LORENCITO CANYON MINE
Permit No. C-1996-084

INSPECTION OF EXCESS SPOIL-FILLS 7, 8, & 9
March 29, 2019

The spoil fills at the Lorencito Canyon Mine were inspected March 29, 2019. The weather was seasonal and dry with minimal precipitation since September 2017. The past year has developed generally improved vegetation and cover density with all vegetation now dormant. A dusting of snow covered much of the mine area. Sediment control ponds situated down slope from the fills were not near discharging. Erosional features were minimal on all three fill sites.

FILL AREA No. 7

GENERAL DESCRIPTION OR REFERENCE TO SITE PLAN:

The CTL Thompson report dated April 27, 2001, "Stability Analysis and Geo-technical Recommendations Lorencito Surface Mine Phase I" addresses the general requirements as also cited in Sections 4.09.1 to 4.09.2 of the Colorado Mined Land Reclamation Board for Coal Mining.

ACTIVITY DURING INSPECTION:

___Removal of Topsoil and Organic Matter
___Placement of Under-drains
___Installation of Surface Drainage System
___Construction of Fill
___Placement of Topsoil
___Seeding
_X_Other Facility in Final Reclamation- Phase I Bond Released

SEDIMENT CONTROL

Sediment pond construction has been completed in accordance with plans submitted to and approved by the DMG and as-constructed survey/drawings certified by Registered Land Surveyor and Registered Professional Engineer. All surface run-off from the fill area is directed to this sediment control facility known as Pond 7.

SURFACE DRAINAGE

Armored Ditches line the east and west boundary of the fill area. Lateral ditches on the fill face direct runoff to these side ditches. A fourth east-west ditch was constructed at the upper most extent of the fill, connecting to both armored ditches on the east and west perimeters. No erosional problems were noted at the intersections of the lateral ditches and the armored ditches. Slopes are well vegetated and no erosional problems were observed.

SITE PREPARATION

As indicated in previous inspection reports, organic materials such as brush and trees were removed from the proposed fill area followed by topsoil removal prior to fill placement. Design criteria did not require keyway cuts for steeper valleys with minimal soil cover (fill #7). No evidence of springs or seeps was observed during site preparation. No springs nor seeps were evident during this inspection
DRAINAGE SYSTEM (UNDERDRAINS) Drain sizes are specified by CDMG regulations for fills which can be classified as Valley Fills. Fill area #7 is not a valley fill. CTL Thompson recommended a minimum 6' x 12' triangular section (area = 64 SF) for this size fill. As indicated by previous inspection reports, as constructed drainages generally were more trapezoidal with a top width of 12', bottom width of 8', and average height of 8' (area = 80 SF). Sandstone recovered from durable "channel" sandstone deposits

encountered during the mining process was used in drain construction. Mirafi 160 fabric was used in lieu of filter material.

FILL PLACEMENT

CDMG regulations require that spoil be "placed in horizontal lifts in a controlled manner, concurrently compacted as necessary to ensure mass stability". Maximum lift thicknesses are not specified. As indicated by previous inspection reports, lifts were placed in accordance with plans specified by CTL Thompson. Spoil material was transported to the fill area using a combination of trucks and dozers. Left thicknesses of up to 50' were placed within the area removed from the fill face by more than 50 ft. Thinner lifts of 6-8 ft. with leveling and compactive effort supplied by dozers and trucks was utilized as fill placement advances to within fifty feet of the slope face. No fill placement has occurred since cessation of mining in 2002.

COVER MATERIAL

As documented by previous inspection reports, cover placement, seeding and mulching occurred during the second quarter 2002. During the first quarter 2004 additional topsoil was transported to the upper-most portion of the fill area lying between the area seeded in 2002 and the lateral ditch placed at the upper perimeter of fill 7. The northeast portion of this area, approximately 1.60 acres, was final graded and seeded in August of 2006.

STRUCTURAL INTEGRITY

The entire excess spoil fill facility was examined for signs of failure and instability such as tension cracks, ground movement, springs and seeps, and standing water. No indication of potential instability was observed.

Fill #7 – South Facing Embankments with East Armored Down Drain Visible

DOCUMENTATION AND OTHER OBSERVATIONS

Early spring conditions prevail with most areas dry but with good soil moisture. Overall the site is in good condition

FILL AREA No. 8

GENERAL DESCRIPTION OR REFERENCE TO SITE PLAN:

The CTL Thompson report dated April 27, 2001, "Stability Analysis and Geo-technical Recommendations Lorencito Surface Mine Phase I" addresses the general requirements as also cited in Sections 4.09.1 to 4.09.2 of the Colorado Mined Land Reclamation Board for Coal Mining.

ACTIVITY DURING INSPECTION:

___Removal of Topsoil and Organic Matter
___Placement of Under-drains
___Installation of Surface Drainage System
___Construction of Fill
___Placement of Topsoil
___Seeding
_X_Other___Facility in Final Reclamation – Phase I Bond Released

SEDIMENT CONTROL

Sediment pond construction has been completed in accordance with plans submitted to and approved by the DMG and as-constructed survey/drawings certified by Registered Land Surveyor and Registered Professional Engineer. All surface run-off from the fill area is directed to this sediment control facility also known as Pond 8.

SURFACE DRAINAGE

Armored Ditches line the east and west boundary of the fill area. Lateral ditches on the fill face direct runoff to these side ditches. No erosional problems were noted along the lateral ditches. Slopes have become well vegetated and no other erosional problems were noted.

SITE PREPARATION

As indicated by previous inspection reports, organic materials such as brush and trees were removed from the proposed fill area followed by topsoil removal prior to fill placement. Design criteria did not require keyway cuts for steeper valleys with minimal soil cover (fill #8). No evidence of springs or seeps was observed during site preparation.

DRAINAGE SYSTEM (UNDERDRAINS)

Drain sizes are specified by CDMG regulations for fills which can be classified as Valley Fills. Fill area #8 is a valley fill. CTL Thompson recommended a minimum 6' x 12' triangular section (area = 64 SF) for this size fill. Under-drain system was extended down slope to allow establishing the designed slope criteria for the final slope (assuming no resumption of mining). The typical dimensions of the extended drainage generally were more trapezoidal with a top width of 10', bottom width of 14', and average height of 8' (area > 96 SF). Sandstone recovered from durable "channel" sandstone deposits encountered during the mining process was used in drain construction. Mirafi 160 fabric was used in lieu of filter material.

FILL PLACEMENT

Fill placement has been completed in accordance with the approved plan. No additional fill placement is anticipated.

COVER MATERIAL

Final fill configuration has been established and topsoil material has been placed on the excess spoil-fill. The area was mulched and seeded in the fourth quarter of 2003. Soil was placed and spread on the upper most surface of the fill in May of 2004. During the second quarter of 2005, areas disturbed by maintenance of the armored down-drains were seeded using certified weed free straw and the approved rangeland seed mix. The construction access road east of the east down-drain was hand mulched and seeded during August of 2006.

STRUCTURAL INTEGRITY

The excess spoil fill facility was examined for signs of failure and instability such as tension cracks, ground movement, springs and seeps, and standing water. No indications of potential instability or adverse conditions were observed during this inspection.

DOCUMENTATION AND OTHER OBSERVATIONS

Overall, the site is in good condition. Early spring conditions still prevail with the ground cover still dormant but with good soil moisture..

FILL AREA No. 9

GENERAL DESCRIPTION OR REFERENCE TO SITE PLAN:

The CTL Thompson report dated April 27, 2001, "Stability Analysis and Geo-technical Recommendations Lorencito Surface Mine Phase I" addresses the general requirements as also cited in Sections 4.09.1 to 4.09.2 of the Colorado Mined Land Reclamation Board for Coal Mining.

ACTIVITY DURING INSPECTION:

___Removal of Topsoil and Organic Matter
___Placement of Under-drains
___Installation of Surface Drainage System
___Construction of Fill
___Placement of Topsoil
___Seeding
_X_Other____Facility in Final Reclamation - Phase I Released_____

SEDIMENT CONTROL

Sediment pond construction has been completed in accordance with plans submitted to and approved by the DMG and with as-constructed survey/drawings certified by Registered Land Surveyor and Registered Professional Engineer. All surface run-off from the fill areas is directed to this sediment control facility known as pond 9A. The Pond did not discharge during this quarter.

SURFACE DRAINAGE

Armored Ditches line the east and west boundary of the fill area. Lateral ditches on the fill face direct runoff to these side ditches. No erosional problems were noted at the intersections of the lateral ditches and the armored ditches. The main access road across the mine disturbance area crosses along the crest of fill 9.with a concrete culvert installed at the head of the west down drain at the point where the road crosses the drainage.

SITE PREPARATION

As indicated by previous inspection reports, organic materials such as brush and trees were removed from the proposed fill area followed by topsoil removal prior to fill placement. Design criteria did not require keyway cuts for steeper valleys with minimal soil cover (fill #9). No evidence of springs or seeps was observed during site preparation.

DRAINAGE SYSTEM (UNDERDRAINS)

Drain sizes are specified by CDMG regulations for fills which can be classified as Valley Fills. Fill area #9 is not a valley fill. CTL Thompson recommended a minimum 6' x 12' triangular section (area = 64 SF) for this size fill. As indicated by previous inspection reports, as constructed drainages generally were more trapezoidal with a top width of 12', bottom width of 8', and average height of 8' (area = 80 SF). Sandstone recovered from durable "channel" sandstone deposits encountered during the mining process was used in drain construction. Mirafi 160 fabric was used in lieu of filter material.

FILL PLACEMENT

CDMG regulations require that spoil be "placed in horizontal lifts in a controlled manner, concurrently compacted as necessary to ensure mass stability". Maximum lift thicknesses are not specified. As indicated by previous inspection reports, lifts were placed in accordance with plans specified by the CTL Thompson report. Spoil material was transported to the fill area using a combination of trucks and dozers. Lift thicknesses of up to 50 feet were placed within the area removed from the fill face by more than 50 feet. Fill placement terminated by second quarter 2002.

No fill placement has occurred since cessation of mining in 2002, nor is future placement anticipated.

COVER MATERIAL

As documented by previous inspection reports, cover placement, seeding and mulching was completed during the second quarter 2002 and upper areas during the second quarter of 2004. During the second quarter of 2005, areas disturbed by maintenance of the armored down-drains were hand seeded using certified weed free straw and the approved rangeland seed mix.

STRUCURAL INTEGRITY

The entire excess spoil fill facility was examined for signs of failure and instability such as tension cracks, ground movement, springs and seeps, and standing water. No indication of potential instability was observed during this inspection.

Fill 9 South Facing -Taken from Adjacent Ranch Road

DOCUMENTATION AND OTHER OBSERVATIONS

Early spring conditions prevail with vegetation still dormant. Overall, site is in good condition.

CERTIFICATION

This inspection was conducted by Ronald G. Thompson, a qualified professional and MSHA certified inspector of earth and rock-fill embankments and impoundments, under the direction of Mr. Charles McGlothlin, a registered professional engineer licensed in the State of Colorado.

This is to certify, to the best of my knowledge and belief, that maintenance, since the previous certification and as determined during this inspection and discussions with mine personnel, is in accordance with designs as proposed by CTL Thompson in their report dated April 27 and amended July 27, 2001 and as approved by the Division of Reclamation, Mining and Safety.

Ronald G. Thompson 4/3/2019
Ronald G. Thompson Date
Inspector

Charles W. McGlothlin 4/30/19
Charles W. McGlothlin Date
Professional Engineer

Inspections completed in compliance with Rule 4.09.1(11)(b) must be submitted to the Division within two weeks of completion.