




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

1313 Sherman Street, Room 215, Denver, CO 80203 P 303.866.3567 F 303.832.8106 <http://mining.state.co.us>

**PERMIT INFORMATION**

<b>Permit Number:</b> C-1981-035 <b>Mine Name:</b> King Coal Mine <b>Operator:</b> GCC Energy, LLC <b>Operator Address:</b> Mr. Tom Bird 6473 County Road 120 Hesperus, CO 81326	<b>County:</b> La Plata <b>Operation Type:</b> Underground <b>Permit Status:</b> Active <b>Ownership:</b> Federal
	<b>Operator Representative Present:</b>  Jordan McCourt
<b>Operator Representative Signature: (Field Issuance Only)</b>  	

**INSPECTION INFORMATION**

<b>Inspection Start Date:</b> May 24, 2017 <b>Inspection Start Time:</b> 07:30 <b>Inspection End Date:</b> <b>Inspection End Time:</b>		<b>Inspection Type:</b> Coal Complete Inspection <b>Inspection Reason:</b> Normal I&E Program <b>Weather:</b> Clear	
<b>Joint Inspection Agency:</b>  None		<b>Joint Inspection Contacts:</b>  	
<b>Post Inspection Agency:</b>  None		<b>Post Inspection Contacts:</b>  	
<b>Inspector(s):</b>  Robert D. Zuber, P.E.	<b>Inspector's Signature:</b>   <b>Signature Date:</b>  5/31/2017		

**Inspection Topic Summary**NOTE: **Y**=Inspected **N**=Not Inspected **R**=Comments Noted **V**=Violation Issued **NA**=Not Applicable**Y** - Air Resource Protection**Y** - Availability of Records**Y** - Backfill & Grading**R** - Excess Spoil and Dev. Waste**NA** - Explosives**Y** - Fish & Wildlife**R** - Hydrologic Balance**Y** - Gen. Compliance With Mine Plan**N** - Other**NA** - Processing Waste**Y** - Roads**Y** - Reclamation Success**R** - Revegetation**Y** - Subsidence**Y** - Slides and Other Damage**R** - Support Facilities On-site**R** - Signs and Markers**NA** - Support Facilities Not On-site**NA** - Special Categories Of Mining**R** - Topsoil**COMMENTS**

A complete inspection was conducted by Rob Zuber of DRMS on May 24, 2017. Jordan McCourt of GCC accompanied Rob in the field. The weather was warm and clear. The ground was dry.

The current mining plan map was reviewed with Jordan McCourt. It appears that GCC is mining within the Division's permit (the edge of Section 36 on State of Colorado land) or within the permit area of the Office of Surface Mining.

**EXCESS SPOIL and DEVELOPMENT WASTE – Rule 4.09**

Placement; Drainage Control; Surface Stabilization:

The un-reclaimed portion of the Refuse Pile (upper portion) requires grading to spread the piles of waste rock and insure a two percent slope from north to south across the pile. Some trash was seen in the piles of waste rock material; GCC management needs to insure that operators know to remove this material prior to grading and compaction. No flow was seen from the underdrain of the refuse pile, nor were there signs of recent flows.

The lower portion of the Refuse Pile was checked with a Rangefinder, and it appears that the slope of the lower portion (2.2:1) is steeper than the design (2.5:1). This appears to be confirmed by surveys by GCC. GCC needs to provide the Division with a plan for a new geotechnical analysis of the pile (and possibly submit a revision application to the PAP) or re-construct the pile to meet the specification.

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**HYDROLOGIC BALANCE - Rule 4.05**

Drainage Control 4.05.1, 4.05.2, 4.05.3; Siltation Structures 4.05.5, 4.05.6; Discharge Structures 4.05.7, 4.05.10; Diversions 4.05.4; Effluent Limits 4.05.2; Ground Water Monitoring 4.05.13; Surface Water Monitoring 4.05.13; Drainage – Acid and Toxic Materials 4.05.8; Impoundments 4.05.6, 4.05.9; Stream Buffer Zones 4.05.18:

An attempt was made to measure the water level in the A seam and Cliff House sandstone wells at MW-2, MW-3, and MW-4. The division's instrument appeared to not have a long enough tape for several wells; it is only 301 feet long. Also, water levels were not checked in wells that had instrumentation in place (likely pressure transducers). In MW-3-C, water was detected at approximately 298.5 feet deep (measured from the outer metal casing).

At the King I Mine, the East Pond and the West Pond were inspected. The East Pond was holding water but not discharging. The West Pond was dry. It is not clear why the East Pond often holds water; possible reasons are that there is very little infiltration through the pond bottom, or possibly the pond intercepts the alluvial formation. GCC should investigate this. Also, the East Pond construction does not meet the design, especially the primary spillway; GCC should develop a plan to address this (options include rerunning the model or re-constructing the spillway).

No issues were found at the SAE near the King I entrance; the silt fences appear to be in good shape.

At King I, Reach 1 was inspected and found to be in compliance.

The East Clearwater Ditch at King II (CWD-2) was found to be large enough (per specification in PAP) and generally in good shape, but branch removal and brush cutting is suggested. No water was in the King II pond, and no problems were seen with the structures.

**REVEGETATION – Rule 4.15**

Vegetative Cover; Timing:

White-flowered plants (possibly white top, aka hoary cress) were seen on the West Pond at King I, and these should be sprayed top prevent spreading. Possible weeds needing control were also seen above the Refuse Pile (to northeast) and below the Refuse Pile (to the west).

The vegetation reference area at King II was inspected. None of the following were identified: erosion problems, large weed patches, or signs of cattle use. It is suggested that markers be added to identify the outline of the area.

**SUPPORT FACILITIES - Rule 4.04:**

The coal storage pile at Coal Stack Tube #2 was smaller than in past inspections. Jordan McCourt stated that production has been low due to a parting in the seam. No compliance issues were seen with the pile.

The cut slopes on the west side of King I appear to be stable.

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**SIGNS AND MARKERS – Rule 4.02:**

Disturbed Area Boundary markers were seen in several locations. These have been revised; they erroneously said Permit Boundary in the past.

**TOPSOIL – Rule 4.06**

Removal 4.06.2; Substitute Materials 4.06.4(4); Storage and Protection 4.06.3; Redistribution 4.06.4:

The volume of topsoil stockpile beside Coal Stack Tube #2 was estimated. Cross-sections were estimated with a laser rangefinder in the field, and satellite photography (Google Earth) was used in the office to measure the length of the pile (450 feet). The average cross-sectional area was estimated as follows:

- The pile was determined to have generally straight sides (neither convex nor concave) so that a simple formula could be used; the area of a single cross-section could be estimated by multiplying the horizontal and vertical distances from the top of the pile to the toe of the pile.
- Using the rangefinder, horizontal and vertical distances were measured at four locations on the west side of the pile (locations about 100 feet apart).
- Using the rangefinder, horizontal and vertical distances were measured at four locations on the east side of the pile (locations about 100 feet apart).
- The averages of the eight horizontal values and eight vertical values were calculated.
- These two averages were multiplied together to get an average cross-sectional area.
- The average cross-section was multiplied by the length to get the volume.

The measured horizontal distances were: 73 feet, 77 feet, 70 feet, and 72 feet on the west side and 41 feet, 56 feet, 74 feet, and 76 feet on the east side. The average of these distances is 67.4 feet. The measured vertical distances were: 14 feet, 19 feet, 20 feet, and 17 feet on the west side and 10 feet, 12.5 feet, 16 feet, and 17 feet on the east side. The average of these distances is 15.7 feet. The estimated cross-sectional area is 1,057 square feet (67.4' x 15.7'), and the estimated volume is 475,625 cubic feet (1,057' x 450') or 17,616 cubic yards. This is significantly less than the volume of topsoil (27,191 cubic yards) that should be in this pile per the PAP (Section 2.05.3). GCC should explain this discrepancy. Is the amount of topsoil less than needed? Or is compaction and/or another factor the explanation?

At King I, the recent earth work on the Plant Growth Medium Storage Areas looks to be adequate, although the south side of the pile above the Refuse Pile is not protected by a ring ditch. It appears to not be practical to put a ditch on that side of the pile due to topography and trees, but this area should be monitored very closely for erosion.

**ENFORCEMENT ACTIONS/COMPLIANCE**

No enforcement actions were initiated as a result of this inspection, nor are any pending.

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## **PHOTOGRAPHS**



**Coal storage area (near Stack Tube #2) and interface with undisturbed area**



**Topsoil stockpile (northeast of Stack Tube #2)**

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**King II vegetation reference area**



**King II East Clearwater Ditch (CWD-2)**

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**East Pond at King I**



**Weeds near West Pond (King I)**

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**Cut slope above facilities area**



**Lower portion of Refuse Pile**

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**Refuse Pile, looking east up valley**

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**AVAILABILITY OF RECORDS****PERMIT RECORDS**

DRMS Permit	Exp. Aug. 2017
Permit Application w/Revisions	Yes, Thru MR45
Findings Document	MT07 (Feb 2015) RN06 (Mar 2013)
Insurance Certificate	Exp. Sept. 2017
Bond Document	*1
Phased Bond Release	NA
Documents/Findings	
Air Emission Permits	Yes (Sept. 2013)
County Special Use Permits	*2
UG Mining Landowner Notification	Yes
Subsidence Monitoring Reports	2017 Q1
Subsidence Monitoring Data	NA
Rill & Gully Survey	NA
Vegetation Monitoring Data	NA
Specific Variance Approvals	NA
Annual Reclamation Reports	2016
Midterm Review Documents	MT-07
DRMS/OSM Inspection Reports (three years)	Thru April 2017
Enforcement Actions	CV-2015-01
Transfers/Succession of Operator	Yes (2007/2008)
Temporary Cessation Notification	NA
Reclamation Cost Estimate (Appendix 12)	MT07 (Feb. 2015) TR26 (Nov. 2016)
<b>CERTIFICATIONS</b>	
Pond Certifications	Yes
Annual Certifications for Impoundments	2016 Q3
Fill Certifications for Excess Spoil or Underground Development Waste	Yes
• Quarterly Inspections	2017 Q1
• Compaction Testing	June 2016
• Final Certification	NA
Coal Processing Waste Banks	NA
Haul Road Certifications	Yes 2009
Access Road Certifications	Yes 2012

**HYDROLOGIC RECORDS**

NPDES Permit	Exp. June 2013 (Admin extensn.)
NPDES Records	2017 Q1
Stormwater Management Plan	Sept 2012
SPCC Plan	Revised April 2016
MSHA Pond Inspections	NA
State Engineer's Pond Inspection	NA
Quarterly Pond Inspections	2017 Q1
Annual Hydrology Reports	2016
• Ground Water Monitoring	2017 Q1
• Surface Water Monitoring	2017 Q1
• Spring & Seep Monitoring	In progress
• Mine Water Discharge Monitoring	NA
• Mine Inflow Study	NA
• Water Consumption Records	Thru April 2017
Well Permits	Yes

**BLASTING RECORDS**

Blasting Publication	
Blasting Records (3 years)	
ATFE Explosives Permit	
Blasting Variances	
Pre-Blast Surveys	

**ADDITIONAL RECORDS  
(specify)**


**COMMENTS:**

\*1 Total bond of \$908,672.76 (includes \$908,107 with Travelers and two small cash bonds).

\*2 Appendix 2(1) of PAP.

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