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STATE OF UTAH
NATURAL RESOURCES & ENERGY
Oil, Gas & Mining

Scott M. Matheson, Governor
Temple A. Reynolds, Executive Director
Cleon B. Feight, Division Director

4241 State Office Building • Salt Lake City, UT 84114 • 801-533-5771

June 7, 1982

Mr. Robert L. Wiley
Environmental Engineer
Price River Coal Company
P.O. Box 629
Helper, Utah 84526

RE: Modification to use existing gravel pit for resoiling materials storage
PRCC
ACT/007/004
Carbon County, Utah

Dear Rob:

The Division has reviewed the request for a minor modification to the mine plan to make use of an existing on-site gravel pit for "topsoiling and other soiling materials" storage. The plan appears not only logical but justified in nature and although appearances initially conjure up the old parable involving Peter and Paul, I'm sure that long-term solutions will eventually be developed.

It is our understanding that this area is on fee land; has been previously disturbed by a gravel operation; and is already an existing part of the mine plan area. In delivering final approval for this project there are a few thoughts the Division would like confirmed. At your earliest opportunity could you provide answers to the following:

In reference to the final reclamation; which reference area (RA) will be used for revegetation success? Please provide confirmation of your intentions to commit to the type of reclamation methodology used in the Crandall Canyon project proposal.

A 1:1 slope could pose a highly erosive situation if the ditch is unlined as the flow is assumed to enter in a diffuse manner. The DOGM suggests that PRCC rip-rip the sides of the channel to prevent such an occurrence.

The Division's approval is hereby given for this modification in the knowledge that contractual deadlines may be met by its implementation. Please address the earlier mentioned concerns in light of this decision.

Enclosed is a copy of the DWR letter discussed on June 1, 1982.

Sincerely yours,

THOMAS N. TETTING
ENGINEERING GEOLOGIST

Encl: a/s

cc: OSM, John Montgomery

TNT/cp

state of utah

DIVISION OF WILDLIFE RESOURCES

EQUAL OPPORTUNITY EMPLOYER

DOUGLAS F. DAY
*Director*

1596 West North Temple/Salt Lake City, Utah 84116/801-533-9333

May 24, 1982

Mr. Cleon B. Feight, Director
Division of Oil, Gas and Mining
State Office Building
Salt Lake City, Utah 84114

Attention: Thomas N. Tetting

Dear Jack:

In response to your letter of April 27, 1982, concerning Price River Coal Company Complex Mine Plan Review ACT/007/004, we would like to have our Southeastern Regional Office review all of the mine plans that relate to the natural environment. In accordance with the Memorandum of Understanding between our Divisions, we anticipate receiving the entire Mining and Reclamation Plan named above and be allowed 60 days to review and respond.

Sincerely,

Douglas F. Day
Director

CERTIFIED MAIL No. 263916
Return Receipt Requested


# PRICE RIVER COAL COMPANY

P.O. BOX 629 HELPER, UTAH 84526 (801) 472-3411


May 12, 1982

Jim Smith, E. Hooper,
S. Keefer, and T. Tetting
Division of Oil, Gas, and Mining
4241 State Office Building
Salt Lake City, Utah 84114

Dear Reclamation Staff:

Please review the attached plan for the use of an existing, on-site gravel pit for use as a topsoil and other resoiling materials storage area. We would like to proceed with the use of this canyon in coordination with Crandall Canyon upper site development so as to have to handle the materials only once. If we remain on schedule we will want to begin transferring soil materials by June 15, 1982.

Your help in this matter will be greatly appreciated.

Sincerely,

PRICE RIVER COAL COMPANY

R. L. Wiley

Robert L. Wiley
Environmental Engineer

RLW:lb

Enclosures

# TOPSOIL AND REFUSE PILE COVERING MATERIAL CENTRALIZED STORAGE SITE: GRAVEL CANYON

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# TOPSOIL AND REFUSE PILE COVERING MATERIAL CENTRALIZED STORAGE SITE: GRAVEL CANYON

## GENERAL DISCUSSION

Price River Coal Company has a multi-faceted problem involving materials availability for resoiling and refuse pile covering for future reclamation phases. Our existing mine sites with the exception of the Crandall Canyon development, are Pre-SMRCA facilities constructed without concerns for eventual reclamation and, as result, have generated none of the needed resoiling materials. We have wrestled with this problem, seriously, since it became apparent that completion of Crandall facilities would allow a phase-out of the No. 3 and No. 5 Mine Site and the subsequent commencement of reclamation activities by, perhaps, late 1983.

The purchase of topsoil was initially considered to be the only solution. This method presents difficulties of both a financial and a materials quality nature. Costs would range between ten and twenty dollars per delivered yard, depending on haulage distance. An acre resoiled with 6" of material requires 800 yds.$^3$. The potential problems of finding a resoiling material with physical and chemical properties compatible with the environmental conditions of our sites and suitable as growth medium for our target plant species, are perplexing and will require detailed study of each topsoil unit prior to purchase.

In Crandall Canyon we have found, at least, a partial solution to our problems. The Crandall development is being constructed mostly on alluvial material (geomorphically speaking, with no reference to the alluvial valley floor regulations). Side canyons, along the main channel have deposited substantial quantities of soil materials, which has allowed us to pick up

GENERAL DISCUSSION: (CONT.)

and store about 18,000 yds.$^3$ of topsoil to this point. Upper site development should generate about 7000 yds.$^3$ of topsoil and about 45,000 yds.$^3$ of sub-material which includes several buried topsoil layers. These quantities of material could allow us to reclaim between 10 and 60 acres of old mine sites and refuse piles depending on the acceptibility of sub-materials as topsoil and determinations of refuse non-toxcicity.

We have previous discussed moving the 45,000 yds.$^3$ of sub-materials to an existing mine site for temporary storage with D.O.G.M. personnel and have received concurrence of this plan from D.O.G.M. in early May, 1982. We had mentioned also that we may move and use the topsoil from the upper site, as well. Although we've continued to indicate on-site storage, we now feel that the more immediate use of this material is the better plan, considering the potential for diminished soil productivity during protracted storage (30 years). Recent regulation interpretations seem to be supportive of this concept. Relocation will also provide nearly 1.5 additional acres of outside storage within the present proposed perimeter.

We have come to realize that storage of these materials at either Castle Gate or Willow Creek may conflict with space and timing requirements imposed by the operation and development of these sites. We feel that both the regulatory agencies and our financial backers would bristle at moving this material to a secondary, temporary storage site. The more suitable plan should be to move all materials to a site where it would not be disturbed until needed for reclamation. We have located and intend to develop such a site. We will, for sake of brevity, refer to this site as Gravel Canyon, due to its past excavation by the H. E. Lowdermilk Company for its' aggregate - like burned stone deposits.

## SITE DESCRIPTION

Gravel Canyon is located on the west side of State Highway 6 and 50, across Price Canyon from Price River Coal Company's coal preparation plant. The entire canyon is Price River Coal Company's fee property beyond the 100' highway right-of-way line. This is a typical steep sided canyon with an initially steep profile tapering to the broad, relatively flat canyon mouth. The canyon floor and north - facing slope has been mined for gravel from the mouth to about 800' up canyon. The main drainage channel was diverted a number of years ago, along the toe of the south - facing slope and directed north - east from the canyon mouth to the Price River through a culvert under the state road. The canyon has an existing access road to the west end of the pit where it ties to former exploration on drill roads. Our proposed storage site is designed to be entirely within the confines of the existing pit and occupy an area of 3.2 acres.

## SITE DEVELOPMENT

Site development will include installation of a three foot high perimeter berm, diversion of drainage from the north facing slope, grading of the road, construction of on-site drainage collection facilities and some minimum grading to develop uniformity in the pit floor. No remaining topsoil exists within the pit area.

### Berm and Diversion:

The berm will be constructed on the north side, as shown on the attached maps, using a backhoe. The berm will be installed and maintained along the outer edge of the access road. Berm and diversion on the south side will be constructed using a small dozer connecting the upper pits and a former access road.

The average grade of the diversion will be about 10%. The last 50' of the diversion drops off at about 70% grade. This section will be rip-rapped using

Berm and Diversion: (Cont.)

some of the remaining 3' + boulders remaining on the site. The drainage area captured by this diversion is about 9.0 acres of well vegetated hillside at a 54% slope.

Diversion minimum sizing, dictated by peak runoff was determined using S.C.S. methods depicted in their hydrology field manual. The curve number used is 65 which by using S.C.S. chart 10.1, results in the per acre runoff from the 1.9" ten year storm to be about .2 inches. The peak discharge is determined using the formula:

$Q = CIA$ where the peak runoff, $Q$ =

$C$ = Coefficient of runoff

$$\frac{.2}{1.9} = .11$$

$i$ = rainfall intensity based
Tc of 10 minutes = 1.92 inches/hr.

$A$ = area = 9 acres

$$(9)\ (.11)\ (1.92) = 0.1.9 \text{ cfs use } 2 \text{ cfs}$$

Determination of cross-sectional area of the diversion are based on Mannings Formula:

$$V = \frac{1.49}{n} \left(\frac{a}{p}\right)^{2/3} S^{1/2}$$

and $Q = AV$

A ditch with a cross-sectional area of at least 2 ft.$^2$ would provide adequate capacity. The minimum dozer cut of about 8' wide and 6" deep, sloped into the hillside will provide a cross-section of 3.1 ft.$^2$.

On Site Drainage Collection:

The area, 3.2 acres, will generate about 0.2 inches per acre runoff or 2324 ft.$^3$ volume storage needed. Sediment collection area, using .035 ac.ft./acre is determined to be 407 ft.$^3$. A total of needed storage volume of 2731 ft.$^3$. Our intent is to excavate a level bottom ditch across the canyon mouth, as shown on attached map. The dimension of the ditch will be 160' long x 3' wide x 3' deep with 1:1 side slopes and have a capacity of about 2900 ft.$^3$. The ditch will have a rip-rapped overflow point on the south end to discharge the 25 yr. runoff to the highway road ditch. A 48" C.M.P. 30' in length will be installed for access at road alignment. Materials excavated will be used for berm construction on the east side of the collection ditch. The crossing over the pipe will be somewhat elevated to both prevent pipe damage and to internalize drainage.

Materials Storage Characteristics:

The attached 50' = 1" scale maps show existing pit configuration and maximum potential storage capacity. This capacity could be about 104,000 yds.$^3$ if the pile configuration depicted in the attached cross-sections if achieved. It is unlikely that we will ever use this entire storage capacity since Crandall will only provide about 52,000 yds.$^3$ of material.

Upper and lower soil materials will be picked up separately; the topsoil immediately and the sub-materials transferred about a month later. The materials will be segregated within the storage site. Storage piles will be placed against the north - facing pit bank, below the berm and diversion ditch. Slopes on the pile will not exceed 1v:1.5H.

The period of useage for this site will be life of mine, although the initially stored materials should occupy the area for less than five years. Should we, in the future, find a good buy on topsoil or generate excess from a future facility development, this site would be used for storage.

Soil Materials Protection:

During developmental phases, a chain link fence and gate will be installed to limit access. All materials will be seeded with plant species of both annual and perennial habit in the fall of 1982. The recommended seed mix will be:

| Common Name | Species | Rate (Lbs./Ac.) |
|---|---|---|
| Alfalfa (Var. Ladek) | Medicago satina | 10 |
| Barley | Hordeum vulgare | 15 |
| Great Basin Wild Rye | Elymus cinereus | 5 |
| Great Needlegrass | Stipa viridula | 4 |
| Indian Ricegrass | Oryzopsis hymenoides | 3 |
| White Sweet Clover | Melilotus alba | 5 |

42 lb/A PLS lbs!

Rates will be for pure live seed.

Some inorganic fertilizer may be applied depending on the outcome of soil tests. Piles will be mulched using cereal or alfalfa hay and crimped.

Site Final Reclamation:

We will be liable for reclamation of this site at the termination of its use. A reclamation plan with whatever specifics the regulatory agency feels comfortable requiring will be provided within a time period to be established by the regulatory agency. In general, a plan will include grading the storage site and spreading 6" of topsoil over the scarified area. Re-vegetation by means approved for Crandall sites. The old pit highwall will not be backfilled. The south diversion will remain permanent to inhibit erosion on the reclaimed site.

The possibility exists that the final land use may again be a gravel pit, if the remaining mineable materials are viewed as useful by the Highway Department or some dirt contractor. We will, however, plan to reclaim our 3.2 acres and see what developes.

SUMMARY

We have discussed Price River Coal Company's need for resoiling materials and some difficulties involved. We have proposed a partial solution to the problem by gleaning excess potentially suitable materials from Crandall upper site development. We have proposed a centralized, well protected storage location on an un-reclaimed mine site and discussed the concept with both D.O.G.M. and O.S.M. personnel during recent site visits, i.e., April, 1982: J. Montgomery, O.S.M.; S. Lindsey, O.S.M.; T. Tetting, D.O.G.M.; L. Kunzler, D.O.G.M.; E. Hooper, D.O.G.M. Responses to the proposal have all seemed favorable.

We would like to proceed with this development as soon as possible. If we may proceed, it is imperative that we coordinate site preparations with initial upper Crandall site topsoil removal so that we will handle this material only once.

Gravel Canyon preparations will require only about two to three days work and will be performed in part by Price River Coal Company's personnel and inpart by the upper Crandall site contractor, General Coal Construction Company. Contractor mobilization will begin for the upper site on June 1, 1982. Topsoil transport should begin by June 15, 1982, if the developmental portion of this plan can be rapidly approved.

Attachments:

2 - 1" = 50' site plans
1 - set cross-sections
1 - 1" = 200' location map
2 - Color glossy 8"x10" aerial photos

cc: Jim Smith, E. Hooper, Salley Kefer,
Tom Tetting of D.O.G.M.
John Montgomery, O.S.M.
Gene Haub and K. Hutchinson of Price River Coal Co.