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October 12, 2021

Mr. Leigh Simmons
Environmental Protection Specialist
Colorado Division of Reclamation, Mining and Safety
1313 Sherman Street, Room 215
Denver, CO 80203

Re: Permit C-1981-022, Oxbow Mining, LLC.
2021 Annual Subsidence Report

Dear Mr. Simmons:

This subsidence monitoring report is submitted as required by CDRMS Permit C-1981-022, PAP Section 2.05.6, page 2.05-104.

Summary – 2021 Subsidence Survey Results

Subsidence surveys were conducted during June and October 2021. Subsidence inspections indicated that 1) signs of recent subsidence was non-existent and 2) no new mass movement of existing features were noted.

Discussion

Sanborn Creek Mine

Twice per year, typically June and October, Oxbow Mining LLC (OMLLC) is required to visually inspect the pre-existing mass movement features located within the permit area in the vicinity of the Sanborn Creek Mine. Particular attention is to be focused upon the landslide located on the east valley slope of Coal Gulch, the landslide features located within the lower, unnamed drainage located between the Sanborn Creek and Coal Gulch drainages, and the landslide located on the west valley slope of upper Hawksnest Creek drainage. If significant new mass movement features are noted, they are to be brought to the attention of the Division. No new features were observed during 2021.

Background Information

Mining in the Sanborn Creek Mine was completed in March 2003. During the initial years of the mine, a visual subsidence-monitoring program had become part of the routine monitoring of Springs 1 through 11. Springs 1 through 6 are reached from the BLM/ U. S. Forest Service road located in the Coal Gulch drainage. During trips to these springs from April to October, the higher elevations of the permit area for the Sanborn Creek Mine and the Sanborn East Tract were visually inspected for mass movement features, with particular attention focused on the landslides in Coal Gulch and Hawksnest Creek. Springs 7 through 11 are located along old Highway 133 in the lower elevations of the permit area for the Sanborn Creek Mine and the Sanborn East Tract. During monthly monitoring the lower elevations were visually inspected for mass movement features, with particular attention focused on the landslides in Coal Gulch and the unnamed drainage between the Sanborn Creek and Coal Gulch drainages, above Springs 7 and 9 respectively.

An analysis of the previous results of this monitoring program suggests there was no identified movement in the slide features either naturally or associated with mining activities.

Beginning with the year 2002, PR-04 modified and removed the Sanborn Creek Mine spring and seep sampling program but the subsidence monitoring of the three mass movement areas in the vicinity of the Sanborn Creek Mine continued. Previously, OMLLC employees Mr. Tom Anderson and Mr. Jim Kiger had participated in the conduct of the required inspections. To provide continuity with respect to the specific areas to be inspected and to provide a perspective regarding any perceived changes to any of the mass movement features Mr. Kiger accompanied the undersigned during the 2015 inspections. The 2015 monitoring indicated there were no visible signs of recent mass movement and no additional new mass movement features noted.

Elk Creek Mine

PR-05 required additional monitoring of areas overlying the Elk Creek Mine (see the PAP discussion found on page 2.05-104) where regularly traveled roads are located below historic landslides in the Bear Creek drainage. The monitoring conducted in 2021 indicated no unusual movement of the slide features. Minor tension cracks remain in sandstone outcrops associated with Panel #1. No additional tension cracks were observed in the surface of the Bear Creek two track ranch road.

Background Information

During 2015, Mr. Kiger accompanied the undersigned to a number of areas visible in the permit area located within the Elk Creek, Bear Creek and Hubbard Creek drainages. These drainages are steep, deeply incised and contain a number of pre-existing slides and slump features. No visible signs of recent mass movement was apparent and no new mass movement features were noted during the year 2015 inspections.

The 2003 – 2021 inspections indicated similar results. No significant indication of recent mass movement was apparent and no new mass movement features were noted above the Elk Creek mine. The 2004 inspection noted tension cracks in sandstone outcrops and two track ranch road. See the 2004 report for details.

Please contact me at 970-929-6034 if you have any questions concerning the OMLLC annual subsidence monitoring program.

Sincerely,



Doug A. Smith
Chief Engineer

Xc: Mike Ludlow, (OMLLC)
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