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Oris (w/ map) mine file
cc Owen
Pam
Tom Munson
S. White
W. Malencik
8-16-94

jbr environmental consultants, inc.

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August 15, 1994

Hidden V Corresp. (R)

Mr. James W. Carter, Director
Utah Division of Oil, Gas and Mining
3 Triad Center, Suite 350
Salt Lake City, Utah 84180

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SUBJECT: Hidden Valley Coal Company, Permit No. ACT/015/007

Dear Mr. Carter:

JBR Environmental Consultants, Inc. (JBR), as Hidden Valley Coal Company's representative, has prepared this letter and attachment to further address the issues that we discussed in the July 21, 1994 meeting with you and your staff. These issues are discussed below according to the issue number that was assigned by Bill Malencik in the meeting agenda.

I. Backfilling and Grading

Take No Action At This Time

Hidden Valley Coal Company (the Operator) concurs with the Division of Oil, Gas and Mining (the Division) that all backfilling and grading issues related to site reclamation have previously been resolved. This includes issues related to backfilled seams, the AOC variance for the road, and the presence of highwalls. No changes to the status quo on this issue are anticipated prior to final bond release.

II. Roads/Wells

OK on Roads to Wells

JBR and the Operator have begun to investigate the construction dates of the roads used to access the seven wells (three reclaimed, four active) within the permit area, or alternatively to determine the status of these roads at the time the wells were drilled. (Initial information on water rights indicates that the wells were constructed in late 1970's or early 1980's.) An examination of the U.S.G.S. Walker Flat Quadrangle shows that roads to DH-1, DH-2, and DH-7 were in place in 1968 when the quad sheet was originally prepared, and therefore are pre-well construction. Roads to DH-3 and DH-4 are shown on the quad sheet as part of the 1978 photorevision. Further refinement of road construction dates and drill dates for these two wells is therefore needed. The quad sheet does not show roads leading to DH-5 and DH-6. We are in the process of examining and obtaining aerial photos from several years to determine more precisely the construction dates for roads accessing DH-3 and DH-4, as well as to obtain information on the

roads used to access DH-5, and DH-6. We anticipate having this issue completed by the time of the August 31, 1994 meeting.

JBR will continue to monitor the upper reclaimed access road area where measures were taken this spring to minimize public vehicle encroachment.

III. Signs and Markers

No disturbed area or buffer zone markers have been relocated to date, nor have revisions reflecting changes to the disturbed area boundary or acreage been made to the Plan. Due to the proposed plans to enlarge the reference area, as discussed below in item IV., we propose to resolve this issue as part of that scope. The need to possibly modify unmarked disturbed areas or buffer zones may affect boundaries.

IV. Vegetation

JBR's assessment of the recent Division vegetation survey is that the results are essentially equal to the results of our 1992 survey. We feel that the primary focus on vegetation issues at this time should in regard to the adequacy of the existing reference area.

The reference area was originally defined by the location of the vegetation survey transect. The selection of a transect site was based somewhat on the ease of access for the surveyers, which also coincides with microniches (level ground) for best plant growth. In reflection, this somewhat limited the scope of the reference area . An increase in the size of the reference area would also broaden the scope of the reference area to include additional terrain features.

We propose to enlarge the reference area to include all of the terrain from the benchlands above the stream uphill to the base of the rock cliffs. The enlarged area would then be surveyed by establishing a minimum of five, evenly-spaced transect lines on the contour. This would provide additional survey points. The ocular estimation method with a hoop would be utilized on all transect lines and the statistical adequacy of the data would be a compilation of all data points. To ensure equal representation, a minimum number of data points would be taken for each transect

line. The cover and diversity of vegetative cover would be a mean for all data points within the reference area.

To further increase the reference area data, a second reference area could be estabished on the slope above the "A" Seam to survey a slope of a different aspect. This second reference area would be defined by the establishment of contour transect lines. The data from the references areas could be treated separately or mixed for an overall baseline for the project.

We further propose to enhance existing vegetation by instituting water-harvesting techniques on a gradual schedule. The techniques could include contour furrowing or terracing, pitting, check dams, water spreading and water retention. The existing revegetation is stable and indeginous species and/or varieties are colonizing the site slowly. Water-harvesting would increase plant establishment and colonization. Water-harvesting would also help reduce noxious weed growth.

The reclaimed site does exhibit intermediate soil stability with the initial formation of a soil crust and crypotgramic character. The maintenance work would carefully consider the degree of disturbance against the benefits of increased infiltration or sediment build-up so as not to undue the natural process.

Continued reseeding with commercial seed mixtures may be self-defeating as only a few species have survived to contribute to the permanent plant community. The cultivars and varities available commercially are generally not suited to the environment of Hidden Valley.

V. and VI. Runoff and Erosion/Sediment Control

The attachment to this letter consist of a nine-page Plan Amendment which addresses the recent site work. It includes the relevant and neccessary information on the silt fence and berm placed at the site of the former road base storage area, and the erosion matting and/or fiberdam placed on the road outslopes.

Several discussions have been held with Tom Munson since the July 21st meeting regarding these issues. It is clear from those discussions that much additional clarification of the Division's official interpretation and application of the regulations regarding bond release, stability, and water quality requirements

are needed before any data gathering plans can be initiated. It appears that the clarification is needed on both technical and legal grounds. We recommend that a joint Division/Operator team with technical and legal representatives meet separately to better formulate this issue.

The water-harvesting process explained in Section IV would also benefit the overall sediment control on the site by:

- The increased retention of sediment-laden runoff would result in increased sediment deposition.

- The more runoff that is contained on the roadway or slopes would decrease the amount discharged at outfalls or to drainages.

- Any measures to increase infiltration capacity could all be easily accounted for in any hydrologic/sedimentology calculations and would result in a lower peak flow and sediment yield predictions.

- The alteration of flows from undisturbed areas upslope from the project, to faclitate water-harvesting, may assist in controlling erosion on the disturbed areas.

VII. Bond Clock

The Operator has no comments on this issue at this time. During the upcoming August 31, 1994 meeting, it is anticipated that further discussions on matters relating to the bond clock will be discussed.

We look forward to meeting with you again at the end of the month. Please feel free to contact JBR or CalMat prior to that time to discuss this letter and/or the Plan Amendment.

Sincerely,

Joseph M. Jarvis
President, JBR Environmental Consultants, Inc.

Attachment: Plan Amendment

Copy: Lee Edmonson, CalMat
Ed Settle, Consolidation Coal
Karla Knoop, JBR

UMC 817.106 Regrading or Stabilizing Rills and Gullies

In addition to the measures discussed on Page 27 of the original Plan, and on Replacement Page 27 of the December 8, 1992 Plan Amendment No. 2, gulley control may consist of the erosion control matting/fiber dam treatment described on Pages 21c-e of this amendment. This type of sediment control has been implemented at eight sites on the road outslope, and may be used elsewhere on the disturbed area if needed.

Additional sediment control measures were implemented in the summer of 1994. A silt fence and berm were placed along the southern end of the former road base storage site at the top of the road. A description of this feature can be found on Page 33-b of this amendment. Further, erosion control matting and/or fiberdam materials were placed in eight locations on the road outslopes. A description of that treatment is presented on pages 21c-e of this amendment.

Sediment-laden runoff will also be minimized by the installation of the berm and silt fence that have been placed along the southern end of the former road base storage site at the top of the road, and by the erosion control matting and/or fiberdam materials that were placed in eight locations on the road outslopes.

During the summer of 1994, a silt fence and berm were constructed along the southern end of the former road base storage site at the top of the road. The fence was constructed to the same general specifications described on pages 33 and 34 of the original Plan. However, due to the short length of fence, and to the low volumes of runoff and sediment expected from the low gradient, stable contributing area, no wire fence backing was used to support the geotextile fabric.

Items 3. and 4. on page 46 of the original Plan are herein amended to include additional sediment control measures implemented in 1994. A silt fence and berm were placed along the southern end of the former road base storage site at the top of the road. Further, erosion control matting and/or fiberdam materials were placed at eight locations on the road outslopes.

During the summer of 1994, sediment and erosion control treatment was implemented at selected areas of the road outslopes. As described in the March 15, 1991 Plan Revision, the roadway serves to intercept runoff from up-gradient, undisturbed areas. Retention of much of this sediment-laden runoff occurs within eleven water bars located downstream of the gate. Elsewhere on the roadway, runoff from up-gradient areas and direct precipitation is also infiltrated. The roadway thereby serves to store fine sediments and increase the water available for plant growth. During larger storm events, runoff that is not contained within the water bars discharges down the road outslope. Discharge courses below eight of the water bars were the areas treated during the summer of 1994. These water bars, and their attendant discharge courses, function as sediment control as described below.

Prior to the treatment described herein, erosion had occurred on the unengineered fill at locations where water bars had previously discharged excess runoff from undisturbed areas up-gradient of the road. This discharge, and associated erosion, was primarily the result of two major storm events in 1987 and 1989. Site repairs were implemented subsequent to both of these events; they consisted of expanding the retention capacity of the water bars, constructing small rock check dams, and placing large, on-site rock within the discharge outfalls where locally available. In 1991, three of these locations were the subject of a Notice of Violation issued by DOGM. The NOV was subsequently vacated and no physical work was done on the outfalls. While there was a difference of opinion between DOGM and Hidden Valley Coal Company on the degree of erosion that occurred between 1989 and 1991, there has been agreement between the two parties that there was no measurable change between 1991 and the implementation of the treatments described herein.

In general, the treatment consisted of a combination of reshaping the discharge courses, and placing erosion control matting and/or fiberdam material.

The treatment was implemented using non-mechanical, hand labor. Cross section and alignment varied both within and among discharge courses. In addition, particle sizes encountered at the sites range from very fine-textured clays to large boulders and bedrock. Therefore, the type, size and degree of treatment implemented varies between the eight sites, and field fitting was done to insure the greatest chance of success.

All eight locations were groomed or shaped by rearranging loose rock and slump features within the confines of the existing alignments. Side slopes (where steep, undercut or unstable) were laid back. Smaller boulders were strategically placed, or were removed. Larger boulders were pried loose and rolled downhill where possible and desirable. Due to the nature of the unengineered fill, the reshaping did not result in a uniform cross section aligned perpendicular down the steep slope; rather, it resulted in a site where the sediment control measures could be feasibly retrofitted, as was intended in the approved plan for this work.

In the summer of 1994, erosion control matting and/or fiberdam materials were placed in eight locations on the road outslopes. A description of this treatment is presented on pages 21c-e of this amendment.

At seven of these sites, a synthetic fiber erosion matting was placed where substrate was adequate to allow for sufficient anchoring with metal staples. (At one of the sites, the amount of perennial vegetation did not warrant placement of the matting.) Landlok TRM 1060, made by Synthetic Industries Construction Products Division, was the material used. Its thickness, ground cover, void space, and durability provide for both short and long term erosion protection and for facilitating vegetation establishment. It will remain in place until UV destabilization occurs and/or interfilling with sediment/vegetation serves to integrate the matting with the surrounding substrate. In some areas, substrate precluded anchoring of the matting, and it was not used.

At six of the sites (including the one site without matting), small, porous check dams were installed at intervals along the shaped and matted discharge courses. (At two of the sites, check dams were not used due to the small, shallow, outfall cross sections.) The dams consist of a synthetic fiber material called Fiberdam, which is manufactured by Synthetic Industries Construction Products Division. Manufacturer's installation recommendations were generally followed. Fiberdam is a flexible, moldable mass of fibers that, although irregular in shape, can be molded to fit within a non-uniform cross sectional area. Generally, it was shaped to about a one-foot thickness, with maximum height approximately two feet. The dams are held in place with 36-inch long metal rebar stakes. Distance between dams is not uniform, but typically three to four dams are located at each site.

The function of these porous dams is to reduce runoff velocity, causing deposition of sediments behind and within the fiber dams. Water is meant to pass through the dams, as well as over their tops; the porous nature of the dams should not block flow or set up conditions whereby forces against the dams become excessive. Allowing water to pass through the dams also reduces the chance of erosion around their edges, which could result in failure.

Sediments should eventually clog the dams, and be deposited behind them, thereby raising the elevation of the flow line. (As with the matting, this material will remain in place and will integrate with the surrounding substrate unless UV degradation takes place first.) Any retention of the fine sediments will allow greater moisture retention and these areas will have a greater opportunity for plant colonization. The result would ideally be a series of steps down the outfall, with the flat sections vegetated and the steep sections stabilized.

However, the treatments used are non-standard, experimental methods and may require future modifications. They were used because standard engineering structures would not be appropriate on the unengineered, angle-of-repose slope that required treatment. The sediment control measures used here are thought to provide the best possible chance of success given the inherent constraints of site topography, road outslope characteristics, substrate and climate. These treatments meet the requirements of R614-301-742 Sediment Control Measures as follows:

1) These treatments were designed and implemented using the best technology currently available. As described above, the fiberdam material has numerous advantages over more standard checkdam materials (large rock, rock-filled wire cages, or brush). Technologies available for this type of site are limited due to the nature of the site (angle of repose slopes and un-engineered fill), and limitations on types of materials suitable for use in permanent reclamation.

2) The sediment control measures (consisting of the water bar and its attendant discharge course with fiberdam and/or matting) will be maintained until bond release. Each site will be inspected periodically to insure proper functioning. During the regular inspection period of April through October, these areas will be examined a minimum of once per month. In addition, they will be inspected after weather patterns indicate that substantial runoff may have occurred at the site. Any needed maintenance or repairs will be done within one calendar month following the identification of a problem. In addition, a photographic record will be kept to track condition of the sediment control measures and to identify trends toward stabilization.

3) These treatments should prevent, to the extent possible, additional contributions of sediment to runoff outside the permit area, and minimize erosion to the extent possible. The natural, undisturbed watersheds above the roadway contribute sediment-laden runoff to the disturbed area, as evidenced by deposition in the water bars. Consequently, some erosion and sediment contribution to the ephemeral channel at the base of the slope is a natural and desirable phenomenon. The treatments are not expected to eliminate all erosion from the disturbed area, nor are they expected to prevent all sediment contribution to the ephemeral drainage. Instead, they are expected to provide a measure of stability such that erosion will be minimized to the extent possible.

The approved plan for this treatment did not include numeric calculations, and none have been included in this amendement because: (1) the retro-fit, non-standard, and non-uniform nature of the repairs preludes application of meaningful hydraulic design calculations; and (2) the measures taken are regulated at R614-301-742.124 as sediment control, rather than at R614-301-742.300 as a channel diversion that would require design calculations.