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United States Department of the Interior
OFFICE OF SURFACE MINING
Reclamation and Enforcement
BROOKS TOWERS
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DENVER, COLORADO 80202

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DEC 16 1983

December 13, 1983

Mr. C. E. Shingleton
Director of Permitting, Compliance and Services
Mining and Exploration
Utah Power & Light Company
1407 West North Temple
Salt Lake City, Utah 84110

Dear Mr. Shingleton:

I am enclosing with this letter a list of the remaining deficiencies in Utah Power & Light Company's responses to our recent completeness letter on the Deer Creek mine permit application.

Because of the severe scheduling constraints, you will have nine days (from receipt of this letter) to respond. Your response should be in the form of numbered replacement pages/maps or numbered additional pages/maps, with any necessary additional instructions as to where they are to be inserted. Please send your complete response, via overnight mail, in six copies to the Office of Surface Mining. The seventh copy should be sent via overnight mail directly to the attention of George Cotton, Simons Li & Associates, Inc., 3555 Stanford Road, Fort Collins, Colorado, 80522. If you have any questions, we will be glad to schedule an early meeting with you here at the OSM offices.

As requested in our December 5, 1983 letter concerning the Wilberg mine, please also submit an index which indicates where in the revised application specific responses to the deficiencies can be found. The very short time remaining requires that review of your responses be facilitated to the greatest extent possible.

If you have any questions, please call Shirley Lindsay or Walter Swain at 303-837-3806.

Sincerely,

Allen D. Klein
Administrator
Western Technical Center

for

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DIVISION OF
OIL, GAS & MINING

cc: Jim Smith, UDOGM ✓
Dianne Nielson, UDOGM

DETERMINATION OF ADEQUACY

DEER CREEK MINE
FINAL COMMENTS

UMC 783.19: Vegetation Information

The mixed-conifer reference area indicated on the mine plan area vegetation map (2-15) exhibits a discrepancy with regard to the reference area data presented. The photographic background of maps 2-15 and 2-17 indicates that more than 50% of the reference area is devoid of trees. However, the area's data show 40 trees per acre which appears correct. Please clarify this apparent inconsistency. Adequate and representative reference areas are necessary prior to permit approved pursuant to UMC 786.19 (b,k,and n).

UMC 783.22 Land Use Information

Productivity estimates are given for the pinyon-juniper and mixed conifer vegetation types, but are not provided for the riparian type. This information must be provided since this vegetation type has also been disturbed by mining.

On page 2-153 the benches and slopes of the southern and eastern portions of East Mountain are described as "high priority" mule deer winter range (UDWR). Map 2-19 (Mule Deer Habitat) shows most of this area as "critical" mule deer winter range with "high priority" range present in the northeast and southwest portions of the winter range. Please clarify these discrepancies and provide a brief explanation of UDWR criteria for designating these winter range classifications.

UMC 784.13 Reclamation Plan: General Requirements

(a) Is the road from the main gate of the mine to the county road owned by UP&L? If so the applicant must include a reclamation plan including revegetation and bonding.

Since the method of mixing mulch with soil has not been recognized as a standard method of reclamation, the applicant must document its feasibility during interim revegetation. Its success can then be used as a basis for future revisions of the final revegetation plan. For the present, however, the applicant must revise the final revegetation plan to include mulch anchoring by conventional methods and also state the method of incorporating seed and fertilizer into the soil prior to mulch anchoring.

(b.1) Provide a schedule showing the reclamation of the components of the mine on a year-by-year basis in addition to the revegetation schedule included in the application.

(b.2) Throughout the bonding estimate, the applicant refers to several cross-sections. The only cross-sections which can be found relevant to this analysis are the disturbed area cross-sections and the dam configuration. The applicant should specifically identify the cross-sections used in this analysis, or if they were inadvertently left out of the new submittal, they should be supplied.

(b.3) Page 4-1 references a cross-section which shows the burial of the asphalt in the portal area. This cross-section can not be found in the new submittal.

The applicant must also commit to removing and disposing of gravel base materials from roads and structure sites and eliminate the use of gravel as a sole seedbed material.

On page 4-7 the applicant states that backfill material will be compacted in 18 inch lifts^{and} that no material larger than three feet in diameter will be placed in the backfill. It would seem that if material of this size was placed in the backfill that it would not be possible to compact in 18 inch lifts. The applicant should provide clarification of this statement.

The applicant should identify the method used in the stability analyses provided.

(b.5iii) Are catch basins, described for shrub plantings, to be installed around each plant individually or will one basin be used around the clump as a whole? If the latter, how will the 4' x 4' basin be protected from erosion, particularly on steep slopes.

Total numbers of trees and shrubs to be planted as listed in the seed mixture/planting rate tables do not match with totals listed for clump plantings. These numbers should be checked and revised as appropriate.

(b.5viii) The applicant has provided a soil testing plan for interim seedbed material handling operations. This plan must be extended to cover all materials to be used on the permit area as seedbed materials. The purpose will be to assess the suitability of the regraded surface as plant growth medium. The plan must include sampling distribution, number of samples, sampling methodology, and laboratory analysis to be conducted.

UMC 784.14 Reclamation Plan: Protection of the Hydrologic Balance

The hydraulic lengths used in hydrograph calculations for watershed subareas VIIA and VIIB do not agree with area delineations on the Deer Creek Coal Mine Area Drainage Map. The hydraulic length given in Table A1 for subarea VIIA is not the same as that given in the hydrograph tabulation (computer printout) for the same area. These inconsistencies must be corrected and proper lengths used in the calculations.

Unit graphs for several hydrograph calculations show all zero flows. It appears from the outflow hydrographs that reasonable unit graph values were

used. Provide an explanation for the zero flow unit graphs given or correct the computer output.

The applicant proposes to route the Deer Creek drainage channel along the north side of the waste rock fill, then over a sandstone outcrop near the Elk Canyon drainage confluence. The merits of the design are not questioned, however, the applicant should provide some additional information in plans so that the technical merits of the design can be fully comprehended by all reviewers. The plans should indicate that the channel is excavated into competent rock once it leaves the Deer Creek embankment. The plans should also show the spillway section of the channel in more detail such that an adequate transition is made to ensure that water will plunge down the face to the desired location. The rock face should be cleared of any obstructions between the spillway and plunge pool. The applicant should provide the necessary cross sections and design drawings to address these concerns. Also, a geologic description of the rock face supporting the channel and under the spillway should be given.

The applicant refers to an energy dissipator at the confluence of Deer Creek and Elk Creek and an energy dissipating splash basin north of the road. The Final Reclamation drawing shows only one energy dissipator. The design drawings for the single energy dissipator indicate that it serves the function of both dissipators mentioned in the text; please clarify. Although the applicant references Design of Small Dams (U.S. Department of the Interior, 1977) for design of the energy dissipators, no calculations are given. Provide calculations showing the stability of the energy dissipators under design flows.

The applicant shows a mean riprap size up to 3.0 feet in several locations. Riprap of this diameter is difficult to place and still provide an adequate channel cross section. It is recognized that these large diameters are required because of the large design flows and steep channel gradients. Please indicate a gradation for the 3.0-foot riprap size that will prohibit riprap sizes larger than the thickness of the riprap layer.

UMC 805.11 Determination of Bond Amount

(a.1) The applicant has supplied supporting calculations; however, inconsistencies and errors exist with items 7, 8, 9, 10 and 12. The applicant must review the bonding section to correct these and all other similar problems.

- Total costs listed on summary table for Items 7-D, 8-A, 8-B, 9-A, 9-B and 12-A appear to be incorrect based on the labor and equipment rates provided by the applicant.
- Materials, such as "Vexar" tubes and fertilizer tablets for seedling planting, are mentioned in the revegetation plan but are not listed on the cost tables.
- The total cost figure given on the "Revegetation Per Acre" table does not match the total cost obtained for Items 7, 8 and 9 from the "Reclamation costs" summary table. Also, the "Revegetation Per Acre" table is incon-

sistent with the revegetation plan. Costs per acre must be calculated by acreage for each vegetation type and slope condition since pure live seed and number of seedlings varies for each vegetation type, and use of netting and tillage methods (hand versus tractor) varies with slope. Soils testing and topsoil redistribution costs also need to be incorporated in the "Revegetation Per Acre" table.

- Supporting calculations do not agree with hourly production numbers given in the "Reclamation Costs" summary table or the "Revegetation Per Acre" table. For example, Item 9-A supporting calculations indicate that four hours per acre are required for broadcast seeding, while the "Revegetation Per Acre" table shows two hours required. The total given for Item 9-C on the "Reclamation Costs" table cannot be derived from information given on the "Revegetation Per Acre" table or on the supporting calculations for Item 9.
- Production rates in some cases are overly optimistic. For example, the production rate of four hours per acre for 2,000 seedlings translates into a rate of one seedling every twenty-nine seconds. One seedling every twenty-nine seconds seems unrealistic, given site conditions, planting methods, and labor efficiency.
- For Item 10-B, the schedule for application given on the "Reclamation Costs" summary table (at 2, 5, 7 and 10 years) does not match the schedule discussed in the reclamation plan (first three years or as required).
- For Item 12-A on the "Reclamation Costs" summary table, no materials, such as seedlings, are listed or costed. Seeds and seedlings are listed on the 12-A supporting calculation, but no costs are provided.

UMC 817.22-817.25 Topsoil

With regard to the original question posed concerning slag, the applicant has stated that there will be no effect on plants if the slag is mixed with other materials. Either evidence, as originally requested, must be presented to support this view or a commitment given to burying the slag under 4 feet of non-toxic fill.

UMC 817.97 Protection of Fish, Wildlife, and Related Environmental Values

The applicant provides the results of the 1981 USFWS raptor survey, but does not give specific locations for the observations. Please provide a map showing the locations of these observations in relation to the mine.

UMC 817.112 Revegetation: Use of Introduced Species

A showing must be submitted by the applicant, with regard to the requirements of this section, to prove the desirability of using intermediate wheatgrass instead of native grass species or, propose an alternate native species.

UMC 817.116 Revegetation: Standards for Success

- No management plan or commitment insuring proper management of approved reference areas could be found in the applicant's permit application. This must be provided. A brief statement or plan should suffice.

- Detailed testing procedures identifying acceptable revegetation efforts and thereby the triggering of final bond release are not found in the permit application. The use of an appropriate statistical test (e.g., students t test of the sample means, F test of the sample variances, etc.) must be fully outlined in this section of the application. A t or F test of sample parameters is not the only option open to the applicant (i.e., an approved mathematical procedure is possible); however, the applicant's existing information predisposes a statistical test. Without an approved procedure, the feasibility of reclamation cannot be determined pursuant to UMC 786.19 (b).