

SUMMARY DOCUMENT  
FOR LARGE SCALE PERMIT APPLICATION  
AMERICAN COLLOID

Applicant: American Colloid Company  
PO Box 2010  
Belle Fourche, South Dakota 57717

Type of Mining: Large scale mining operation for bentonite

Legal Description: Portions of Sections 18, 19, and 20; T10N-R1E, Butte County

General Location: Approximately 12 miles northwest of Belle Fourche, South Dakota

Local Contact: Melody Smith  
Environmental Specialist  
Phone (605) 892-7178

Description:

On May 5, 2017, the Minerals and Mining Program of the Department of Environment and Natural Resources received a large scale mine permit application from American Colloid for the Stateline Project. The proposed operation will involve surface mining for bentonite on land approximately 12 miles northwest of Belle Fourche, South Dakota.

Approximately 332 acres of the 732 acre project area will be disturbed during the 15-year life of the permit. American Colloid will mine a series of pits using continuous backfill mining methods in six separate mining sequences within the proposed permit boundary. Continuous backfill method allows overburden from each successive pit to reclaim the previous pit. The open pits will range in size from 2 to 5 acres. Maximum pit depth will be 75 feet, but will generally be shallower. Multiple pit series may be open at one time, with a maximum unreclaimed disturbance estimated at 155 acres at any given time. Scrapers will strip topsoil pit by pit to minimize active surface disturbance at any given time. Overburden will be ripped and pushed with bulldozers or moved with scrapers. Scrapers may pile the bentonite from the pit on site for loading into trucks, or front end loaders will remove the bentonite directly from the pit and place it in haul trucks. The mined bentonite will be hauled along a road constructed in Wyoming to US Highway 212 and then to American Colloid's processing plant located about 10 miles to the northwest in Colony, Wyoming.

Mining is expected to start sometime in 2018 and be completed in 2033, but actual timing will be driven by product demand. Mining will be conducted for approximately 60 days annually,

but the schedule is variable. American Colloid plans to remove about 300,000 tons of overburden and 35,000 tons of bentonite annually during the mining operation. Overburden from new pits will be used to backfill the mined pits, with the exception of two overburden stockpiles at the western end of the mine which will remain after mining is completed. The permanent stockpiles will be necessary since American Colloid has determined there will be surplus overburden left after all mined pits are backfilled to original contours due to “swell” of the shale overburden. The overburden piles will be blended into the existing topography, covered with soil, and seeded with the approved seed mix.

#### Reclamation:

The proposed future use of the affected area is rangeland for livestock grazing and hay land, which are the present uses of the proposed area. Approximately 117 acres of the affected acreage will be reclaimed to hayland, and the remaining 215 acres will be reclaimed to rangeland. American Colloid will backfill all of the pits to approximate original contours with overburden removed from each pit during mining. The two permanent overburden stockpiles will be regraded to a 3:1 (H:V) slope or shallower. American Colloid will replace subsoil and topsoil before seeding. A modified chisel plow seeder will be used to seed the area with the seed mixture recommended by the Butte County Natural Resources Conservation Service. If necessary, American Colloid will place a fence around the area until a self sustaining vegetative cover is established.

#### Environmental Concerns:

Potential environmental impacts from the operation appear to be minimal. The area in and around the proposed operation has already been affected by various activities. The middle portion of the area was previously mined and reclaimed between 1975 and 1988 under Large Scale Mine Permit 6. American Colloid’s reclamation liability for 125.8 acres in this area was released on August 17, 1995. Most of the released area in Section 20 and the E1/2 NE1/4 Section 19 was reclaimed to crop land as spring wheat was planted in the area at the time of reclamation liability release. The area is currently used for cattle grazing and hayland.

Even though American Colloid does not plan to disturb intermittent and ephemeral drainages during mining, there is some potential for impacts to surface water. Mining activities will be a minimum of 35 feet from Crow Creek, an intermittent drainage which is a tributary of the Belle Fourche River. The creek is classified for marginal warm water fish life propagation, limited contact recreation, stock watering and fish and wildlife propagation, and irrigation. In the baseline water quality report, Total Suspended Solids (TSS) levels exceeded surface water quality standards once at the Upper Crow Creek sampling site (H1) and three times at the Lower Crow Creek sampling site (H2). Some of the elevated TSS readings may have been caused by cattle grazing along the drainage. However, the elevated readings at both sample sites on August 19, 2015 were attributed to heavy rains on August 17, 2015 which caused

erosion along the drainage. In addition, pH levels exceeded surface water quality standards at sampling site H1 on July 9, 2015. The exceedance was attributed to a possible pH meter error.

There is also an unnamed ephemeral drainage to Ghost Creek just to the north of the proposed mine area which flows into a reservoir just to the east of the proposed mine area. Mining activities will be a minimum of 15 feet from the drainage. The drainage is classified for recreation, stock watering and fish and wildlife propagation, and irrigation. Baseline samples collected from the drainage and reservoir were in compliance with surface water quality standards with the exception of pH in the Upper Reservoir sampling site H4 on April 30, 2015. The exceedance was attributed to a possible pH meter error

Since the slopes of the permanent overburden stockpiles and other mine disturbance will be within 35 feet of Crow Creek and 15 feet of the unnamed drainage, it is possible sediment from the operation could enter either drainage during storm events and spring runoff. With elevated baseline TSS levels in Crow Creek, it is important that American Colloid controls any erosion and sedimentation of the creek. American Colloid plans to take steps to prevent sediment from entering both drainages. V-ditches will be constructed to divert water along the downslope sides of the permanent overburden stockpiles along the drainages, around the upslope side of open pits, and below temporary topsoil and overburden stockpiles. The company will also install hay bales, sediment fences, waddles, sumps, and other structures to prevent erosion and sedimentation of both drainages. If American Colloid follows these procedures, erosion and sedimentation should not be a problem. During past inspections of other American Colloid mining operations, the department did not notice any erosion or sedimentation problems. All erosion and sediment control structures were working properly.

There should be no impacts to ground water. It is anticipated that no ground water will be encountered during the operation with the exception of isolated perched water tables identified during exploration drilling that may be intercepted during mining.

Impacts from noise and dust appear to be minimal since the nearest residences are Ben and Lori Garman located approximately 0.3 miles southwest and Robert Shear and Todd Larson located approximately 0.4 miles north of the proposed mining area. There should be no substantial increase in fugitive dust from the proposed operation since American Colloid will apply water to haul roads and the area will be mined approximately 60 days each year. The department has not received any complaints about dust or noise from other American Colloid operations.

No significant impacts to wildlife or vegetation in the area are anticipated. No Federal or state listed endangered, threatened, proposed, candidate, or rare plant or animal species were noted in the proposed mining area during baseline studies. In the wildlife survey, two red-tailed hawk nests were noted in the Crow Creek drainage along the southern edge of the proposed permit boundary outside of the proposed affected area. Even though the nests are within the 0.25 mile buffer zone from the proposed disturbed area, American Colloid does not plan to disturb the nests and will take any necessary mitigation measures during mining to protect them. A golden eagle nest was also identified in a tree along Ghost Creek, a tributary of Crow

Creek located approximately 1/2 mile east of the Shear and Larson homes and outside of the 0.5 mile wildlife survey perimeter. Impacts to the nest from the proposed operation should be minimal since there is a ridge between the nest and the operation.

No sage grouse leks were noted within the proposed mining area. The nearest lek is located about 3.8 miles southeast of the proposed mining area and will not be impacted by the operation.

American Colloid hopes to enhance the proposed area by establishing improved pasture and hay land conditions during the reclamation process.

Current Status – October 12, 2017:

The department notified American Colloid that the application was considered procedurally complete as of September 29, 2017. For more information, contact the Minerals and Mining Program, Joe Foss Building, 523 East Capitol, Pierre, South Dakota, or call (605) 773-4201.