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

January 7, 2018

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

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 fourth quarter of 2018 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 December 28, 2018 to provide the quarterly inspection/observations of the Refuse Pile.

At the time of our site visit on December 28, 2018, 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.

In addition, a representative of NWCC visited the refuse pile on December 26, 2018 to conduct compaction testing in the new Expansion Area of the refuse pile. Two compaction tests (#572 and #573) 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 not accessible at the time of our site visit due to snow.

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 December 28, 2018 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 plant had produced approximately 117,202 tons of waste coal during the month of October 2018: approximately 174,349 tons during November 2018: and approximately 155,008 tons during December 2018. 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 57.02 feet below the existing ground surface (bgs) on October 21st, at 57.10 feet bgs on November 4th and at 57.14 feet bgs on December 16th of 2018. The water level in the eastern monitor well (RW#2) was measured at 56.21 feet bgs on October 21st, at 56.21 feet bgs on November 4th and at 56.19 feet bgs on December 16th of 2018. 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 October 21st, November 4th and December 16th of 2018.

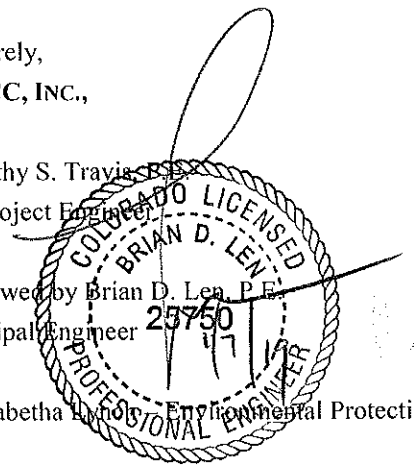
Based on our observations, it appears that the refuse pile is currently being constructed and maintained in general accordance with the project specifications and plans submitted under 2.05.3(8) and that the potential hazard to human life and property at the site in its present condition is minimal. 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

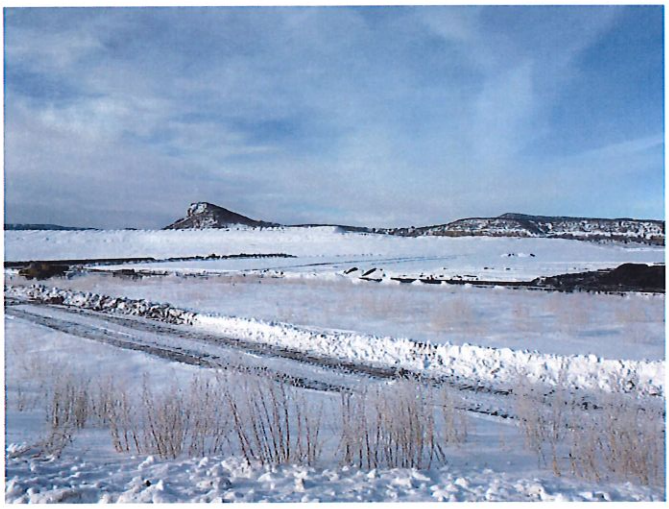


cc: Tabetha Lemon - Environmental Protection Specialist - CDRM&S

December 28, 2018-Underdain Outlet/Seepage Area

December 28, 2018-Seepage Area

December 28, 2018- Expansion Area-Stockpiles



December 28, 2018- Areas 2, 3, 4 from Expansion Area

December 28, 2018-Bench 1 and 2

December 28, 2018-Road to Areas 2, 3 and 4

NORTHWEST COLORADO CONSULTANTS, INC.

Project:	Refuse Pile	**Project No.:**	99-3983	**Date:**	12/26/18
				Time:	4.5
Location:	Foidel Creek Mine	**Report No.:**	90	**Mileage:**	45
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 572 and 573 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:

Representatives of Twentymile Coal Co. were on-site during our visit.

NUCLEAR DENSITY TEST RESULTS

Project: Refuse Pile **Project No.:** 99-3983 **Date:** 12/26/18
Report No.: 90

Test No.	Location Northing/Easting	Depth Elev.	Proctor No.	Dry Density (pcf)	Water Content (%)	Actual Compaction	Required Compaction
572	North 31552.84 East 16888.69	6997.07	12	103.2	3.6	94	90
573	North 31455.11 East 17249.96	6996.49	12	107.6	2.9	98	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