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United States Department of the Interior

OFFICE OF SURFACE MINING

Reclamation and Enforcement

BROOKS TOWERS

1020 15TH STREET

DENVER, COLORADO 80202

*To Mary*  
FILE ACT/015/009, #2

Copy to: Pam  
Mary JIM

FEB 21 1984

FEB 16 1984

Mr. Allen Childs  
Trail Mountain Coal Company  
P. O. Box 551  
Orangeville, Utah 84537

Dear Mr. Childs:

Enclosed are deficiency comments identified during our contracted technical analysis of the Trail Mountain mine permit application package. Additional comments may be developed after our contractor has submitted the draft findings and supporting documentation (FSD) report concerning your permit application on February 17, 1984. Any additional comments will be forwarded to you as soon as possible after that date. Your response to both the enclosed comments and those submitted after review of the draft FSD must be received in this office no later than March 7, 1984.

Please note that two pages of enclosed comments have been labeled "primary deficiencies". It is important that you respond to as many of these deficiencies as possible prior to February 29, 1984. This will facilitate a more complete FSD review by our contractor to meet our review schedule.

If you have any questions, please contact Louis Hamm or Walter Swain at (303) 837-3806.

Sincerely,

*Richard E. Dawes*  
for Allen D. Klein  
Administrator  
Western Technical Center

Enclosures

cc: Dianne Nielson, DOGM  
Jim Smith, DOGM ✓  
Pam Grubaugh-Littig, DOGM

TRAIL MOUNTAIN FSD  
PRIMARY DEFICIENCIES

The information requested as primary deficiencies comprises the data needed to fully evaluate each part of the permit application, and draw a conclusion regarding each proposal relative to regulatory compliance. Although in some instances, response methods are suggested which may best supply the needed data, you are free to respond by any method that will achieve the intent of each statement.

1. In lieu of adequate collection of baseline data, the applicant extensively cites the literature. The following references were cited, but not included in the bibliography:
  - a. Price and Waddell (1973)
  - b. Price (1976)
  - c. Price and Arnow (1974)
  - d. Sellars (1965)
  - e. U. S. Soils and Conservation Service (1972)
  - f. Miller et al. (1973)
  - g. U. S. Department of Transportation (1975)
  - h. U. S. Department of Transportation (1979)
  - i. Mundroff (1976)

Where the publications are obscure or not readily available, or where the data contained therein are essential to the understanding of the baseline hydrology, the publication should be included (in its entirety) in the permit document.

2. The applicant cites Hawkins (1976) "Class Notes" on page 7-25 and provides the reference on page 7-79. Please provide the necessary handout listed in the references.
3. On page 7-54, Table 7-7, the applicant references 10-year 24-hour and 50-year 24-hour storm event values. Please document the source for this estimate.
4. Please provide full documentation for all values chosen for "CN" in Tables 7-7 and 7-9. Include an exhibit, characterizing the areal extent and hydrologic properties of each of the "weighted" soil types. Include methodologies used in weighting soils and calculations.
5. Provide all calculations for  $T_L$  (lagtime) as seen in Table 7-7.
6. Appendix 3-3 as presented in the PAP is incomplete. Please include the complete paper (UT Geol. & Min. Bull. 112) and relevant comments in the application.
7. The applicant presents a geologic map as Figure 6.4. Please present the source of data or references for this map. If this map was a product of the applicant's field work, superimpose data control upon the map.
8. Table 6-3 and 6-4 references three samples collected and analyzed. On this

basis, the applicant concluded that there are no acid or potential acid problems at the Trail Mountain Mine. Water quality samples (Table 7-1) collected from the mine do not wholly support this conclusion. Furthermore, it is difficult to base any conclusion on a sample size of three. Please provide all data to support or negate this conclusion regarding acid-forming potential.

9. Provide, if available, on-site lithologic data to include: drill hole map, lithologic logs, geological cross sections, etc., to support the contention that the locally perched zones discharge to the area springs.
10. Please discuss quantity and frequency of NPDES permitted discharges from the sediment pond. Presentation of the historical record is adequate.
11. Please provide further discussion regarding compliance with UMC 817.46(u). Methods of sediment control for during and post-mining operations must be well documented, especially since the sediment pond will be removed prior to complete reclamation.
12. To demonstrate compliance with UMC 817.43, the applicant must present a complete reclamation plan and designs specific to the reconstruction of the disturbed reaches of the North Fork Cottonwood Creek, and its unnamed east-flowing tributary (in the vicinity of the mine office).
  - a. With respect to that which was submitted in Appendix 9: (1) please clarify the horizontal scale for all cross sections in Attachment C, (2). Either cross reference and/or present a location map of all cross sections in Attachment C.
  - b. With respect to additional information necessary for the completion of the technical review:
    - (1) The applicant must provide cross sections of the transition zone, where the undisturbed channel enters the reconstructed channel and where the reconstructed channel enters the undisturbed channel immediately downstream.
    - (2) Please clarify the riprap sizes discussed on pages 8 and 9 of Appendix 9. Are these average or minimum sizes? The sizes listed of 1.0 and 1.5 for the unnamed tributary and the North Fork of Cottonwood Creek respectively should be minimum sizes.
    - (3) Please discuss the creation of riffle pools in each of the reconstructed channels to approximate original conditions. Addition of very large boulders to the rip-rapped channel will approximate natural conditions.

## TRAIL MOUNTAIN TECHNICAL DEFICIENCIES

### UMC 783.18 Climatological Information

(a)(1) Page 7-74 states that the average annual precipitation at Trail Mountain Mine is approximately 28 inches, while on page 11-1, the average annual precipitation was reported to be 13.07 and 8.76 inches at Hiawatha and Castle Dale. In determining this mean annual water yield from the mine plan area, the mean annual precipitation utilized was 16 inches (page 7-41). Please clarify this discrepancy to alleviate unnecessary delays in evaluating the existing hydrologic conditions of the mine plan area.

### UMC 784.13 Reclamation Plan: General Requirements

The following requests comprise additional information needed in order to evaluate the ability of the reclamation plan to meet the requirements for post mining land use. Adequate responses to these requests are needed to meet the required findings under UMC 786.19(b) and (m) regarding reclamation activities and postmining land use respectively.

(b)(1) On page 6 of Appendix 9, the applicant proposes to return sediments from the sediment pond to underground workings. How will this be accomplished if the portals are sealed following abandonment and the sediment pond remains until revegetation standards are met? Please clarify.

(b)(3) As a point of observation, we note that cross sections showing fill material in re-establishment of the stream channel on Attachment C (pages 51 through 53 of Appendix 9) indicate that the postmining stream channel will not be situated on bedrock. A bedrock stream channel is characteristic of the North Fork of Cottonwood Creek in the mine area. Constructing the stream channel on fill material may create sediment control problems. Please clarify.

(b)(5)(ii) On page 14 of Appendix 9, the applicant states that "woody plants will be planted at a rate of 90 individuals/acre..." It is not clear if this means 90 woody plant individuals of each species per acre, or a total of 90 individual woody plants per acre regardless of species. Please clarify.

As a point of observation we note that the seeding rate for Militotus officinalis listed on Table 3 of Appendix 9 appears to be unsuitable and could result in excessive competition from the species due to its characteristic of rapid propagation. A lower rate of about 1.0 lb. PLS/acre or less would be an effective and productive seed mix.

Given the results of soil analyses, plant species with high tolerances to soils with high electrical conductivity (EC) levels must be included in the seed mixtures. The applicant has included some appropriate species. However, other species exist which, if included, could increase revegetation success potential. These species could be added to the mixtures or used in place of less salt tolerant species. Species which should receive consideration include: Agropyro riparium, Ag. dasystachyum, Ag. smithii, Atriplex canescens and At. confertifolia. In addition, it is requested that either Chrysothamnus nauseosus or Chrysothamnus viscidiflorus be included in the mixture for the Grassland-Shrub community based on the latter's presence adjacent to the disturbed area.

(b)(5)(iii) It is unclear what method will be used to assure seedling establishment. Will imprinting occur prior to or following broadcast seeding with respect to seedbed preparation for the Grassland-Shrub community? Please clarify.

The applicant states (Appendix 9, page 20) that broadcast seeding vs. drilling and increased seeding rates will form a part of the testing analysis. However, neither of these techniques are included in the testing program. Please clarify.

UMC 817.24 Topsoil: Redistribution

Please identify whether contour trenching (Appendix 9, page 11) will occur prior to or after seedbed preparation, fertilization, and seeding.

UMC 817.103 Backfilling and Grading: Covering Coal and Acid, and Toxic Farming Materials

(a)(1) The applicant has submitted laboratory analyses for four samples taken on the disturbed area. In the applicant's analysis of laboratory results, it is stated that high EC and sodium absorption ratio (SAR) results were evident in the number 4 soils pit. In addition, high EC values were also shown for the number 2 pit.

The analysis results for each of the four samples indicates that problems with high EC and SAR values may be more wide-spread than indicated in the applicant's discussion. The criteria used by the Regulatory Authority in its analysis are as follows:

EC value (mm/cm)

<4=good  
4-8=fair  
>8=poor

SAR Value

<12=acceptable  
12-15=suspect  
>15=unacceptable

Because anomalously high EC values and one SAR value have been indicated by the sampling, a clear delineation of the area and volume of material represented by anomalous (relative to the above table) EC and SAR values must be provided to ensure that all materials not conducive to revegetation are buried under 4 feet of non-toxic fill. In addition, a pre-grading "spoil" sampling plan must be submitted which will show how the applicant will detect and separate for use the 4 feet of non-toxic fill material to be used as covering and seedbed material. Include sampling depth and methodology, number of samples, areal distribution of samples, laboratory analysis to be performed, etc. This information is required to make a determination as to the probable success of reclamation.