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

October 9, 2017

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

Attn: Mr. Jerry Nettleton

Job Number: 99-3983

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

Mr. Nettleton,

As requested, NWCC, Inc. (NWCC) has prepared this report outlining our observations made during the third quarter of 2017 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 September 29, 2017 to provide the quarterly inspection/observations of the Refuse Pile.

At the time of our site visit on September 29, 2017, NWCC completed a cursory 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 below the third bench situated along the east side of the stockpile.

In addition, a representative of NWCC visited the refuse pile on September 28, 2017 to conduct compaction testing in the new Expansion Area of the refuse pile. A total of three compaction tests (#557 to #559) 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.

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. The grading and compacting of the stockpiles completed in 2015 appear to have improved the overall drainage in these areas and no areas of concentrated drainage or slope instability were observed in this area during our site visit. The contractor did not appear to be stockpiling materials in this area at the time of our site visit.

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 observations, the seepage was surfacing at the toe of the slope and flowing into the drainage from the undrain outlet then into the existing pond east of the Refuse Pile Expansion Area. The discharge was clear, with no evidence of sediment. No signs of washout, slumps or slope instability were observed at this time. The seepage area will be monitored during future inspections and noted in our inspection reports. Photographs of the seepage area taken at the time of our inspection on September 30, 2017 are attached.

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.

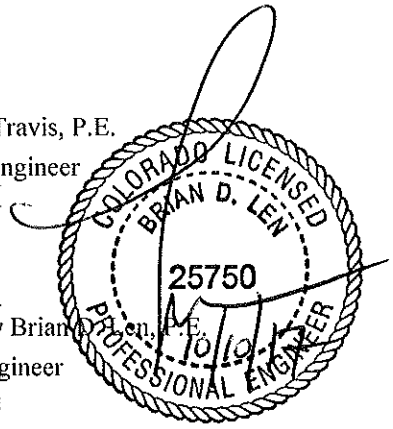
We were advised that the wash plants had produced approximately 107,397 tons of waste coal during the month of July 2017: approximately 174,825 tons during August 2017: and approximately 127,510 tons during September 2017. It is our understanding that the fines being produced at the wash plant, which 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 57.91 feet below the existing ground surface (bgs) on July 17th, at 57.87 feet bgs on August 20th and at 57.79 feet bgs on September 9th of 2017. The water level in the eastern monitor well (RW#2) was measured at 56.52 feet bgs on July 17th, at 56.51 feet bgs on August 20th and at 56.48 feet bgs on September 9th of 2017. 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 July 17th, August 20th and September 9th of 2017.

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

September 29, 2017-Underdain Outlet/Seepage Area

September 29, 2017-Seepage Area

September 29, 2017- Southwest End of Underdrain

September 29, 2017-Lower & Second Bench Vegetation

September 29, 2017-Areas 2, 3, 4 Stockpile

September 29, 2017-Expansion Ares from Areas 2, 3, 4

NWCC, INC.
FIELD REPORT

Project:	Refuse Pile	**Project No.:**	99-3983	**Date:**	9/28/17
				Time:	4.5
Location:	Foidel Creek Mine	**Report No.:**	85	**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 557 through 559 on the material being placed for 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 on-site during our visit.

NUCLEAR DENSITY TEST RESULTS

Project: Refuse Pile **Project No.:** 99-3983 **Date:** 9/28/17
Report No.: 85

Test No.	Location Northing/Easting	Depth Elev.	Proctor No.	Dry Density (pcf)	Water Content (%)	Actual Compaction	Required Compaction
557	North 30746.77 East 17203.53	6980.847	12	108.8	1.9	99	90
558	North 31608.88 East 16810.6	6979.522	12	106.1	2.0	97	90
559	North 31593.47 East 17560.01	6974.741	12	106.6	1.6	97	90

PROCTOR DATA

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

Comments:

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