J. E. STOVER & ASSOCIATES, INC.

743 Horizon Court, Suite 334
GRAND JUNCTION, COLORADO 81506
PHONE: (970) 245-4101

MINE ENGINEERING **CIVIL ENGINEERING**
MINE RECLAMATION **CONST. MANAGEMENT**

September 3, 2024

Rob Zuber
Division of Reclamation, Mining & Safety
1313 Sherman St., Room 215
Denver, CO 80203

Re: Bowie Resources, LLC, Bowie No. 2 Mine
Technical Revision #66, Adequacy #1
Permit C-1981-038

Dear Mr. Zuber:

DRMS' letter dated August 29, 2024 transmitted its adequacy review for the referenced permit revision. On behalf of Bowie Resources, LLC, following are its responses to the DRMS' comments and concerns.

1. **DRMS :** On Map 07, please add a text box stating that the alignment of the Farmers Ditch is conceptual and may vary per field conditions encountered during construction.

   BRL: Please see revised **Map-07**.

2. **DRMS:** On Map 07, please clarify the symbology for SAEs. It appears that green hatching is used in some locations but not other locations. Please check that all symbology is correct and consistent on this map.

   BRL: Please see revised **Map-07**.

3. **DRMS:** On Map 07, there is one label for both the proposed SAE (where the pond is now located) and the silt fence or wattle. (Note that the correct spelling is "wattle" not "waddle.") There should be two different labels for these features: one for the SAE and one for the structure (silt fence or wattle).

   BRL: Please see revised **Map-07**.

4. **DRMS:** Map 07 should indicate if there is a change in the alignment and/or length of the ditch that collects runoff from the road above the pond (Highway 133).

   BRL: Please see revised **Map-07**.

5. **DRMS:** It appears that text at the top of page 2.05-40 (listed below in italics) has been excluded by mistake. This is the continuation of a paragraph that starts on page 2.05-39. Please explain or revise the page. If necessary, add a page 2.05-40a.

   4. 05.2 and if the disturbed surface drainage area within the total disturbed surface area is small, the exemption may be given.

   BRL: Please see revised pages **2.05-40 through 2.05-43**.

6. **DRMS :** Page 2.05-40 should include additional text that describes how the SEDCAD analysis illustrates how the silt fence or straw wattle will result in compliance with Rule 4.05.2. This should include a discussion of the settleable solids concentration. This is the continuation of a paragraph that starts on page 2.05-39. Please explain or revise the page. If necessary, add a page 2.05-40a.

   BRL: Please see revised pages **2.05-40 and 2.05-41**

7. **DRMS:** In the pages related to the SEDCAD demonstration for the SAE, there appear to be duplicate pages. The first page (with no page number) appears to be identical to page SAE-1. Please explain or remove the extra page.

   BRL: Please see revised **Map-07**.

8. **DRMS:** On page SAE-1, "gob pile #3" is included in the text. This appears to be an error. Please explain or revise this text.

   BRL: Please see revised **page SAE-1**.

Please feel free to contact me if you have any questions.
Sincerely,

Tamme Bishop

Tamme Bishop, P.E.
Project Engineer

Cc: Paonia Library
Basil Bear

Small Area Exemption
Farmers Ditch Area
Alternate Sediment Control
Straw Log substitute for Silt Fences

The following table summarizes the peak water stage, trap efficiency and silt fence length for the SAE at the loadout as shown on Map-07.

Description	Peak Water Stage Feet	Trap Efficiency %	Length Feet
SAE at Farmers Ditch	0.28	56.59	100

The design flow rate for the silt fence is 10 gallons per minute per square foot. The peak water stage is 0.28 feet or 3.36".

The key factor in sediment control is the trap efficiency. According to data published by American Excelsior Company, its 12" Curlex sediment log has a trap efficiency(% Soil Retained) of 70.3% and a flow rate of 37.5 gallons per minute per square foot. Its 6- and 9-inch sediment logs have a trap efficiency of 53.9% at 42.5 gallons per minute per square foot.

The high flow rates of the sediment logs in relation to the silt fence design would indicate run-off will not overtop the straw logs. The straw logs will filter the run-off faster that the sediment fences. *The favorable trap efficiency of the straws logs indicate they are as good as or better than the designed silt fence.* The 6- and 9-inch straw logs have a slightly lower trap efficiency that is not considered significant.

Straw logs will be keyed into the natural soil at the low point of reconstructed farmers ditch as shown on Map 07. The total length of the straw logs will be comparable to the length indicated in the silt fence designs including tie back distances. The straw logs will be overlapped to prevent flow bypass when pieces are joined to achieve the appropriate total linear footage.

4.05.2 and if the disturbed surface drainage area within the total disturbed surface area is small, the exemption may be given.

The operator has two small area exemptions at the train loadout area which falls within the guidelines of Rule 4.05.2(3)(a)(b). These areas are described as follows:

Mine Silo Area Railroad Outslope

This area consists of approximately 1.5 acres of revegetated disturbance occupying outslopes of the railroad embankment developed at the train loadout facility. This small area exemption is depicted on Map 7. Flow from this area travels through a grass filter established below the site. The grass filter consists of the toe of outslopes of the railroad embankment developed at the train loadout facility. The grass filter consists primarily of Smooth Brome and is established on the perimeter of an irrigated orchard. Cover in the grass filter area is conservatively estimated at 50 percent. No mixing of surface drainage and underground mine drainage occurs within or results from this small area exemption.

SedCad[7] modeling utilized to describe this site predicts runoff from the site will occur in compliance with the allowable settleable solids concentration. The SedCad[7] modeling is presented in Exhibit 8 Protection of the Hydrologic Balance, pages SAE-26 through SAE-44.

Farmers Ditch Small Area Exemption

This area consists of approximately 0.8 acres of reclaimed surface, including the reclaimed sediment pond. The runoff will be directed to and filtered through a silt fence or straw wattle as shown on Map-7. SedCad pages are included as SAE-1 though SAE-9 (Tab 8) and demonstrate the small area exemption will be in compliance with the allowable settleable solids concentration.

The Operator will attempt to monitor quarterly. The samples will be analyzed for pH, conductivity and total settleable solids. Samples will be considered in compliance if they contain total settable solids of 0.5ml/l or less and there is a pH greater than 6.5 and less than 9.0.

(iii) Probable Hydrologic Consequences.

The probable hydrologic consequences may be divided into surface water and groundwater systems. The effects will be organized as follows:

Effect to surface water from mine facilities.
Effect to ground water from mine facilities.

Surface Water effects - Mine Facilities.

Although the potential exists for increased sediment load due to erosion and leaching from coal fines, Rule 4.05.2 requires all surface flow to pass through properly designed sediment control retention ponds. Prior to any discharge from the mine site, effluent is required to meet NPDES standards. After cessation of operations, all surface disturbances will be reclaimed and revegetated. The sediment-control system will remain in place until removal is approved by the DMG. As a result, the increased sediment load from disturbed areas is not expected to reach receiving streams.

Ground Water Effects - Mine Facilities.

The North Fork of the Gunnison alluvium as described in Section 2.04.7 will not be impacted as the result of coal mining activities because the permeability of the alluvial aquifer is relatively low due to the high content of clay and silt particles. This low permeability will restrict the downward migration of “salts” that could be leached out of the coal stockpiles and coal fines. Water level and quality data obtained from monitoring wells MW-1 through MW-3, located at the train loadout area, substantiates the prediction.

(iv) Monitoring Plan.

Alluvial wells 1 through 3 (MW-1, MW-2, and MW-3) will be monitored quarterly for field parameters. A full suite sample will be obtained quarterly for MW-1 and MW-3 during the second and fourth quarters.

The loadout and stockpile sediment ponds will be monitored in accordance with discharge permit requirements.

The loadout and stockpile area monitoring plan does not include monitoring points for springs, stock ponds, deep bedrock monitoring wells, ditches, streams, rivers or naturally occurring runoff from gulches and draws.

Base line data for the alluvial wells MW-1, MW-2 and MW-3 are included in Exhibit 3 Baseline Water Monitoring Data.

Field parameters for groundwater are depth to water level, pH, conductivity and temperature. If surface water monitoring points are added to this monitoring plan, field parameters for surface water will be flow, pH, conductivity and temperature. Equipment and methods used to measure the field parameters include:

pH - A Cole Parmer pocket-size tester (pH Tester II). Range - 1.0 to 15.0 pH. Resolution: 0.1 pH. Accuracy: +/- 0.1 pH. Temperature compensation: automatic 0 to 50˚ C. Calibration: 1, 2 or 3 point.

Conductivity - Two Cole Parmer pocket-size microprocessor-controlled testers with different range capabilities (TDS Tester 10 and TDS Tester 20). Accuracy: +/- 2% FS. Temperature conmpensation: automatic 0 to 50˚ C. Operating temperature: 0 to 50˚ C. Range 0 to 1,990 and 2,000 to 19,900 umhos/cm.
Depth to Water - A Water Level Indicator (M-Scope) is used to measure depth to water. The cable is marked in 5-foot increments. A tape measure is used to determine accurate distances between marked increments.

Temperature - A standard mercury thermometer which

measures temperature in degrees Celsius and a Cole Parmer microprocessor-controlled tester (Temptester). Range: -28 to 150^0 C. Resolution: 1^0 C. Accruacy: +/-1% FS.

Dissolved oxygen - Horiba Model U-7, membrane type with automatic temperature compensation to 0 to 40^0 C, galvanic cell 0 to 20 ppm +/- 1.0 ppm.

The electronic water monitoring instruments may vary. However, the stated accuracy of the instruments will be equal to or greater than that listed above.

The pH meter and the conductivity meter are calibrated prior to all sampling events. The pH meter is calibrated using the 2-point method. The expected pH is bracketed by the pH of the calibration solution. In most cases the pH meter will be calibrated at 7.0 and 10.0 which will bracket all of the current monitoring results. If an expected pH is less than 7, the pH meter will be calibrated at 4.0 and 7.0.

Flow - One of two methods, 1) time of flow into a container of known size and 2) utilize a portable 60" V-Notch weir.