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

January 4, 2019

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

Re: Bowie Resources, LLC, Bowie No. 2 Mine
TR-117, Reduce Hydrologic Monitoring
Adequacy Review
Permit C-1996-083

Dear Ms. Binns:

DRMS' letter dated January 2, 2019 transmitted its adequacy review for the referenced technical revision. On behalf of Bowie Resources, LLC, (BRL), follow are its responses to the DRMS' comments and concerns.

1. DRMS - Rather than sample in "second or fourth quarter," the Division requests BRL sample in second quarter, particularly for surface water. The Division believes that there will be more value in collecting the water quality during higher periods of runoff when loading to the river could be significant. There is the likelihood that during fourth quarter sampling events there will be inadequate flow at some sampling points. The Division prefers that BRL will be able to collect a sample, as opposed to a "no discharge" value.

   BRL – The change to the second quarter full suite sampling was made as requested for surface water. The flexibility to obtain a full suite groundwater sample in the second or fourth quarter was not changed.

2. DRMS - Please revise the Hydrologic Monitoring Plan to include the commitment, "At least one year before any Phase III bond release applications are submitted, BRL will resume water quality full-suite sampling at least semi-annually." Resumption of more frequent sampling should provide enough hydrology information for DRMS to evaluate and make findings related to the bond release.

   BRL – The commitment was added to the bottom of page 2.05-127.

3. DRMS - There appears to be an omission in the PAP. In the first paragraph at the top of page 2.05-125, the Hubbard Creek locations are listed but not the Terror Creek locations. This is confusing to the reader. Please include the Terror Creek sampling sites.

   DRMS – Terror Creek was deleted from the first paragraph of page 2.05-125 since the Terror Creek Monitoring is explained towards the bottom of page 2.05-126.

Please let me know if you have any additional questions.

Sincerely,

J. E. Stover

J. E. Stover, P.E.
Consulting Engineer

Cc: Basil Bear

Attachments:
Pages Volume I, pages 2.05-124 through 2.05-127

(3)(b)(iv)

Hydrologic Monitoring Plan

The following monitoring plan is designed to provide data which will verify the Bowie No. 2 Mine will not have significant adverse impacts on the surface or subsurface water which is within or adjacent to the permit area. The hydrologic monitoring locations, shown on Map 9 are:

Springs will be monitored quarterly. Depending on weather conditions, the first quarter monitoring event may be delayed until April or May. Field parameters will be measured each quarter and a full suite sample will be obtained each quarter from all springs which have a flow of five gallons per minute or more. Springs 2-4, 2-5, 2-6, 2-7 and 2-8 will be removed from the monitoring program since they are inaccessible due to a slide.

Stock Ponds will be monitored quarterly. Depending on weather conditions, the first quarter monitoring event may be delayed until April or May. The following information will be collected for the ponds; 1) inflow; 2) outflow; and 3) water level below spillway outlet or depth of water in pond measured from the bottom of the pond.

The following ten drill holes will be monitored: DH-39, DH-49, DH-67B, DH-67D, DH-67Abv, DH-67Blw, CWI-DH-58, CWI-DH-60, 2010-1SS and 2010-1B. Depending on weather conditions, the first quarter monitoring event may be delayed until April or May. Field parameters will be measured each quarter. A full suite sample will be obtained annually during the second or fourth quarter. In 2014 the Operator unsuccessfully attempted to rehabilitate TC-03-01(B) and TC-03-02. See HydoGeo November 2014 report in Volume III. Wells TC-03-01(B) and TC-03-02 will no longer be monitored. D-Seam monitoring wells DH-15, DH-25 and DH-38 can no longer be monitored since all three have damaged well casings. The Operator installed a new D-Seam monitoring well in the general location of DH-15 during September 2016.

Monitoring of DH-65 is suspended. The well has ceased to yield any information. The field technician is unable to determine water depth or obtain a sample from the well due to a coating inside of the well.

The Deer Trail Ditch will be monitored at the designated upstream and downstream monitoring locations (designated "DTD" on Map 9). Field parameters will be measured each quarter. A full suite sample from List 1 will be obtained annually during the second quarter. During August of each year a sample will be obtained and analyzed for the parameters on List 2.

Hubbard Creek will be monitored quarterly at the designated upstream (D34-14) and downstream (HUB-LOW) monitoring locations shown on Map 9. Field parameters will be measured each quarter. A full suite sample from List 1 will be obtained annually during the second quarter.

Hubbard Creek and Terror Creek flow was measured at the upstream and downstream monitoring locations by the USGS. The stream gauging stations were installed by the USGS during 2001 under a cooperative (cost sharing) agreement between the Operator, Delta County and the USGS. Resource Engineering will measure quarterly flows in the creeks beginning the second quarter 2015.

The Fire Mountain Canal will be monitored 3 times per year during May, July and September at the designated upstream and downstream monitoring locations shown on Map 9. Field parameters will be measured during each monitoring event. A full suite sample from List 1 will be obtained annually during the first or third monitoring event.

Freeman, Sheep Corral, Stevens and Dove Gulches will be monitored quarterly at the designated upstream and downstream monitoring locations shown on Map 9. Field parameters will be measured each quarter. A full suite sample from List 1 will be obtained annually during the second quarter.

Iron Point Gulch monitoring will be suspended with PR-14. Iron Point Gulch was initially monitored because it was projected to be undermined. Mining in the area of Iron Point Gulch has been suspended and the Gulch is located about one half mile from the projected angle of draw.

The North Fork of the Gunnison River will be monitored quarterly at the designated upstream and downstream monitoring locations shown on Map 9. Field parameters will be measured each quarter except flow will not be estimated. Base flow for the river will be obtained from the USGS Somerset water stage recorder. The gaging station is located in the SE/4SW/4 of Section 10, Township 13 South, Range 90 West in Gunnison County approximately 2.3 miles east of Somerset and 4.8 miles upstream from Hubbard Creek. The recorder is located on the south bank of the river across from the reclaimed Hawksnest Silos. The gage is a water-stage recorder with satellite telemetry. A full suite sample from List 1 will be obtained annually during the second quarter. During August of each year a sample will be obtained and analyzed for the parameters on List 2.

Stephens Draw will be monitored quarterly at the designated upstream and downstream monitoring locations shown on Map 9. Field parameters will be measured each quarter. A full suite sample from List 1 will be obtained annually during the second quarter.

Gulches A, B, C, & D were monitored quarterly at the designated upstream and downstream monitoring locations shown on Map 9 except A-Gulch does not have an upstream monitoring point. Field parameters were measured each quarter. A full suite sample from List 1 was obtained semi-annually during the second and fourth quarters. It has been determined gulch monitoring has not provided any useful information so monitoring of the gulches has been permanently suspended.

West Terror Creek (SW-1 and SW-12) will be monitored quarterly for field parameters. A full suite sample from List 1 will be obtained annually during the second. Flows in the West Fork of Terror Creek, collected at flume monitoring stations SW-1 and SW-12, will be available in real time, updated hourly. Real time data will not be collected during periods of temporary cessation. Real time data will not be available during high flow, freezing conditions or when real time data equipment is inoperable. In the absence of real time data, flow will be measured monthly, increasing to weekly when the West Fork of Terror Creek lies within the predicted angle of draw. Weekly flow measurements will be initiated three months prior and continue for six months following longwall extraction under the West Fork of Terror Creek. Field parameters will be collected monthly during this nine month period. There will likely be periods of time during the winter months when the flumes are inaccessible.

Ephemeral channels EPH-1 through EPH-9 are located in the Spruce Stomp expansion area and are shown on Map 9. The Operator will endeavor to sample water from each ephemeral channel for complete chemical analysis and field parameters twice a year; once during snowmelt, and once during a storm event. Monitoring ephemeral channels EPH-1 through 9 will be temporarily suspended since mining will not be conducted under these channels for the foreseeable future.

Upstream and Downstream Stevens Gulch (SW-11 & SW-5) will be monitored quarterly for field parameters. A full suite sample from List 1 will be obtained annually during second quarter.

Terror Creek D32-4, SW-2, D21-1 will be monitored quarterly for field parameters. A full suite sample from List 1 will be obtained annually during the second quarter.

Terror Ditch SW-10 will be monitored quarterly for field parameters. A full suite sample from List 1 will be obtained annually during the second quarter.

Alluvial wells 1 through 9, 11, 12 and 14 through 17 will be monitored quarterly for field parameters. A full suite sample will be obtained annually during the second or fourth quarter.

Culverts 1 through 4 were monitored quarterly for field parameters. A full suite sample from List 1 was to be obtained semi-annually during the second and fourth quarters. Technical revision #59 demonstrated vegetation was established on the outslopes of the unit train loadout and sedimentation control other than vegetation was not required. Therefore, after the May 2009 approval of technical revision #59, monitoring of culverts 1 through 4 is no longer necessary.

The sediment ponds will be monitored in accordance with discharge permit requirements. During August of each year a sample will be obtained and analyzed for the parameters on List 2 if the sediment ponds discharge.

Mine inflows will be measured semi-annually for field parameters. An annual full suite analysis will be obtained for any point source of inflow greater than 5 gallons per minute. Results of the mine inflow monitoring including a seep location map and seep rate of flow will be submitted with the annual hydrologic report. During the development of the main entries under Terror Creek, mine inflows will be measured and reported to the DRMS quarterly. When the main entries under Terror Creek are complete, mine inflow monitoring frequency will revert to semi-annually. In the west mining area mine inflow and reporting will be used to substantiate dry conditions up gradient and to further evaluate the need for additional monitoring.

Small area exemptions shown on Map 20 will be monitored quarterly. The Applicant attempts to obtain samples. The samples will be analyzed for pH, conductivity and total settleable solids. Samples will be in compliance if they contain settleable solid levels of 0.5 ml/l or less and the pH is greater than 6.5 and less than 9.0.

At least one year before any Phase III bond release applications are submitted, BRL will resume water quality full-suite sampling at least semi-annually.

The following pages list the water monitoring stations.