NWCC
NorthWest Colorado Consultants, Inc.
Geotechnical / Environmental Engineering • Materials Testing

July 9, 2019

Twentymile Coal Company
29515 RCR #27
Oak Creek, CO 80467

Attn: Miranda Kawcak

Job Number: 99-3983

Subject: Quarterly Observation Report, Refuse Pile,
Foidel Creek Mine, Routt County, Colorado.

Miranda,

As requested, NWCC, Inc. (NWCC) has prepared this report outlining our observations made during the second quarter of 2019 at the Refuse Pile located at Twentymile Coal Company's (TCC) Foidel Creek Mine in Routt County, Colorado. During this quarter, Timothy Travis of NWCC visited the project site on June 28, 2019 to provide the quarterly inspection/observations of the Refuse Pile.

In addition, a representative of NWCC visited the refuse pile on June 26, 2019 to conduct compaction testing in the new Expansion Area of the refuse pile. Three compaction tests (#577 to #579) were taken in Expansion Area during this quarter. All of the tests taken during this quarter met the minimum compaction requirement of 90% of the maximum standard Proctor density. Copies of the compaction test results and the daily field reports are attached. It should be noted that the abbreviations given in the Nuclear Density Test Results (Proctor Data) are as follows: Maximum DD = Maximum Dry Density and OMC = Optimum Moisture Content. Both of these values have been determined in accordance with ASTM D698.

At the time of our site visit on June 28, 2019, NWCC completed a site inspection of the existing refuse pile. Based on our observations made during this visit, it appeared that the contractor was presently stockpiling and compacting refuse coal in the new Expansion Area. At the time of our site visit the refuse coal had been placed and compacted to an elevation above the second bench situated along the east side of the stockpile.

The internal roadways in the new expansion area of the pile are in good condition. The upper haul road to Areas 2, 3 and 4 of the refuse pile was accessible at the time of our site visit and in good condition.

A seepage area at the toe of the northeast end of the refuse pile expansion area, approximately 30 feet northwest of the outlet of the underdrain, developed in fall 2014. At the time of our site visit, the seepage area was not accessible due to construction activity for the wash plant thickener tank. The seepage area will be observed during our next quarterly inspection.

Based on our observations, the surface drainage conditions, generally appeared to be adequate across the top and sides of the pile. Based on our observations, we did not observe any signs of instability, structural weakness or hazardous conditions at the refuse pile. Photographs of the refuse pile taken at the time of our inspection on June 28, 2019 are attached.

We were advised that the wash plants had produced approximately 67,317 tons of waste coal during the month of April 2019: approximately 89,797 tons during May 2019: and approximately 68,601 tons during June 2019. It is our understanding that the fines being produced at the wash plant, which consists of approximately 10 to 20 percent of the total materials being produced, are being pumped underground into the mine.

We were previously informed by Brian Watterson of Peabody that all of the original monitor wells installed in the Refuse Pile were destroyed in July 2012. Two new monitor wells were constructed in Area 1 of the Refuse Pile in December 2013. NWCC was provided monthly monitor well readings for this quarter by Miller Water Monitor Service, Inc. The water level in the western monitor well (RW#1) was measured at 57.46 feet below the existing ground surface (bgs) on April 23rd, at 57.34 feet bgs on May 6th and at 57.12 feet bgs on June 27th of 2019. The water level in the eastern monitor well (RW#2) was measured at 56.45 feet bgs on April 23rd, at 56.53 feet bgs on May 6th and at 56.16 feet bgs on June 27th of 2019. An additional monitor well (RW#3) was constructed at the southeast end of the 1st bench in new Expansion Area in June of 2014. The water level in the expansion area monitor well (RW#3) was dry when checked on April 23rd, May 6th and June 27th of 2019.

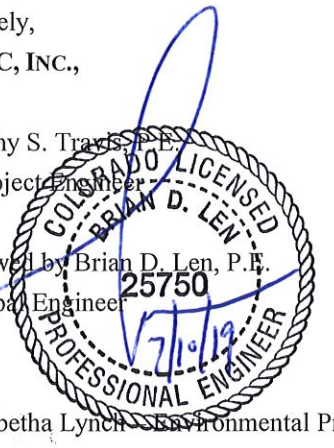
Based on our limited observations, it appears that the pile is currently being constructed and maintained in general accordance with the project specifications and plans submitted under 2.05.3(8) and that the potential hazard to human life and property at the site in its present condition is minimal. This report fulfills the quarterly inspection requirements as specified by Rules 4.09.1(11)(a), 4.09.1(11)(b), 4.10.2(2)(a) and 4.10.2(2)(b).

If you have any questions regarding this report or our observations, please contact this office.

Sincerely,
NWCC, INC.,

Timothy S. Travis, P.E.
Sr. Project Engineer

Reviewed by Brian D. Len, P.E.
Principal Engineer



cc: Tabetha Lynch – Environmental Protection Specialist - CDRM&S

NORTHWEST COLORADO CONSULTANTS, INC.

Project:	Refuse Pile	**Project No.:**	99-3983	**Date:**	6/26/19
				Time:	4.0
Location:	Foidel Creek Mine	**Report No.:**	92	**Mileage:**	44
Client:	Twentymile Coal Co.			**Engr. /Tech:**	CR

Work Performed:

As requested, we visited the project site on today's date and conducted compaction test No's 577 through 579 on the fill materials being placed within the Refuse Pile.

Twentymile Coal Company crews placed and compacted processed waste coal in the Refuse Pile.

We also obtained a sample of material and returned it to our laboratory in Steamboat Springs, CO for standard checkpoint Proctor testing. The sample matched a previous Proctor 12P for this project.

Remarks:

The material tested today generally met project specifications for compaction.

Please refer to attached sheet for results of today's testing.

Verbal Discussions:

Twentymile Coal Co. was notified of today's test results.

NUCLEAR DENSITY TEST RESULTS

Project: Refuse Pile **Project No.:** 99-3983 **Date:** 6/26/19
Report No.: 92

Test No.	Location Northing/Easting/Elevation	Depth Elev.	Proctor No.	Dry Density (pcf)	Water Content (%)	Actual Compaction	Required Compaction
577	31430.89/17185.36	6998.025	12	110.7	2.9	100+	90
578	31531.85/17764.02	6988.373	12	106.2	5.6	97	90
579	31700.88/17419.94	6992.885	12	108.5	4.7	99	90

PROCTOR DATA

No.	Maximum Dry Density (pcf)	Optimum Moisture Content (%)	Relative Density Minimum Density (pcf)	Relative Density Maximum Density (pcf)	Soil Type
12	109.8	7.6			Processed Waste Coal
11	100.3	10.2			Processed Waste Coal
10	107.6	11.0			Processed Waste Coal

Comments:

BSG=	**Below Subgrade Grade**	**NWC=**	**Northwest Corner**
SG=	**Subgrade Grade**	**NEC=**	**Northeast Corner**
SBG=	**Subbase Grade**	**SWC=**	**Southwest Corner**
BSBG=	**Below Subbase Grade**	**SEC=**	**Southeast Corner**
BCG=	**Base Course Grade**	**BFG=**	**Below Footing Grade**
BBF=	**Below Bottom of Footing**	**FG=**	**Footing Grade**

June 28, 2019-Seepage Area (Construction Activity)

June 28, 2019-Monitor Wells RW1 & RW2

June 28, 2019- Southwest End of Underdrain

June 28, 2019-Expansion Area from Areas 2, 3, 4

June 28, 2019-Areas 2, 3, 4

June 28, 2019- Expansion Area