

TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

August 5, 2005

TO: Internal File

THRU: Priscilla W. Burton, Environmental Scientist III/Soils, Team Lead

FROM: Jerriann Ernstsens, Ph.D., Environmental Specialist, Biologist

RE: Refuse Pile Expansion, Canyon Fuel Company, LLC., Dugout Canyon Mine, C/007/039, Task ID #2156

SUMMARY:

The Permittee submitted a plan in February 2004 for the Dugout refuse pile site. This submittal includes a proposal to enlarge the waste rock storage pile and a protocol for a study on growth-medium depth.

This memo provides discussion of the review of the Biology Chapter and archeology section in the Dugout Refuse Pile Expansion Amendment (RA).

TECHNICAL ANALYSIS:

GENERAL CONTENTS

PERMIT APPLICATION FORMAT AND CONTENTS

Regulatory Reference: 30 CFR 777.11; R645-301-120.

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Analysis:

The Mine and Reclamation Plan (MRP) meets R645-301-121.100 and R645-301-121.200 for the biology chapter and archeology section because the information is generally current, clear, and concise.

The MRP includes many different volumes, including the following “stand-alone” documents (as of January 2005):

- “Dugout Canon Mine – Leach Field Addendum A-1” (LFA, March 2001)
- “Refuse Pile Amendment – Dugout Canyon Mine” (RPA, January 2003)
- “Methane Degassification Amendment” (MDA, 2003/2004).

The “stand-alone” volumes provide exclusive information, supporting documents, and maps for each proposed project.

Findings:

Information provided in the plan meets the minimum Permit Application Format and Contents in General Contents requirements of the regulations.

REPORTING OF TECHNICAL DATA

Regulatory Reference: 30 CFR 777.13; R645-301-130.

Analysis:

The MRP meets R645-301-130 because qualified professionals conducted or directed the surveys and analysis for the supporting biological and archeological resource-related documents.

There may be other mislocated confidential documents in certain volumes. The Permittee will attend to these documents as a response to the Division’s request dated December 8, 2004. As the Division reviews amendments, we will request the relocation of these documents.

Findings:

Information provided in the plan meets the minimum Reporting of Technical Data in General Contents requirements of the regulations.

ENVIRONMENTAL RESOURCE INFORMATION

Regulatory Reference: Pub. L 95-87 Sections 507(b), 508(a), and 516(b); 30 CFR 783., et. al.

HISTORIC AND ARCHEOLOGICAL RESOURCE INFORMATION

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

Analysis:

The MRP meets the requirements of R645-301-411 pertaining to historic resources. The MRP includes numerous evaluations of historic resources that focus on the permit area (Confidential Binder). It also includes narratives and maps that describe or illustrate locations of historic resources within or adjacent to the permit area. There is proof of coordination efforts and clearances from the SHPO. The Division, in consultation with SHPO, supports a finding of “no effect” to historic resources within or adjacent to the facilities area.

The Confidential Binder includes a survey of the refuse pile site (Senco-Phenix 1998; RA Attachment 4-1). The survey results showed that there were no historic resources included in or eligible for inclusion in the NRHP.

There are no cemeteries, public parks, or units of the National System of Trails or the Wild and Scenic Rivers System located within or adjacent to the permit area.

It is important that employees avoid all historic properties during the life of the project. In the event that construction or operations uncover historic properties, Section 106 of the National Historic Preservation Act and 36 CFR 800.13 require that the Permittee stop all work in the vicinity and notify the Division. The Permittee, Division, and other appropriate parties will develop a strategy to avoid the site or mitigate the impacts at that time.

Findings:

Information provided in the plan meets the minimum Environmental -Historic and Archeological Resource Information requirements of the regulations.

VEGETATION RESOURCE INFORMATION

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

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Analysis:

The MRP meets the requirements of R645-301-321 because there is adequate discussion of plant communities observed within the permit area. The MRP contains many supporting documents on vegetation for the permit area. The baseline vegetation information is adequate for assessing reclamation potential and success as well as productivity values for the surface area affected by mining operations.

The Refuse Pile volume contains the vegetation survey (Attachment 3-1), maps (Figs. 3-1 and 3-2), and photos taken in 1998 of disturbance to the refuse site. Figure 3-1 illustrates the vegetation communities within or adjacent to the refuse site. The Permittee compiled this figure from 1988 photographs and soil surveys. Figure 3-2 delineates areas within the refuse site that had been previously disturbed from gravel extraction operations in 1998. These operations impacted the site by leaving minimal cover that most likely promoted the growth of introduced and weedy species.

Findings:

Information provided in the plan meets the minimum Environmental - Vegetation Resource Information requirements of the regulations.

FISH AND WILDLIFE RESOURCE INFORMATION

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

Analysis:

GENERAL WILDLIFE

The MRP meets R645-301-322 because it provides narrative, supporting documentation, or maps on ungulates, bats, aquatics, raptors, migratory birds, and reptiles.

Ungulates

The MRP (Vol. 3, App. 3-2) provides general information on many wildlife species including ungulates. There is a descriptive deer and elk habitat map (Plate 3-2) in the Confidential Binder, but this map does not include the refuse project site. The MRP (RA Vol. Sec. 322.200), however, states that the refuse pile site is within critical winter range for deer and high value winter range for elk. The MRP also states that the local area supports yearlong

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pronghorn range in the salt desert shrub community of the lower elevation ranges along the Clark Valley Road.

Raptors

The Permittee will conduct annual raptor surveys to obtain baseline data prior to mining disturbances including subsidence of cliff habitat (Vol. 1, Sec. 322, p. 3-13). The Permittee will also conduct follow up surveys within one year if nests were observed during the baseline surveys and if operations resulted in subsidence. Annual reports will provide the results of the over-flight surveys.

Raptor survey results and flyover maps describe nests for a diversity of raptor species within or adjacent to the permit area (Confidential Binder: Chap. 3 Data; Methane Degas Vol., Attachment 3-3; Refuse Pile Vol., RA Attachment 3-2).

For the refuse site, DWR observed (2002) two ferruginous raptor nests within one mile of the project area, but did not observe or report on these nests during the 2003 survey.

THREATENED, ENDANGERED, AND SENSITIVE ANIMAL/PLANT SPECIES

The MRP meets R645-301-322 because there is adequate discussion, supporting documentation, and maps on TES species that could occur within or adjacent to the permit area. All supporting documents on TES plant and animal species show that there were no observations of threatened or endangered species.

TES Plants

All supporting documents on TES species show that there were no observations of any threatened or endangered species within the permit area. The results of the George Cook (1998) survey included observations of the endangered cactus *Sclerocactus wrightiae* (Wright fishhook cactus). The 1998 vegetation survey of the refuse site or the 2002 vegetation survey of the correlating reference area did not indicate presence of this cactus. Furthermore, Ben Franklin (DWR) verified that the area does not support habitat for this cactus.

TES Animals

TES supporting documents show that the permit area supports habitat for the following TES animals: Mexican Spotted Owl (MSO), black-footed ferret, bald eagle, and peregrine falcon. The MSO survey showed no MSO responses within a half-mile radius around the testing area (G1-G6 degas wells). There have been no confirmed sightings of black-footed ferrets within Carbon County during 1995, 1996, and the first quarter of 1997 (DWR, Section

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322.200). The peregrine falcon has been observed in several recent surveys of the Carbon County area, but none reported within the permit area during the flyover surveys.

The Division does not consider that additional TES surveys, including MSO ground-truthing or calling surveys, are necessary for the refuse pile expansion project because the area does not support TES habitat or has been previously disturbed.

Findings:

Information provided in the plan meets the minimum Environmental - Fish and Wildlife Resource Information requirements of the regulations.

MAPS, PLANS, AND CROSS SECTIONS OF RESOURCE INFORMATION

[Sheila Mo4]

Regulatory Reference: 30 CFR 783.24, 783.25; R645-301-323, -301-411, -301-521, -301-622, -301-722, -301-731.

Analysis:

Archeological Site Maps [Sheila Mo5]

The MRP meets R645-301-411.141 because there are archeological maps showing known resource locations within the permit area (Confidential Binder).

Vegetation Reference Area Maps[Sheila Mo6]

The MRP meets R645-301-323.100 because vegetation maps illustrate community types within the disturbed and reference areas as well as illustrate the location of reference areas. The Volume - Refuse Pile Amendment provides a map that shows the reference area for the refuse pile project (Fig. 3-1).

Findings:

Information provided in the plan meets the minimum Environmental - Maps, Plans, and Cross Section Resource Information requirements of the regulations.

OPERATION PLAN

PROTECTION OF PUBLIC PARKS AND HISTORIC PLACES [Sheila Mo7]

Regulatory Reference: 30 CFR784.17; R645-301-411.

Analysis:

There are no known public parks or historic places within the permit area.

Findings:

Information provided in the plan meets the minimum Operations - Protection of Public Parks and Historic Places requirements of the regulations.

FISH AND WILDLIFE INFORMATION

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

Analysis:

The MRP meets R645-301-333, R645-301-342, or R645-301-358 because it provides information on TES and discussion concerning protection and enhancement during construction and reclamation phases. The Permittee, in consultation with the Division and DWR, will provide additional foraging habitat to guide wildlife away from mine operations if warranted.

Protection and Enhancement Plan

The MRP provides protection and enhancement measures including minimizing disturbance areas, conducting yearly raptor surveys, educating mine personnel on TES and historic resource protection measures, and reclaiming currently disturbed sites as well as disturbed sites from previous non-coal operations.

Ungulates

Construction for the refuse pile expansion project will not occur during ungulate exclusionary periods. The Permittee will adhere to exclusionary periods during reclamation phases and will seed with a compatible seed mix for ungulates.

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Raptors

The Permittee will conduct annual fly-over raptor surveys to obtain baseline data prior to mining disturbances including subsidence of cliff habitat and will conduct NSO and goshawk surveys in forested habitat. The refuse pile expansion project area does not include cliff or forested habitat.

Endangered and Threatened Species

Colorado River Fish

Adverse effects of mining on water quantity to the Colorado River drainages do affect four Colorado River endangered fish species (Colorado pikeminnow, humpback chub, bonytail chub, and razorback sucker). The USFWS considers water depletion to the Colorado River drainage as a potential jeopardy to these endangered fish. Water users may be required to mitigate if the overall water consumption is greater than 100 acre-feet per year.

The Division will not require the Permittee to resubmit water consumption calculations for the refuse pile expansion project because it will not include changes to the permit or surface disturbance areas.

Bald and Golden Eagles [Sheila Mo10]

There are many raptor nests within the Dugout properties including golden eagles. There are no known bald eagle nests. The Permittee will conduct annual raptor surveys to obtain baseline data prior to mining disturbances including subsidence of cliff habitat.

Wetlands and Habitats of Unusually High Value for Fish and Wildlife [Sheila Mo11]

Robert Thompson, a Forest Service botanist, states that there are no known wetlands within the main facilities area.

The permit area includes critical winter range for deer and high value winter range for elk. The area also supports yearlong pronghorn range in the salt desert shrub community of the lower elevation ranges along the Clark Valley Road.

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The Division considers that reclamation of the refuse pile site will enhance the area for wildlife uses. This is because the site had never been reclaimed following gravel extraction operations and primarily contained weedy species and low diversity.

Findings:

Information provided in the plan meets the minimum Operations - Fish and Wildlife Information requirements of the regulations.

VEGETATION

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

Analysis:

The MRP meets R645-301-330, R645-301-331, and R645-301-332 because the Permittee will disturb the smallest area as possible for facilities and apply interim reclamation when applicable.

The Permittee will stabilize disturbance by grading, seeding, and mulching (Vol. 1, Sec. 341). The Permittee will use an interim seed mix (Sec. 341) on the topsoil stockpile and other areas requiring stabilization prior to final reclamation.

Findings:

Information provided in the plan meets the minimum Operations - Vegetation requirements of the regulations.

RECLAMATION PLAN

GENERAL REQUIREMENTS [Sheila Mo13]

Regulatory Reference: PL 95-87 Sec. 515 and 516; 30 CFR Sec. 784.13, 784.14, 784.15, 784.16, 784.17, 784.18, 784.19, 784.20, 784.21, 784.22, 784.23, 784.24, 784.25, 784.26; R645-301-231, -301-233, -301-322, -301-323, -301-331, -301-333, -301-341, -301-342, -301-411, -301-412, -301-422, -301-512, -301-513, -301-521, -301-522, -301-525, -301-526, -301-527, -301-528, -301-529, -301-531, -301-533, -301-534, -301-536, -301-537, -301-542, -301-623, -301-624, -301-625, -301-626, -301-631, -301-632, -301-731, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-732, -301-733, -301-746, -301-764, -301-830.

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Analysis:

There are discussions throughout the MRP on ripping, gouging, incorporating hay during gouging, or mulching. Areas recommended for fertilizer application will receive fertilizer by cyclone spreader, hydroseeder, or other equipment. The reclamation plan does not include irrigation. The Division does not anticipate the necessity to irrigate as long as the Permittee uses water-harvesting methods, such as gouging.

Findings:

Information provided in the plan meets the minimum Reclamation - General Requirements of the regulations.

POSTMINING LAND USES

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

Analysis:

The MRP states that the postmining land uses will be livestock and wildlife grazing.

The surface owner is the same as the Permittee.

Findings:

Information provided in the plan meets the minimum Reclamation - Postmining Land Uses requirements of the 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 MRP meets R645-301-342 and R645-301-358 because the Permittee provides adequate enhancement and protection measures for fish, wildlife, and habitat during the reclamation or postmine phases. The Permittee will adhere to the regulations aimed to protect TES, eagles, and raptors from mining impacts (Refer to R645-301-358).

The Permittee states that because the refuse pile site was an unimproved disturbed area from gravel operations, that final reclamation will enhance the area to support the PMLU. These improvements will provide foraging and nesting habitat for wildlife.

Findings:

Information provided in the plan meets the minimum Reclamation - Protection of Fish, Wildlife, and Related Environmental Values requirements of the regulations.

CONTEMPORANEOUS RECLAMATION

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

Analysis:

The Permittee plans to reclaim all disturbed areas as contemporaneously as possible within the constraints of seasonal weather. The soil cover study for the refuse pile project is not only a study, but also part of contemporaneous reclamation.

The Permittee will conduct a study to support the application of 2' rather than 4' of cover for the refuse pile disturbance. The Permittee will conduct the study at the refuse pile site. The study plan includes one replication of four treatments on portions of the refuse pile. Refer to Vol. Refuse Pile Amendment, Sec. 242.200, p. 2-13 for details of the methods and materials for this study. The Permittee must provide additional specifics of the study plan by providing a contour map showing locations and dimensions (height, length, and width) of all the treatment sites, reference area, access roads/traffic flow on the site, and locations of the different piles as proposed. The map must include a clear key to these "structures". (R645-301-341.300). The Division is well aware that plans change, therefore, the Permittee may resubmit this map as an as-built following final implementation of the study project.

The Permittee will monitor the study at the refuse pile for six years, and then evaluate their supporting evidence to apply 2' of cover. The Division cautions the Permittee that results showing no differences among treatments may not be a result of reclamation practices, but rather environmental conditions. The Permittee must use a reference area for the standard of success, not comparisons among treatments (R645-301- 356).

The Division is concerned that the growth conditions on the treatment sites will differ from the proposed pile. To assist the Division in using the study results to predict the potential success of vegetation growth on the proposed pile, the Permittee will install an anemometer at

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the site. The height of the anemometer will be just over the height of the highest point of the proposed pile. The Permittee will continually collect data from the beginning through the end of the study, analyze the data, and provide a summary of the results in Annual Reports. (R645-301-341.300).

Typically, the liability period for low precipitation areas is 10 not 6 years. The Permittee may want to extend monitoring past six years if the results show that cover, shrub density, productivity, and diversity do not meet the Divisions success standards for final reclamation. The Division warns that even if plant growth meets success standards, it may be difficult to use the results to predict the potential success of vegetation growth on the proposed pile. The Permittee must clearly state that the Division will not authorize the approval of 2' of cover based solely on the results of this study (R645-301-341.300). The Division has the right to issue additional requirements, such as windbreaks, at the time of approval of the 2' of cover.

Findings:

Information provided in the plan does not meet the minimum Reclamation - Contemporaneous Reclamation requirements of the regulations.

R645-301-341.300, The Permittee must provide additional specifics of the study plan by providing a contour map showing locations and dimensions (height, length, and width) of all the treatment sites, reference area, access roads/traffic flow on the site, and locations of the different piles as proposed. The map must include a clear key to these "structures". The Division is well aware that plans change, therefore, the Permittee may resubmit this map as an as-built following final implementation of the study project. • The Division is concerned that the growth conditions on the treatment sites will differ from the proposed pile. To assist the Division in using the study results to predict the potential success of vegetation growth on the proposed pile, the Permittee will install an anemometer at the site. The height of the anemometer will be just over the height of the highest point of the proposed pile. The Permittee will continually collect data from the beginning through the end of the study, analyze the data, and provide a summary of the results in Annual Reports. • Typically, the liability period for low precipitation areas is 10 not 6 years. The Permittee may want to extend monitoring past six years if the results show that cover, shrub density, productivity, and diversity do not meet the Division's success standards for final reclamation. The Division warns that even if plant growth meets success standards, it may be difficult to use the results to predict the potential success of vegetation growth on the proposed pile. The Permittee must clearly state that the Division will not authorize the approval of 2' of cover based solely on the results of this study. The Division has

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the right to issue additional requirements, such as windbreaks, at the time of approval of the 2' of cover.

R645-301-356, The Permittee will monitor the study at the refuse pile for six years, and then evaluate their supporting evidence to apply 2' of cover. The Division cautions the Permittee that results showing no differences among treatments may not be a result of reclamation practices, but rather environmental conditions. The Permittee must use a reference area for the standard of success, not comparisons among treatments.

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:

Revegetation: General Requirements

The MRP meets R645-301-330, R645-301-331, and R645-301-332 because the Permittee provides an adequate reclamation plan or discussion of how reclamation measures will meet the performance standards.

The final seed mixtures (Sec. 341.200) include species observed in existing and similar communities. The Division considers that replanting community-dominant species is most important, but typically allowing pinyon and juniper to invade naturally.

Revegetation: Timing

Figure 5-1 shows the general reclamation timetable. The earthwork and revegetation will occur nearly simultaneously until completion. The schedules for planting are during normal planting seasons. Traditionally, seeding is conducted in the fall with planting conducted in the fall or spring. Recent experience at another mine has shown that transplanting in the fall can be very successful.

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Revegetation: Mulching and Other Soil Stabilizing Practices

The final reclamation plan includes extreme roughening, mulching with certified noxious weed free hay (1 ton per acre), then planting with seeds and transplants.

Revegetation: Standards For Success

The Permittee will follow the sampling requirements and analysis identified in the Division's "Vegetation Information And Monitoring Guidelines" (Vol. 1, Sec. 356). The Permittee will conduct yearly qualitative vegetation evaluations as well as conduct quantitative vegetation surveys throughout the 10-year responsibility period. The Permittee plans to use reference areas and *range sites* for the standards of success.

The Permittee will use husbandry practices approved by the Division as needed.

Findings:

Information provided in the plan meets the minimum Reclamation - Revegetation requirements of the regulations.

RECOMMENDATIONS:

Do not approve the amendment until the Permittee addresses all deficiencies.