



State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

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TO: File

THROUGH: Daron Haddock, Permit Supervisor

FROM: Paul Baker, Reclamation Biologist *PBB*

DATE: March 19, 1993

RE: Genwal Reformatted Mining and Reclamation Plan, Genwal Coal Co.,
Crandall Canyon Mine, Folder #2, ACT/015/032, Emery County, Utah

SUMMARY

In conjunction with permit expiration on May 13, Genwal has submitted a new mining and reclamation plan formatted to the R645 regulations. Information from the previous approved plan has not been entirely carried over into the new plan. This includes information from both Chapters 13 (right-of-way) and 14 (State leases). Some of the stipulations on the approval of Chapter 14 have been met, but some have not. The plan contains numerous other technical deficiencies, but these are not serious. Some, however, are still present in the plan after at least three reviews of the old Chapter 3.

ANALYSIS

R645-301-321

Vegetation Information

Proposal:

The plan contains quantitative descriptions of spruce/fir/aspen, mountain shrub/grassland, riparian, mixed mountain shrub/conifer/aspen, and previously disturbed vegetation communities near the portals. The reference area is in a mountain shrub/grassland community.

The plan also includes vegetation maps of other parts of the permit area without the more detailed description given for areas near the portals.

Analysis:

Appropriateness of the reference area is discussed under R645-301-341.250. The

information provided in this section of the plan is adequate to establish standards for success and to formulate the revegetation plan.

Federal lease stipulations, including those contained in the approval for Chapter 14, require a plan to monitor the effects of underground mining on vegetation. The plan needs to include some detail of this plan, including methods and frequency of monitoring.

Deficiencies:

1. The plan must include a plan to monitor the effects of underground mining on vegetation in accordance with lease stipulations.

R645-301-322

Wildlife Information

Proposal:

The plan includes studies of aquatic resources of Crandall Creek. One of the studies originally indicated that Crandall Creek was not a fishery, but the plan also says that it is used by fish for spawning and as habitat for mature fish. The first report was written in 1980, and it appears that the stream contained beaver ponds which blocked fish access up the stream. The 1983 report by Wildlife Resources (DWR) indicates that the very high runoff that year destroyed all of the beaver ponds. This DWR report contains some fish survey information for Crandall Creek.

The plan contains general and site-specific descriptions of terrestrial wildlife use of the area and maps showing critical habitat in the area for some species. The permit area, including the disturbed area, contains critical habitat for moose, but the plan states that there is a tremendous volume of adjacent unoccupied habitat suitable to absorb displaced moose.

Analysis:

Some attempts were apparently made to alter the 1980 report on the aquatic resources of Crandall Canyon to conform with later observations. This is not appropriate since the report contains observations made by the consultant. The plan contains qualifying statements indicating that the stream is now used as a spawning and nursery stream and that it is also used by mature fish.

February 21, 1992, correspondence from DWR states that the moose herd in the area is developing and that adequate habitat is essential if the herd is to sustain itself. The letter was primarily concerned with potential loss of stream flows and degradation

of riparian habitats rather than the effects of the already-operating surface facilities.

The plan states on page 3-7 that the golden eagle nest high on the ridge northeast of the portals is the only raptor nest in Crandall Canyon according to information supplied by DWR. This statement is deceptive because, although this may be the only information supplied by DWR, the plan discusses other nests in Crandall Canyon within and near the permit area (see pp. 41-42 of Valley Engineering's "Vegetation and Terrestrial Wildlife Report"). In addition, other nests may have been built in the area since the survey was completed. The statement on page 3-7 should be changed to state that other nests were found.

Prior to the cover sheet for the Valley Engineering report is a page that indicates that pages 1-39 of the report are found in item 9-1 in Chapter 9. This sheet appears to have been carried over from the previous plan and should be eliminated.

In Chapter 14, the plan refers to Appendix 13-3 which is a letter from DWR discussing a survey of the state lease areas for cliff-nesting raptor nests and habitat. This letter states that there were no nests found and that the areas do not contain good cliff-nesting habitat. This letter and reference to it needs to be carried over into the new plan. The letter does not say that work was done to identify tree nests. The aspen and conifer areas near the streams probably contain good accipiter nesting habitat that could be affected by subsidence. Of particular concern is the goshawk. Correspondence dated February 21, 1992, to the Division from DWR states that, in addition to cliff-nesting raptors, the area contains potential habitat for a number of other raptor species. It says that monitoring should determine if active nest sites of these species are established and if potential damage from subsidence could occur. The mining and reclamation plan needs to contain a plan to address this concern. If it is determined that there is a potential for damage from subsidence, a protection or mitigation plan must be developed. Details should be developed in consultation with DWR and the Division and included in the plan.

The plan states on page 3-7 that an aerial survey of the golden eagle nest above the mine portals will be conducted every three years or on request of DWR or the U. S. Fish and Wildlife Service. The most recent monitoring of this nest of which the reviewer is aware was in 1991. It was inactive at that time. Second mining was apparently done in this area in 1991. Because second mining has been performed, further monitoring of this nest should not be needed after 1994. Genwal appears to have fulfilled their commitment to monitor the nest prior to conducting second mining, but the reviewer and Susan Linner of the Fish and Wildlife Service are not aware of coordination with the Fish and Wildlife Service to obtain a take permit for the nest prior to mining that could result in subsidence and loss of the nest. If the nest has been lost through subsidence and if a take permit was not obtained, Genwal is in violation of the performance standards and

of the Bald Eagle Protection Act.

On page 3-6, the second sentence in the first paragraph under the heading "Migratory Birds of High Federal Interest" states, "In this area no expansive grassland hunting habitats and the existing levels of human activity - probably preclude this species from utilizing the site and vicinity." This sentence appears to be out of place and should be deleted if it is not needed. There is no indication what "this species" is.

Several changes have occurred to the list of migratory birds of high federal interest since the plan and the consultant's report were first written. The consultant's report should not be changed, but the plan should be updated with the most current information. Information available to the Division indicates that the burrowing and flammulated owls and the black swift are no longer considered to be species of high federal interest. Several species that could occur in the area have been added to the list, including the goshawk, sharp-shinned hawk, red-tailed hawk, and Swainson's hawk. The list of migratory birds of high federal interest on page 3-7 should be updated, and any species that do not occur in the area could be deleted.

In the paragraph in the middle of page 3-7 is a sentence which reads, "No monitoring program to determine adaption of nesting golden eagle as the golden eagle was reported at the nest site the spring of 1980, both the nest site was inactive upon inspection by the DWR in 1987." This sentence needs to be rewritten to clarify its meaning.

Pages 3-6 and 3-7 cite several sources for some of the material. R645-301-122 requires that the plan contain explicit citations for referenced published materials, and the citations given in the plan are incomplete. For example, the plan says that five of the migratory birds of high federal interest could be in the area according to DWR (1978, 1981a, and 90-11). The plan needs to give a reference for the source of this information.

Although no threatened or endangered plant species were encountered in the vegetation survey, at least two sensitive (C2) species have been found in the general vicinity. Canyon sweetvetch (Hedysarum occidentale var. canone) is present in Huntington Canyon near the turnoff to Crandall Canyon. Intermountain bitterweed (Hymenoxys helenioides) has been collected in Carbon and Emery Counties in mountain brush, sagebrush, aspen, and meadow communities between 8800 and 10,700 feet elevation. The permit area probably contains suitable habitat for this species.

Deficiencies:

1. The statement on page 3-7 that the golden eagle nest high on the ridge north and east of the portals is the only raptor nest in Crandall Canyon

according to information supplied by Wildlife Resources (DWR) needs to be changed to reflect the information provided in Appendix 3.

2. The page before the cover sheet for the Valley Engineering "Vegetation and Terrestrial Wildlife Report" needs to be eliminated or explained.
3. Appendix 13-3 from the old plan needs to be incorporated into the new plan.
4. The plan needs to contain a plan to determine if active nest sites of non-cliff-nesting raptors are established in the permit area and if potential damage could occur from subsidence. If there is a potential for subsidence-caused damage, a protection and mitigation plan must be developed.
5. The plan should state the year in which every third year monitoring of the golden eagle nest northeast of the portals began.
6. The second sentence in the first paragraph under the heading "Migratory Birds of High Federal Interest" on page 3-6 needs to clarify the meaning of "this species" or the sentence should be eliminated if it is not needed.
7. The list of migratory birds of high federal interest on page 3-7 should be updated, and any species that do not occur in the area could be deleted.
8. As discussed in the analysis section of this review, the second sentence in the paragraph in the middle of page 3-7 needs to be rewritten to clarify its meaning.
9. The plan needs to contain complete references for cited publications.

R645-301-330

Operation Plan

Proposal:

All surface areas which are disturbed and which will not be needed for mining operations will be revegetated. The seed mix to be used in final reclamation will also be used for interim stabilization. Plate 5-17 is a reclamation map showing post-construction contemporaneous reclamation areas and final reclamation. The disturbed areas within the mine plan area over which the water reports to the sediment pond which have been contemporaneously reclaimed will achieve 80% cover on the slopes. Appendix 3-5

contains details of the irrigation plan to maintain 80% cover.

The subsidence control plan is contained in Chapter 5. The land is used for domestic grazing on gentle slopes and for wildlife habitat and recreation over the total acreage. The vegetative resources should not be negatively affected by subsidence, so the current land use is expected to continue. As per the USFS, there is no marketable timber in the area of potential subsidence. Springs within the potential subsidence limit are a significant resource to the local wildlife and may be affected. If it is proven that mining activities have reduced the flow of any seep or spring by 50% or more, Genwal will develop a mitigation plan involving the use of guzzlers. If subsidence affects grazing, Genwal will compensate the appropriate party by paying the fair market value for the loss.

Most other impacts discussed in the plan have already occurred through mine and road construction.

Analysis:

Three plates depicting contemporaneous, interpreted to mean interim, and final reclamation need to be corrected:

The disturbed area boundaries shown on Plates 5-16 and 5-17 are not consistent with Plate 5-3.

Plate 7-5C shows some areas of final reclamation near Crandall Creek and above the area where the substation was formerly proposed to be. This is in conflict with Plate 7-5 which shows these as being post-1989 contemporaneous reclamation areas. It is understood through conversations with Genwal personnel that these areas may or may not be redisturbed upon final reclamation and that, for now, they should be considered interim revegetation areas.

In its February 21, 1992, correspondence to the Division, DWR stated that they consider an impact to a water source substantial if daily flows were reduced by 50% or more. The plan is in compliance with this assessment.

The plan needs to contain a commitment to educate employees about wildlife protection. DWR personnel have in the past expressed availability to participate in such a program. This is considered to be part of best technology currently available to protect wildlife.

Deficiencies:

1. Plates 5-16, 5-17, and 7-5C need to be corrected in accordance with the analysis presented in this review.
2. The plan needs to contain a commitment to educate employees about wildlife protection.

R645-301-341.100

Revegetation: Timing

Proposal:

Seeding will commence as soon as the seedbed is finished in the late fall. Tree planting will be done in conjunction with seeding or in the following spring as soon as one can work the soil.

Analysis:

Genwal has complied with this regulation.

Deficiencies:

None.

R645-301-341.210

**Species and Quantities of
Seeds and Seedlings**

Proposal:

The plan contains one seed mix which is to be used for the entire area. It also includes a planting mix for areas near Crandall Creek.

Analysis:

The planting mix does not contain adequate trees that it is likely that the tree density standard for success will be achieved on most of the wooded area. The standard for success is 550 trees per acre. In most of the wooded area, only 500 trees will be planted per acre. An additional 110 willows per acre will be planted within 20 feet of drainages. With 10% mortality, the areas within 20 feet of drainages should have 549 trees per acre, but even with 0% mortality, assuming no natural recruitment, areas not within 20 feet of drainages will only have 500 trees per acre. Therefore, the plan needs to propose planting greater numbers of trees, at least 610, in the wooded areas. A 10%

mortality rate may be overly optimistic, and the Operator should consider planting more trees than this.

The seed list contains three introduced species. They are all highly desirable and should not be overly competitive with or displace native species in the area. Small burnet and yellow sweet clover are fairly short-lived species that will probably not be present at final bond release.

Deficiencies:

1. The tree planting plan needs to be revised to show enough trees being planted in the areas not within 20 feet of drainages that it will be possible to achieve the tree density standard for success.

R645-301-341.220

Seeding and Planting Methods

Proposal:

Areas with slopes less than 30% will be drill seeded at half the rate shown in Appendix 3-6. All areas, including those that were drill seeded, will be hydroseeded.

Analysis:

Genwal has complied with this regulation; however, the plan used to contain commitments to leave the soil surface in a roughened condition. Page 3-22 of the plan submitted May 22, 1992, states that the area will be thoroughly scarified leaving as many depressions as possible. It described contour trenching with furrows about 12 to 18 inches deep. Also, it stated that large rocks, dead trees, and brush would be strewn around the site. These are very desirable commitments, and it is highly recommended that they be restored to the plan. Placing rocks, dead trees, and brush around the site would be considered wildlife habitat enhancement (see R645-301-342) that is probably within the definition of best technology currently available to enhance wildlife habitat.

Deficiencies:

None.

R645-301-341.230

Mulching Methods

Proposal:

The entire area of disturbance will be hydromulched with a long fiber wood mulch. Appropriate tackifying agents will be added to the hydromulch. The plan presents application rates of tackifier.

Analysis:

Genwal has complied with this regulation.

Deficiencies:

None.

R645-301-341.240 Irrigation and Pest and Disease Control

Proposal:

No irrigation is anticipated.

Genwal commits to avoid using persistent pesticides and to prevent fires.

Analysis:

A contingency irrigation plan is recommended for transplants. Dry conditions could necessitate watering transplants for the first one or two summers.

Musk thistle is a very serious problem at mid- to high elevations in Utah. Although this noxious weed is not widespread in Huntington Canyon, it has been found at Genwal. Disturbed and newly seeded areas are very prone to noxious weed invasion. Genwal should plan now for noxious weed control during reclamation as it will almost certainly be necessary.

The Forest Service has issued a closure order for any straw or hay that is not certified as being free of noxious weeds. This becomes effective January 1, 1994. Genwal is not planning to use straw or hay mulch in reclamation, but any straw or hay bales that are used for sediment control will need to be certified.

Deficiencies:

None.

R645-301-341.250 Success Determination Measures

Proposal:

A vegetation reference area has been established in the mountain shrub/grassland community above the mine portals for comparison with all areas for final bond release.

Standards for woody species density have been set at 1336 shrubs per acre as per reference area baseline data and 550 trees per acre as per Forest Service recommendations.

The plan also includes diversity standards for the different plant communities that existed prior to disturbance. These set minimum and maximum relative cover values for grasses, shrubs, and broadleaf forbs. In addition, the plan states that no one species will make up more than 60% of the cover in its respective vegetation class except that individual species of shrubs and trees will make up no more than 80% of the density for this class.

The plan gives a monitoring schedule and methodologies for checking success of revegetation.

Analysis:

This section of the plan is fairly complete, but there are some problems that need to be addressed. The regulations require that for areas that are being reclaimed to a wildlife postmining land use, one of the success standards is tree and shrub density. 80% of trees and shrubs must have been in place for at least 60% of the liability period (6 years), and no trees and shrubs in place for less than 20% of the liability period (2 years) can be counted toward the success standard. Because of this requirement, it is necessary that the plan include revegetation monitoring for at least trees and shrubs in years 4 and 8. It is recommended that the monitoring schedule be altered to include complete quantitative evaluations in years 2, 4, 9, and 10. Woody species density would need to be measured in year 8. Limited qualitative monitoring should be done every year to identify potential problems.

R645-301-353.140 requires that the vegetative cover be capable of stabilizing the soil surface from erosion. Genwal needs to propose a method of demonstrating that this requirement has been met. Even if vegetative cover is equal to that of the reference area, the reclaimed area may not be stable. It is recommended that the Operator contact the Division for some possible methods.

R645-301-356.250 states that for areas previously disturbed by mining that were

not reclaimed and that are remined or redisturbed, at a minimum, the vegetative ground cover will be not less than the ground cover existing before redisturbance and will be adequate to control erosion. The vegetative ground cover existing before redisturbance was 50.3%. Relatively little of this cover was from plants that would be considered weeds. This figure needs to be established as the vegetative cover standard for success for the areas previously disturbed by mining.

The reviewer has some concerns about the appropriateness of using a single reference area to evaluate revegetation success for the entire reclaimed area; however, this situation needs to be evaluated in the field before a requirement is made to change the reference area or to add another reference area. It appears that cover from trees and shrubs was measured in the reference area but it was not measured in the areas that were disturbed. Therefore, it is difficult to make a precise comparison. The reference area had 43.5% vegetative cover including the trees, and the spruce/fir/aspen areas that were disturbed had 45.2% vegetative cover, more than the reference area, *not* including the trees (except seedlings). The site should not be reclaimed to a vegetative cover standard lower than what existed prior to mining. It is not known how much the cover value in the spruce/fir/aspen area would increase if cover from the larger trees was included. This problem will be evaluated in a field visit this coming summer.

Deficiencies:

1. The final reclamation monitoring plan needs to include quantitative evaluations of tree and shrub densities 4 and 8 years after final reclamation to demonstrate that 80% of trees and shrubs have been in place for at least 60% of the liability period and that no trees or shrubs in place less than 2 years are counted toward the success standard.
2. The plan needs to include a method for demonstrating that the vegetative cover is capable of stabilizing the soil surface from erosion.
3. The vegetative cover standard for success for areas previously disturbed by mining that were redisturbed needs to be established in the plan as 50.3%.

R645-301-341.300 Reclamation Feasibility Demonstration

Proposal:

The plan refers to Appendices 3-2 and 3-3 for reference area comparisons.

Analysis:

Field trials to demonstrate reclamation feasibility are not currently anticipated to be necessary. However, if substitute topsoil materials are proposed to be used in reclamation some time in the future and if these materials are available to use in a field trial, it may be necessary to establish test plots.

Deficiencies:

None.

R645-301-342

Reclamation for Fish and Wildlife

Proposal:

High value habitats (pinyon-juniper, agricultural and riparian areas) will be restored; in many cases, they will be enhanced beyond their premining condition. The goals are to create a diversified cover and/or habitat that will support a wide range of species while restoring to a premining condition and where feasible enhancing habitat. No additional enhancements are proposed during reclamation.

Analysis:

Revegetating the site to a vegetative cover and diversity standard approximately equal to the premining conditions will not be a wildlife habitat enhancement. According to information contained in the plan, the vegetation in the previously mined areas was not in a degraded condition before redisturbance. Revegetation of the other areas is also not considered to be an enhancement; it is simply revegetation using species that are desirable for wildlife habitat as required by the regulations. Enhancement means that the habitat will be augmented compared to the premining condition. The plan needs to either present a plan that uses the best technology currently available to enhance wildlife habitat or it must contain a statement explaining why enhancement is not feasible.

Consultation with DWR and the Forest Service to determine what enhancement measures are needed for this area is highly recommended. Some possibilities include constructing rock and brush piles during regrading (see R645-301-341.220 above); placing artificial habitat structures, such as nest boxes, in the area; and water developments.

Deficiencies:

1. The plan must include either a plan for enhancing wildlife habitat that utilizes the best technology currently available, or a statement explaining why enhancement is not practicable. Consultation with Wildlife Resources and the Forest Service to determine what enhancement measures are needed is highly recommended.

RECOMMENDATIONS

The plan contains numerous technical deficiencies, but these are not considered to be completeness items that need to be addressed before advertising for permit renewal. Some of the problems with the standards for success will need to be evaluated during the growing season and cannot be resolved now.