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April 14, 2020
Project#01349-0001

Bowie Resources, LLC
43659 Bowie Road
Paonia, Colorado 81428

Attention: Mr. Basil Bear

Subject: Summary of Instrumentation Monitoring
2nd Quarter 2020
Bowie Coal Waste Disposal Area No. 3
Paonia, Colorado

Reference: *Summary of Instrumentation Monitoring, 1st Quarter 2020, Bowie Coal Waste Disposal Area No. 3, Paonia, Colorado* by Huddleston-Berry Engineering & Testing, LLC for Bowie Resources, LLC, April 14, 2020.

Stability Evaluation, Gob Pile #3, Bowie No. 2 Mine by Huddleston-Berry Engineering & Testing, LLC for Bowie Resources, LLC, July 15, 2014.

Dear Mr. Bear,

At the request of the Colorado Division of Reclamation, Mining and Safety (DRMS), Huddleston-Berry Engineering & Testing, LLC (HBET) prepared this letter regarding quarterly monitoring of vibrating wire piezometers at Coal Waste Disposal Area No. 3 (CWDA No. 3) at the Bowie mine near Paonia, Colorado. The intent of the monitoring was to detect significant changes in the pore water pressures within the coal waste which may impact the stability of the waste pile.

Vibrating Wire Piezometers

Five vibrating wire piezometers were installed in CWDA No. 3 in October 2014. The piezometers were installed at three locations within the footprint of the gob pile. Monitoring of the functioning piezometers was completed by DOWL on June 25th, 2020. The attached monitoring report prepared by DOWL includes the piezometer monitoring data and the data is summarized in the following table.

VWP ID	Initial Pore Pressure 10/31/14 (psi)	03/25/20 Pore Pressure (psi)	06/25/20 Pore Pressure (psi)	Difference Since Installation (psi)	Difference Since Last Reading (psi)
VWP-A Deep	10.4	3.0	4.5	-5.9	+1.5
VWP-A Shallow	4.7	3.0	3.0	-1.7	0.0
VWP-B Deep	0.2	0.0	0.1	-0.1	+0.1
VWP-B Shallow	13.9	10.0	8.6	-5.3	-1.4
VWP-D	7.1	4.6	4.4	-2.7	-0.2

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Discussion of Vibrating Wire Piezometers

VWP-A Deep

VWP-A Deep was installed on October 6, 2014 near the northern edge of CWDA No. 3. VWP-A Deep was installed in the foundation soil approximately eight feet below the bottom of the gob. The pore pressures recorded at VWP-A Deep generally decreased since installation until September 2015. After that, the pore pressures fluctuated within a narrow range until the 2nd and 3rd Quarters of 2019 where increases were reported. However, the 1st Quarter 2020 pore pressure was down before another slight increase in the 2nd Quarter. In general, HBET does not believe that the pore pressure changes in VWP-A Deep are an indication of instability in CWDA No. 3.

VWP-A Shallow

VWP-A Shallow was installed on October 6, 2014 near the northern edge of CWDA No. 3. VWP-A Shallow was installed approximately ten feet above the base of the gob. After installation, the pore pressures dropped until November 2014. Between November 2014 and September 2015, increases in the pore pressures were recorded at VWP-A Shallow. However, between September 2015 and December 2016, the pore pressures decreased. Since then, the data have fluctuated within a narrow range. In general, HBET does not believe that the pore pressure changes in VWP-A Shallow are an indication of instability in CWDA No. 3.

VWP-B Deep

VWP-B Deep was installed on October 6, 2014 in the west-central portion of CWDA No. 3. VWP-B Deep was installed in the foundation soil approximately ten feet below the bottom of the gob. Since installation, the pore pressures recorded at VWP-B Deep have fluctuated within a narrow range. However, the 3rd Quarter 2019 reading showed a significant increase in pore pressures prior to coming back down in the 4th Quarter 2019 and remaining low in the 1st and 2nd Quarter 2020. In general, HBET does not believe that the pore pressure changes in VWP-B Deep are an indication of instability in CWDA No. 3.

VWP-B Shallow

VWP-B Shallow was installed on October 6, 2014 in the west-central portion of CWDA No. 3. VWP-B Shallow was installed approximately ten feet above the base of the gob. Since installation, the pore pressures recorded at VWP-B Shallow have fluctuated with periods of slight increase and slight decrease. In general, HBET does not believe that the pore pressure changes in VWP-B Shallow are an indication of instability in CWDA No. 3.

VWP-D

VWP-D was installed on October 7, 2014 in the east-central portion of CWDA No. 3. VWP-D was installed approximately ten feet above the base of the gob. Since installation, the pore pressures recorded at VWP-D have fluctuated. The pore pressures increase slightly during the 3rd Quarter of 2017. However, this likely reflects the activity at CWDA No. 3 during the monitoring period and the pore pressures have decreased since September 2017. In general, HBET does not believe that the pore pressure changes in VWP-D are an indication of instability in CWDA No. 3.

General

Based upon the results of the most recent VWP monitoring data, HBET does not believe that there is any reduction in the stability of CWDA No. 3.

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

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

ATTACHMENTS

DOWL
970-249-6828 ■ 800-865-9847 (fax) ■ 222 South Park ■ Montrose, Colorado 81401 ■ www.dowl.com
Alaska ■ Arizona ■ Colorado ■ Montana ■ Oregon ■ Washington ■ Wyoming

June 30, 2020

Mr. Mike Berry, PE
Huddleston-Berry Engineering and Testing, LLC
2789 Riverside Parkway
Grand Junction, CO 81501

SUBJECT: Summary Report, 2nd Quarter 2020, Vibrating Wire Piezometers
April – June 2020, Bowie Mine #2
Coal Waste Disposal Area (CWDA) #3

Greetings Mr. Berry,

DOWL conducted quarterly monitoring of installed vibrating wire piezometers (VWP) at Coal Waste Disposal Area #3 (CWDA #3), Bowie Resources, LLC Bowie Mine #2. This report is intended to cover the period of April through June 2020 (2nd Quarter). VWP data was recorded on 6/25/2020. Per the Colorado Division of Reclamation, Mining & Safety (CDRMS) and your instructions, vibrating wire piezometer readings for all active piezometers are taken quarterly.

We present a graph of measured pore pressures on the attached Figure 1 and numerically in Table 1 below. Table 1 is a summary of the initial, prior and current readings. In addition, we present the difference between the current pore pressures and those at the time of installation, the previous quarter, and previous year.

Table 1. Summary of Pore Pressure Readings

VWP ID #	Pore Pressure (psi)				Pressure Difference (psi)		
	10/31/2014 Installation	Last Year 6/14/2019	Last Quarter 3/25/2020	Current 6/25/2020	Since Installation	Last Year	Last Quarter
VWP-A Deep	10.4	5.2	3.0	4.5	-5.9	-0.7	1.5
VWP-A Shallow	4.7	3.4	3.0	3.0	-1.7	-0.4	0.0
VWP-B Deep	0.2	1.0	0.0	0.1	-0.1	-0.9	0.1
VWP-B Shallow	13.9	9.7	10.0	8.6	-5.3	-1.1	-1.4
VWP-D	7.1	5.1	4.6	4.4	-2.7	-0.7	-0.2

As seen on Figure 1, when compared with the previous quarter, three of the pore pressure readings had very little change, while one (VWP-B Shallow) had a slightly sharper decline and one (VWP-A Deep) had an increase. The 2nd quarter readings appear to be nearly in-line with the typical stabilized trend for 3 of the 5 WVPs. However, two of the piezometers (VWP-A Deep and VWP-B Shallow have more recent erratic behavior. All of the piezometers have had a decrease in pore pressure since last year (a wetter year) and since installation.

If you have any questions regarding this letter or the instrumentation monitoring at CWDA #3, please contact me at (970) 497-8821 or Lbrandt@dowl.com.

Respectfully Submitted,
DOWL

Laurie Brandt, CPG
Certified Professional Geologist

Dennis A. Russell, PE
Senior Geotechnical Engineer

Enclosure: Figure 1 – Vibrating Wire Piezometer Data Graph

Figure 1 - Bowie Mine #2 - CWDA #3
Vibrating Wire Piezometer Data