

May 13, 2016

Coal Regulatory Program
Utah Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Salt Lake City, UT 84114-5801

Subject: Completion of Midterm Review, Task ID # 5078, Canyon Fuel Company, LLC, Banning
Siding Loadout, C/007/0034

Dear Mr. Haddock:

Canyon Fuel Company, LLC hereby files application to modify the permit C/007/0034. Enclosed please find a copy of the submittal to address the Midterm deficiencies.

Should you have any questions please contact Bill King at (435) 636-2898 or David Spillman at (435) 636-2872.

Sincerely,



Bill King
Mining Engineer

APPLICATION FOR COAL PERMIT PROCESSING

Permit Change New Permit Renewal Exploration Bond Release Transfer

Permittee: Canyon Fuel Company, LLC

Mine: Banning Loadout

Permit Number: C/007/034

Title: Completion of Midterm Review Response, Banning Loadout, C/007/034, Task ID #5078

Description, Include reason for application and timing required to implement:
Response to DOGM's Banning Midterm Technical Analysis and Findings

Instructions: If you answer yes to any of the first eight (gray) questions, this application may require Public Notice publication.

- Yes No 1. Change in the size of the Permit Area? Acres: _____ Disturbed Area: _____ increase decrease.
- Yes No 2. Is the application submitted as a result of a Division Order? DO# _____
- Yes No 3. Does the application include operations outside a previously identified Cumulative Hydrologic Impact Area?
- Yes No 4. Does the application include operations in hydrologic basins other than as currently approved?
- Yes No 5. Does the application result from cancellation, reduction or increase of insurance or reclamation bond?
- Yes No 6. Does the application require or include public notice publication?
- Yes No 7. Does the application require or include ownership, control, right-of-entry, or compliance information?
- Yes No 8. Is proposed activity within 100 feet of a public road or cemetery or 300 feet of an occupied dwelling?
- Yes No 9. Is the application submitted as a result of a Violation? NOV # _____
- Yes No 10. Is the application submitted as a result of other laws or regulations or policies?
Explain: _____
- Yes No 11. Does the application affect the surface landowner or change the post mining land use?
- Yes No 12. Does the application require or include underground design or mine sequence and timing? (Modification of R2P2)
- Yes No 13. Does the application require or include collection and reporting of any baseline information?
- Yes No 14. Could the application have any effect on wildlife or vegetation outside the current disturbed area?
- Yes No 15. Does the application require or include soil removal, storage or placement?
- Yes No 16. Does the application require or include vegetation monitoring, removal or revegetation activities?
- Yes No 17. Does the application require or include construction, modification, or removal of surface facilities?
- Yes No 18. Does the application require or include water monitoring, sediment or drainage control measures?
- Yes No 19. Does the application require or include certified designs, maps or calculation?
- Yes No 20. Does the application require or include subsidence control or monitoring?
- Yes No 21. Have reclamation costs for bonding been provided?
- Yes No 22. Does the application involve a perennial stream, a stream buffer zone or discharges to a stream?
- Yes No 23. Does the application affect permits issued by other agencies or permits issued to other entities?

Please attach one (1) review copy of the application.

I hereby certify that I am a responsible official of the applicant and that the information contained in this application is true and correct to the best of my information and belief in all respects with the laws of Utah in reference to commitments, undertakings, and obligations, herein.

David Spillman
 Print Name

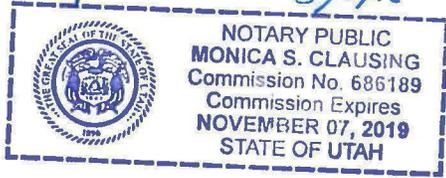
David Spillman Engineering Manager
 Sign Name, Position, Date

Subscribed and sworn to before me this 11th day of May, 2016

Monica S. Clausung
 Notary Public

My commission Expires: 11-7, 2019

Attest: State of Utah } ss:
 County of Cannonville



For Office Use Only:	Assigned Tracking Number:	Received by Oil, Gas & Mining

Any other specific or special instruction required for insertion of this proposal into the Mining and Reclamation Plan.	Received by Oil, Gas & Mining
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Form DOGM - C2 (Revised March 12, 2002)

Response to Banning Loadout Midterm Deficiencies

Date: May 11, 2016

Subject: Completion of Midterm Review, Task ID # 5078, Canyon Fuel Company, LLC, Banning Siding Loadout, C/007/0034

From: Bill King

To: Daron R. Haddock

CC: Steve Christensen, Cheryl Parker, Pricilla Burton, Amanda Daniels, Lisa Reinhart

Deficiencies: Ireinhart, General Contents

R645-301-113: The Permittee must submit to the Division proof that the current violations discussed in the analysis of this section have been or are in the process of being corrected. The Permittee must update Chapter 1, Section 113, page 1-6 and Table 1-2 to include recent violations discussed in the analysis of this section.

Response: An AVS run on Bowie Refined Coal shows no outstanding violations as of May 4th 2016. This AVS report was emailed to Lisa Reinhart on 5/4/2016. There should be no update to the Canyon Fuel Company General Chapter 1 as the violation discussed was related to a different branch of Bowie Resources.

Deficiencies: Ireinhart, Fish and Wildlife Resource Information

The MRP does not meet the minimum requirements of R645-301-322. The Permittee must update Ch. 3 of the MRP to include current Threatened, Endangered, Candidate, and Utah Sensitive Species. Table 3-1 must be replaced or updated to include current listed species (available from Division Biologist). Appendix 3-5 must be updated to include evidence of recent consultation (available from Division Biologist).

Response: Banning Loadout M&RP, Chapter 3, Table 3-1 is replaced with an up to date threatened and endangered species list. Banning Loadout M&RP, Chapter 3, Appendix 3-5, a current consultation letter from the Division has been added.

The Permittee must provide adequate information to determine if annual water depletions are greater than 100 A.F. If depletions are greater than 100 A.F., the Permittee must comply with the Recovery Program and pay the one-time fee. If this fee was previously paid, the Permittee must provide evidence of such and incorporate that information into the MRP.

Response: Chapter 3, Appendix 3-5, a letter and a water right quitclaim deed was added to determine annual water depletions are below 100 acre feet per year.

R645-301-333 If the Permittee discovers a State Sensitive or Threatened or Endangered Species occupies habitat within the project area, the Permittee must provide protection and enhancement measures for that species.

Response: Upon discovery of State Sensitive or Threatened or Endangered Species Canyon Fuel Company will provide protection and enhancement measures for such species (See Chapter 5, Section R645-301-521).

Deficiencies: cparker, Mining Operations and Facilities

R645-301-121.200: The Permittee will amend the narrative to clarify that the substation has been approved for a change in post mining land use and is no longer under the Permittee's obligation to reclaim in Chapter 5 page 5-27 and add narrative describing the haul road and tracks that will also remain post reclamation of the loadout area.

Response: Chapter 5, page 5-27 was modified to remove the substation and clarify the narrative describing the haul road and tracks post reclamation. Exhibit 5-6A was removed from the M&RP.

Deficiencies: cparker, Road System Other Transportation Facilities

R645-301-121.200, R645-301-521 .170: *The permittee will add text clarifying what portions of the tracks will remain post reclamation.*

Response: Chapter 5, Section R645-301-526.110, page 5-27, text was revised to clarify that the main line track and loading spur will remain after final reclamation.

Deficiencies: cparker, Spoil Waste Impounding Structures

R645-301-121.200: *The Permittee will amend the narrative of Chapter 5 Section R645-301-533.200 on page 5-38 to clarify that the single impoundment at the site is not temporary and will remain post reclamation.*

Response: Chapter 3, Section R645-301-342.100, page 3-15a text was changed to state the sediment pond will remain post reclamation. Chapter 5, Section R645-301-521.125 page 5-17, text was removed stating no permanent impoundments. Chapter 5, Section R645-301-542.500, page 5-38 text was removed stating removal of impoundments. Chapter 5, Section R645-301-552.200 text regarding the sediment pond was revised.

Deficiencies: cparker, Support Facilities and Utility Installations

R645-301-121.200, R645-301-526.11 0: *The Permittee will change the text of the last paragraph in Chapter 5 Section R645-301-526.110 page 5-27 to state that the substation was approved for retention for the updated post mining land use, as shown on Exhibit 5-2R.*

Response: Chapter 5, Section R645-301-526.110, page 5-27, the text is revised stating the substation ownership was changed along with reclamation responsibilities.

Deficiencies: cparker, General Requirements

R645-301-212.200, R645-301-542: *The Permittee will amend all relevant Chapter 5 sections of the MRP to reference reclamation scenario Exhibit 5-6a.*

Response: Exhibit 5-6a was removed from the M&RP. All references will be to Exhibit 5-6 as the substation will remain after final reclamation disregarding Exhibit 5-6a. Chapter 5, Section R645-301-512.130, page 5-2 text 5-6A was removed. Chapter 5, Section R645-301-512.260, page 5-4 text 5-6A was removed. Chapter 5, Section R645-301-541, page 5-44 text 5-6A was removed. Chapter 5, Section R634-301-542.200, page 5-47 text 5-6A was removed. Chapter 5, Section R634-301-542.200 & Section R645-301-542.300, page 5-48 text 5-6A was removed. Chapter 5 Section R645-301-552, page 5-52 text was changed from 5-6A to 5-6.

Deficiencies: pburton, Topsoil and Subsoil

R645-301-242. 120, Page 3-10 of the MRP describes ripping and disking until the soil clods measure less than 1 inch in diameter. Disking created a powdery surface that compounded the impervious nature of alkaline clay soils. The practice of disking should be removed from the reclamation plan.

Response: Chapter 3, Section R645-341.220, page 3-10 text is removed that described disking until the soil colds measure less than one inch in diameter.

Deficiencies: cparker, Road System Retention

R645-301-534: *The Permittee will amend the narrative of Chapter 5 Section R645-301 -534.100 to clarify what portions of the operational roadways will remain post reclamation of the site.*

Response: Chapter 5, Section R645-301-526.100, pg 5-27 the text is revised to clarify what portions for the haul road remain after reclamation. Exhibit 5-7A was also added to help clarify the haul road after reclamation.

Deficiencies: pburton, Stabilization of Surface Areas

R645-301-244, *The seed mix is deficient in native forb species and has only one warm season grass species. Research has shown that an increase in diversity of cover on the soil surface leads to faster re-establishment of the microbial environment that is necessary for development of soil aggregation and pore space, which is critical in alkaline/sodic environments. The Permittee should work with the Division to refine the seed mix to include additional warm season grasses and more forbes.*

Response: Chapter 3, Table 3-3, page 3-11 is replaced with a new seed mix as refined by DOGM and BLM.

Deficiencies: rmedian, Bonding Determination of Amount

R645-301-830.140: *The Permittee shall provide updated line item 2016 reclamation costs for all computations sheets (demolition, earthwork, and revegetation). The total reclamation cost must then be escalated five years utilizing an escalation factor of 0.7% to determine the required bond amount in 2021 dollars.*

Response: Chapter 8, Appendix 8-1, the reclamation bond was updated to 2016 dollars and projected for 5 years with an escalation factor of 0.7%.

Banning M&RP, Chapter3, Table 3-1
Threatened & Endangered Species List
Banning Loadout, Permit Number C/007/034
Canyon Fuel Company

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Title page for reference only

TABLE 3-1

The U.S. Fish and Wildlife Service (Service) advises that the following listed threatened or endangered species could occur in the area of influence of the Banning Loadout:

Bald eagle	<u>Haliaeetus leucocephalus</u>
Mexican Spotted Owl	<u>Strix occidentalis lucida</u>
Yellow-Billed Cuckoo (Proposed)	<u>Coccyzus americanus</u>
Bonytail Chub	<u>Gila elegans</u>
Humpback Chub	<u>Gila cypha</u>
Razorback sucker	<u>Xyrauchen texanus</u>
Colorado pikeminnow	<u>Ptychocheilus lucius</u>
Colorado squawfish	<u>Ptychocheilus lucius</u>

See Appendix 3-5

Banning M&RP, Chapter 3, Section R645-301-341.220, Page 3-10

Banning Loadout, Permit Number C/007/034

Canyon Fuel Company

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R645-301-341.200. *Descriptions of the following:*

R645-30J-341.210. Species and amounts per acre of seeds and/or seedlings to be used. If fish and wildlife habitat will be a post mining land use, the criteria of R64S-301-342.300 apply.

Table 3-3 indicates the species and amounts per acre of seeds to be used in revegetation.

The seed mixture used to revegetate the disturbed areas at Banning Loadout is given on Table 3-3, along with the rates of application. The seed mixture was developed for the loadout area with respect to a number of considerations. Climatic conditions of area and the availability of water were reviewed to assess the need for drought-tolerant species. The vegetation information was evaluated to determine the seed mixture needs corresponding to productivity, cover and diversity requirements. Data was gleaned from the soils report to select species adapted to the physical and chemical characteristics of the potential seedbed.

R645-301-341.220. *Methods to be used in planting and seeding:*

The area will be reclaimed after all operations have ceased at the Banning Loadout and all appurtenant structures have been removed. The coal will be loaded out and the surface will be left relatively free of debris. The soil will then be ripped to a depth of 18 inches. ~~and subsequently disced to eliminate the deleterious effects of compaction. The tillage will continue until the average soil clods on the surface are less than one inch in size. The final discing will be done with the contour to help reduce the potential for erosion.~~

Banning M&RP, Chapter 3, Table 3-3, Page 3-11

Banning Loadout, Permit Number C/007/034

Canyon Fuel Company

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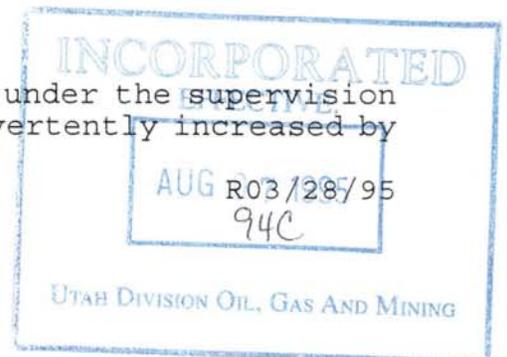
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TABLE 3-3
SEED MIX FOR BANNING LOADOUT

SPECIES

<u>Common Name</u>	<u>Scientific Name</u>	<u>Rate</u> <u>lbs. PLS/Acre</u>
<u>Shrubs</u>		
Schadscale	Atriplex Confertifolia	4.6
Gardner Saltbrush	Atriplex gardneri	2.3
Fourwing Saltbrush	Atriplex canescens	4.6
Fringed Sagebrush	Artemisia frigida	1.1
Winter Fat	Eurotia lanata	2.3
<u>Grass</u>		
Indian Ricegrass	Stip hymenoides	2.3
Squirrel tail	Sitanion hystrix	2.3
Sand Dropseed	Sporobolus Cryptandrus	0.6
Great Basin Wildrye	Elymus cinereus	2.3
<u>Forbs</u>		
Gooseberry Leaf	Sphaeralcea	1.1
Globemallow	grossulariaefolia	
Yellow Sweetclover	Melilotus officinalis	<u>1.1</u>
		24.6 lbs/Ac*
<u>Alternative Species</u>		
<u>Grasses</u>		
Hycres Crested Wheatgrass	Agropyron cristatum	13.1 lbs/Ac
Tall Weatgrass	Agropyron elongatum	6.4 lbs/Ac
Russian Wildrye	Elymus junceus	<u>6.4 lbs/Ac</u>
		25.9 lbs/Ac*

* During the seeding of the test plots, under the supervision of DOGM, the seeding quantities was inadvertently increased by a factor of approximately two (2).



Seed Mix still under review with BLM & DOGM

Banning M&RP, Chapter 3, Section R645-301-342.100, Page 3-15a

Banning Loadout, Permit Number C/007/034

Canyon Fuel Company

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nest boxes. Where the plan does not include enhancement measures, a statement will be given explaining why enhancement is not practicable.

The sediment pond will ~~not be removed and will remain post reclamation. be maintained through the life fo the operation and bond liability period, at which time the pond will be reclaimed.~~ No riparian or wet lands were in evidence at the site.

R645-301-342.200. Where fish and wildlife habitat is to be a post mining land use, the plant species to be used on reclaimed areas will be selected on the basis of the following criteria:

R03/28/95

R645-301-342.210. Their proved nutritional value for fish or wildlife; and

R645-301-342.220. Their use as cover for fish or wildlife; and

R03/28/95

Banning M&RP, Chapter3, Appendix 3-5

DOGM Consultation Letter

Banning Loadout, Permit Number C/007/034

Canyon Fuel Company

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United States Department of the Interior



FISH AND WILDLIFE SERVICE

Utah Ecological Services Field Office
2369 WEST ORTON CIRCLE, SUITE 50
WEST VALLEY CITY, UT 84119

PHONE: (801)975-3330 FAX: (801)975-3331

URL: www.fws.gov; www.fws.gov/utahfieldoffice/

Consultation Code: 06E23000-2016-SLI-0197

March 30, 2016

Event Code: 06E23000-2016-E-00422

Project Name: Banning Loadout

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

Please be aware that bald and golden eagles are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 *et seq.*), and projects affecting these species may require development of an eagle conservation plan (http://www.fws.gov/windenergy/eagle_guidance.html). Additionally, wind energy projects should follow the wind energy guidelines (<http://www.fws.gov/windenergy/>) for minimizing impacts to migratory birds and bats.

Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g., cellular, digital television, radio, and emergency broadcast) can be found at: <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm>; <http://www.towerkill.com>; and <http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment



United States Department of Interior
Fish and Wildlife Service

Project name: Banning Loadout

Official Species List

Provided by:

Utah Ecological Services Field Office
2369 WEST ORTON CIRCLE, SUITE 50
WEST VALLEY CITY, UT 84119
(801) 975-3330
<http://www.fws.gov>
<http://www.fws.gov/utahfieldoffice/>

Consultation Code: 06E23000-2016-SLI-0197

Event Code: 06E23000-2016-E-00422

Project Type: MINING

Project Name: Banning Loadout

Project Description: Banning Loadout near Wellington UT

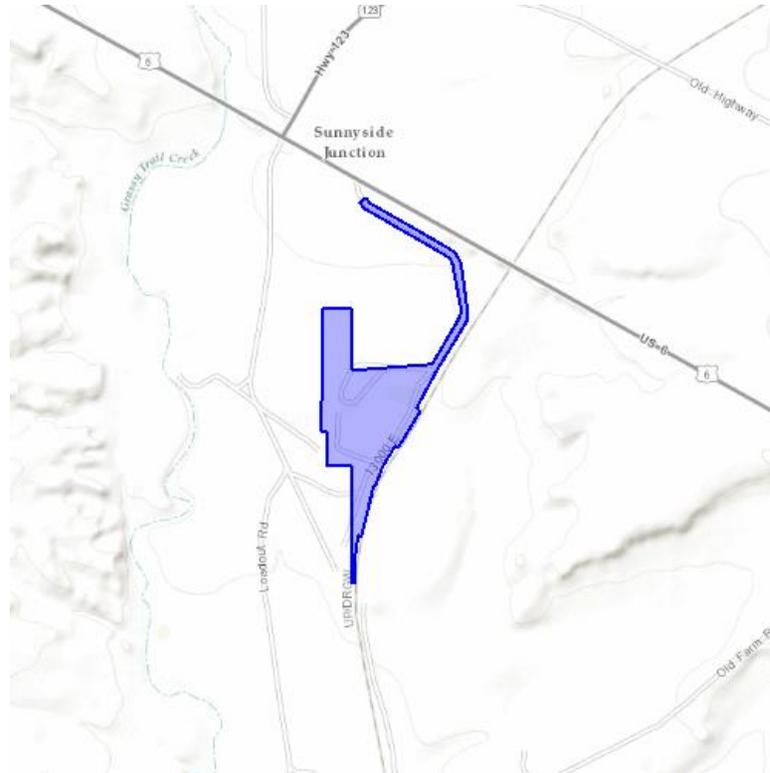
Please Note: The FWS office may have modified the Project Name and/or Project Description, so it may be different from what was submitted in your previous request. If the Consultation Code matches, the FWS considers this to be the same project. Contact the office in the 'Provided by' section of your previous Official Species list if you have any questions or concerns.



United States Department of Interior
Fish and Wildlife Service

Project name: Banning Loadout

Project Location Map:



Project Coordinates: The coordinates are too numerous to display here.

Project Counties: Carbon, UT



United States Department of Interior
Fish and Wildlife Service

Project name: Banning Loadout

Endangered Species Act Species List

There are a total of 6 threatened or endangered species on your species list. Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Critical habitats listed under the **Has Critical Habitat** column may or may not lie within your project area. See the **Critical habitats within your project area** section further below for critical habitat that lies within your project. Please contact the designated FWS office if you have questions.

Birds	Status	Has Critical Habitat	Condition(s)
Mexican Spotted owl (<i>Strix occidentalis lucida</i>) Population: Entire	Threatened	Final designated	
Yellow-Billed Cuckoo (<i>Coccyzus americanus</i>) Population: Western U.S. DPS	Threatened	Proposed	
Fishes			
Bonytail chub (<i>Gila elegans</i>) Population: Entire	Endangered	Final designated	
Colorado pikeminnow (<i>Ptychocheilus lucius</i>) Population: Entire, except EXPN	Endangered	Final designated	
Humpback chub (<i>Gila cypha</i>) Population: Entire	Endangered	Final designated	
Razorback sucker (<i>Xyrauchen texanus</i>) Population: Entire	Endangered	Final designated	



United States Department of Interior
Fish and Wildlife Service

Project name: Banning Loadout

Critical habitats that lie within your project area

There are no critical habitats within your project area.

Banning M&RP, Chapter3, Appendix 3-5

Water Depletion Calculation

Banning Loadout, Permit Number C/007/034

Canyon Fuel Company

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May 9, 2016

Coal Regulatory Program
Utah Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Salt Lake City, UT 84114-5801

Subject: Water Depletion for Coal Mining Operations, Utah Division of Oil Gas and Mining,
Banning Loadout, Canyon Fuel Company, C007/0034

According to the Division's and the U.S. Fish and Wildlife Service (USFWS) recommendations Banning Loadout will provide annual water depletion calculations based on water rights.

The Banning Loadout owned the water right #91-4226 to an underground water sump for 20.27144 acre feet annually. In February of 2007 said water right was transferred to Savoy Energy LLC (see Water Right Quitclaim Deed).

When the water right #91-4226 was active at the Banning Loadout the annual water usage was less than 20.27 acre feet which is well below the 100 acre feet standard set to comply with the Water Recovery Program. Upon transferring Banning's water right all sources of water were eliminated from the site. Therefore the Banning Loadout does not contribute to water depletion of the endangered fish in the Upper Colorado River that is a result of mining activities.

Sincerely,



Bill King
Mining Engineer

Banning M&RP, Chapter 5, Section R645-301-512.130, Page 5-2

Banning Loadout, Permit Number C/007/034

Canyon Fuel Company

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R645-301-511.200 Potential Impacts

The proposed mining operation and its potential impacts to the environment as well as methods and calculation utilized to achieve compliance with design criteria; and

The proposed operation and its potential impacts to the environment as well as methods and calculations utilized to achieve compliance with design criteria are described in detail under Section R645-301-520 and R645-301-530 of this chapter.

R645-301-511.300 Reclamation

Reclamation is described under Section R645-301-540 of this chapter.

R645-301-512 Certification

R645-301-512.100 Cross Sections and Maps

Certain cross sections and maps required to be included in a permit application will be prepared by, or under the direction of, and certified by a qualified, registered, professional engineer or land surveyor, with assistance from experts in related fields such as hydrology, geology and landscape architecture, and will be updated as required by the Division. The following cross sections and maps will be certified:

All maps requiring certification will be prepared by, or under the direction of and certified by a qualified, registered professional engineer or land surveyor. The following is a description of the cross-sections and maps to be certified.

R645-301-512.110 Mine Workings

Mine workings to the extent known as described under R645-301-521.110

N/A This is a surface loadout facility;

R645-301-512.120 Surface Facilities and Operations

Surface facilities and operations as described under R645-301-521.124, R645-301-521.164, R645-301-521.165 and R645-301-521.167;

Exhibits 5-1, 5-2 and 5-3 of this chapter.

R645-301-512.130 Surface Configurations

Surface configurations as described under R645-301-542.300 and R645-302-200;

Exhibit 5-6 ~~and 5-6A~~ of this chapter.

R645-301-512.140 Hydrology

Hydrology as described under R645-301-722, and as appropriate, R645-301-731.700 through R645-301-731.740; and

Exhibits 7-1, 7-2 and 7-3 of Chapter 7.

R645-301-512.150 Geologic Cross Sections and Maps

Geologic cross section and maps as described under R645-301-622.

N/A This is a surface loadout facility only. No mining will be done here.

R645-301-512.200 Plans and Engineering Designs

Excess spoil, durable rock fills, coal mine waste, impoundments, primary roads and variances from approximate original contour require certification by a qualified registered professional engineer.

Banning M&RP, Chapter 5, Section R645-301-512.260, Page 5-4

Banning Loadout, Permit Number C/007/034

Canyon Fuel Company

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R645-301-512.260 Variance from Approximate Original Contour

The professional engineer will certify the design for the proposed variance from the approximate original contour, as described under R645-301-270, in conformance with professional standards established to assure the stability, drainage and configuration necessary for the intended use of the site.

N/A As shown on Exhibit 5-6/~~5-6A~~ and described in Section R645-301-540, the area will be returned to Approximate Original Contour.

R645-301-513 Compliance with MSHA Regulations and MSHA Approvals

R645-301-513.100 *Coal Processing Waste Dams and Embankments will comply with MSHA 30 CFR 77.216-1 and 30 CFR 77.216-2 (see R645-301-528.400 and R645-301-536.820).*

N/A There will be no coal processing waste dams or embankments at this site.

R645-301-513.200 *Impoundments and sedimentation ponds meeting the size or other qualifying criteria of MSHA, 30 CFR 77.216(a) will comply with the requirements of MSHA, 30 CFR 77.216 (see R645-301-533.600, R645-301-742.222, and R645-301-742.223).*

N/A There are no sediment ponds or impoundments at this site which meet the requirements of MSHA 30 CFR 77.216(a).

R645-310-513.300 *Underground development waste, coal processing waste and excess spoil may be disposed of in underground mine workings, but only in accordance with a plan approved by MSHA and the Division (see R645-301-528.321).*

N/A There are no plans to return underground development waste or excess spoil to underground mine workings. Coal processing waste is not being produced at the present time or foreseeable future; however, should it be produced, it would be disposed by blending back into the product for retail sale. It would only be returned to underground mine workings if it met all MSHA and other requirements, and the above alternatives were no longer available.

R645-301-513.400 Refuse Piles

Refuse piles will meet the requirements of MSHA, 30 CFR 77.214 and 30 CFR 77.215 (see R645-301-536.900).

N/A There are no plans for refuse piles at this site.

Banning M&RP, Chapter 5, Section R645-301-521.125, Page 5-17

Banning Loadout, Permit Number C/007/034

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R645-301-521.123 Each public road located in or within 100 feet of the proposed permit area;

The haulage road used to transport coal to the site splits off of U.S. Highway 6-50 just after the Sunnyside Junction. The road parallels the highway for approximately 1200 feet, then curves toward the loadout facilities. Parts of the permit area lie within 100 feet of the U.S. Highway 6-50 Right-of-Way. Location of the permit and U.S. Highway 6-50 are shown on Exhibit 5-1. There are no other public roads within 100 feet of the permit area.

R645-301-521.124 The location and size of existing areas of spoil, waste, coal development waste, and noncoal waste disposal, dams, embankments, other impoundments, and water treatment and air pollution control facilities within the proposed permit area. The map will be prepared and certified according to R645-301-512; and

All other facilities are shown on Exhibit 5-2. This map is prepared and certified according to R645-301-512.

R645-301-521.125 The location of each sedimentation pond, permanent water impoundment, coal processing waste bank and coal processing waste dam and embankment in accordance with R645-301-512.100, R645-301-512.230, R645-301-521.143, R645-301-521.169, R645-301-528.340, R645-301-531, R645-301-533.600, R645-301-533.700, R645-301-535.140 through R645-301-535.152, R645-301-536.600, R645-301-536.800, R645-301-542.500, R645-301-732.210, and R645-301-733.100.

The location of the sediment pond is shown on Exhibit 7-1 and 5-2.

There are no permanent ~~water impoundment~~, coal processing waste banks or coal processing waste dams or embankments associated with this operation.

R645-301-521.130 **Landowners and Right-of-Entry and Public Interest Maps.** These maps and cross sections will clearly show:

Surface and Subsurface Ownership Maps are shown on Exhibits 5-4 and 5-5, respectively.

R645-301-521.131 All boundaries of lands and names of present owners of record of those lands, both surface and subsurface, included in or contiguous to the permit area;

Surface ownership is shown on Exhibit 5-4. Sub-surface ownership is shown on Exhibit 5-5. Ownership is shown within and contiguous to the permit area.

Banning M&RP, Chapter 5, Section R645-301-526.110, Page 5-27

Banning Loadout, Permit Number C/007/034

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There are two separate communication systems provided at Banning Loadout. The first is a mobile two-way radio set installed in the large equipment and in communication with Coal Service's main office. The second is a hand held telephone with its base located within the main control building. Sanitary wastes are collected for disposal by a licensed disposal company.

The haulage road used to transport coal to the site, splits off of U.S. Highway 6-50 just after Sunnyside Junction. The road parallels the highway for approximately 1,200 feet then curves toward the loadout facilities. Parts of the permit area lie within 100 feet of U.S. Highway 6-50 right-of-way. There are no plans to relocate any road in the area and access to the lands south of the facilities by landowners and interest holding parties will be maintained.

The Applicant plans to use all existing structures to facilitate operations and to replace or repair the structures with items of similar performance standards throughout the life-of-operations. All existing structures are shown on Exhibit 5-2. The structures meet the performance standards of the ACT and provide adequate compliance so that no significant harm to the environment, public health or the safety will result from the use of the structures.

The design and construction of the haulage road was submitted to and approved by the BLM prior to construction. The road was constructed as per BLM requirements and preconstruction conference between Authorized Officer and Applicant. The road was resurfaced during 1988 as part of the regular maintenance to insure adherence to the original design. All drainage control devices originally installed during construction are being maintained free from debris that could impair the functions of the devices.

All drainage from the railroad company's main line and the spur are kept separate from the surface disturbance drainage. This drainage flows parallel to the main line and toward the south end of the loadout facility (Exhibit 5-2). All other support facilities are maintained and used in a manner which prevents, to the extent possible, damage to the environment.

All facilities will be removed upon final reclamation, except the main line track, loading spur, substation, sediment pond and a portion of the haul road as shown on Exhibit 5-6 & 5-7A. The Union Pacific Railroad will retain the spur at the completion of the operation (Table 5-1). East Carbonics purchased Banning's substation, the substation and pad area were removed from the disturbed and permitted area in 2004. The land on which the substation sits was also sold to East Carbonics. See Exhibit 5-2R for the location. A post-mining land-use change leaving the substation for use by the current land owner is being proposed by the operator. If approved by UDOGM, the substation will be removed for the permit and disturbed area and remain intact for use by the land owner. If the post mining land use change is not approved the reclamation contours reflecting the removal of the substation are provided on Exhibit 5-6A.

R645-310-526.111 Location

Facilities are shown on Exhibit 5-2

Banning M&RP, Chapter 5, Section R645-301-533.200, Page 5-38

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R645-301-532.100 *Disturbing the smallest practicable area at any one time during the mining operation through progressive backfilling, grading, and prompt revegetation as required in R645-301-353.200; and*

Reclamation efforts of all lands disturbed by the Applicant's operation will occur as contemporaneously as practical with the operations. This will minimize the amount of disturbed area at any one time during the operation.

R645-301-532.200 *Stabilizing the backfilled material to promote a reduction of the rate and volume of runoff in accordance with the requirements of R645-301-537.200, R645-301-552 through R645-301-553.230, R645-301-553.260, through R645-301-553.420, R645-301-553.600, and R645-301-553.900.*

N/A There are no plans for contemporaneous backfilling during operations. Backfilling and regrading will occur during final reclamation as described under Section R645-301-540.

R645-301-533 Impoundments

There is only one sediment pond associated with this operation.

R645-301-533.100 *An impoundment meeting the size or other criteria of 30 CFR 77.216(a) or located where failure would be expected to cause loss of life or serious property damage will have a minimum static safety factor of 1.5 for a normal pool with steady state seepage saturation conditions, and a seismic safety factor of at least 1.2. Impoundments not meeting the size or other criteria of 30 CFR 77.216(a), except for coal mine waste impounding structure, and located where failure would not be expected to cause loss of life or serious property damage will have a minimum static safety factor of 1.3 for normal pool with steady state seepage saturation conditions or meet the requirements of R645-301-733.210.*

There are no impoundments meeting the size or other criteria of 30 CFR 77.216(a) or located where failure would be expected to cause loss of life or serious property damage.

Impoundments are designed to meet the requirements of R645-301-733.210, as described in that section of Chapter 7.

R645-301-533.200 *Foundation for temporary and permanent impoundments must be designed so that:*

~~All impoundments are temporary, and will be removed upon final reclamation. The sediment pond will not be removed and reclaimed during final reclamation.~~

Banning M&RP, Chapter 5, Section R645-301-541, Page 5-44

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R645-301-537.210 through **R645-301-537.250**

N/A There are no settled or revegetated fills composed of spoil or underground development waste proposed to be left on site, therefore R645-301-537.210 through R645-301-537.250 will not be listed.

R645-301-540 Reclamation Plan

This section will describe the Reclamation Plan for the Banning Loadout site.

R645-301-541 General

The land uses within and adjacent to the permit area are listed in Chapter 4. An operating oil field, Grassy Trails, and an inactive carbon dioxide field, Farnham Dome, are located within the region. The operation of Banning Loadout will have no effect of these land uses or any other uses, except for the rangeland and wildlife uses.

Following final reclamation of the site, the affected lands will be returned to a state similar to that of the premining environment. This will be accomplished by adherence to the reclamation plan contained within this section.

The road from U.S. Highway 6-50 to the entrance of the loadout facilities will remain following final reclamation of the site. This is as per the Applicant's BLM Right-of-Way 33855. Ownership of the road shall revert to the United States following reclamation activities at the site. The road from the entrance of the facilities to the truck dump will be removed and the lands will be reclaimed (Exhibit 5-6 ~~and 5-6A~~).

The SCS determined that there are no prime or important farmlands within or adjacent to the permit area, so no special contingency will be made during reclamation. Soils within the reclaimed land will be redistributed, regraded and revegetated. This will insure the stability and productivity of the land.

R645-301-541.100 *Persons who crease coal mining and reclamation operations permanently will close or backfill or otherwise permanently reclaim all affected areas, in accordance with the R645-301- Rules and the permit approved by the Division.*

As noted above, upon final cessation of operations, the area will be permanently reclaimed in accordance with the R645 Rules and the permit approved by the Division.

R645-301-541.200 *For the purposes of SURFACE COAL MINING AND RECLAMATION ACTIVITIES, all underground openings, equipment, structures, or other facilities not required for monitoring, unless approved by the Division as suitable for the postmining land use or environmental monitoring, will be removed and the affected land reclaimed.*

N/A This is a surface loadout for an underground coal mine.

Banning M&RP, Chapter 5, Section R645-301-542.200, Page 5-47

Banning Loadout, Permit Number C/007/034

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R645-301-542 Narratives, Maps and Plans. The reclamation plan for the proposed permit area will include:

R645-301-542.100 A detailed timetable for the completion of each major step in the reclamation plan;

Table 5-2 is a detailed timetable for the completion of each major step of reclamation.

R645-301-542.200 A plan for backfilling, soil stabilization, compacting and grading, with contour maps or cross sections that show the anticipated final surface configuration of the proposed permit area, in accordance with R645-301-537.200, T645-301-552 through R645-301-553.230, R645-301-553.260 through R645-301-553.900, and R645-302-234.

Backfilling and Grading Plan

All areas affected by the loadout facilities within the permit area, except the designated portion of the haulage road, will be returned to a final surface configuration that closely resembles premining conditions. This configuration will conform to the drainage pattern of the surrounding terrain (Exhibit 5-6 and 5-6A). The final contours will be achieved by backfilling and grading existing soils.

The final grading and shaping of the affected areas will produce many flat or relatively flat surfaces with slopes of a moderate grade. All grading will be completed in a controlled manner to suppress or eliminate erosion and sedimentation problems. Grading will take place along the contour as long as safety considerations and areal conditions permit. Graded surfaces will be left in rough shape and will be ripped to produce the proper seedbed conditions. Smooth compacted surfaces will be avoided throughout the process.

Material will be taken first from the truck ramp and used to build up the higher relief areas. Following this, the central drainage channel will be roughed in and the soil distributed to the higher relief areas. Next, the drainage channels and associated road will be regraded to final contours. The road will be built to closely approximate the need of right-of-way specifications. Last, the area will be graded as close to final contours and inspected and certified by the engineer-in-charge.

Drainage controls, except for the sediment pond, will be removed during the final contouring of the site. This is necessary to insure proper configuration of the site and so that future disturbance at the site, to remove the controls, is not required. (The decision on whether to leave the fence up or take it down will be made during the operation after reviewing the data obtained from the test plot area). If the fence is to be taken down it will be done along with final grading of the area. If the fence is to be left up, it will be taken down when the site meets bond release requirements.

Banning M&RP, Chapter 5, Section R645-301-542.200-.300, Page 5-48

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fence is to be left up, it will be taken down when the site meets bond release requirements.

All signs and markers associated with the operation will remain intact, until the final grading of the site. After final grading, if the fence is taken down, the perimeter signs will be placed on steel pins clearly marking the outline of the reclaimed area. All minor amounts of coal and debris left on site will be covered with soil during the grading. Any rills or gullies deeper than 9 inches will be filled, graded or otherwise stabilized and the affected area will be reseeded as per the plan.

Topsoil redistribution and revegetation of the site are discussed under Sections R645-301-240 (Chapter 2) and R645-301-340 (Chapter 3), respectively.

The final surface configuration is shown on Exhibit 5-6 ~~and 5-6A~~ and cross sections are shown on Exhibit 5-3.

R645-301-542.300 *For the purposes of UNDERGROUND COAL MINING AND RECLAMATION ACTIVITIES, final surface configuration maps with cross sections (at internals specified by the Division) that indicate:*

The final surface configuration is shown on Exhibit 5-6 ~~and 5-6A~~. Cross sections are shown on Exhibit 5-3.

R645-301-542.310 *The anticipated final surface configuration to be achieved for the affected areas. The maps and cross sections will be prepared and certified as described under R645-301-512; and*

All final surface configuration maps and cross sections are prepared under the direction of, and certified by, a registered professional engineer as required.

R645-301-542.320 *Location of each facility that will remain on the proposed permit area as a permanent feature, after the completion of coal mining and reclamation operations;*

A portion of the haul road will remain as a permanent feature, this road is left as a provision of the B.L.M. Right-of-Way. See section R645-301-526.110 for additional information.

Banning M&RP, Chapter 5, Section R645-301-552, Page 5-52

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R645-301-551 *Casing and Sealing of Underground Openings. When no longer needed for monitoring or other use approved by the Division upon a finding of no adverse environmental or health and safety effects, each shaft, drift, adit, tunnel, or other opening to the surface from underground will be capped, sealed and backfilled, or otherwise properly managed, as required by the Division and consistent with MSHA, 30 CFR 75.1771. Permanent closure measures will be designed to prevent access to the mine workings by people, livestock, fish and wildlife, machinery and to keep acid or other toxic drainage from entering ground or surface waters.*

N/A There are no underground openings at this site.

R645-301-552 Permanent Features

The only permanent features proposed to left is the portion of the haul road on the B.L.M. Right-of-Way as shown on Exhibit 5-6^A. Refer to Chapter 4 Section R645-301-412.100 for information pertaining to the land purchased by East Carbonics Inc. and the associated post mining land use change pertaining to the substation. In addition refer to Section R645-301-526.110 concerning permanent features.

R645-301-552.100 *Small depressions may be constructed if they are needed to retain moisture, minimize erosion, create and enhance wildlife habitat, or assist revegetation.*

The final surface will be roughened to promote water retention and assist vegetation. This roughening will create small pockets or depressions.

R645-301-552.200 *Permanent impoundments may be approved if they meet the requirements of R645-301-512.240, R645-301-514.300, R645-301-515.200, R645-301-533.100 through R645-301-533.600, R645-301-542.400, R645-301-733.220 through R645-301-733.224, R645-301-743, and if they are suitable for the approved postmining land use.*

~~N/A There are no plans for permanent impoundments at this site. A portion of the sediment pond will be retained as illustrated in Exhibit 5-6.~~

R645-301-553 *Backfilling and Grading. Backfilling and grading design criteria must be described in the permit application. For the purposes of UNDERGROUND COAL MINING AND RECLAMATION ACTIVITIES nothing in R645-301-553 will prohibit the placement of material in road and portal pad embankments located on the downslope, so long as the material used and the embankment design comply with the applicable requirements of R645-301-500 and R645-301-700 and the material is moved and placed in a controlled manner. For the purposes of SURFACE COAL MINING AND RECLAMATION ACTIVITIES rough backfilling and grading will follow coal removal by not more than 60 days or 1500 linear feet. The Division may grant additional time for rough backfilling and grading if the permittee can demonstrate, through a detailed written analysis under R645-301-542.200, that additional time is necessary.*

Backfilling and grading plans are discussed under Section R645-301-542.200.

R645-301-553.100 *Disturbed areas will be backfilled and graded to:*

The disturbed area will be backfilled and graded to the following:

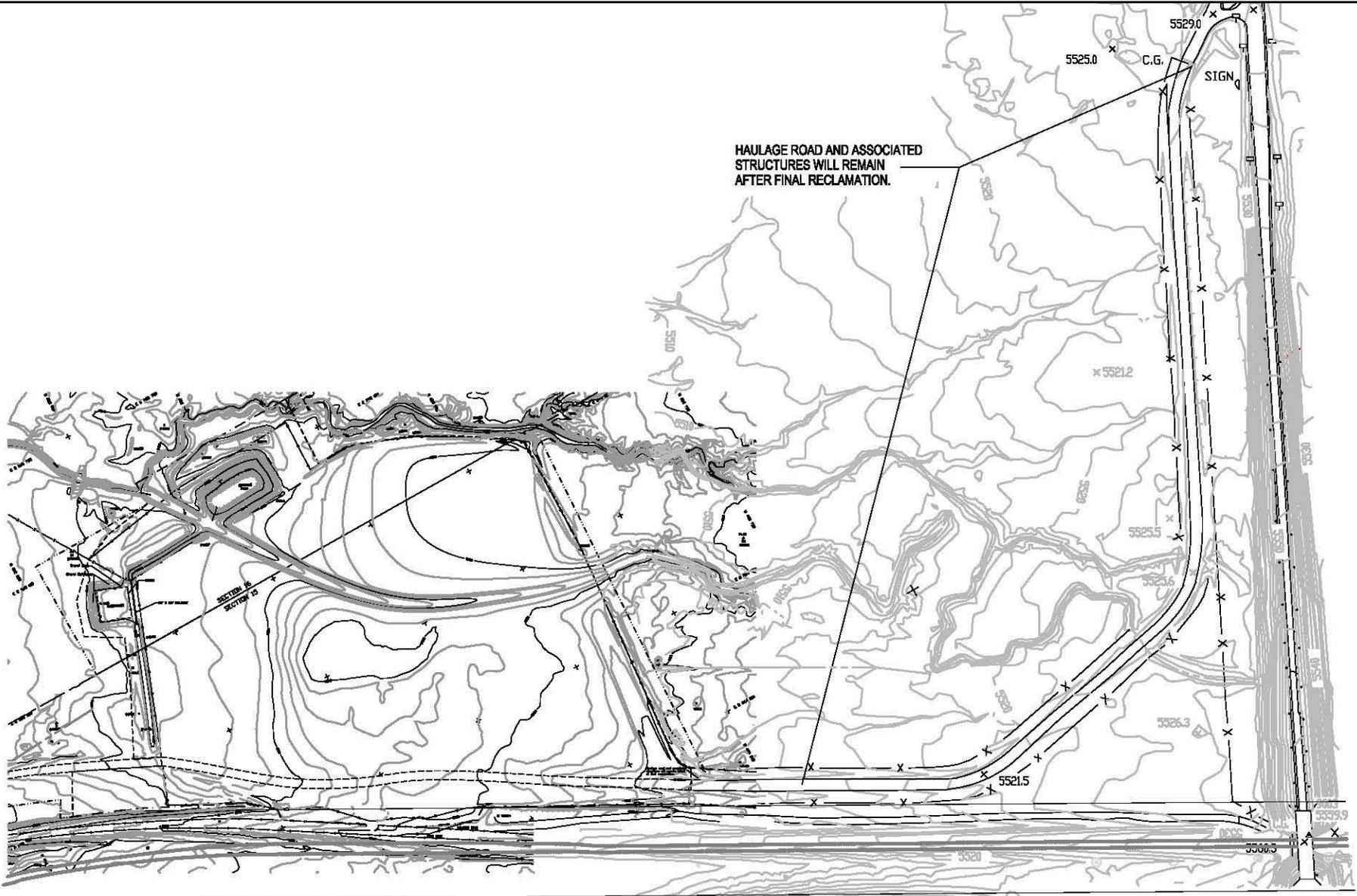
Banning M&RP, Exhibit 5-7A Added
Banning Loadout, Permit Number C/007/034

Canyon Fuel Company

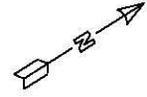
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HAULAGE ROAD AND ASSOCIATED STRUCTURES WILL REMAIN AFTER FINAL RECLAMATION.



- LEGEND
- PERMIT AREA BOUNDARY
 - PERMIT AREA AND SECTION LINE
 - SECTION LINE
 - PERMIT AREA AND DISTURBANCE AREA
 - DISTURBANCE AREA
 - FENCE



DATE	No.	REVISIONS	BY	CHK

BANNING LOADOUT
FINAL CONTOUR HAULAGE ROAD

CF Canyon Fuel Company, LLC
Soldier Canyon Mines

DATE: 5/8/2018
SCALE: 1"=100'
DWG. NO.: NONE

BY: [Signature]
CHK: [Signature]
DESIGNER: DEBY D. SPILLMAN
EXHIBIT 5-7A

Banning M&RP, Chapter 8, Appendix 8-1
Banning Loadout, Permit Number C/007/034

Canyon Fuel Company

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Direct Costs

Subtotal Demolition and Removal	\$70,589	\$67,227
Subtotal Backfilling and Grading	\$51,338	\$59,887
Subtotal Revegetation	\$56,400	\$76,868
Direct Costs	\$178,327	\$203,982

Indirect Costs

Mob/Demob	\$17,832	10.0%	\$20,398	10.0%
Contingency	\$8,916	5.0%	\$10,199	5.0%
Engineering Redesign	\$4,458	2.5%	\$5,100	2.5%
Main Office Expense	\$12,126	6.8%	\$13,871	6.8%
Project Management Fee	\$4,458	2.5%	\$5,100	2.5%
Subtotal Indirect Costs	\$47,790	26.8%	\$54,668	26.8%

Total Reclamation Cost 2016 Dollars **\$226,117** **\$258,650**

Escalation factor for 2016		0.004		0.007
Number of years to next review		5		5
Escalation	\$4,552		\$9,180	

Reclamation Cost Escalated to 2021 **\$230,639** **\$267,830**

Bond Amount (rounded to nearest \$1,000)	\$231,000	\$268,000
Bond Posted 2013 Dollars	\$350,000	\$350,000
Difference Between Cost Estimate and Bond	\$119,000	\$82,000
Percent Difference	34.00%	23.43%

Demolition Line Item Subtotals

<i>Ref.</i>	<i>Description, Banning Loadout</i>	<i>Cost 2016 Dollars</i>
1	Reclaim Tunnel & Grizzly 01	\$ 18,735
2	Building 02	\$ 5,725
3	Fence 03	\$ 11,973
4	Concrete 04	\$ 8,644
5	Asphalt 05	\$ 22,150
	Total	\$ 67,227

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost	
1	Reclaim Tunnel & Grizzly 01																				
	Structure's Demolition Cost	Steel Bldg. Large include 20 Mile Haul	02 41 16 13 0020	0.28	/CF													39150	CF	\$ 10,962	
	Structure's Vol. Demolished																	0.1	3915	CF	
	Rubble's Weight (exclude steel)																				
	Truck's Capacity																				
	Haulage																				
	Transportation Cost Non Steel Truck																				
	Transportation Cost Non Steel Drive																				
	Disposal Cost Non Steel																				
	Steel's Weight											489				LB/CF		957	TON		
	Truck's Capacity											16				Ton					
	Haulage											1				HR					
	Transportation Cost Steel Truck	Truck dump 16 ton payload	01 54 33 20 5300	690.8	/day														7.5	day	\$ 5,181
	Transportation Cost Steel Truck Drive	Truck Driver, Heavy	Trhvv	43.2	HR														60	HR	\$ 2,592
	Disposal Cost Steel																				
	Subtotal																				\$ 18,735
	Equipment's Disposal Cost																				
	Dismantling Cost																				
	Equipment's Vol. Demolished																				
	Loading Costs																				
	Transport Costs																				
	Disposal Costs																				
	Subtotal																				\$ -
	Concrete Demolition																				
	Demolition Cost																				
	Concrete's Vol. Demolished																				
	Loading Cost																				
	Transportation Cost																				
	Disposal Costs																				
	Subtotal																				\$ -
	Total																				\$ 18,735

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost	
2	Building 02																				
	Structure's Demolition Cost	Steel Bldg. Large include 20 Mile Haul	02 41 16 13 0020	0.28	/CF													4590	CF	\$ 1,285	
	Structure's Vol. Demolished																0.35	60	CY		
	Rubble's Weight (exclude steel)																				
	Truck's Capacity																				
	Haulage																				
	Transportation Cost Non Steel Truck																				
	Transportation Cost Non Steel Drive																				
	Disposal Cost Non Steel	Dump Charges	02 41 19.20 0100	74	/CY													60	CY	\$ 4,440	
	Steel's Weight																				
	Truck's Capacity																				
	Haulage																				
	Transportation Cost Steel Truck																				
	Transportation Cost Steel Truck Drive																				
	Disposal Cost Steel																				
	Subtotal																			\$ 5,725	
	Equipment's Disposal Cost																				
	Dismantling Cost																				
	Equipment's Vol. Demolished																				
	Loading Costs																				
	Transport Costs																				
	Disposal Costs																				
	Subtotal																			\$ -	
	Concrete Demolition																				
	Demolition Cost																				
	Concrete's Vol. Demolished																				
	Loading Cost																				
	Transportation Cost																				
	Disposal Costs																				
	Subtotal																			\$ -	
	Total																			\$ 5,725	

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost	
3	Fence 03																				
	Structure's Demolition Cost																				
	Structure's Vol. Demolished																				
	Rubble's Weight (exclude steel)																				
	Truck's Capacity																				
	Haulage																				
	Transportation Cost Non Steel Truck																				
	Transportation Cost Non Steel Drive																				
	Disposal Cost Non Steel																				
	Steel's Weight																				
	Truck's Capacity																				
	Haulage																				
	Transportation Cost Steel Truck																				
	Transportation Cost Steel Truck Drive																				
	Disposal Cost Steel																				
	Subtotal																				\$ -
	Equipment 's Disposal Cost	Chain Link Remove 8'-10'	02 41 13 60 1700	3.07	LF	3900										FT		3900	FT	\$ 11,973	
	Dismantling Cost																				
	Equipment 's Vol. Demolished																				
	Loading Costs																				
	Transport Costs																				
	Disposal Costs																				
	Subtotal																				\$ 11,973
	Concrete Demolition																				
	Demolition Cost																				
	Concrete's Vol. Demolished																				
	Loading Cost																				
	Transportation Cost																				
	Disposal Costs																				
	Subtotal																				\$ -
	Total																				\$ 11,973

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost		
4	Concrete 04																					
	Structure's Demolition Cost																					
	Structure's Vol. Demolished																					
	Rubble's Weight (exclude steel)																					
	Truck's Capacity																					
	Haulage																					
	Transportation Cost Non Steel Truck																					
	Transportation Cost Non Steel Drive																					
	Disposal Cost Non Steel																					
	Steel's Weight																					
	Truck's Capacity																					
	Haulage																					
	Transportation Cost Steel Truck																					
	Transportation Cost Steel Truck Drive																					
	Disposal Cost Steel																					
	Subtotal																				\$ -	
	Equipment's Disposal Cost																					
	Dismantling Cost																					
	Equipment's Vol. Demolished																					
	Loading Costs																					
	Transport Costs																					
	Disposal Costs																					
	Subtotal																				\$ -	
	Concrete Demolition	Concrete Demolition	Nielson '15	13.75	/CY						290					CY		290			\$ 3,988	
	Demolition Cost																	1.3	377	CY		
	Concrete's Vol. Demolished																			377	CY	
	Loading Cost	Front End Loader 3 CY	31 23 16 42 1601	0.96	/CY															377	CY	\$ 362
	Transportation Cost	12 CY (16 Ton) Dump Truck 1/2 mi rd. trip	31 23 23.20 3014	2.32	/CY															377	CY	\$ 875
	Disposal Costs	On Site Disposal	02 41 16 17 4200	9.07	/CY															377	CY	\$ 3,419
	Subtotal																				\$ 8,644	
	Total																				\$ 8,644	

Ref.	Description	Materials	Means Reference Number	Unit Cost	Unit	Length	Width	Height	Diameter	Area	Volume	Weight	Density	Time	Number	Unit	Swell Factor	Quantity	Unit	Cost	
5	Asphalt 05																				
	Structure's Demolition Cost																				
	Structure's Vol. Demolished																				
	Rubble's Weight (exclude steel)																				
	Truck's Capacity																				
	Haulage																				
	Transportation Cost Non Steel Truck																				
	Transportation Cost Non Steel Drive																				
	Disposal Cost Non Steel																				
	Steel's Weight																				
	Truck's Capacity																				
	Haulage																				
	Transportation Cost Steel Truck																				
	Transportation Cost Steel Truck Drive																				
	Disposal Cost Steel																				
	Subtotal																				\$ -
	Equipment's Disposal Cost																				
	Dismantling Cost																				
	Equipment's Vol. Demolished																				
	Loading Costs																				
	Transport Costs																				
	Disposal Costs																				
	Subtotal																				\$ -
	Asphalt Demolition																				
	Demolition Cost	Demolish Remove Pavement	02 41 13.17 5050	7.12/SY						3111						SY		3111	SY	\$ 22,150	
	Concrete's Vol. Demolished																				
	Loading Cost																				
	Transportation Cost																				
	Disposal Costs																				
	Subtotal																				\$ 22,150
	Concrete Demolition																				
	Demolition Cost																				
	Concrete's Vol. Demolished																				
	Loading Cost																				
	Transportation Cost																				
	Disposal Costs																				
	Subtotal																				0
	Total																				\$ 22,150

Road 20' wide x 1400' long = 28000divided by 9 = 3111

	Cost Reference		Equipment Cost	Hourly Operating Costs	Equipment Overhead	Operator's Hourly Wage Rate	Hourly Cost	Number of Men or Eq.	Total Eq. & Lab. Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
	Year	Page															
Backfilling and Grading 01																	
<i>Rough Grade</i>																	
D9R Semi-U EROPS (couldn't find D9R Semi-U EROPS used D8R)	2016	(\$9-37) &	16865	89.55	0.1	51.1	255.01	1	255.01	\$/HR					64	HR	16321
CLAB	2016	RSMMeans	Back cover				37.9	0.5	18.95	\$/HR					64	HR	1213
<i>Rip</i>																	
D9R Semi-U EROPS (couldn't find D9R Semi-U EROPS used D8T)	2016	(\$9-37) &	16865	89.55	0.1	51.1	255.01	1	255.01	\$/HR					30	HR	7650
Multi-Shank Ripper 260-359 P	2016	(\$9-39)	2515	9.2	0.1		26	1	26	\$/HR					30	HR	780
CLAB	2016	RSMMeans	Back cover				37.9	0.5	18.95	\$/HR					30	HR	569
Subtotal																	26533

Note: D8R Series II Semi-U EROPS (307 hp) used within cells above, Alternative D10T EROPS (574 hp) equip=36825, operating=160.05

	Cost Reference Year	Page	Equipment Cost	Hourly Operating Costs	Equipment Overhead	Operator's Hourly Wage Rate	Hourly Cost	Number of Men or Eq.	Total Eq. & Lab. Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost
Load Coal 02																	
988G EROPS (Used Diesel Volvo L CLAB	2016	(\$9-37)	21305	114.95	0.1	51.1	310.7	1	310.7	\$/HR					32.5	HR	10098
							37.9	0.5	18.95	\$/HR					32.5	HR	616
Subtotal																	10714

Note: Diesel Volvo - L350F w/EROPS bucket size-8.6, cy (528 hp)used within cells above, Alternative: Diesel Komatsu - WA600-6 w/EROPS bucket size 8.4, cy (502 hp) equip=18405, operating=106.20

	Cost Reference		Equipment Cost	Hourly Operating Costs	Equipment Overhead	Operator's Hourly Wage Rate	Hourly Cost	Number of Men or Eq.	Total Eq. & Lab. Costs	Units	Quantity	Units	Production Rate	Units	Equip. + Labor Time/Dis.	Units	Cost	
	Year	Page																
Haul Topsoil and Riprap 03																		
6X4 70,000lbs 12-18 CY	2016	(\$20-11)	4430	47	0.1	51.1	130.49	5	652.45	\$/HR								19769
CLAB							37.9	2.5	94.75	\$/HR								2871
Subtotal																		22640

