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United States Department of the Interior

OFFICE OF SURFACE MINING
Reclamation and Enforcement
BROOKS TOWERS
1020 15TH STREET
DENVER, COLORADO 80202

RECEIVED
OCT 14 1983

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DIVISION OF
OIL, GAS & MINING

Mr. James W. Smith, Jr.
Coordinator of Mined Land Development
Division of Oil, Gas and Mining
4241 State Office Building
Salt Lake City, UT 84114

JWM

OCT 14 1983

Dear Mr. Smith:

Enclosed is the determination of adequacy (DOA) review prepared for the Trail Mountain mine permit application package, concerning technical disciplines other than hydrology. Our DOA concerning hydrologic aspects was forwarded to you on September 1, 1983. These documents were prepared by our contractor, Simons Li and Associates, Inc., and have received an OSM review from our bonding, vegetation, soils, and wildlife specialists. Please review this document for interpretation of the Division's policy and regulations and forward it to the applicant within one week of receipt. OSM project leader, Louis Hamm, will contact your corresponding project leader, Pamela Grubaugh-Littig, shortly to discuss the Division's findings. In particular, the vegetation and reclamation sections should be carefully reviewed because of their particular significance in this application.

Please inform the applicant that their response must be received at OSM by November 21, 1983. A final determination of completeness will be made by OSM based on the material provided to us on November 21. If the material is determined to be incomplete, the permit application will be returned to the applicant and authority to operate under administrative delay will be terminated. If the permit application is found to be complete, public notice may begin and OSM will proceed with the technical analysis. However, should the application not contain information sufficient to allow OSM to make the findings required by UMC 786.19, the permit application will be returned with a statement of reasons and the authority to continue operations under administrative delay will be terminated.

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

Sincerely,

Allen D. Klein
Administrator
Western Technical Center

Enclosure

DETERMINATION OF ADEQUACY (DOA) - OTHER TECHNICAL DISCIPLINES

UMC 771.23 Permit Application - General Requirements for Format and Content

The permit application for Trail Mountain Mine was submitted in March 1981. Since that time, a number of modifications and revisions have been made to this application. It is requested that the applicant incorporate all information from these various modifications into the permit application package. The intent of this request is to provide a single self-contained application package that is current and provides all information relevant to the permit application and mining and reclamation plan. Maps, figures and tables that have been updated as a result of agency review should be substituted for superceded material. Furthermore, if necessary, a discussion of new material should be incorporated into the body of the text for the mining and reclamation plan.

UMC 782.15 Right of Entry and Operation Information

The applicant has not satisfactorily addressed the requirements of this section. Merely stating that the applicant "has right of access" and "purchased the Trail Mountain Property ... on March 2, 1981" is not acceptable. Paragraph (a) of this section specifically requests information not included in the related section of the application. Please review this paragraph and supply the required information. If Paragraph (b) applies in any form (e.g. face up operations) to proposed future operations, please supply the required information or a negative declaration, as appropriate.

UMC 782.18 Personal Injury and Property Damage Insurance Information

The ACR response has adequately addressed Part (1) of the ACR comment, however, Part (2) was not addressed. Please supply a statement committing the applicant to adequate insurance coverage effective through completion of reclamation. This can be done by completing the Certificate of Liability Insurance Form supplied by the Division of Oil, Gas and Mining.

UMC 783.14 Geology Description

Indicate the location of the seasonal seeps and indicate the source within the stratigraphy of the mine permit area, e.g., formation contacts, bedding planes, fractures, mine bolts, etc.

UMC 783.19 Vegetation Information

The applicant has presented quantitative information with regard to vegetation communities adjacent to the surface facilities of the mine. The inherent assumption that one or more of these communities is representative of pre-disturbance communities is acceptable. However, the intent of UMC 783.19(a) has not been fully met by the original study nor by the ACR responses. In addition, the closely related requirements of UMC 817.116 (Revegetation: Standards for Success) have been missed altogether in both the study of permit area vegetation and related sections of the reclamation plan.

(UMC 817.116 was suspended in early 1980; however, it was later reinstated.) These compliance problems are discussed further below.

The statistical sampling design implemented by the applicant's consultants (Allan and Anderson) does not allow for statistical independence. The methodology presented in the application (Section 9.2) reveals that quantitative data were gathered from a single transect within each community for each variable measured. Multiple measurements (e.g., point-quarter, quadrants, etc.) were then taken along these transects. These measurements were used to determine sampling adequacy as if each measurement had been an independent simple random sample. The methods attempted are indicative of a two-stage or systematic sample where each transect is considered as a single sample¹. Therefore the vegetation study legitimately has only one sample per community for each variable measured, rather than multiple samples as the study treats the data. Thus, the intensity of sampling is deficient.

However, in a practical sense the study does provide "a description of the plant communities within the area affected by surface operations and facilities." This description can be used to aid development of a revegetation plan (e.g., provide information invaluable to the development of a viable seed mix). Nonetheless, lack of reference area data and poor statistical design preclude compliance with both UMC 783.19(a) (last sentence) and UMC 817.116.

The application indicates that two reference areas (or stands) were to be permanently marked, protected, and identified on the vegetation map; however, no reference areas appear on the vegetation maps and the ACR response indicates that the applicant is proposing to eliminate the reference areas from the permit in lieu of an alternate method "described on pages 16-21." This description of an alternate method could not be found in the ACR response. This discrepancy with regard to reference areas or an alternate method for determining the success of revegetation methods must be resolved.

The productivity data presented in Section 9.3.6 apparently were collected from the two communities adjacent to the facilities site (Grassland - Shrub and Riparian). Although the data appear reasonable, the applicant must show the methods employed.

The applicant must show full compliance with UMC 817.116 by developing detailed plans and designs for determining revegetation success. If an adequate procedure is developed and committed to, then compliance with UMC 783.19 will be allowed based on the current level of effort.

If reference areas are used to determine revegetation success, they should be established at this time and approved by the regulatory authority. A management plan for these area must be developed and submitted in the

¹A systematic sample is a viable sampling technique (in non-periodic populations), however, "a systematic sample can be regarded as a simple random sample with $n=1$ " where n is the size of the sample. (Cochran, William G., 1977. Sampling Techniques. 3rd edition. John Wiley & sons, Inc. 428 pp.)

application, as well as the sampling (see UDOGM guidelines) and testing procedures to be used to test for revegetation success. Only after a detailed plan for these procedures is presented in the application will full compliance with both 783.19 and 817.116 be accomplished.

UMC 783.22 Land Use Information

The applicant must supply a land use map [consistent with UMC 771.23(e) and UMC 783.24] showing boundaries of all land uses in the area including grazing allotments, fish and wildlife habitat, cropland, recreational areas, hunting units, etc., and locations of roads and previous mine workings. An example of an acceptable map format is provided in Appendix A. This section should reference the surface and mineral ownership map in the ACR response.

The applicant must supply productivity information for any areas to be disturbed during the permit period. Referencing productivity information supplied in Vegetation Section 9.3.6 or using productivity information available from the Soil Conservation Service for soils on range sites present in the area would satisfy this requirement.

Are there no U.S. Forest Service grazing allotments present within the general mine plan area? If not, a negative statement regarding Forest Service grazing allotment should be provided. It is stated that livestock are trailed on the road in Cottonwood Canyon. Are these animals moved to summer range at the higher elevations above the mine plan area?

Table 4-1, a listing of oil and gas leases and locations should reference Figures 2-2 contained in the applicant's ACR response volume.

UMC 783.25 Cross Sections, Map and Plans

Indicate the strikes and dips of the coal outcrop lines shown on the overburden map in the permit application (Figure 6-5).

UMC 783.27 Prime Farmland Investigation

A letter is needed from the Soil Conservation Service regarding the prime farmland determination.

UMC 784.11 Operation Plan - General Requirements

(b)(4)(5) A description of the culvert installation and the associated borrow area must be included in the mine plan.

UMC 784.12 Operation Plan - Existing Structures

(a)(4) Provide information on the stability of the slopes in the facilities area. Of particular concern are fill slopes that exceed 1v:2h; will this be the case in the borrow area? Provide sufficient cross sections of the entire facilities area to show all existing slopes and the slopes which are to be constructed in the borrow area. The stability of the slopes must be determined.

UMC 783.24 Maps: General Requirements

As part of the permit area, the applicant is requested to show all areas potentially affected by subsidence, as defined by the angle of draw.

UMC 784.13 Reclamation Plan: General Requirements

(b.1) Elements listed in Table 3-2 (ACR response) do not correspond to elements listed in the bonding table. These lists should identify the same project elements (and should also correspond to narratives in the reclamation plan) such that the timing of reclamation and the bonding calculations can be adequately evaluated. Also, revegetation elements such as fertilization, seeding, mulching, etc. are missing for several project components. The applicant must provide a complete and detailed revegetation plan in compliance with this rule and UMC 817.111 so that a finding under Criteria for Permit Approval or Denial (UMC786.19(b)) can be made.

The reclamation of drainages (under "Culverts" in table 3-2) is postponed for ten years until the reclaimed area is stabilized. If the applicant will be grading and recontouring the site prior to reclamation of drainages, the stream channel areas will be disturbed during this process so that adjacent areas can be returned to proper contours. It would seem appropriate to reclaim the stream channels concurrently with the reclamation or at least immediately after work has been completed on the main site. It is understood that the applicant may have an appropriate reason for this delay which will benefit reclamation/stabilization. If so, a case should be developed by the applicant justifying a ten-year delay.

In conjunction with Table 3-2, provide a schedule for the components of revegetation. This could be a time-line table or a paragraph explaining which months of the year that grading and contouring, seed bed preparation, fertilization, seeding, mulching, riprapping, etc. will be accomplished.

(b.5.ii) Where will the temporary seed mix (page 47 of the ACR response) be used? If the mixture is for temporary use, what will be done with respect to permanent revegetation where the mixture is planted?

(b.5.ii) The revised seed mixes in the ACR response (pages 48a, 48b, 48c) are not seed mixes but rather lists of species and percentages thereof relating to site-specific vegetation. Additionally, these lists contain plants considered in the Utah Seed Act, Chapter 16 (Utah Dept. of Agriculture) to be weed species (e.g., Bromus tectorum) as well as species for which seed sources may not exist. Develop true seed mixtures which incorporate the following points:

- Native vs introduced status,
- Seed availability,
- Diversity (warm season grasses vs cool season grasses vs forbs vs shrubs vs trees),
- Post-mining land-use goals,
- Climatic data,
- Soil adaptations,
- Erosion control/stabilization potentials,
- Germination and establishment potentials,

- Preferred species varieties,
- Seeds per pound, purity and germination rates,
- Tolerance to salinity/alkalinity, and
- Palatability to cattle/wildlife.

Provide a map showing where various mixtures will be planted.

The legend description on Figure 3-14 summarizes the reclamation techniques to be used, but the information required in a complete plan is lacking. The applicant must submit details of reclamation procedures responsive to all provisions of UMC 784.13. Submit a narrative (to accompany Figure 3-14) describing methods to be used for final revegetation. Techniques to be discussed would be seedbed materials handling, ripping, compaction, seedbed preparation, fertilization, seeding, transplanting, mulching, etc. as appropriate. Differences in slope, seedbed materials, and disturbance type may necessitate technique variations. Include type of equipment, type and amounts of materials (where appropriate), and method of application. The applicant could then list in the narrative, for each type of site to be reclaimed, the revegetation techniques, seed mixture(s), and stocking rates to be used and provide a brief discussion relating the sequential timing of techniques to be employed. Provide complete information which defines the final revegetation plans, permits evaluation of bonding estimates, and allows analysis of the revegetation techniques chosen.

(b)(3) The description on the backfilling and grading in the permit area provides only general information on the procedures that will be utilized. A plan for backfilling of the disturbed sites showing the volumes of material to be handled, the amount of fill to remain in specific areas and the amount of fill available to cover road surfacing material and foundations must be provided. This analysis should consist of a materials balance showing the amount of fill in place and the amount of fill to be backfilled into specific areas. Supporting calculations developed by the applicant must be provided, including any additional cross sections which might be developed.

The applicant has stated that all highwalls except rock outcrops will be reduced to insure a static safety factor of 1.5. Provide cross sections to show the final configuration of the slopes that will be regraded. An analysis of their stability must be provided which incorporates information on the proposed reconstruction methods, i.e., will compaction in lifts of less than four feet occur.

Information on the highwalls that are proposed to be left must be provided. Cross sections showing the final slope and height of the walls and plan view maps showing the location of the walls must be provided. The stability of the highwalls must be determined.

(b)(6) Is the Blind Canyon coal seam minable in the area of Trail Mountain Mine? Since this seam is being mined by UP&L in vicinity of Trail Mountain, it seems likely that it might be minable. If so, there is concern that mining in the Hiawatha seam may affect future mining on the Blind Canyon since this is the case at the UP&L mines.

The applicant states in Section 8.6 of the ACR response the sediment control structures will be improved but goes on to say, "Therefore no overburden will be handled." Will no overburden (mine waste materials, etc.) be handled to complete these improvements? What material will be handled? Additionally, what materials will be used to expand the existing pad? Please clarify as to the type of materials to be affected.

UMC 784.20 Subsidence Control Plan

Provide additional analyses on potential subsidence impacts due to mining along the cliff edge. If slope failure were to occur, would the source of any of the springs previously indentified by the spring inventory be eliminated through disruption of water flow from the top of the plateau? A 15-degree angle of draw may not be sufficient to prevent this occurrence.

Has any additional subsidence information been collected since the ACR response submittal? If so, provide the additional information.

UMC 784.21 Fish and Wildlife Plan

The applicant states (page 10-2) that based on comments received from the UDWR, USFWS, UDOGM, and USOSM that only a low level of effort for wildlife studies for mammals would be required. Please provide documentation for these communications. Was this low level of effort to include mule deer? It appears that no site-specific studies were conducted to determine the extent and timing of mule deer use of the permit area, particularly winter use of areas within the canyon. The applicant states (page 10-63) that mule deer are abundant in the canyon between November 1 and May 15. How abundant? More detailed information regarding mule deer seasonal distribution and numbers within the permit area, and particularly along the access road, is needed to determine the potential for mine operation and haul road impacts to the local deer herd.

Results of the USFWS raptor surveys should be incorporated into the permit application. The applicant states on page 10-4 that, "since so few raptors occurred in or utilized the area of concern, considerable effort was expended to determine raptor use in adjacent areas." What adjacent areas were surveyed? Also, what was the extent of the area of concern? Did this include the entire permit area or only areas of surface disturbance?

Were on-foot flush surveys the only method used to search cliff nesting habitat? This is not an adequate technique for searching inaccessible cliff areas. Were binoculars or spotting scope used to search inaccessible cliff areas for nest sign or whitewash?

Were cliffs the only areas searched for raptor nesting activity? Wooded areas within the sphere of influence of mining activity should also be searched for sign of tree-nesting accipiters, hawks, and owls.

A map showing raptor cliff nesting habitat and mule deer winter range in relation to the permit area must be provided.

Section 10.3.1 (page 10-7) fails to acknowledge the presence of riparian habitat along Cottonwood Creek. In Section 10.4 (page 10-37) the applicant states that no additional surface activity or disturbance is projected; however, it is stated in the Operation Plan (Chapter III) that an additional 0.5 surface acres will be disturbed. Please clarify and make these sections consistent.

Information presented on page 3-36 (Operation Plan) and on page 10-40 appear to be somewhat contradictory. Page 3-36 states that runoff control structures should minimize the potential for degradation of the quality of stream waters due to runoff from disturbed areas. Page 10-40 states that surface facilities have seriously encroached upon and altered Cottonwood Creek, and the stream below the portal has been filled with sediments. Sediment loading below the portal has been substantiated by sampling benthic macroinvertebrate communities above and below the portal. What steps have been taken to reduce or eliminate this problem? If the problem has been or is being corrected, the applicant should reference the appropriate sections and prove compliance with the appropriate water quality standard for sediment loading.

On page 10-64 the installation of a culvert is proposed to reduce sediment loading in Cottonwood Creek. Is this the same culvert as the one which will be constructed to extend the surface facilities pad? If not, detailed plans, maps, and cross sections of the design and placement of this culvert need to be provided, per UMC 784.23(8).

The applicant states that a buffer zone (50 feet wide) in previously undisturbed areas of the streamside of Cottonwood Creek 50 feet below the culvert outlet and 50 feet above the culvert inlet will be maintained. In most instances UDOGM guidelines require that a minimum 100 foot buffer zone be maintained. Has the applicant obtained permission from UDOGM for use of 50-foot buffer zones? If so, please provide evidence.

The applicant should commit to monitor the occurrence of road-killed mule deer on a regular basis. Monitoring deer road kills would serve to determine if any portions of the access road are particularly hazardous to crossing deer, especially during winter and early spring. If any such areas are identified, mitigation measures (crossing, fencing, etc.) would need to be proposed to alleviate the problem.

The applicant should also commit to monitor the benthic macroinvertebrate communities above and below the mine portal and report the results to the UDWR on a regular basis. This sampling could compliment the water quality monitoring program already in effect. Sampling benthic macroinvertebrates would provide further information regarding the effectiveness of sediment control measures instituted by the applicant.

UMC 800.5 Definitions

What type of bonding program (surety, self-bond, etc.) will be instituted?

UMC 805.11 Determination of Bond Amount

(a.1) It is stated (page 25 of the ACR response) that "Estimate for removal of all structures assume that the contractor or utility company would retain full salvage rights." Salvage value cannot be allowed because the regulatory authority (in case of bond forfeiture) may not have first lien on the properties involved.

(a.1) It is unclear how the applicant was able to calculate the costs pertaining to revegetation prior to development of the reclamation plan. It would seem that accurate costs could be developed only after the revegetation techniques were selected for application. With respect to this concern and the bond calculations included in the ACR response, the applicant is requested to provide a more detailed set of supporting calculations in relation to revegetation activities. Such calculations are necessary to adequately evaluate the bond necessary to be posted and to evaluate the potential success of reclamation. Several methods of calculation and organization are available to fulfill this request and the selection of such is at the discretion of the applicant. However, each step for each type of reclaimed site outlined in the reclamation plan needs to be accounted for (e.g. ripping scarification, soil preparation, fertilization, seeding, mulching, riprapping, etc.) Variations in reclamation/revegetation techniques with respect to site conditions (e.g. techniques for level areas versus techniques for steeper slopes) must be addressed. Also, the applicant must identify the labor classifications and labor rate used to develop costs (i.e. equipment operator, common laborer) rather than labor rate (\$/hr.) The type and size of equipment proposed for work must be identified along with the associated cost (\$/hr.).

(a.1.) Considering that the stream channel will be restored, the "Final Grading" estimate (ACR response page 27) seems very low. Has this activity been accounted for here or elsewhere? Please clarify.

(a.1.) The topsoil replacement costs (on page 28 of the ACR response) utilize UDOT estimates. The applicant is requested to provide information regarding the basis of UDOT figures such that these figures can be deemed applicable to the Trail Mountain site. The Regulatory Authority is concerned about the variance in labor rates, equipment rates and haulage distance. Also, is the cost applicable only if topsoil is required or does this sum also relate to other revegetation activities to be used on the site?

(a.1) Are "highwall reduction" (as specified in the original application, page 3-65) costs included in the bond estimate? Please Clarify.

(a.1.) Original acreage estimates equaled 5.5 acres. Estimates in the ACR response total 9.8 acres. Please clarify this discrepancy.

(a.2) Is there a material or haulage cost associated with using local rock (ACR response page 28) for riprap? If so, have these costs been included in the calculations?

(a.2) It is necessary that bond estimates reflect costs to the Regulatory Authority (RA) with respect to equipment delivery to the site, etc. since the RA would not have access to the applicant's equipment. Have such costs been included in the calculations? If yes, a statement to this effect is necessary. If not, calculations need to be adjusted accordingly.

(a.4.) The regulations require that an inflation factor be included in the bond cost estimate to reflect cost changes during the last five years for the activities included in the reclamation plan. Are such cost adjustments included in the present costing? If yes, a statement to this effect is requested. If not, calculation need to be adjusted accordingly. A line item following the calculation for each step in the reclamation plan would be one way of presenting such costs.

Provide supporting calculations showing the volume of material which will be handled during reclamation. This analysis would include providing any cross sections which might be utilized in developing a materials handling plan.

Since there has been new construction in the borrow area and diversion, are the costs that were developed in the ACR response up to date? It appears that there should be substantial additional acreage to be reclaimed and additional material to backfill.

A cost for monitoring vegetative erosion control and re-establishment, hydrology (including sediment pond discharges), and repair of rills and gullies over the 10-year responsibility period must be added to the bond amount. The applicant has included \$1,000 dollars per year for monitoring, however, this is probably not sufficient once all of the above factors are considered.

UMC 817.21 - 817.24 Topsoil: General Requirements, Removal, Storage, Redistribution

In Sections 8.7 and 8.11 of the original application, the applicant states that "For any future disturbances, any soils encountered will be removed, stored, and protected." If no new developments are proposed in the application and no soil exists on the disturbed area, it is unclear where such future disturbances will occur unless this is in reference to importing soils for revegetation. If soils exist on areas within the permit boundary and these soils will be disturbed by mining or construction, or if soils will be imported, the applicant needs to expand this statement. Specifics are needed with respect to topsoil removal, storage, and redistribution. Specifics include timing, methodology, proposed location of soil resource and stockpiles (if proposed), location redistribution, equipment to be used, stabilization procedures, etc. The appropriate topics to be addressed in this respect are located in 817.21-817.24.

The sentence on page 17 of the ACR response does not convey a clear thought and needs to be rephrased ("Topsoil development during reclamation to obtain suitable growth productivity were based on the physical and chemical properties, descriptions, classifications determined from the existing soil conditions.").

The method of selecting sampling sites for disturbed soils/spoils (page 17 ACR response) is questionable; randomization may not be the best choice. The objective should be to obtain samples which adequately characterize the site as a whole by sampling disturbed soils/spoils which represent the disturbed area. The randomization method may fall short of this objective. It is requested that sampling be conducted according to observed differences in surface disturbed soils/spoils pursuant to UDOGM guidelines. Chemical analyses to be conducted for each sample should follow the list "Productivity Analysis of Soils" in the document "Guidelines for Management of Soils"

prepared by UDOGM and include a value for pH. If pH values are less than 5.5, total sulfur and pyrite should be included.

On page 18 of the ACR response the applicant describes the laboratory methodology and requested analyses for soil samples. What will be the methodology and analyses for disturbed soil samples?

The applicant describes, on page 18 of the ACR response, a "highly detailed and expanded soil investigation" to be conducted in the future. It is unclear why this is proposed for the future. Such an investigation should be performed at this time to provide necessary information for development of a viable reclamation plan to be submitted with this permit application. Permit approval can not be granted without performance of this investigation.

Do the "disturbed soil" samples (page 20 ACR response) represent the materials used to construct the pad (i.e. are these true soils or a combination of materials overlying the disturbed area)? A statement as to when and where these samples were taken would serve to answer this question.

UMC 817.61 - 817.68 Use of Explosives

Provide information and plans showing exactly how compliance with these regulations will be obtained. This should include copies of sample blasting logs, a blasting schedule, design of blasting patterns, and information on how ground vibration and air blast will be controlled.

UMC 817.89 Disposal of Non-Coal Wastes

On page 16 of the ACR response the applicant states that soils which have been degraded and cannot be used for revegetation will be disposed of in an approved manner. Indicate how these soils will be identified and the disposal method.

The applicant also states that "Coal fines may become a minor additive." Provide a rationale as to why the effect was rated as minor. This could be done by summarizing where coal fines will be encountered and what steps are normally taken to confine such material. Either a statement in this section or reference to other parts of the application could serve to clarify this issue.

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

A statement needs to be provided confirming that the power transmission line servicing the Trail Mountail Mine is designed in accordance with guidelines for raptor protection set forth in manuals approved by the UDOGM and USFWS.

The applicant states that fish and wildlife habitat will be one of the primary post-mining land uses. As required, the applicant also states in response to the State ACR that revegetation for wildlife will be consistent with UMC 817.97(9). However, the applicant does not supply any specifics on how plants will be grouped and distributed in a manner which will optimize edge effect, cover, and other benefits for fish and wildlife. These details need to be provided. Current plans call for all revegetation to be done by

seeding. It will be very difficult to optimize edge effect and cover for wildlife by seeding alone. Transplants of shrubs and trees would be more suitable for achieving the desired results.

UMC 817.103 Backfilling and Grading: Covering Coal and Acid- and Toxic-Forming Materials

(a.1) In the statement concerning the disposition of debris, acid-forming, toxic materials or materials constituting a fire hazard, (ACR response page 29) the applicant states that treatments will be applied before materials are buried. What types of materials will be buried and what treatments would be selected for use on such materials? Also, where and how will they be buried?

UMC 817.106 Regrading or Stabilizing Rills and Gullies

The ACR response (page 29) contains the statement "Rills or gullies deeper than nine inches will be regraded or stabilized with +24 inches riprap and the area will be reseeded or replanted." It is not clear how the applicant will establish grass on an area covered by riprap. Rills and gullies should be stabilized before erosion is so severe as to warrant riprap. Regrading, fertilization, seeding, and mulching would be more appropriate techniques.

UMC 817.111 Revegetation: General Requirements

The applicant must submit a complete and detailed revegetation plan in full compliance with this rule and UMC 784.13. This information is required so that the finding under Criteria for Permit Approval or Denial [UMC 786.19(b)] can be made.

UMC 817.112 Revegetation: Use of Introduced Species

The applicant states in the ACR response (page 46) that "Natomas has also been reluctant to committing to test plots until a revegetation plan has been agreed to by all parties involved, OSM, DOGM, Natomas, etc." The conditions for utilizing introduced species, as required under UMC 817.112, must be submitted for regulatory approval. These conditions must be submitted with a complete and detailed revegetation plan as required under UMC 817.111. If the applicant does not believe a workable agreement, regarding a revegetation plan has been reached, he should resolve the matter through consultation with the regulatory agency at the soonest possible date.

The regulatory agency should be consulted for design and/or results from the other introduced species studies in the mine vicinity.

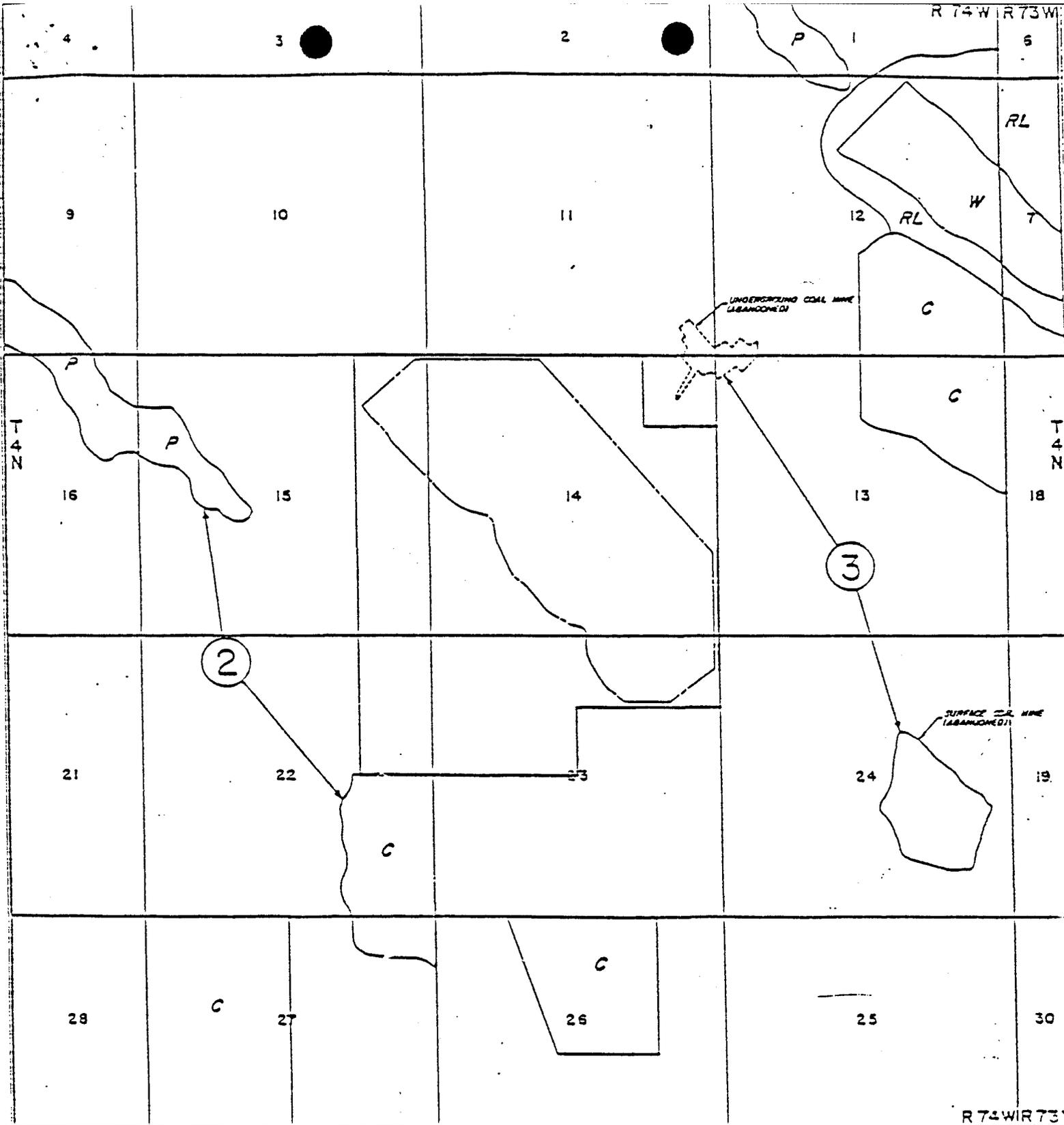
The following comments are made with respect to test plot narratives in the original application. In Section 8.2 of Chapter VIII, the applicant refers to a testing sequence of multiple two-year intervals. In a strict, scientific sense this type of approach could yield good results, provided revegetation starts in 1986 according to the applicant's schedule. The test plot design as it now stands may not yield the appropriate data in time to begin reclamation. The applicant is requested to reevaluate the test plot design relative to the reclamation schedule.

UMC 817.116 Revegetation: Standards for Success

See comments for UMC 783.19.

APPENDIX A

LAND USE MAP AND EXPLANATION



EXPLANATION

- PERMIT BOUNDARY
- - - - LIMIT OF AREA TO BE MINED
- C CROPLAND
- P IRRIGATED PASTURELAND
- RL RECREATION LAND
- W WATER AREAS

NOTE: UNIDENTIFIED LANDS ARE RANGELAND



Professional Engineer's Statement
I, JAMES H. SMITH, being a Professional Engineer
LICENSED IN THE STATE OF CALIFORNIA, DO HEREBY
CERTIFY THAT THE ABOVE IS A TRUE AND CORRECT
REPRODUCTION OF THE ORIGINAL AND ACCURATE.



JAMES H. SMITH, P.E. No. 1544



100' 00 FT

Smith Mining Company

LAND USE

DATE: SEPT 10 1955

Figure 25. Land Use Map.

(1) Identification of Land Uses

The land uses within the proposed permit area and adjacent areas should be identified on the Land Use Map. Land uses graphically illustrated on the map should be those existing at the time of filing the permit application and usually identified as one of the following:

Cropland

Pasture Land

Rangeland

Forestry

Residential

Industrial or Commercial

Recreation

Fish and Wildlife Habitat

Developed Water Resources

Undeveloped Land

If the pre-mining use of the land changed within five years prior to the date the mine is proposed to begin the historic use of land should also be described either on a separate map or within the text of the permit application.

(2) Land Use Boudary

The boundaries between the various land uses should be clearly marked on the Land Use Map.

(3) Previous Mining Operations

Any previous surface or underground mining operations and the extent of their distrubance should be indicated on the Land Use Map. The permit application must contain the information for perviously mined-out areas as follows:

The type and description of the mining method used.

The coal seams or other strata mined.

The extent of coal or other mineral removed.