

0011

DETERMINATION OF COMPLETENESS

AND

TECHNICAL DEFICIENCIES

Co-op Mining Company
Bear Canyon Mine
ACT/015/025, Emery County, Utah

March 30, 1984

DETERMINATION OF COMPLETENESS

UMC 771.23 Permit Applications: General Requirements for Format and Contents

DETERMINATION OF COMPLETENESS

Maps should be presented with a consolidated format. It is suggested that each map have a title block with map title, name and address of applicant, permit number, scale, north arrow, contour interval, date of photography, etc. Some maps have this, others do not. It is suggested that the entire legend be located in the lower right corner of the map. Please consolidate format.

UMC 783.12 General Environmental Resources Information

DETERMINATION OF COMPLETENESS

*(a) It is difficult to distinguish future mining on the topographic map (Plate 2-3). Please indicate on Plate 3-4 the size, sequence, and timing of the sub-area of the mine plan area for which it is anticipated that individual permits for mining will be requested over the estimated total life of the proposed underground coal mining activities.

UMC 783.13 Description of Hydrology and Geology: General Requirements

DETERMINATION OF COMPLETENESS

*(a) The applicant has failed to provide information which describes and characterizes the water quality and quantity of all lands within the proposed mine plan area, adjacent area, and the general area. This baseline information must be provided for surface and groundwaters. Please see comments under UMC 783.15 and 783.16.

(a)(1) Some background information on the general area may be contained in the United State Geological Survey Open File Report 81-539 (T. Danielson et. all. 1981.)

UMC 783.15 Ground Water Information

DETERMINATION OF COMPLETENESS

*Section 7.1 and Appendix 7-A of the MRP are offered by the applicant to describe the groundwater hydrology for the mine plan area, adjacent area and the general area. The information provided is, in fact, not a description of

the groundwater hydrology to any extent. The inclusion of testimony from Bruce Kaliser in Appendix 7-A may be of some worth in lending support to conclusions about the impact of mining on the groundwater regime in the mine plan area. The testimony, however, does not provide the information required by this section of regulations.

*Of utmost importance is the fact that the MRP does not contain baseline water quality or quantity data for the groundwater regime in and adjacent to the mine plan area.

The MRP must contain at a minimum the following:

(1) The depth below the surface and the horizontal extent of the water table and aquifers;

(2) The lithology and thickness of the aquifers;

(3) The uses of the water in the aquifers and water table

(4) The quality of subsurface water, if encountered.

(b) The application shall contain additional information which describes the recharge, storage, and discharge characteristics of aquifers and the quality and quantity of ground water according to the parameters and in the detail required by the Division.

UMC 783.16 Surface Water Information

DETERMINATION OF COMPLETENESS

*The Mining and Reclamation Plan does not contain data which portray water quality and quantity for surface waters in and adjacent to the mine plan area. Table 7-1 shows a very limited amount of water quality data for three months of 1983. No station identification is given or discussion of the data presented. These data do not portray the seasonal variation in water quality and quantity. The MRP must contain a detailed description of surface waters which portrays seasonal variations in water quality and quantity within the proposed mine plan and adjacent area. In addition, the minimum, maximum, and average discharge conditions which identify critical low flows and peak discharge rates of streams to identify seasonal variations must be provided.

UMC 783.17 Alternative Water Supply Information

DETERMINATION OF COMPLETENESS

The applicant states that the Co-op owns 300+ shares in the Huntington-Cleveland Irrigation Company. The applicant must to supply documentation to substantiate ownership of those shares.

UMC 783.19 Vegetation InformationDETERMINATION OF COMPLETENESS

The applicant has presented a variety of statistical formulas, sampling methodologies and results in describing the vegetative resources of the permit area. However, much of this information has been presented in a manner which makes it of little use for adequately depicting the plant communities of the area and for predicting the potential for reestablishing vegetation as required by UMC 783.19(a). Outlined below are several deficiencies which must be addressed.

Reference areas should be selected for each vegetation type disturbed or to be disturbed by Co-op during mining operations. It appears from Plate 9-1 that two reference areas have been established (Pinyon-Juniper and Disturbed). However, from the discussion presented, at least three vegetation types (Pinyon-Juniper, Grass, and Riparian) have been or will be disturbed. This discrepancy must be resolved.

All reference areas must be permanently marked and the dimensions given so they can be relocated. From Plate 9-1, it appears that one of the reference areas is off the permit area. All reference areas must be established in locations which can and will be protected by the applicant until bond release. The applicant must provide documentation to show that this area can be protected.

The applicant states that sampling was conducted on potential disturbed areas (Page 9-2). Sampling is also necessary on reference areas. Please supply a vegetation map showing all potentially disturbed areas and their intended use, all currently disturbed areas, and all reference areas. Include all numbered locations of vegetation sampling points or transects on this map.

The applicant must determine and list acreages of each vegetation type on the permit area and the total acreage of each type which has been or will be disturbed due to mining operations.

In Appendix 9-1, the vegetative summations of the two reference areas are different. If sampling methodologies were the same for each, as indicated in the text, these summations should be presented in the same format. All summations should be placed in numbered tables for reference back to the text and a discussion of each should be given. Summations should be organized with proper headings, species names spelled out, and numbers totaled correctly.

It is unclear which reference area the summation in Appendix 9-1 is for. Please clarify. Explain the difference between the "riparian bench" and "riparian" areas and indicate why they were separated into separate tables.

Describe the purpose of the Bear Canyon Comparative Area mentioned in the SCS letter and explain what the Bear Canyon Site-Similarity Comparison in Appendix 9-1 represents.

The applicant states that a total tree count was obtained for reference areas (Page 9-5). However, no value for total tree density is mentioned for any vegetation type. A formula is given for calculating tree density per acre. The proposed formula is incorrect and should be deleted.

A shrub density value is given in Appendix 9-1. However, no explanation of what this value represents is given. This should be clarified. In addition, four tree species are included in this list of shrubs. What is the basis for this classification?

Statistical formulas are given for calculating tree basal area, species diversity, t-test comparison, and similarity index (Page 9-8). None of these formulas are used in analyzing the data. Therefore, an explanation of their use or deletion from the text is requested.

No description is given for areas listed on Plate 9-1 as "Bare," "Pinyon-Juniper," or "Sagebrush." All vegetation types on the permit area should be described.

The applicant has stated that vegetation surveys were conducted in 1983. However, the species list in Appendix 9-1 is dated July, 1982. Please list the person who compiled the 1982 list and explain the discrepancy in dates.

Attachment 2 mentioned on Page 9-11 should be provided. In addition, a complete bibliography which lists all references used in the narrative needs to be included.

UMC 783.21 Soil Resource Information

DETERMINATION OF COMPLETENESS

The written portion of the soil survey does not match the soils map. The Soil Conservation Service (SCS) identified two variants of the Dantino series in the 23 acres of the permit area. The soils map lists two variants of the Glenburg Series and one of the Chilton Series. This discrepancy must be cleared up.

The soils survey must be of an order I or II in the area of disturbance. The permit boundary indicated on the soils map seems to indicate the Beaver Creek property and not Co-op. The boundary line must indicate the Co-op property.

UMC 783.22 Land Use Information

DETERMINATION OF COMPLETENESS

The applicant states that land productivity data were obtained from the U.S. Soil Conservation Service. These data should be presented in the discussion of land use in section 4.4.2.4, Page 4-10.

UMC 783.24 Maps: General RequirementsDETERMINATION OF COMPLETENESS

(a)&(b) It is suggested that the property boundaries and permit boundaries (both surface and sub-surface) be included on the same map for clarification.

(c) On Plate 2-3 it is difficult to distinguish a boundary of all areas proposed to be affected from the fault line in the northern boundaries of the area.

(d) There is not a map included in the MRP with the location of all buildings in and within 1000 feet of the proposed permit area. The identification of the current use of the buildings needs to be given.

(h) Is there a public road located within 100 feet of the proposed permit? If so, it should be shown on a map.

UMC 783.25 Cross-Sections, Map, and PlansDETERMINATION OF COMPLETENESS

(a) The elevation and locations of test borings and core samplings were to be supplied in Appendix G-1. This was not found. Please submit and clarify.

(c) Appendix 6-A noted columnar outcrop sections but was not correlated to another map. Please explain.

(d) A map containing all coal croplines and the strike and dip of the coal to be mined within the proposed mine plan area is missing. Please submit.

(e) The location and extent of known workings of active, inactive, or abandoned underground mines is difficult to distinguish on Plate 3-4. Please clarify.

(f) The extent of sub-surface water on Plate 3-4 needs to be characterized in a cross section.

(g) The location of surface water bodies on Plate 7-2, such as irrigation ditches within the proposed mine plan area, are difficult to distinguish. Please submit a clear copy of Plate 7-2.

(h) The location and extent of existing areas or previously surface-mined areas within the proposed mine plan area are difficult to distinguish on Plate 3-4. Please clarify.

(i) The location and dimensions of existing areas of spoil, waste, and the non-coal waste disposal should be outlined on Plate 2-2.

(1) The seal on Plate 7-2 cannot be seen. Plate 7-3 is not signed. Please submit this information.

UMC 783.27 Prime Farmland

DETERMINATION OF COMPLETENESS

The applicant must include in the Mining and Reclamation Plan a letter from the Soil Conservation Service indicating the potential for prime farmland within the permit area.

UMC 784.11 Operation Plan: General Requirements

DETERMINATION OF COMPLETENESS

(a) A narrative in the MRP of the anticipated annual and total production of coal, by tonnage, should be given.

(b) The detailed plans for each structure in 3.3.4-A are missing. Please submit. (The removal of the facilities must be included).

(4) The non-coal waste removal and disposal area need to be included in the narrative.

UMC 784.12 Operation Plan: Existing Structures

(a) A description of the existing structures (as are outlined in Section 3.3.3) needs further elaboration. This will include:

(1) Location

(2) Plans, sketches or photographs of the existing structure describing its current condition.

(3) Approximate dates on which construction of the existing structure was begun and completed.

(4) Evidence as to how the structures will meet the performance standards must be shown.

(h) It is not stated whether the structures will be modified or not. If they will be, a compliance plan consisting of design specifications to meet the performance standards must be presented.

(2) The construction schedule which shows anticipated dates for beginning and completing interim steps and final reconstruction must also be included.

(3) Provisions for monitoring the structure during and after modification to ensure that there is a minimized risk of harm to the environment or to public health or safety must also be included.

UMC 784.13 Reclamation Plan: General RequirementsDETERMINATION OF COMPLETENESS

(b)(2) Section 3.6.7 is missing from the mineplan. A detailed estimate of the cost of the reclamation of the operation is required, along with the supporting calculations of the estimates. The area to be bonded is the disturbed acreage. Section 3.4.9 details the area with a disturbance of 9.92 acres. However, sidecast hills and other disturbed areas must be included in the acreage. This should correlate on all relevant maps and in the narrative, especially Plate 3-2, as well as in the detailed estimate of the cost of the reclamation.

(b)(3) The applicant must submit a more specific backfilling and grading plan. The plan must include: the source of all noncombustible material that will be used for recontouring each area, specifically wherein highwalls will be left; the exact methods for reclamation of the roads; an explanation of "The out slopes will be constructed in a manner which will achieve the necessary physical stability" - this needs to include showing a static safety factor of at least 1.3 for the reduction of highwalls; an explanation of "maximum amount physically possible;" and contour maps or cross-sections that show the anticipated final surface configuration. In general, the whole backfilling and grading section needs to be more specific.

(b)(5) The applicant has stated that fall would be the season for planting. Spring planting should also be considered, particularly in cases where contemporaneous reclamation is planned. Give the dates and circumstances under which spring planting would be used.

The applicant has used numerous "should" statements when the appropriate word is "will" or "shall." When describing what Co-op intends to do, "should" statements must be changed to "will" statements. These commitments are an essential element in evaluating the reclamation plan.

*The plan discusses planting of shrub seedlings but fails to list species or stocking rates. This information is essential to evaluate the feasibility of reclamation pursuant to the performance standards. Also, please provide a reclamation map showing where the various seeding methods, mulching methods and rates, seedlings, etc. will be used and give an estimate of the acreage for the various methods.

It is unclear from the discussion under Phase 3 - Site Preparation, exactly what methods will be employed on slopes of more than 2:1. A more complete discussion of methods to be used to modify the slopes should be included.

*Since reference areas have now been established, the applicant should present standards of success for each vegetation type to be restored (Phase 4-Planting). Also, provide a monitoring plan that demonstrates how the success standards will be utilized to determine revegetation success.

Seed mixes for each vegetation type to be restored must be included. List species, rates in pure live seed per acre, scientific names, and method of application.

(b)(7) It is stated in Sections 3.4.6.3.1 and 3.4.6.3.2 that no acid-forming or toxic-forming materials are produced at the mine. There is a sample in Appendix 3-E regarding one coal sample tested for this. The question arises about debris, e.g. transformers oils. Please describe how this is handled. Was the one sample representative of all material produced at the mine?

UMC 784.14 Reclamation Plan: Hydrologic Balance

DETERMINATION OF COMPLETENESS

(a) Several aspects of the reclamation plan need clarification or additional information. Page 3-90 notes that natural drainage patterns will be returned to a 'horizontal drainage pattern'. Please clarify this statement as to the specific post mining drainage plan that will be proposed. Please submit a post mining drainage map and cross sections which depict post mining topography and drainage patterns.

Specific measures for stabilizing reclaimed drainage channels must be included in the MRP. This should include but not be limited to: the upper pad, road area adjacent to the fan, the portal pad area, the downslope area below the fan and the downslope area below the crusher pad.

The permanent reclamation measures proposed for the main stream channel where the 60" culvert is installed need additional information. Where has successful implementation of the log check Dam configuration occurred? Please reference in the scientific literature where and if this configuration has been studied. What is the expected life of these proposed structures? Calculations and specifications for the rip rap to be used in the stream channel must be submitted.

*(b)(3) The plan for collection, recording and reporting of surface and groundwater quality and quantity data is deficient with several contradictory statements contained in the narrative. Page 7-1 notes Co-op is committed to monitor seeps and springs encountered during mining which maintain a flow of 25 gpm if sustained over 48 hours, while page 7-8 & 9 commits to monitoring flows in excess of one gpm if sustained over 48 hours. Please clarify this contradiction.

Page 3-44 (section 3.5, 3.6) notes an ongoing hydrologic monitoring program will be conducted "if deemed necessary". This contradicts a statement on page 3-48 where it states that a surface water monitoring plan will be used to analyze impacts on surface water. A surface water monitoring plan must be undertaken. The statement on page 3-44 is not in concert with the regulations and must be modified or deleted.

Page 3-48, 49 and Table 3-6 indicate some aspects of a surface water monitoring plan. Missing items which must be in the plan are:

- (1) Stations to be monitored with a verbal description of exact locations.
- (2) Frequency of monitoring.
- (3) Discharge measurement methodology.
- (4) Reporting format and frequency.

A groundwater monitoring plan must be proposed. The current collection of contradictory statements and commitments to plans which are not contained in the MRP cannot be construed as a plan for monitoring groundwater. Items which must be included in the groundwater monitoring plan are:

- (1) Stations (with location description), or in the case of in-mine monitoring, criteria for selection of inflow points to be monitored.
- (2) Frequency of monitoring.
- (3) Field and chemical parameters to be sampled.
- (4) Methodology for measuring discharges.
- (5) Reporting format and frequency.

UMC 784.16 Reclamation Plan: Ponds, Impoundments, Banks, Dams, and Embankments

DETERMINATION OF COMPLETENESS

In appendix 7-F, the MRP contains the operational hydrology calculations. This includes a sketch of the main sedimentation pond and an unscaled drawing of the catch basin. Runoff calculations are contained in the copies of H. L. Wimmer's worksheet.

The MRP is deficient in several areas as follows:

- (1) No descriptions and cross sections for either pond are provided. Cross sections must be certified by a registered professional engineer.[784.16 (a)(1)(ii)]
- (2) An accurate depiction of both ponds in a scaled drawing with accurate dimensions, certified by a registered professional engineer, must be included in the MRP.[UMC 784.16 (a)(1)]
- (3) Plate 7-2 is such a poor reproduction that the location of the main sedimentation pond cannot be accurately determined.

- (4) The copies of H. L. Wimmer's handwritten worksheet will not suffice as a clear presentation of detailed design calculations. These must be in a clear, concise form in the MRP.(UMC771.23)

The sedimentation pond sizing calculations, cross-sections, maintenance schedules, sediment levels, inlet and outlet protection, side slopes, and stability analysis must all be presented in a clear concise format.

UMC 784.17 Protection of Public Parks and Historic Places

DETERMINATION OF COMPLETENESS

The Utah Division of State History Preservation Office reviewed and commented on Co-op's original MRP submittal and noted: (1) the potential for cultural resources in the area is moderate; and (2) the statement in the plan that "there are no historical cultural sites in the mine plan area" does not reference a professional survey, nor does it give justification for not conducting a survey.

The Preservation Office again reviewed and commented on Co-op's October, 1983 MRP and again noted that there is no reference in the MRP to a cultural resources report that supports the conclusions contained on page 5-30 of the MRP.

Therefore, based on recommendation from the Preservation Office, the Division requires that a representative cultural resources survey be conducted in the mine plan area, exclusive of the currently disturbed acreage encompassing surface facilities. Only after such a survey is conducted can the conclusion that "there are no known sites of any significance existing in the area in question" be supported.

UMC 784.19 Underground Development Waste

DETERMINATION OF COMPLETENESS

This area has not been addressed. If underground development waste is stored on the surface this entire section must be addressed.

UMC 784.22 Diversions

DETERMINATION OF COMPLETENESS

Appendix 7-F of the MRP contains the operational surface water hydrology calculations for the mine site. While these calculations may be correct in a professional sense, the copies of H. L. Wimmer's handwritten worksheets are not a clear understandable presentation of this information. UMC 771.23(b) requires a clear, concise presentation of information. The MRP must clearly present the following information for each ditch, culvert, or structure proposed for the mine site:

Peak flow calculations should include:

- (1) Drainage areas (also show these on maps).
- (2) Time of concentration and method used for its calculation.
- (3) Methodology used for peak flow calculation: including all coefficients and support for the selection of coefficients.
- (4) Precipitation value and source used.

Ditch sizing calculations should include:

- (1) Design peak flow for at least a 10 year - 24 hour storm.
- (2) Channel cross-sections with dimensions which include freeboard, side slope, bottom width, total depths, and normal depth (water level).
- (3) Velocity calculations with the methodology used and values for all coefficients used.
- (4) Rip rap sizing and depth of placement specifications, if velocities indicate a need for it.
- (5) Filter blanket specifications, if calculations indicate a need for a liner or filter blanket beneath rip rap, must also be included.

*From what can be determined from the copies of H. L. Wimmer's handwritten worksheets, calculations for all of the undisturbed diversion ditches may not be included. Please assure that drainage areas and supporting calculations are included for all undisturbed diversions.

UMC 784.23 Operation Plan: Maps and PlansDETERMINATION OF COMPLETENESS

(a) It is suggested that one map be submitted that shows all of the underground coal mining activities to be conducted, the lands (surface disturbance) to be affected throughout the operation, and any change in a facility or feature to be caused by the proposed operations.

(b)(1) Plate 2-2 (the surface facilities map) needs a permit boundary on the map.

(2) Plate 2-3 (sequence of mining map) needs to delineate the area of land to be affected within the proposed mine plan area.

(3) A map needs to be submitted that shows each area of land for which a performance bond will be posted. It is suggested that one map contain the underground extent, the land affected having a permit boundary area, and the distinguishable bonded area.

(5) No underground development waste areas are shown on Plate 2-2. Please state in the plan if there is underground development waste, and if there is, please show on a map with cross-sections, prepared by a registered engineer.

(6) Plate 7-2 is proposed to depict the operational hydrology information for the mine site. The plate apparently did not duplicate well and is not readable in several areas. Facilities such as the sedimentation pond and catch basin cannot be seen. Additionally, the septic system from the office scale building is not depicted on plate 7-2 (or plate 2-2) and must be shown. The engineer certification was apparently obliterated in the duplication process and is not legible. The undisturbed and disturbed ditch on the portal pad area are not depicted on plate 7-2. Further, the disposition of runoff on the ditch on the northwest side of the road off the crusher pad is not depicted as it must be. The direction of flow for the undisturbed ditch on the west side of the access road to the upper pad area cannot be deciphered. Plate 7-2 should have a legend to clarify symbols used for ditches and other structures.

All of the above concerns regarding plate 7-2 must be corrected. Plate 7-2 must be re-submitted in a readable format containing information to address all above noted deficiencies. Plate 7-2 must be certified by a professional engineer or professional geologist [UMC 784.23(c)].

*The plan does not contain any cross sections of disturbed or undisturbed ditches. These must be supplied and certified by a professional engineer or professional geologist.

The cross sections of the Bear Canyon stream channel (Appendix 7-G) are not certified by a professional engineer or professional geologist and must be certified.

(7) Is there an explosive storage facility even though Section 3.4.6.3.4 states there is no need for blasting?

(11) The anticipated final surface configurations need to be shown on Plate 3-1. This Plate (3-1) shows present configuration. A final surface configuration map needs to be presented.

(12) Plate 3-3, the Subsidence Map, does not show subsidence monitoring points.

UMC 784.24 Transportation Facilities

DETERMINATION OF COMPLETENESS

(a) Plate 3-5 (Bear Creek Road) shows the road surface and it should be included in Section 3.3.11 of the MRP. The portal access road needs all of the specifications including road width, road gradient, road surface, road cut, fill embankment, culverts, drainage ditches and drainage structures. (The cross-section must be given.)

* (b) A report of the geotechnical analysis for the steep outcrops must be given.

(d) A description of the measures on the portal access road must be given that describe how the inlay end of a ditch relief culvert is protected.

(e) The plan should be more descriptive of the roads and conveyor, i.e., how they will be maintained within the mine plan area. The description should also include how these facilities prevent damage to fish, wildlife, and related environmental values.

UMC 785.19 Underground Coal Mining Activities on Areas or Adjacent to Areas Including Alluvial Valley Floors In the Arid or Semi-Arid Areas of Utah

DETERMINATION OF COMPLETENESS

The applicant shall include all the necessary information to comply with this regulation, regarding all subsections of this regulation. No information has been submitted.

TECHNICAL DEFICIENCIES

UMC 805.11 Determination of Bond Amount

The estimated costs for the bond submittal must include additional estimated costs to the Division which may arise from applicable public contracting requirements or the need to bring personnel and equipment to the permit area after its abandonment by the permittee to perform reclamation, restoration and abatement work.

The applicant should state what type of bond they will provide (i.e. surety, irrevocable letter of credit, etc.).

UMC 817.13-.15 Casing and Sealing of Exposed Underground Openings: General Requirements; Temporary; Permanent

Temporary abandonment procedure information needs to be added to sections of the MRP. A discussion of barricades, fencing and warning indications must be provided in accordance with UMC 817.14.

UMC 817.22 Topsoil Removal

The applicant must submit the acreage and the depth of topsoil available in the area of the bathhouse and shop areas.

(e) The applicant has proposed two different sizes of disturbance, one of 10 acres and another of 6.2 acres. This must be clarified and topsoil substitute proposed for the TOTAL disturbance.

The applicant must store the topsoil substitute within the permit area. The location of the proposed storage area must be submitted.

UMC 817.23 Topsoil Storage

The applicant proposes long term and short term storage of topsoil and does not indicate the volume of soil nor the location of the short term soil stockpiles. The information on the short term topsoil storage areas must be provided.

UMC 817.42 Hydrologic Balance: Water Quality Standards and Effluent Limitations

*(a)(1) The applicant shall show compliance with this section by presenting a map which accurately shows in a clear, concise manner all drainage areas, disturbed and undisturbed, where the drainage originates, where it is treated, and where it is discharged. Plate 7-2 is not clear, does not adequately show direction of flow in ditches, does not show undisturbed drainages diverted away from the site and all drainage areas found within the vicinity of the site.

*(a)(2) The applicant must address this regulation and include an adequate discussion regarding how sedimentation ponds and treatment facilities for surface drainage from the disturbed area shall be maintained until the disturbed area has been restored and the vegetation requirements of UMC 817.111-817.117 are met, and the quality of the untreated drainage from the disturbed area meets the applicable state and federal water quality standards for the receiving streams.

UMC 817.43, 44 Diversions and Conveyance of Overland Flow

*In addition to the deficiencies noted under UMC 784.14 and 784.22, great erosion potential exists for drainage flowing off the upper area across from the fan and the portal area. Additionally, the area above the crusher pad has been significantly disturbed by Co-op mining activities. Erosion protection measures must be proposed for these areas.

UMC 817.45 Hydrologic Balance: Sediment Control Measures

This section of the regulations has not been adequately addressed. Appropriate sediment control measures must be designed, constructed, and maintained using the best technology currently available to:

- (i) Prevent, to the extent possible, additional contributions of sediment to stream flow or to runoff outside the permit area,
- (ii) Meet the more stringent of applicable State or Federal effluent limitations,

(iii) Minimize erosion to the extent possible.

These subsections must be addressed through accurate maps and plans depicting the location of riprap, straw bales, and alternative energy dissipating measures.

UMC 817.46 Hydrologic Balance: Sedimentation Ponds

The applicant has recently submitted plans to abate Violation 83-5-8-3, 2 of 3. These plans involved the redesign of Sediment Pond "A." The design information contained in the plans, while still incomplete at this time, should be incorporated into the MRP when complete. The plans adequately discuss the sizing of the sediment pond "A," but still did not include required information. This includes the following items:

1. Accurate dimensions must be submitted for the inlets and outlets to the pond and a cross-section showing these inlets and outlets with dimensions must be put on the Sedimentation Pond "A" Plate.
2. The letter submitted by Co-op from Mr. H. Lee Wimmer, P.E., to Mr. Wendell Owen, does not adequately explain the engineering calculations submitted to the Division on February 29, 1984. After a phone conversation with Mr. Wimmer on March 7, 1984, it was explained to him what information was needed to make the plan complete. This information will include a narrative tying together the calculations submitted with the background information used in the mine plan. This narrative will also include any coefficients used in computations and all detailed hydrologic calculations, (i.e. coefficients for the broad crested wier formula, slopes, peak flows, etc.).
3. Adequate protection of the inlet and outlet structures to the pond, including riprap size and depth based on expected velocities for the 24 hour - 25 year storm, must be provided.
4. A Stability Analysis of the outside slopes of the sediment pond, based on established engineering criteria, must be submitted.
5. The Utah State Health Department may require an effective Oil Skimming Device sufficiently above the designed sediment level. A copy of the revised pond drawing must be sent to Steve McNeal of State Health.
6. An accurate sediment level elevation must be included on the pond "A" plate and a commitment in the plan to mark the 60% sediment pond clean out level with an easily distinguishable marker must be included in the MRP.

This information must be submitted in a clear concise manner, as well as an accompanying narrative to present all calculations in a coherent professional manner.

The applicant must present all sizing calculations, maps, and plans relating to both sediment ponds . These must show compliance with the sections of UMC 817.46. The applicant must present the calculation sheets in a clear, concise, professional manner, put together in a coherent plan similar to the work done by Mr. Harold Lee Wimmer for the abatement of Violation 83-5-8-3, 2 of 3. All maps must be certified by a registered professional engineer and be of the quality submitted by Co-op for the abatement of Violation 83-5-8-3, 2 of 3. These plans must meet all the requirement subsections of UMC 817.46.

UMC 817.47 Discharge Structures

*The applicant has proposed on plate 7-3 that culvert outlets will be protected with 12 inch average rip rap. This may not be correctly sized. Outlet velocity calculations must be provided for each culvert outlet to adequately size rip rap for each culvert outlet. Additionally, the depth of rip rap placement must be specified. Bed liners may be necessary, depending on calculated velocities.

Several of the culverts at the Bear Canyon mine site are quite steep, with slopes up to 60% (downspouts 1 and 2). Outlet points for these culverts will most likely require an energy dissipating apron with adequately sized rip rap and bed liner. The depth of rip rap and bed liners to be installed must be specified.

Specific detail on the discharge structures for the sedimentation ponds are not provided. Velocity calculations and appropriate protection measures must be proposed for the outlets of both ponds.

Routing of discharges from the pond outlet to the Bear Canyon stream channel for the main sediment pond are not shown or addressed in the MRP. This should be portrayed on Plate 7-2 and the configuration of this channel supported by calculations contained in the MRP.

UMC 817.49 Impoundments

The applicant must discuss the following subsections in the narrative portion of the Hydrology section.

(e) All embankments of temporary impoundments, the surrounding areas and diversion ditches, disturbed or created by construction, shall be graded, fertilized, seeded, and mulched to comply with the requirements of UMC 817.111 - 817.117 immediately after the embankment is complete, provided that the active, upstream face of the embankment where water will be impounded may be ripped or otherwise stabilized. Areas in which the vegetation is not successful or where rills and gullies develop shall be repaired and revegetated to comply with the requirements of UMC 817.111 - 817.117.

This subsection of regulation UMC 817.49 is self-explanatory and must be addressed in the Mine Plan in narrative form.

(g) All dams and embankments shall be routinely maintained during the mining operation. Vegetative growth shall be cut where necessary to facilitate inspection and repairs. Ditches and spillways shall be cleaned. Any combustible materials present on the surface, other than material such as mulch or dry vegetation used for surface stability, shall be removed and all other appropriate maintenance procedures followed.

This subsection of regulation UMC 817.49 is self-explanatory and must be addressed in narrative form in the Mine Plan.

UMC 817.52 Hydrologic Balance: Surface and Ground Water Monitoring

* (a) Ground Water

Page 1 of the mine plan indicates that "underground water appears to be recharged on a local level directly proportional with the spring snow-melt or excessively heavy thunderstorms; this would indicate a local recharge through surface fractures."

How was this conjecture made? Where in the mine is this phenomenon observed? At the points within the mine where this is occurring, what is the geologic cross-section above the coal seam? An underground map showing sump area and ground water occurrence is requested. Section 7.1 states that Co-op has agreed to monitor a small intermittent spring adjacent to the Huntington City Spring (Bear Spring). Monitoring of flows (gpm), temperature, pH, TDS, iron, magnesium and phosphates is noted, although no data are found in the MRP.

What is the frequency of monitoring, how were these parameters selected and what is the comparison of these data with Bear Spring at similar times of the year?

The location of all springs in and adjacent to the mine plan area must be shown on a Springs Map, not scattered on various maps. The applicant must include in the future all major ions as part of their sampling parameters. Birch Spring, Huntington Spring, and Co-op Development Spring must be characterized and baseline information submitted to date. Comparison of these springs must be completed by the use of stiff diagrams. A monthly sampling program or more frequent monitoring initiated to characterize the discharge characteristics of these springs must be undertaken. Also see UMC 784.14 for additional comments.

* (b) Surface Water

Monitoring of Bear Creek above and below the mine site does not adequately characterize the surface water regime of the area. The applicant must supply the necessary data to determine the effects of mining on Bear Creek. An intermittent tributary flows into Bear Creek directly across from the mine site. The applicant has not monitored this tributary to adequately

characterize the influence of this flow and water quality on the lower surface water station presently being monitored.

The applicant states on page 15, section 7.2.6, Surface Water Monitoring, "Co-op will provide an annual summary sheet that will include surface water quality and quantity data in a consolidated, clear manner sufficient to identify seasonal variations and meet the requirements of UMC 783.16 (Table 7-1)." Table 7-1 is incomplete, poorly labeled (no station numbers given), and no comparison is given of parameters to identify seasonal variations. The applicant must include all major ions as part of the sampling parameters, identify seasonal variations and submit quarterly sampling sheets to the Division [UMC 817.52 (6)(iii)]. Also see UMC 784.14 for additional comments.

UMC 817.53 Hydrologic Balance: Transfer of Wells.

Co-op must comply with the subsections of this regulation, as no information is found within the Mine Plan.

UMC 817.57 Stream Buffer Zones

The language in section 7.2.5 on page 7-14 of the MRP notes Co-op is committed to maintain a 50 foot buffer zone wherever possible. This language is inconsistent with the 100 foot buffer required in UMC 817.57 and should be changed. No specific protective measures are proposed for protecting Bear Creek from the impacts of mining within the 100 foot zone noted in UMC 817.57.

Specific protection measures for preventing mining impacts to Bear Creek must be proposed. Based on past experiences at Trail Canyon, substantially sized berms, fences or other measures may be appropriate to avoid disturbed drainage, machinery, waste and other items from entering the stream channel.

UMC 817.59 Coal Recovery

Information regarding specific outcrop measurements and/or drill log data from borings made within the mine must be provided showing cause why the uppermost seam of coal cannot be mined concurrently.

Additional substantiation of reserve estimates must be provided in the MRP, including several specific crop measurements on the middle seam (in lieu of drill hole information) as well as the method of reserve calculation.

A proposal to submit a future plan for the extraction of coal from the lower Hiawatha Seam (as a modification to this existing plan) should be included to prevent the necessity for developing an entirely new MRP for this action at a later date.

UMC 817.89 Disposal of Non-Coal Waste

*Plans for the non-coal waste storage site must be submitted.

UMC 817.95 Air Resources Protection

The applicant must submit specific methods for dust control on the mine access road. The applicant must present the dates that the proposed dust suppression techniques will be initiated.

UMC 817.97 Fish and Wildlife and Other Related Environmental Values

*(a) A reclamation (revegetation) plan for the riparian area was not presented. The operator must provide a plan [UMC 784.13(b)(5)] to restore this critical wildlife habitat type or provide adequate justification as to why it will not be restored.

*It is the operator's responsibility to provide a copy of the 1982 raptor survey conducted by the U.S. Fish and Wildlife Service (USFWS) in the mine plan. Please do so. Also, regarding any future raptor surveys, the operator must commit to submitting the appropriate number of copies of the report to the Division. Personnel from either the USFWS or the Utah Division of Wildlife Resources (DWR) should assist in the survey.

The Raptor Survey Map - Appendix 10 is of poor quality and lacks a legend. A new map with a clearly defined legend must be submitted. In addition, the map should be accompanied by sufficient narrative to describe who conducted the survey, the methods used, and the results obtained.

Tables 10-4 and 10-5 listing amphibian and reptile species inhabiting the permit area are missing. Please provide these tables.

Figure 10-5 shows the ranges of threatened and endangered mammal species in relation to the Plateau Mining Company Lease Area. This figure should be revised to show the relationship of the Co-op lease area to these ranges.

The bibliography lists 110 references. However, only 12 of these are referred to in the text. The additional 98 should either be used in the text or eliminated. In addition, Tanner and Morris 1969 and Woodburey 1952 are referenced in the text but not listed in the bibliography. Please list these references.

The applicant lists five major vegetation habitats present on the permit area from a faunal standpoint (Page 10-8). These do not correspond to the vegetation types listed for the vegetation section. Please clarify this discrepancy.

(b) A commitment must be made to promptly report to the Division the presence in the permit area of any critical habitat of a threatened or endangered plant or animal species, or any bald or golden eagle, of which the operator becomes aware and which was not previously reported to the Division.

(c) The applicant must commit to ensure that the design and construction of electric power lines and other transmission facilities used for mining operations are to be "raptor-protected" as outlined under 817.97(c). In

addition, please provide documentation that existing poles and related facilities have been surveyed by the USFWS and found to need no modification.

(d)(7) The applicant must commit to not use persistent pesticides on the area during underground coal mining and reclamation activities, unless approved by the Division.

(d)(9)(ii) Please present plans which show how plants will be grouped and distributed to optimize edge effect, cover, and other benefits for fish and wildlife for each vegetation type to be reclaimed.

The Utah DWR has provided the following comments on the MRP. These comments should be addressed by the applicant:

Page 1-7 to 1-12, summary for environmental impacts

The opportunity to mitigate for impacts to wildlife caused by the presence of man in a mining industry should be identified in the "Fish and Wildlife" subsection. The Division of Wildlife Resources has developed a coal mining and wildlife training film for that purpose and it is available to industry.

Page 3-16, 3.4.6.3.3, Protection of Natural Surface Structures & Streams

The MRP must address measures to protect existing raptor nests from escarpment failure..

Page 3-28, 3.4.6.3.3, Flamable, paragraph 2

Diesel and gasoline storage tanks must have containment berms of suitable design to hold the entire volume of material if a leak were to occur. Bear Creek, although it does not sustain a fishery, is adjacent to the surface facilities and flows into stream section 3 of Huntington Creek. This stream section supports trout. It is a class 3 fishery, ranked as being of high-priority value to the State's sport fishery management program.

Page 3-36 and 3-37, 3.5.1, Preservation of Land Use

The MRP in the "Environmental Protection" section is unclear as to whether or not a commitment to reclaim consistent with plans in Chapter 9 is actually made. This section and Chapter 9 should be tied together; the reclamation plan as per our comments in Chapter 9 is satisfactory.

Page 3-39 to 3-41, 3.4.1.2, Control Measures to Mitigate Impacts

This section of the MRP must reference the vegetation reclamation plan in Chapter 9 and the wildlife mitigation reclamation plan in Chapter 9 and the wildlife mitigation plan in Chapter 10.

Page 3-58 through 3-63, 3.5.6.1, Projected Impacts of Mining on Fish and Wildlife

The summarial discussion of potential inhabitation of the mine permit area by fish, amphibians, reptiles, birds and mammals is in error.

The numbers of species and their classification as high interest

and/or protected has been reported inaccurately. This data was provided to the applicant by the Division on May 22, 1981; it should be reported correctly.

Page 3-59 to 3-61, Mammals

Big game (mule, deer and elk) habitat on the mine plan area is considered to be within two general categories - winter and summer range. The summer range is ranked as being a high-priority value and the winter range is of critical value. Impacts by the mining development are of significance to both animals, although the deer have been impacted in a loss of 10 acres of big game winter range. (Note, this same area once supported a substantial population of cottontail rabbits.) This information was provided to the applicant by the Division on May 22, 1981

Note, the wildlife use area map (Plate 10-1) is not an accurate portrayal of the distribution or ranking of big game seasonal use areas. Migration paths are unknown, but the paths as illustrated reflect general direction and typical corridors utilized. The Plate (10-1) should be corrected.

Page 3-63, Aquatic Wildlife

Huntington Creek is located nearby to the permit boundary and surface disturbed areas (roads) as well as mining facilities lie in a perennial drainage (Bear Creek) less than 1.5 miles from its confluence with Huntington Creek. Due to the proximity of this high-valued fishery to the project, it is imperative that it be identified in the MRP and appropriate consideration be given to protect Bear Creek and ultimately Huntington Creek. (Reference comments for page 3-28 for fishery value of Huntington Creek.)

Page 3-64, 3.5.6.2, Mitigation Measures to be Employed to Protect Fish and Wildlife, paragraph 1

The breakout and ventilation shaft are not appropriately described in the MRP in order to determine mitigation needs. Construction may well need to be scheduled for a time of year when big game are not on critical valued use areas. The MRP needs to be more detailed in respect to this concern.

Page 3-73 to 3-75, 3.5.9, Waste Disposal Plans

A detailed description of the Trail Canyon rock storage site as it relates to wildlife, their use areas and habitats as well as potential impacts, must be presented in the MRP. A similar narrative and appropriate maps must be developed for storage of non-coal waste. The Division is especially concerned for oil and grease or other toxicants and their potential to reach Trail Creek or Bear Canyon Creek. Thus, discussion under 3.5.9.1 would be applicable and appropriate.

Page 3-76, 3.6, Reclamation Plan, paragraph 1

The MRP must specifically identify the intended post-mining land use so that proposed reclamation can be evaluated.

Paragraph 2

Reference comments provided for page 3-56.

Page 3-97 to 3-99, 3.6.5.2, Seeding and Transplanting

A specific revegetation plan must be developed to include plant material application rates. This section seems to be somewhat contrary to the specificity in Chapter Nine's reclamation plan?

Page 4-16, 4.5.1, Wind Protection Barriers

The rock pile will not benefit wildlife. There is ample cover in the immediate area. The space to be occupied by the rock would be more valuable if planted so that it would produce forage for wildlife.

Chapter 10, Wildlife

The chapter reflects substantial error in regards to inventory of wildlife associated with the project. The MRP should present complete data, from a low level study on all wildlife (potential occurrence, season of use, relative abundance, legal status, population trend and preferred habitats or use areas); moderate level studies on the high interest wildlife species (indepth discussion of critical and high-priority life requisites needed to be understood for development of a mitigation plan); and high level field studies for raptors (reference memo from Douglas Day to Cleon Feight, June 9, 1981). It should be noted that much of this information was provided by the Division to the applicant on May 22, 1981. A detailed report concerning field raptor studies was also provided to the applicant November 17, 1983. This information must be appropriately displayed in the MRP.

Page 10-6 and 10-7 (reference table 10-1)

The decision process for assignment of impacts ranging form 0 to 10 must be discussed in intimate detail. The qualifications of the person(s) making the judgement must also be identified. It seems that this process is quite arbitrary and without scientific support or objectivity. For example, the loss of critical valued deer winter range on the project area cannot be accepted as a level "3" impact where "0" is low and "10" is high. The system seems to have no rational explanation. It would, therefore, be more acceptable to identify just the acreage and relative biological value to high interest wildlife of habitats to be lost or impacted.

Page 10-8, 10.3.2.1, Aquatic Wildlife Habitat and Value Determination

The MRP makes comment in regards to Trail and Bear Creeks. If the Trail Creek portion of Co-op's operation is to be included, the entire MRP must be appropriately modified. Impacts to Trail Creek by Co-op have been severe. They must be appropriately discussed in the MRP.

Table 10-2

The applicant indicates that numerous species have been observed on the project area. This is perplexing because to the Division's knowledge, no qualified wildlife biologist or other person has surveyed Co-op's project area. Taxonomic work would require a permit from the Division and no such permit has been issued.

Page 10-31 to 10-35, 10.5, Mitigation and Management Plans

The project has resulted in loss of nearly 10 acres of critical valued deer winter range. The MRP has not suggested any mitigation for such. The applicant is expected to mitigate for these losses. The access road (old road) is an area where revegetation could be considered.

UMC 817.99 Slides and Other Damage

*A commitment is needed by the operator that at any time a slide occurs which may have a potential adverse effect on public, property, health, safety, or the environment, the person who conducts the underground coal mining activities shall notify the Division by the fastest available means and comply with any remedial measures required by the Division.

UMC 817.100 Contemporaneous Reclamation

The applicant has presented specific plans for contemporaneous reclamation of 1.6 acres on the permit area. A more general commitment must also be made by the applicant to reclaim any area which becomes available during the life of the mine.

UMC 817.106 Regrading or Stabilizing Rills and Gullies

The applicant must commit in writing to stabilizing any rills and gullies in accordance with this section.

UMC 817.111-117 Revegetation: General Requirements

The operator has not supplied adequate data to evaluate the reclamation plan pursuant to these performance standards.

Once the Division receives the information and plans required under UMC 783.19, 784.13, and 817.100, compliance with UMC 817.111-117 will be evaluated.

UMC 817.121-.126 Subsidence Control: General Requirements; Public Notice; Surface Owner Protection; Buffer Zones.

Conflicting information exists in the mine plan regarding outcrop and barrier pillar factors (i.e., buffer zones). They vary between 100 feet and 200 feet (Plate 3-4 depicts the latter figure while Section 3.4.2 the former). Additionally, it would be worthwhile incorporating a reference to these areas or a restatement of the designs within the subsidence section.

Information must also be placed into the MRP concerning barrier pillar design around the fault(s) encountered in the mine which are the potential conduit(s) for recharge of the Huntington Spring. Barrier designs should be formulated which are in excess of 170 feet (i.e., suggested 200 feet) as derived from rough calculations using the Ashley Mine inspector's formula from the SME Handbook. Barrier pillar designs or buffer zones must also be submitted substantiating that proposed distances are adequate. Either formula calculations or angle of draw methods may be used.

A commitment to notify adjacent property owners, Northwest Energy and/or The U.S. Forest Service, concerning subsidence potential prior to approaching these boundaries is necessary.

Overburden measurements must be made more specific and areas located on a map where taken at the minesite.

UMC 817.131 Cessation of Operations: Temporary

The applicant must make a commitment in the MRP to abide by the provisions of this performance standard. It is suggested that the applicant commit to notifying the Division as soon as possible in the event of temporary cessation of operations, including submission of required information regarding exact number of surface acres and the horizontal and vertical extent of sub-surface strata in the permit area prior to cessation or abandonment, extent and kind of surface reclamation, and identification of backfilling, regrading, revegetation, environmental monitoring, underground opening closures and water treatment activities that will continue during temporary cessation.

UMC 817.150-156 Roads: Class I

All of the portal access road must be addressed in regards to UMC 817.150 to .156. In addition, the Bear Canyon Road must address:

UMC 817.152 Roads: Class I: Design and Construction

(9) The minimum safety factor for the embankments shall be 1.25. This must be verified.

UMC 817.153 Roads: Class I: Drainage

Is the culvert on the submitted drawing to scale?

Co-op Mining Company has incorporated a letter from Horrocks & Carollo Engineers containing recommendations for the drainage structures to be utilized on the haul road. The operator must make a written commitment to undertake these recommendations before approval can be given.

Assuming that the recommendations contained in the Horrocks & Carollo letter will be undertaken by the operator, the following deficiencies must be addressed:

(c)(1)(ii) How was the culvert installed to avoid plugging or collapse and erosion at inlets and outlets?

The applicant's proposal to use 18 inch culverts (with a peak headwater depth of 30 inches) under the road is not in conformance with UMC 817.153(c)(1). Culverts are required to safely pass the 10-year, 24-hour storm, without a head of water at the entrance. A variance may be granted for the existing 18 inch culvert provided that a minimum 30-inch headwater depth above the top of the culvert is demonstrated.

The proposal also lacks specifics for the type of headwall device(s) designed to protect the inlet end of the culvert(s). UMC 817.153.

(c)(2)(vi) requires a rock headwall or other material approved by the Division for inlet protection. This information must be supplied.

The two proposed culverts must be sized to pass the design event without a headwater depth greater than the culvert diameter (27- or 30-inch CMP appears adequate).

The drainage ditch along the road is proposed to be 1.5 feet deep. Allowing for 0.3 foot of freeboard with 1.2 feet of effective depth, the ditch is not adequate to pass a 10-year, 24-hour event. If a 1.8 actual depth was proposed, this would be adequate.

The velocity calculated in the ditch adjacent to the road is erosive (6.8 feet/second, based upon an average channel slope of six percent). No erosion protection measures are proposed. Erosion protection measures must be submitted by the operator for those channel sections with velocities exceeding 5.0 feet/second.

The erosive channel sections (velocity greater than 5.0 feet/second) must incorporate appropriate channel lining material. Adequately sized riprap material is one possible alternative. The use of a filter blanket may also be necessary unless soil erodibility conditions (i.e., particle size analysis) demonstrate otherwise.

(c)(2)(vi) Additionally, no information is provided on culvert outflow points. Erosion protection measures must be proposed for culvert outfall points.

UMC 817.154 Roads: Class I: Surfacing

(a) How will the roads be surfaced? Please state the type of surfacing proposed.

UMC 817.155 Roads: Class I: Maintenance

The road must be maintained in such a manner that the required performance standards will be met throughout the life of the entire transportation facility. This will include maintaining the surface, shoulders, parking and side areas and erosion control structures for safe and efficient utilization of the road.

UMC 817.156 Roads: Class I: Restoration

The submittal (August 1983) from Co-op stated that the final reclamation plan was previously submitted and that it will be reclaimed unless it is determined to be necessary for post-mining land-use. The entire mine and reclamation plan for the 1,800 feet of road, including the post-mining land-use, must be submitted. How will the road be removed and how will the land affected be regraded and revegetated? This must be addressed.

*Indicates those sections for which more information has been requested in previous review documents.

78760