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

Scott M. Matheson, Governor
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4241 State Office Building • Salt Lake City, UT 84114 • 801-533-5771

October 1, 1982

Mr. Merrill Heward, Manager
Mining and Exploration
Utah Power & Light Company
1407 West North Temple
Salt Lake City, Utah 84110

RE: Apparent Completeness Review
Utah Power & Light Company
Deer Creek Mine
ACT/015/018A
Emery County, Utah

Dear Mr. Heward:

Enclosed please find a copy of the Division's Apparent Completeness Review (ACR) for UP&L's Deer Creek Mine. The ACR, in an effort to expedite the review process, has listed areas that are incomplete as well as addressed areas that will require additional information necessary to proceed with a Technical Analysis (TA). The Office of Surface Mining's (OSM) comments have been integrated into the ACR, as have concerns expressed by other relevant Federal and State agencies.

If you have any questions concerning the ACR, please contact me or Mary Boucek of my staff. We would be more than happy to arrange a meeting to discuss or clarify any items which you think would help you in your resubmission and further facilitate the review process. Your earliest response would be greatly appreciated in order that we may establish a mutually acceptable time frame for your resubmission.

Sincerely,

JAMES W. SMITH, JR.
COORDINATOR OF MINED
LAND DEVELOPMENT

JWS/MMB:btb

cc: Allen Klein, OSM

Enclosure

APPARENT COMPLETENESS REVIEW

Utah Power & Light Company
Deer Creek Mine
ACT/015/018A, Emery County, Utah

UMC 771.23 General Requirements for Format and Contents

The applicant has assembled the application in a format consistent with the Division of Oil, Gas and Mining's (DOGM) permanent regulations, Section UMC 771 through UMC 786. No cross-reference is provided in the application to assist Minerals Management Services (MMS) in its review for compliance with 30 CFR 211.10(c) regulations. This cross-reference is required by MMS for compliance. The application is deficient in the following 30 CFR 211 requirements and should include a discussion of each item.

1. 211.10(c)(6)(ii) As Federal leases are readjusted, the company will be required to submit a mine plan showing the sequential mining of all the reserves in the readjusted lease or leases and in a period of not more than 40 years from the date of approval of the first 211 plan submitted.

2. 211.10(c)(vii) This regulation requires the method of operation and measures by which the operator plans to comply with 30 CFR 211.4 and 211.40 and any special terms and conditions of the lease permits or licenses. This can be by narrative statement including only those items related to resources recovery.

3. 211.10(c)(6)(viii) Requires in part, the number of acres of lands that may be affected by each phase of the underground mining operation.

4. 211.10(c)(6)(x) Maximum practicable recovery of the resource involves MMS participation. Any area not shown as being mined is to be explained, including top or bottom coal that is planned to be left. The submitted conceptual underground mining plans will require changes from time to time as the geologic and mining conditions change. Each required change or modification will require a review, a possible on-site inspection and discussion with mine management and/or engineering followed by MMS approval.

   Submit any information or data that may be available on possible deeper coal seams (Ferron Standstone).

5. 211.10(c)(6)(xi) This regulation requires the method of abandonment of coal mine operations. The narrative must address MMS involvement in the abandonment process. The MMS must be satisfied that the sealing process will protect the integrity of any remaining unmined Federal coal.

Figure 1 and the narrative on page 4-1, Part 4, Volume 2, shows a typical portal seal and briefly describes when and how this will be done. MMS involvement and approval is necessary for sealing portals on Federal leases or areas that may affect Federal coal.

6. 211.10(c)(6)(xii) The operator is required to furnish complete logs at all exploration drill holes, both surface and underground in Federal leases, that have not been submitted previously to the District Mining Supervisor, MMS, or make a statement that no additional logs exist.

7. 211.10(c)(6)(xiv) Provide information as to how protection will be provided for oil, gas and water wells, including oil, gas and water encountered underground.

8. 211.10(c)(6)(xv) Furnish reasons for not recovering any coal deposits that may be detrimentally affected in terms of future recovery by the proposed development operations.

9. 211.10(c)(7)(v) This regulation requires details of the planned mine layout and these plans must conform with roof control and ventilation plans approved by Mine Safety and Health Administration (MSHA). The lessee should submit the Roof Control and Ventilation System and Methane and Dust Control Plans, most recently approved by MSHA, including the approved mine ventilation maps submitted as part of these plans. Appendix III and IV, Volume 2 are copies of roof control and ventilation plans submitted to MSHA, but there is no indication these plans were approved and the required mine maps (scale 1"=200') are not included.

   Mine plan maps 3-3 for the Blind Canyon Seam and 3-4 for the Hiawatha Seam (Volme 5) show a five-entry system projected through Federal lease SL-050862 in the SW1/4SW1/4, Sec. 28 and the SE1/4SE1/4, Sec. 29 in T. 16 S., R. 7 E. This projection is boldly labeled "NEGOTIATED ACCESS." The lease is controlled by another company. UP&L Company engineering explained this projection is premature, that relative negotiations have not take place as yet. The actual course of action will be determined after the coal lease sale of Sec. 32, February 1982. An access of the nature shown on the mine plan maps could not be permitted if another company besides UP&L Company was the successful recipient of Sec. 32 as the proposed projections would cut off the only outcrop access to the resources in this area. This part of the projection can not be approved.

10. 211.10(c)(7)(v) Also requires an isopach map of the overburden (underground mines) on 250-foot intervals. Maps 2-9, Volume 4 should be modified from the 500-foot interval to 250-foot interval.

11. 211.10(c)(7)(v) Also requires that the District Mining Supervisor, MMS, be given a copy of any subsidence data furnished to the regulatory authority under 30 CFR 784.20.

UMC 782.13 Identification of Interests

Figure 1-1 (Coal Ownership Map) identifies coal lease boundaries as well as the applicant's permit area boundary. Since all mines operated by the applicant (i.e., Wilberg, Deer Creek, Des-Bee-Dove) are located on one map, it is impossible to locate the permit area for any one mine. The applicant should submit a map that locates the permit area for the Deer Creek Mine.

The applicant should discuss the current status of the exchange of PRLA's in Garfield County.

UMC 782.15 Right of Entry and Operation Information

The applicant lists the federal and private coal leases for operations at the Deer Creek Mine and states that the leases have all been subleased or assigned to Utah Power & Light (UP&L). The applicant should provide a description of the comments conveying the right of entry to UP&L.

UMC 782.17 Permit Term Information

The application contains several tables (Tables 1 through 3, page 3-6) showing mining through the year 2014. This information is useful in understanding the total mining and reclamation plan. However, it must be pointed out that unless the applicant specifically requests and justifies a longer permit term, it is assumed that the permit will be for five years.

UMC 782.18 Personal Injury and Property Damage Insurance Information

The applicant describes that the insurance coverage will be maintained in full force and effect during the life of the permit or any renewal thereof. The applicant needs to: (1) include a rider that the insurance company will notify the Office of Surface Mining (OSM) and the Division of Oil, Gas and Mining (DOGM) if substantial changes are made to the policy; (2) confirm that the applicant will keep insurance in effect through completion of reclamation; and (3) provide a copy of renewal (excess liability expired June 1, 1981).

UMC 783.14 Geology Description

Table I (following page 2-66) presents the data from chemical tests made on core samples taken from the mine plan area. It does not separate these samples by stratum from which they were taken. The data should be presented by stratum, Blackhawk, Star Point, Mancos, etc.

Analysis of coal samples included in Table I does not indicate which seam was sampled or if samples are from both seams. The applicant should show the analysis for each seam to be mined.

The roof and floor chemical analysis has been provided for the Blind Canyon Seam on page 2-67. Since the plan also provides for the mining of the Hiawatha Seam, a chemical analysis for the roof and floor of this seam should be included in the mine plan.

UMC 783.15 Ground Water Information

The applicant should clarify the ground water information presented by also including a map showing the location of the water quality and quantity sampling sites within the mine. The location of long-term water producing areas within the mine should be delineated on a map for easier reference and cross-reference with the water quality and quantity presented.

Three permanent ground water monitoring stations (EM-47, EM-41, A-126) mentioned in the permit application have supplied ground water levels in relation to the Blackhawk Formation and Star Point Sandstone Formation. Many statements have been made regarding the ability of the Star Point Sandstone to transmit water as an aquifer within the vicinity of the mine. Two out of three of these ground water monitoring stations indicated potentiometric water levels above the top of the Star Point Sandstone. Note: these monitoring stations are not close enough to the Deer Creek Mine to provide useful information in assessing the importance of the Star Point Sandstone as a limited water producing aquifer. It was mentioned on page 41 of the Hydrologic Monitoring Report that "a program developed during 1981 in the Deer Creek Mine included drilling a sequence of holes to determine the peizometric gradient of the west side of the Pleasant Valley Fault." This information will help determine the movement of ground water within the vicinity of the mine. More information is definitely needed to determine aquifer characteristics, potentiometric surface, direction of ground water movement, hydraulic connections between water-bearing zones and recharge-discharge relationships both in the Deer Creek Mine and Wilberg Mine.

Monitoring of important springs in the vicinity of the Deer Creek Mine to develop discharge-recession curves, in conjunction with water-level monitoring, is essential to ascertain any pertinent changes in the ground water system. There is not enough information at present to describe adequately the existing ground water system in the vicinity of the Deer Creek Mine.

UMC 783.16 Surface Water Information

In 1979, the surface discharges in Cottonwood and Huntington creeks were lower than the East Mountain spring's discharges. Is this due to seasonal variation, distribution of snowpack, subsidence, etc.?

Monitoring of important springs in the vicinity of the Deer Creek Mine to develop discharge-recession curves, in conjunction with ground water level monitoring, is essential to ascertain any pertinent changes in the ground water system due to subsidence or fracturing. If the applicant wants to eliminate certain springs from future analysis, conclusive evidence will have to be presented that the need to eliminate these springs from the water monitoring program is prudent and necessary.

Please note that water quality information listed in the hydrologic monitoring reports is not presented in an appropriate manner. The results are presented as averages of two or more sampling data. This eliminates the ability of the reviewer to perceive any fluctuations in water quality data without going to the appendix to extract this information. Each sampling date should be listed and then the maximum, minimum and mean results given for each year. It is also important to label tables more concisely with units and dates. When the applicant uses the phrase "Historical to 1981," mention as a subscript which year "Historical" refers to. More concise descriptions of sampling locations are also appropriate. For example, water quality samples where taken as grab samples 500 feet upstream of the intake structure for the undisturbed drainage on Deer Creek. Although this information has been reported on Drawing #CE-10411-EM, it is still hard to ascertain the exact location on the drawing in relation to the location of the disturbed area of the minesite. The sampling locations could possibly be shown on the surface drainage collective system drawing #CM-10387-DR to better clarify the surface sampling station locations in relation to the disturbed area.

It is also requested that the applicant provide an estimate of sediment yield in order for the regulatory authority to determine postmining impacts. This estimate can be obtained from the sediment volume accumulation in the existing sediment pond.

UMC 783.17 Alternative Water Supply

The applicant proposes (page 2-88) to divert water from adjacent springs into areas where other springs may have stopped flowing. The applicant must demonstrate ownership of sufficient water rights to accomplish this diversion (see UMC 817.54).

The MRP indicates there is extensive use of the water encountered in the mine both above ground and in the mine. This use will require that UP&L make the appropriate water application with the Division of Water Rights.

UMC 783.19 Vegetation Information

The 1:24000 vegetational map (Exhibit 2-11) is incorrect in the delineation of vegetation types immediately surrounding Deer Creek as well as in other areas, particularly in the northern part of the combined permit area. This map should be redrawn correctly and resubmitted.

The permit application lacks a vegetation map of larger scale (1:6000 or larger), depicting vegetation types in the immediate area of disturbance. This large scale map should also delineate all reference areas (to scale), contain the legal description and be marked so that reference may be made to the 1:24000 scale map.

Though field data sheets are presented in Appendix II, data parameters (mean, standard deviation, number of samples, etc.) for cover and density should be clearly displayed in the text as per UMC 771.23(b). Sampling adequacy should be demonstrated for both cover and tree density (except where the latter was determined by Total Count) and tree density should be calculated on a number of plants per unit area basis.

Field data (Appendix II) for cover in the pinyon-juniper type have been duplicated for the mixed conifer type. Please submit the appropriate field cover data for the latter vegetation type if these data are available.

Shrub density data (methods, number of plants per unit area, statistical adequacy of sampling, etc.) needs to be provided for all vegetation types.

Productivity data or a statement of productivity from the Soil Conservation Service (SCS) must be provided for all vegetation types as well as a statement of range condition for the reference areas. The latter should be in fair condition or better; otherwise they will have to be managed for improvement.

The following discrepancies exist between tree data in Table 8 and tree data in Appendix II:

DBH data for all species in all areas is dissimilar.

In the mixed conifer type, Table 8 lists 28 total Douglas fir (Pseudotsuga menziesii) trees whereas Appendix II indicates 30 total Douglas fir trees.

In the pinyon-juniper type, Table 8 lists 21 total Utah junipers (Juniperus osteosperma) whereas Appendix II indicates 22 total Utah junipers.

In the riparian reference area, Appendix II indicates that 56 trees were sampled by the point-centered quarter method whereas Table 8 lists 990 individual trees in various size classes. Does this imply that a Total Count was performed in this reference area as well as a point-centered quarter sampling methodology?

Such discrepancies must be resolved and the corrected data resubmitted.

UMC 783.22 Land-use Information

The applicant must provide the land capability and productivity of the land affected by surface operation and facilities in conjunction with coal mining operations. The operator should contact the U. S. Department of Agriculture (USDA) or other agricultural agencies for the required productivity data.

The applicant must also provide a land-use map as required under UMC 783.22(a)(1).

Approximate dates of past mining and the extent of coal removed must also be provided.

UMC 783.24 Maps: General Requirements

(a-c) The applicant should supply updated mine plan maps for the areas affected by mining in the Hiawatha Seam and the Blind Canyon Seam, showing specifically any changes in projected mining of coal north of Rilda Canyon.

UMC 783.25 Cross Sections, Maps and Plans

The overall strike and dip of the Blind Canyon Seam and the Hiawatha Seam should be included either in the narrative or on the coal outcrop maps.

(i) The applicant should submit a map showing location of the sewer lines, septic tanks and leachfield.

(k)(1-3) The applicant should submit sufficient slope measurements to adequately represent the existing land surface configuration. Geologic cross-sections are helpful but should include a topgraphic map of the mine plan area to correlate cross sections with.

(j) Are there any oil or gas wells in the permit area? How will these and any resources of oil, gas or water be protected if encountered during mining?

UMC 783.27 Prime Farmland

The applicant must provide a letter from the SCS indicating that no prime farmlands exist within the permit area.

UMC 784.11 Operation Plan: General Requirements

The applicant must submit plans for abandonment of septic tanks to comply with the Bureau of Sanitation requirements that the tanks be pumped out and either caved in or filled with rock to prevent access.

UMC 784.13 Reclamation Plan: General Requirements

The applicant calculates the bond using a credit for salvage. No salvage value can be allowed because the regulatory authority may not have first lien on the properties. Therefore, the bond must be recalculated bearing this in mind. When the bond is recalculated, it is requested that the applicant include estimates covering all disturbed areas, including those which may have been affected by and permitted as modifications subsequent to submission of the Mining and Reclamation Plan.

(b)(4) The applicant must submit a redistribution plan for soil material for reclamation of the (1) waste rock disposal area, (2) riparian habitat, (3) terraced highwall area.

(b)(5)(vii) The applicant must submit a soil fertility testing plan to be used at the time of reclamation for the evaluation of all proposed topsoil substitute material and topsoil amendments.

(b)(7) The applicant must submit plans that fulfill the requirement of UMC 817.103, disposal of acid-forming or toxic material.

The applicant should address disposal of materials which may constitute a fire hazard and measures to be taken to preclude sustained combustion of such materials.

UMC 784.14 Reclamation Plan: Protection of Hydrologic Balance

The applicant has stated that only perched aquifers exist above the Blackhawk Formation in the vicinity of the Deer Creek Mine and these aquifers are depleted gradually following mining. If possible, more conclusive evidence should be presented in regards to this generalization. Also, some information should be presented regarding the extent of depletion, how long it takes to deplete these aquifers and if any recharge is found in areas previously mined. A peizometric map which shows the direction of ground water flow and its distribution above, below and within the mine workings would help substantiate the applicant's claims that only perched aquifers exist above the Blackhawk Formation and that the Starpoint sandstone acts only as a limited aquifer. This map should be developed pursuant to regulation UMC 784.25(f).

A plan for the collection, recording and reporting of ground and surface water quality and quantity data in the future should be presented so that any changes in the hydrologic balance can be detected by easy comparison with historical records. This can be accomplished by clearly identifying sampling frequency and sampling locations, both on a map and in writing. Although this information has been presented already, the Division would like it shown more clearly.

The applicant has stated that the strata in the area of the mine are down dip from the portal entrance and no hydrologic connection will exist after the closure of the mine. The applicant feels this is sufficient explanation, but the Division feels that more conclusive evidence is needed in this regard in order that the Division can determine what will happen to the excess mine water currently conveyed to the Huntington Power Plant water system after the closure of the mine.

In 1981, approximately 237 gallons per minute were discharged from the Deer Creek Mine. In 1980, approximately 193 gallons per minute were discharged from the Deer Creek Mine. In 1979, approximately 155 gallons per minute were discharged from the Deer Creek Mine. The trend over the last three years has been to increase the amount of water discharged from the mine to the Huntington Power Plant. The Division would like clarification of whether this represents an increase in water production within the mine and the need to discharge this excess water or if it represents an increase in pumping from existing sump areas. This question arose after reviewing the hydrologic monitoring reports and noticing that water sump areas shown in both the 1979 and 1980 hydrologic monitoring reports no longer are shown in the 1981 report, Figure 7. Was this an oversight or were these areas eliminated?

In regards to the applicant's reclamation plan, the following information needs to be supplied:

1. Please supply construction drawings and detailed narrative for the sloping of all surfaces to protect surface runoff waters and reduce sedimentation loading during reclamation.

2. Please supply construction drawings and a detailed narrative for the disturbed water collection system for sediment control following reclamation.

3. Please comment on the provisions for stringent water control as they are supposedly built into the final reclamation plan during the bonding period.

4. Please comment on the contingency plans for disrupted springs and if the applicant plans to replace disrupted water for perpetuity.

5. Please comment about reclamation and revegetation of the sewer treatment facilities following mining and how this will be carried out.

Please note the applicant incorrectly presents assumptions and methods (page 4-2) for determining Deer Creek flows. The 100-year, 24-hour flood was calculated using the unit hydrograph which does not take into account the hyetograph. The result is higher flows and excessively high velocity. The applicant should recalculate the flow.

Finally, in regards to the reclamation section, a discussion of the following items would be appropriate:

Please include a more detailed discussion of why in the Right Fork of Deer Creek and the second section of Deer Creek, the reconstructed stream channel will not be placed on bedrock.

It is presently not acceptable to place these reconstructed stream channels on fill since the remainder of the stream channel reclamation has been placed on bedrock. The ability of reconstructing certain sections of the stream channel on fill materials without experiencing erosion and sedimentation problems downstream is questionable. Discussion of alternative methods of reconstruction for these particular stream sections should be submitted to project a more stable final configuration with mitigating measures for undercutting and eroding fill areas.

The Division would also like to see more detailed calculations in regards to sizing of the particular stream channels. This should include maximum flow rates expected for each stream section and routing calculations to show that the design channel configuration will handle the combined peak flows from upstream sections and side channels without causing erosion or significant overtopping of stream banks.

What size riprap will be used in reconstruction? Sizes should be correlated to velocities expected.

UMC 784.15 Reclamation Plan: Postmining Land-Use

A plan for achieving the proposed postmining land-use need not be submitted with the initial mine plan for approval to be given, but before final reclamation can proceed, a plan for achieving postmining land-use must be submitted and approved. However, it should be noted that, as stated on page 4-20 of the permit application, the area is comprised mainly of steep sloped canyons. Leaving the main pad area as is (i.e., flat) after reclamation will not blend in with the natural surroundings and will not meet the performance standard requirements of UMC 817.101, to return the area to a contour that is compatible with the surroundings.

Proposed recreational aspects pertaining to postmining land-use need further explanation. Existing recreation opportunities have not been identified in the plan and, therefore, a base of information to which recreational possibilities may be related has not been established.

UMC 784.19 Underground Development Waste

The applicant must submit a plan containing all necessary information to fulfill the requirements addressed in this section.

UMC 784.20 Subsidence Control Plan

The applicant should provide an updated map showing locations of current monitoring points and areas of measured subsidence and surface damage caused by mining. This will aid in our review of the adequacy of the proposed monitoring plan.

The applicant should address measures to be taken to mitigate loss of water resources to surface owners, should such an occurrence take place and prove to be subsidence caused.

UMC 784.23 Operation Plan: Maps and Plans

(ii) Please submit profiles and cross-sections of final surface configuration of the affected land after final reclamation.

UMC 784.24 Transportation Facilities

Although no original detailed plans are available of the lower road, please supply updated drawings of this and the upper facilities roads showing cuts and fills, slope of road for drainage, surfacing, profiles for road grades, culverts and drainage ditches and structures.

Is leaving the access road in place after conclusion of mining in agreement with Forest Service wishes? Does this include upper facilities roads too? If not, the applicant must submit plans for reclamation of these upper roads.

UMC 784.26 Air Pollution Control Plan

Applicant should submit plans for fugitive dust control on unpaved roads using water or chemical stabilizers.

UMC 817.22 Topsoil Substitute

(e) The applicant must provide the results of chemical and physical analyses of all soil material proposed for use upon final reclamation. The areas that are lacking are: (1) material for reclamation of the coal storage bin and surrounding area; (2) soil material that will be used to reclaim the riparian habitat; (3) soil material for reclamation of the waste rock disposal area; (4) soil material for reclamation of the terraced highwall area.

Along with the required soil analyses, it is recommended that field site trials be conducted to better confirm the suitability of the proposed topsoil substitute.

UMC 817.48 Hydrologic Balance: Acid-forming and Toxic-forming Materials

The applicant must commit to informing the Division within 30 days if any acid-forming or toxic materials are encountered during mining operations.

UMC 817.89 Disposal of Noncoal Waste

The operator must give the name and location of the sanitary landfill dump that will be used for noncoal waste disposal and include a letter of authorization to use this landfill dump.

UMC 817.97 Protection of Fish, Wildlife and Related Environmental Values

The applicant states (page 2-88) that mining may alter or disrupt flow of surface water on East Mountain and that these effects could be mitigated by pumping water to the surface from the mine or surrounding streams or that wells could be developed on the property. Due to the importance of such waters to wildlife, the applicant should commit to such mitigations if important water sources are adversely affected.

On pages 2-122 and 4-32, the applicant states that an education program for employees would be developed. This does not constitute a commitment to this proposed mitigative action. The employee education program should emphasize the value of all wildlife, not just deer and raptors, and should be conducted by qualified personnel and approved by DOGM. The Utah Division of Wildlife Resources (DWR) currently offers such a program to coal operators.

It is requested that the status of annual qualitative surveys of migratory big game in relation to conveyor crossing be reported to DOGM to aid the regulatory authority and DWR in assessing if and where crossings should be provided as per UMC 817.97(d)(2).

DWR's mitigation plan is included in the application without comment. The applicant must adapt the appropriate DWR recommendations into a mitigation program, employing terminology indicative of commitments to those mitigations, i.e., verbage such as "could," "would," etc., must be changed.

UMC 817.99 Slides and Other Damages

The applicant should commit to notifying the Division of any slide or rock fall having potential adverse effects as per requirements of this section.

UMC 817.100 Contemporaneous Reclamation

The applicant must commit to the timely stabilization of areas disturbed by mining. As mentioned in the revegetation discussion under UMC 817.111-.117, the applicant needs to furnish the current status of reclamation activities at the mine and supply information concerning the timing of interim revegetation and stabilization plans.

UMC 817.101 Backfilling and Grading

The applicant must submit plans for reclamation of the terraced highwall areas and the fill pad used for the shops and parking lot that will meet all requirements under UMC 817.101.

UMC 817.111-.117 Revegetation

In the interim revegetation plan, the applicant states that the three grass species will be planted at the rate of 20 pounds per acre. Seeding rates should be stated in terms of Pure Live Seed (PLS) and planting methods should be detailed (broadcast seeding, etc.). Shrub spacial arrangements need to be adressed. The plan lists Indian ricegrass (Oryzopsis hymenoides) on page 2-110 but this species appears to have been replaced by crested wheatgrass (Agropyron cristatum) on page 2-111. Please clarify this discrepancy.

Interim revegetation will probably be one of two kinds: short-term (less than three to five years) or long-term (extending through the life of the mine). Each area to be revegetated during the interim should be addressed in this light. Whereas shrubs are not mandatory for short-term revegetation, they should be included in long-term revegetation plans. As neither cuneate saltbrush (Atriplex cuneata) nor fourwing saltbush (Atriplex confertifolia) are listed as having occurred in the area or in the reference areas, it may be advisable to replace these species with shrubs which naturally occur in the area for long-term interim revegetation. The interim seed mix should also contain forbs, particularly nitrogen fixing legumes.

DOGM encourages the use of and monitoring of a variety of plant species and treatments for long-term interim revegetation in order to assess and amend, if necessary, the final revegetation plan. The applicant is urged to develop revegetation test plots during the interim revegetation period which utilize species intended for use in final reclamation, along with various treatments (topsoil depths, soil stabilizing techniques, mulch and moisture retention techniques, etc.). A monitoring plan for revegetation should be developed in order to assess the success or failure of various species and techniques employed. The applicant also needs to detail plans with respect to irrigation and weed control. The timing of the interim revegetation plan's initiation should be discussed. The current status of interim revegetation at the minesite should be detailed, including the rationale for not temporarily revegetating the terraced or step-cut slope area.

In the final revegetation plan, the disturbed area estimate for the pinyon-juniper area is listed as eight acres (page 4-8), whereas five acres of disturbed pinyon-juniper woodland are estimated in the Vegetation Information section (Table 2). This discrepancy needs clarification. In addition, according to vegetation information presented in the application, five acres

of riparian vegetation have been disturbed by mining. As per UMC 817.97(d)(5), riparian areas must be replaced, yet the application does not make provisions for this restoration. The applicant must submit a reclamation plan which includes reestablishment of the five acre riparian area which has been disturbed by mining operations.

The Division believes that the species selected for use in final reclamation of the pinyon-juniper and mixed conifer vegetation types are appropriate. It is recommended, however, that Indian ricegrass (Oryzopsis hymenoides) be eliminated from the mixed conifer seed list and that another species more adaptable to northerly exposures be utilized. It is also recommended that Amelanchier utahensis be substituted for Amelanchier alnifolia in the pinyon-juniper type, as the former is a more drought tolerant species.

With respect to the final revegetation plan, there are several areas for which further information must be supplied. Grass seeding rates should be stated in terms of Pure Live Seed. It is recommended that the seeding rate for Salina wildrye (Elymus salina) be reduced to two-three pounds/acre PLS due to its smaller seed size. The applicant is also advised to establish forbs from seed as opposed to transplants due to the anticipated expense entailed with successfully transplanting enough forbs to establish sufficient cover and diversity. An amended plan should include the seeding rate for forbs (in PLS) if it is decided to adopt this recommendation. It appears that the applicant intends to stock transplanted shrubs and forbs at the rate of 1,000 total transplants per acre (page 4-9). Upon what basis was this figure chosen? It is DOGM's opinion that this figure will be inadequate. Shrub stocking rates should be correlated to shrub density of the reference area, as the latter is intended to serve as the standard for evaluating revegetation success and subsequent bond release. It is, therefore, advised that the applicant amend the final revegetation plan by correlating shrub stocking rates to reference area shrub density. The applicant may also want to consider the option of eliminating pinyon pine (Pinus edulis) from the pinyon-juniper area and increasing shrub stocking rates concurrently in order to meet overall woody plant density standards. It has been suggested that by so doing, wildlife habitat may be enhanced. Plant groupings should be distributed so as to maximize benefit to wildlife (UMC 817.97), i.e., the reclamation plan should address plant spacial arrangements since wildlife habitat will be a primary postmining land-use.

In addition to the above, the applicant must supply further information pertaining to: the rationale for and rate of hydromulching; the triggering event for irrigation and the source, timing and application rate of any irrigation; details of a revegetation monitoring plan and sampling procedures at the time of bond release; grazing management plans (e.g., will reclaimed areas be fenced during the liability period, etc.); weed control practices as discussed under interim revegetation; reference area management during the life of the mine and during the liability period; assessment of species diversity, i.e., how the diversity of the revegetated area will be compared with the reference area; the purpose of steep slope contour ditches and the

applicant's definition of "steep slope." The applicant must also supply details regarding the rock-terrace woody plantings (root stock) during the summer of 1981, the experimental planting practices to be employed during interim revegetation and the woody plants to be placed in drilled and blasted holes in sparse soil/rock outcrop areas.

UMC 817.163 Roads: Class II: Drainage

(c)(1)(i) Design calculations must be provided to indicate that the drainage ditches and culverts are adequate to pass the 10-year, 24-hour precipitation event.

Cultural Resources

The cultural resources submission is the same for the Wilberg, Deer Creek and Des-Bee-Dove mines. As such, they were reviewed together as if they were a single submission. The basic document under consideration is entitled "Archaeological Sample Survey and Cultural Resource Evaluations of the East Mountain Locality in Emery County, Utah," prepared by Hauck and Weder 1980.

Project boundaries and separation of the various mines should be added to Figures 2 and 6 for clarity. In addition, the northern areas of the Deer Creek Mine are not shown on Figure 6.

How were the various sample sizes and locations chosen? Were the eight earlier 160 acre sample areas considered in the sampling procedure?

A number of historic mines (Johnson, Anderson, Huntington) are located near the project boundaries. If they fall within or will be impacted by (either directly or indirectly) mining operations, they will need to be recorded and then eligibility for nomination to the National Register of Historic Places determined.

The following site forms are needed for evaluative purposes; 42EM 1307, 1308, 1309, 1310, 853, 854 and 855. A discussion of survey, recording and collection techniques and methodologies utilized is needed. Brief site descriptions to complement the site forms are needed. Eligibility recommendations are needed for the seven sites. The cultural resource rating system is no longer utilized. Those sites rated 2 and 3 are likely eligible for nomination to the National Register.

Socioeconomics

Although the mine is an existing operation, the following information would be useful:

1. Number of mining employees (construction, if any, and operation) by year for the life of the mine, including average annual salary information, if possible.

2. Any information concerning where existing and/or future employees may reside and their mode of transport to work, i.e., carpool, private auto, etc.

3. Any data the company can provide concerning tax revenues contributed to local municipalities.

It would also be helpful if the company would provide documentation of any past and/or future contributions or assistance given to communities surrounding the mine (e.g., financial contributions, employee transportation system, housing assistance to employees, etc.).

Summary

In summary, the Division has bowed to the decisions of Judge Flannery, remanding for revision many areas of the regulatory requirements. The Board of Oil, Gas and Mining has suspended corresponding State regulations pertaining to these decisions. The Division has reviewed fish and wildlife, soils and standards for revegetation success information pertinent to the Deer Creek Mine Plan and identified deficiencies which, under revised regulations to be promulgated, may be upheld as deficiencies. The Division, in view of this predicament, has incorporated above what is needed for assessing the reclamation and operation plans to meet the performance standards in light of those areas which are in flux.