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TO: File

THRU: Daron Haddock, Permit Supervisor *DQH*

FROM: Susan White, Senior Reclamation Biologist *SW*

RE: Draft Technical Analysis, Cyprus Plateau Mining Corporation, Star Point Mine, ACT/007/006, Folder #2, Carbon County, Utah

SYNOPSIS

Cyprus Plateau Mining Corporation (CPMC) has submitted a new permit for the Star Point Mine. The below Technical Analysis is a review of that document. Several deficiencies have been noted and must be corrected prior to approval. Deficiencies are associated with the reclamation plan and others require adding current information to the permit.

VEGETATION RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 783.19; R645-301-320.

Analysis:

Plant communities within and adjacent to CPMC's permit area are shown on Map 321.100a. Maps 321.100b thru 321.100f delineate the vegetation types in greater detail. Map 321.100e shows the Little Park Canyon Fan Site. This fan site is only proposed and is not designated as proposed on maps or throughout the text. To avoid confusion the operator must either delete all reference to the fan site or if there is still a likelihood of developing the site all references throughout the MRP must be prefaced by "proposed" or some other designation. These maps must contain information which allows the Division to determine the date of disturbance (i.e. pre-SMACRA and never been touched, pre-SMACRA and continuously used, and post-SMACRA), disturbed area boundaries, and post mining land use. It is very important to designate all areas which CPMC does not claim as there responsibility both adjacent to and within the disturbed area.



Nine vegetation types are described within the permit area. They are a Douglas Fir, Aspen, Mountain Grassland, Mountain Shrub, Spruce/Fir, Sagebrush, Pinyon-Juniper, Saltbush, and Barren. Acreage of vegetation types within the permit area and disturbed area are provided in Table 321.100a and 321.100b. These acreage figures differ from the Division's current figures which list the permit area as 9060 acres and the disturbed area as 173.76 acres. The correct acreage figure is probably most important for the disturbed area which will be used for ordering revegetation and reclamation supplies. The largest disturbed area given in the Table is the Mountain Shrub community. The Pinyon-Juniper and Sagebrush Communities have been disturbed extensively also. These areas are known to be of great importance to deer and elk as winter range. The Saltbush Community has been disturbed to a lesser extent, however this area will most likely be the hardest to revegetate and to control erosion due to the poor soils.

The productivity of the land in terms of range condition and forage production is discuss in Section 321.200.

In 1981, the reference area for the Mountain Shrub, Douglas Fir, Mountain Grassland and Sagebrush areas were established. The reference area sampling for the Saltbush, Pinyon-Juniper and the Aspen Community was conducted in 1982. Reference Areas were selected and sampled using approved Division procedures at the time of sampling. Reference area sampling during the period of extended responsibility and at bond release will need to follow current Division procedures. Currently, the Division requires cover sampling to be based on total cover of 100 percent and to include all tree and shrub canopy cover. Including all vegetation cover within the 100 percent will likely result in a higher cover value for some community types, however, the Saltbush Community will likely be unchanged. Reference areas and predisturbed areas were compared using the t-test and McArthur Index of Similarity (Table 321.100i).

Findings:

The permittee must provide the following, prior to approval, in accordance with the requirements of:

R645-301-121.100, the permit must contain current information concerning:

1. acreage figures in Table 321.100a and 321.100b.
2. undeveloped surface facilities (Little Park Canyon Fan Site) must be deleted from all maps and text, or prefaced with some type of designation which shows the area as proposed.

R645-301-140, all maps must designate pre-SMACRA areas which have not been used since 1977, pre-SMACRA areas which have been continuously used, and post-SMACRA disturbed areas.

FISH AND WILDLIFE RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 784.21; R645-301-322.

Analysis:

In 1982, site specific sampling of various vegetative communities were conducted to determine occurrence and animals per unit area. Other methods such as literature research and personal contacts were used to evaluate the wildlife resources within the area. Table 322.200a provides a list of mammals, Table 322.200b birds, and Table 322.200c reptiles and amphibians which are likely to occur within the CPMC's permit area. Deer and elk are a major concern to the management agencies. Elk utilize the permit area on a seasonal basis. High elevation fan portals in the aspen and mountain brush areas are likely to be used as summer range and possibly calving areas for elk. The areas surrounding the main mine site are most likely used from early November until mid May. Mule deer on the CPMC permit area are considered part of herd unit 33. Deer generally use the permit as do the elk, on a seasonal basis. The Division is currently checking the status of critical habitat with the UDWR. Mitigation measures have been conducted by enhancing winter range. Enhancement has mostly focused on providing water sources for the winter range. Other high value mammal species are discussed in this section of the permit. The impacts of mining on high interest mammals is shown in Table 322.200e and rated on a scale of 0 to 10. The operator felt that only the Desert Cottontail, elk and deer had a potential for impact and the impact was 1, 1, and 3, respectively. The Division is unable to concur with this assessment at this time 1997, however, the disturbance has already occurred, and the point is mute.

Raptor inventories have been conducted yearly in the permit area since 1981 in conjunction with UDWR and USFWS. According to published UDWR information the mine permit area is represented by the Transition and Canadian Life zones. UDWR states that there is a potential for 172 bird species in the area. The statement is made that two endangered species of birds, the bald eagle and the peregrine falcon, maybe present within the permit area. The information contained in the permit concerning these birds is outdated (although the revision date indicates the information is current as of 9/27/96). The permit must included the current status of these birds and reference the nesting of peregrines adjacent to the permit area. The continued monitoring of these birds should document if any impacts occur. Table 322.200f, Raptor Nest Sites Activity (revised; 9/27/96), reports the information from the raptor inventories, however, the table only reports data to 1986 and no key is given for the symbols used. Ten additional years of information and analysis should be available. The table suggests that mining has had a negative impact on the bird since limited nesting success was observed.

Section 322.210, Threatened or Endangered Species, states that no threatened or endangered species occur in the permit area or that will be affected outside the permit area. No date is given on this statement and the statement is not referenced as to which qualified persons made this

determination. The USFWS considers no findings statements only valid for six months. The Division requires a new statement by qualified persons every five years or sooner if conditions change or new activity occurs (i.e. reclamation activities).

The aquatic resources are considered important wildlife habitat areas. Section 322.220 thru 230 state that the permit area includes the headwaters of two small perennial streams, Miller Creek and Tie Fork. Nuck Woodward Creek as an important aquatic resource must be discussed in Section 322.220. Numerous macroinvertebrate sampling studies have been and continue to be conducted to document mining impacts on the aquatic resources within and adjacent to the permit area. Sampling of Tie Fork Creek and Wild Cattle Hollow were initiated in 1981. Miller Creek has been studied since 1976. No conclusions, inferences, or discussion of this sampling has been provided in the permit since 1982. A short summary to update the impacts of mining operations on this resource must be presented in the permit text. A schedule of future aquatic resource sampling is presented in Table 322.220b.

Findings:

The permittee must provide the following, prior to approval, in accordance with the requirements of:

R645-301-121.100, the permit must contain current information concerning the status and presence of threatened and endangered species within or adjacent to the permit area. All important wildlife habitat within and adjacent to the permit area must be identified and updated. Table 322.200f must be updated to include current information on raptors. Section 322.220 must be updated to include current aquatic resource information.

R645-301-130, the investigation and determination of presence or absence of threatened and endangered species within or adjacent to the permit area must be performed by a qualified person. The qualified persons name and date of finding must be included with the determination.

HISTORIC AND ARCHEOLOGICAL RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 783.12; R645-301-411.

No cultural and historic resource information could be found for the area of Lion Deck facilities and the lower facilities. No historic reporting could be found for the town of Wattis. Most reports and maps discussed in Section 411.140. thru 411.135 could not be found or had no historic resource information. The Division currently requested information from State History concerning sites eligible for nomination to the National Register of Historic Places within or adjacent to the

disturbed area. State History inferred that there are sites of historic value which should be designated adjacent to disturbed areas.

Findings:

The permittee must provide the following, prior to approval, in accordance with the requirements of:

R645-301-411.140 no cultural or historic information could be found in the permit for areas adjacent to and within the upper and lower disturbed area. Referenced maps and studies could not be located or had no historic or cultural resources designations. No determination of the historic and cultural resource remaining of the old town of Wattis could be found in the permit. Permit must include these items.

LAND-USE RESOURCE INFORMATION

Regulatory Reference: 30 CFR Sec. 783.22; R645-301-411.

Analysis:

Premining land use is livestock, timber, and wildlife habitat. The permit states that mining has continued in the area for several decades with only minor effects on vegetation, wildlife, hydrology, and vegetation. Oil and gas were produced in limited quantities from 1924 to 1976. The permit states that the field is now abandoned with no producing wells near by. The permit must be updated to describe the current activities and proposed activities associated with the coal bed methane development in the area. The statement is also made that no timbering has occurred as a recent land use. This condition has changed in the Price area and the potential of the land for merchantable timber must be reassessed. A discussion of timbering potential should discuss productivity in terms of board feet.

Existing land use also consists of hunting, camping, picnicking, mountain biking and other recreational uses. The Mancos shale area of the train loadout is designated as used by livestock and wildlife however due to the low productivity of the Mancos Shale the contribution of this area as a grazing resource is limited. A discussion of land productivity is found in Section 411.120.

Findings:

The permittee must provide the following, prior to approval, in accordance with the requirements of:

R645-301-121.100 Section 411.130, Existing Land Uses, of the permit must be updated to

include current land uses of the area. Logging within the disturbed area or permit area may now be economically feasible as evidenced by the many areas in Carbon County which are now being logged. Coal bed methane is now a very important resource in Carbon County and this resource and land use must be discussed.

OPERATION PLAN

FISH AND WILDLIFE INFORMATION

Regulatory Reference: 30 CFR Sec. 784.21, 817.97; R645-301-322, -301-333, -301-342, -301-358.

Analysis:

Protection and Enhancement Plan.

The Technical Analysis prepared by the Division in 1987, found that the applicant was in compliance with this section of the regulations. The reasoning is as follow:

Much of the Star Point Mine's facilities were in existence before passage of SMACRA or Utah's Rules. Wildlife has adapted to some extent to the presence of the mine as evidenced by big game use of sediment ponds and wildlife sightings in the mine facilities area. The applicant has tried to minimize impacts on wildlife from existing facilities and to design new facilities to take wildlife into consideration, including raptor-proof power lines and conveyors constructed to allow deer crossing (Section 330). The permittee has committed to notify the Division of the use of pesticides and fires and to fence, cover or buffer hazard areas.

Mitigation of impacts and enhancement of wildlife resources include employee education, deer winter range vegetation enhancement and a guzzler to compensate for the Unit Train Loadout and refuse expansion areas, availability of sediment ponds for deer use and interim final revegetation planned to maximize benefit to wildlife.

Numerous inventories and studies gathering resource information have been conducted since the late 1970's and early 1980's (see Fish and Wildlife Resource Information in this Technical Analysis). Studies and inventories were designed to assess impacts of mining and reclamation activities on the raptor and macroinvertebrates populations. Studies and inventory data continue to be collected. Data collected from these studies designed to assess mining impacts have not been presented or discussed in the permit.

Endangered and Threatened Species.

See Wildlife Resource section. The permittee must commit to promptly report to the Division any state or federally-listed threatened or endangered species within the permit area (R645-301-358.100).

Bald and Golden Eagles.

The permit reports (Section 330) that subsidence may impact two golden eagle nests on a cliff face in Section 18, T15S., T8E. The golden eagles nesting activity, and cliff movement as a result of mining will be monitored and mitigated according to Exhibit 342.100a. The permittee must briefly summarize in the permit the results of the monitoring and mitigation of these nests. Exhibit 342.100a could not be found in the 1991 permit submittal, the permittee must provide a clear copy to include in the permit.

Wetlands and Habitats of Unusually High Value for Fish and Wildlife.

The permit states under the Mitigation and Management Plans (Section 330) that subsidence impacts to Miller Creek and Tie Fork Creek will be monitored and mitigated if required. Both of these areas have been monitored for macroinvertebrates. Miller Creek has subsided and mining has ceased in the area of Tie Fork Creek. The permit must briefly summarize the results of the monitoring and mitigation for these area and the impacts to fish and wildlife from subsidence.

Findings:

The permittee must provide the following, prior to approval, in accordance with the requirements of:

R645-301-120, numerous repeated paragraphs were found on Pages 300-106 thru 300-114. Exhibit 342.100a could not be found in the 1991 permit submittal, the permittee must provide a clear copy to include in the permit.

R645-301-330, the permit must contain a brief summary of what occurred during monitoring and mitigation of the golden eagles and nests which were impacted by subsidence (Exhibit 342.100a). The permit must also describe any further mitigation, if any, which was required of the permittee as a result of the impacts.

R645-301-330, the permit must provide a discussion detailing the effects of the mining and reclamation activities on the raptor population and reproduction based on data collected since 1981.

R645-301-330, the permit must provide a discussion and summary based on collected data which document the impacts of mining and reclamation activities on the aquatic resources.

R645-301-358.100, the permit must contain a commitment that the permittee will promptly report to the Division any state or federally-listed threatened or endangered species within or adjacent to the permit area.

VEGETATION

Regulatory Reference: R645-301-330, -301-331, -301-332.

Analysis:

The permit states that vegetation monitoring on U.S. Forest Service property will be monitored by color infrared photography and by visual observations (Section 332.). Monitoring is conducted to document changes in vegetation communities as a result of subsidence affects. This monitoring has been conducted several times since 1980 (Section 525.100). A commitment is given to provide the Division with reports in the annual report. No report could be found for 1993. The permittee must review this commitment and provide the report, additionally a brief summary of the monitoring since 1980 should be provided in the permit.

As wildlife mitigation during operations disturbed areas not in use will be seeded with an interim seed mixture. A general interim seed mixture could not be found in the permit.

Findings:

The permittee must provide the following, prior to approval, in accordance with the requirements of:

R645-301-330, a commitment is given to report to the Division in the annual report the effect of subsidence on vegetation by the monitoring by color infrared photography. No report could be found for 1993. The permittee must review this commitment and provide the reports, along with a brief summary of the monitoring since 1980 to be inserted in the permit.

R645-301-331, a general interim seed mixture must be provided in the permit, the topsoil interim seed mixture may be specified for general use.

RECLAMATION PLAN

POSTMINING LAND USES

Regulatory Reference: 30 CFR Sec. 784.15, 784.200, 785.16, 817.133; R645-301-412, -301-413, -301-414, -302-270, -302-271, -302-272, -302-273, -302-274, -302-275.

Analysis:

The permit states that the access road to the power line by Treatment facility #1 will remain after reclamation for the post mining land use. No documentation could be found to request the road be left and who will accept the road liability and be responsible for any maintenance.

The postmining land use will include leaving the road which is designated as County Road No.290 for access to Gentry Mountain and Castle Valley Ridge, no documentation could be found which supports this road as having a premining land use. Also no comments could be found in the permit from the county which supports the leaving of this road and a commitment for future maintenance of this road. The permit claims that this road is currently the county road, however no documentation could be found documenting that claim. Clarification is needed in the permit that the permittee retains the bond liability for the road until the Division has release the mine of the bond liability.

The postmining land use for each area of mine use is described in Table 412.100a. The land use in relation to physical features is also described in this table. The land uses consist of road, wildlife, grazing, recreation, and forestry. The two components of the table seem to conflict. To clarify a map would be appropriate. This issue is especially important in reclamation for future bond release. For example, if an area did not support grazing prior to mining then this land use should be deleted from the postmining land use and productivity will not be a component of the vegetation measurement for bond release. If an area will be used as a road right-of-way then at minimum the vegetation should be adequate to control erosion prior to bond release.

The postmining land use for the refuse pile is grazing and wildlife. Selenium is suspected to be of levels that may not support the postmining land use of grazing and wildlife. The permit must discuss and demonstrate that the postmining land use can be met. Resolution of the deficiency stated in the soils section of R645-301-553.252 will only partially satisfy the post mining land use requirement. Even if 4 feet of material is used we know that shrub roots extend beyond 4 feet and may uptake selenium. Perhaps changing the postmining land use and establishing plant species which are known to be unpalatable to wildlife and domestic livestock may satisfy the regulations.

Copies of letters sent to surface owners concerning the post mining land use are found in Exhibit 412.200a. However no comments from the land owners could be found which supports the postmining land use. No descriptions of the permittee's legal right to conduct reclamation activities from the Special Use Agreements or Right of Way agreements could be found. No authorization could be found which allows the permittee to leave coal waste within these areas or not regrade and refill cut slopes and highwalls.

Findings:

The permittee must provide the following, prior to approval, in accordance with the requirements of:

R645-301-412.100, Table 412.100a. contains conflicting information between the land use in relation to mine features and land use in relation to physical features. The permit must clearly distinguish the postmining land use for all areas within the area of bond liability.

R645-301-412.110, the permit must demonstrate that the reclaimed refuse pile will be able to meet the post mining land use of wildlife and grazing.

R645-301-412.130, any land uses which are different than the premining land use (i.e. roads) must the requirements of R645-301-413.100 through R645-301-413.334 prior to approval..

R645-301-412.200, comments from land owners supporting the postmining land use must be provided in the permit. No documentation could be found to request the powerline road be left and who will accept the road liability and be responsible for any maintenance. No comments could be found in the permit from the county which supports the leaving of the Lions Deck access road and commitments to future maintenance of this road. The permit claims that this road is currently the county road, however no documentation could be found supporting this claim. Clarification is needed in the permit that the permittee retains the bond liability for the road until the Division has release the mine of the bond liability.

PROTECTION OF FISH, WILDLIFE, AND RELATED ENVIRONMENTAL VALUES

Regulatory Reference: 30 CFR Sec. 817.97; R645-301-333, -301-342, -301-358.

Analysis:

The postmining land use consists of wildlife, grazing, recreation and forestry. The applicant proposes to meet the wildlife land use by planting species which are known to be of value to wildlife for food and cover. Transplants will be used in the reclamation of several community types which may result in accelerated community establishment. The DWR has been asked, by the Division to suggest some more wildlife enhancement measures that could be conducted at the site at the time of reclamation. The permit states that sediment ponds may be left for the postmining land use. No details of this has been provided in this section or the hydrology section. Ponds to remain will require approval from DWR that this is an enhancement to the area.

Findings:

The permittee must provide the following, prior to approval, in accordance with the

requirements of:

R645-301-342.100, the permit must detail the wildlife enhancement plans for the reclaimed areas, such as the sediment ponds.

CONTEMPORANEOUS RECLAMATION

Regulatory Reference: 30 CFR Sec. 785.18, 817.100; R645-301-352, -301-553, -302-280, -302-281, -302-282, -302-283, -302-284.

Analysis:

The permittee has committed to reclaim the Exploration Road found in Area 11 and the No. 2 Mine found in Area 3. An explanation concerning why contemporaneous reclamation could not occur in Mine Area #1 is unclear, since a county road exist for access above the mine. The refuse pile covers a large area. Potential exists for some areas to be regraded and reclaimed without affecting the active operations.

Findings:

The permittee must provide the following, prior to approval, in accordance with the requirements of:

R645-301-352, the permit must describe any and all potential to begin contemporaneous reclamation.

REVEGETATION

Regulatory Reference: 30 CFR Sec. 785.18, 817.111, 817.113, 817.114, 817.116; R645-301-244, -301-353, -301-354, -301-355, -301-356, -302-280, -302-281, -302-282, -302-283, -302-284.

Analysis:

General Requirements

A detailed schedule and timetable for the completion of each major step in the revegetation plan could not be found in the permit. This detailed schedule should include at minimum dates of material procurement, including adequate lead times for growing transplants and collecting seed, expected time to seed, fertilize and mulch if necessary and any follow-up activities.

Seed mixtures have been designed to correspond to the different plant communities found in the areas disturbed. If the areas are drill seeded they will be seeded at a rate of one-half that given in the seed mixture tables. On areas to steep to be drill seeded these sites will be broadcast seeded. Areas to be broadcast seeded will be seeded at the rates given in the specific discussions for each specific area (Section 341.210). Four seed mixtures (Tables 341.210a through 341.210d) will be used for final reclamation seeding these are:

<u>Name of Mixture</u>	<u>Table No.</u>	<u>Areas of Use</u>
Fan Site	341.210a	Corner Canyon Fan Mudwater Canyon Breakout
Unit Train Loadout	341.210b	Unit train loadout area (saltbush type)
Mountain Grassland and Douglas Fir	341.210c	Star Point No. 1 Mine Area Lion Deck Portal Area
Disturbed Area	341.210d	Refuse Pile, Topsoil Stockpile, Lower Office, Wash Plant, Conveyor, Lion Deck Portal Access Road

These areas are also shown on Maps 341.100a thru 341.100d. The old road which runs up the south facing side of the canyon near the bottom as shown disturbed on Map 521.121a is not shown on Map 341.100b. The seed mixture to be used for revegetation must be shown.

The seed mixtures contain several introduced species. In this area numerous native species are available and are known to support the postmining land uses. The mixtures must be revised to eliminate all introduced species. If the postmining land use is changed for the refuse pile, aggressive introduced species will be allowed. Seeding rates are low and the permittee is advised to increase these rates.

The lower Wattis area is known to be heavily infested with cheatgrass. Cheatgrass is a very aggressive winter annual which may inhibit revegetation success. Squirreltail has been used successfully in the Intermountain area to compete with Cheatgrass. The seed mixtures must be revised to exclude introduced species and include species which will successfully compete with Cheatgrass, such as Squirreltail. In order to enhance revegetation success the permittee should reduce the amounts of Cheatgrass now in the area through aggressive actions. Also the permittee should read the Utah Coal Mining Rules at R645-301-357.320 which will allow limited weed control activities into year two of the bond liability period.

The saltbush community type associated with the Mancos Shale, Badlands, is probably the most difficult community to reclaim. The permittee does not propose any soil amendments or special treatments of any kind for this area. Soil chemistry, crusting and erosiveness all inhibit seed germination. PacificCorp at the Des Bee Dove Mine have established several revegetation test plots on flat and sloped areas within the Mancos Shale. Some of the most successful treatments included excelsior blanket topped with a surface treatment of coal waste and sandstone rocks. The permit must discuss Plateau's success with interim seeding of this area and soil treatments to be used in revegetation.

Drill seeding on completely flat surfaces should be successful. The Division's experience with drill seeding is that the furrow openers reduce any surface roughness provided by the scarification. In fact surface roughness has been shown to greatly enhance the rate of revegetation success and protection from erosion.

Timing

The permit briefly discusses the timing of seeding (Section 353.250). Normal seeding for the area is August thru November in the higher areas and October thru December in the lower elevation areas. Normally spring seeding is not done in final reclamation due to seed dormancy requirements and sporadic spring moisture. The permit must discuss time between topsoiling and seeding, committing to permanent seeding only in the fall, and emergency interim seeding when final seeding cannot be conducted within the seeding window.

Mulching and Other Soil Stabilizing Practices

Section 340 states that Corner Canyon Fan site may use water bars or contour terraces to minimize erosion. This statement must be removed. The Division's experience indicates that usually surface roughening is sufficient in small disturbance areas. If all reclamation activities are preformed from within the mine no maintenance of these structures for stability can be preformed. Also since access is limited the Division must be notified of reclamation activities to verify compliance.

Insufficient map detail is provided to ascertain the slope gradients in final reclamation. Generally any slope at all requires some type of erosion protection. Slopes less than 3:1 may only require deep surface roughening for stabilization until seed has germinated. Slopes greater than 3:1 usually require deep surface roughening and some type of mulch applied and slopes 2:1 and steeper require a high quality erosion control matting. Mancos Shale on any gradient requires erosion protection and soil surface modification for seed germination. A site specific mulching and soil stabilization plan must be provided either by area or slope gradient. Until adequate maps are provided the mulching discussion in Section 341.230 of the permit will not be discussed.

Seeding of annual grains with the permanent seed mixture is not approved in areas which receive less than 15 inches of annual precipitation. Cover crops competing with the permanent seed mixture can inhibit revegetation success in these arid areas. The permit must be modified to include this restriction.

Standards for Success.

Revegetation success determination will be based on the community type reference area, stocking rates, the postmining land use (see deficiency under postmining land use), and other standards as described in R645-301-353 such as a diverse, effective, and permanent. Forest Service requirements for success are required as part of the postmining land use but are only added to the requirements of R645-301 and are not used instead of R645-301 as eluded to in Section 356.200. The vegetation cover requirement for Mud Water Canyon must also be based on the vegetative cover adjacent to the disturbance.

Reference areas were originally sampled early in the division program. Reference area sampling and sampling of revegetated areas for success must use current Division standards. The Division requires cover sampling to be based on total cover of 100 percent and to include all tree and shrub canopy cover in that 100 percent. With this sampling areas such as the Douglas Fir will have a much greater cover value then the described 15 percent in Table 321.100d, however the Saltbush Community will likely be unchanged. The permittee may want to reconsider using the Douglas Fir community as a standard since early revegetation (first 10 years) will likely never be similar to a mature Douglas Fir stand. The permittee must describe the anticipated sampling methods for each community, the same methods used in the reference area must be used on the reclaimed area. The comment on maximum sample size must be deleted, OSM has found that maximum sample numbers are not in compliance with the program and that statistical sample adequacy must be met.

Revegetated areas will be compared to the reference area of the corresponding vegetation types based on the Maps 341.100a thru 341.100d. Section 356.200 proposes that when sampling for success of the reclaimed areas a weighted average will be used when community types and reference areas overlap. The permit must specify the sampling scheme prior to approval of this method. The Division will work with the permittee if desired to approve a sampling design which can minimize community and landuse overlap. The permittee could begin sampling the seeded right of way along the Lion Deck portal access road that will not be redisturbed for Phase III bond release now. The bond release demonstration requires meeting the approved success standard the last two years of the responsibility period. The success standard for a road right of way probably would need to meet a vegetative ground cover standard (R645-301-356.240) and the County to accept all liability for the road.

The permittee has been sampling reference areas to determine range condition (Section 356.100). Usually a request is made to the National Resource Conservation Service (formally SCS)

to access range condition. However, the sampling done by the permittee is acceptable.

One of the requirements for success is that the plant cover will be capable of stabilizing the soil surface from erosion (long term stabilization) and is part of the determination for Phase II bond release. Stabilization usually takes into consideration back ground level of erosion. However, for Phase II bond release on the refuse pile soil stabilization will be determined successful if no refuse is exposed or can expect to be exposed. Reference area vegetation cover in the sagebrush community was 34 percent and slopes were generally flat. The refuse pile will be contoured to approximately 3:1 slopes. With this type of slope and vegetative ground cover of 34 percent long term stabilization by vegetation alone may not occur. The permit must describe other measures of long term surface stabilization such as rock cover or flattened slopes.

The permit states (Section 341.220) that managed grazing will be used as the primary means to supplement transplanted and seeded shrub densities. This is not an approved husbandry practice. Utah's husbandry rules (R645-301-357.300) do allow for limited reseeding, transplanting, and irrigation of shrubs if approved in the permit.

The permit should state which husbandry practices maybe anticipated during the liability period because permit approval is required prior to implementation (Section 357). The Revegetation Monitoring Schedule (Table 356.100a) may need to be revised to allow for sampling during the periods specifically mentioned in R645-301-357.300. The schedule may also be revised to reflect the sampling for Phase II bond release. Phase II bond release (vegetation establishment) at other mines in the area have been successful four years initial seeding. Quantitative sampling of the temporary or interim vegetation is shown in this table and is not a requirement of the Division but may be useful in determining revegetation techniques.

Findings:

The permittee must provide the following, prior to approval, in accordance with the requirements of:

R645-301-341, the seed mixtures for the lower Wattis area must be amended to include larger amounts of Squirreltail. The areas in which cheatgrass dominate (i.e. topsoil stockpile) must be seeded with an interim seed mixture to reduce the amounts of weed seed available in final reclamation.

R645-301-341.100, a detailed schedule and timetable for the completion of each major step in the revegetation plan must be included in the permit.

R645-301-341.300, the permittee must demonstrate that the methods used in the permit to reclaim the Mancos Shale, Unit Train Loadout Area, is feasible or a new method of revegetation can be proposed.

R645-301-353.120, the vegetative cover thus the seed mixtures must be revised to exclude all introduce species for the postmining land uses of forestry, recreation, wildlife and grazing. Sufficient native species exist to meet the approved postmining land use.

R645-301-353.120, seeding of annual grains with the permanent seed mixture in areas of less than 15 inches annual precipitation is not approved and must be removed from the permit.

R645-301-353.140, the permit must describe the methods used to achieve the performance standard which requires long term surface stabilization for the refuse pile.

R645-301-354, the permittee must commit to seeding only during the fall. A discussion on timing must include time between topsoiling and seeding, emergency interim seeding of topsoiled areas, and seeding during wet soil conditions.

R645-301-355, the permittee must provide maps of the post disturbance topography which allow sufficient information and detail to review mulching and other soil stabilizing practices proposed for reclamation.

R645-301-356.100, the permit must include the revegetation success standards required of other agencies (i.e. Forest Service) to meet the postmining land use in addition to those required by R645-301-350.

R645-301-356.110, the permit must discuss methods to be used to measure revegetation success and recognize that methods used in original reference area sampling are not approved for use to demonstrate revegetation success. Prior to approval the permit must describe in detail the areas to be averaged when using a weighted average for community type overlap.

R645-301-357.300, the permit must meet the requirements of new regulation requirements concerning husbandry practices.