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

October 9, 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 third 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 September 28, 2018 to provide the quarterly inspection/observations of the Refuse Pile.

At the time of our site visit on September 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 September 13, 2018 to conduct compaction testing in the new Expansion Area of the refuse pile. Three compaction tests (#569 to #571) 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 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 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 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 155,219 tons of waste coal during the month of July 2018: approximately 138,614 tons during August 2018: and approximately 138,250 tons during September 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 57.08 feet below the existing ground surface (bgs) on July 8th, at 56.96 feet bgs on August 26th and at 56.93 feet bgs on September 22nd of 2018. The water level in the eastern monitor well (RW#2) was measured at 56.34 feet bgs on July 8th, at 56.14 feet bgs on August 26th and at 56.10 feet bgs on September 22nd 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 July 8th, August 26th and September 22nd of 2018.

Based on our 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

COLORADO LICENSED BRIAN D. LEN 25750 PROFESSIONAL ENGINEER 10/10/18

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:**	9/13/18
				Time:	4.0
Location:	Foidel Creek Mine	**Report No.:**	89	**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 569 through 571 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.

NWCC, Inc.
Field Density Tests

PROJECT NAME: Refuse Pile
Tech: CR

PROJECT NUMBER: 99-3983
REPORT NUMBER: 89

TEST NO.	DATE	LOCATION Northing / Easting	PROCTOR NO.	ELEVATION (ft)	IN-PLACE DRY DENSITY (pcf)	MOISTURE CONTENT (%)	MOISTURE VARIANCE	PERCENT COMPACTION (%)	REQUIRED COMPACTION
569	13-Sep-18	North 31092.7 East 16573.73	12	6991.389	103.7	1.8	-5.8	94	90
570	13-Sep-18	North 31358.73 East 16851.01	12	6995.971	106.2	2.0	-5.6	97	90
571	13-Sep-18	North 31351.04 East 17342.45	12	6998.812	104.5	1.9	-5.7	95	90

PROCTOR DATA

Proctor No.	Maximum Dry Density (pcf)	Optimum Moisture Content (%)	Moisture Specification (%)	Relative Minimum Density (pcf)	Relative Maximum Density (pcf)	ASTM Method	Soil Type
7	111.5	11.0				D698	Processed Waste Coal
10	107.6	11.0				D698	Processed Waste Coal
11	100.3	10.2				D698	Processed Waste Coal
12	109.8	7.6				D698	Processed Waste Coal

Comments:

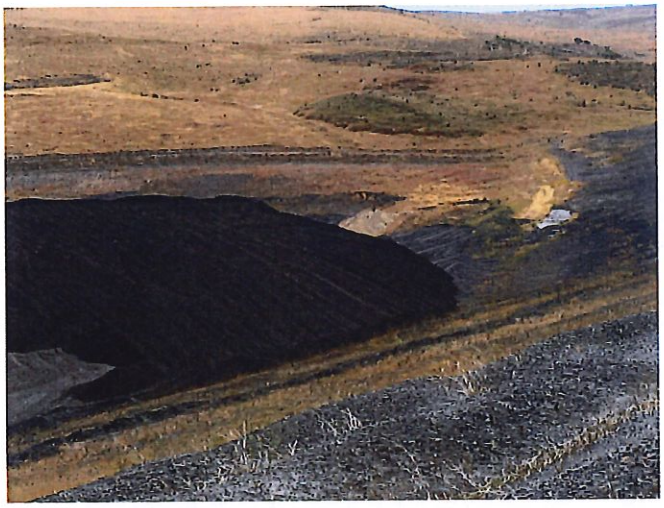
BSG = Below Subgrade Grade
SG = Subgrade Grade
SBG = Subbase Grade
BSBG = Below Subbase Grade
BCG = Base Course Grade

BBCG = Below Base Cousre Grade
FG = Footing Grade
BFG= Below Footing Grade
BTOT Below Top of Trench
BEG = Below Existing Grade

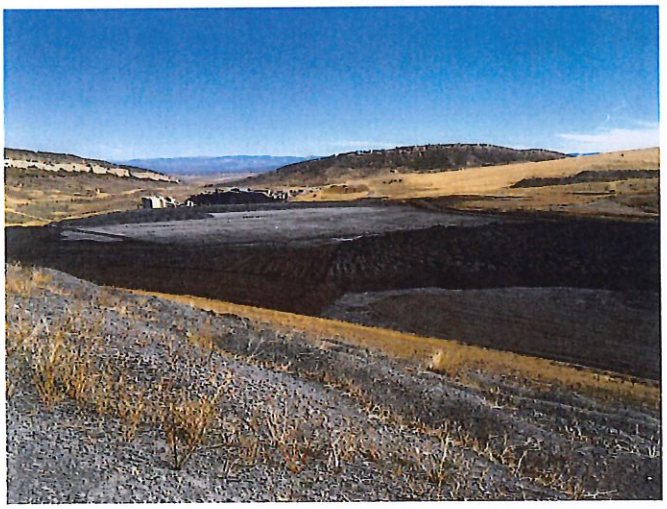
NEC = Northeast Corner
SEC = Southeast Corner
NWC= Northwest Corner
SWC= Southeast Corner

September 28, 2018-Underdain Outlet/Seepage Area

September 28, 2018-Seepage Area



September 28, 2018- Southwest End of Underdrain



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

Septermber 28, 2018-Bench 1 and 2 Revegetation