

BOWIE RESOURCES, LLC
Bowie No. 2 Mine
Coal Mine Waste Bank Nos. 1, 2, & 3 Inspections –3rd Quarter 2020

On September 17th, 2020, a visual inspection of the Bowie No. 2 Mine coal mine waste banks was performed by the undersigned in accordance with Rule 4.10.2. is inspection includes Gob Pile Nos. 1, 2, and 3. Pile No. 1 is considered inactive. Pile no. 2 is located north of Bowie Road and is currently idle. Pile no. 3 is located south of Bowie Road.

I, Tamme Bishop, P.E., have a wide variety of experience in the design and construction of earth fill embankments. Nothing was observed during the inspection that would indicate the piles have a potential for failure. The slips discussed in the 4Q 2016 and 1Q 2017 report had been regraded to the design contours and show no evidence that would be cause for concern of slipping again. A fair cover of volunteer vegetation has been established.

Gob Pile #2: A small area of seepage discussed in past reports at the toe of gob pile #2 and west of the haul road is still seeping, although it appeared to be about the same as the 2Q inspection. There is still no movement associated with the seep and nothing seen during the inspection that would indicate the pile has a potential for failure. The aforementioned seep was first documented in 2Q of 2016. Since that time, the seep has not increased noticeably in flow and has not caused any instability in the pile. This area will continue to be monitored and discussed as needed in quarterly reports.

There are no windrows remaining on top of gob pile #2. All organic material and topsoil has been removed ahead of the waste bank founding. The upper diversion ditches were cleaned out during June, 2017 and were in good repair.

At gob pile #2, the first bench east of the haul road is covered with soil. The second bench east of the haul road is mostly covered with a subsoil pile. Most of the third and forth benches east of the road are covered with soil. Soil has been placed on most of the second, third, fourth and fifth benches west of the haul road and east of gob pile #4.

The top of gob pile #2 can serve as a drying area for end dumped gob, however, no gob is currently stockpiled on top of the pile. Gob is to be stacked to a maximum height of 20 feet, with a slope angle up to 1.5h:1v. A 25-foot buffer zone on the face of the gob pile will be maintained at all times. Gob will be spread and compacted to the currently approved slope configuration as soon as gob and weather conditions allow.

Gob Pile #3: The upper diversion and lower ditches at gob pile #3 were inspected, and were in good condition. The lower diversion ditch (J3) and culvert J1 were cleaned out in September 2019. Culvert J8 was cleaned out during December 2019. The seep that is north of the east drying area was not actively seeping. There was no water in the Fire Mountain Canal at the time of the inspection. When the seep was flowing, the Operator was capturing the flow and diverting it in the upper diversion ditch and away from the pile. Bowie has been closely monitoring the flow and has made the Fire Mountain Canal aware of the loss of water from the canal. The Fire Mountain Canal Company came out during the 2Q and compacted the area around the seep which is likely why the flow rate had decreased. Because there is no gob currently being placed in the area of the seep, it will not impact the

long-term stability of the gob pile. However, before final placement and compaction of gob in the footprint of the east drying area, an underdrain will be installed. Approval of the underdrain design was incorporated into the permit under Technical Revision No. 105.

There was no coal mine waste generated from the preparation plant during the quarter. Coal mine waste is to be placed in the piles in approximately horizontal lifts no more than 24-inches thick. The coal mine waste is dried and then spread and compacted by self propelled sheepsfoot compactors. There were twenty-eight (28) compaction tests were taken at gob pile #3 during the quarter. There were no compaction tests taken at gob pile #2 during the quarter.

The westernmost and easternmost sections of gob pile #3 serve as drying areas for end dumped material. The purpose of the gob drying area is to provide an area for temporary storage of gob for drying purposes. End-dumped gob in the gob drying areas is worked with dozers and track hoes to assist in the drying process. During the inspection, the Operator was taking available coverfill from between the main gob pile #3 area and placing it in the coverfill stockpile.

During active mining conditions, it is necessary to stockpile gob material at gob pile #3 during the winter months, then place and compact the stockpiled gob when weather allows. Stockpiling of gob can commence November 15 and end April 15. Winter stockpiled material will be re-handled and compacted by September 30. Beginning on October 1, the Operator should be compacting all material concurrently, until conditions again require stockpiling. The stockpiling dates listed above should be considered flexible and may change slightly from year to year based on weather conditions. The gob material will be stockpiled in rows generally running from northwest to southeast. The rows of gob will be placed in a controlled manner and overlap will be minimized so there is space between rows to allow for drainage to the southeast. Windrows were located on top of the pile and contained gob that had been hauled out of the west drying area.

The available volume of coverfill material is sufficient to meet the requirements of Rule 4.10.4(5). No coverfill was used for blending or other uses during the quarter. A new coverfill survey was conducted in November of 2019. This survey was compared to surveys conducted in 2015 as well as evaluated estimations of material placed on gob pile #2. During years 2015 and 2016, cover was placed on gob pile #2 on benches 2, 3, 4 & 5 between the haul road and gob pile #4. Estimated placement depths vary between 1.5' and 3.5 feet and the cover placed on those benches was approximately 50,000 CY. The coverfill was generated from the "West" Coverfill stockpile, which is now depleted, and from the "East" coverfill stockpile. No coverfill has been removed from the coverfill stockpile at gob pile #3, and no coverfill has been placed at gob pile #3. An additional 13,500 cubic yards was salvaged from the temporary ditch J11 area and placed in the East Stockpile.

A failure of the gob pile no. 1 would probably not be a hazard to human life. The pile is located above a large flat bench. The bench is approximately 80 to 150-feet wide directly below the pile. Additionally, the gob pile sediment pond is located below the pile. If the coal mine waste bank failed, the material would very likely be contained on the bench below the pile and or within the gob pile sediment pond.

A failure of gob pile no. 2 would probably not be a hazard to human life. A residential dwelling is located over 300-feet below pile no. 2. The piles are located above Bowie Road. A failure of the piles might damage Bowie Road and the Fire Mountain Canal but would not likely impact the residential dwelling.

A failure of gob pile no. 3 would not be a hazard to human life. A failure of the pile might damage the rail track below the pile. A small slip/slide occurred in February on the southern edge of the pile, no offsite damage occurred. The road at the toe of the pile was covered with gob making it inaccessible to vehicles.

I certify that to the best of my knowledge and belief, that the fill and other aspects of the coal mine waste banks have been constructed as permitted in the design approved by the DRMS.

 10.19.20 Date
Kae Stover
Colorado Professional Engineer
Registration No. 43402



Huddleston-Berry
Engineering & Testing, LLC

2789 Riverside Parkway
Grand Junction, Colorado 81501
Phone: 970-255-8005
Info@huddlestonberry.com

October 12, 2020
Project#01349-0001

Bowie Resources, LLC
43659 Bowie Road
Paonia, Colorado 81428

Attention: Mr. Basil Bear

Subject: Construction Materials Testing
3rd Quarter 2020
Bowie Mine No. 2
Paonia, Colorado

Dear Mr. Bear,

At your request, a representative of Huddleston-Berry Engineering and Testing, LLC (HBET) conducted field moisture and compaction testing, and laboratory moisture testing of coal mine waste materials placed at Bowie Mine No. 2 near Paonia, Colorado. Field testing was conducted on July 30th, August 25th, and September 28th, 2020. Soil compaction test reports, test location data, and laboratory optimum moisture and density (Proctor) data are attached.

We are pleased to be of service to your project. Please contact us if you have any questions or comments regarding the contents of this report.

Respectfully Submitted:
Huddleston-Berry Engineering and Testing, LLC

A handwritten signature in blue ink that reads "Michael A. Berry". The signature is fluid and cursive, with a long horizontal stroke extending to the right.

Michael A. Berry, P.E.
Vice President of Engineering

SOIL COMPACTION TEST REPORT

Task: Gob Pile Densities

Field vs. Lab Densities

Project No.: 01349 - 0001

Tested By: Dm **Date:** 7/30/20

Project Name: Bowie Mine

Work Order No.: 67936

Client Name: Bowie Resources

Authorized By: Client **Date:** 7/30/20

Placement Contractor: Bowie Resources

Reviewed By: MAB **Date:** 10/12/20

Contractor Representative: _____

No.	Point No.	Elevation	Max. Dry Density (pcf)	Optimum Moisture (%)	Wet Density (pcf)	Speedy Moisture (%)	Field Dry Density (pcf)	Relative Field Comp.(%)	Tare Weight (g)	Wet Weight (g)	Dry Weight (g)	Lab Dry Density (pcf)	Lab Moisture (%)	Relative Lab Comp.(%)	
1	499	5910.1	95.5	14.0	101.3				386.9	812.4	765.9	90.2	12.3%	94%	
2	500	5913.6	95.5	14.0	102.4				394.4	898.6	844.2	91.4	12.1%	96%	
3	501	5917	95.5	14.0	103.5				384.1	953.8	891.9	92.3	12.2%	97%	
4	502	5894.6	95.5	14.0	102.8				386.5	932.2	872.4	91.5	12.3%	96%	
5	503	5892.8	95.5	14.0	104.6				311.1	763.9	714.8	93.3	12.2%	98%	
6	504	5892.1	95.5	14.0	104.0				290.8	683.3	640.7	92.7	12.2%	97%	
7	505	5890.3	95.5	14.0	103.2				277.6	706.9	658.3	91.5	12.8%	96%	
8	506	5893.5	95.5	14.0	103.8				310.7	772.8	720.9	92.1	12.7%	96%	
9	507	5890	95.5	14.0	103.9				281.3	733.9	685.3	92.7	12.0%	97%	
10	508	5880.1	95.5	14.0	105.0				308.6	867.9	806.5	93.5	12.3%	98%	
11	509	5880.1	95.5	14.0	105.2				271.3	750.6	694.3	92.8	13.3%	97%	
12	510	5880.5	95.5	14.0	104.1				155.4	691.4	623.9	91.0	14.4%	95%	

Remarks: _____

SOIL COMPACTION TEST REPORT

Task: Gob Pile Densities

Field vs. Lab Densities

Project No.: 01349 - 0001

Tested By: Dm **Date:** 8/25/20

Project Name: Bowie Mine

Work Order No.: _____

Client Name: Bowie Resources

Authorized By: Client **Date:** 8/25/20

Placement Contractor: Bowie Resources

Reviewed By: MAB **Date:** 10/12/20

Contractor Representative: _____

No.	Point No.	Elevation	Max. Dry Density (pcf)	Optimum Moisture (%)	Wet Density (pcf)	Speedy Moisture (%)	Field Dry Density (pcf)	Relative Field Comp.(%)	Tare Weight (g)	Wet Weight (g)	Dry Weight (g)	Lab Dry Density (pcf)	Lab Moisture (%)	Relative Lab Comp.(%)	
1	511	5897.1	95.5	14.0	103.5				384.0	847.0	791.5	91.1	13.6%	95%	
2	512	5894.1	95.5	14.0	104.2				389.8	1000.2	931.2	92.4	12.7%	97%	
3	513	5892.1	95.5	14.0	103.3				392.8	886.5	830.6	91.6	12.8%	96%	
4	514	5894.9	95.5	14.0	109.5				532.8	1208.0	1118.0	94.9	15.4%	99%	
5	515	5895.7	95.5	14.0	105.6				536.0	1230.0	1148.7	93.2	13.3%	98%	
6	516	5884	95.5	14.0	104.0				527.8	1105.4	1036.5	91.6	13.5%	96%	
7	517	5884.5	95.5	14.0	103.2				526.2	938.4	890.5	91.2	13.1%	96%	
8	518	5885.5	95.5	14.0	105.1				532.9	1183.9	1111.1	93.3	12.6%	98%	
9	519	5885	95.5	14.0	104.3				532.4	992.6	942.3	92.9	12.3%	97%	

Remarks: _____

SOIL COMPACTION TEST REPORT

Task: Gob Pile Densities

Field vs. Lab Densities

Project No.: 01349 - 0001

Tested By: Dm **Date:** 9/28/20

Project Name: Bowie Mine

Work Order No.: 6909.4

Client Name: Bowie Resources

Authorized By: Client **Date:** 9/28/20

Placement Contractor: Bowie Resources

Reviewed By: MAB **Date:** 10/12/20

Contractor Representative: Basil

No.	Point No.	Elevation	Max. Dry Density (pcf)	Optimum Moisture (%)	Wet Density (pcf)	Speedy Moisture (%)	Field Dry Density (pcf)	Relative Field Comp.(%)	Tare Weight (g)	Wet Weight (g)	Dry Weight (g)	Lab Dry Density (pcf)	Lab Moisture (%)	Relative Lab Comp.(%)	
1	1000	5907.9	104.0	13.5	105.3				386.9	774.1	730.2	93.4	12.8%	90%	
2	1001	5906	104.0	13.5	106.7				530.8	1010.2	950.6	93.4	14.2%	90%	
3	1002	5900.1	104.0	13.5	109.4				390.4	873.0	813.1	95.8	14.2%	92%	
4	1003	5901.7	104.0	13.5	108.1				531.9	1016.6	961.6	95.8	12.8%	92%	
5	1004	5900.2	104.0	13.5	108.2				386.9	831.5	785.7	97.1	11.5%	93%	
6	1005	5898.7	104.0	13.5	108.0				534.1	995.1	945.6	96.4	12.0%	93%	
7	1006	5899.6	104.0	13.5	106.3				392.8	837.2	789.6	94.9	12.0%	91%	

Remarks: Steve not present on this day so Locations shot by Basil

Bowie Resources Gob Disposal
Location of Compaction Tests

Gob Pile # 3
July 30, 2020

Point #	North	East	Elev	Date
499	17519.59	35751.12	5910.1	July-30
500	17563.70	35707.96	5913.6	
501	17610.14	35667.81	5917.0	
502	17611.54	35793.85	5894.6	
503	17558.34	35847.70	5892.8	
504	17525.04	35884.23	5892.1	
505	17569.51	35925.06	5890.3	
506	17633.75	35879.95	5893.5	
507	17618.31	35960.10	5890.0	
508	17929.14	36482.24	5880.1	
509	17941.08	36533.30	5880.1	
510	17950.95	36573.11	5880.5	

Bowie Resources Gob Disposal
Location of Compaction Tests

Gob Pile # 3
August 25, 2020

Point #	North	East	Elev	Date
511	17612.60	35799.58	5897.1	Aug-25
512	17536.98	35874.43	5894.1	
513	17592.04	35963.85	5892.1	
514	17610.70	35898.22	5894.9	
515	17651.13	35909.15	5895.7	
516	17955.82	36455.83	5884.0	
517	17914.78	36492.51	5884.5	
518	17933.36	36576.46	5885.1	
519	17981.27	36563.35	5885.0	

Bowie Resources Gob Pile 3
Location of Compaction Tests

Gob Pile #3
September 28, 2020

Point #	North	East	Elevation	Date
1000	17333.05	35655.98	5907.85	9-28-20
1001	17357.16	35704.72	5906.00	
1002	17527.56	35846.59	5900.13	
1003	17590.41	35795.37	5901.68	
1004	17609.09	35851.10	5900.22	
1005	17611.65	35919.20	5898.73	
1006	17639.79	35909.86	5899.60	



Huddlestone-Berry Engineering & Testing, LLC
640 White Avenue, Unit B
Grand Junction, CO 81501
970-255-8005
970-255-6818

MOISTURE-DENSITY RELATIONSHIP

CLIENT Bowie Resources, LLC

PROJECT NAME Bowie Mine #2

PROJECT NUMBER 00489-0003

PROJECT LOCATION Paonia, CO

Sample Date: _____

14-0195

Sample No.: _____

Source of Material: _____

Gob #3 Borrow Blend

Description of Material: _____

Test Method: _____

ASTM D698C

TEST RESULTS

Maximum Dry Density 104.0 PCF

Optimum Water Content 13.5 %

GRADATION RESULTS (% PASSING)

#200

#4

3/4"

ATTERBERG LIMITS

LL

PL

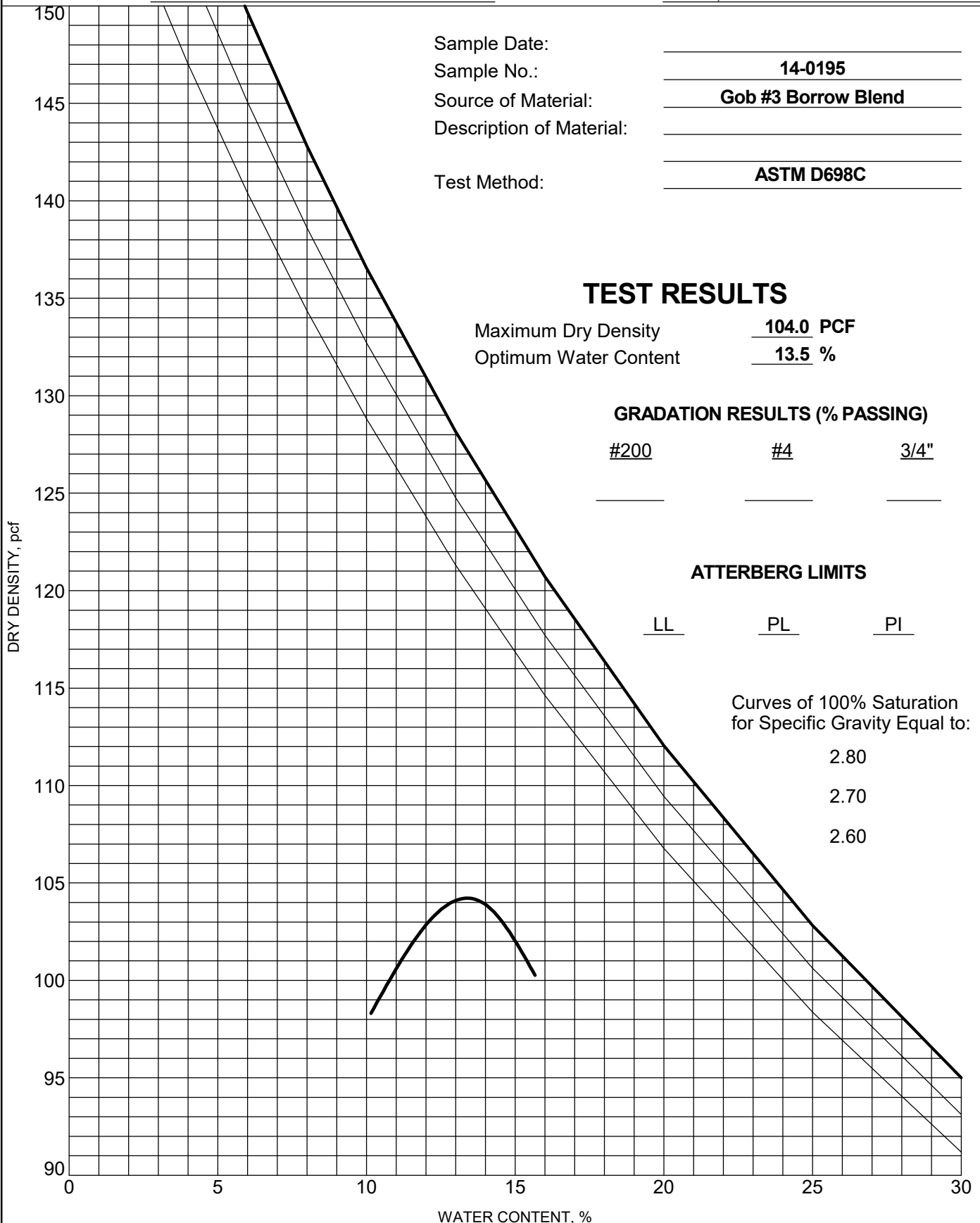
PI

Curves of 100% Saturation
for Specific Gravity Equal to:

2.80

2.70

2.60





Huddlestone-Berry Engineering & Testing, LLC
640 White Avenue, Unit B
Grand Junction, CO 81501
970-255-8005
970-255-6818

MOISTURE-DENSITY RELATIONSHIP

CLIENT Bowie Resources, LLC

PROJECT NAME Bowie Mine #2

PROJECT NUMBER 00489-0003

PROJECT LOCATION Paonia, CO

Sample Date: 3/28/2015
Sample No.: 15-0116
Source of Material: Gob 3 03/28/15
Description of Material: SILTY SAND with GRAVEL(SM)
Test Method: ASTM D698C

TEST RESULTS

Maximum Dry Density 95.5 PCF
Optimum Water Content 14.0 %

GRADATION RESULTS (% PASSING)

<u>#200</u>	<u>#4</u>	<u>3/4"</u>
<u>100</u>	<u>100</u>	<u>100</u>

ATTERBERG LIMITS

<u>LL</u>	<u>PL</u>	<u>PI</u>
<u>34</u>	<u>24</u>	<u>10</u>

Curves of 100% Saturation
for Specific Gravity Equal to:

2.80

2.70

2.60

