

April 16, 2003

TO: Internal File

THRU: Daron Haddock, Permit Supervisor

FROM: James D. Smith, Sr. Environmental Scientist

RE: Mid-term Review, Co-Op Mining Company, Blind Canyon Mine, C/015/025-MT03

**SUMMARY:**

The Bear Canyon Mine is permitted by Co-Op Mining Company and operated by CW Mining Company. Much of the permitted and adjacent area includes pre-SMCRA disturbance. Bear Creek is a small perennial stream. Big Bear Spring, located just south of the permit area, is an important source of culinary water for the Castle Valley Special Services District (CVSSD).

Portals were constructed on the west side of Bear Canyon to access the Hiawatha and Blind Canyon Seams (#1 Mine) and the Tank Seam (#2 Mine). Up to the storage area above the Blind Canyon pad, the access road is identified on maps as the Primary Portal Access Road, and beyond the storage area it is identified on maps as the Primary Tank Seam Access Road.

The #2 Mine portal has been sealed and the pad and Primary Tank Seam Access Road are being reclaimed. The Hiawatha and Blind Canyon seams are being retreat-mined in the #1 Mine. Ground water collected in a sump in the #2 Mine is distributed throughout the Bear Canyon Mine property for culinary and mining use.

In a large tributary canyon on the east side of Bear Canyon, a new portal has been opened in the Wild Horse Ridge extension to mine the Blind Canyon seam (#3 Mine), and a portal to the Tank Seam is being built (#4 Mine). A suspended conveyor system has been built to transport coal from these Wild Horse Ridge mines to the existing tipples in Bear Canyon. The road to the #3 Mine is labeled on maps as the Primary #3 Mine Access Road, and the branch of the road that goes to the #4 Mine site is, at least for now, identified as the Pre-mining Recreational Road. Primary Conveyor Access Roads #1 and #2 serve the conveyor system.

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The Blind Canyon Mine was inspected on April 17, 2003 as part of the mid-term permit review. The main hydrologic issue considered during this inspection was use of best technology currently available (BTCA) to control sedimentation and prevent, to the extent possible, additional contributions of sediment to streamflow or to precipitation runoff outside the permit area.

**TECHNICAL ANALYSIS:**

## **OPERATION PLAN**

### **HYDROLOGIC INFORMATION**

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

**Analysis:**

#### **Groundwater Monitoring**

Piezometers SDH-2, SDH-3, MW-114, AND MW-117 have not been monitored for a year. NOV #NO3-40-1-1 was issued on February 21, 2003 for failure to monitor these piezometers. SDH-2 and SDH-3 were not monitored because of equipment problems, and monitoring equipment had not been installed on MW-114 and MW-117. The inspector's statement for the NOV states:

When it came time to report water monitoring data, the permittee reported "No Access" at the four wells, and this was done for three consecutive quarters, which included the five months such data was required. The "No Access" designation was not accurate since the four wells in question were accessible during the months of June, July, August, September, and October.

The permittee did not communicate with the Division to indicate problems with the well monitoring equipment or with gathering data. This was not done at this mine. A simple alternative would have been to use a measuring tape with a weight on the end to determine well water levels when the monitoring equipment failed.

These repairs were not completed for over nine months.

The Permittee now has the parts to repair SDC-2 and SDH-3, and repairs will be done by May 12, 2003, the abatement date for the NOV.

MW-114 and MW-117 were bored by Cyprus Plateau during an exploration program in 1991 or 1992. They were completed with casing and screen at that time, but were not outfitted with monitoring equipment. EarthFax Engineering obtained baseline water-depth data using a tape, but the Permittee thought that operational monitoring was not required, even though these piezometers were in the approved water-monitoring plan in the MRP. MW-114 and MW-117 will also have monitoring equipment installed by or soon after 12 May and regular operational monitoring will begin.

### **Sediment Control Measures**

Under R645-301-742.110, sediment control measures are to be designed, constructed, and maintained using the best technology currently available (BTCA). One of the purposes of the mid-term review is to ensure that the MRP commits to application of the BTCA to prevent additional contributions of suspended solids to stream flows outside of the permit area.

According to the Coal Mining Rules, sediment control measures consist of utilization of proper mining and reclamation methods and sediment-control practices and include siltation structures such as sedimentation ponds and other treatment facilities – which can include underground sumps; diversions; and road drainage. Sediment control measures listed in the Coal Mining Rules also include methods using straw dikes, riprap, check dams, mulches, vegetative sediment filters, dugout ponds, and other measures that reduce overland flows, reduce runoff volumes, or trap sediment.

There are 24 designated areas at the Bear Canyon Mine that are treated by methods other than siltation structures: except that there is no H or R, these are named BTCA Areas A through Z. Most of these BTCA areas were visited and evaluated during the April 17 inspection. Appendix 7-K contains fairly detailed descriptions of these alternate sediment control areas (ASCA), which utilize berms, silt fence, straw bales, erosion-control matting, catch basins, vegetation, and a metal pan beneath the Wild Horse conveyor. The attached table summarizes the information from Appendix K.

BTCA Area C, approximately 0.36 acre, extends down the slope between the Primary Portal Access Road (just below the Blind Canyon portal pad) and the junction of the Primary Tipple Access Road with the Primary Portal Access Road. Sediment control is from silt fencing at the entry of culvert C-7U. Most of this steep slope has vegetative cover, but rills have formed on one section where vegetation is very sparse. Rocks were placed in the rills and reseeding was done in 1991. The rilled section still has sparse vegetation, but based on observation over a number of years, the Permittee's assessment is that erosion has stopped. Mt Nebo Scientific concluded that living plant cover at areas C, D, and F equaled or exceeded that of background or natural conditions and that sediment control structures could be removed. During the inspection

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Division personnel recommended further seeding of the rilled area, but because of the steepness, any work should be done with minimal surface disturbance.

Part of the topsoil pile at BTCA Area O has been used to reclaim the #2 Mine Tank Seam Portal. The berm around the pile was not intact at the time of the April 17 inspection, but a subsequent inspection by Pete Hess found that the Permittee had reestablished this berm (as well as the berm around a temporary soil pile at the first switchback of the Primary Portal Access Road, by BTCA Area G).

Appendix K indicates that erosion-control matting is the designated sediment control measure at BTCA areas I, J, K, M, O, Q, and S along the Primary Tank Seam Road, and that the matting will be maintained. The matting has not been maintained, and at many of these areas the matting has degraded to the point that it is no longer functioning, nor even evident. Vegetation has become established at these areas, and Charles Reynolds stated during the inspection that Patrick Collins of Mt. Nebo Scientific, Inc. has determined the vegetative cover is adequate - the same as the reference area - to control sediment runoff from these areas.

Attachment A of Appendix K is the report of Patrick Collins' August 2001 study, which was specific to Areas C, D, F, and K. The conclusion of the study was that living plant cover at areas C, D, and F equaled or exceeded that of background or natural conditions and that sediment control structures could be removed. Conditions at Area K were borderline and removal could not be recommended. (A study of BTCA Area G by Mt. Nebo Scientific in 1994 concluded that vegetation was providing adequate sediment and erosion control at that site.) The 2001 study made no recommendations regarding other BTCA areas.

Nevertheless, there are no evident signs of erosion at Areas I, J, K, M, O, Q, and S. Living plant cover and rock and vegetative litter appear to be controlling sedimentation and preventing, to the extent possible, additional contributions of sediment to streamflow or to precipitation runoff outside the permit area. The lack of maintenance to the matting has not created on- or off-site impacts. Also, if these areas are reclaimed during the summer of 2003 as scheduled, replacing the matting now would provide little or no benefit.

BTCA Areas L, V, W, X, Y, and Z control sediment along the Wild Horse conveyor system and access roads. Area W consists of 5 sub-areas. Sub-area 1 is the conveyor pan that extends to the Lump Coal Storage Area and drains to ditch D-3D - near the Lump Coal Storage Area, which in turn reports to Pond A. Sub-area 2 includes a section of the conveyor pan, the disturbed surface around the conveyor tunnel, and the disturbed surface outside the berm around the Wild Horse topsoil stockpile (BTCA Area Y). Sub-area 2 reports to catch basin 1, and should any water overflow the berm around the topsoil stockpile, that runoff will also report to catch basin 1. Sub-areas 3 and 4 are sections of conveyor pan plus some disturbed surface around the conveyor tunnel: these also report to catch basin 1. Sub-area 5, which includes part of the conveyor pan as well as the area around the Coal Storage Bin, reports to catch basin 2.

These catch basins are designed and constructed as complete-containment sedimentation ponds, and they will be inspected quarterly and cleaned when necessary.

There is a BTCA Area V that controls sediment along Primary Conveyor Access Road #2, but there is also a BTCA Area V for the #4 Mine pad and adjacent Primary Tank Seam Access Road. Charles Reynolds said this indicates these areas use the same sediment control measures. Appendix 7-K describes both BTCA areas. Part of BTCA Area V at the #4 Mine and access road has been reclaimed and the remainder is due to be reclaimed this coming summer (2003), so soon there will no longer be two areas with the same designation; however, until that work is completed, this system for naming and describing these areas is potentially confusing.

There are small areas at the base of several of the towers supporting the Wild Horse conveyor system that are temporarily protected by erosion-control matting while vegetation becomes reestablished. They are not designated as BTCA areas in the MRP and are not shown on maps. However, these sediment control measures appear to be effectively preventing additional contributions of suspended solids to stream flows outside of the permit area.

Drainage from most roads is not treated by sediment control measures. Sections of the road to #3 and #4 Mines are still under construction and the surface is easily eroded. Berms and ditches keep water on the road and direct it to specific points where it discharges to the stream. The outslope of the berms along most of the road has been stabilized with erosion-control matting. A catch basin and straw bales treat runoff from at least one section of the road before it enters the stream: even when construction is completed and the road surface is more stable, the catch basins and straw bales will probably need to be retained as sediment control measures because this road will not be paved.

The road to the #2 Mine is to be reclaimed this coming summer (2003). Most drainage from this relatively long, sinuous road reports to undisturbed drainages by way of numerous culverts without any sediment control measures, but some sections of road have been routed to one of the sedimentation ponds to facilitate road construction or maintenance.

### **Siltation Structures: Sedimentation Ponds**

Sedimentation ponds are the main siltation structures at the Bear Canyon Mine. Ponds A, B, and C have been in place for several years. Pond D is a new pond at the Wild Horse #3 Mine portal pad.

Sedimentation pond D is being relocated, requiring a realignment of undisturbed bypass culvert C-33U. The relocation is necessary because the portals, and consequently the pond, could not be located as originally planned due to burnt coal. The pond is incised into the up-canyon end of the pad, the pad itself forming the pond embankment, and the pad is graded to drain to this pond. The pond decants through a pipe that parallels C-33U under the pad and

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discharges to the stream at the downstream edge of the pad. Certified as-built drawings will be provided upon completion of the work.

**Siltation Structures: Other Treatment Facilities**

Ground water is collected into a sump in the #2 Mine, and the sump helps clarify the water. Water is piped from the sump to a pump-house, where it is metered and distributed throughout the Bear Canyon Mine property for culinary and mining use. Excess water is discharged to Bear Canyon Creek at UPDES point UTG040006-004.

**Siltation Structures: Exemptions**

There are no exempt areas. Runoff from all disturbed areas is treated by sedimentation ponds or alternate sediment control methods.

**Findings:**

Best technology currently available (BTCA) is being used at the Bear Canyon Mine to control sedimentation and prevent, to the extent possible, additional contributions of sediment to streamflow or to precipitation runoff outside the permit area.

**RECOMMENDATIONS:**

The Permittee needs to continue efforts to establish vegetation on the rilled section of BTCA Area C.

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BTCA Name	Location	Description	Method	Map
A	Ball Field	Outslope of the Ball Field.	Vegetation, straw bales, and silt fence	7-1A
B	Main Topsoil Storage Pile	Topsoil Pile by the UPDES mine discharge point.	Berm	7-1C
C	Downcast ravine near the Hiawatha portal	Steep slope below Primary Portal Access Road and the beginning of Primary Tipple Access Road. Upper end abuts Area D.	Vegetation and silt fence	7-1C
D	Upper Primary Portal Access Road	Outslope of the section of road by the Hiawatha portal.	Originally matting, now vegetation*.	7-1C, 7-1D
E	“Lamphouse” pad	Outslope of the Blind Canyon portal pad.	Silt fence in D-2U.	7-1C, 7-1D
F	Storage Area overcast material.	The slope inside the curve in the road and the “plunge pool” at the base of the cliff.	Originally matting, now vegetation*.	7-1C
G	Primary Portal Access Road switchback	Steep slope inside the switchback– small area exemption.	Vegetation	7-ID
H				
I	Lower Primary Tank Seam access Road (#2 Mine)	Outslope across from D-15U.	Erosion-control matting and berm.	7-1E
J	Lower Primary Tank Seam Access Road (#2 Mine)	Outslope across from upper D-15U.	Erosion-control matting and berm.	7-1E
K	Lower Primary Tank Seam Access Road (#2 Mine)	Outslope of fill area around C-15U.	Erosion-control matting and berm.	7-1E
L	Wild Horse Ridge Pre-mining Recreational Road (#4 Mine).	Outslope of road before the first switchback, at outlet of C-37U, and outslope of road above the switchback.	Erosion-control matting.	7-1G
M	Lower Primary Tank Seam Access Road (#2 Mine).	Outslope, fill over C-16U.	Erosion-control matting and berm.	7-1E
N	Wild Horse Ridge Pre-mining Recreational Road (#4 Mine).	Outslope of fill – 2 <sup>nd</sup> switchback and hunting cabin turnoff.	Erosion-control matting and berm.	7-1E, 7-1G

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O	Primary Tank Seam Access Road (#2 Mine).	Outslope at the switchback.	Erosion-control matting*, berm.	7-1E
P	Primary Tank Seam Road Topsoil Pile (#2 Mine).	Inside the switchback – some soil has been used to reclaim the Tank Seam portal.	Berm	7-1E
Q	Upper Primary Tank Seam Access Road (#2 Mine).	Outslope below 18D-U	Erosion-control matting, berm.	7-1E
R				
S	Upper Primary Tank Seam Access Road (#2 Mine).	Outslope and fill over C-18U, C-19U, and C-20U.	Erosion-control matting, berm.	7-1E
T	Wild Horse Ridge topsoil stockpile.	Topsoil stockpile at #4 Mine pad (under construction).	Berm	7-1E, 7-1G
U	Tank Seam portal pad (#2 Mine).	Portal and pad reclaimed.	NA	7-1E
V	Tank Seam portal pad (#2 Mine)	Outslope of the portal pad and adjacent road, including spillage down the outslope. Part of this area has been reclaimed, the remainder is to be reclaimed in 2003.	Erosion-control matting, berm	7-1E
	Wild Horse Ridge Conveyor Access Road #2.	Outslope		7-1G
	Wild Horse Ridge Blind Canyon portal pad (#3 Mine).	Outslope of pad		7-1G
W	Wild Horse Conveyor System, undisturbed.	5 basically undisturbed areas below the suspended conveyor, and the disturbed surface around the Coal Storage Bin.	Metal pan beneath the conveyor, catch basins 1 and 2. Silt fence if needed	7-1C, 7-1F, 7-1G
X	Wild Horse Conveyor System, disturbed.	Disturbed area at the end of Conveyor Access Road #1.	Silt fence	7-1F
Y	Wild Horse Road Topsoil Pile.	Between conveyor and Conveyor Access Road #1.	Berm and catch basin 1.	7-1F
Z	Wild Horse Tank Seam portal pad (#4 Mine).		Berm and catch basin 3.	7-1G