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

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TO: Daron Haddock, Permit Supervisor

FROM: Paul Baker, Reclamation Biologist *PAB*

RE: Draft Review, Biology Section of Willow Creek Mining and Reclamation Plan, Willow Creek Mine, Cyprus Plateau Mining Corporation, PRO/007/038, Working File, Carbon County, Utah *Folder # 2*

SYNOPSIS

On May 11, 1995, Cyprus Plateau Mining Corporation submitted an application to mine areas east of the Price River and west of Andalex's Centennial Project permit area. The Division received additional information June 12, 1995, and August 11, 1995.

Mine portals would be near Willow Creek northeast of the confluence with the Price River. Other surface facilities would include the permitted Castle Gate Preparation Plant and associated loadout, the Gravel Canyon topsoil pile, and part of the facilities in Crandall Canyon.

This memorandum does not consider the adequacy of plans for disturbed areas other than the main portals area. These other areas are already permitted under the Castle Gate Mine permit.

This is the first set of complete comments about the biology portion of the application, so there are several problems that need to be fixed. Probably the most serious concerns revegetation success standards. Cyprus has proposed using the baseline method, but since data were not collected in a year with normal precipitation, this method cannot be used. However, with some additional data, the reference area or range site method could be used.

The application characterizes the proposed disturbed wildlife habitat as being of poor quality and only capable of supporting a few rodents and perhaps some songbirds. This characterization is done in a general way without supporting information. Division biologists' observations differ sharply from the views presented in the application.

Before this analysis can be finalized, the Division will need to receive comments from the U. S. Fish and Wildlife Service and from the State Division of Wildlife Resources. The Division is required to consult with these agencies about wildlife information requirements.



ANALYSIS

VEGETATION INFORMATION

Regulatory Reference: R645-301-321

Analysis:

Section 3-2 contains the results of vegetation surveys done for the proposed Willow Creek Mine. Three plant community types were surveyed for this study: 1) Disturbed Plant Community; 2) Reclaimed Plant Community; and 3) Riparian Plant Community.

Total vegetation cover in the disturbed plant community was 26.72%. Ground cover, including vegetation cover and litter, was 46.92%. Dominant plants included Indian ricegrass, downy brome, Salina wild rye, and rubber rabbitbrush. Relative cover by species commonly classified as weeds was 15.4%.

The Reclaimed Plant Community had 28.73% vegetation cover and 48.13% ground cover. Dominant species included pubescent wheatgrass, western wheatgrass, kochia, yellow sweet clover, prostrate kochia, rubber rabbitbrush, and fourwing Saltbush. Relative cover from plants usually classified as weeds was 19.2%.

Sampling methods used for the riparian area were different from those used for the other areas. These methods allow the percentage to be greater than 100%. Four layers of the canopy were measured separately. The total cover from these layers was 70.43%. Nearly half of this total was from coyote willow and redtop. Other important species included Fremont cottonwood, narrowleaf cottonwood, and yellow sweet clover.

For the requirements of R645-301-321, the application's vegetation information is considered adequate for the areas included in sampling. However, the information is not complete and does not meet the requirements for using the data as a revegetation success standard.

A few areas were not originally (before the application was submitted) proposed to be disturbed, and vegetation was not sampled in these areas in 1994. It is understood these areas have now been sampled and that the data is forthcoming.

As discussed under "Revegetation," vegetation in most of the proposed disturbed area was not sampled in a normal precipitation year as defined in the Division's "Vegetation Information Guidelines." Therefore, the data are not considered adequate for use as a baseline

revegetation success standard.

Until the Willow Creek refuse removal project disturbed a substantial part of the proposed disturbed area of the Willow Creek Mine, the applicant could have resampled in 1995 to get data for a baseline success standard. The only other options are to use the reference area or range site method. If one of these is used, Cyprus will need to include baseline vegetation information for the site to which the reclaimed area would be compared.

Findings:

Vegetation information is considered adequate with the following exceptions:

1. The applicant needs to include baseline vegetation information for all areas proposed to be disturbed.
2. The applicant has proposed to use the baseline method for the revegetation success standard, but the baseline information in the plan was not gathered during a "normal precipitation year" as defined in the "Vegetation Information Guidelines." Also, since much of the previously disturbed area has been redisturbed, it is impossible to gather this information for these areas. If the applicant decides to use a reference area or range site, the application would need to include baseline vegetation information for this area.

FISH AND WILDLIFE RESOURCE INFORMATION

Regulatory Reference: R645-301-322

Analysis:

Comments concerning this section of the application are preliminary. The Division is required to consult with the Division of Wildlife Resources about wildlife information requirements, and Wildlife Resources has not had time to complete their review.

Fish and Wildlife

Fish and wildlife information is in Section 3.3. Section 3.3.2.1 is a "habitat evaluation for proposed permit area and adjacent areas." This section contains general comments about the habitat of the area, Wildlife Resources' habitat classifications, and the relative importance of certain habitat types.

Section 3.3.2.1 contains generalizations and opinions not necessarily supported by data and which may be irrelevant to the application. For example, a footnote on page 3.3-6 discusses Wildlife Resources' rating system for the importance of wildlife habitat. The applicant is apparently attempting to characterize the importance of the proposed disturbed area as being minimal and discusses the failings of the system. While the system does have problems, including some of those discussed in the footnote, the application gives no data showing which areas may not fit the definitions in the Wildlife Resources system.

This section (and another in the fish and wildlife protection portion of the application) attempts to characterize previously disturbed areas as having minimal value to wildlife. Again, the application does not support these conclusions with data. In fact, the area supports deer winter range and has provided habitat for raptors and other birds. It probably provides habitat for other species as well, not just "occasional rodent species."

If included in the application, these kinds of statements need to be supported with data. While the proposed disturbed area may not have as much value as other areas, its relatively gentle terrain and proximity to Willow Creek give it a lot of value in spite of the highway and power plant. The value for habitat could probably be enhanced in reclamation by providing greater cover and by enhancing the quality of vegetation, particularly in areas not reclaimed by the Division's Abandoned Mines Reclamation Program (AMR).

About 312 species of vertebrate wildlife could exist within the proposed permit area. Of these, 56 are known to live in the area, 21 are likely inhabitants, 97 could occur in the area but may be just transients, and 138 are unlikely to be in the permit area based on known range or habitat preference.

The application says comprehensive site-specific wildlife baseline studies are not required based on applicable Division and Wildlife Resources guidelines and conversations with representatives of these agencies. These studies may not be required, but R645-301-322 says the scope and level of detail of wildlife information is to be determined by the Division based on consultations with State and federal agencies with responsibilities for fish and wildlife and will be sufficient to design the protection and enhancement plan required under R645-301-333. After Wildlife Resources has had an opportunity to review the application, the Division will probably need to require certain baseline information, but the extent of these requirements is not yet known.

Three amphibian species are considered potential residents of the mine plan area. Of these, the tiger salamander is the only species classified as having high interest to the State.

Three reptiles are known, based on observations, to exist in the proposed permit area, but eleven species are considered potential inhabitants. Two high interest species may be in

the proposed permit area, the milk snake and the collared lizard. The application discusses habitat where these species are normally found.

Site reconnaissance surveys in 1994 found 40 bird species although 104 species are considered potential inhabitants of the proposed permit area. Several raptor species are known or believed to nest in the area, and raptor surveys have been done in various parts of the proposed permit area intermittently since 1979. Map 7 shows known nest sites. Six golden eagle nests are within one-half mile of the proposed surface facilities. Future verification of nesting activity will occur prior to construction in 1996/1997, and appropriate mitigation measures will be implemented in consultation with the Division and Wildlife Resources.

The application discusses habitat requirements for thirteen other bird species. The reasons for singling out some of these species is unknown. Some of the thirteen are not known to occur in the West Tavaputs Plateau and are unlikely to inhabit the mine plan area. Discussions about these species should be eliminated from the plan unless they are relevant.

In Section 4.3.3.4, the application says that where full extraction mining is conducted beneath exposed cliff faces, field reconnaissance will be completed for mining areas at least two years prior to mining to evaluate the presence of any sensitive species such as canyon sweetvetch or golden eagle nests. If sensitive species are found in areas having the potential for significant subsidence-related impacts, a mitigation plan will be formulated in consultation with appropriate State and federal agencies. The plans may include leaving buffer zones of coal, obtaining take permits for golden eagle nests, or other plans.

It is extremely unlikely subsidence would affect canyon sweetvetch. This species does not normally grow on cliffs such as could potentially fail during subsidence. Even in the unlikely event there were subsidence cracks in the area of some plants, they would probably not be damaged.

Eagle nests have been lost as a result of subsidence, and the plans to check potential habitat for nesting activity in advance of mining are appropriate. Where the application only gives the examples of golden eagles and canyon sweetvetch, it is assumed there will be checks for other cliff-dwelling species.

In addition to cliffs, subsidence has the potential of affecting trees and tree-nesting raptors. The plateau has areas where these species nest, and these areas should be checked in addition to the cliffs.

The application uses the term "sensitive species" in referring to canyon sweetvetch and golden eagles. This term is used by the Bureau of Land Management and Forest Service to refer to specific groups of uncommon species, often candidate threatened or endangered

species. Canyon sweetvetch is actually on the list for these agencies, but golden eagles are not. The applicant should consider using a different term.

Fifty mammal species are classified as potential residents of the proposed permit area. Of these, ten have been observed in the area. Seventeen species of high interest to the State are known, likely, or possible residents of the area.

As in discussions of other groups of vertebrates, the application gives some information about the life histories of certain mammal species. Again, the reason for giving this information about some of the species is not known. Some are unlikely to be in the proposed permit area, and some are not even known to inhabit the West Tavaputs Plateau. The application is required to be "concise," and there appears to be no reason for including some of this information.

According to the application, nearly all of the proposed permit area contains critical elk winter range. Most of the proposed permit area also has either high priority or critical deer winter range. Several other mammal species are known or suspected to inhabit the area, but the application does not show important habitat for these species.

The Division of Wildlife Resources considers the proposed surface facilities area to be marginal critical deer winter range. The area may not produce as much forage as adjacent undisturbed areas, but because of the terrain, water availability, and other factors, deer tend to congregate there. This use should be identified in the application.

Fish surveys were conducted in Willow Creek in October 1994 and June 1995. Willow Creek is considered a class 4 fishery with low recreational fishing potential. The application says the portion of Willow Creek in the proposed mine area has poor spawning habitat and that this section of the stream is used more as a migration route for spawning fish. The only game species found in the electroshocking surveys was rainbow trout.

The Price River has a greater diversity of fish, but it is still considered a class 4 fishery. Most game fish found in a 1987 electroshocking study in Helper in 1987 were rainbow trout, but there were some cutthroat and brown trout,

Non-game fish species in Willow Creek are speckled dace and mountain sucker. Section 3.3.3.1 and Table 3.3-2 show results from 1994 and 1995 surveys including numbers of each species found. Wildlife Resources has collected nine species of fish from the Price River downstream of its confluence with Willow Creek.

Tables 3.3-3 through 3.3-9 have results of October 1994 macroinvertebrate sampling in Willow Creek. According to the application both the numbers of individuals and the numbers

of taxa found at each sampling site were considered relatively low. Diversity values ranged from 1.15 to 1.66 at lower sites and 1.78 to 2.31 at upper sites. The application says values less than two are considered to indicate a possible stressed macroinvertebrate community.

Threatened and Endangered Species

The application describes the applicant's and others' efforts to locate threatened, endangered, and candidate species. In 1989, the AMR program requested information about what species could be affected by their project in the area of the proposed mine, and they were given a list of six listed and three candidate species. The application says Cedar Creek Associates will request from the Fish and Wildlife Service an updated list of species potentially occurring the proposed permit area.

The application says, based on current listings and information from Wildlife Resources, there is potential for thirteen candidate and five listed terrestrial wildlife species to occur in the proposed permit area. Of the five listed species, only two, the peregrine falcon and bald eagle, have much likelihood of being the area. No peregrine falcon nests or resident falcons are known to exist in the vicinity of the proposed permit area.

Bald eagle critical wintering areas exist a few miles southwest of the proposed permit area, but there are no known high priority concentration areas or critical roost trees actually in the area.

There is potential habitat for two candidate fish species in Willow Creek. These are the roundtail chub and the leatherside chub. The application says these species occurred historically in the Price River and its tributaries, but neither has been observed recently in Willow Creek. However, leatherside chub has been collected recently in the Price River upstream of the Willow Creek confluence.

Six other listed or candidate species could potentially occur in the Price River below the confluence with Willow Creek, but most of these live primarily in the Green River.

Threatened, endangered, and sensitive plant species are discussed in Section 3.2.3. In 1989 correspondence with AMR, the Fish and Wildlife Service mentioned two sensitive plant species that could occur in the area. These are canyon sweetvetch (*Hedysarum occidentale* var. *canone*) and Creutzfeldt catseye (*Cryptantha creutzfeldtii*). Neither species was found by AMR biologists.

The applicant spent several days in August 1994 looking for canyon sweetvetch, but no plants were found in the project area. Two populations were found in the mouth of Cordingly Canyon about one-half mile south of the proposed permit area. The application says it is

possible that additional plants occur in the proposed permit area but not in areas currently proposed for disturbance.

According to the *Utah Endangered, Threatened and Sensitive Plant Field Guide*, Creutzfeldt catseye grows in shadscale and mat atriplex communities on the Mancos Shale Formation between 5250 and 6495 feet elevation. Portions of the proposed disturbed area are barely within this elevational range; however, the area does not have the right kind of habitat for this species. Also, according to Bob Thompson of the U. S. Forest Service, he has seen no plants even in what he considers potential habitat in the Helper area. He has searched and found no plants west of Price.

The Division should be receiving comments from the Fish and Wildlife Service about this project. If they identify additional species of potential concern, the applicant may need to gather more information. Until those comments are received, this portion of the application can be considered technically adequate.

Findings:

For the present, this portion of the application is considered complete and accurate with the following exceptions:

1. Section 3.3.2.1 contains generalizations and opinions not necessarily supported by data and which may be irrelevant to the application. The applicant is apparently trying to show the value of the area to wildlife is minimal. These types of statements need to either be supported with data or eliminated from the application.
2. The application says comprehensive site-specific wildlife baseline studies are not required based on applicable Division and Wildlife Resources guidelines and conversations with representatives of these agencies. This statement should be modified. The extent of wildlife informational requirements is not yet known. R645-301-322 says the scope and level of detail of wildlife information is to be determined by the Division based on consultations with State and federal agencies with responsibilities for fish and wildlife. These State and federal agencies have not yet provided their comments to the Division. Further baseline information could be needed.
3. The applicant has committed to check cliff areas for "sensitive species," such as canyon sweetvetch and golden eagles, in advance of mining that could cause subsidence. In addition, the applicant should check areas with potential habitat for tree-nesting birds of special interest, such as raptors.

4. The application discusses habitat requirements for some bird and mammal species that are not known to occur in the West Tavaputs Plateau and that are unlikely to inhabit the mine plan area. Discussions about these species should be eliminated from the plan unless they are relevant.
5. The Division of Wildlife Resources considers the proposed surface facilities area to be marginal critical deer winter range. The area may not produce as much forage as adjacent undisturbed areas, but because of the terrain, water availability, and other factors, deer tend to congregate there. This use should be identified in the application

INTERIM STABILIZATION

Regulatory Reference: R645-301-331

Analysis:

Requirements of this regulation are addressed primarily in Section 5.3.2.3. Table 5.3-1 is a temporary seed mixture comprised of four introduced and two native species. Most of these species are rhizomatous or spread above ground to effectively protect soil from erosion. The amount of seed the applicant plans to use is minimal. The *Interagency Forage and Conservation Planting Guide for Utah* recommends drill seeding at a rate of 25 to 75 seeds per square foot and broadcast seeding at a rate of 50-100 seeds per square feet. If the applicant uses the mix as shown, they would drill seed at the rate of 29 seeds per square foot or broadcast at the rate of 58 per square foot. While these are within the recommended rates, a 50% increase in the amount of seed would better assure interim revegetation.

In Section 5.3.2.2 under the heading "Seeding," the application says the temporary seed mixture will be drill seeded at a rate of 14.0 pounds of pure live seed (PLS) per acre. According to Table 5.3-1, the temporary seed mixture would be drill seeded at a rate of 11.0 pounds PLS per acre. This discrepancy needs to be resolved.

The application says the planting time for most areas is in the fall, but prompt revegetation of small disturbances may be desirable to minimize erosion potential. In these cases, revegetation could occur at any time if site and climatic conditions are reasonable. Fall is recognized as the best time to seed in this area of Utah, but spring and early August planting may also be successful depending on the weather. If the applicant seeds at times other than the fall, there is a risk of needing to prepare the surface again and to reseed.

The application does not specifically say what other revegetation methods will be used

on interim revegetation sites. However, because it does not differentiate, it is assumed the applicant will use the same methods for both final and interim revegetation. These techniques are discussed under "Revegetation."

Findings:

With the following exception, the applicant has complied with the requirements of this section:

1. The discrepancy between Section 5.3.2.2 and Table 5.3-1 in the amount of seed to be used for interim revegetation needs to be resolved.

It is recommended the applicant increase the amount of seed for interim revegetation by 50%. Revegetation techniques other than the species mixture and timing of planting are discussed under "Revegetation."

FISH AND WILDLIFE PROTECTION

Regulatory Reference: R645-301-333

Analysis:

Potential Effects and General Comments

Section 4.3.2.1 of the application includes a list of potential effects on fish and wildlife. These include disturbance of 55.8 acres of land together with displacement of wildlife from the mine area, direct mortality of non-mobile wildlife, indirect disturbance from increased human activity, a potential for losses from electrocution and traffic-related mortality, the potential for altering vegetation in subsided areas, and possible disruption of water sources due to interruption of ground water flow.

The third paragraph in this section of the application characterizes adverse impacts as being negligible. The paragraph says the proposed disturbance areas have poor vegetation and habitat conditions. It also says, ". . . vegetative reestablishment has not reached the level necessary to provide beneficial habitat values for any wildlife other than rodents and possibly songbirds."

The applicant has not provided data to substantiate these statements. Even if rodents and songbirds were the only groups of animals directly affected, disturbing the area would also affect predators using these animals as a prey base. Although the amount of vegetative cover

in the proposed disturbed area is not as great as in undisturbed areas, the vegetation in reclaimed areas is generally more palatable and has greater nutritional value for wildlife than vegetation in undisturbed areas. Division of Wildlife Resources personnel indicate the area proposed for disturbance is used extensively by wintering deer, and Division personnel have observed numerous deer in the AMR areas. The area has good structural diversity. Many of the rocks have whitewash indicating they are used as perches by raptors.

Broad, general statements that impacts will be minimal are not appropriate except where data substantiates these statements. In most cases, it is best to simply present data and back up generalized statements with comparisons made to other areas or in literature sources. For example, the macroinvertebrate study says a diversity index of less than two indicates a stressed community, and it gives a literature citation. This type of comparison is proper. Also, the applicant could quote qualified sources, such as the Division of Wildlife Resources, to classify habitat conditions.

The application says displacement of mobile wildlife due to development of the surface facilities will largely affect only those species and individual animals which utilize this area. It says terrestrial wildlife use appears to be limited to a few rodent species and a limited number of bats and birds. As discussed above, the area is also used fairly extensively by deer. Although the proposed disturbed area is classified as critical elk winter range, the actual critical range for elk is on the plateau rather than in the surface facilities area.

According to the application, the greatest potential for significant territorial impacts would be associated with displacement of large raptors during the nesting season. Six golden eagle nests are within one-half mile of the proposed surface facilities area, and some have been tended or used within the past few years. Construction during crucial periods could disrupt nesting activities.

Potential effects to aquatic species include increased sedimentation, especially during construction, temporary loss of habitat during realignment of the stream, and possible changes in water quality and flow rates. The length of the creek, and thus the length of the riparian area, would be shortened from about 1210 to 1100 feet.

Although the applicant considered prevailing wind directions when locating the coal stockpiles, some windborn coal fines will probably enter the creek. The conveyor system will be covered to minimize dispersion of coal fines, and all transfer points will be partially or fully enclosed. Most sections of the conveyor will be at least 200 feet from the stream, but a few will be within 150-180 feet.

On page 4.3-5 is the statement, "The use of construction equipment near the Willow Creek stream channel represents a minor potential risk since a petroleum spill or leak could

result in stream contamination and potential toxic effects on fish and macroinvertebrates.” The latter part of this sentence does not explain why using construction equipment near the stream constitutes a minor risk for oil spill contamination.

Maximum anticipated water withdrawals from the Price River will be limited to 730-acre feet annually. These withdrawals would be based on existing water rights, and the application indicates the applicant does not believe this should be considered a new depletion subject to mitigation requirements for threatened and endangered fish of the Upper Colorado River. This determination will be made by the Fish and Wildlife Service. Based on previous discussions with the Fish and Wildlife Service, the new mine would constitute enough of a change in use that mitigation would be necessary.

The application says disturbances to the creek, including removal of a series of five man-made pools below the culvert crossing, would be mitigated by building designed channel segments with essentially the same hydrologic and geomorphic characteristics as the existing stream segments. The realigned sections will incorporate specific designs resulting in overall enhancement of aquatic habitat values and increases in the extent of riparian vegetation. The application gives some details of the designs, including approximate pool and riffle locations, meander locations along with placement of large rocks on the outsides of meanders, and revegetation plans.

Work in the stream will be done during low flows and will include alternative sediment control to keep excavated material out of the creek and to control runoff from the disturbed areas. A series of silt fences will be installed to catch sediment in the new channel after it is first opened. New stream crossings will be seeded with a quick-growing temporary seed mix and mulched or protected with synthetic slope stabilization materials.

In Section 4.3.3.2, the application says no areas were identified as potential wetland areas by the baseline field surveys of surface disturbance areas. The application continues by discussing realignment of the stream. Riparian areas are considered to be wetlands, but the application apparently distinguishes between jurisdictional wetlands regulated by the Corps of Engineers and stream alteration permits issued by the State Division of Water Rights. This should be clarified in the application.

Protection Measures

In Section 4.3.3.5, the application says the applicant will design and construct mine-related power transmission lines as shown in Figure 4.3-1 and in accordance with various Department of the Interior, Department of Agriculture, and Rural Electrification Association guidelines. The applicant needs to check its designs with the Fish and Wildlife Service. The power pole configuration shown in Figure 4.3-1 differs from recommended designs available

to the Division.

The application says in Section 4.3.3.6 that site-specific evaluation of the facilities area by a professional biologist resulted in the conclusion that the proposed conveyor location at the base of the natural canyon walls does not represent a barrier to large animal movements since such movements would typically involve more favorable access routes. Although sides of the canyons are not generally used for major migrations, big game use them for foraging and for daily movements, such as to the creek. The conveyor is a potential obstacle. However, the conveyor was designed with a minimum clearance of 40 inches. Several sections of the conveyor will be elevated more than 40 inches.

Literature sources indicate most deer and elk have no problem going under conveyors elevated at least one meter. Large bucks and bulls may need the conveyor to be elevated as much as ten feet. The plan needs more detail about what sections of the conveyor will be elevated more than 40 inches, how much these sections will be elevated, and about what activities will be occurring in these areas. If elevated sections are in areas where there is a lot of human activity, deer and elk will avoid crossing in these areas. The Division is seeking more information from Wildlife Resources about what designs are needed and about whether the conveyor might restrict big game movements.

Section 4.3.3.7 says the applicant does not plan to use, store, or generate potentially hazardous or toxic materials. This sentence conflicts with the next sentence which says materials potentially hazardous to wildlife, such as petroleum products, will be within closed areas or containers.

With the exception of a small sump near the portals, no open ponds will contain potentially hazardous substances. The sump will collect drainage from the portal and shop areas and could contain petroleum waste. Petroleum residue accumulating in the sump will be collected and transported off-site or disposed of with other oily wastes.

The application needs to contain a commitment to periodically evaluate the stream buffer zone and other undisturbed areas and clean coal fines if necessary. It should also contain a threshold depth limit telling when fines would be cleaned. A suggested limit is one inch.

Equipment use and operations in stream buffer zones will be restricted to the construction activities required for placement of bridge abutments, replacement of the culvert crossing, and stream channel realignment. No fuel or lubricants will be stored within the buffer zone, and fueling and lubrication of equipment will not occur in the immediate vicinity of Willow Creek. A full length berm will separate operating areas from the stream channel.

The application says in Section 4.3.4.2 that the permit area does not provide suitable nesting habitat for bald eagles but that there is some potential for golden eagle nesting. Cyprus will either not initiate new activities within one-half mile of active golden eagles nests during the spring breeding season, or it will, in consultation with the Division and Wildlife Resources, initiate appropriate mitigation measures. Observed golden eagle nesting activity within the permit area will be reported to Wildlife Resources. Cyprus will conduct periodic raptor surveys in areas of concern if proposed mining activities have significant potential to adversely affect raptor breeding.

Three golden eagle nests are in Eagle Canyon, and three are in Castle Canyon. Construction activities within one-half mile of nest sites, particularly when the nests are within line of site of the activities, are normally restricted to a period outside the nesting season, approximately February 15 to July 15. Cyprus intends to install water tanks near the mouth of Castle Canyon and does not anticipate having a conflict with the nesting season. However, fans would be installed near the mouth of Eagle Canyon, and it is anticipated this will take about six months. This construction schedule could conflict with the nesting season for any birds nesting in Eagle Canyon.

To resolve this problem, officials from Cyprus met with the Fish and Wildlife Service. They agreed that Cyprus would evaluate visibility of the proposed facilities from the nests, check the elevation difference, evaluate the possibility of scheduling some construction outside the nesting periods, look at the potential for obtaining take permits and using nesting deterrents, and propose a plan for addressing the nests in the mining and reclamation plan application. In addition, after a firm construction schedule is established, mitigation plans will be developed in consultation with the Division, Wildlife Resources, and the Fish and Wildlife Service before beginning construction. These commitments satisfy regulatory requirements.

During operations, significant wildlife observations from the permit area will be reported to Wildlife Resources. Personnel will be instructed to report accidental wildlife mortality or eagle sightings to the mine environmental coordinator. If mining activities have significant potential to adversely affect raptor breeding, the applicant will perform periodic raptor monitoring surveys.

Aquatic monitoring will continue for two years after construction of the realigned portion of Willow Creek. Benthic macroinvertebrates and fish will be sampled in one location in each relocated portion, and this will be compared to data from a reference location.

Aquatic monitoring will probably need to continue beyond the first two years to show if the mine is adversely affecting the stream. Even though the applicant will continue to take water samples, the stream biology will be affected by factors other than those measured in quarterly water samples. This needs to be discussed with Wildlife Resources to decide exactly

what commitment is needed.

Enhancement

The application does not describe how the applicant will achieve enhancement of fish, wildlife, and related environment values. The application says mobile wildlife will be displaced from the disturbed area, but it does not say how adjacent areas will be able to support these additional animals.

The mining and reclamation plan for the Willow Creek refuse removal project says wildlife habitat impacts will be mitigated using methods agreed upon by the applicant and Wildlife Resources. A final mitigation plan will be submitted to the Division before the project is completed.

The regulations require the applicant to use the best technology currently available to enhance wildlife habitat for both reclamation and operational phases. Habitat enhancement opportunities are available both near the site and off-site, such as at the Gordon Creek Wildlife Management Unit. Because the proposed disturbance area contains critical deer winter range, Wildlife Resources requests mitigation in the form of habitat enhancement at the rate of about one or two acres enhanced for every acre disturbed for the operational portion of the project. The application needs to give some detail of what enhancement measures are planned and a commitment to do it. This could include mention of whatever project is carried out as part of the refuse removal project.

Findings:

This portion of the application is considered complete and accurate with the following exceptions:

1. Broad, general statements that impacts to wildlife will be minimal are not appropriate except where data confirms these statements. Statements that the vegetation and habitat are of poor quality are probably not correct, and, unless they are substantiated, they should be eliminated from the application.
2. On page 4.3-5 is a statement that the use of construction equipment near the Willow Creek stream channel represents a minor potential risk since a petroleum spill or leak could result in stream contamination and potential toxic effects on fish and macroinvertebrates. This sentence needs to be modified. The latter part of the sentence does not explain why using construction equipment near the stream constitutes a minor risk for oil spill contamination

3. The application says no areas were identified as potential wetland areas, but the applicant intends to realign portions of Willow Creek. Riparian areas are considered wetlands although they may not be jurisdictional wetlands regulated by the Army Corps of Engineers. This issue should be clarified.
4. The applicant needs to check its power pole design with the Fish and Wildlife Service. The design presented in the application differs from designs available to the Division.
5. The application needs to give more detail about designs for the conveyor. Although most deer and elk would pass under the conveyor if it is elevated 40 inches, large bucks and bulls may not be able to. The application needs to show where the conveyor would be elevated, how high it would be, and there needs to be some indication of what human activities will happen at those locations.
6. Section 4.3.3.7 says the applicant does not plan to use, store, or generate potentially hazardous or toxic materials. This sentence conflicts with the next sentence which says materials potentially hazardous to wildlife, such as petroleum products, will be within closed areas or containers. These two statements need to agree.
7. The application needs to contain a commitment to periodically evaluate the stream buffer zone and other undisturbed areas and clean coal fines if necessary. It should also contain a threshold depth limit telling when fines would be cleaned. A suggested limit is one inch.
8. The regulations require the applicant to use the best technology currently available to enhance wildlife habitat for both reclamation and operational phases. Because the proposed disturbance area contains critical deer winter range, Wildlife Resources requests mitigation in the form of habitat enhancement at the rate of about one or two acres enhanced for every acre disturbed for the operational portion of the project. The application needs to give some detail of what enhancement measures are planned and a commitment to do it. This could include mention of whatever project is carried out as part of the refuse removal project.

When the Division receives comments from Wildlife Resources, the applicant will probably need to make additional changes to the application.

Although the proposed disturbed area is not on federal property, portions of the proposed permit area have Bureau of Land Management land. Therefore, the Division will

need to receive concurrence from the Fish and Wildlife Service. Although the Division does not anticipate adverse effects to threatened, endangered or sensitive species in the immediate area, the Fish and Wildlife Service may determine water depletions from the mine to have potential adverse effects on threatened and endangered fish of the Upper Colorado River. If so, the applicant will need to pay a mitigation fee.

REVEGETATION

Regulatory Reference: R645-301-341

Analysis:

Revegetation Methods

Generally, seeding will be accomplished as soon as possible following the cessation of mining and replacement of soil. Normally, this will be in the fall. Exceptions will be for newly established soil/substitute stockpiles, road cuts, newly constructed diversion and collection ditches, and small areas where erosion or other repairs have occurred. In these cases, revegetation will occur at any time when site and climatic conditions offer a reasonable chance for success.

Fall is considered the best seeding time in this area, but seeding is sometimes successful in the spring. Cyprus should definitely plan to try to seed in the fall. Seedings done at other times may need to be repeated.

Backfilling, grading, and soil replacement will be done to minimize compaction. Following grading, the regraded surface will be ripped up to three feet. The applicant will then apply finely-chopped hay at a rate of about one and one-half tons per acre.

The soil surface will be left in a roughened condition. Surface manipulations will be minimized and generally limited to shallow chisel plowing, disking, or tine harrowing to break up the soil and provide a firm seedbed.

Leaving the surface rough is one of the most desirable revegetation practices in Utah. "Rough" means large gouges, averaging about two feet deep and perhaps six feet across. Many roughening techniques commonly used in other areas may not be large enough or last long enough for coal mining areas of Utah. Normally, disking and harrowing break up the soil too much and decrease the amount of roughness. Breaking up fine-textured soils tends to increase compaction and decrease infiltration. Although these are standard reclamation practices in other states, they do not work well in Utah.

The applicant plans to drill seed most areas and to broadcast seed where the disturbance area is of limited size, where there are steep slopes, and in other areas where traditional agricultural equipment would be limited.

The temporary seed mixture shown in Table 5.3-1 should do well if it is drilled. However, three species in the upland permanent seed mixture should be broadcast seeded. Species in the riparian seed mixture can be drill seeded, but tufted hairgrass and spreading bentgrass (hereafter called redtop) have very small seeds that might be difficult to drill. At a minimum, big sage, rubber rabbitbrush, and prostrate summer cyprus need to be broadcast seeded.

Some operators drill most species then broadcast the rest before mulching. Others simply broadcast the entire mix. Either alternative is acceptable. However, the Division's experience is that broadcasting the entire mix usually results in more diverse composition than drilling. Also, drilling may have a tendency to reduce roughening.

Seed mixtures to be used for final reclamation are shown in Tables 5.3-2 and 5.3-3. Some changes to these mixtures are needed and recommended.

In Section 5.3.2.2, the application says all areas to be revegetated on a permanent basis, including the Willow Creek realignment sections, will be drill seeded at a rate of 13.5 pounds PLS per acre. This conflicts with both permanent seed mixes as shown in Tables 5.3-2 and 5.3-3. This discrepancy needs to be resolved.

Under the heading "Woody Species Transplanting," the application mentions several woody species included in the seed mixture that can be effectively transplanted from seed. Included in this list is fringed sage. Fringed sage is not in the seed mixes in Tables 5.3-2 and 5.3-3.

Concerning the use of introduced species in permanent reclamation seed mixes, the application says they were included due to their abilities to germinate and establish more rapidly than many native species, their value as sod-formers or nitrogen fixers, their specific value as wildlife browse and forage, and the fact that they have been previously approved by the Division and were used in the AMR revegetation work. The AMR program is not subject to the same introduced species performance standards as the Title V program. Introduced species used for permanent reclamation need to be justified for each site.

The upland seed mixture in Table 5.3-2 includes five introduced species. Two of these, alfalfa and yellow sweet clover, are legumes that are normally included in seed mixtures in Utah. They are both pioneer species that increase soil microbial activity and are very palatable to wildlife and livestock. Although native legumes are available and perhaps should

be included in the mixture, the natives do not perform the functions of these introduced species nearly as well.

The other introduced species in the mixture are intermediate wheatgrass, orchardgrass, and prostrate summer cyprus. There are native species that can perform the functions of intermediate wheatgrass and orchardgrass, so these species are probably not needed in the mixture. If the applicant desires to keep them, the application will need to show they are desirable and necessary to achieve the postmining land use.

Downy brome and kochia are major components of previously disturbed areas at Willow Creek. In the Division's 1995 sampling, weeds made up nearly one-fourth of all vegetative cover. Prostrate summer cyprus is known to outcompete downy brome, and it is a major component of the reclaimed areas at Willow Creek. Considering the amount of weeds at the site currently, there will probably be weed problems during reclamation. Although it would be possible to reclaim the area without prostrate summer cyprus, using it would most likely increase the amount of desirable perennial cover.

The Division of Wildlife Resources has commented in the past that, before overgrazing caused a shift in the vegetation communities, bluebunch wheatgrass probably dominated areas where salina wild rye dominates now. Bluebunch wheatgrass is more palatable than salina wild rye, and it needs to be included in the seed mixture. A recommended rate is two pounds PLS per acre (drilled).

In the Division's experience, woods rose and mountain mahogany rarely, if ever, establish from seed untreated by sulfuric acid or thiourea. Although these species are desirable, they would probably not establish in the reclaimed area from untreated seed. They could both be established from transplants.

Fourwing saltbush is a very important pioneer species, highly palatable to wildlife, that performs very well in reclaimed areas. The rate of seeding this species should be increased to at least 1.5 pounds PLS per acre. A preferred rate is three pounds PLS per acre.

Judging from experiences in Hardscrabble Canyon and Sowbelly Gulch, a few forb species could be added to the mixture to increase the amount of diversity. Those that appear to have established best from seed in these reclaimed areas are blueleaf aster and yarrow. Other species that might be used successfully include showy goldeneye, northern sweetvetch, and Louisiana sage.

The total amount of seed to be planted in upland areas is 110 seeds per square foot (drilled). While this appears adequate, 68% of these seeds would be from just two species, sagebrush and rabbitbrush. Eliminating these species, the rate becomes just 35 seeds per

square foot. The amounts of sagebrush and rabbitbrush need to be reduced, and the amounts of other species should be increased.

The riparian seed mixture in Table 5.3-3 includes four grass and one legume species. Although the application does not indicate any of these species are introduced, redtop and strawberry clover are not native to Utah. Redtop was introduced to the United States before 1750 and is now circumboreal, so it can almost be considered native. It was also the main herbaceous component in riparian vegetation along the creek.

Strawberry clover, although not native, is a legume that spreads by both rhizomes and stolons. It is considered to be adapted to areas with periodic flooding. There were no native legumes encountered in vegetation sampling in the riparian areas, and, for reasons discussed above, it is desirable to have legumes planted in disturbed areas.

Seeds of all the grasses in the riparian mixture are very small. Two pounds per acre PLS of each of these is probably more seed than is needed. It is recommended that the seeding rates be reduced for the four grasses by about one-half. Also, the applicant could add Kentucky bluegrass and blueleaf aster at one pound PLS per acre each (drilled).

The applicant plans to plant Fremont cottonwoods, coyote willows, and serviceberries or currants at a total rate of 54 to 58 cuttings or seedlings per 100 feet of linear channel disturbance. Normal seedling transplant methods will be used for the transplants. Willow cuttings will be obtained from existing natural growth along the Willow creek channel during early spring. Transplants will be protected from wildlife by net enclosures.

The application should clarify how many cuttings and transplants will be used. It is unclear whether 54 to 58 cuttings or seedlings per 100 feet applies to both sides or to one side of the stream although it appears from Maps 28 and 29 that it only applies to one side of the stream. It should probably apply to just one side of the stream: one cutting or transplant every two feet is not excessive.

Following seeding, straw or native hay mulch will be applied to most reseeded areas at a rate of about two tons per acre. This will be crimped or anchored using a disk or similar agricultural equipment. In areas with increased erosion potential, other methods, including dozer tracking, application of geotextiles, and hydromulching at a rate of 1.5 tons per acre, may be used.

It is suggested the applicant use certified noxious weed free straw or hay for mulch. Many noxious weed infestations have resulted from using contaminated straw or hay mulch.

Straw or hay applied at the rate of about two tons per acre has been shown in several

studies to provide better erosion control and seedling establishment than most other mulches. However, crimping the mulch with a disk is likely to reduce the amount of surface roughness. One method of anchoring straw or hay mulch without particularly decreasing the roughness is to crimp it with the teeth of the bucket on a trackhoe.

The application discusses dozer tracking and hydromulch for use in areas with more severe erosion potential. Dozer tracking, although useful in some areas, does not normally provide enough surface roughness that it is beneficial for erosion control. It does not crimp straw or hay very much, and the cleat tracks are not nearly large enough.

According to a Forest Service publication, hydromulch is only effective for 30 days after application. In the Division's experience, it may inhibit seedling growth when used in lower precipitation zones because it forms a mat that is difficult for seedlings to penetrate. This would be especially true at the relatively high rate shown in the application.

Geotextiles have shown promise in use for erosion control. However, the applicant would need to receive approval for the specific method and materials before using them.

The applicant does not intend to irrigate reclaimed areas. Regular inspections of the reclaimed areas will include checks for significant noxious weeds infestations or insect damage. If problems are discovered, the applicant will consult with the Division and with Carbon County Weed Control to develop and implement appropriate control measures. If pesticides are to be used, the applicant will only use chemicals approved for the particular use and will limit control to spot applications.

Any noxious weed infestations have the potential of spreading to other areas. Some parts of the proposed disturbed area have had noxious weed infestations, and it is likely reclaimed areas will also. The applicant should plan to control any noxious weeds that appear on reclaimed areas.

Success Standards

Revegetated areas will be sampled three, seven, nine, and ten years after initial permanent revegetation seeding. The applicant plans to sample ground cover, productivity, and woody plant densities on all permanently revegetated areas and will evaluate revegetation success on the basis of these parameters. Sampling methods will be essentially the same as used for baseline data collection.

Cover and production values for reclaimed areas previously identified as disturbed or reclaimed (AMR) would be compared with a weighted average value based on the baseline data for the disturbed, reclaimed sagebrush-grass, and pinyon-juniper vegetation communities.

Areas identified as riparian in the baseline evaluation would be compared with baseline data from those areas.

The Division's "Vegetation Information Guidelines" require that, in order to use the baseline method for revegetation success, original data must be taken during a "normal precipitation year." This is defined as one in which precipitation in the year preceding sampling is at least 90% of the long-term average. Also, precipitation in the month preceding sampling must be at least 90% of average.

The power plant near the confluence of Willow Creek with the Price River maintains a weather station. Precipitation data in the following discussion are from their data as submitted to the National Weather Service and the Utah Climate Center.

The applicant sampled Willow Creek vegetation in September 1994. August 1994 was wetter than average with 1.84 inches of rain. This compares to the long-term average of 1.26 inches. September 1994 precipitation was slightly below average: 1.70 inches fell, and the average is 1.84 inches.

Total precipitation for the period September 1993 through August 1994 was 12.30 inches. This is 80% of the long-term annual average of about 15.34 inches. Therefore, the year prior to September 1994 cannot be considered a normal precipitation year according to the Division's guidelines. This also means that the 1994 data from non-riparian areas cannot be used as a standard for judging revegetation success. The riparian area has a constant water source, so lower than average precipitation should have had a negligible effect on vegetation cover in this area.

Since the Willow Creek refuse removal project has begun, it is now impossible to sample vegetation over the entire site. The best options for success standards for upland areas are using a reference area or range site.

The application is unclear about the success standard for areas not previously disturbed. It appears the applicant is proposing to use a weighted average of all baseline data to derive the standard for all non-riparian areas. If this is correct, it is not appropriate for areas not previously disturbed by mining.

Using a weighted average for previously disturbed areas is allowable since the same set of criteria will be applied to all previously disturbed areas.

The application says if the absolute values for cover and production for the reclaimed areas are greater than or equal to the calculated 90% confidence interval for the baseline data (for the riparian areas) or the weighted average based on the baseline data (for previously

disturbed areas), then the mean values can be considered statistically equivalent. The statistical test discussed in the application is used to compare a sample value with a set standard, in this case the value for the baseline data. However, the baseline data standard cannot be considered an actual mean value since it is also based on a sample. It is not a fixed standard similar to the woody plant density standard that the Division will set after consultation with Wildlife Resources. The values that would be compared are independent samples. For this reason, it is necessary to pool the variances to perform the t-test.

The application proposes woody plant density success standards of 750 stems per acre for previously disturbed or reclaimed areas and 1000 stems per acre for the sagebrush-grass, pinyon-juniper, and riparian bottom areas. The Division will need to consult with Wildlife Resources about the woody plant density success standards. Both the Division and Wildlife Resources need to approve these standards.

The applicant needs to propose success standard for some of the general requirements in R645-301-353. These include diversity, erosion control, permanence, and seasonality. Methods of measuring some parameters, including cover, production, and woody plant density, are shown in Appendix A of the "Vegetation Information Guidelines." R645-301-356.110 references Appendix A, but the regulations do not specify what methods are to be used for other standards that the applicant must achieve.

Fish and Wildlife Plan

The application discusses the realignment of Willow Creek and the measures to be used to stabilize it and to recreate aquatic habitat. Pool habitat will be created by placing multiple meanders in the stream and using a concentration of boulders below the bends. The riffle/pool ratio will be about 1:2. Reestablished riparian vegetation will provide effective cover for fish and aquatic species once it becomes established. Boulders will be placed in such a manner as to allow fish movement throughout the realigned sections. Stream restoration will also be used to mitigate habitat loss and modifications resulting from construction of the proposed main access road bridge and the replacement of the existing culvert crossing.

These plans do not show how the habitat in Willow Creek will be enhanced or how stream restoration will mitigate habitat loss. The question is whether the stream realignment will enhance Willow Creek habitat or if it will just restore it to existing conditions. Restoration is expected, but the applicant is also required to enhance habitat where practicable.

The application says recommendations from the Division of Wildlife Resources were reviewed in developing the reclamation seed mixture. A number of the species selected for the proposed seed mix were included because of their value for habitat restoration.

The species in the seed mixture generally meet the requirements of R645-301-342.200. Requirements and recommendations for the seed mixture are discussed above. While Wildlife Resources may have some additional recommendations or requirements, it is believed the seed mix will be in full compliance after the applicant meets the requirements discussed in this review.

The application does not discuss how enhancement will be achieved in the reclamation phase of operations or if it is practicable. Restoring vegetation to approximate premining conditions will not enhance the habitat. The applicant needs to determine whether there are ways of enhancing habitat. Except for improvements in Willow Creek, enhancements may not be practicable since there is no need for additional water sources and there is quite a lot of raptor habitat in adjacent cliffs.

A suggestion is to stockpile any large rocks found during site development and reclamation and to place them in piles over the reclaimed area. This provides habitat for small mammals, reptiles, and birds. Raptors use the rock piles as perches. This technique has worked well at several AMR sites as well as Hardscrabble Canyon and Sowbelly Gulch. Several large rocks were placed on the surface at the Willow Creek AMR site, but habitat on unreclaimed areas would be enhanced by doing this.

Findings:

The applications is considered complete and accurate with the following exceptions:

1. The applicant intends to drill seed in most areas. Broadcasting is recommended over drilling. However, if the applicant chooses to drill seed, at least three species in the upland permanent reclamation seed mixture, big sage, rubber rabbitbrush, and prostrate summer cyprus, need to be broadcast seeded.
2. In Section 5.3.2.2, the application says all areas to be revegetated on a permanent basis, including the Willow Creek realignment sections, will be drill seeded at a rate of 13.5 pounds PLS per acre. This conflicts with the permanent seed mixes shown in Tables 5.3-2 and 5.3-3. This discrepancy needs to be resolved. Also, under the heading "Woody Species Transplanting," the application mentions several woody species included in the seed mixture that can be effectively transplanted from seed. Included in this list is fringed sage, but fringed sage is not in the seed mixes in Tables 5.3-2 and 5.3-3.
3. The permanent reclamation seed mixtures include seven introduced species. Use of most of these is justified, but it does not appear that intermediate wheatgrass and orchardgrass are both desirable and necessary to achieve the

postmining land use. These species either need to be eliminated from the mixture or the applicant needs to include further justification for including them.

4. Bluebunch wheatgrass needs to be included in the permanent seed mixture for upland areas. A recommended rate is two pounds pure live seed per acre (drilled).
5. The applicant needs to adjust the quantities of seed to be planted in upland areas. As proposed, 68% of the seeds would come from just two species, rubber rabbitbrush and sagebrush. The amounts of these species should be reduced and the amounts of other species needs to be increased. In particular, it is suggested that the amount of fourwing saltbush be increased to three pounds per acre pure live seed (drilled). Also suggested is the addition of blueleaf aster and yarrow to this mixture.
6. The application needs to clarify how many cuttings and transplants will be used along the stream channel.
7. The applicant should commit to try to eliminate any noxious weed infestation regardless of its size.
8. The applicant intends to use the baseline data method for judging revegetation success, but the data was not collected during a normal precipitation year as defined in the Division's "Vegetation Information Guidelines." Therefore, except for the riparian area, this method cannot be used unless the applicant presents data taken during a normal precipitation year. Other options for revegetation success standards include establishing a reference area or range sites.
9. It appears the applicant proposes to use a weighted average of vegetation cover for all reclaimed areas to compare to the revegetation success standard. This is acceptable for previously disturbed areas but not for areas not previously disturbed by mining.
10. Section 5.3.2.6 of the application says absolute values for cover and production from reclaimed areas will be compared with a confidence interval for the baseline data to determine if the applicant has met revegetation success standards. Since the values for both baseline data and reclaimed area data are from samples, it is necessary to pool the variances to perform a t-test for equality.

11. The application needs to include revegetation success standards for certain parameters in the general requirements, including erosion control, diversity, seasonality, and permanence.
12. The applicant is required to use the best technology currently available to enhance wildlife habitat in the postmining phase of operations. The application discusses methods for restoring the stream channel, but it does not discuss whether this will constitute enhancement. The application does not show how upland areas will be enhanced. If the application does not include enhancement measures, it needs to include a statement showing why enhancement is not practicable.

The Division will need to consult with the Division of Wildlife Resources to establish a woody plant density success standard.

In addition to the above requirements, The Division makes the following suggestions:

1. Seeds of all the grasses in the riparian mixture are very small. Two pounds per acre PLS of each of these is probably more seed than is needed. It is recommended that the seeding rates be reduced for the four grasses by about one-half. Also, the applicant could add Kentucky bluegrass and blueleaf aster at one pound PLS per acre each (drilled).
2. The applicant intends to use hydromulch and dozer tracking to help control erosion in steeper, more highly erodible areas. These methods are not expected to be as effective as other available methods.
3. Surface roughening is one of the most effective reclamation techniques used in Utah. Some practices proposed in the application, including dozer tracking, disking and harrowing, using a disk to crimp straw or hay mulch, and drilling seed, would tend to decrease surface roughening. Some of these methods, such as disking and harrowing, are simply not needed.

RECOMMENDATIONS

The application cannot be approved until deficiencies discussed in this document have been resolved. The Division will need to receive comments from the Fish and Wildlife Service and the State Division of Wildlife Resources before its comments can be finalized.

INSPECTION REPORT
(Continuation sheet)

Page 2 of 2

PERMIT NUMBER: ACT/007/038

DATE OF INSPECTION: 7-10-95

(Comments are Numbered to Correspond with Topics Listed Above)

4A. DIVERSIONS -

The diversions were spot-checked and were performing as designed. There were no signs of breaching or major sediment build-up.

4C. OTHER SEDIMENT CONTROL MEASURES -

The silt fences throughout the property were checked. Maintenance is needed at the first rock tunnel located at Willow Creek. Operator will repair the silt fence. No sediment left the disturb area.

The operator will rip the drill pad ground which was used this summer. This will be the alternate sediment control measure for this area. Also, the operator will seed the area this fall.

7. COAL MINE WASTE -

The drill pad area used this summer has wood debris which the operator will remove. This material came from the public and the prior pre-law coal mine.

13. REVEGETATION -

The drill holes located on the AML coal mine waste pile was seeded last year. The vegetation that covers this area was hard to distinguish from the AML reclamation of this area. The main reason for the vegetative growth is the large quantity of rainfall this year.

Note: This inspection report does not constitute an affidavit of compliance with the regulatory program of the Division of Oil, Gas, and Mining.

Copy of this Report:

Mailed to: Cyprus Western Coal Company Donna Griffin (OSM)
Given to: Joe Helfrich (DOGM) Filed to: Price Field Office
Date: July 14, 1995

Inspector's Signature:  #39
Stephen J. Demczak