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 DIVISION OF OIL, GAS AND MINING

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TO: ~~Internal File~~

THRU: Priscilla W. Burton, Reclamation Soils Specialist and Team Lead 

FROM: Paul B. Baker, Reclamation Biologist 

RE: Revisions to the Crandall Canyon Reclamation Plan, Plateau Mining Corporation, Willow Creek Mine, G-00000000R01A, Internal File

**SUMMARY:**

Plateau Mining Corporation is proposing to modify the reclamation plan for the Crandall Canyon area of the Willow Creek Mine. After bond release, part of the land in the canyon will revert to a new land owner who has requested that the road remain so he can access his property. Backfilling and grading and channel designs had to be altered to accommodate retention of the road, and the plan was also updated in other ways.

**TECHNICAL ANALYSIS:**

**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:**

According to the approved mining and reclamation plan, the premining land use for Crandall Canyon is undeveloped land. The definition of "undeveloped land" in R645-100 says undeveloped land is land that is undeveloped or if previously developed, land that has been

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allowed to return naturally to an undeveloped state or has been allowed to return to forest through natural succession.

According to information in the application and verbal information from the applicant, Reed Martineau now owns some of the land in Crandall Canyon. None of Mr. Martineau's land is within the boundaries of the disturbed area, but the applicant, which is also the land owner for the disturbed area, intends to deed this land to Mr. Martineau after final bond release.

With the change in ownership of lands within or contiguous to the permit area, the applicant needs to update the land ownership section of the mining and reclamation plan, including maps of the area.

The applicant is proposing to leave the road through the canyon to accommodate the desires of the person who will own the land to have better access. A letter in Appendix 3.7V from Mr. Martineau says he needs access to the property "to be able to use and develop needed improvements and facilities for enjoyment of the property." Section 3.7-5(2) of the application says the postmining land use is for hunting, cabin sites, access for grazing, access for land management, and for other recreational uses.

These uses constitute a change from the premining land use; therefore, the proposal is a significant revision requiring public comment. Retention of the road is not, of itself, a change in the postmining land use, but the Division judges those uses for which the road will be used. "Undeveloped land" implies the land will have no structures or facilities and that it is not actively managed for wildlife or grazing. This is contrary to the uses Mr. Martineau plans. It appears the land uses would be recreation, grazing, and possibly residential. The applicant has apparently been advertising the revision but needs to submit proof of publication.

The applicant needs to address the requirement of R645-301-413.300. The application should discuss whether the proposed use falls within the definition of "higher and better use." It should also address the likelihood for achieving the use and whether it is consistent with local land use policies. The application already contains some information indicating there would be a reduced threat for water pollution but it does not mention anything about water diminution.

**Findings:**

Information in the proposal is not adequate to meet the requirements of this section of the regulations. Prior to final approval, the applicant must supply the following information in accordance with:

**R645-301-521.131, R645-301-112.600,** The text and map showing surface ownership need to be updated to show the new land ownership information.

**R645-301-414**, The application includes a proposal to change the postmining land use which is a significant revision. The applicant needs to submit proof of publication.

**R645-301-413.300**, The applicant needs to submit information to comply with R645-301-413.300. This information needs to show that the proposed land use is a higher and better use and discuss the likelihood of achieving the use and whether it is compatible with local land use regulations.

## **PROTECTION OF FISH, WILDLIFE, AND RELATED ENVIRONMENTAL VALUES**

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

### **Analysis:**

The only specific wildlife habitat enhancement measure included in the reclamation plan is to retain any power poles that are being used by raptors.

The applicant is required to use the best technology currently available to protect and enhance wildlife habitat, and there may be additional feasible alternatives that could be used. Although the postmining land use would not be wildlife habitat, wildlife would continue to use the area, and practical habitat enhancement is required for any land use, even including industrial sites.

The channel design is for a riprapped meandering channel. Soil would be placed among the riprap to help facilitate revegetation. Because this is an intermittent stream where water often flows at least until early summer, there may be ways of enhancing the riparian habitat. The applicant might be able to use willow wattles on the outside of some of the meanders or could possibly install in-stream structures, such as large rocks or logs. These types of features would create more places for riparian vegetation to establish.

It appears there is a seep or spring in the vicinity of pond 14, but the applicant does not show plans to develop this spring. Developing the spring, however, would probably require a water right, and it may be just as well to allow the water to flow down the channel. It would still be available for wildlife, and it would enhance the riparian vegetation.

The plant species in the seed and planting mixture meet the requirements of R645-301-342.200. They should lead to good quality wildlife habitat.

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**Findings:**

Information in the proposal is not adequate to meet the requirements of this section of the regulations. Prior to final approval, the applicant must supply the following information in accordance with:

**R645-301-358**, There may be some practical ways to enhance wildlife habitat that are not discussed in the application. The applicant needs to investigate these and include them in the plan if they meet the criteria for the best technology currently available.

**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:**

**Timing**

The current mining and reclamation plan says seeding and planting will be done in the fall whenever possible but that it may sometimes be necessary to seed or plant in the spring. The applicant has had good success with planting seedlings in the fall, and this is considered the normal time to seed. Seeding in the spring increases the risk that vegetation will take much longer to establish, so although the mining and reclamation plan complies with regulatory requirements, the applicant should try to avoid spring seeding.

**Mulching and other soil stabilizing practices.**

Before redistributing topsoil, the applicant will rip the underlying spoil to a depth of 18 to 24 inches. Topsoil will be redistributed on only part of the disturbed area; substitute topsoil will be used in the rest of the area. The applicant will spread alfalfa hay on the soil and substitute soil at a rate of about two tons per acre, and this will be mixed into the soil through gouging. The alfalfa serves as a soil amendment. No fertilizer will be added because fertilizer tends to increase the number of weeds.

Following soil surface preparation, the area will be broadcast seeded followed by application of between one and one and one-half tons per acre of straw and 500 pounds per acre of wood fiber hydromulch. The hydromulch is to anchor the straw. The gouging and mulching methods keep water from running off thereby promoting vegetation establishment and growth.

The seed mix consists of fifteen native species. The applicant has elected to use only one seed mix rather than having different seed mixes for different aspects or for the riparian area. The mix has species adapted to all the conditions at the mine from south-facing slopes to riparian areas to north-facing slopes.

The planting mix includes two species of conifers, bigtooth maple, and cottonwoods. The conifers will be planted near the main channel (CCRD-11) and in the side canyon with CCRD-3. The planting rates for the conifers were designed to not create a climax, closed forest type of community. The maples and cottonwoods will be planted about every twenty feet along the channel.

The revegetation methods proposed are the best of which the Division is aware and should lead to good revegetation success.

#### **Standards for success**

General revegetation requirements are in R645-301-353, and the success standards specifically required for areas with grazing and recreation land uses are in R645-301-356.210 and R645-301-356.230. Revegetation success for these areas is judged on the basis of ground cover, productivity, and woody plant density. Since the requirements for these uses are different than the requirements for the "undeveloped" land use, the plan needs to be changed to include the new standards.

According to the original vegetation survey, five vegetation types were identified in the area that was proposed to be disturbed. These are conifer, riparian, grass/sage, mixed brush, and previously disturbed. According to the mining and reclamation plan and the application, the disturbed area would be compared with riparian and conifer reference areas in Crandall Canyon and with a grass sage reference area above the clean coal stockpile at the Willow Creek Preparation Plant.

Ground cover and productivity standards are relatively straightforward. The reclaimed areas can be compared statistically with the appropriate reference areas. This can be done combining the information currently in the mining and reclamation plan and the performance standards.

Diversity is judged using the Motyka Index as discussed in Chapter 9 of Exhibit 19. The standard is that the similarity between the reference and reclaimed areas must be at least the lower of 70% or the average similarity between each vegetation sample in the reference area. The Division has previously approved this standard and found it acceptable.

In Section 3.7-5(3)(9), the application says the applicant will meet diversity requirements for each of the reclaimed areas except the riparian area. The riparian area needs to meet

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revegetation criteria, but water areas do not. The channel is considered a water area, but the areas adjacent to the channel with riparian vegetation need to meet revegetation success standards. Therefore, the statement in Section 3.7-5(3)(9) needs to be modified.

Because the postmining land use has not previously been either recreation or wildlife habitat, no woody plant density standard was established. With the change in land use, the Division is required to establish a density standard in consultation with the Division of Wildlife Resources.

When the vegetation measurements were taken in 1981, the conifer reference area had 5244 shrubs and 389 trees per acre for a total of 5633 woody plants per acre. Most of these were Oregon grape, a very small shrub that often grows in the conifer understory. Considering the number of trees to be planted, the number of trees and shrubs in the reference area, and the desired vegetation community, the success standard has been set at 800 woody plants per acre. This should be composed of no more than about 250 conifers per acre, and the rest should be shrubs or other kinds of trees. If there were more conifers than this, it would tend to lead to a closed stand with little understory.

The riparian area only had 223 woody plants per acre in 1981, but the applicant intends to plant about 700 per acre. While grasses and trees tend to dominate this area with few shrubs, the Division and Wildlife Resources decided to set the standard at 400 per acre.

Most of the site will be compared with the grass/sage reference area where woody plant density was measured at 981 per acre. According to the Division of Wildlife Resources, the area is in elk winter range, but deer do not winter in this area. At this elevation, deer instead prefer more exposed sites where forage is more easily available.

Elk are primarily grazers although they will eat some shrubs and mushrooms. For this reason and because Crandall Canyon does not contain winter habitat for mule deer, shrubs are not as important in this area as they would be in deer winter range. The main part of Crandall Canyon can meet the postmining land use even if it contains only a limited number of shrubs. However, the Division expects that many of the grasses that establish in this area to be tall grasses, such as basin wild rye and slender wheatgrass. Basin wild rye is a preferred species for elk because of its height and because it cures well and maintains its nutritional value into the winter.

Since shrubs are not as critical for meeting the postmining land use, the standards have been set relatively low. They are 200 per acre for the leach field area and 800 per acre elsewhere. The leach field area is next to pinyon/juniper, riparian, and conifer areas, so leaving it primarily as a grassland will provide more diversity and greater forage for wildlife. The rest of the area is more open, so establishing shrubs for both cover and forage is more desirable.

**Findings:**

Information in the proposal is not adequate to meet the requirements of this section of the regulations. Prior to final approval, the applicant must supply the following information in accordance with:

**R645-301-341.250**, The statement in Section 3.7-5(3)(9) that the applicant will meet diversity requirements for each of the reclaimed areas except the riparian area needs to be modified. While it is not necessary to meet revegetation standards in the channel, it is necessary to meet them in adjacent areas which includes the riparian area.

**R645-301-341.250**, The application needs to include the woody plant density success standards discussed in this analysis.

**RECOMMENDATIONS:**

The application should not be approved until the applicant has adequately addressed the deficiencies discussed in this memorandum.