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State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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July 9, 1999

Johnny Pappas, Senior Environmental Engineer
Cyprus Plateau Mining Company
847 Northwest Highway 191
Helper, Utah 84501

Re: Topsoil Borrow Area, Cyprus Plateau Mining Company, Star Point Mine, ACT/007/006-99B, File #2, Carbon County, Utah

Dear Mr. Pappas:

Your application for the Topsoil Borrow Area at the Star Point Mine is complete and adequate. Upon receipt of seven clean copies you will receive approval for the Topsoil Borrow Area project. A stamped approved incorporated copy of the amendment will be sent to you for incorporation in your Mining And Reclamation Plan. The technical analyses prepared by Senior Reclamation specialists Bob Davidson, Paul Baker, and Jim Smith are provided.

SUMMARY:

On February 17, 1999, the Division received a proposal from Cyprus Plateau Mining Corporation for a topsoil borrow area northeast of the existing mine surface facilities. A revised proposal was received June 3, 1999.

The amendment is organized separately from the rest of the mining and reclamation plan with its own baseline information, operation plan, and reclamation plan. All of this information is contained in Exhibit 233. This exhibit is referenced in the section titled "Legal, Financial, Compliance, and Information" which has been modified for this application.

In addition to the references to Exhibit 233, Cyprus has made a few changes to the ownership and control section, including some address changes, a change in land ownership for a 21.25 acre piece of land in the permit area, and additions to the list of consultants. These changes are minor are were not reviewed.

TECHNICAL ANALYSIS:

ADMINISTRATIVE INFORMATION

RIGHT OF ENTRY

Regulatory Reference: R645-301-114

Analysis:

The applicant owns the property on which the topsoil borrow area would be located. Appendix 1-1 contains a letter from Utah Railway Company giving Cyprus Plateau Mining Corporation permission to use the old railroad grade known as the Wattis Branch as a transportation corridor for hauling topsoil and other material for reclamation purposes. This complies with the requirements of this section of the regulations.

Findings:

Information provided in the proposal is considered adequate to meet the requirements of this section of the regulations.

ENVIRONMENTAL RESOURCE INFORMATION

HISTORIC AND ARCHEOLOGICAL RESOURCE INFORMATION

Regulatory Reference: R645-301-411.140

Analysis:

Cultural resources information is in Appendix 4-1 and summarized in Chapter 4 of Exhibit 233. The area contains a historic trash scatter with tobacco tins and some cans. Intermixed in this area was a prehistoric gray quartzite secondary flake. This site was not considered significant. Appendix 4-1 contains a map showing the area that was inventoried.

The area contains no cemeteries, public parks, or units of the National System of Trails or the Wild and Scenic Rivers System.

Findings:

Information provided in the proposal is considered adequate to meet the requirements of this section of the regulations. The Division should recommend to the Division of State History that there will be no effects on cultural resources.

VEGETATION RESOURCE INFORMATION

Regulatory Reference: R645-301-321

Analysis:

Detailed vegetation information is in Appendix 3-1 and was gathered in 1998. The proposed

topsoil borrow area contains a sagebrush/grass community with scattered pinyon and juniper trees. According to the vegetation survey, it was probably once a mature pinyon/juniper community that was disturbed by chaining or other range improvement activities.

The proposed borrow area had 57.63% cover, and the majority of the cover was from grasses (54.24% relative cover). Dominant grasses were blue grama, and Salina wild rye. Shrubs had 42.39% relative cover, and the dominant species were black sage, Wyoming big sage, and broom snakeweed.

The proposed reference area had a total of 58.13% cover, and relative cover was distributed in a similar manner to the proposed disturbed area. The same species were dominant, and the cover values were not different statistically.

Production in the proposed disturbed and reference areas was 850 and 1000 pounds per acre, respectively, and both areas were rated as being in good range condition. Although these values are estimates from the Natural Resources Conservation Service and cannot be compared statistically, they are similar.

Woody plant density was statistically higher in the proposed disturbed area (11032 per acre) compared to the proposed reference area (8767 per acre). Since these values are used as a guide in developing a technical revegetation standard, the difference is not critical.

Findings:

Information provided in the proposal is considered adequate to meet the requirements of this section of the regulations.

FISH AND WILDLIFE RESOURCE INFORMATION

Regulatory Reference:

Analysis:

Fish and Wildlife Information

The application text references Appendix 3-2 for wildlife information from Chris Colt of the Division of Wildlife Resources. According to the application and the letter from Mr. Colt, the borrow area is considered by Wildlife Resources to be high value big game winter range. This is also shown on Map 322.220a in the current mining and reclamation plan.

Threatened and Endangered Species Information

According to the application, there is a peregrine falcon nest that may or may not be within one mile of the proposed borrow site. Future surveys using GPS equipment should better define the nest location. The letter from Mr. Colt indicates the closest nest is 1.1 miles away. Map 322.220a in the current mining and reclamation plan shows a prairie falcon scrape which the text of the plan says was

used by peregrine falcons beginning in 1996. The map confirms the information from Wildlife Resources that the closest nest is just over one mile away.

Bald eagles are the only other listed species that has a potential of being in the area, and this would only be in the winter. There are no known nesting sites in the vicinity of the proposed borrow area.

The consultant doing the vegetation survey searched for endangered, threatened, endemic, or otherwise sensitive plants species and found none. The area does not contain habitat for any listed species although it contains potential habitat for at least two species on the Bureau of Land Management sensitive species list.

Findings:

Information provided in the proposal is considered adequate to meet the requirements of this section of the regulations.

LAND USE RESOURCE INFORMATION

Regulatory Reference: R645-301-411

Analysis:

The proposed borrow area has been used primarily as rangeland and for wildlife habitat, but there is limited recreational use. Production in the area is presented with the vegetation information. An abandoned Utah Railway railroad grade runs through a portion of the southwest corner of the borrow area, and electrical transmission lines run parallel to the borrow area on property to the east and north. There is no farming in the area.

The area is zoned by Carbon County for mining and grazing, and there is no known previous mining activity.

Findings:

Information provided in the proposal is considered adequate to meet the requirements of this section of the regulations.

MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION

Regulatory Reference: R645-301-411.141, R645-301-323

Archaeological Site and Cultural Resource Maps

The one identified cultural resources site is shown on a map in Appendix 4-1 together with the

location of the cultural resources survey.

Vegetation Reference Area Maps

The proposed reference area is shown on Drawing 3-1A.

Findings:

Information provided in the proposal is considered adequate to meet the requirements of this section of the regulations.

OPERATION PLAN

PROTECTION OF PUBLIC PARKS AND HISTORIC PLACES

Regulatory Reference: R645-301-140

Analysis:

Since the area contains no cultural resources, no protection plan is needed.

Findings:

Information provided in the proposal is considered adequate to meet the requirements of this section of the regulations.

AIR POLLUTION CONTROL PLAN

Regulatory Reference: R645-301-420

Analysis:

In Section 420, the applicant commits to perform all mining activities in compliance with the requirements of the Clean Air Act. Chapter 4 of the current mining and reclamation plan contains further information about the Air Quality Approval Order and coordination with the Division of Air Quality.

Findings:

Information provided in the proposal is considered adequate to meet the requirements of this section of the regulations.

INTERIM STABILIZATION

Regulatory Reference: R645-301-331

Analysis:

The application does not contain a specific plan for interim stabilization. Interim stabilization is not generally required at topsoil borrow sites; however, the existing mining and reclamation plan contains an interim revegetation plan that could be used if necessary.

This regulation also requires that the applicant minimize disturbance. The application discusses ways the applicant intends to try to find other sources of growth medium to reclaim the mine. All possible alternatives should be exhausted before the borrow site is disturbed. The proposed borrow site is one of the better sagebrush/grass ranges in the area. It has an excellent mix of grasses and very desirable shrubs, and it is much preferred that the site not be disturbed.

Findings:

Information provided in the proposal is considered adequate to meet the requirements of this section of the regulations.

FISH AND WILDLIFE PROTECTION PLAN

Regulatory Reference: R645-301-333

Analysis:

Protection and Enhancement Plan

The regulations require a protection and mitigation plan when the permit area contains habitats of unusually high value. The proposed topsoil borrow area is in high value big game winter range, but this is not within the definition of habitat of unusually high value. Nevertheless, it is recommended there be no disturbance between December 1 and April 15.

Endangered and Threatened Species and Bald and Golden Eagles

The letter from Chris Colt of the Division of Wildlife Resources contained in Appendix 3-2 says the peregrine falcon nests are far enough away from the proposed activities and that they are screened well enough that there should be no effect on nesting birds.

Wetlands and Habitats of Unusually High Value for Fish and Wildlife

The area is an upland site with no indication of wetlands or riparian areas. As discussed above, it is not habitat of unusually high value for wintering elk and deer.

Findings:

Information provided in the proposal is considered adequate to meet the requirements of this section of the regulations.

RECLAMATION PLAN

LAND USE RECLAMATION PLAN

Regulatory Reference: R645-301-412

Analysis:

The applicant has not proposed an alternative postmining land use. Reclamation activities are intended to restore the premining land uses of grazing and wildlife habitat. The procedures needed to achieve the postmining land use are detailed in other sections of the application and existing mining and reclamation plan, especially those sections dealing with soils and biology.

Findings:

Information provided in the proposal is considered adequate to meet the requirements of this section of the regulations.

REVEGETATION

Regulatory Reference: R645-301-341

Analysis:

Revegetation Plan

The application is required to contain a schedule of reclamation activities. Figure 5-1 is a borrow area reclamation schedule showing salvage operations running from late July through October; regrading, topsoil redistribution, and seedbed preparation happening in October and November, and fertilizing, seeding, mulching, and planting occurring in late October through December. Some revegetation activities could occur in the spring if required by weather conditions and approved by the Division.

The Division is concerned about leaving the borrow area with no vegetative cover for too long. With no vegetative cover, the area is not protected from erosion, and weeds could have a chance to become established. With the schedule in the application, however, weeds would have very little time to become established and reseed before the area is prepared and seeded. No part of the borrow area should be allowed to go through the spring and summer without vegetation on it. With this revegetation

schedule, gouging would be done at a time when it would be most likely to kill any seedlings of cheatgrass that had germinated.

In addition to the reclamation schedule, the applicant has included various commitments to revegetate the area as soon as possible after disturbance. As required in R645-30-1-352, revegetation must occur as contemporaneously as practicable with mining operations.

As described in the operation plan, only a little over half of the borrow site would be opened at first. Topsoil would be salvaged and stockpiled from this area then borrow operations would occur. Next, topsoil from the other part of the borrow area would be spread on the part already disturbed. In this way, the applicant's plan limits the amount of area from which sediment could be produced. The schedule and commitments relating to timely revegetation are considered adequate.

Once the borrowed soils have been removed, the borrow area will be regraded, ripped to relieve compaction, and deep gouged or similarly scarified. Tables 341.220c and 341.220d in Section 341 of the current mining and reclamation plan show seed and planting mixes that would be used.

The seed and planting mixes mix in Tables 341.220c and d are designed for sagebrush areas. The applicant has made changes to the seed mix in accordance with Division requirements and recommendations. These changes include deletion of crested wheatgrass from the mix, adding black sage and blue grama, specifying that the variety "Gordon Creek" of Wyoming big sage will use, and changing the number of pounds of certain species that will be planted. These changes meet regulatory requirements and should be approved.

Mulching will be done as shown in the current mining and reclamation plan. According to this plan, hay and/or straw will be applied before final soil surface preparation, and this will be incorporated in the soil by plowing along the contour, deep gouging, or a combination of these methods. After seeding, straw or hay mulch will be applied and anchored by either crimping it or applying a tackifier. This mulching method has worked very well at other sites.

No irrigation is planned, and pesticides will not be used unless they are approved by the Division.

Success Standards

As discussed above, vegetation in the proposed reference and disturbed areas is very similar. The reference area is considered an acceptable standard.

The Division is required to gain approval from wildlife agencies for the woody species density standards. The standard included in the application, 4000 plants per acre, was approved by the Division of Wildlife Resources and should allow for greater diversity than the higher standard originally proposed.

Wildlife Habitat

The guzzler and fence will be moved from the current location, and the exact site to which it will be moved will be determined in conjunction with the Division. No other enhancements are planned.

The seed mix in the application is adequate for this area and should provide good wildlife habitat conditions.

Findings:

Information provided in the proposal is considered adequate to meet the requirements of this section of the regulations.

SOILS RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 783.21, 817.200(c); R645-301-220, -301-411.

Analysis:

Chapter 2, Soils, Sections 210 through 224, discuss soil resources within a proposed topsoil borrow area. The borrow area is located approximately 1 mile northeast of the Star Point Mine tipple area and Wattis, Utah. Relevant soils information contained in the amendment includes a current Order I soil survey, published Order III soil survey, and soil characterizations. This Analysis section discusses resource information as follows:

- Prime Farmland Investigation
- Soil Survey Information
- Soil Characterization

Prime Farmland Investigation

During the Order-I soil survey, a Prime Farmland survey of the borrow area was conducted. No evidence of past soil cultivation in the soil borrow area was found during the site investigation. The amendment identifies that this conclusion is shared both by the soil survey staff and Leland Sasser of the Price area Natural Resource Conservation Service (NRCS). Therefore, based on the Order-I soil survey and personal communication with Leland Sasser of the NRCS, no Prime Farmland exists within the Topsoil Borrow area.

Soil Survey Information

The soil survey information contains both general and site specific surveys as follows:

(1) General, Third Order Soil Survey

Appendix 2-2 includes relevant soil descriptions and information extracted from the Carbon County Soil Survey, published by the United States Department of Agriculture, Soil Conservation Service, National Cooperative Soil Survey, issued in June 1988.

(2) Site specific, First Order Soil Surveys

A site specific Order-I soil survey was performed and prepared by Mr. James Nyenhuis, Certified Professional Soil Scientist (ARCPACS #2753). The Order-I soil survey was conducted in October 1998 and is contained in Appendix 2-1 as prepared by Mt. Nebo Scientific, Inc. Drawing 2-1(A) is the Order-I soils map of the borrow area and also shows soil test pit locations.

All mapping and soil survey work were performed according to the standards of the National Cooperative Soil Survey. The First Order Soil Survey for the proposed topsoil borrow area was correlated with the published National Cooperative Soil Survey for Carbon County. According to the published NRCS report, the borrow area was mapped as Strych very stony loam, 3 to 15 percent slopes (NRCS map unit 113) Steep side slopes along the northwest edge of the borrow area included the Gerst-Badland-Rubbleland Complex, 15 to 50 percent slopes (NRCS map unit 33).

Based on the site-specific soil descriptions, and laboratory data, the two dominant soils on the proposed soil borrow area do not classify as Strych; therefore, at the present time, these two soil units do not have series names. The Order-I soil survey was in agreement with the NRCS for the Gerst-Badland-Rubbleland Complex. Soils and map units for the Star Point Soil Borrow area are identified as follows:

Map Unit	
A	Calcidic Argiustolls, 2 to 6 percent slopes
B	Aridic Calciustepts, 2 to 6 percent slopes
C	Gerst-Badland-Rubbleland Complex, 15 to 50 percent slopes
DL	Disturbed land

Map Unit A. Map unit A is classified as a "fine-loamy, mixed, superactive, mesic Calcidic Argiustoll" and comprises approximately 85 percent of Unit A, and is described by pits SP2, SP6, SP7, SP8 and SP10. This dominant inclusion has an argillic subsoil horizon. Two inclusions comprise the other 15 percent of Unit A. The larger 10 percent inclusion is classified as a "loamy-skeletal, mixed, superactive, mesic Aridic Calciustoll" and has a cambic horizon, rather than an argillic subsoil horizon, and was described by pit SP4. The smaller 5 percent inclusion is classified as a "fine loamy, mixed, superactive, mesic, Calcidic Argiustoll," but with a non-skeletal (<35 percent rock) "C" horizon, and is described by pit SP5.

Map Unit A is the most widespread unit of the study area, occupying 65 percent of the gently sloping alluvial fan-upland bench surface.

Calcidic Argiustoll is a very deep, well drained soil which has formed in mixed alluvium from sandstone and shale. Calcidic Argiustolls have a mollic epipedon (a dark-colored surface layer at least 7 inches thick, and with sufficient organic matter content to meet mollic criteria), an argillic subsoil horizon and a calcic subsoil horizon. Slopes are 300 to 400 feet long and are linear, slightly concave, or slightly convex. The present vegetation is mainly big sagebrush; mixed grasses including crested wheatgrass, Indian ricegrass, and Salina wildrye; black sagebrush; broom snakeweed; galleta; and sparse, scattered pinyon and Utah juniper.

Map Unit B. Map Unit B is a very deep, well drained soil and is classified as a "loamy-skeletal, mixed, superactive, mesic, Aridic Calciustept," and is described by pit locations SP1, SP3, and

SP9. No inclusions were noted in this map unit.

Map Unit B is located on slightly convex areas that have more surface rock, often cobbles and stones, and a vegetation of more pinyon and Utah juniper, often in small groves, and less grass and sagebrush than Map Unit A. In context of an alluvial fan model, Map Unit B occupies the convex, more rocky, depositional fingers that traverse the length of the fan surface. Map unit B occupies about 35 percent of the study area, whereas Unit A occupies the 65 percent.

Map Unit C. A steep sideslope located on the northwest edge of the upland bench study area is mapped within the NRCS survey as Map Unit 33 - Gerst-Badland-Rubbleland Complex, 15 to 50 percent slopes. Map Unit C is 45 percent Gerst extremely stony loam, eroded; 25 percent Badland; 20 percent Rubbleland; and 10 percent other soils and miscellaneous areas including rock outcrop. The components of this unit area are intricately intermingled, and therefore, the map unit is called a complex.

Map Unit DL. The disturbed land map unit is comprised of the abandoned railroad grade embankment located in the southwest portion of the study area. The majority of the railway materials have been removed from atop the embankment. The embankment is currently used as an access route and is composed of compacted, crushed-rock fill and is in a stable, non-eroded condition. The embankment has not been reclaimed, but has natural vegetation on the side slopes.

Soil Characterization

Soil pedons were characterized by the soil horizons at each sampling location. All profile descriptions are given in both table and text format, with field notes recorded on standard NRCS "232" forms. Photos were taken at each pit location, with a general photo of the study alluvial fan area showing landscape and vegetation.

The soil horizons at each sampling location were sampled and characterized according to the State of Utah Division of Oil, Gas and Mining (DOGM) guidelines for topsoil and overburden[1]. Sampled parameters included: pH, electrical conductivity (EC); saturation percent; calcium, magnesium, and sodium; sodium adsorption ratio (SAR); texture including sand, very fine sand, silt, and clay; organic matter percent; calcium carbonate percent; Boron; and Selenium. Total Kjeldahl Nitrogen (TKN), Nitrate Nitrogen, Total Organic Carbon (TOC), and 1/3 bar and 15 bar water capacity were not analyzed. TKN, Nitrate Nitrogen, and TOC are not necessary given that organic matter percent will be determined. Available water capacity is estimated through the use of soil texture and saturation percent. Rock fragment content (% by volume), and Munsell color were determined in the field by Mr Nyenhuis.

No unacceptable criteria were found for salvageable soils and substitute soils except for percent rock content within the mine site disturbance or proposed facilities area. Although DOGM suitability criteria considers >30% (by volume) rock fragments (for both gravels <3" in size and cobbles 3 to 10" in size) to be unacceptable, and >10% stones and boulders >10" in size to also be unacceptable, the recent trend is to salvage "**native soils**" with "**intrinsic rock content.**" Appendix 2-2 reports that native soils can be salvaged containing a higher rock content than the DOGM guidelines deems acceptable. Ultimate site reclaimability using these rocky soils enhances reclamation success by providing an

[1]Leatherwood, J., and Duce, D., 1988. Guidelines for Management of Topsoil and Overburden for Underground and Surface Coal Mining. State of Utah Department of Natural Resources, Division of Oil, Gas and Mining.

environment similar to native conditions. Higher rock content soils provide for a more stable reclaimed surface, aid in water harvesting and ultimate water holding capacity of interstitial soils, and create wildlife habitat and niches on the surface were surface boulders and larger cobble sized rocks are placed.

In summary, all soil materials in Map Units A and B are suitable and acceptable throughout the ten-foot depth of sampling and evaluation for use in reclamation activities as a borrow source.

Findings:

The requirements of this section of the regulations are considered adequate.

OPERATION PLAN

TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-230.

Analysis:

Chapter 2, Soils, Sections 230 through 234 discusses the soil's operation plan for the proposed Starpoint Topsoil Borrow Area amendment. Topsoil protection incorporates traditional methods of salvaging/stockpiling during borrow operations. Relevant analysis information includes soil salvage, stockpiling, and topsoil substitutes and supplements. The Analysis section discusses operation information as follows:

- Topsoil Salvage
- Subsoil Removal
- Temporary Topsoil Storage
- Substitute Topsoil

Topsoil Salvage

Topsoil salvage will take place within the disturbed area boundary where disturbances are anticipated, including the access road. *For the purpose of maximizing topsoil recovery during construction, all topsoil salvage should occur under the on-site supervision of a Soil Scientist.* Topsoil salvage and protection is discussed within the amendment for (1) Topsoil Unit A and B areas and (2) Gerst-Badland-Rubbleland Complex areas.

(1) Topsoil Unit A and B areas

Topsoil salvage areas are identified in Appendix 2-1 as Map Units A and B which are shown on Map 2-1 (A). Based on the Order-I soil survey, the A horizon topsoil is approximately 10 inches thick, and will be removed and placed in the soil storage pile. Volume calculations approximate 26,740 cy of soil can be salvaged from the site and used to reclaim the borrow area. The soil salvage operations are staged (Map 5-1), with approximately 15,690 cy salvaged during Stage 1, and 11,050 cy salvaged during

Stage 2 and live hauled to the Stage 1 area. Approximately 4.640 cy of topsoil will be taken from the temporary soil stockpile and distributed with the 11,050 cy (15,690 cy total) to cover the Stage 1 area. If the borrow soils in Stage 2 area are not needed for the mine site reclamation, then the topsoil salvaged from Stage 1 will be re-distributed over the Stage 1 borrow area at a depth of approximately 10 inches.

Topsoil Salvage Area Depths	
Soil Map Unit	**depth (in)**
A	10
B	10
C	6-10
DL	0

The amendment states that if Map Units A and B will be disturbed outside the soil harvest boundary, 10 inches of the A horizon will be salvaged and stockpiled with the soils salvaged from within the soil salvage boundary.

(2) Gerst-Badland-Rubbleland Complex areas

The soils Map 2-1 (A) shows that Map Unit C lies within the northwest boundary of the disturbance area. Furthermore, Map 5-1, shows that soil harvest disturbance will occur directly over Map Unit C. The NRCS soil survey identifies the Gerst-Badland-Rubbleland Complex mapping unit (#33) as containing significant amounts of soils - 40% Gerst extremely stony loam and 15% other soils. Gerst soils support a significant vegetation community with an overstory of pinyon and Utah juniper with a 15 percent canopy, and understory vegetation with 40 percent grasses, 20 percent forbs, and 40 percent shrubs. These "rocky" soils have intrinsic value for restoring Gerst-Badland-Rubbleland Complex slopes and surfaces during reclamation to match current soil and vegetation conditions. The current vegetation community evolved to fit environmental conditions as they currently exist.

Topsoil Borrow Amendment Chapter 2 and Appendix 2-1 state that the Gerst-Badland-Rubbleland Complex mapping unit is not recommended for any topsoil salvage. However, the amendment states where disturbance occurs in Map Unit C, soil will be salvaged between 6 and 10 inches. Since topsoil is less than six inches thick and soils are intricately intermingled, the operator may remove the topsoil and the unconsolidated materials immediately below the topsoil and treat the mixture as topsoil. Salvaged Map Unit C topsoil will not be segregated in stockpile from other topsoil because of the limited quantity of soil salvage.

Subsoil Removal

Subsoil removed from the borrow area will be transported directly to the reclamation site and placed. Approximately 242,900 cubic yards of topsoil and subsoil is potentially available from the

borrow area. Subtracting the 10-inches of A horizon topsoil, a potential volume of 216,160 cubic yards of subsoil is available as substitute topsoil form the site and may be removed from 10 inches and 10 feet. Approximately 113,950 cubic yards will be available from the Stage 1 area and 101,640 cubic yards from the Stage 2 area.

Temporary Topsoil Storage

The first 10 inches, Horizon A, will be stripped and stored in the northeast corner of the borrow site within the disturbed area boundary (Drawing 5-1, Chapter 5 of Exhibit 233). The soils will be stored only as long as it takes to salvage the remaining horizons to be used for reclamation of the Star Point Mine site. The stockpile will be constructed with minimal soil disturbance.

The stockpile will be constructed in horizontal lifts for 1.5 to 2.0 feet. Tracked equipment will be used to reduce compaction. The pile will be graded to a maximum slope of 2:1. The vegetation removed with the 10 inches of Horizon A will be incorporated into or placed on top of the stockpile.

Substitute Topsoil

No unacceptable criteria were found for salvageable soils and substitute soils except for percent rock content within the mine site disturbance or proposed facilities area. Although DOGM suitability criteria considers >30% (by volume) rock fragments (for both gravels <3" in size and cobbles 3 to 10" in size) to be unacceptable, and >10% stones and boulders >10" in size to also be unacceptable, the recent trend is to salvage "**native soils**" with "**intrinsic rock content.**" Appendix 2-2 reports that native soils can be salvaged containing a higher rock content than the DOGM guidelines deems acceptable. Ultimate site reclaimability using these rocky soils enhances reclamation success by providing an environment similar to native conditions. Higher rock content soils provide for a more stable reclaimed surface, aid in water harvesting and ultimate water holding capacity of interstitial soils, and create wildlife habitat and niches on the surface were surface boulders and larger cobble sized rocks are placed.

Findings:

The requirements of this section of the regulations are considered adequate.

RECOMMENDATIONS:

For the purpose of maximizing topsoil recovery, all topsoil salvage should occur under the on-site supervision of a Soil Scientist.

RECLAMATION PLAN

TOPSOIL AND SUBSOIL

Regulatory Reference: 30 CFR Sec. 817.22; R645-301-240.

Analysis:

Chapter 2, Soils, Sections R645-301-240 through -244, discusses the soil's reclamation plan for the proposed West Ridge Mine. The Analysis section discusses reclamation information as follows:

- Soil Redistribution
- Soil Nutrients and Amendments
- Soil Stabilization

Soil Redistribution

The re-contoured surface will be ripped or loosened (see approved MRP, Chapter 3 and Section 244) after the borrow soil has been removed. Ripping will be between 12 and 24 inches for reducing surface compaction, and providing a roughened surface to assure topsoil adherence and help promote root penetration. The temporarily stockpiled soils will be distributed to the re-contoured loosened disturbed surface. Maps 5-2, 5-3 and 5-4 show where topsoil will be distributed. Based on the 26,740 cy of salvaged topsoil and an estimated 19.9 acres, approximately 10 inches of soil will be replaced in the reclaimed area.

To help prevent soil compaction, soil moving equipment will refrain from unnecessary operation over spread topsoil. Front-end-loaders and other wheel mounted equipment will be used to transport soil. However, only track-mounted equipment will be used to spread topsoil to help minimize compaction. Replaced topsoil will be loosened prior to seeding.

Soil Nutrients and Amendments

Refer to Section 243 and Chapter 3 of the approved MRP for soil nutrient and amendments.

Soil Stabilization

Erosion control measures may include but will not be limited to mulching, surface roughening and deep gouging. Refer to Section 243 and Chapter 3 of the approved MRP for additional details.

Findings:

The requirements of this section of the regulations are considered adequate.

SUMMARY

One deficiency in Chapter 6 of the Star Point Mine Topsoil Borrow Area Permit Amendment was identified in the April 19, 1999 TA. Cyprus-Plateau's response, received June 3, 1999, has satisfactorily addressed that deficiency: references in Chapter 6 to information found in geologic literature are now clear. No further deficiencies have been identified in Chapter 6.

Findings:

Geologic information provided in the proposed amendment is considered adequate to meet the requirements of this section.

Please submit your clean copies by July 16, 1999. If you have any questions please call.

Sincerely,

Joseph C. Helfrich
Permit Supervisor

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cc: Price Field Office
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