



0017
STATE OF UTAH
NATURAL RESOURCES
Oil, Gas & Mining

Scott M. Matheson, Governor
Temple A. Reynolds, Executive Director
Dr. G. A. (Jim) Shirazi, Division Director

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

November 8, 1983

Mr. Douglas C. Pearce
Mine Engineer
Kaiser Steel Corporation
P. O. Box D
Sunnyside, Utah 84539

RE: Determination of Completeness
Sunnyside Mine
ACT/007/007, Folder No. 2
Carbon County, Utah

Dear Mr. Pearce:

Enclosed please find a copy of the Division's Determination of Completeness (DOC) review for Kaiser Steel Corporation's Sunnyside Mine. The DOC review was performed by Simons, Li and Associates, Inc., under contract with the Division and reviewed by the DOGM technical staff.

The enclosed DOC review document contains several questions that were identified during the review. These items need to be clarified before the plan can be determined complete and the TA can be drafted. Therefore, please provide an adequate response to these questions on or before November 18, 1983.

Should Kaiser desire to meet with the Division staff or have any questions regarding this review, please contact me or Steve Cox of my staff immediately.

Sincerely,

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

JWS/SC:btb

Enclosures

cc: Allen Klein, OSM
Lou Hamm, OSM
Bill Fullerton, Simons, Li and Associates
S. Cox, DOGM
T. Munson, DOGM

DETERMINATION OF COMPLETENESS

AND

TECHNICAL DEFICIENCIES

Kaiser Steel Corporation
Sunnyside Mines
ACT/007/007, Carbon County, Utah

November 8, 1983

DETERMINATION OF COMPLETENESS

UMC 782.14 Compliance Information

(a) and (b) An update of this information must be provided as necessary to reflect changes since the March 1981 application submittal.

DETERMINATION OF COMPLETENESS

This section has been mistakenly labelled in Chapter 1 and contains information concerning individuals who prepared or were consulted in preparing the Mining and Reclamation Plan (MRP). This information should fall under UMC 771.23(d).

UMC 782.19 Identification of Other Licenses and Permits

All permits needed to conduct the underground mining operations should be included. The list in the application is incomplete. Permits or licenses that have been applied for but not issued are also required to be listed.

DETERMINATION OF COMPLETENESS

Information appears to be complete except for the possibility of air quality permits. Clarify whether the operation requires air quality permitting, and if so, provide the permit information.

UMC 783.12 General Environmental Information

A table giving the exact portions surveyed of the sections identified on page 5 should be provided.

DETERMINATION OF COMPLETENESS

The applicant includes the information requested on Table V-3 and also mentions that Plate V-5 shows the survey area, but Plate V-5 is not included with the submittal. Should the reference to Plate V-5 be to Plate V-1, or is Plate V-5 missing? Please correct or delete the reference to Plate V-5 or provide Plate V-5.

UMC 783.15 Ground Water Information

The applicant makes a general statement that "there are no extensive permanent water tables or aquifers in the semiarid regions of the west." This statement is not true and should be removed from the permit. Although aquifers may be much more limited in size in this region than in other areas of the country, it is not justification for not providing sufficient information to properly assess the impact of mining on the local ground water system. The fact that, on the average, the mine produces in excess of 700 gpm of water would indicate that there is a high probability that the mine is impacting some locally significant aquifers. The 700 gpm is equal to approximately 1.6 cfs or nearly one quarter of the 7 cfs average flow reported for Grassy Trail Creek during water year 1979.

There is information provided in the permit application that would indicate that recharge does occur. In Section 7.1.3.2, it is mentioned that the required pumping rate of water from the No. 2 Mine varies with the time of year and the amount of precipitation. This would indicate that there is surface connection and the potential for recharge of aquifers in the permit area. The high flow rate of water into the No. 1 Manshaft indicates the presence of an aquifer. It is necessary to be able to evaluate the effects the mining activity will have on this aquifer.

The information presented in the permit is inadequate to determine whether additional measures need to be taken, both during and after mining, to prevent significant adverse impacts on the ground water system within and adjacent to the permit area.

DETERMINATION OF COMPLETENESS

Several items need clarification. The ground water inflows in table III-14 need to be identified with the date of the estimates (approximate). Map III-4 shows general points as observed ground water inflow points (labelled "GOB"). More information concerning these points would be helpful, if available, such as a description of the inflow point (roof, floor, faulted area, etc.) and estimate of flow. These points could be labelled GOB-1, GOB-2, etc., and a table constructed that provides this information.

The NPDES monitoring points should be shown on Figure VII-3 and a legend provided showing what the various symbols (squares, circles, etc.) represent.

UMC 783.15 (continued)

(a)(1) Provide the location of localized aquifers and indicate if they are within the interburden, overburden or underburden. The depth to water information from the logs in Appendix 6.9 and any additional information should be used to define any aquifers. An attempt should be made to define the piezometric surface of any aquifer over the permit area. The plan for ground water monitoring in Section 7.1.6 should be updated to reflect the current program and the monitoring data gathered should be included in the application. Additional information that needs to be provided includes:

1. More detail on the location and quantity of ground water inflows within the mine.
2. Water quality measurements from seeps and springs in the area.
3. Individual flow rate information for the various mine water discharge points so that seasonal variation can be determined.
4. Information from the applicant's South Lease Mine that would assist in assessing regional ground water characteristics.

DETERMINATION OF COMPLETENESS

Table VII-4 lists water flow rates from NPDES points 002 and 004. Plate VII-3 also shows mine water monitoring points 001 and 003. Similar information for these locations 001 and 003 should be provided in Table VII-4. In Section 7.1.4 of the original submittal, four mine water flow measurement points are identified as UGM-1, UGM-3, 003 and 002. These must be cross-referenced to the numbers appearing in the supplement.

The applicant states that the proposed ground water monitoring program has been abandoned and a new plan, using state-of-the-art technology will be undertaken. The applicant must provide a description of the new plan detailing sampling locations, sampling frequencies, methodology and parameters to be analyzed for.

UMC 783.15 (continued)

(a) (4) The applicant should update the ground water quality information in Table VII-1. The information is useful in a general sense, e.g., assess toxicity levels; however, it is necessary to provide more detailed information to determine seasonal variations and the variation in water quality from the individual measurement points. Effluent discharge quality must comply with UMC 817.42(b)(7). A suggested format would be to graphically display these data on a monthly basis for each of the measurement points. Flow rates at the time of measurement should be given, if available.

DETERMINATION OF COMPLETENESS

Information for points 001 and 003 should be provided in Appendix VII-3 as was provided for points 002 and 004.

UMC 783.16 Surface Water Information

(a) The drainage area (in square miles) of Grassy Trail Creek should be given for both areas above the permit and within the permit. A portion of the permit area does not drain directly into Grassy Trail Creek within Whitmore Canyon. This area should also be identified, measured and discussed. This area is mainly along the west boundary of the permit. Except in the Fan Canyon area, there does not appear to be disturbed areas within this western drainage from the permit. The applicant should discuss this fact and whether any future disturbance is planned in the portion of the permit area that does not drain into Grassy Trail Creek within Whitmore Canyon.

Review of the Sunnyside Mine file at the Division showed that a large amount of water quality data have been collected since the original permit submittal. This information should be provided to update the permit. Table VII-2 should be updated to include these data. However, it is also necessary to show seasonal variation, which Table VII-2 is insufficient to achieve. The applicant should provide monthly information on the results of water quality monitoring; graphical representation is preferred.

Since the U. S. Geological Survey (USGS) gaging station #0931430 record is the only available discharge measurement site on Grassy Trail Creek, these data for this station should be provided in a format sufficient to assess seasonal variations in flow rates.

Several seeps were noted within the permit area during the site visit in May 1983. This contradicts the statement in 7.2.3.2 of the application which says no springs or seeps are located in the area. This point needs to be further discussed by the applicant.

7.2.3.2 also discusses the Slaughter Canyon sediment pond. This discussion needs to be updated to reflect the current status of the reclamation of the sediment pond. Plate III-1 and VII-1 should also be updated.

In general, information on Plate III-1 is hard to utilize due to the lack of a complete legend of symbols, lines and abbreviations. The location of all mine water discharge points should be clearly identified on the map. These deficiencies need to be corrected.

Since the original permit application, the applicant has made a significant effort to improve the surface water drainage system including the construction of sediment ponds, diversions and a water treatment facility for seepage from the coarse refuse disposal. These new features and any others that control surface water runoff should be included in Plate VII-1.

DETERMINATION OF COMPLETENESS

There is a typographical error in the table listing watershed areas on the first page of the response to UMC 783.16. The mine permit area is given as 29,815 acres, which is incorrect.

Information included in Appendix VII-5 for GT1 and GT6 must be provided for the other Grassy Trail monitoring locations (i.e., GT-2 through GT-5).

UMC 783.21 Soil Resource Information

(b) The applicant states in Section 3.5.3.2c that a soil other than topsoil could be used on preparation plant reject and industrial waste disposal facilities. The applicant should clarify whether this is a soil material (and its potential source) or an alternate material.

Files at the Division contain discussions concerning a revegetation test plot to be constructed with the aid of the Soil Conservation Service (SCS). Does such a test plot exist? If so, update the application to include its description and results of testing.

DETERMINATION OF COMPLETENESS

The applicant needs to identify the source of the alternate "borrow material" mentioned in the ACR Response.

The applicant needs to amend the permit with the details of the test plot mentioned in the response for completeness.

UMC 784.11 Operation Plan: General Requirements

(b)(6) Include the information required for the water treatment measures installed for the seepage from the coarse refuse pile. The discussion of sediment ponds in Section 3.2.9 should be updated to reflect current sediment ponds. Maintenance and sediment removal programs should also be addressed.

DETERMINATION OF COMPLETENESS

Table Plate III-1 to clearly show which ponds (No. 1, No. 2 and Clearwater?) are associated with slurry disposal. None of the ponds are labelled as Twin Shaft, Old Coarse Refuse Pond or Coarse Refuse Drainage; however, plans for these ponds appear in Chapter III of the supplement. All ponds must be labelled in the same manner as referenced throughout the text and drawings.

UMC 784.13 Reclamation Plan: General Requirements

(a) It is unclear, given the statements in the application concerning revegetation techniques proposed, which disturbances the applicant deems Kaiser Steel Corporation (KSC) responsible for under the provisions of the current regulations. KSC is responsible for reclaiming all areas disturbed or used during the course of the life of the mine regardless of when the initial disturbance occurred. It is suggested that a table be developed like Table III-1 showing the facilities, portals, etc., which are proposed to be disturbed or used during the course of the life of the mine versus such facilities which will not be affected and are not included in the bonding. This will help clarify the level of revegetation activities required

DETERMINATION OF COMPLETENESS

It was requested that a table similar to Table III-1 be submitted that identified all facilities, portals, etc., which are to be reclaimed. Is it valid to assume that all items listed in Table III-1 are to be reclaimed? It would be helpful if these items were shown on Plates III-20 through III-23. In Table III-24, the items under the description of each area should include their ID numbers as given in Table 3.1. In the original permit, approximately 400 acres of disturbed land are referred to. In the supplement, 245 acres are identified. This needs to be clarified.

UMC 784.13 (continued)

(b)(3) Cross-sections and interim and postmining contour maps are not provided in the application. The applicant states contours are shown in Plate III-1; however, these are existing contours and some changes will be required during reclamation.

It is stated that the upslopes of the ventilation shafts in Pole Canyon (3.4.1[c]) are stable. What evidence supports this?

In Subsection 3.5.4.2, the applicant should identify which portal and shaft locations exhibit highwall requiring filling and contouring. Is this activity accounted for in the bond estimate?

DETERMINATION OF COMPLETENESS

The main concern in this comment was the coarse refuse disposal area, slurry ponds, borrow area and other areas which will change throughout the permit term. A contour representation of what these areas are to look like after reclamation is required. It is doubtful that they will appear as they did at the time of mapping. If need be, contours should be shown on a more suitable scale. The reviewer understands that conditions may change as to how much refuse is produced; however, a best estimate of the volume and final shape of the disposal area should be made for planning purposes.

UMC 784.13 (continued)

(b)(4) and (b)(5)(vii) In addition, it is unclear how much topsoil is available for reclamation purposes. Is there sufficient soil material available to adequately reclaim the site? A showing is required from the applicant concerning soil volumes available, material sources, project distribution sites and final cover depth. One option for fulfilling this requirement is to construct a mass-balance table. The table would identify topsoil sources (existing stockpiles, areas to be disturbed, etc.), lift depths and the material volumes of those sources. The table would also indicate the sites on which the topsoil will be redistributed, showing the disturbed acreages involved, and the projected depth of topsoil cover on each site. Soil materials which are to be used for reclamation but are unavailable for stockpiling or handling due to previous mining (i.e., soils beneath the coarse refuse pile, facilities sites, etc.) must also be identified and included. The depth and quality of these materials must be assessed to determine available volumes. Such materials need only be identified as "in place" on the table since they would not be moved or rehandled unless needed for application on other areas. If such materials are to be redistributed, a more detail treatment would be required regarding redistribution volumes, etc. A companion table explaining the reasoning behind lift depth selection would also be helpful.

DETERMINATION OF COMPLETENESS

The basis for this comment was to develop an understanding on how available and substitute seedbed resources were to be allocated to disturbed bonded areas. This comment was not meant to imply that the operator need to borrow soil from undisturbed (and unbonded) areas or in any other way generate soil other than that which has already been disturbed. However, the regulatory authority does need to know how and where stockpiled topsoil materials will be allocated to disturbed areas to be bonded under this permit. It is understood that certain areas will need to be revegetated without the addition of topsoil. The applicant must determine, based on site conditions and data, which areas will require soil, which will not, and develop this information in the manner requested in the original comment. A brief discussion must be included explaining why specific disturbances were chosen to be reclaimed without topsoil based on site-specific conditions, factors or problems. The applicant will need a soil testing plan (explained in detail) for existing facilities sites to be conducted as soon as possible. When soil test results for facilities have been analyzed and revegetation test plot analysis has been completed, changes to the permit can be submitted. The applicant must complete this analysis showing how all affected and bonded sites, by name and acreage (adding up to the total disturbed acreage as identified in the permit) will be treated.

UMC 784.13 (continued)

(b)(4) and (b)(5)(vii) The applicant also needs to supply more detailed information concerning the methods to be used to redistribute and grade soil materials. The discussion should include an identification of timing and methodologies used to achieve each of the requirements stated in UMC 817.24 and 817.101-.016.

DETERMINATION OF COMPLETENESS

The applicant has explained how borrow materials will be spread in Section 3.5.4.4. This information need be provided for topsoil materials.

UMC 784.13 (continued)

(b)(5)(ii-v) The reclamation plan under Section 3.5 is not entirely consistent with that mentioned under 9.7. Confusion exists between different sources in the application as to what will happen and where. For example, fertilization is mentioned for use on some disturbed sites but not others. Specifications for most reclamation techniques are missing. It is not clear how most, if not all, revegetation techniques will be applied or conducted. These techniques include site preparation, seedbed preparation, fertilization, seedling planting and mulching. The applicant needs to provide a detailed

description of each revegetation technique to be used including: type of equipment; type and amounts of materials (where appropriate); method of application; and, technique sequence. This applies to both temporary revegetation and permanent revegetation. It is assumed that differences in slope, seedbed materials and disturbance type will necessitate technique variations. Variations should be explained. Perhaps the easiest way to resolve this issue is an expansion of the discussions in Section 3.5.5 in the application. The discussions in Section 3.5 dealing with facilities reclamation could then be modified to specifically identify the revegetation techniques to be applied and the sequential timing of techniques for each type of disturbance. It is likely that existing discussions, such as that in Subsection 3.5.3.2 would require expansion due to the differences in disturbance types and, therefore, a difference in applicable revegetation techniques.

DETERMINATION OF COMPLETENESS

The revised reclamation plan provided with the response has rectified many of the concerns identified in the original comment. However, a few concerns are still appropriate.

During the Technical Analysis (TA) stage of permit review, the reclamation plan will be evaluated to be certain that all techniques described in the plan are appropriate for each site to be disturbed unless special provisions for certain areas are noted. The applicant is encouraged to review the revised plan to be certain that this concern has been addressed. Also, comments such as "where practical," "in typical situations," etc., need to be clarified such that no questions remain as to what will be done, in terms of reclamation, on the disturbed areas.

The applicant need also be aware that all disturbances must be accounted for, including the waste disposal site. It is acknowledged that current tests are being run on this material to determine the most suitable techniques. However, the applicant must consider available literature and data and detail a plan for reclaiming this site for the sake of application completeness with a proviso for change through the amendment process as research results are finalized.

The applicant need also include more specifics where possible concerning techniques to be used. For example, the drill seeding description could be expanded to include depth of seeding and drill row spacing. As another example, the recommended planting methods (MMDNR1980) for shrub seedlings can be explained.

Is any vegetation planned for portal and fan disturbances given the type of area in which they are situated? This is not clear from the discussions presented.

UMC 784.14 Reclamation Plan: Protection of Hydrologic Balance

(b)(1) In the presentation of mitigation measures in Section 3.4.3.2, mention is made of diverting runoff, regulating channel velocities and sealing roads and berms. However, no details for implementing these measures were found in the mine plan. This information should be provided, e.g., maximum velocity criteria for designing diversions. A sentence in Section 7.2.3.2 states that no diversions are planned. Please resolve this conflict.

DETERMINATION OF COMPLETENESS

Design criteria to prevent erosion must be included. For example, limiting velocities to a maximum, dependent on material the diversion is located in. Several of the design calculations show velocities in excess of five feet per second. There could be erosion problems with these ditches. This must be addressed.

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

(a)(1)(ii) The details of the sediment pond in Figure VII-1 is inadequate since it is not site specific. Individual plans for each sediment pond must be provided.

DETERMINATION OF COMPLETENESS

The applicant states that there are or will be 13 sediment or settling ponds in the permit area. The applicant must provide a listing of which ponds are currently in existence and which are to be constructed in the future. There is some confusion on Plate III-1 as to which sediment ponds are actually shown. The reviewer did not find any ponds labelled as the Twin Shaft, Old Coarse Refuse Road or Coarse Refuse Drainage. However, plans for these ponds are given. Is this because the latter two have not been constructed? Please clarify as to which sediment ponds are discharge points 001, 002, 003 and 004. It would appear that the Manshaft Pond is discharge point 001, the Twin Shaft is 002, the Clearwater Slurry Pond is 004. Is there a pond associated with discharge point 003? And, if so, please provide a drawing. If a drawing has not been provided for 003, please do so.

UMC 784.20 Subsidence Control Plan

Present survey data to support the statements in the application (Section 1,2, 3.4.3.1, 12-4) that subsidence is not probable and damage or diminution of structures and renewable resource lands are not expected due to subsidence. The survey should address the items in Sections (a) through (d) in UMC 784.20. Also provide information on joint orientation since this often controls subsidence cracks and the effect, if any, of mining under or near Grassy Trail Reservoir considering that the third 5-year permit plan appears to be within

several hundred feet of the reservoir. Sections 3.4.8.1 states that the massive Castlegate Sandstone occurs about 200 feet above the upper coal seam. Provide information verifying that this sandstone does not taper out or become thinner, thereby being somewhat more susceptible to collapse. Document the methods and calculations for substantiating subsidence or no subsidence.

DETERMINATION OF COMPLETENESS

From the revised Plate III-3, it appears that the fifth, 5-year mining period (i.e., 25 years in the future) nearly or does extend beneath Grassy Trail Reservoir. If this is true, subsidence control beneath this area is critical and should be addressed. To avoid confusion, Grassy Trail Reservoir should be shown on the map since, from the applicant's response to a similar question previously proposed on the subject, the applicant does not agree with the reviewer's conclusion concerning the closeness of mining to Grassy Trail Reservoir.

A subsidence net study from May 1982 to August 1983 was conducted. Table III-21 states that the survey is accurate within 10 feet. Is this a typographical error? If not, then the surveyed differences in elevations are meaningless. Also, please provide calculations to substantiate that subsidence will or will not cause material damage or diminish renewable land resources over the long-term. This analysis should provide information on expected total subsidence over the long term, rather than for only one year.

The subsidence analysis should be provided for the worst case situation for the several types of conditions that exist. These would include mining both seams, areas under the shallowest overburden conditions, near faults (Plate VI-1) and edges of canyons. Of particular importance is the potential subsidence under Grassy Trail Reservoir, because even a small amount of settlement could produce tension cracks resulting in leakage of reservoir water. This situation could degrade with time resulting in increased water loss and/or dam instability. Please address this potential problem.

UMC 784.22 Diversions (Chapter III and VII)

No information in the application is provided concerning diversions in the permit area. If diversions do exist, such as ditches to convey runoff undisturbed area around disturbed areas, the appropriate information, as per UMC 784.22 must be provided. If no diversions exist, a statement to that effect should be provided.

DETERMINATION OF COMPLETENESS

Appendix 7.6.1 is not found in the supplement. The information in 7.6.1 of the original application does not address diversions. The calculations provided in Appendix III-1 of the supplement are not adequate since they are based on average slopes. If substantially flatter sections exist,

than the average slope indicates, channel depths must be increased in these areas. In significantly steeper sections, high velocities may cause erosion problems. The applicant needs to justify the use of average slopes. All the sheets are not complete either, for example, width is not included for ditch 3, Rail Cut Pond; side slope (Z) is not included for Ditch 2, Rail Cut Pond; and the slope on channel 3D is given as 10.87 decimal percent (this would make it nearly vertical). The actual design depth should be given for each channel (depth of flow plus freeboard). It would be useful to provide a summary table with the identification of each diversion, design flow, side slope, width, design slope, flow depth, freeboard and design depth.

UMC 784.24 Transportation Facilities (Chapter III)

The application is lacking specifications for culverts (size, slope, length, material). Although the applicant states no new culverts are planned, the adequacy of existing culverts must be evaluated since an improper design can create significant erosion and runoff control problems. If any drainage ditches exit along the roads, they should be shown on plans and specifications provided. Drawings of road profiles and typical cross-sections for all roads used in the permit area must be submitted with certification from a registered professional engineer.

DETERMINATION OF COMPLETENESS

The applicant should supply road profiles of main haul road and any other major roads as discussed with the Division engineer.

UMC 784.26 Air Pollution Control Plan

The applicant states that "climatological" monitoring is facilitated by the weather station at the mine; however, this instrumentation is not adequate for an Air Quality Monitoring Program, an Air Pollution Control Plan or a Fugitive Dust Control Plan (as required under UMC 817.95). Appropriate plans must be developed by the applicant and presented in the application, or a copy of a letter from the Division releasing the applicant from these requirements must be presented.

The application does not identify all potential emissions sources at the project. A quantitative estimate of the emissions from each source is lacking. Control measures planned for each source should be explained, and an estimate of their effectiveness should be provided. A total estimate of the amount of emissions from the mine can be determined from this information and included in the plan.

The application does not provide a Utah Department of Health waiver of air quality monitoring. Any emissions permits or emission permit applications must be included with the plan (see UMC 782.19).

DETERMINATION OF COMPLETENESS

Response to deficiency comments for this section could not be found in the applicant's response to the ACR. Please review the original comments and provide a Fugitive Dust Control Plan.

UMC 805.11 Determination of Bond Amount

Roads are not included in the estimate. No agreement with the Division has been provided showing that such roads can remain after mining operations are completed.

DEFICIENCIES

All roads and bridges affected by mining operations must be reclaimed and included in the bond estimate unless agreement is reached with the Division that roads can remain after mining. A showing to this effect must be included in the permit if such an agreement is concluded.

UMC 805.11 (continued)

Supporting calculations are needed to adequately evaluate the bond necessary to be posted and to evaluate the potential success of reclamation. Calculations for each step in the reclamation plan for each type of disturbance should be included. Variations in reclamation/revegetation techniques with respect to site conditions (e.g., level versus 2:1 slopes) should be addressed. The following example format is one possible method of satisfying this requirement.

Mulching-Main Complex

A. Mulch Application

$$\begin{aligned} & (\text{Equipment cost/hr X production rate/ac}) + \\ & (\text{labor rate/hr X production rate/ac}) + \\ & (\text{materials costs/ac}) = \text{cost per acre} \end{aligned}$$

B. Mulch Crimping

$$\begin{aligned} & (\text{Equipment costs/hr X production rate/ac}) + \\ & (\text{labor rate/hr X production rate/ac}) = \\ & \text{cost per ac.} \end{aligned}$$

TOTAL: Total Cost/Ac

DEFICIENCIES

Costs for soil testing (including laboratory costs) after the completion of grading, fertilization (equipment, labor and materials) of disturbed sites and scarification are not apparent in the bond costs provided. Those costs must be identified in existing calculations or provided if they are not included.

The applicant needs to modify Table III-24 to use the same terminology as is used in Table III-1 of the original application. The column "Area to be Reclaimed" of Table III-24 should reflect all sites listed on Table III-1 which will be affected and bonded using a common terminology. It is assumed that the applicant has consolidated disturbances under different titles in Table III-24. However, a comparison of tables is not possible at this time.

In Section 3.5.6, the operator states that "Other minor revegetation work, such as on topsoil stockpiles, is not computed in these figures." The purpose of the bond is to insure that sufficient monies are available to the Division to ensure that reclamation can be completed in case of default. Work on topsoil piles would not need to be included, as the applicant indicates, since this would be part of on-going operations tenet with the mining process. However, it is unclear what "other minor revegetation work" consists of. If this work could be considered part of final reclamation or be of a type which the Division would have to address after abandonment, it must be included in the bond. Depending upon what this work consist of, the applicant must either include such activities in bond calculation or clearly identify the nature of this work in Section 3.5.7.

The applicant must adjust the calculated bond amount to include an additional amount based on factors of cost changes during the preceding five years for the types of activities associated with the reclamation to be performed. This can be done by adjusting individual calculations, totals for subsets of calculations (i.e., sealing entries on Table III-36), or by including a line item at the close of Table III-36.

UMC 817.97 Protection of Fish, Wildlife and Related Environmental Values

The applicant needs to supply documentation of correspondence with the Division of Wildlife Resources (DWR) regarding the extent of fish and wildlife baseline information required to determine compliance with UMC 784.21 and 817.97. At a minimum, baseline information should be of sufficient detail to enable the applicant to devise impact control measures, management techniques and monitoring methods to protect or enhance federally listed threatened or endangered species; other species that have high federal or state interest; and habitats of unusually high value for fish and wildlife. Consultation with the Division and the DWR would aid the applicant in determining which species and habitats require special protective measures pursuant to UMC 784.21.

DEFICIENCIES

The applicant supplies additional information regarding species of high federal and state interest and mentions a 1981 DWR report from which much of the information was taken documenting the submittal of a DWR wildlife report to the applicant. Since the DWR report is used as one of the principal sources of wildlife information for the permit area, a copy of this report must also be filed with the application.

UMC 817.97 (continued)

Very little site-specific information regarding the extent and timing of mule deer use of winter range in the permit area is provided. Also, more detailed information needs to be provided on the extent of mule deer winter range within the canyon.

DEFICIENCIES

The applicant states that Whitmore Canyon and pediment slopes east of the permit area are considered mule deer winter range. Doesn't the applicant mean the pediment slopes west of the permit area rather than the east?

Also, the symbols and legend on Plate X-1, Wildlife Map, are somewhat confusing. What do the large "slashed" areas west of the permit area represent? If these are the areas claimed in the past by the BLM, their acreages are certainly much larger than indicated in the text in Chapter X. According to the map legend, claimed areas are designated by light solid lines, but on the map, areas encircled by a solid line correspond to areas mapped in the original wildlife map as raptor cliff nesting areas. Please clarify these discrepancies. Plate X-1 also lacks the locations of sediment ponds and the revegetation test plot mentioned in Chapter X.

UMC 817.97 (continued)

The applicant provides very little information on how impact control measures, management techniques and monitoring methods will be utilized to protect or enhance high interest species and high value habitats potentially affected by mining activities.

The applicant states that a management plan is being developed and is scheduled for completion in August 1981. This plan has not been included in the permit application.

DEFICIENCIES

The applicant has provided additional information on measures employed to protect wildlife and important habitat. The applicant must also commit to an education and training program for mine personnel to limit potential impacts that could result from harassment or unintentional disturbance of wildlife by mine employees while on the permit area.

UMC 817.97 (continued)

Since the applicant has identified Whitmore Canyon as mule deer winter range, the applicant should commit to monitoring the incidence of mule deer winter road-kills along the haul road unless it can be demonstrated that mule deer road-kills along the haul road have not been significant. If monitoring indicates that mule deer road-kills are a problem, the applicant must commit to limiting haul road speeds to 35 mph to reduce the potential for vehicle-wildlife collisions. A reduction in haul road speed limits would be particularly valuable during the early morning and evening hours and during the winter when mule deer-vehicle collisions are likely to increase.

Pursuant to UMC 780.14(b)(9), the applicant must supply specifications (e.g., number of strands and height) for the fencing to be installed to manage grazing pressure along Grassy Creek. Fencing should be designed to allow passage by mule deer. The DWR should be consulted for suitable fence design.

According to the Winget (1980) report, mine water discharge into Grassy Creek causes substantial degradation of stream water quality, particularly with respect to increased levels of oil and grease. The applicant must provide specifications in this section (or reference appropriate sections) regarding the measures employed to correct this problem.

A statement needs to be provided assuring that the proposed power transmission line from the Whitmore Canyon Sustation to the Pasture Canyon site be designed and constructed in accordance with environmental guidelines set forth in manuals approved by the Division. This would also apply to all powerlines which will service the mine during the five-year permit period.

DEFICIENCIES

The applicant states that the new power transmission line has been dropped from the development plans. The applicant still must state that all powerlines which will service the mine during the five-year permit period are constructed in accordance with appropriate guidelines. If existing powerlines do not meet these criteria, they must be modified or a waiver to this requirement can be obtained from the DWR or the U. S. Fish & Wildlife Service if it is determined that the lines do not pose a significant electrocution hazard to raptors.

UMC 817.116 Revegetation: Standards for Success (Previously addressed under UMC 783.9 Vegetation Information)

The discussion in Section 9.3.2.8, page IX-60 with regard to the applicant's use of reference areas is too brief. Please elaborate as to how reference areas will be used for determination of revegetation success (explain full methodology). In addition, a detailed explanation of how reference areas were chosen, and their characteristics, should be provided.

(The original vegetation section provided this information for proposed reference areas; similar data should be provided for established reference areas.) If these areas have been checked by the Division, a letter of approval should be obtained and presented in the application; if not, approval must be obtained.

DEFICIENCIES

Determination of revegetation success must include measurement of productivity on the revegetated areas and comparison with the reference areas. A commitment to measure and compare productivity, in addition to ground cover and woody plant density, must be made.