$108,545.00. The Division's Reclamation cost Estimate is attached to this letter. Please contact me if you have questions regarding the Division's estimate.

Sincerely,

Janet H. Binns
Environmental Protection Specialist III

CC: Sarah Vance, (GCC Rio Grande, Inc) via e-mail
Attachment: TR29 Reclamation Cost Estimate.



Recipient
Page 2 of 2
Date

COST SUMMARY WORK

Task description: Reclaim TR29 King III portals and access road

Site: King Coal Mine

Permit Action: TR29

Permit/Job#: C1981035

PROJECT IDENTIFICATION

Task #: 000

State: Colorado

Abbreviation: None

Date: 6/16/2020

County: La Plata

Filename: C035-000

User: JHB

Agency or organization name: DRMS

TASK LIST (DIRECT COSTS)

| Task | Description | Form Used | Fleet Size | Task Hours | Cost |
|--------------------------|---|-----------|------------|--------------|-----------------|
| 10 | Seal King III portals | MINESEAL | 1 | 24.00 | \$81,949 |
| 30 | King III portals - grade access road, | DOZER | 1 | 3.32 | \$789 |
| 36 | rip King III portal access road | RIPPER | 1 | 0.64 | \$159 |
| 40 | King II - topsoil from stockpile on KIII portals & access rd. | TRUCK1 | 1 | 7.48 | \$2,110 |
| 44 | King III portals revegetate Pinyon-Juniper areas 2.1 acres | REVEGE | 1 | 2.00 | \$5,271 |
| <u>SUBTOTALS:</u> | | | | 37.44 | \$90,278 |

INDIRECT COSTS

OVERHEAD AND PROFIT:

Liability insurance: 2.02
Performance bond: 1.05
Job superintendent: 18.72
Profit: 10.00

Total = \$1,824

Total = \$948

Total = \$1,299

Total = \$9,028

TOTAL O & P = \$13,098

CONTRACT AMOUNT (direct + O & P) = \$103,376

LEGAL - ENGINEERING - PROJECT MANAGEMENT:

Financial warranty processing (legal/related costs): \$0
Engineering work and/or contract/bid preparation: 0.00
Reclamation management and/or administration: 5.00

Total = \$0

Total = \$0

\$5,169

CONTINGENCY: 0.00

Total = \$0

TOTAL INDIRECT COST = \$18,267

TOTAL BOND AMOUNT (direct + indirect) = \$108,545

SAFEGUARDING UNDERGROUND OPENINGSTask description: **Seal King III portals**Site: **King Coal Mine**Permit Action: **TR29**Permit/Job#: **C1981035****PROJECT IDENTIFICATION**Task #: **10**State: **Colorado**Abbreviation: **None**Date: **6/16/2020**County: **La Plata**Filename: **C035-10**User: **JHB**Agency or organization name: **DRMS****UNIT COSTS**

| Opening Description | Dimensions | Closure Method | Quantity | Unit | Unit Cost | Total Cost |
|----------------------------|-------------------|---|-----------------|-------------|------------------|-------------------|
| Portal 1 seal | 136 | Adit closure - bulkhead seal, >= 36 sq. ft. (per sq. ft.) | 136.00 | SF | \$171.67 | \$23,346.67 |
| Portal 1 drain pipe | 165 | PVC drain pipe, 6 in. diameter (per ln. ft. incl. mat. & labor) | 165.00 | LF | \$11.30 | \$1,864.50 |
| Portal 1 backfill | 882 | Adit closure - backfilling (per opening) | 1.00 | EA | \$2,105.30 | \$2,105.30 |
| Portal 2 seal | 136 | Adit closure - bulkhead seal, >= 36 sq. ft. (per sq. ft.) | 136.00 | SF | \$171.67 | \$23,346.67 |
| Portal 2 drain pipe | 165 | PVC drain pipe, 6 in. diameter (per ln. ft. incl. mat. & labor) | 165.00 | LF | \$11.30 | \$1,864.50 |
| Portal 2 backfill | 882 | Adit closure - backfilling (per opening) | 1.00 | EA | \$2,105.30 | \$2,105.30 |
| Portal 3 seal | 136 | Adit closure - bulkhead seal, >= 36 sq. ft. (per sq. ft.) | 136.00 | SF | \$171.67 | \$23,346.67 |
| Portal 3 drain pipe | 165 | PVC drain pipe, 6 in. diameter (per ln. ft. incl. mat. & labor) | 165.00 | LF | \$11.30 | \$1,864.50 |
| Portal 3 backfill | 882 | Adit closure - backfilling (per opening) | 1.00 | EA | \$2,105.30 | \$2,105.30 |

Job Hours: 24.00**Total Cost: \$81,949.41**

BULLDOZER WORKTask description: **King III portals - grade access road,**Site: **King Coal Mine**Permit Action: **TR29**Permit/Job#: **C1981035****PROJECT IDENTIFICATION**Task #: **30**State: **Colorado**Abbreviation: **None**Date: **6/16/2020**County: **La Plata**Filename: **C035-30**User: **JHB**Agency or organization name: **DRMS****HOURLY EQUIPMENT COST**Basic Machine: **Cat D8T - 8SU**Horsepower: **310**Blade Type: **Semi-Universal**Attachment: **3-shank ripper**Shift Basis: **1 per day**Data Source: **(CRG)****Cost Breakdown:**

| | | <u>Utilization %</u> |
|------------------------|----------|----------------------|
| Ownership Cost/Hour: | \$103.86 | NA |
| Operating Cost/Hour: | \$82.26 | 100 |
| Ripper own. Cost/Hour: | \$10.43 | NA |
| Ripper op. Cost/Hour: | \$0.00 | 0 |
| Operator Cost/Hour: | \$41.24 | NA |

Total unit Cost/Hour: **\$237.79**Total Fleet Cost/Hour: **\$237.79****MATERIAL QUANTITIES**Initial Volume: **1,707**Swell factor: **1.165**Loose volume: **1,989 LCY**Source of estimated volume: **Map King II-007M (5/8/2020)**Source of estimated swell factor: **Cat Handbook****HOURLY PRODUCTION**Average push distance: **50 feet**Unadjusted hourly production: **1,400.0 LCY/hr**Materials consistency description: **Consolidated stockpile 1.0**Average push gradient: **5 %**Average site altitude: **7,500 feet**Material weight: **2,900 lbs/LCY**Weight description: **Decomposed rock - 50% Rock, 50% Earth****Job Condition Correction Factor**

| | | <u>Source</u> |
|-----------------------|-------|---------------|
| Operator Skill: | 0.750 | (AVG.) |
| Material consistency: | 1.000 | (CAT HB) |
| Dozing method: | 1.200 | (SLOT) |

| | | |
|------------------|-------|---------------|
| Visibility: | 1.000 | (AVG.) |
| Job efficiency: | 0.830 | (1 SHIFT/DAY) |
| Spoil pile: | 0.800 | (FND-RF) |
| Push gradient: | 0.903 | (CAT HB) |
| Altitude: | 1.000 | (CAT HB) |
| Material Weight: | 0.793 | (CAT HB) |
| Blade type: | 1.000 | (PAT) |

Net correction: 0.4279

Adjusted unit production: 599.06 LCY/hr
Adjusted fleet production: **599.06** LCY/hr

JOB TIME AND COST

Fleet size: 1 Dozer(s)
Unit cost: \$0.397/LCY

Total job time: **3.32** Hours
Total job cost: **\$789**

BULLDOZER RIPPING WORKTask description: **Rip King III portal access road**Site: **King Coal Mine**Permit Action: TR29Permit/Job#: C1981035**PROJECT IDENTIFICATION**Task #: 36State: ColoradoAbbreviation: NoneDate: 6/16/2020County: La PlataFilename: C035-36User: JHBAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Basic Machine: Cat D8T - 8SUHorsepower: 310Ripper Attachment: 3-Shank RipperShift Basis: 1 per dayData Source: (CRG)**Cost Breakdown:**

| | | Utilization % |
|-----------------------------|-----------------|---------------|
| Ownership Cost/Hour: | \$103.86 | NA |
| Operating Cost/Hour: | \$82.26 | 100 |
| Ripper Ownership Cost/Hour: | \$10.43 | NA |
| Ripper Operating Cost/Hour: | \$8.38 | 100 |
| Operator Cost/Hour: | \$41.24 | NA |
| Total Unit Cost/Hour: | \$246.17 | |
| Total Fleet Cost/Hour: | \$246.17 | |

MATERIAL QUANTITIESSelected estimating method: Area**Alternate Methods:**

Seismic: NA Bank Volume: NA BCY NA
 Area: 0.32 acres Rip Depth (ft): 1.50 Volume: 774 BCY or CCY

Source of estimated quantity: Map King II-007M, 640 ft. L x approx 22 ft. w**HOURLY PRODUCTION****Seismic:**Seismic Velocity: NA feet/second**Area:**

Average Ripping Depth: 1.50 feet/pass
 Average Ripping Width: 7.08 feet/pass
 Average Ripping Length: 50.00 feet/pass
 Average Dozer Speed: 88.00 feet/minute
 Average Maneuver Time: 0.25 minutes/pass
 Production per unit area: 0.596 acres/hour

Job Condition Correction FactorsUnadjusted Hourly Unit Production: 0.596 Acres/hrSite Altitude: 7,400 feetAltitude Adj: 1.00 (CAT HB)Job Efficiency: 0.83 (1 shift/day)Net Correction: 0.83 multiplierAdjusted Hourly Unit Production: 0.49 Acres/hrAdjusted Hourly Fleet Production: **0.49** Acres/hr**JOB TIME AND COST**

Fleet size: 1 Grader(s)

Total job time: 0.65 Hours

Unit cost: \$497.669 Per acre

Total job cost: \$159

TRUCK/LOADER TEAM WORKTask description: King II - topsoil from stockpile on KIII portals & access rd.Site: King Coal MinePermit Action: TR29Permit/Job#: C1981035**PROJECT IDENTIFICATION**Task #: 40State: ColoradoAbbreviation: NoneDate: 6/16/2020County: La PlataFilename: C035-40User: JHBAgency or organization name: DRMS**HOURLY EQUIPMENT COST**Shift basis: 1 per day

| Equipment Description | |
|---------------------------------|---------------------|
| Truck Loader Team -Truck: | Generic 7-8 cy, 4x4 |
| -Loader: | CAT 938H |
| Support Equipment -Load Area: | NA |
| -Dump Area: | CAT 938H |
| Road Maintenance -Motor Grader: | NA |
| -Water Truck: | NA |

Cost Breakdown:**Truck/Loader Team****Support Equipment****Maintenance Equipment**

| | Truck | Loader | Load Area | Dump Area | Motor Grader | Water Truck |
|------------------------|----------------|----------|-------------------|-----------|---------------|-------------|
| %Utilization-machine: | 100 | 100 | NA | 100 | NA | NA |
| Ownership cost/hour: | \$13.64 | \$26.49 | NA | \$26.49 | NA | NA |
| Operating cost/hour: | \$26.55 | \$33.66 | NA | \$33.66 | NA | NA |
| %Utilization-riper: | NA | 0 | NA | NA | NA | NA |
| Ripper own. cost/hour: | NA | \$0.00 | NA | \$0.00 | NA | NA |
| Ripper op. cost/hour: | NA | \$0.00 | NA | \$0.00 | NA | NA |
| Operator cost/hour: | \$0.00 | \$40.65 | NA | \$40.65 | NA | NA |
| Unit Subtotals: | \$40.19 | \$100.79 | NA | \$100.79 | NA | NA |
| Number of Units: | 2 | 1 | 0 | 1 | 0 | 0 |
| Group Subtotals: | Work: \$181.17 | | Support: \$100.79 | | Maint: \$0.00 | |

Total work team cost/hour: \$281.96**MATERIAL QUANTITIES**Initial volume: 1,694

CCY

Swell factor: 1.215Loose volume: 2,058

LCY

Source of estimated volume: 2.1 acresSource of estimated swell factor: Cat HandbookMaterial Purchase Cost: \$0.00Total Cost: \$0.00**HOURLY PRODUCTION****Truck Capacity:**Truck Payload (weight) Basis:Material weight: 1,600

Pounds/LCY

Description: Top SoilRated Payload: 20,300

Pounds

Payload Capacity: 12.69

LCY

Truck Bed (volume) Basis:

| | | |
|------------------|------|-----|
| Struck Volume: | 7.00 | LCY |
| Heaped Volume: | 8.00 | LCY |
| Average Volume: | 7.50 | LCY |
| Adjusted Volume: | 8.00 | LCY |

Final Truck Volume Based on Number of Loader Passes: 7.61 LCY

Loading Tool Capacity

Bucket Size Class: NA

| | | |
|---------------------|--------------|---|
| Rated Capacity: | 3.900 | LCY (heaped) |
| Bucket Fill Factor: | 0.975 | Loose material - mixed moist aggregates (95-100%) 0.975 |
| Adjusted Capacity: | 3.803 | LCY |

Job Condition Corrections:

Site Altitude (ft.): 7500 feet

| | Truck | Loader | Source |
|-----------------|--------------|--------------|----------|
| Altitude Adj: | 1.000 | 1.000 | (CAT HB) |
| Job Efficiency: | 0.830 | 0.830 | (CAT HB) |
| Net Correction: | 0.830 | 0.830 | |

Loading Tool Cycle Time:

Number of Loading Tool Passes Required to Fill Truck: 2 passes

Excavators and Front Shovels:

Machine Cycle Time vs. Job Condition Rating: NA
 Selected Value within this Basic Rating: NA

Track Loaders – Material Description: _____

Cycle Time Elements (min.):

Load: NA Maneuver: NA Dump: 0.100

Wheel and Track Loaders - Unadjusted Basic Loader Cycle Time (load, dump, maneuver): 0.483 minutes

| Cycle Time Factors | | Factor (min.) | Source |
|-----------------------------|--|---------------|----------|
| Material: | Material 1/8" to 3/4" diameter -0.02 | -0.020 | (Cat HB) |
| Stockpile: | Dumped by truck 0.02 | 0.020 | (Cat HB) |
| Truck Ownership: | Common ownership of trucks and loaders -0.04 | -0.040 | (Cat HB) |
| Operation: | Constant operation -0.04 | -0.040 | (Cat HB) |
| Dump Target: | Nominal target 0.00 | 0.000 | (Cat HB) |
| Net Cycle Time Adjustment: | | -0.080 | minutes |
| Adjusted Loader Cycle Time: | | 0.403 | minutes |
| Net Load Time per Truck: | | 0.503 | minutes |

Truck Cycle Time:

| | | | | | |
|-------------------------------|-------|---------|-----------------------------|-------|---------|
| Truck Exchange Time: | 0.50 | Minutes | Adjusted for site altitude: | 0.500 | Minutes |
| Truck Load Time: | 0.503 | Minutes | Adjusted for site altitude: | 0.503 | Minutes |
| Truck Maneuver and Dump Time: | 0.80 | Minutes | Adjusted for site altitude: | 0.800 | Minutes |

Truck Travel (Haul & Return) Time:

Road Condition: Rutted dirt, little maintenance, no water, 1" tire penetration 4.0

Haul Route:

| Seg # | Haul Distance (Ft) | Grade (%) | Roll. Res (%) | Total Res (%) | Velocity (fpm) | Travel Time (min) |
|-------|--------------------|-----------|---------------|---------------|----------------|-------------------|
| 1 | 900.00 | 3.00 | 4.00 | 7.00 | 1568 | 0.612 |

Haul Time: **0.612** minutes

Return Route:

| Seg # | Haul Distance (Ft) | Grade (%) | Roll. Res (%) | Total Res (%) | Velocity (fpm) | Travel Time (min) |
|-------|--------------------|-----------|---------------|---------------|----------------|-------------------|
| 1 | 900.00 | -3.00 | 4.00 | 1.00 | 2913 | 0.340 |

Return Time: **0.340** minutesTotal Truck Cycle Time: **2.755** minutes

Loading Tool unit
 Production 455.16 LCY/Hour
 Truck Unit Production
165.66 LCY/Hour
 Optimal No. of Trucks: 3 Truck(s)

Adjusted for job efficiency: 377.78 LCY/Hour
 Adjusted for job efficiency: 137.49 LCY/Hour
 Selected Number of Trucks: 2 Truck(s)

Adjusted hourly truck team production: 274.99 LCY/Hour
 Adjusted single truck/loader team production: 274.99 LCY/Hour
 Adjusted multiple truck/loader team production: **274.99** LCY/Hour

JOB TIME AND COSTFleet size: 1 Team(s)Total job time: **7.48** HoursUnit cost: \$1.025 /LCYTotal job cost: **\$2,110**

REVEGETATION WORKTask description: King III portals revegetate Pinyon-Juniper areas 2.1 acresSite: King Coal MinePermit Action: TR29Permit/Job#: C1981035**PROJECT IDENTIFICATION**Task #: 44State: ColoradoAbbreviation: NoneDate: 6/16/2020County: La PlataFilename: C035-44User: JHBAgency or organization name: DRMS**FERTILIZING****Materials**

| Description | Units / Acre | Unit | Cost / Unit | Cost /Acre |
|--------------------------|-----------------|-------|---|----------------|
| 10-34-0, 18-46-0, 5-10-5 | 150.00 | pound | \$0.34 | \$51.00 |
| | | | Total Fertilizer Materials Cost/Acre | \$51.00 |

Application

| Description | Cost /Acre |
|---|----------------|
| Tractor towed spreader (MEANS 32 01 90.13 0120) | \$36.15 |
| Total Fertilizer Application Cost/Acre | \$36.15 |

TILLING

| Description | Cost /Acre |
|--------------------------------|---------------|
| | \$ |
| Total Tilling Cost/Acre | \$0.00 |

SEEDING

| Seed Mix | Rate – PLS LBS / Acre | Seeds per SQ. FT | Cost /Acre |
|------------------------------------|--------------------------------|------------------------|------------|
| Bitterbrush, Antelope | 8.71 | 2.68 | \$169.85 |
| Blue Grama - Native | 0.60 | 9.79 | \$8.24 |
| Indian Ricegrass - Native | 1.45 | 4.69 | \$9.43 |
| Mountain Brome - Bromar | 1.74 | 2.80 | \$6.61 |
| Sideoats Grama - Butte | 1.00 | 3.28 | \$9.00 |
| Burnett, Small (or Little) - Delar | 2.90 | 3.66 | \$7.25 |
| Slender Wheatgrass - Native | 1.24 | 4.53 | \$5.74 |
| Mahogany, Mountain | 4.84 | 6.56 | \$178.14 |
| Western Wheatgrass - Native | 2.18 | 5.51 | \$13.08 |
| Globemallow, Scarlet (or copper) | 0.44 | 4.98 | \$59.62 |
| Sumac, Skunkbrush | 4.36 | 2.04 | \$91.56 |
| Winter Fat | 1.94 | 4.94 | \$39.77 |

| | | | |
|------------------------|-------|-------|-----------------|
| Totals Seed Mix | 31.40 | 55.46 | \$598.27 |
|------------------------|-------|-------|-----------------|

Application

| Description | Cost / Acre |
|---|--------------------|
| Drill Seeding (DRMS Survey Cost) | \$232.00 |
| Total Seed Application Cost/Acre | \$232.00 |

MULCHING and MISCELLANEOUS**Materials**

| Description | Units / Acre | Unit | Cost / Unit | Cost / Acre |
|---|---------------------|-------------|--------------------|--------------------|
| Straw, delivered {MEANS 31 25 14.16 1200} | 2.00 | TON | \$295.00 | \$590.00 |
| Total Mulch Materials Cost/Acre | | | | \$590.00 |

Application

| Description | Cost / Acre |
|--|--------------------|
| Crimping, with tractor {DMG survey data} | \$70.17 |
| Power mulcher (MEANS 32 91 13.16 0350) | \$95.83 |
| Total Mulch Application Cost/Acre | \$166.00 |

NURSERY STOCK PLANTING

| Common Name | No / Acre | Type and Size | Planting Cost | Fertilizer Pellet Cost | Cost / Acre |
|---|------------------|----------------------|----------------------|-------------------------------|--------------------|
| | | | | | \$ |
| Totals Nursery Stock Cost / Acre | | | | | \$0.00 |

JOB TIME AND COST

| | | | |
|----------------------------------|------------------------------|--------------|------------|
| No. of Acres: | 2.1 | Cost /Acre: | \$1,673.42 |
| Estimated Failure Rate: | 50% | Cost /Acre*: | \$1,673.42 |
| *Selected Replanting Work Items: | FERTILIZING,SEEDING,MULCHING | | |

| | |
|---------------------|-------------------|
| Initial Job Cost: | \$3,514.18 |
| Reseeding Job Cost: | \$1,757.09 |
| Total Job Cost: | \$5,271 |
| Job Hours: | 2.00 |