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DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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December 8, 1997

TO: Pamela Grubaugh-Littig, Permit Coordinator

THRU: Daron Haddock, Permit Supervisor

FROM: David Darby, Senior Reclamation Specialist

RE: Phase III Bond Release, Mountain Coal Company, Gordon Creek #3 and #6 Mine, INA/007/017, File #2, Carbon County, Utah

SYNOPSIS

Mountain Coal Company has submitted a request for phase III bond release and an application with documentation to demonstrate that the regulatory requirements for bond release have been met. This application was received on August 11, 1997. Hydrologic requirements for bond release are reviewed and summarized herein. The available data indicates that pollution of surface and subsurface pollution of water has not occurred. Future occurrence of pollution from this site is expected to have a low probability. A lack of data can be construed, since a paucity of values exist for surface for water quality measurements.

ANALYSIS

Surface Water

All applicable data collected by the mine was reviewed and evaluated. The applicant summarized the surface water information, but did not draw statistical conclusions on the data. There is a paucity of values due to the ephemeral nature of the site . Any flows that may have taken place at intervals between sampling were not recorded.

- The operator monitored Site 3-1-W a total of 37 times during the last ten years. No data was collected on three occasions because the site was inaccessible. The site was dry 33 times, and no values were collected for water quality. One sample was taken on June 1, 1991 at a flow of 2.7 gallons per minute, and water quality parameters fell within normal guidelines.

- Since reclamation, there has been no surface water discharges leaving the Gordon Creek #3 and #6 permit area.

- Three monitoring sites in Coal Canyon, one above the reclamation site, one below the

reclamation site (above the sedimentation pond) and the spillway of the sedimentation pond.

- The sedimentation pond will be left on site in accordance with the post mining land use for cattle and wildlife. The spillway is sized to transmit flows in excess of the 100 year- 6 hour runoff event.

Ground Water

- There is only one groundwater monitoring site, 3-3-W, on the permit area. The site was established in January 1980 when mine workings intersected a fault which was the southern edge of a graben. The mine installed a 600 gpm sump pump and a 6 inch discharge pipe to pump the inflows to the two celled sedimentation pond. In January 1982 as retreat mining backed out across the fault the pumps were turned off and no more discharges occurred. Discontinuous monthly flow data shows discharges could range from 25,000 to 266,000 gpd.

- No water is currently discharged from the Gordon Creek #3 and #6 mine portals.

- No seeps or springs were monitored on the permit area. The applicant identified only four small seeps that appeared as a result of snowmelt.

- No wells were established on or adjacent to the permit area.

- The Gordon Creek #3 mine workings are about 3500 feet from Beaver Creek, and the #6 mine workings lie approximately 5500 feet from Beaver Creek.

Beaver Creek

In 1994 Steve Stamatakis sent a letter to the Division expressing concerns that the a spring area at the mouth of Coal Canyon was discharging larger flows, which drowned a group of trees and caused sloughing of the river embankment along Gordon Creek.

During an on site visit on October 3, 1997, Steve Stamatakis pointed out a stand of aspen trees at the mouth of Coal Canyon, the same canyon in which the Gordon Creek #3 and #6 mine portals are located . A stand of aspen, all similar in age and occupying the valley floor, apparently died catastrophically. Steve Stamatakis claims that the ground surrounding the trees became saturated with groundwater produced as a result of mining, killing the trees. He proposed that the water issuing from the seeps came from Beaver Creek, reducing the flows in Beaver Creek and increasing the flow of Gordon Creek.

Dan Guy discussed mining activities in the Gordon Creek #3 & #6 mining operations. Groundwater was contacted in the Gordon Creek #3 mine after mining through a 14 foot fault

(graben). The mine had to pump water from the mine daily. The mine working are located in a fault block, the south side of the block and limit of mining lies against a 40 foot fault. This fault block is part of the down thrown block of the Fish Creek graben (Figures 6-1 and 6-2, Horizon MRP). The National Mine working were developed on the adjacent side of the fault. Some of the National Mine workings extend across the fault and lie west of the Gordon Creek #3 Mine workings. Dan mentioned that a couple times during the development, Gordon Creek #3 Mine operations broke into the National Mine workings, but were sealed off. The fault intersects the creek in Coal Canyon at about the 7400 ft level.

On October 3, 1993 a group of people hiked up the west side of the canyon mouth to observe the stand of dead trees and to determine where the water saturating the canyon was issuing. An evaluation of the geologic features (on site and in the office) reveals a potential connection for transmitting ground water from the National/Gordon Creek #6 Mines and the spring area. It is difficult to establish a connection from Beaver Creek to the National/ Gordon Creek #3 and #6 Mines. The National Mine had mined in the graben block west of the Gordon Creek Mines (in the Hiawatha seam, Plate 1-3, Gordon Creek #3 and #6 Mines MRP). A possibility of any connection between the mines and the spring would be if water was intercepted at the faults bordering of the graben and transmitted via the mines to the spring. This scenario lacks the data to show the faults and mines transmit groundwater.

The spring area appears to be located at the interface between the Star Point Sandstone and the Mancos Shale. Similar springs exist in the Wasatch Plateau in relationship to the Star Point Sandstone. Water emanates from both sides of the creek and in the bottom of the canyon even though the creek cuts through the eastern side of the canyon. This fact leads to the assumption that water is moving horizontally along the contact than from a particular source. The sandstone units of the Star Point Sandstone contain higher porosities that hold and transmit groundwater more readily than the fine grains of the Mancos Shale. When water hits the Mancos Shale it tends to move laterally sometimes coming in contact with the surface as a spring. The flow appears to follow the parabolic shape of the canyon mouth where the Star Point sandstone intersects Coal Canyon. More water flows from the north and west side of the canyon than the east side, however seepage was noticed on the east side of the creek and road, alluding to the theory that the flow comes from a deeper source such as a formation supplied from the fault or overlying strata.

Voids created by mining could hold water more readily and transmit it to adjacent areas. This scenario has not been shown to be taking place at the National/Gordon Creek #3 and #6 mines.

The spring existed prior to development of the #3 and #6 mines. This is known because the miners noticed the meadow area and trees. Some have reported that the trees were killed when beaver built a large dam across the marshy meadow. This theory for the dead trees has been expressed by several people who has worked in the area, including Mel Coonrod and Pat Axelsen. They indicate the cause of the dead aspen are the result of large beaver ponds built

by a pair of beaver. Young trees are once again growing at marshy meadow above the dead trees. Beaver are no longer at the site.

Findings:

Prior to Phase III bond release, the Division must make a finding under R645-301-880.210 regarding occurrence and potential for water pollution.

Surface Water

Surface runoff information was collected over the Phase I and Phase II reclamation period. The monitoring data show that runoff from the reclamation site and stream flow exhibit ephemeral characteristics. One water quality sample was taken during the reclamation interim. One sample does not present a viable statistical summary for measuring runoff quality for future impacts.

More runoff characterization is needed before the Phase III Bond Release can be approved.

Ground Water

Ground water data was collected according to the mining and reclamation permit. There are no known exceedences of effluent limitation from mine water, and no current mine discharges.

Individuals have expressed concern that springs below the mine site in Coal Canyon have increased, and could be related to the Gordon Creek #3 and #6 mining activity. Information has been reviewed in regard to the potential impacts. No data has been submitted revealing new spring areas, showing baseline flows have increased or that the spring is related to the Gordon Creek #3 and #6 Mines. Evaluation of the ground water indicate no impacts have occurred or will occur on the site.

The operations meets groundwater standards for Phase III Bond Release.

cc: Daron Haddock, Permit Supervisor
Susan White, Senior Reclamation Biologist
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