



July 13, 2009

Mr. Daron Haddock, Environmental Manager
Coal Regulatory Program
Utah Division of Oil, Gas, and Mining
1594 West North Temple, Suite 1210
Salt Lake City, Utah 84116

**RE: Submittal of Additional Information
Covol Engineered Fuels, LC
Permit No. C/007/0045, Task #3256**

Dear Mr. Haddock:

Covol Engineered Fuels, LC (Covol) is submitting the enclosed application for Covol's pending mine permit C/007/0045. This submittal addresses the deficiencies listed in the Utah Division of Oil, Gas, and Mining (UDOGM) letter dated May 19, 2009.

In the enclosed application, the color order for the revisions are as follows:

- Red markings – October 2008 revision
- Blue markings – March 2009 revision
- Green markings – July 2009 revision

If you have any questions regarding the application, please call me at (801) 984-3770.

Sincerely,

Gina Rau
Environmental Manager

File in:
C/0070045.2009.Incoming
Refer to:
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070309

RECEIVED
JUL 13 2009
DIV. OF OIL, GAS & MINING

APPLICATION FOR COAL PERMIT PROCESSING

Permit Change New Permit Renewal Exploration Bond Release Transfer

Permittee: COVOL Engineered Fuels, LC
Mine: Wellington Dry-Coal Cleaning Facility **Permit Number:** C/007/0045
Title: Response to DOGM comments dated May 19, 2009 (Task ID #3256)

Description, Include reason for application and timing required to implement:
Revision of permit application to address DOGM comments

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 four (4) review copies of the application. If the mine is on or adjacent to Forest Service land please submit five (5) copies, thank you. (These numbers include a copy for the Price Field Office)

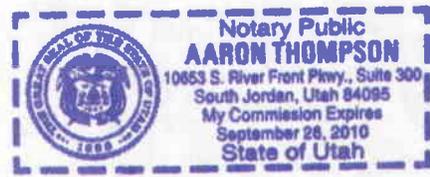
I hereby certify that I am a responsible official of the applicant and that the information contained in this application is true and correct to the best of my information and belief in all respects with the laws of Utah in reference to commitments, undertakings, and obligations, herein.

John R Shaal
 Print Name

John R Shaal 7-9-09
 Sign Name, Position, Date

Subscribed and sworn to before me this 9th day of July, 2009

Aaron Thompson
 Notary Public



My commission Expires: Sept. 26, 2010
 Attest: State of Utah } ss:
 County of Salt Lake

For Office Use Only: 	Assigned Tracking Number: 	Received by Oil, Gas & Mining <div style="text-align: center; color: red; font-weight: bold; font-size: 1.2em;"> RECEIVED JUL 13 2009 DIV. OF OIL, GAS & MINING </div>
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Response to DOGM Comments
WG #3256
Wellington Dry-Coal Cleaning Facility Application

R645-301-724.100: The application does not meet the Groundwater Baseline requirements as required by the State of Utah R645-Coal Mining Rules. The following deficiencies must be addressed prior to Division approval of the permit:

- The Permittee must provide the surface and groundwater baseline data in tabular form and a map of all sampling locations. (SC)

All references to the Savage Coal Terminal have been removed from the document, negating the need to provide baseline data from that site.

- The Permittee must provide a discussion as to how the information/data obtained from the Savage Coal Terminal and “nearby wells” is representative of the ground water resources located at the site. (SC)

All references to the Savage Coal Terminal have been removed from the document, negating the need to discuss the representativeness of the data collected from that site.

The following deficiencies have been identified from the applicants’ response to the Division’s correspondence dated February 17, 2009, (John Baza to Keith Thompson):

- The application does not include a description of the vegetative communities in the adjacent area. The description of each plant community needs to include the dominant and or subdominant species in the text and properly define the boundaries of each community, (a label on the map does not define the area covered by the community). The labels should be included in the legend on the map in Appendix 3-1 that is identified as “Vegetative communities”. (JH)

Section 3.2.1.1 and Appendix 3-1 have been modified. The maps in Appendix 3-1 have also been modified.

- The map needs to be to the appropriate scale of 1:24,000, (R645-301-141), and include a legend that identifies each of the communities in the adjacent area. (JH)

All map scales meet the requirements of R645-301-141. Scales have been added to the maps in Appendix 3-1.

- Eight of the seventeen Forbs listed on page 2 of Appendix 3-1 are incorrect. The information on this page needs to be revised accordingly. (JH)

Section 3.2.1.1 and Appendix 3-1 have been modified accordingly.

- The application needs to include maps, (to appropriate scale of 1:24,000), for Mule Deer, Pronghorn Antelope and Burrowing owl. Consultation with the DWR, (Sara Lindsey, Information Manager, Utah natural Heritage Program and Tony Wright, Sensitive species biologist), indicate that the Wildlife Habitat map does not accurately represent the habitat for the Bluehead Sucker, Prairie Dog and Burrowing Owl. The applicant needs to provide an accurate habitat map, (verified by DWR), for these species. (JH)

Section 3.2.2 and Appendix 3- have been appropriately modified. The map scale meets the requirements of R645-301-141. Scales have been added to the maps in Appendix 3-1.

- The application includes a literature search for the burrowing owl but does not include an approved, (FWS protocol), on the ground survey and results for this species. (JH)

Section 3.2.2 and Appendix 3-1 have been modified to describe the survey methods in greater detail, including notation of the agency survey protocols that were followed.

- In order to verify that the surveys, (Burrowing owl and Threatened and Endangered Species), have been completed by an individual qualified in the subject to be analyzed, (R645-301-130 ET sec), the application needs to include qualifications statements of the individual or individuals that conduct the surveys. Minimum requirements include a bachelor's degree in Wildlife Biology or closely related field with a minimum of five years experience in Wildlife and Threatened and Endangered Species surveys. (JH)

The qualifications of the individual who conducted the surveys are summarized in Appendix 3-2.

- The applicant has not addressed the following deficiencies:

Include the following maps for the permit site (and the adjacent area where applicable):

- Cultural resources: area covered by the literature search, and any cultural resources found.

The area of the literature search and the location of the cultural resource found in that search were provided in the March 2009 submittal (see Appendix 4-1).

- In order to verify that the (Cultural Resources class 1 Literature Search has been completed by an individual qualified in the subject to be analyzed, (R645-301-130 et sec), the application needs to include qualifications statements of the individual or individuals that conducted the survey. Minimum requirements include a graduate degree in Archaeology or Paleontology and confirmation of projects completed with PLPCO or the Antiquities section of SHPO. Qualification statements will be verified with the appropriate entity. (JH)

The qualifications of the individual who conducted the cultural resource inventory are summarized in Appendix 4-3.

- Monitoring and sampling locations

This comment was addressed in the March 2009 submittal (see Figure 7-2 and Plate 5-1).

- Vegetation reference area

This comment was addressed in the March 2009 submittal. As indicated in Section 3.4.1.2, no vegetation reference area has been established. Revegetation success will be determined using a temporary reference area chosen at the time of reclamation.

- Public parks and cultural or historic resources located within the permit and adjacent area.

This comment was addressed in the March 2009 submittal. The closest public park is located 2.2 miles northeast of the permit area. This park is not considered to be in the adjacent area. Cultural or historic sites in the vicinity of the permit area are noted on the map provided in the report provided in Appendix 4-1.

- Facilities to be left at reclamation

This comment was addressed in the March 2009 submittal. These facilities are noted on Plate 5-2.

- Reclamation surface and subsurface manmade features

This comment was addressed in the March 2009 submittal. These features are shown on Plate 5-2.

- Surface ownership

This comment was addressed in the March 2009 submittal. This information is noted on Figure 5-2A.

- The referenced maps need to be to the appropriate scale of 1:6,000 or 1:24,000. (JH)

All map scales meet the requirements of R645-301-141.

- The application does not include a statement of acknowledgement that the water consumption from Miller Canyon is pending approval from the U. S. Fish and Wildlife Service (FWS) even though it is below the 100 acre feet limit. (JH)

A statement to this effect was provided in the March 2009 submittal, in Section 3.2.2.2.

- The application does not include site-specific information that describes the type of industrial use the property will be used for at the completion of mining activities. (JH)

This comment was addressed in the March 2009 submittal (see Sections 4.1.2.1 and 5.4.1 as well as Appendix 1-4).

- The application does not include a copy of the Wellington City agreement for reclamation of the site. (JH)

Section 1.1.2.4 has been modified to address the Letter of Assurance that was provided to Wellington City by Headwaters Incorporated. A copy of this letter is provided in Appendix 1-4.

- The applicant has not committed to provide the following information at the end of mining:

The entity responsible for the post mining land use and,

A written request from the entity identifying their needs for the property, and a right of entry agreement between Covol and the industrial site user if other than Covol;

Or a clear and concise methodology for the reclamation of that portion of the disturbed area. (JH)

A commitment to provide the name of the entity responsible for the post-mining land use and a written request from the entity identifying their needs for the property was provided previously in the March 2009 submittal (see Section 5.4.1).

R645-301-830.140. The amount of bond will be based on, but not limited to, the detailed estimated cost, with supporting calculations for the estimates, submitted by the permit applicant.

Table 8-1 of the application identifies the Reclamation Tasks and the dimensions of structures to be taken care of at the time of reclamation. It is understood that some of these structures may not be reclaimed or tasks may not be performed should there be an approved post-mining land use that allows them to be left. While the site is approved for an industrial post-mining land use, the need for the structures will only be evaluated after a new owner is identified.

Because of the uncertainty associated with the use of any of the Structures/Areas, a reclamation cost estimate must be provided for each of the reclamation tasks associated with Table 8-1. Costs for the disposal of concrete, steel or waste materials (including haul and disposal fees) must be provided as well as earthwork calculations and costs for any earthmoving activities. (PH)

The Reclamation bond estimate is provided in Appendix 8-1.

CHAPTER 1 LEGAL, FINANCIAL, COMPLIANCE, AND RELATED INFORMATION

1.10 Minimum Requirements

1.1.1 Introduction

This chapter of the COVOL Dry-Coal Cleaning Facility permit application provides information regarding the ownership and control of the permit area. The compliance status of the operator at other locations is also provided herein. The facility covered by this permit application has been in operation since January 2006.

The COVOL Dry-Coal Cleaning Facility (MSHA ID 42-02398 issued 2/10/2005) is used for coal cleaning and is not a coal mine. As a result, some sections of Utah's coal mine permitting rules do not strictly apply to this site. Given that fact, the applicant and the Utah Division of Oil, Gas and Mining held discussions over a period of several months prior to the submittal of this permit application in order to establish the submittal requirements. Correspondence associated with these discussions is provided in Appendix 1-1.

An environmental compliance assessment was conducted of the COVOL operations in 2006. A copy of the opinion report resulting from that assessment is provided in Appendix 1-2. That report includes copies of environmental permits, plans, policies, and procedures that were in place at the time of the assessment.

This document has been arranged in the format of the R645-301 regulations. For example, Section 1.10 corresponds to R645-301-110, Section 1.1.1 corresponds to R645-301-111, Section 1.1.2.2 corresponds to R645-301-112.200, etc.

File in:

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Refer to Record No. 0004 Date 07/3/2009

In CI 0070045 2009 Incoming
For additional information

1.1.2 Identification of Interests

COVOL Engineered Fuels, LLC (hereafter referred to as "COVOL") is a subsidiary of Headwaters Energy Services Corporation, 10653 South River Front Parkway, Suite 300, South Jordan, Utah. Headwaters Energy Services Corporation is a subsidiary of Headwaters Incorporated. The relationship between these three companies is shown in Figure 1-1. COVOL is the owner/operator of the dry coal cleaning facility located in Carbon County, Utah. The facility is located within Section 14, Township 15 South, Range 10 East, SLBM, approximately 2 miles west of Wellington, Utah. The following entity owns 10% or more of the stock of Headwaters Incorporated but does not control Headwaters Incorporated or its subsidiaries:

Earnest Partners
1180 Peachtree Street
Suite 2300
Atlanta, GA 30309
Phone: 800-322-0068

Chief Executive Officer and Manager: Paul Viera (with Earnest Partners since 03/15/1999)
Chief Operating Officer: John Whitmore (with Earnest Partners since 06/16/2005)
Chief Compliance Officer: James Wilson, Jr. (with Earnest Partners since 09/01/2002)

1.1.12.1 Business Entity

COVOL is a limited liability company. Headwaters Energy Services Corporation and Headwaters Incorporated are corporations.

1.1.2.2 Applicant and Operator

APPLICANT: COVOL Engineered Fuels, LC
10653 South River Front Parkway, Suite 300
South Jordan, Utah 84095
(801) 984-~~3777~~9400

Payment of abandoned mine land reclamation fees, if any, will be the responsibility of the President and Manager of COVOL Engineered Fuels. Inquiries regarding the payment of this fee should be directed to this individual at the mailing address and phone number indicated above. The person currently occupying this position is indicated in Section 1.1.2.3.

OPERATOR: COVOL Engineered Fuels, LC
1865 West Ridge Road
Wellington, Utah 84654
(435) 613-1631

1.1.2.3 Officers and Directors

The directors and officers of Headwaters Incorporated (FEIN 87-0547337) are:

Board of Directors (all own <5%):

<u>Name</u>	<u>Date position was assumed</u>
Kirk A. Benson	<u>01/01/1999</u> 09/06/2000
James A. Hickeroff	<u>08/01/1997</u> 09/06/2000
R. Sam Christensen	01/01/2003
William S. Dickenson	01/01/2003
E.J. Jake Garn	01/01/2002
Malyn K. Malquist	01/01/2003
Raymond J. Weller	<u>07/01/1991</u> 09/06/2000
Blake O. Fisher, Jr.	11/01/2004

Officers (all own <5%):

<u>Name</u>	<u>Title</u>	<u>Date position was assumed</u>
Kirk A. Benson	Chairman of the Board and Chief Executive Officer	
<u>01/01/1999</u> 09/06/2000		
Steven G. Stewart	Chief Financial Officer and Treasurer	09/04/2007
Harlan M. Hatfield	Vice President and Secretary	
<u>07/01/1998</u> 09/06/2000		

The director and officers of Headwaters Energy Services Corporation (FEIN 80-0380929) are:

Director (owns <5%): Steven G. Stewart (Position assumed 09/04/2007)

Officers (all own <5%):

<u>Name</u>	<u>Title</u>	<u>Date position was assumed</u>
Steven G. Stewart	Chief Financial Officer and Chairman of the Board	09/04/2007
Kenneth R. Frailey	President	08/18/2004
William H. Gehrmann	President	04/15/2009
Stephanie Black	Vice President	04/15/2009
Harlan M. Hatfield	Vice President and Assistant Secretary	04/09/2003
Scott Ballard	Treasurer	04/15/2009
Curtis J. Brown	Secretary	08/18/2004
Jason T. Day	Assistant Secretary	05/12/2004

The officers (all own <5%) of COVOL (FEIN 90-0221443) are:

<u>Name</u>	<u>Title</u>	<u>Date position was assumed</u>
Kenneth R. Frailey	President and Manager	08/24/2004
William H. Gehrmann	President	04/17/2009
Steven G. Stewart	Corporate Financial Officer and Manager	09/04/2007
Evan J. O'Neil	Vice President	06/01/2006
Keith Thompson	Vice President	08/09/2004
John Shaal	Vice President	04/17/2009
Harlan M. Hatfield	Vice President and Manager	06/01/2006 08/09/2004
Scott Ballard	Treasurer	04/17/2009
Curtis J. Brown	Officer	08/09/2004
Jason T. Day	Officer	08/09/2004

The addresses and phone numbers for the officers and directors of Headwaters Incorporated, Headwaters Energy Services Corporation, and COVOL are the same as the applicant.

Written correspondence to Headwaters Incorporated or COVOL regarding the operations should be addressed to:

Gina Rau

Environmental Manager
Headwaters Incorporated
10653 South River Front Parkway, Suite 300
South Jordan, Utah 84095
(801) 984-3770

1.1.2.4 Coal Mining and Reclamation Operation Permit Applications

The following list represents all permits issued to COVOL, along with applicable identification numbers of applications or permits:

<u>Permit</u>	<u>Issuing Authority</u>	<u>Status</u>
UPDES Permit (No. UTR000685)	Utah Dept. Environmental Quality, Division of Water Quality	Approved
Approval Order (DAQE# AN2952001-03)	Utah Dept. Environmental Quality, Division of Air Quality	Approved
Certificate of Insurance and Business Authorization	Utah Industrial Development Commission	Approved

The COVOL operations permit number is to be determined by the Utah Division of Oil, Gas, and Mining (“DOGM”), which is the issuing authority for the facility. The ~~following~~ permits and operations ~~are~~ held by ~~the indicated~~ subsidiary companies of Headwaters Energy Services Corporation are indicated in Table 1-1.:

Neither Wellington City nor Carbon County required COVOL to file development plans prior to construction of the facility. Neither of these local governmental bodies placed reclamation obligations on COVOL or required that COVOL file a reclamation bond. Wellington City issued a Conditional Use Permit to COVOL to grant a variance for the height of their loadout silo. A copy of the Conditional Use Permit is provided in Appendix 1-4. Headwaters Incorporated provided Wellington City with a letter of assurance that Headwaters would “lend its financial support and cause Covol to manage the coal and residual material located at the facility in accordance with applicable laws.” In this letter, Headwaters also indicated that they would “ensure that Covol will

remove all coal and residual material location on the property (excluding material used for improvements).” A copy of this letter of assurance is provided in Appendix 1-4.

COVOL Fuels No.2, LLC (Kentucky)

<u>Permit</u>	<u>Issuing Authority</u>	<u>Status</u>
Air Permit	Kentucky Division of Air Quality	Issued
KPDES Permit	Kentucky Division of Water	Pending
Mine Permit No. 889-8004	Kentucky Division of Mine Permit	Operator Revision—Pending

COVOL Fuels No.3, LLC (Kentucky)

<u>Permit</u>	<u>Issuing Authority</u>	<u>Status</u>
Mine Permit No.	Kentucky Division of Mine Permit	Operator Revision—Pending

1.1.2.5 Legal or Equitable Owner of the Surface and Mineral Properties to be Mined

COVOL Engineered Fuels, LC is the legal and equitable owner of the entire 30-acre surface parcel included within the permit area. There will be no mining at this facility. Thus, the mineral properties will not be affected by the operation. A property ownership map of the permit and adjacent areas is presented as Figure 5-2. No area within the lands to be affected by the facility is under a real estate contract.

1.1.2.6 Owners of Record of Property Contiguous to Proposed Permit Area

The following owners of surface lands are contiguous to the permit boundary:

High Country Forest Products
8243 Old Federal Road
Montgomery, Alabama 36117

~~Wellington Price~~ City
~~150 West 185 East~~ Main Street

Price, Utah 84501

~~Carbon County School District
75 East 400 North
Price, Utah 845001~~

State of Utah
203 State Capitol Building
Salt Lake City, Utah 84114

Circle K Ranch
P.O. Box 700
Price, Utah 84501

~~Sacco Brothers Land
1655 West 2100 North
Helper, Utah 84526~~

Denver and Rio Grande Western Railroad
1700 Farnham Street
10th Floor South
Omaha, Nebraska 68102

The locations of these lands relative to the permit area are shown on Figure 5-2A.

1.1.2.7 MSHA Numbers

The MSHA number for the operation is: 42-02398

1.1.2.8 Interest in Contiguous Lands

The applicant neither owns nor controls, directly or indirectly, a legal equitable interest in any lands contiguous to the permit area.

1.1.3 Violation Information

Neither the company nor any major stockholder of the company having any interest, either legal or equitable, in the COVOL facility have had a State or Federal mining permit suspended or revoked or a security deposited in lieu of bond revoked. The following Notices of Non-compliance have been issued within the last 3 years to a permittee other than COVOL but where COVOL Fuels No. 3, LLC is an operator:

Notice of Non-compliance #23-0689

Issuing agency: Kentucky Division of Mine Reclamation and Enforcement

Permit No. 807-8052

Permittee: Chas Coal, LLC

Operator: COVOL Fuels No. 3, LLC

Date of non-compliance: 7/28/2008

Description: Permittee has failed to follow their approved permit by drilling several unapproved slurry injection holes in Little Camp Branch. Also, the company has drilled water withdrawal holes in Little Camp Branch. These holes have been proposed under Major Revision #9, but the revision has not yet been issued.

Corrective action: Major Revision # 9 was approved and work could proceed as permitted.

Status: Abated

Abatement date: 12/1/2008

Notice of Non-compliance #23-1241

Issuing agency: Kentucky Division of Mine Reclamation and Enforcement

Permit No. 807-8052

Permittee: Chas Coal, LLC

Operator: COVOL Fuels No. 3, LLC

Date of non-compliance: 2/26/2009

Description: The company has placed coarse refuse in an unapproved location on the Little Camp Branch slurry impoundment.

Corrective action: Being contested.

Status: This Notice is being contested because coarse refuse can be placed on a temporary basis anywhere within the permit area. Coarse refuse will be moved to an approved permanent storage location once weather permits. Mud and steep slopes currently prevent access to the permanent storage locations.

1.1.4 Right-of-Entry Information

~~Since~~ The facility is located on lands that are entirely owned by the operator (see Appendix 1-3). Hence, no other right of entry is required.

1.1.5 Status of Unsuitability Claims

Since there is no mining at this facility, the issue of unsuitability claims is not applicable.

1.1.6 Permit Term

The following information is presented to identify permit term requirements and stipulations. The Applicant began operating the facility in January 2006 using an air-jig method to process coal-bearing materials. Termination of operations will be determined by economic conditions. The timing of this termination is, therefore, unknown. It is anticipated that the Applicant will operate at the site for a period in excess of 5 years.

The anticipated total acreage to be affected during operations is 30 acres. ~~The disturbed area to be reclaimed is 30 acres.~~ The permit and adjacent areas have been zoned by Wellington City for "light industrial purposes" (Zone M-1). Permitted uses under this zoning include a variety of industrial and manufacturing operations, as indicated in Appendix 1-4. Since the land occupied by the facility has been zoned for general industrial use and will be used for that purpose following the cessation of COVOL's operations, complete site reclamation will not be required (See chapters 4 and 5).

1.1.7 Insurance and Proof of Publication

Certificates of Insurance issued to COVOL are provided in Appendix 8-1. ~~COVOL will submit to DOGM a~~ A copy of a-the newspaper advertisement is provided in Appendix 1-45

~~indicating that, in accordance with R645-300-121.100 once~~ the application ~~is~~ has been determined by DOGM to be administratively complete.

1.1.8 Filing Fee

The permit filing fee ~~will be~~ was paid upon submittal of the application.

1.20 Permit Application Format and Contents

The permit application contains clear, concise, current information, in the format of the DOGM regulations.

1.30 Reporting of Technical Data

All technical data submitted in the permit application is accompanied by the names of persons or organizations that collected and analyzed the data. The technical data also contains the dates of collection and analysis of the data, and descriptions of the method used to collect and analyze data, as indicated in subsequent sections of this application. ~~A p~~ Professionals qualified in the subject, planned or directed the technical analyses. These professionals included the following:

- Richard B. White, P.E. – President/Civil and Environmental Engineer, EarthFax Engineering, Inc. (engineering, hydrology, bonding, alluvial valley floors)
- Ari Menitove – Geological Engineer, EarthFax Engineering, Inc. (geology, soils)
- Chris Jensen – Consultant, Canyon Environmental, LLC (cultural resources, biology)
- Gina Rau – Environmental Manager, Headwaters Incorporated (legal, financial, compliance, land use, air quality)

1.40 Maps and Plans

The maps submitted in this permit application correspond to the format required by the regulations. The entire permit area was developed prior to the initial submittal of this permit application on January 15, 2008.

1.50 Completeness

The Applicant believes the information in this application to be complete and correct.

TABLE 1-1

Related-Entity Permits

<u>Entity and State</u>	<u>Permit</u>	<u>Issuing Authority</u>	<u>Status</u>
<u>COVOL Engineered Fuels, LC (Alabama)</u> <u>FEIN 90-0221443</u>	<u>Operator on Mine Permits P3247</u> (MSHA ID 01-03364 issued 5/24/2007), <u>P3256</u> (MSHA ID 01-03365 issued 5/24/2007), <u>P3257</u> (MSHA ID 01-03278 issued 5/1/2006), and <u>P3260</u> (MSHA ID 01-03362 issued 4/20/2007)	<u>Alabama Surface Mining Commission</u>	<u>Issued</u>
<u>COVOL Engineered Fuels No. 2, LLC (Indiana)</u> <u>FEIN 37-1554450</u>	<u>Operator Permittee on Mine Permit P-00004</u> (MSHA ID 12-02397 issued 3/23/2007)	<u>Indiana Dept of Natural Resources</u>	<u>Issued</u>
<u>COVOL Fuels No. 2, LLC (Indiana)</u> <u>FEIN 37-1554450</u>	<u>NPDES Permit No. ING040176</u> (MSHA ID 12-02397 issued 3/23/2007)	<u>Indiana Dept of Environmental Management</u>	<u>Issued</u>
<u>COVOL Fuels No. 2, LLC (Indiana)</u> <u>FEIN 37-1554450</u>	<u>SSOA 167-27370-00055 [Air Permit]</u> (MSHA ID 12-02397 issued 3/23/2007)	<u>Indiana Dept of Environmental Management</u>	<u>Issued</u>
<u>COVOL Fuels No. 2, LLC (Kentucky)</u> <u>FEIN 37-1554450</u>	<u>Permittee on Mine Permit 889-8005</u> (MSHA ID 15-19205 issued 3/21/2008)	<u>Kentucky Division of Mine Permits</u>	<u>Issued</u>
<u>COVOL Fuels No. 2, LLC (Kentucky)</u> <u>FEIN 37-1554450</u>	<u>KPDES Permit No. 0107158</u> (MSHA ID 15-19205 issued 3/21/2008)	<u>Kentucky Division of Water</u>	<u>Issued</u>
<u>COVOL Fuels No. 2, LLC (Kentucky)</u> <u>FEIN 37-1554450</u>	<u>Air Permits S-07-145</u> (MSHA ID 15-19205 issued 3/21/2008) and <u>S-08-039</u> (MSHA ID 15-19071 issued 12/6/2007)	<u>Kentucky Division of Air Quality</u>	<u>Issued</u>
<u>COVOL Fuels No. 2, LLC (Kentucky)</u> <u>FEIN 37-155-4450</u>	<u>UIC Permit KYV0047</u> (MSHA ID 15-19205 issued 3/21/2008)	<u>USEPA Region 4</u>	<u>Issued</u>
<u>COVOL Fuels No. 3, LLC (Kentucky)</u> <u>FEIN 37-1554451</u>	<u>Operator on Mine Permits 807-8051 and 807-8052</u> (MSHA ID 15-12682 issued 12/7/2007)	<u>Kentucky Division of Mine Permits</u>	<u>Issued</u>
<u>COVOL Fuels No. 3, LLC (Kentucky)</u> <u>FEIN 37-155441</u>	<u>Operator on Mine Permit 807-9003</u> (MSHA ID 15-12682 issued 12/7/2007)	<u>Kentucky Division of Mine Permits</u>	<u>Pending Issued</u>
<u>COVOL Fuels No. 4, LLC (West Virginia)</u> <u>FEIN 37-1554452</u>	<u>Operator on Mine Permit No. 0402292</u> (MSHA ID 46-09146 issued 2/18/2008)	<u>WV Dept of Env. Protection</u>	<u>Issued</u>
<u>COVOL Fuels No. 4, LLC (West Virginia)</u>	<u>Air Permit G10-C104</u> (MSHA ID 09146 issued 2/18/2008)	<u>WV Department of Environmental</u>	<u>Issued</u>

COVOL Engineered Fuels, LC
Dry-Coal Cleaning Facility

Permit Application
January ~~October 2008~~ ~~March~~ July 2009

FEIN 37-1554452		Protection	
<u>COVOL Fuels No. 5, LLC</u> (Alabama) FEIN 37-1554453	<u>Operator on Mine Permit P3199</u> (MSHA ID 01-00563 issued 7/1/2008)	<u>Alabama Surface</u> <u>Mining Commission</u>	<u>Issued</u>

COVOL Engineered Fuels, LC
| Dry-Coal Cleaning Facility

Permit Application
~~January October 2008~~ March July 2009

APPENDIX 1-4

Zoning and Conditional Use Permit Information

Chapter 10

COMMERCIAL AND MANUFACTURING ZONES

The M-1 Zone
provides for light
industrial uses.

Updated August 27, 2008

Section 10-3 MANUFACTURING ZONE M-1.

Subsections

- 10-3-1 Purpose
- 10-3-2 Permitted Use
- 10-3-3 Area Regulations
- 10-3-4 Side Yard Regulations
- 10-3-5 Front Yard Regulations
- 10-3-6 Rear Yard Regulations
- 10-3-7 Height Regulations
- 10-3-8 Coverage Regulations
- 10-3-9 Parking

Section 10-3-1 PURPOSE.

To provide in Wellington for light industrial uses.

Section 10-3-2 PERMITTED USES.

1. Ice manufacturing.
2. Food products manufacturing.
3. Textile manufacturing.
4. Furniture products manufacturing
5. Jewelry manufacturing.
6. Staging for trucking.
7. Retail sales establishment intended to service Wellington residents.
8. Restaurants and fast food establishments.
9. Professional offices.
10. Service business.
11. Warehousing.
12. Services.
13. Professional offices.
14. Industry and Manufacturing.

Chapter 10

COMMERCIAL AND MANUFACTURING ZONES

Section 10-3-3 AREA REGULATIONS.

Area requirements will be dependent on compliance with parking and setback regulations.

Section 10-3-4 SIDE YARD REGULATIONS.

None, except that wherever a building is located upon a lot adjacent to residential zone or agricultural boundary, there shall be provided a side yard of not less than ten (10) feet on the side of the building adjacent to the zone boundary line, and on corner lots, the side yard, which faces on a street, shall be not less than twenty (20) feet.

Section 10-3-5 FRONT YARD REGULATIONS.

The minimum depth of the front yard for all advertising signs, buildings, structures, walls, or fences more than two (2) feet in height shall be twenty (20) feet.

Section 10-3-6 REAR YARD REGULATIONS.

None, except that on corner lots which rear upon the side yard of another lot in a residential or agricultural zone, the minimum rear yard shall be ten (10) feet.

Section 10-3-7 HEIGHT REGULATIONS.

No building or structure shall be erected to a height greater than two and one-half (2 ½) stories, or thirty-five (35) feet.

Section 10-3-8 COVERAGE REGULATIONS.

No building or structure or group of buildings with their accessory buildings shall cover more than sixty (60) percent on the area of the lot.

Section 10-3-9 PARKING REGULATIONS.

For a new building or structure or the enlargement or increase in capacity or floor area of an existing main building or structure there should be at least one (1) permanently maintained parking space of not less than one hundred eighty (180) square feet for every two (2) employees at peak shift on that parcel of land.

WELLINGTON CITY CONDITIONAL USE APPLICATION

Date: 7/13/05

The following information must be provided for all conditional use permits.

Property Owner Name(s): Carol Engineered Fuels, LC

Property Address: 1865 W. Ridge Road

Property Zone: M-1 Lot Size: _____

Property Owner's Mailing Address: 10653 S. River-Front Pkwy Ste 3

Property Owners Telephone #: 613-1036

Description of Proposed Conditional Use(use separate page if necessary): Wellington City ordinance states there shall be no structure over 35ft. The silo (loadout) will be 75ft. proposed conditional use is to allow silo @ 75ft. due to the fact of the zoning, which is M-1

Please attach the following:

- Detailed Site plans w/Plat map drawn to scale
- Signature of Neighbors (if required)

I, the undersigned, state that all information provided is true and accurate to my best knowledge.

Property Owner's Signature: _____ Date: _____

Lessee's Signature (If Applicable): _____ Date: _____

Approving Signatures

Planning and Zoning *Ellis A. Johnson* Date: 7-13-05

City Council *Karl R. Hansberger* Date: 7-18-05



Adding Value to Energy™

Hand Delivered

July 6, 2005

Mayor Karl Houskeeper
City Counsel
City of Wellington, Utah

RE: Letter of Assurance

Dear Mayor Houskeeper and Council Members:

This Letter of Assurance is provided in connection with the proposed activities of our subsidiary, Covol Engineered Fuels, LC ("Covol"), at 1865 W. Ridge Road, Wellington, Utah 84542.

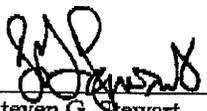
As you know, Covol owns 30 acres at the above location and intends to construct and operate a coal-cleaning facility. More specifically, Covol will contract to have coal shipped to the facility where it will be processed and returned to the coal owners or other buyers.

The coal-cleaning process will generate residual material suitable for beneficial uses such as structural fill. Covol intends to use some of this material for its own purposes with the remaining residual material either returned to the original coal owners or sold to third parties.

Headwaters Incorporated supports Covol's desire to be a long-term resident of Wellington and a positive contributor to the local economy. As such, Headwaters hereby provides you with assurance that it will lend its financial support and cause Covol to manage the coal and residual material located at the facility in accordance with applicable laws. Further, upon termination of its operations, Headwaters will ensure that Covol will remove all coal and residual material located on the property (excluding material used for improvements).

Sincerely,

HEADWATERS INCORPORATED



Steven G. Stewart
Chief Financial Officer

Cc: Keith Thompson,
General Manager, Covol Engineered Fuels LC

10653 S. River Front Parkway
Suite 300
South Jordan, UT 84095
P: 801.984.9400
F: 801.984.9410

CHAPTER 3 BIOLOGY

3.10 Introduction

This chapter provides a general description of the biological resources found in the vicinity of the COVOL Dry-Coal Cleaning Facility, and describes measures taken to protect biological resources adjacent to the permit area. As indicated in Appendix 3-1, information concerning biological resources in the area was obtained from a literature search, a field survey by a competent biologist, and consultation with the Utah Division of Wildlife Resources (“DWR”) and the U.S. Fish and Wildlife Service (“USFWS”). ~~Much of the information on biological resources presented in this chapter was taken from the mining and reclamation plan (“M&RP”) associated with the Savage Coal Terminal, which is located 0.3 miles north of the COVOL facility (Savage Services Corporation, 1983). Since the Savage Coal Terminal occupies a very similar landscape, and is located directly across Ridge Road from the COVOL facility, biological conditions are similar at both sites.~~

Unlike many coal mining operations which are located in previously undisturbed areas, the COVOL Dry-Coal Cleaning facility occupies property that is zoned for general industrial purposes and a portion of the site was previously disturbed prior to the submittal of this application. Given the poor suitability of site soils for agricultural and rangeland purposes (see Section 2.2.2.2 of this application), Reclamation of the site will be reclaimed make it available for future industrial use rather than restoring the site to its undisturbed condition (see also Section 4.1.2.1 of this application). This is in accordance with R645-301-413.120. Also, unlike many coal mining operations, the area impacted by the facility is almost exclusively limited to the ~~disturbed-permit~~ area boundary. No subsidence, groundwater, or surface water impacts are expected to extend off site. This is due to the lack of underground mining and subsidence at this facility as well as environmental controls that include runoff, sediment, and fugitive dust management, fencing off the permit area, and proper waste disposal. Thus, while biological resources inside the permit

boundary may have been affected by current uses of the property, efforts have been taken to protect biological resources in the undisturbed areas adjacent to the permit boundary.

3.1.1 Vegetative, Fish and Wildlife Resources

General vegetative, fish and wildlife resource conditions in the vicinity of the COVOL Dry-Coal Cleaning Facility are discussed in [Appendix 3-1 and](#) Section 3.20.

3.1.2 Potential Impact to Vegetative, Fish and Wildlife Resources

Potential impacts to vegetative, fish and wildlife resources and the associated mitigation plans are presented in [Appendix 3-1 and](#) Sections 3.30 and 3.40 of this application.

3.1.3 Description of Reclamation Plan

The plan to reclaim vegetative, fish and wildlife resources to a condition suitable for the post-operations land use is presented in Section 3.40.

3.20 Environmental Description

3.2.1 Vegetation Information

3.2.1.1 Plant Communities Within the Proposed Permit and Adjacent Areas

~~According to the M&RP for the nearby Savage Coal Terminal, the area is dominated by a saltbush vegetative community (Savage Services Corporation, 1983). The most common species found in undisturbed areas adjacent to the site are shadscale (*Atriplex confertifolia*), greasewood (*Sarcobatus vermiculatus*), matbush (*Atriplex corrugata*), and galleta (*Hilaria jamesii*). As indicated in Appendix 3-1, the site general area is characterized as a desert badland greasewood/rabbitbrush plant community. Vegetation within and/or adjacent to the facility consists of the following:~~

Trees

- Russian olive (*Elaeagnus angustifolia*) – also considered a noxious species
- Tamarisk (*Tamarix spp.*) – also considered a noxious species
- Freemont cottonwood (*Populus fremontii*)
- Willow (*Salix spp.*)

Forbs/Herbaceous Plants Shrubs:

- Big sage (*Artemisia tridentata*)
- Big rabbitbrush (*Chrysothamnus nauseosus*)
- Greasewood (*Sarcobatus vermiculatus*)
- Winterfat (*Krascheninnikovia lanata*)
- Halogeton (*Halogeton glomeratus*)
- Broom snakeweed (*Gutierrezia sarothrae*)
- Curlycup gumweed (*Grindelia squarrosa*)
- Skunkbush (*Rhus trilobata*)
- Desert trumpet (*Eriogonum inflatum*)
- Showy milkweed (*Asclepias speciosa*)
- Russian thistle (*Salsola iberica*)
- Inkweed (*Suaeda torreyana*)
- Shadscale (*Atriplex confertifolia*)

Forbs

- Halogeton (*Halogeton glomeratus*)
- Curlycup gumweed (*Grindelia squarrosa*)
- Desert trumpet (*Eriogonum inflatum*)
- Showy milkweed (*Asclepias speciosa*)
- Russian thistle (*Salsola iberica*)
- Plains prickly pear cactus (*Opuntia polyacantha*)
- Rocky Mountain bee plant (*Cleome serrulata*)
- Common sunflower (*Helianthus annulus L.*)
- Diffuse knapweed (*Centaurea diffusa*)

Grasses:

- Foxtail barley (*Hordeum murinum*)
- Cheatgrass (*Bromus tectorum*)
- Indian ricegrass (*Orizopsis hymenoides*)

Vegetation within the site boundary is primarily isolated to the edges of the fenced area. Approximately 70% of the vegetative species within and adjacent to the site consists of cheatgrass, rabbitbrush, greasewood, Russian thistle, big sage, and halogeton. Based on observations in adjacent undisturbed areas, the facility area was likely dominated by rabbitbrush, greasewood, sage, and native prior to any disturbance in the region. However, cheatgrass, halogeton, and Russian thistle have commonly invaded many areas since the region was settled, and likely existed in the permit area prior to development (Chris Jensen, personal communication, 13 Oct 2008).

Miller Creek is a perennial stream that exists about 0.4 mile south of the COVOL site. A riparian corridor exists along this stream for a width of 25 to 50 feet. Vegetation within this corridor consists predominantly of Russian olive (*Elaeagnus angustifolia*) and Tamarisk (*Tamarix spp.*), with a few Fremont cottonwood (*Populus fremontii*) and Willow (*Salix sp.*) trees. Both Russian olive and Tamarisk are classified as noxious species.

3.2.1.2 Land Productivity Prior to Mining

Cover density in adjacent undisturbed areas averages approximately 55 to 65% (Chris Jensen, personal communication, 13 Oct 2008). Based on the general uniformity of vegetation in undisturbed areas outside the boundary fence, it is assumed that cover densities within the site area prior to disturbance were similar to those that now exist outside of the boundary fence in adjacent areas. The total vegetative coverage, as measured in undisturbed areas near the Savage Coal Terminal, is 18.8% (Savage Services Corporation, 1983). It is expected that previously undisturbed areas at the COVOL facility would have had a similar vegetative coverage.

3.2.2 Fish and Wildlife Information

According to the Savage Coal Terminal M&RP, uUndisturbed lands in the areas generally support "limited wildlife habitat," which is mainly due to the lack of precipitation, unproductive

soils, and sparse vegetation. Disturbed areas support even less wildlife. ~~No habitats of unusually high value have been~~ identified in the area of the Savage Coal Terminal located about one-half mile north-northwest of the COVOL permit area (Savage Services Corporation, 1983).

~~Undisturbed areas near the COVOL facility provide habitat for lizards, lagomorphs, burrowing rodents, and predators of these animals (Savage Services Corporation, 1983). Despite its proximity to the Price River, the poor vegetative cover precludes the area from serving as a stopover area for migrating birds. Wildlife species observed in the vicinity of the nearby Savage Coal Terminal include white-tailed prairie dog (*Cynomys leucurus*), black-tailed jackrabbit (*Lepus californicus*), white-tailed jackrabbit (*Lepus townsendi*), and desert cottontail (*Sylvilagus auduboni*). Signs from other species that were not directly observed included badger (*Taxidea taxus*) and coyote (*Canis latrans*). No raptors were observed (Savage Services Corporation, 1983). During a site inspection conducted in September 2008, cottontail rabbit (*Sylvilagus audubonii*) and some ant mounds were the only signs of wildlife observed within the COVOL permit area (see Appendix 3-1). Although maps obtained from the DWR web site indicate that mule deer and pronghorn antelope may occupy the general area surrounding the COVOL site, No evidence (e.g., scat, tracks, grazed vegetation) of big game species known to inhabit the region (e.g. mule deer, elk, antelope, big horn sheep) was identified in the permit or adjacent areas. Forage for these large herbivores is generally sparse within the area.~~

The DWR has also indicated that burrowing owls may be present in the general vicinity of the COVOL site. A burrowing owl assessment was conducted of the area on September 25, 2008 by Chris Jensen, Project Biologist with Canyon Environmental. Mr. Jensen's qualifications for conducting this assessment are summarized in Appendix 3-2. This assessment was conducted by walking transects across the permit and adjacent areas at a spacing of 10 to 15 feet. In the absence of specific guidelines established by the State of Utah for conducting these assessments, guidelines promulgated by the States of Arizona, California, and Colorado were used for this assessment. Anthony Wright, Regional Sensitive Species Biologist with the DWR, indicated that these

methodologies were appropriate for use in Utah (see Appendix 3-1). No burrows indicating the presence of burrowing animals were found within or adjacent to the site. However, prairie dogs and their burrows were observed approximately one-half mile east of the site near Ridge Road and appropriate habitat for prairie dogs and burrowing owls is located south and east of the permit area as noted in Appendix 3-1. Given the lack of perennial surface water, there is no fish habitat within the permit area.

3.2.2.1 Level of Detail

The scope and level of detail within this document are sufficient to design the protection and enhancement plan for wildlife and fish in the area.

3.2.2.2 Site-specific Resource Information

~~In accordance with the agreement with DOGM, no site-specific biological field surveys have been conducted to support this document. However, a request was submitted to the Utah Division of Wildlife Resources (DWR) to search its databases for threatened, endangered, or sensitive species within the disturbed area. In a letter dated May 12, 2007 (a copy of which is contained in Appendix 3-1), the DWR reported that it had no records of such species located at the COVOL Dry-Coal Cleaning Facility. This letter also states that three species listed on the Utah Sensitive Species list (burrowing owl, bluehead sucker, and white-tailed prairie dog) do occur within the general vicinity of the COVOL facility. Due to the environmental controls emplaced at the site, it is anticipated that impacts, if any, will be minimal to any of these species which may exist outside the permitted area boundary. A site-specific evaluation of wildlife within the permit and adjacent areas was conducted on September 25, 2008. The results of this evaluation are provided in Appendix 3-1. Information obtained from DWR and USFWS as part of that evaluation indicates that critical habitat areas have been designated in Carbon County (as a whole) for the following Federally-protected species (see Appendix 3-1):~~

- Mexican spotted owl (*Strix occidentalis lucida*) – Threatened
- Humpback chub (*Gila cypha*) – Endangered
- Bonytail chub (*Gila elegans*) – Endangered
- Razorback sucker (*Xyrauchen texanus*) – Endangered
- Colorado pikeminnow (*Ptychocheilus lucius*) – Endangered

Critical habitat areas for the Mexican spotted owl are located in the Book Cliffs about 25 miles east of the permit area. Given this significant distance, activities at the COVOL site will not adversely impact this species or its critical habitat. Critical habitat areas for the Humpback chub, Bonytail chub, Razorback sucker, and Colorado pikeminnow are found in the Green River more than 30 miles east of the permit area. Runoff- and sediment-control measures that have been implemented within the COVOL permit area preclude adverse impacts to these species or their critical habitats.

Under the USFWS Windy Gap Process, projects within the Upper Colorado River Basin may be assessed a one-time conservation fee, depending on annual water usage, to study and protect endangered fish species. The conservation fee is generally assessed only if the annual water consumption exceeds 100 acre-feet. COVOL owns 6 shares of water for use in the permit area, equating to 6 acre-feet of water per year. Actual water usage from October 31, 2006 through November 31, 2007 was 4.1 acre-feet. COVOL acknowledges that the assessment of the conservation fee must be decided by the U.S. Fish and Wildlife Service, with this assessment potentially being independent of the 100 acre-foot value.

Appendix 3-1 indicates that the following endangered, threatened, or sensitive species may be present in the general vicinity of the permit area:

- Black-footed ferret (*Mustela nigrapes*) – Endangered/extirpated
- Burrowing owl (*Athene cunicularia*) – State sensitive
- White-tailed prairie dog (*Cynomys leucurus*) – State sensitive
- Bluehead sucker (*Catostomus discobolus*) – State sensitive

Black-footed ferrets feed on prairie dogs as their primary food source. As such, their potential presence cannot be ruled out when prairie dog towns exist. The fact that no prairie-dog burrows have been observed within and adjacent to the permit area makes it improbable that ferrets exist in this area. The closest prairie-dog town is located approximately one-half mile east of the permit area. The lack of potential black-footed ferret habitat in the permit and adjacent areas, together with prohibitions on personnel and equipment access outside of the chain-link boundary fence, indicate that site activities will have no adverse impacts on this species or its habitat.

Burrowing owls utilize existing mammal burrows or sometimes excavate their own burrows in soil for nesting. The fact that no burrows have been observed within and adjacent to the permit area makes it improbable that burrowing owls currently exist in the permit and adjacent areas. However, the area does contain potentially suitable conditions for nesting of burrowing owls. Plans to minimize potential impacts to this species are presented in Section 3.3.3 of this application.

White-tailed prairie dogs live in underground burrows. No such burrows have been observed within and adjacent to the permit area. Given the developed nature of the COVOL site, the existence of the boundary fence, access restrictions outside of that fence, and the lack of identified burrows in the permit and adjacent areas, it is doubtful that site activities would adversely impact prairie dogs or their habitats.

The Bluehead sucker is a bottom-dwelling fish species that occurs in the upper Colorado River basin. This species may occur in Miller Creek, approximately 0.4 mile south of the permit area. Runoff-and sediment-control measures implemented in the permit area will eliminate the potential for sediment to reach Miller Creek from the COVOL site, thereby minimizing potential impacts to this species.

Migratory raptors may forage in the area and could nest in the riparian corridor along Miller Creek. Given the distance from the permit area, activities at the COVOL site will not directly

impact potential nesting sites for these raptors. However, the raptors may prey on species that occur within or adjacent to the permit area. These prey species include cottontail rabbit (*Sylvilagus audubonii*), jackrabbit (*Lepus spp.*), and white-tailed prairie dog (*Cynomys leucurus*). Plans to minimize potential impacts to migratory raptors in the area are discussed in Section 3.3.3 of this application.

3.2.2.3 Fish and Wildlife Service Review

If requested, the applicant authorizes the release of information pertaining to Section 3.2.2 and 3.3.3 to the U.S. Fish and Wildlife Service Regional and Field office for their review.

3.2.3 Maps and Aerial Photographs

No maps or aerial photographs will be used to address the biological resources of the permit area.

3.30 Operation Plan

3.3.1 Measures Taken to Disturb the Smallest Practicable Area

No disturbance ~~is anticipated~~will occur beyond the fenced area that constitutes the disturbed and permit area boundary. All areas within the fence may be used for active operations. Thus, interim revegetation of the site is not feasible. The area within the fence is the smallest practicable area of disturbance for this operation.

3.3.2 Description of Anticipated Impacts of Subsidence

~~There will be n~~No subsidence associated with the COVOL Dry-Coal Cleaning Facility will occur since the facility does not conduct underground mining operations.

3.3.3 Plan to Minimize Disturbances and Adverse Impacts

A limited number of potential biological concerns were identified in Appendix 3-1 that may require attention to minimize the adverse impacts of facility operations in the permit area. These potential concerns and plans to minimize adverse impacts are as follows:

- The Bluehead sucker, a State-sensitive species, may be present in Miller Creek. Runoff- and sediment-control facilities at the site have been installed and will be maintained to minimize disturbances to Miller Creek, thereby minimizing potential impacts to this species. No diversions from or discharges of water to Miller Creek currently occur or are planned. However, if future site activities require the diversion of water from or the direct discharge of water to Miller Creek, COVOL will first consult with DWR and implement appropriate methods to ensure that potential impacts to this species are minimized.
- Burrowing owls, a State-sensitive species, do not currently occur on or adjacent to the site (as indicated by a lack of burrows). However, due to the presence of suitable breeding habitat at the site, this species could inhabit the site in the future. Therefore, if future land-disturbing activities are planned at the site during the Burrowing owl breeding season (February through August), COVOL will conduct a pre-construction survey of the area to determine whether or not Burrowing owls are present in the area to be disturbed. If they are found in the area of proposed disturbance, discussions will be held with DWR to determine the most prudent plan of action. This may include avoiding construction in the subject area until after the breeding season is over, until all of the chicks had fledged the burrow, or until the adults have vacated the site.
- Migratory raptors may forage at the COVOL site or nest in the riparian corridor along Miller Creek. If future land-disturbing activities are planned at the site during the raptor nesting season (February through September), COVOL will conduct a pre-construction survey to determine whether or not raptors are nesting in the area to be disturbed. If they are found in the area of proposed disturbance, construction in the subject area will be postponed until after the nesting season is over.
- Various prey species of interest to raptors may be present in the permit area. Raptors may perch on facility equipment in search of such prey. Employees will be alerted during periodic staff meetings of the presence of raptors and told to avoid contact with or harassment of the raptors.

Species existing in the area of the nearby Savage Coal Terminal are limited to small mammals and songbirds, which appear to tolerate coal processing operations (Savage Services Corporation, 1983). No big-game wildlife species are known to frequent the permit or adjacent

~~areas. However, t~~To protect larger species ~~if they do occur the area~~, the fence around the COVOL facility will be maintained during operations. No disturbance will occur outside of that fenced area. Furthermore, runoff control measures will be maintained to preclude off-site surface-water impacts. Other protective measures within the disturbed area boundary include adhering to clean industrial hygiene procedures, properly disposing of all waste (papers, cans, bottles, etc.), and instructing employees not to hunt or harass wildlife. Thus, measures have been implemented to minimize adverse impacts to fish and wildlife and related environmental resources.

3.40 Reclamation Plan

~~As indicated in Section 2.2.2.2 of this application, the soil at the COVOL facility is poorly suited for agricultural use. Furthermore, native vegetation in the area is poorly suited for rangeland use of the site (see Section 3.2.1). Hence, in accordance with R645-301-413.120, rather than restoring the land to its pre-disturbance land use it will be restored to a higher or better post-operations industrial land use consistent with the current zoning of the site and adjacent areas. The extent of site restoration following operations is discussed more fully in Section 5.40 of this permit application.~~

~~As a zoned industrial site, Under the post-operation industrial land use will be industrial. Hence, substantial-complete~~ post-operation revegetation of the site is not anticipated. However, a proposed seed mix, application rate, and other plans have been developed ~~in-the-event-that~~for those areas of the site ~~that will~~ require revegetation to support the post-operation land use (see Section 3.4.1). Aspects of the reclamation plan related to fish and wildlife are discussed in Section 3.4.2.

3.4.1 Revegetation

Due to the future industrial use of the site following coal-cleaning operations, ~~the extent of future revegetation it is not currently known~~anticipated that ~~substantial revegetation will occur.~~

However, for the sake of developing a reclamation cost estimate, it is assumed in this permit application that the area south of the facility loop road will be revegetated during reclamation. This area, in which the runoff- and sediment-control structures will be retained for use by the future landowner, covers 9.7 acres of the permit area. The precise areas to be revegetated will be determined in consultation with the future site owner. Areas requiring revegetation will be treated as outlined below.

3.4.1.1 Schedule and Timetable

Any revegetation of the site will begin after the plant growth medium has been replaced. To the extent feasible, seeding will occur in the late fall, just prior to the onset of snow fall. If this schedule is not feasible, grasses and forbs will be planted eding in the late spring (May or early June), while shrubs and seedlings will be planted in the late summer through early fall (late August through early October).

3.4.1.2 Descriptions

Species and Amounts of Seed. All revegetated areas will be planted with the seed mix specified in Table 3-1.

Method Used for Planting and Seeding. Revegetation will be performed using broadcast methods.

Mulching Techniques. ~~No m~~ Mulch consisting of grass hay or alfalfa hay will be applied at a rate of at least 2 tons per acre to areas being revegetated following preparation of the soil and prior to seeding. Mulch materials will only be obtained from fields that are certified by the County Extension Agent as noxious weed free. Mulch will be spread over the surface of the area to be

revegetated using mechanical spreading, mechanical blowers, or hand spreading. Mulch will then be incorporated into the soil by plowing or chiseling to a depth of at least 12 inches.

Irrigation, Pest, and Disease Control. No persistent pesticides will be used in the permit area unless previously approved by DOGM.

Measures Proposed for Revegetation Success. Revegetation success will be monitored visually in accordance with Appendix A of DOGM's "Vegetation Information Guidelines." As indicated in Section 1.40 of this application, the entire permit area is disturbed. This condition, together with the fact that all land outside of the permit area is owned by individuals other than COVOL, precludes the establishment of a permanent revegetation reference area. Hence, prior to revegetation of the site, COVOL will confer with DOGM to select a temporary reference area on adjacent property that is representative of the permit area. COVOL will then seek landowner permission to monitor that location in accordance with the Vegetation Information Guidelines. Assuming that this permission can be obtained, the temporary reference and revegetated areas will be inspected for plant growth and erosion at a schedule and using methods that comply with the Vegetation Information Guidelines. The operator will apply additional seed mix as deemed necessary.

3.4.1.3 Greenhouse Studies, Field Trials or Other Equivalent Studies

If DOGM requires additional testing for the purpose of demonstrating that reclamation as required by the State Program can be accomplished according to information given in this document, the applicant will comply.

3.4.2 Fish and Wildlife

3.4.2.1 Enhancement Measures

Wildlife habitat will be enhanced during reclamation through the use of runoff controls to prevent excessive erosion and through the use of a seed mix that includes plants that are indigenous to the area.

3.4.2.2 Plants Used for Wildlife Habitat

The post-operation land use will be industrial. Hence, the reclamation plan has not been specifically developed to support a fish and wildlife post-operation land use.

3.4.2.3 Cropland

Cropland is not a post-operation land use.

3.4.2.4 Residential, Public Service and Industrial Land Use

Although the post-operation land use is industrial, the site is not of sufficient size to permit the effective use of greenbelts and other substantial wildlife enhancements in reclamation.

3.50 Performance Standards

3.5.1 General Requirements

The Applicant commits to conduct all operations in accordance with Sections R645-301-330 through R645-301-340 of the regulations.

3.5.2 Contemporaneous Reclamation

Given the limited extent of areas within the permit boundary that are not in active use, contemporaneous reclamation is not considered practical at the facility.

3.5.3 Revegetation: General Requirements

As noted above, in order to support the post-operation industrial land use, it is assumed that only limited areas south of the site loop road will be reclaimed following the COVOL operations. This revegetation plan complies with the requirement that a vegetative cover will be established on all reclaimed areas. The vegetative cover will be in accordance with the approved permit and reclamation plan.

3.5.3.1 Vegetative Cover

For areas that will be revegetated, the seed mix is intended to provide vegetative cover that will be diverse, effective, and permanent. The seed mix was selected with to be compatible with the climate, potential seedbed quality, and drought tolerance.

Native Species. The vegetative mixture ~~will be~~ comprised of species native to the area. The seeds will be purchased from suppliers who will certify their purity, germination, hard seed, and percentages of maximum weed seed contents.

Extent of Cover. The vegetative cover will be at least equal in extent to the natural vegetation as measured in an adjacent reference area at the time of revegetation (see Section 3.4.1.2).

Stabilizing. The area to be revegetated will be mulched during reclamation. This mulching, together with the vegetative cover mixture, ~~will was selected to~~ provide erosional stability at least equivalent to that of adjacent undisturbed areas.

3.5.3.2 Reestablished Plant Species

Compatible. The ~~reestablished~~ plant species proposed for revegetation have been selected to be compatible with the intended post-operation land use.

Seasonal Characteristics. Because the reclamation seed mix is dominated by native species, the revegetation plant species will have the same growing season as the native vegetation.

Self-generation. The revegetation seed mix consists of species capable of self-generation and plant succession.

Compatibility. The seed mix proposed for revegetation contains plants native to the area and compatible with the plants and animals species of the permit area.

Federal and Utah Laws or Regulations. The seed mixture purchased to revegetate the mine area will contain neither poisonous nor noxious plant species. No species will be introduced in the area without being approved by DOGM.

3.5.3.3 Vegetative Exception

The applicant does not require vegetative exception at this time.

3.5.3.4 Cropland

The permit area contains no land designated as cropland for post-operation land use.

3.5.4 Revegetation: Timing

Areas intended for revegetation will be reclaimed during the first normal period for favorable planting conditions after replacements of the plant-growth medium, as discussed in Section 3.4.1.1.

3.5.5 Revegetation: Mulching and Other Soil Stabilizing Practices

~~Due to the limited extent of revegetation, no mulching or other soil stabilizing practices are anticipated.~~ Areas to be revegetated will be mulch as described in Section 3.4.1.2. If excessive erosion occurs following revegetation and prior to bond release, however, the soil those affected areas will be stabilized-repaired using a method approved by DOGM.

3.5.6 Revegetation: Standards for Success

The standards for revegetation success are detailed in Section 3.4.1.2.

3.5.6.1 Success of Revegetation

The success of revegetation will be judged on the effectiveness of the vegetation for post-operation land use and the standards outlined in Section 3.5.3. Success will be determined visually by both the operator and a DOGM representative in accordance with Appendix A of DOGM's Vegetation Information Guidelines (see Section 3.4.1.2).

3.5.6.2 Standards for Success

Standards of success will be applied in accordance with the approved post-operation industrial land use.

Grazing Land or Pasture Land. No areas within the permit area are designated as grazing or pasture lands.

Cropland. No area within the permit area is designated as cropland.

Fish and Wildlife Habitat. No area within the permit area is designated as fish and wildlife habitat.

Industrial, Commercial or Residential. The entire permit area is designated as industrial. Revegetation of the site ~~as described in Section 3.40~~ will adequately control erosion.

Previously Disturbed Areas. There is no previously disturbed area within the permit boundary.

3.5.6.3 Siltation Structure Maintenance

Siltation structures will be maintained until removal is authorized by DOGM and the disturbed areas have been stabilized and revegetated. For additional details on siltation structures, see Section 5.4.2.

3.5.6.4 Removal of Siltation Structures

To more adequately support the post-operation industrial land use, the siltation structures will remain on site following closure of the COVOL facility.

3.5.7 Revegetation: Extended Responsibility Period

COVOL will be responsible for revegetation success during the extended responsibility period or until the property is sold to another company for industrial purposes, whichever is sooner. The period of extended responsibility will begin after the last year of augmented seeding, fertilization, irrigation, or other revegetation work, excluding husbandry as approved by DOGM. Vegetation parameters will equal or exceed the approved success standard during the last two years of the responsibility period. The success standards are outlined in Sections 3.5.6.1 and 3.5.6.2 of this application.

COVOL will comply with DOGM-approved husbandry practices, consisting of normal conservation practices within the region of the operation. These practices may include disease, pest, and vermin control; pruning; reseeding; and transplanting.

3.5.8 Protection of Fish, Wildlife, and Related Environmental Values

This plan is designed to minimize disturbances and adverse impacts on fish, wildlife and their related environments. COVOL will periodically educate their employees about wildlife needs and their importance. This will be done during periodic staff meetings by making the employees aware of species of concern (see Section 3.2.2.2) and their prey base. The mitigation requirements of Section 3.3.3 will also be discussed with existing employees during periodic staff meetings and with new employees during initial orientation. Given the lack of permanent surface water in the permit and adjacent areas, there are no fisheries within the permit area.

3.5.8.1 Existence of Endangered or Threatened Species

There are no known endangered or threatened species within the permit area. Therefore, facility operations will not result in the destruction or adverse modification of critical habitats. If State- or Federally-listed endangered or threatened species are discovered in the permit area in the future, the presence of these species will be reported to DOGM upon their discovery. Operations

thereafter, including site reclamation, will proceed in accordance with appropriate DOGM stipulations.

3.5.8.2 Bald and Golden Eagles

No suitable bald or golden eagle habitat exists in the permit and adjacent areas. If such habitat is discovered in the future, COVOL will promptly report such habitat to DOGM and will proceed with operations thereafter in accordance with appropriate DOGM stipulations. If these species are observed in the area, COVOL will make employees aware of the species and their prey base during periodic staff meetings in accordance with Section 3.3.3 of this plan.

3.5.8.3 Taking of Endangered or Threatened Species

The applicant understands that there is no permission implied by these regulations for taking of endangered or threatened species, their nests, or eggs.

3.5.8.4 Replacement of Wetland and Riparian Vegetation

No wetland or riparian habitat exists in the permit ~~or adjacent~~ areas, nor has any such habitat been disturbed by this operation. The closest riparian habitat is located along Miller Creek approximately 0.4 mile south of the permit area (see Appendix 3-1).

3.5.8.5 Manmade Wildlife Protection Measures

Electric Power Lines. Power lines to and within the permit area are buried which eliminates electrocution hazards to raptors.

Potential Barriers. The permit area is limited in aerial extent and is located in an area zoned for industrial use. A chain link fence has been constructed to keep wildlife from entering the facility and being exposed to the industrial hazards located within. Given the limited area of the facility, wildlife can easily migrate around the outside of the fence if needed.

Pond Protection. The perimeter facility fence excludes large wildlife from encountering the sedimentation ponds. No site ponds contain hazardous concentrations of toxic-forming materials.

~~REFERENCES~~

~~Savage Services Corporation, 1983. Formerly Beaver Creek Coal Company. *Underground Mining Permit Application and Mining and Reclamation Plan for the C.V. Spur Coal Processing and Loadout Facility, Carbon County, Utah.* Submitted to the Utah Division of Oil, Gas, and Mining.~~

COVOL Engineered Fuels, LC
| Dry-Coal Cleaning Facility

Permit Application
January ~~October 2008~~ March July 2009

APPENDIX 3-1

Letter from Utah Division of Wildlife Resources Biological Survey of the
Permit and Adjacent Areas

**BIOLOGICAL EVALUATION
FOR THE COVOL ENGINEERED
FUELS DRY-COAL CLEANING FACILITY
SECTION 14, TOWNSHIP 15 SOUTH, RANGE 10 EAST
CARBON COUNTY, UTAH**

Canyon Environmental Report No. 08-007

**October 9, 2008
(Revised March 25, 2009 and June 29, 2009)**

Prepared for

**EarthFax Engineering, Inc.
7324 South Union Park Ave.
Suite 100
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Prepared by

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Provo, Utah 84604

INTRODUCTION

On September 25, 2008, a biological evaluation was conducted by Canyon Environmental, on behalf of Earthfax Engineering for the COVOL Dry-Coal Cleaning Facility. The proposed project is located approximately 3 miles south-southwest of Wellington in Carbon County, Utah. The legal description is a portion of Section 14, Township 15 South, Range 10 East (Appendix A). The surveyed project area comprises approximately 30 acres of land.

The site is comprised of an existing coal cleaning facility located on the south side of Ridge Road in a generally flat area. The site is enclosed within a six-foot tall chain link fence. Very little vegetation is contained within the actual site itself and the existing vegetation is isolated to the peripheral edges along the fence line. The surrounding area is comprised of flat mesas and dry drainages.

Canyon Environmental obtained a species list from the United States Fish and Wildlife Service (USFWS) as well as information from the Utah Division of Wildlife Resources (DWR) that identified federally protected plants and animals, as well as Utah state plant and animal Species of Concern that are known from and could occur at, the Project Site (Appendix B).

The subject property was inspected within the context of evaluating the potential impacts to these identified high value species and determining whether "take" of these species would occur. In addition, habitat at the site was characterized and observed, as well as flora and fauna identified. The site inspection was performed on September 25, 2008.

PROJECT AREA

The proposed project is located on a dry, flat mesa in the badlands area of central Utah. Miller Creek flows to the south of the site at a distance of about 0.25 miles. A small dry drainage that flows into Miller Creek is situated about 1,000 feet southwest of the project area. The majority of the site within the enclosed fence is devoid of any vegetation. The coal cleaning facility is comprised of a series of mills, piping, and truck drive-through areas. The vegetation on the site is isolated to the edges of the fenced area. Two water collection ponds are located on the southwest and southeast corners of the site, respectively. Topography across the site generally flat with slight slope to the south toward the nearby drainage and creek. The average elevation across the site is roughly 5,520 feet above mean sea level (amsl.).

Habitat and Wildlife

Habitat at the site is characterized as a greasewood/rabbitbrush plant community, which is also vegetated with other drought tolerant shrubs and grasses in areas within the fenced site and away from the Miller Creek corridor. Within the enclosed project area, plant cover is generally very sparse and soil conditions are such that much of the land is barren. The surrounding area immediately about the fenced compound is comprised primarily of greasewood, sagebrush, rabbitbrush, Russian thistle, and cheatgrass. Soil conditions appear to be very poor and vegetation immediately about the fenced enclosure is sparse. The Miller Creek riparian corridor averages about 25-50 feet in width to the south of the site (Approximately 0.25 miles in

distance) and is primarily comprised of Russian olive (*Elaeagnus angustifolia*) and Tamarisk (*Tamarix spp.*) with a few Fremont cottonwood (*Populus fremontii*) and Willow (*Salix sp.*) trees. The vegetation along the corridor is not consistent and lacks any kind of canopy. A map identifying these vegetative communities is included in Appendix A. The following vegetation was noted at the site and in the surrounding site vicinity:

Trees

- Russian olive (*Elaeagnus angustifolia*)
- Tamarisk (*Tamarix spp.*)
- Fremont cottonwood (*Populus fremontii*)
- Willow (*Salix sp.*)

Shrubs

- Big sage (*Artemisia tridentata*),
- Big rabbitbrush (*Chrysothamnus nauseosus*)
- Greasewood (*Sarcobatus vermiculatus*)
- Winterfat (*Krascheninnikovia lanata*)
- Broom snakeweed (*Gutierrezia sarothrae*)
- Skunkbush (*Rhus trilobata*)
- Inkweed (*Suaeda torreyana*)
- Shadscale (*Atriplex confertifolia*)

Forbs

- Halogeton (*Halogeton glomeratus*)
- Curlycup gumweed (*Grindelia squarrosa*)
- Desert trumpet (*Eriogonum inflatum*)
- Showy milkweed (*Asclepias speciosa*)
- Russian thistle (*Salsola iberica*)
- Plains prickly pear cactus (*Opuntia polyacantha*)
- Rocky mountain bee plant (*Cleome serrulata*)
- Common sunflower (*Helianthus annuus L.*)
- Diffuse knapweed (*Centaurea diffusa*)

Grasses

- Foxtail barley (*Hordeum murinum*)
- Cheatgrass (*Bromus tectorum*)
- Indian ricegrass (*Orizopsis hymenoides*)

Noxious Weeds

- Russian olive (*Elaeagnus angustifolia*)
- Tamarisk (*Tamarix spp.*)

Vegetation within the site boundary is isolated to the extreme edges near the existing fence surrounding the site. The adjacent area about the site and in the nearby vicinity is sparsely covered with greasewood, sagebrush, rabbitbrush, halogeton, and various grasses. It is reasonable to assume that the project area contained similar plant habitat prior to the development of the facility.

Wildlife and signs of animal life at the subject property included cottontail rabbit (*Sylvilagus audubonii*), and some ant mounds. No burrows were observed within the project area, or within the immediate vicinity about the site. However, prairie dog burrows and prairie dogs were identified along the highway approximately 0.5 miles to the east of the site.

According to information from the DWR, the subject property and surrounding area are identified as habitat for pronghorn antelope. Mule deer habitat was also identified by the DWR to the south of the project area (Appendix A). No evidence (scat, tracks, grazed vegetation) of big game species known to inhabit the region (mule deer, elk, antelope, bighorn sheep) was identified within the survey area. Forage for these large herbivores is generally sparse within the project area and surrounding environs. The scarcity of forage plants in and about the site appears to be primarily related to poor soil quality and the lack of available water.

DESIGNATED CRITICAL HABITAT

During a review of land status, evaluation of threatened or endangered species occurrences, and review of historical information, we noted that critical habitat areas have been designated in Carbon County, Utah for the following federally protected species:

Humpback chub (<i>Gila cypha</i>)	Endangered
Bonytail chub (<i>Gila elegans</i>)	Endangered
Razorback sucker (<i>Xyrauchen texanus</i>)	Endangered
Colorado pikeminnow (<i>Ptychocheilus lucius</i>)	Endangered
Mexican spotted owl (<i>Strix occidentalis lucida</i>)	Threatened

Critical habitat areas for the Humpback chub, Bonytail chub, Razorback sucker, and Colorado pikeminnow are found within the Green River, in a reach of the river situated roughly 30 miles to the east of the site, at its closest point with respect to the site. Critical habitat areas for Mexican spotted owl are found near the Book Cliffs, situated roughly 25 miles east of the site. As such, due to the significant distance of the site with respect to these critical habitat areas, it is apparent that the proposed action would not result in destruction or adverse modification of a critical habitat area established for any of these species.

ENDANGERED, THREATENED, AND CANDIDATE SPECIES THAT MAY OCCUR ON THE PROJECT SITE AND WITHIN THE GENERAL PROJECT AREA

Canyon Environmental consulted with the USFWS and Utah Division of Wildlife Resources (DWR) by obtaining information and lists of threatened, endangered, and candidate species that may occur in, or may be affected by, projects in Carbon County and at the project site. These species are designated as 'high value' species and are afforded specific protections by Federal statute. The species are listed below and an analysis of these species, including their general habitat requirements, with respect to habitat present at the subject property and within Carbon County, is found below and in Appendix B (Table B-1). Species lists were obtained from the appropriate agencies are found in Appendix C.

Table 1. Federal Threatened and Endangered Species and Utah State Sensitive Species in Carbon County and the Site Vicinity

Common Name	Scientific Name	Status
Uinta Basin hookless cactus	Scierocactus glaucus	Threatened
Clay phacelia	Phacelia argillacea	Endangered
Humpback chub	Gila cypha	Endangered
Bonytail	Gila elegans	Endangered
Colorado pikeminnow	Ptychocheilus lucius	Endangered
Razorback sucker	Xyrauchen texanus	Endangered
Southwestern willow flycatcher	Empidonax traillii extimus	Endangered
Black-footed ferret	Mustela nigrapes	Endangered / Extirpated
White-tailed prairie dog	Cynomys leucurus	State Sensitive
Burrowing owl	Athene cunicularia	State Sensitive
Bluehead sucker	Catostomus discobolus	State Sensitive

Species Outside of Their Know Range or Lacking Suitable Habitat

The following federally protected species and State of Utah sensitive species are categorized as lacking suitable habitat, being outside of their known range, or undocumented in the site vicinity:

Clay phacelia	(Phacelia argillacea)	Endangered
Humpback chub	(Gila cypha)	Endangered
Bonytail	(Gila elegans)	Endangered
Colorado pikeminnow	(Ptychocheilus lucius)	Endangered
Razorback sucker	(Xyrauchen texanus)	Endangered
Southwestern willow flycatcher	(Empidonax traillii extimus)	Endangered
Uinta Basin hookless cactus	(Scierocactus glaucus)	Threatened

Summary of Species with Occupied Habitat within the Area

Based upon a site inspection, habitat characterization, and review of database information including a site-specific species list provided by the DWR regarding known species occurrences near the site, the following species could potentially occupy the site (species profiles obtained from the DWR):

Black-footed Ferret

"The black-footed ferret, *Mustela nigripes*, is sometimes called "the rarest mammal in North America." In fact, the black-footed ferret was believed to be extinct for quite some time until a wild population of the species was found near Meeteetsee, Wyoming in the early 1980s. When that population was threatened by canine distemper in the mid-1980s, the last surviving eighteen individuals were taken into captivity and used to start a captive breeding program. Descendants of those individuals have been released at several sites in the western United States, including the Coyote Basin area of Uintah County, Utah in late 1999. Although the black-footed ferret is a federally listed endangered species, the re-introduced populations have been classified as "nonessential-experimental" by the U.S. Fish and Wildlife Service. In addition to Utah's re-introduced black-footed ferret population, unconfirmed sightings of naturally occurring ferrets persist throughout eastern Utah."

"Black-footed ferrets live in underground prairie dog burrows and eat prairie dogs as their primary food source. The black-footed ferret is, therefore, closely associated with prairie dog towns. For this reason, the major threat to the species is the decimation of prairie dog colonies through plague, poisoning, and habitat loss. The black-footed ferret breeds from March to April, and young are born in about six weeks; average litter size is three. The black-footed ferret is nocturnal."

Due to the presence of a chain link fence surrounding the site, and limitations imposed on personnel at the site that would restrict access to areas outside the fenced site boundaries, it is unlikely that ferrets would be impacted by activities on the project area. Furthermore, no apparent burrows were observed within the site boundaries or in the immediate vicinity about the site.

Burrowing Owl

"The burrowing owl, *Athene cunicularia*, breeds in southwestern Canada, the western United States, northern Mexico, Florida, and parts of the West Indies. It winters from the southwestern United States to Honduras, northern populations being migratory. In Utah, it is uncommon during summer in proper habitat throughout the state. Its habitats are open grassland and prairies, but it also utilizes other open situations, such as golf courses, cemeteries, and airports. It eats mainly terrestrial invertebrates, but also consumes a variety of small vertebrates, including small mammals, birds, frogs, toads, lizards, and snakes."

"The nest is in a mammal burrow, usually that of a prairie dog, ground squirrel, badger, or armadillo; if a mammal burrow is not available the owls will sometimes excavate their own nest burrow. Three to eleven (usually five to nine) eggs are incubated by the female parent, who is fed by the male, for 27 to 30 days. The young are tended by both parents and fledge after about 40 to 45 days."

Burrowing owls are known to inhabit portions of Carbon County. Presently Burrowing owls do not appear to be utilizing the site or surrounding area; therefore, any activities at the site are unlikely to result in adverse impacts to Burrowing owls. However, due to the presence of suitable breeding habitat in the site vicinity, Burrowing owls could move in and inhabit surrounding areas in the future; therefore, in the future if land-disturbing activities occur during the breeding season (February – August), a preconstruction survey should be completed in order to determine whether or not Burrowing owls are present. In the event that Burrowing owls are found at the site, construction activities should be postponed until the non-nesting season, when all of the chicks have fledged the burrow, or until the adults have vacated the site.

No Burrowing owls or burrows potentially used by Burrowing owls were noted during the site inspection, which occurred on September 25, 2008. The actual site is contained within a chain link fence and operations occurring on-site are restricted to the enclosed area. No burrows were observed during a survey of the area surrounding the site. Soils on the site and in the general area are typically hard and rocky, with little to no ground cover. It is unlikely that activities conducted on the site would adversely affect any Burrowing owls.

White-tailed Prairie Dog

“The white-tailed prairie-dog, *Cynomys leucurus*, is one of three prairie-dog species found in Utah, occurring in the northeastern part of the state. The species is also found in parts of Colorado, Wyoming, and Montana.”

“Similar to other prairie-dogs, white-tailed prairie-dogs form colonies and spend much of their time in underground burrows, often hibernating during the winter. The species breeds in the spring, and young can be seen above ground in early June. The white-tailed prairie-dog's diet is composed of grasses and bulbs. In turn, the white-tailed prairie-dog is the main food source of the Utah population of the endangered black-footed ferret.”

No animal burrows were identified within the fenced, site boundary, nor were any burrows observed in the immediate surrounding area about the site. However, burrows were observed along Ridge Road at distances of about 0.5 miles east of the site. The identification of burrows along the nearby road indicates that prairie dogs could be present in the surrounding area. However, due to the developed nature of the site, fencing, and access restrictions, and lack of identified burrows within the site, it is not expected that site activities would adversely impact any prairie dog colonies that may be present in the surrounding area.

Bluehead Sucker

“The bluehead sucker, *Catostomus discobolus*, is native to parts of Utah, Idaho, Arizona, New Mexico, and Wyoming. Specifically, the species occurs in the upper Colorado River system, the Snake River system, and the Lake Bonneville basin. In Utah, bluehead suckers have been reduced in numbers and distribution due to flow alteration, habitat loss/alteration, and the introduction of nonnative fishes. Consequently, the bluehead sucker is included on the *Utah Sensitive Species List*.”

“The bluehead sucker is a benthic (bottom dwelling) species with a mouth modified to scrape algae (the primary food of the bluehead sucker) from the surface of rocks. Members of the species spawn in streams during the spring and summer. Fast flowing water in high gradient reaches of mountain rivers has been identified as important habitat for bluehead sucker.”

The Bluehead sucker is potentially present in Miller Creek, which is located about 0.25 miles to the south. As such, activities at the site involving diverting or removing water, or discharging substances including water or other effluent into Miller Creek could result in adverse impacts to the Bluehead sucker; therefore, any such activities that occur at the site should involve consultation with the Utah Division of Wildlife Resources as it is a state sensitive species.

MIGRATORY BIRDS

Migratory birds are protected under the Migratory Bird Treaty Act (MBTA; 16 U.S.C., §703, Supp. I, 1989). The MBTA prohibits killing, possessing, or trading of migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, and bird nests and eggs. There are a number of migratory birds that likely forage at the Project Site and potentially nest in the riparian corridor to the south; therefore, in order to avoid impacts to migratory birds protected under the MBTA including the removal of trees at the site during the nesting season (February – September), a preconstruction survey should be completed in order to determine whether or not nesting birds are present. In the event that migratory birds are found nesting at the site in trees that would be removed, construction activities should be postponed until the non-nesting season or until all of the chicks have fledged the nest.

It also noted that various prey species for numerous raptors are also present in the area. Some of these prey species include cottontail rabbit (*Sylvilagus audubonii*), jack-rabbit (*Lepus* species), and white-tailed prairie dog (*Cynomys leucurus*). As such, care should be taken to avoid contact with any raptors that may migrate and/or hunt through the general area.

METHODS

The site was surveyed by Mr. Chris Jensen, Project Biologist at Canyon Environmental, on September 25, 2008. The site was surveyed on foot by walking 10-15 foot transects across the enclosed project area and the surrounding site vicinity. The survey was conducted in accordance with U.S. Fish and Wildlife protocols for identifying habitat and species that may potentially inhabit the general area. The area was traversed in order to identify any burrows or signs and/or indications of prairie dogs, burrowing owls, or other species of significance. Vegetation was identified and habitat characterized within the fenced area, and in the area immediately about the site for a distance of approximately 800 feet around the subject property. The riparian area to the south was also surveyed to identify any species that may occur along Miller Creek and nearby drainages.

Although many states have established definitive methods and requirements for the identification of burrowing owls, Utah currently does not enforce any one specific protocol. However, the methodologies established for Arizona, California, and Colorado were deemed appropriate for use here in Utah by Anthony Wright, the Regional Sensitive Species Biologist for the DWR (personal communication, June 26, 2009). These methods were followed to identify any burrowing owls on the site and within the site vicinity. Borrowing owl survey methodology included a walking survey of the project area in an attempt to identify any burrows. Recorded owl calls were also played near the southeast and southwest corners of the project area to verify if any owls were present in the surrounding areas.

FINDINGS AND RECOMMENDATIONS

Canyon Environmental performed a site inspection, reviewed database information, and obtained lists of special status species from the appropriate agencies in order to ascertain the potential for presence of special status or high value species on a roughly 30-acre area of land in unincorporated Carbon County, Utah. Having performed these tasks we offer the following conclusions and recommendations:

- No listed species or suitable habitat for any listed or special status species was identified within the immediate project area. The project area is encompassed by a chain link fence and site activities are restricted to the enclosed facility within the existing fence.
- No listed species or special status species were identified within the area immediately surrounding the enclosed project area.
- The following special status species possesses suitable habitat within Miller Creek that is located about 0.25 miles south of the site, and are, therefore, potentially present within Miller Creek, to the south of the site:

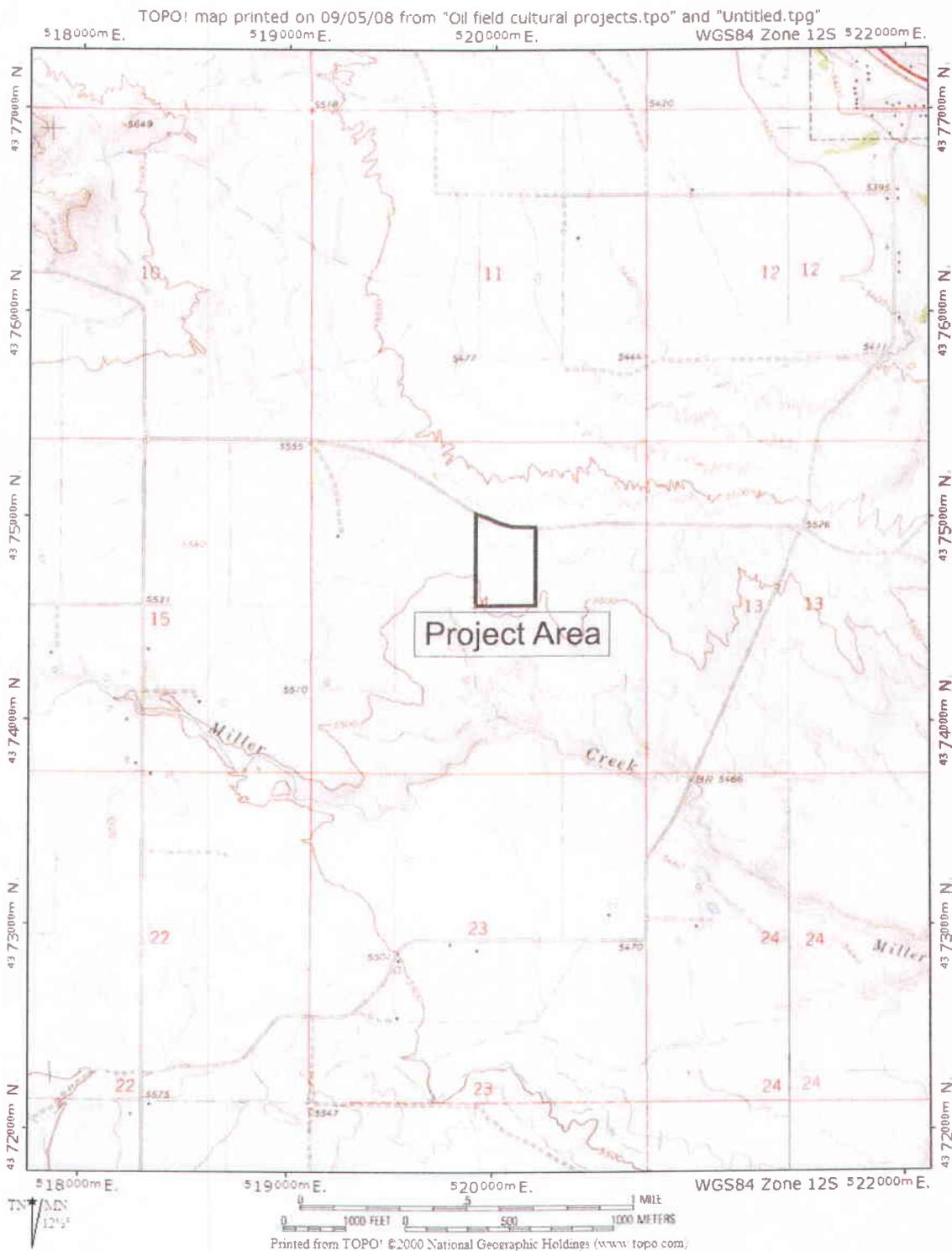
- Bluehead sucker (*Catostomus discobolus*) State Sensitive

Activities at the site involving diverting or removing water or discharging substances including water or other effluent into Miller Creek could result in adverse impacts to this species; therefore, any such activities that occur at the site should involve consultation with Utah Division of Wildlife Resources since it is a state sensitive, and not a federally protected species.

- No Burrowing owls or burrows potentially used by Burrowing owls were noted during the site inspection, which occurred on September 25, 2008. The actual site is contained within a chain link fence and operations occurring on-site are restricted to the enclosed area. No burrows were observed during a survey of the area surrounding the site and call responses were negative. Soils on the site and in the general area are typically hard and rocky, with little to no ground cover. Based upon soil conditions, the lack of identified burrows, negative call responses, and proposed site activities being contained within the fenced enclosure, it is unlikely that activities conducted on the site would adversely affect any Burrowing owls.

- Migratory birds are protected under the Migratory Bird Treaty Act (MBTA; 16 U.S.C., §703, Supp. I, 1989). The MBTA prohibits killing, possessing, or trading in migratory birds except in accordance with regulations prescribed by the Secretary of the Interior. This act encompasses whole birds, parts of birds, bird nests, and eggs. There are a number of migratory birds that likely forage at the Project Site and potentially nest in the riparian corridor to the south; therefore, in order to avoid impacts to migratory birds protected under the MBTA, including the removal of trees at the site during the nesting season (February – September), a preconstruction survey should be completed in order to determine whether or not nesting birds are present. In the event that migratory birds are found nesting at the site in trees that would be removed, construction activities should be postponed until the non-nesting season or until all of the chicks have fledged the nest.
- Various prey species for numerous raptors are also present in the general surrounding area. Some of these prey species include cottontail rabbit (*Sylvilagus audubonii*), jack-rabbit (*Lepus californicus*), and white-tailed prairie dog (*Cynomys leucurus*). Raptors may perch on facility equipment and machinery at times throughout the year. As such, care should be taken to avoid contact with any raptors that may migrate through and/or hunt in the general area.

APPENDIX A
(Project Area Map and Habitat Maps)



TOPOGRAPHIC MAP

Wellington Dry-Coal Cleaning Facility
Section 14, Township 15 South, Range 10 East

USGS TOPOGRAPHIC MAP:
Price, Utah 7.5 Min Quadrangle



Figure 1

Job No. C080001

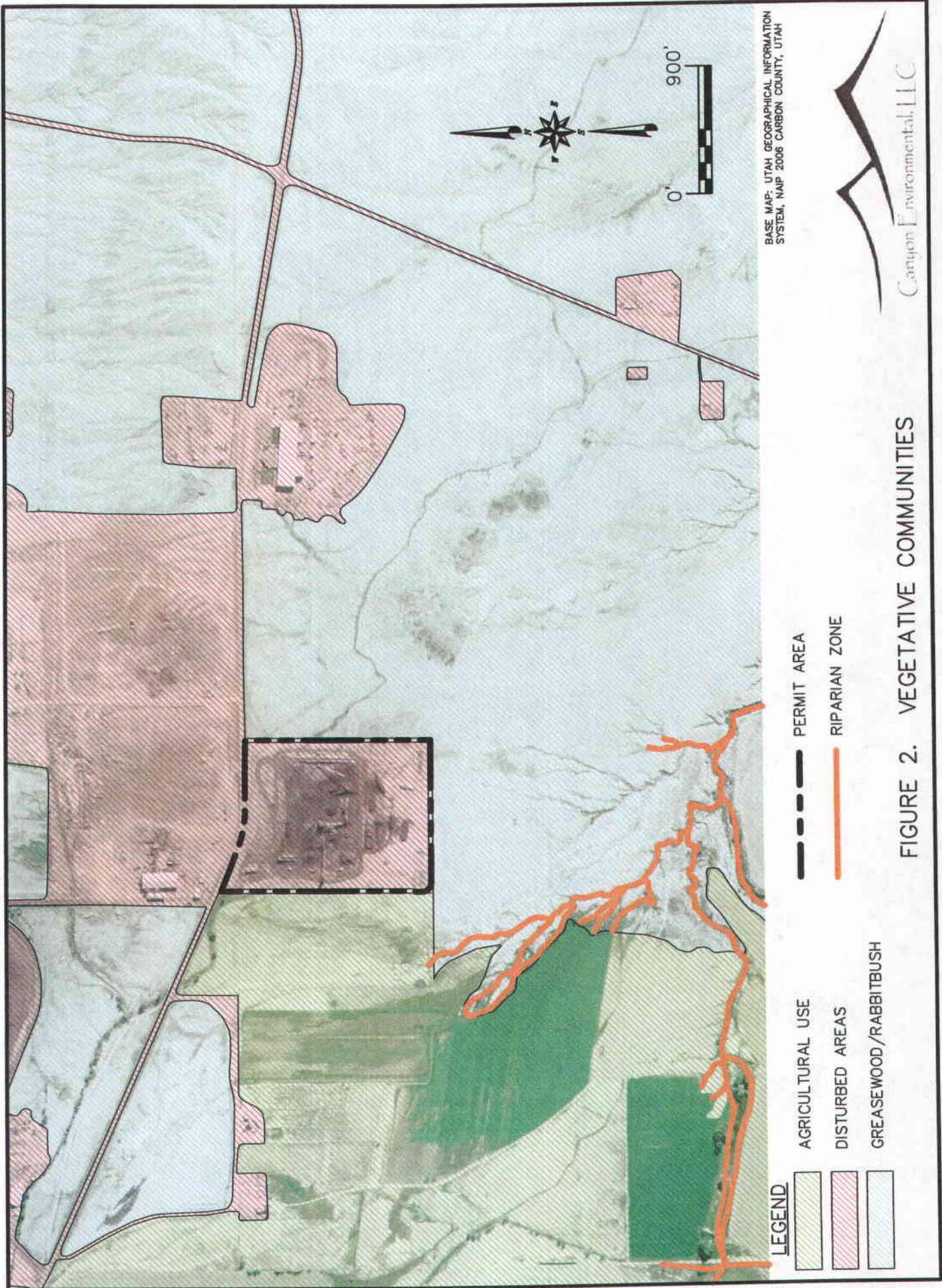
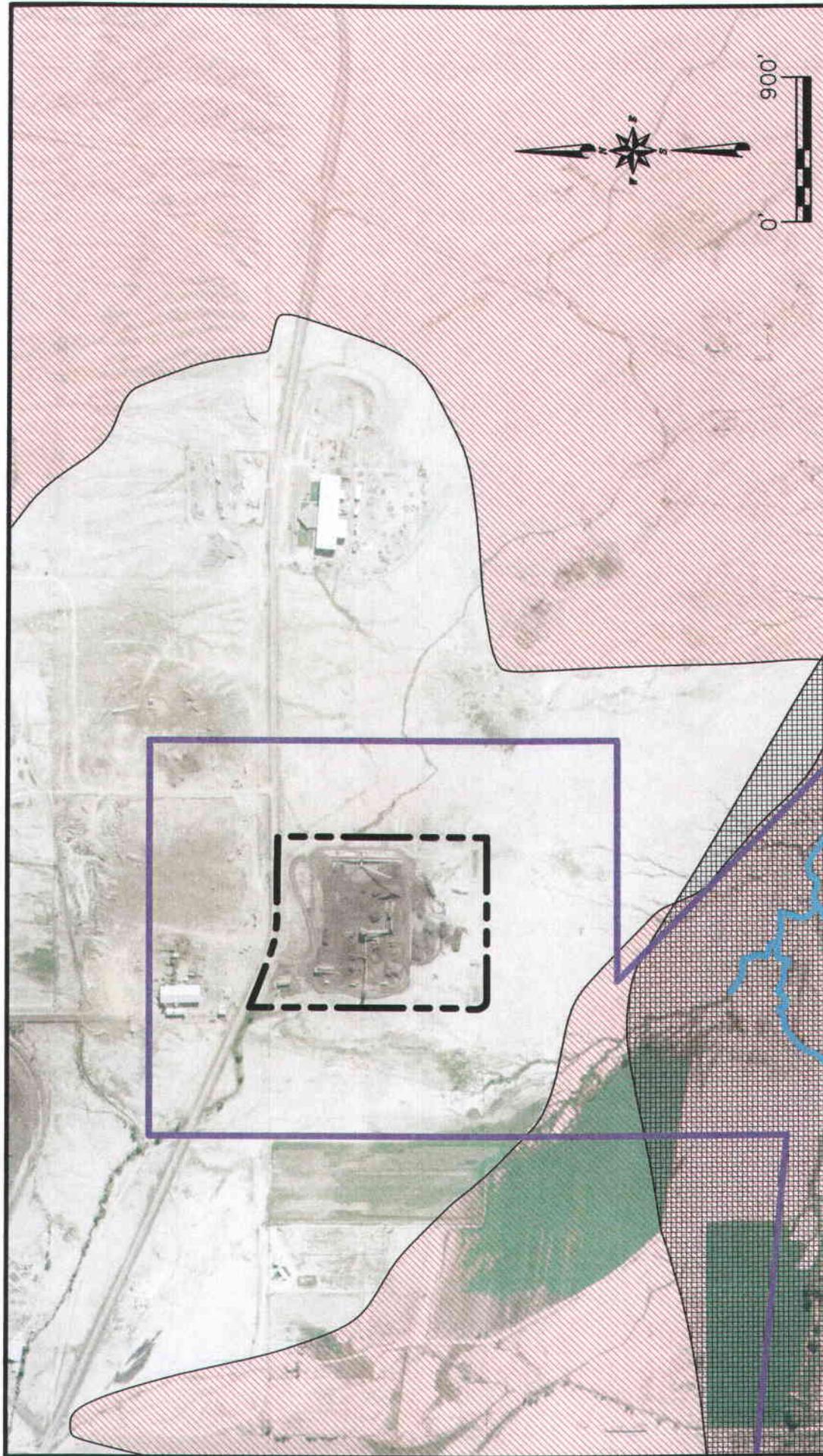


FIGURE 2. VEGETATIVE COMMUNITIES



LEGEND

- POTENTIAL PRAIRIE DOG AND BURROWING OWL HABITAT
- POTENTIAL MULE DEER HABITAT (POSTULATED BY UDWR BUT NOT FIELD VERIFIED)
- POTENTIAL BLUEHEAD SUCKER HABITAT
- PERMIT AREA
- APPROXIMATE EXTENT OF DETAILED BURROWING OWL SURVEY

BASE MAP: UTAH GEOGRAPHICAL INFORMATION SYSTEM, NAIP 2006 CARBON COUNTY, UTAH

NOTE: UDWR MAPS INDICATE THAT THE ENTIRE AREA OF THIS MAP MAY SERVE AS HABITAT FOR PRONGHORN ANTELOPE. HOWEVER, NO SIGNS OF THIS SPECIES WERE NOTED IN THE FIELD.



FIGURE 3. WILDLIFE HABITAT

APPENDIX B

(Federally Listed Threatened, Endangered, and Candidate Species for Carbon County, Utah)

Table B-1. Federally Listed Species for Carbon County, Utah

Common/Scientific Name	Status	Suitable Habitat	Habitat Present
Uinta Basin Hookless Cactus <i>Sclerocactus glaucus</i>	Threatened	Uinta Basin hookless cactus is found on river benches, valley slopes, and rolling hills of the Duchesne River, Green River, and Mancos formations. It is found in xeric, fine textured soils overlain with cobbles and pebbles, growing in salt desert shrub and pinyon-juniper communities, at elevations ranging from 1360 to 2000 meters.	No
Clay Phacelia <i>Phacelia argillacea</i>	Endangered	Clay phacelia is found in fine textured soil and fragmented shale derived from the Green River Formation. It grows on barren, precipitous hillsides in sparse pinyon-juniper and mountain brush communities, at elevations ranging from 1840 to 1881 meters.	No
Humpback Chub <i>Gila cypha</i>	Endangered	The humpback prefers deep, fast-moving, turbid waters often associated with large boulders and steep cliffs in the Colorado River.	No
Bonytail <i>Gila elegans</i>	Endangered	Large, fast-flowing waterways of the Colorado River system.	No
Colorado Pikeminnow <i>Ptychocheilus lucius</i>	Endangered	The Colorado pikeminnow thrives in swift flowing muddy rivers with quiet, warm backwaters.	No
Razorback Sucker <i>Xyrauchen texanus</i>	Endangered	Reproducing populations remain only in the middle Green River in Utah and in an off-channel pond in the Colorado River near Grand Junction. The razorback is most often found in quiet, muddy backwaters along the river.	No
Southwestern Willow Flycatcher <i>Empidonax traillii extimus</i>	Endangered	Dense riparian habitats with high canopies comprised of willow and cottonwoods.	No
Black-footed Ferret <i>Mustela nigripes</i>	Endangered Extirpated	Usually found on shortgrass and midgrass prairies in close association with prairie dogs	No

County Lists of Utah's Federally Listed Threatened(T), Endangered(E), and Candidate(C) Species

Disclaimer: This list was compiled using known species occurrences and species observations from the Utah Natural Heritage Program's Biodiversity Tracking and Conservation System (BIOTICS); other federally listed species likely occur in Utah Counties. This list includes both current and historic records. (Last updated on July 1, 2008).

Beaver County

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Southwestern Willow Flycatcher	<i>Empidonax traillii extimus</i>	E
Utah Prairie-dog	<i>Cynomys parvidens</i>	T

Box Elder County

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Fat-whorled Pondsail	<i>Stagnicola bonnevillensis</i>	C
Lahontan Cutthroat Trout	<i>Oncorhynchus clarkii henshawii</i>	T
June Sucker	<i>Chasmistes liorus</i>	E
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	C
Gray Wolf	<i>Canis lupus</i>	E Extirpated

Cache County

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Maguire Primrose	<i>Primula maguirei</i>	T
Yellow-billed Cuckoo	<i>Coccyzus americanus</i>	C
Brown (Grizzly) Bear	<i>Ursus arctos</i>	T Extirpated
Canada Lynx	<i>Lynx canadensis</i>	T

Carbon County

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Uinta Basin Hookless Cactus	<i>Sclerocactus glaucus</i>	T
Clay Phacelia	<i>Phacelia argillacea</i>	E
Humpback Chub	<i>Gila cypha</i>	E
Bonytail	<i>Gila elegans</i>	E
Colorado Pikeminnow	<i>Ptychocheilus lucius</i>	E
Razorback Sucker	<i>Xyrauchen texanus</i>	E
Southwestern Willow Flycatcher	<i>Empidonax traillii extimus</i>	E
Black-footed Ferret	<i>Mustela nigripes</i>	E Extirpated

Daggett County

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
Ute Ladies'-tresses	<i>Spiranthes diluvialis</i>	T
Humpback Chub	<i>Gila cypha</i>	E
Colorado Pikeminnow	<i>Ptychocheilus lucius</i>	E
Razorback Sucker	<i>Xyrauchen texanus</i>	E
Black-footed Ferret	<i>Mustela nigripes</i>	E Extirpated
Brown (Grizzly) Bear	<i>Ursus arctos</i>	T Extirpated
Canada Lynx	<i>Lynx canadensis</i>	T

Cache County (con't)

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
WESTERN TOAD	BUFO BOREAS	SPC
YELLOW-BILLED CUCKOO	COCCYZUS AMERICANUS	S-ESA

Carbon County

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
BALD EAGLE	HALIAEETUS LEUCOCEPHALUS	SPC
BLACK-FOOTED FERRET	MUSTELA NIGRIPES	S-ESA
BLUEHEAD SUCKER	CATOSTOMUS DISCOBOLUS	CS
BONYTAIL	GILA ELEGANS	S-ESA
BURROWING OWL	ATHENE CUNICULARIA	SPC
COLORADO PIKEMINNOW	PTYCHOCHEILUS LUCIUS	S-ESA
COLORADO RIVER CUTTHROAT TROUT	ONCORHYNCHUS CLARKII PLEURITICUS	CS
FERRUGINOUS HAWK	BUTEO REGALIS	SPC
FLANNELMOUTH SUCKER	CATOSTOMUS LATIPINNIS	CS
GREATER SAGE-GROUSE	CENTROCERCUS UROPHASIANUS	SPC
HUMPBACK CHUB	GILA CYPHA	S-ESA
KIT FOX	VULPES MACROTIS	SPC
LONG-BILLED CURLEW	NUMENIUS AMERICANUS	SPC
NORTHERN GOSHAWK	ACCIPITER GENTILIS	CS
RAZORBACK SUCKER	XYRAUCHEN TEXANUS	S-ESA
ROUNDTAIL CHUB	GILA ROBUSTA	CS
SMOOTH GREENSNAKE	LIOCHLOROPHIS VERNALIS	SPC
SOUTHWESTERN WILLOW FLYCATCHER	EMPIDONAX TRAILLII EXTIMUS	S-ESA
TOWNSEND'S BIG-EARED BAT	CORYNORHINUS TOWNSENDII	SPC
WESTERN RED BAT	LASIURUS BLOSSEVILLII	SPC
WESTERN TOAD	BUFO BOREAS	SPC
WHITE-TAILED PRAIRIE-DOG	CYNOMYS LEUCURUS	SPC

Daggett County

<u>Common Name</u>	<u>Scientific Name</u>	<u>State Status</u>
BALD EAGLE	HALIAEETUS LEUCOCEPHALUS	SPC
BEAR LAKE SCULPIN	COTTUS EXTENSUS	SPC
BLACK-FOOTED FERRET	MUSTELA NIGRIPES	S-ESA
BLUEHEAD SUCKER	CATOSTOMUS DISCOBOLUS	CS
BROWN (GRIZZLY) BEAR	URSUS ARCTOS	S-ESA
CANADA LYNX	LYNX CANADENSIS	S-ESA
COLORADO PIKEMINNOW	PTYCHOCHEILUS LUCIUS	S-ESA
COLORADO RIVER CUTTHROAT TROUT	ONCORHYNCHUS CLARKII PLEURITICUS	CS
FLANNELMOUTH SUCKER	CATOSTOMUS LATIPINNIS	CS
FRINGED MYOTIS	MYOTIS THYSANODES	SPC
GREATER SAGE-GROUSE	CENTROCERCUS UROPHASIANUS	SPC
HUMPBACK CHUB	GILA CYPHA	S-ESA
LEWIS'S WOODPECKER	MELANERPES LEWIS	SPC
NORTHERN GOSHAWK	ACCIPITER GENTILIS	CS
RAZORBACK SUCKER	XYRAUCHEN TEXANUS	S-ESA
ROUNDTAIL CHUB	GILA ROBUSTA	CS
THREE-TOED WOODPECKER	PICOIDES TRIDACTYLUS	SPC
TOWNSEND'S BIG-EARED BAT	CORYNORHINUS TOWNSENDII	SPC

APPENDIX C
(Correspondence with Utah DWR)

Chris Jensen

From: Anthony Wright [tonywright@utah.gov]
Sent: Friday, June 26, 2009 2:37 PM
To: Joe Helfrich
Cc: cjensen@canyonenvironmental.com
Subject: BUOW, Coval

Follow Up Flag: Follow up
Flag Status: Flagged

Categories: Red Category

Joe,

I talked with Chris Jensen today about the burrowing owl surveys they did at Coval. It sounded to me like the protocol they used was very close the State of Colorado's protocol which I think is well suited to Utah as far as dates and procedures.

He said they searched for burrows within the fenced area and found none. Also, they did call response surveys and got no birds calling back. These surveys are pretty effective out to about 800 m as long as they are done when the wind is not high. It is a good idea to repeat this procedure on a couple different days as the owls do not always respond. I assume they did this although I did not specifically ask. So if they played calls out around the periphery and heard no response, that should have established an adequate buffer. I am concerned about repeated deposition of coal dust out 400 m or so from a pile, but I don't know if this is an issue at Coval. Anyway, absence of a response from a couple repetitions of the call playback surveys gives a pretty good assurance that there are no owls on the nearby private lands where they could not search on foot for burrows.

From my conversation with Chris it appears to me that the burrowing owl issue has been adequately addressed by the surveys they have done.

I will be hard to reach for several more weeks, but feel free to give me a call if you have questions or further ideas.

Thanks,

Tony

Anthony Wright
Sensitive Species Biologist
319 N. Carbonville Rd.
Price, UT 84501
(435) 613-3716



JON M. HUNTSMAN, JR.
Governor

GARY R. HERBERT
Lieutenant Governor

State of Utah

DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER
Executive Director

Division of Wildlife Resources

JAMES F. KARPOWITZ
Division Director

September 23, 2008

Chris Jensen
Canyon Environmental
326 Stadium Avenue
Provo, Utah 84604

Subject: Species of Concern Near the Dry-Coal Cleaning Facility Near Wellington, Utah

Dear Chris Jensen:

I am writing in response to your email dated September 23, 2008 regarding information on species of special concern proximal to the dry-coal cleaning facility located in Section 14 of Township 15 South, Range 10 East, near Wellington, Carbon County, Utah.

The Utah Division of Wildlife Resources (UDWR) does not have records of occurrence for any threatened, endangered, or sensitive species within the project area noted above. However, in the vicinity there are recent records of occurrence for burrowing owl, bluehead sucker and white-tailed prairie-dog. All of the aforementioned species are included on the *Utah Sensitive Species List*.

The information provided in this letter is based on data existing in the Utah Division of Wildlife Resources' central database at the time of the request. It should not be regarded as a final statement on the occurrence of any species on or near the designated site, nor should it be considered a substitute for on-the-ground biological surveys. Moreover, because the Utah Division of Wildlife Resources' central database is continually updated, and because data requests are evaluated for the specific type of proposed action, any given response is only appropriate for its respective request.

In addition to the information you requested, other significant wildlife values might also be present on the designated site. Please contact UDWR's habitat manager for the southeastern region, Chris Wood, at (435) 613-3709 if you have any questions.

Please contact our office at (801) 538-4759 if you require further assistance.

Sincerely,

Sarah Lindsey
Information Manager
Utah Natural Heritage Program

cc: Chris Wood, SERO



APPENDIX D
(Site photos)

SITE: Wellington Dry-Coal Cleaning Facility
Project: Earthfax 08-007

Photograph 1

North view of site.



Photograph 2

East view along south edge of the site.



Photograph 3

West view along south edge of site.



SITE: Wellington Dry-Coal Cleaning Facility
Project: Earthfax 08-007
Photograph 4

North view along east edge of site.



Photograph 5

Northwest view of the northwest corner of site.



Photograph 6

South view along west edge of site.



SITE: Wellington Dry-Coal Cleaning Facility
Project: Earthfax 08-007
Photograph 7

East view of site.



Photograph 8

South view of site.



Photograph 9

Southwest view from site.



COVOL Engineered Fuels, LC
| Dry-Coal Cleaning Facility

Permit Application
~~January October 2008~~ ~~March July 2009~~

APPENDIX 3-2

Resume of Project Biologist

Christopher T. Jensen
326 Stadium Avenue
Provo, Utah 84604
801-602-6883
cjensen@canyonenvironmental.com

Mr. Jensen is an environmental professional with over ten years experience in the industry. Due to his unique educational and professional background, Mr. Jensen is qualified to conduct numerous aspects of environmental consultation ranging from Cultural Resource (archaeological) evaluations, Biological Assessments, soils evaluations, carbon analyses, and contaminant characterization and remediation. By combining these elements during project planning and permitting, Mr. Jensen delivers quality, cost-effective environmental services for many clients.

EDUCATION

Master of Science Degree in Agronomy with Archaeological Science and Soil Chemistry emphasis. Brigham Young University, Provo, Utah. August 2003.

Relevant course work includes: Maya Archaeology, Case Studies in Environmental Policy, Water/Environment, Environmental Issues, Soil and Plant Analyses, Rangeland Plants, Range Management, Laboratory Safety, Soil Physics, Soil Taxonomy, Statistics, and GIS mapping

Bachelor Degree in Anthropology with a minor in Geography. Brigham Young University, Provo, Utah. December 2001.

Relevant course work includes: Geology, Seminar in Environmental Policy, Maps and Air Photos, Physical Geography, Cultural Geography, Human Osteology, Archaeological Methods, and Historic Archaeology

RESEARCH PROJECTS

Urban and rural planning studies of Indonesia. 1999.

Soil chemical investigations of Kay's Cabin archaeological site. 2000-2003.

Soil evaluations and environmental changes at Motul de San Jose, Guatemala. 2001-2007.

Soil chemical studies at Chunchucmil, Mexico and Antigua, Guatemala. 2001-2007.

Marketplace studies and environmental soils analysis in Antigua, Guatemala. 2002.

Design of a constructed wetland to treat agricultural run-off in Spanish Fork, Utah 2001.

Application of oily waste to arid agricultural fields in the West Desert, Utah. 2002.

GIS planning for a new park location for Orem City, Utah. 2003.

Nitrogen fixation studies of compost media for UDOT freeway interchanges, Utah County, Utah. 2003.

Soil chemical procedures as a viable alternative in Cultural Resource Management. 2002 – present.

EMPLOYMENT

President, Canyon Environmental, Provo, Utah. August 2008 – Present

I currently own Canyon Environmental and oversee business development, operations, and services. Canyon Environmental specializes in a multi-disciplinary approach to environmental services. The

company conducts biological assessments, cultural resource inventories, environmental site assessments, carbon credit analyses and verification services, and focuses on cost-effective strategies to improve efficiencies and coordinate project developments for our clients. Clientele ranges from energy companies, financial institutions, development corporations, holding companies, and governmental and non-governmental organizations.

Senior Scientist, Miller Brooks Environmental, American Fork, Utah. January 2008 – August 2008

I oversaw business operations for Miller Brooks in Utah and throughout the Intermountain West. I oversaw environmental site assessments, NEPA project development, Cultural Resource Inventories and permitting, biological evaluations, and assisted in the development of Environmental Impact Statements, and other associated projects. I was responsible for assisting clients in developing projects under the auspices of the National Environmental Policy Act (NEPA), and conducted cultural resource inventories, biological inventories, and regulatory assessments in connection with those policies.

Southwest Regional Director, AEI Consultants, Phoenix, Arizona. October 2006 – January 2008

I managed the Southwest Regional Office in Phoenix and oversaw business operations in Arizona, Nevada, Southern Utah, and New Mexico. I began the development of NEPA training for the company including; cultural resource inventories, biological assessments, 404 permitting, and other similar projects. I conducted and oversaw site assessments, subsurface investigations, media sampling, and Property Condition and Safety Assessments for various clients. Project experience includes Phase I and Phase II assessments on tire re-tread facilities, printing facilities, plating and powder coating facilities, commercial office buildings, medical offices, hotels, and apartment complexes. I was responsible for advising clients on 'Best Management Practices' pertaining to Hazardous Waste storage, transport, and removal; and in identifying potential safety concerns and proposing methods and procedures to decrease risks within industrial and commercial settings. I was also responsible for overseeing and training staff members, business development, budgeting and minor accounting, and client relationships within the southwest region.

Environmental Scientist/ Archaeologist, Earthtouch, Inc., Layton, Utah. October 2003 – October 2006.

I conducted Phase I site assessments and NEPA analyses in California, Oregon, Washington, Idaho, Utah, Nevada, Arizona, Oklahoma, and other locations throughout the United States. I authored Environmental Site Assessment (ESA) reports, soil analyses reports, archaeological inventories, Phase I assessments, and Phase II assessments for Federal and State agencies, commercial clients, financial lending institutions and wireless telecommunications providers. I categorized waste materials and identified potential environmental and safety hazards for industrial and commercial properties. I was responsible for designing sample strategies for various sites and implementing soil and groundwater testing. I prepared samples for transport and reported on laboratory results. I also helped resolve concerns between clients and various government and state agencies in order to expedite project completion and insure the proper implementation of proposed developments.

I conducted numerous cultural resource inventories and biological assessments throughout Utah, Idaho, Arizona, California, Washington, and Oregon. Project experience includes; fiber optic lines, road expansion developments, utility permitting, fuels surveys, historic building and feature recordation, cellular tower development, rock shelter monitoring, and other projects.

Graduate Research Assistant, BYU Soils Laboratory, Provo, Utah. January 2002 – August 2003.

I planned, organized, and conducted independent studies of soils, plants, and geography; and documented environmental changes in areas of Mexico, Guatemala, and Utah. The majority of my research focused on using soil chemical analyses for archaeological prospecting and site evaluation. I conducted surveys and assisted in excavations and used soil chemical techniques to delineate and study site specific characteristics and to developed data to identify sub-surface cultural deposits. I developed sample strategies, organized and managed work crews, and supervised student volunteers for two years in Guatemala , Mexico, and Utah. I established contacts with government agency personnel, and worked with local Maya indigenous groups to evaluate agricultural practices and forest management issues. I oversaw sample analysis at the BYU soils laboratory, organized data, and prepared manuscripts for publication. I presented research findings at professional meetings and consulted as an environmental soils expert with various projects in Guatemala and Mexico. I also participated in local research projects in Utah and helped in the development of wetlands to treat agricultural run-off, the development of soil chemical analysis techniques to prospect for archaeological deposits, and monitoring stream flow on the Provo River. Other research projects include; the testing various composting materials for use on I-15 freeway interchanges, identifying Nitrogen fixation of crypto-biotic soils in southern Utah, and the application of oily waste products in areas of the West Desert to improve soil structure and increase agricultural output.

Archaeological Contractor, EarthTouch Inc., Layton, Utah. March 2001 – January 2002.

I assessed historic properties and archaeological sites for National Register of Historic Places status for government agencies and private companies. I evaluated sites and properties for various private and government entities. I conducted archaeological surveys and excavations and reported results to clients and government agency personnel. I participated in extensive research to document historic uses of properties included in land exchanges, road construction, and other infrastructure improvements. I worked with clients and government agency personnel through the NEPA process to resolve concerns and develop project initiatives for a positive outcome for all interested parties.

Archaeologist, JBR Environmental Consultants, Inc. Springville, Utah. September 2000 – March 2001.

I conducted archaeological surveys and assessments of proposed project areas. I recorded archaeological sites, mapped landscape features and excavated sites for governmental and private contractors. I prepared reports and data to be included in Environmental Assessments (EAs) and Environmental Impact Statement (EIS) documentation. I edited reports, prepared artifacts for storage, and assisted other professionals within the company.

Student Volunteer, Brigham Young University Archaeological Field School, Austin, Texas and Utah County, Utah. May - August 2000.

I excavated Paleo-Indian sites in Texas and Utah with other student volunteers. I collected and described artifacts, kept field notes, and prepared artifacts for analysis. I analyzed stone and bone artifacts, prepared reports and reported findings to other students in a forum. I also participated in project planning, and logistical support to provide students and faculty personnel with food, water and sanitary facilities.

On the Kay's Cabin archaeological site, I conducted soil chemical sampling for phosphates and trace elements to assist in the delineation of sub-surface features and potential cultural resources. The soil investigations identified an additional Fremont Indian pit-house, and other features that provided crucial data for understanding the site. These findings are currently under review, pending additional data prior to publication.

Volunteer Archaeological Lab Assistant, BYU Piedras Negras Project. Guatemala. April - May 2000.

I helped assess, organize, and conduct archaeological investigations of various structures within the site of Piedras Negras during the summer field season. I organized work crews for the field laboratory and conducted analysis of micro and macro-botanical samples from archeological sites. I organized artifact collection and storage while overseeing the field laboratory, and maintained necessary camp equipment such as water pumps, water filters, generators, and other electronic and mechanical equipment.

SELECTED ARCHAEOLOGICAL PROJECT EXPERIENCE

Oil field leases and access permits (cultural and biological clearances) Tribal and Federal lands
Beehive Fiber Optic Line – Wendover to Baker, archaeological survey and testing
Evaluation of historic structures in Gold Hill, Utah – Tooele County
Mills Junction near Lakepoint, survey and testing
Historical documentation of the Handy Corner Gas Station on the Historic Lincoln Highway
Monitoring for wireless telecommunications service (WTS) facility installation – various locations
Nextel Communications, surveys and evaluations throughout western United States
Cultural Resource Assessment and site recordation on US Naval Oil Preserve
10400 South Street – Salt Lake City, archaeological survey and historic building assessment
SUFCO Subsidence Mine Monitoring and Survey – Southern Wasatch Plateau
Hinckley Drive Road Improvement Project (SR 79), survey and collection
Joe's Valley Road Improvement Project – San Rafael Swell, survey and analyses
Martin Quarry Project – Central Utah, survey and testing
Nevada Automotive Testing Center proving Grounds, survey and analyses
Skull Valley Land Exchange, survey and testing
Survey and Testing in Red Cliffs Desert Reserve – St. George, survey and testing
Carbonville Road Project – Carbonville, Inventory
Mona Ridge BLM Fuels Inventory

SELECTED BIOLOGICAL PROJECT EXPERIENCE

Threatened and Endangered Species evaluations for telecom projects throughout California, Nevada, Arizona, Washington, Oregon, and Utah
Wetland and Sensitive Habitat evaluation for the Red-Legged Frog in the Sacramento Valley, California
Biological Inventory of the proposed ACDC gravel pit lease on the Uinta-Ouray Reservation
Biological Inventory of proposed French Drain locations along the White River
Biological Inventory for the proposed Wellington, Utah Walking Trail

KNOWLEDGE AND SKILLS

Public Lands Policy Coordination Office (PLPCO) Archaeological Permit # 177
AHERA Building Inspector (#D10620)
National Environmental Policy Act (NEPA) regulations.
Soil chemical prospecting techniques for archaeological sites.
C13/C14 carbon analyses for identifying early agricultural corn production.
Carbon sequestration verification services.
RCRA regulations and procedures.
40-Hour HAZWOPER Training.
Plant and soil analysis.
Stream flow monitoring and water testing procedures.

Soil and plant sampling and analysis procedures.
Mapping programs including; Arch View, Arch Map and Surfer.
Soil map generation and evaluation.
TOPCON total station mapping and various GPS mapping techniques.
ICP/AES analysis procedures.
Atomic Absorption analysis procedures.
Fluent Spanish (speaking, reading, writing).

AWARDS

Recipient of the 2003 BYU Graduate Student Association Research Presentation Award
Graduate Student Assistantship 2001-2003
Tuition Scholarship 2001-2003

AFFILIATIONS

Member of the Society of American Archaeologists
Member of the Association of American Geographers

SELECTED PUBLICATIONS AND PRESENTATIONS

First Author

Soil Resources of the Motul de San Jose Maya: Correlating soil taxonomy and modern Itza Maya soil classification within a Classic Maya archaeological zone. Christopher T. Jensen, Matthew D. Moriarti, Kristofer D. Johnson, Richard E. Terry, Kitty Emery, and Sheldon D. Nelson. *Geoarchaeology: An International Journal*, Volume 22, No. 3, 337-357 (2007).

Soil Chemical Investigations of agricultural resource control and distribution in Chunchucmil, Mexico and Motul de San Jose, Guatemala. Christopher T. Jensen. A thesis presented to the Brigham Young University Department of Plant and Animal Sciences in fulfillment of a Master of Science Degree. 2003.

The use of soil chemical analysis and ethnographic studies to define marketplace activities in the site of Chunchucmil, Mexico. Christopher Jensen, Richard E. Terry, Bruce Dahlin. A manuscript submitted to *Science*. 2004.

Connections between settlement patterns and soil types in the close-periphery of Motul de San José, Guatemala. Christopher Jensen, Kristoffer Johnson, Richard Terry, Matt Moriarti. A manuscript submitted to *Geoarchaeology*, an international journal. 2003.

Soil typologies and connections between agriculture and settlement at Motul de San Jose, Guatemala. Christopher Jensen, Matthew Moriarti, Richard E. Terry, Kitty Emery. Paper presented at the 2003 Society of American Archaeologists in Milwaukee, MI.

Soil chemistry of ancient and modern Maya marketplaces. Christopher Jensen, Richard E. Terry, David R. Wright. Paper presented at the 2003 American Association of Geographers meetings in New Orleans, LA.

Soil chemical signatures at Motul de San Jose, Guatemala. Christopher Jensen, Kris Johnson, Richard E. Terry. Paper presented at the 2002 Society of American Archaeologists meetings in Denver, Colorado.

The Pakbeh regional economy program. Report of the 2001 field season: Chemical analysis of soils at Chunchucmil. Chris Jensen, Bruce Dahlin, Richard E. Terry.

Proyecto Arqueologico Motul de San Jose. Informe #4, Temporada de campo 2001: Analisis quimico de suelos en Motul de San Jose. Chris Jensen, Kris Johnson, Richard E. Terry.

Second Author

In Search of an Ancient Maya Market. Bruce H. Dahlin, Christopher T. Jensen, Richard E. Terry, David R. Wright, and Timothy Beach. *Latin American Antiquity*, 18(3), 2007 pp 121-143.

Interpreting ancient Maya behavior through soil chemical analysis of activity areas in Chunchucmil, Mexico. Travis L. Thomason, Christopher Jensen, Richard E. Terry. Presentation at the 2002 American Society of Agronomy meetings in Indianapolis, IN.

Soil chemical signatures and Classic Maya land use at Motul de San Jose, Guatemala. Richard E. Terry, Christopher Jensen, Kris Johnson. Presentation at the 2001 American Society of Agronomy meetings in Charlotte, NC.

Chris Jensen – Environmental Consultant

Summation of Training and Project Experience Pertaining to Burrowing Owls

Mr. Jensen initially undertook direction for burrowing owl identification from personnel within the California Department of Fish and Game in 2001. Working in connection with Mason Holmes and others at Earthtouch, LLC; Mr. Jensen assisted in the development of FCC regulated wireless tower facilities. A number of these facilities were to be located within the range of the burrowing owl. As such, personnel with the California Department of Fish and Game directed Mr. Jensen and Mr. Holmes to conduct burrowing owl surveys. There was no specifically regulated training at the time (only recommendations) and direction was provided verbally or through email. The direction outlined the protocol for burrowing owl surveys, which was to first identify burrows within and about the project area, and then to use the approved methods for determining the absence or presence of individuals.

Additional in-field and pre-field instruction has occurred under the direction of personnel from Nevada Division of Wildlife (NDOW) for telecom projects on an as-needed basis in 2003 and again in 2006.

The following selected wireless telecommunications projects were assessed for burrowing owl using the aforementioned protocols:

NX-CA-1147C (2001)
NX-CA-1174B (2001)
NX-CA-1192 (2001)
NX-CA-059TA (2002)
NX-CA-2276A (2002)
NX-NV-1233A (2003)
AZ-11276B (2003)
NX-CA-2687C (2003)
NX-CA-3325A (2005)
NX-CA-1284C (2005)
RS-LA-0550A (2006)
NX-NV-2231B (2006)
SC-13371A (2006)
TM-SF-15140A (2006)
TM-SF-15990A (2006)
SC-12734A (2007)

Other selected projects:

Evaluation of the Proposed Cinder Pit Extension near Flagstaff, Arizona (2007)
Biological Inventory for the Proposed Gravel Pit Location near Ouray, Utah (2008)
Biological Inventory of Two French Drain Locations along the White River, Utah (2008)
Evaluation of Seismic locations for Veritas in Utah (2008)
Inventory of the Wellington, Utah Walking Path (2008)
UTE 3-1B3 Well Pad, Roosevelt, UT (2009)
UTE 4-35A3 Well Pad, Roosevelt, UT (2009)

processing and fabrication of goods and materials, can locate with minimum conflict or deleterious effect on surrounding properties and the natural environment, and with a high degree of protection from encroachment of residential and commercial uses. It is also the intent of this zone to promote the economic well being of the people within the County and to broaden the tax base."

The land has also been zoned by Wellington City as M-1 (light industrial). Permitted uses under this zoning classification include a variety of industrial and manufacturing operations (see Appendix 1-4).

COVOL operates a dry coal cleaning facility at the site, separating coal from waste rock using a dry (air-enhanced) process. This work is done on a toll basis, with COVOL not having ownership of the coal or the byproducts. All material is shipped off site in accordance with client contracts once processing is completed. Activities at the site are in accordance with the I-2 and M-1 zoning as described above.

Cultural and Historic Resources Information. ~~The site area is not conducive to human historic habitation or use. No cultural or historic resources are known to have existed in the permit area prior to facility construction.~~ A Class I cultural resource inventory of the area surrounding the COVOL facility was conducted from the records of the Utah State Historical Preservation Office ("SHPO"). The results of this survey are provided in Appendix 4-1. The qualifications of the individual who conducted the records search are provided in the resume contained in Appendix 4-3. As indicated, 10 inventories have extended to areas within 1 mile of the COVOL facility, with only one cultural resource site identified within this 1-mile radius. This site was an insignificant lithic scatter located more than 500 feet from the COVOL site. Its location with respect to the COVOL facility is not shown in Appendix 4-1 due to SHPO data restrictions. No cultural resource sites have been identified within the COVOL facility boundaries.

4.1.1.2 Previous Mining Activity

No previous mining activity occurred in the permit area.

COVOL Engineered Fuels, LC
| Dry-Coal Cleaning Facility

Permit Application
~~January October 2008~~ ~~March July 2009~~

APPENDIX 4-3

Resume of Individual Conducting the
Cultural Resource Evaluation

Christopher T. Jensen
326 Stadium Avenue
Provo, Utah 84604
801-602-6883
cjensen@canyonenvironmental.com

Mr. Jensen is an environmental professional with over ten years experience in the industry. Due to his unique educational and professional background, Mr. Jensen is qualified to conduct numerous aspects of environmental consultation ranging from Cultural Resource (archaeological) evaluations, Biological Assessments, soils evaluations, carbon analyses, and contaminant characterization and remediation. By combining these elements during project planning and permitting, Mr. Jensen delivers quality, cost-effective environmental services for many clients.

EDUCATION

Master of Science Degree in Agronomy with Archaeological Science and Soil Chemistry emphasis. Brigham Young University, Provo, Utah. August 2003.

Relevant course work includes: Maya Archaeology, Case Studies in Environmental Policy, Water/Environment, Environmental Issues, Soil and Plant Analyses, Rangeland Plants, Range Management, Laboratory Safety, Soil Physics, Soil Taxonomy, Statistics, and GIS mapping

Bachelor Degree in Anthropology with a minor in Geography. Brigham Young University, Provo, Utah. December 2001.

Relevant course work includes: Geology, Seminar in Environmental Policy, Maps and Air Photos, Physical Geography, Cultural Geography, Human Osteology, Archaeological Methods, and Historic Archaeology

RESEARCH PROJECTS

Urban and rural planning studies of Indonesia. 1999.

Soil chemical investigations of Kay's Cabin archaeological site. 2000-2003.

Soil evaluations and environmental changes at Motul de San Jose, Guatemala. 2001-2007.

Soil chemical studies at Chunchucmil, Mexico and Antigua, Guatemala. 2001-2007.

Marketplace studies and environmental soils analysis in Antigua, Guatemala. 2002.

Design of a constructed wetland to treat agricultural run-off in Spanish Fork, Utah 2001.

Application of oily waste to arid agricultural fields in the West Desert, Utah. 2002.

GIS planning for a new park location for Orem City, Utah. 2003.

Nitrogen fixation studies of compost media for UDOT freeway interchanges, Utah County, Utah. 2003.

Soil chemical procedures as a viable alternative in Cultural Resource Management. 2002 – present.

EMPLOYMENT

President, Canyon Environmental, Provo, Utah. August 2008 – Present

I currently own Canyon Environmental and oversee business development, operations, and services. Canyon Environmental specializes in a multi-disciplinary approach to environmental services. The

company conducts biological assessments, cultural resource inventories, environmental site assessments, carbon credit analyses and verification services, and focuses on cost-effective strategies to improve efficiencies and coordinate project developments for our clients. Clientele ranges from energy companies, financial institutions, development corporations, holding companies, and governmental and non-governmental organizations.

Senior Scientist, Miller Brooks Environmental, American Fork, Utah. January 2008 – August 2008

I oversaw business operations for Miller Brooks in Utah and throughout the Intermountain West. I oversaw environmental site assessments, NEPA project development, Cultural Resource Inventories and permitting, biological evaluations, and assisted in the development of Environmental Impact Statements, and other associated projects. I was responsible for assisting clients in developing projects under the auspices of the National Environmental Policy Act (NEPA), and conducted cultural resource inventories, biological inventories, and regulatory assessments in connection with those policies.

Southwest Regional Director, AEI Consultants, Phoenix, Arizona. October 2006 – January 2008

I managed the Southwest Regional Office in Phoenix and oversaw business operations in Arizona, Nevada, Southern Utah, and New Mexico. I began the development of NEPA training for the company including; cultural resource inventories, biological assessments, 404 permitting, and other similar projects. I conducted and oversaw site assessments, subsurface investigations, media sampling, and Property Condition and Safety Assessments for various clients. Project experience includes Phase I and Phase II assessments on tire re-tread facilities, printing facilities, plating and powder coating facilities, commercial office buildings, medical offices, hotels, and apartment complexes. I was responsible for advising clients on 'Best Management Practices' pertaining to Hazardous Waste storage, transport, and removal; and in identifying potential safety concerns and proposing methods and procedures to decrease risks within industrial and commercial settings. I was also responsible for overseeing and training staff members, business development, budgeting and minor accounting, and client relationships within the southwest region.

Environmental Scientist/ Archaeologist, Earthtouch, Inc., Layton, Utah. October 2003 – October 2006.

I conducted Phase I site assessments and NEPA analyses in California, Oregon, Washington, Idaho, Utah, Nevada, Arizona, Oklahoma, and other locations throughout the United States. I authored Environmental Site Assessment (ESA) reports, soil analyses reports, archaeological inventories, Phase I assessments, and Phase II assessments for Federal and State agencies, commercial clients, financial lending institutions and wireless telecommunications providers. I categorized waste materials and identified potential environmental and safety hazards for industrial and commercial properties. I was responsible for designing sample strategies for various sites and implementing soil and groundwater testing. I prepared samples for transport and reported on laboratory results. I also helped resolve concerns between clients and various government and state agencies in order to expedite project completion and insure the proper implementation of proposed developments.

I conducted numerous cultural resource inventories and biological assessments throughout Utah, Idaho, Arizona, California, Washington, and Oregon. Project experience includes; fiber optic lines, road expansion developments, utility permitting, fuels surveys, historic building and feature recordation, cellular tower development, rock shelter monitoring, and other projects.

Graduate Research Assistant, BYU Soils Laboratory, Provo, Utah. January 2002 – August 2003.

I planned, organized, and conducted independent studies of soils, plants, and geography; and documented environmental changes in areas of Mexico, Guatemala, and Utah. The majority of my research focused on using soil chemical analyses for archaeological prospecting and site evaluation. I conducted surveys and assisted in excavations and used soil chemical techniques to delineate and study site specific characteristics and to developed data to identify sub-surface cultural deposits. I developed sample strategies, organized and managed work crews, and supervised student volunteers for two years in Guatemala , Mexico, and Utah. I established contacts with government agency personnel, and worked with local Maya indigenous groups to evaluate agricultural practices and forest management issues. I oversaw sample analysis at the BYU soils laboratory, organized data, and prepared manuscripts for publication. I presented research findings at professional meetings and consulted as an environmental soils expert with various projects in Guatemala and Mexico. I also participated in local research projects in Utah and helped in the development of wetlands to treat agricultural run-off, the development of soil chemical analysis techniques to prospect for archaeological deposits, and monitoring stream flow on the Provo River. Other research projects include; the testing various composting materials for use on I-15 freeway interchanges, identifying Nitrogen fixation of crypto-biotic soils in southern Utah, and the application of oily waste products in areas of the West Desert to improve soil structure and increase agricultural output.

Archaeological Contractor, EarthTouch Inc., Layton, Utah. March 2001 – January 2002.

I assessed historic properties and archaeological sites for National Register of Historic Places status for government agencies and private companies. I evaluated sites and properties for various private and government entities. I conducted archaeological surveys and excavations and reported results to clients and government agency personnel. I participated in extensive research to document historic uses of properties included in land exchanges, road construction, and other infrastructure improvements. I worked with clients and government agency personnel through the NEPA process to resolve concerns and develop project initiatives for a positive outcome for all interested parties.

Archaeologist, JBR Environmental Consultants, Inc. Springville, Utah. September 2000 – March 2001.

I conducted archaeological surveys and assessments of proposed project areas. I recorded archaeological sites, mapped landscape features and excavated sites for governmental and private contractors. I prepared reports and data to be included in Environmental Assessments (EAs) and Environmental Impact Statement (EIS) documentation. I edited reports, prepared artifacts for storage, and assisted other professionals within the company.

Student Volunteer, Brigham Young University Archaeological Field School, Austin, Texas and Utah County, Utah. May - August 2000.

I excavated Paleo-Indian sites in Texas and Utah with other student volunteers. I collected and described artifacts, kept field notes, and prepared artifacts for analysis. I analyzed stone and bone artifacts, prepared reports and reported findings to other students in a forum. I also participated in project planning, and logistical support to provide students and faculty personnel with food, water and sanitary facilities.

On the Kay's Cabin archaeological site, I conducted soil chemical sampling for phosphates and trace elements to assist in the delineation of sub-surface features and potential cultural resources. The soil investigations identified an additional Fremont Indian pit-house, and other features that provided crucial data for understanding the site. These findings are currently under review, pending additional data prior to publication.

Volunteer Archaeological Lab Assistant, BYU Piedras Negras Project. Guatemala. April - May 2000.

I helped assess, organize, and conduct archaeological investigations of various structures within the site of Piedras Negras during the summer field season. I organized work crews for the field laboratory and conducted analysis of micro and macro-botanical samples from archeological sites. I organized artifact collection and storage while overseeing the field laboratory, and maintained necessary camp equipment such as water pumps, water filters, generators, and other electronic and mechanical equipment.

SELECTED ARCHAEOLOGICAL PROJECT EXPERIENCE

Oil field leases and access permits (cultural and biological clearances) Tribal and Federal lands
Beehive Fiber Optic Line – Wendover to Baker, archaeological survey and testing
Evaluation of historic structures in Gold Hill, Utah – Tooele County
Mills Junction near Lakepoint, survey and testing
Historical documentation of the Handy Corner Gas Station on the Historic Lincoln Highway
Monitoring for wireless telecommunications service (WTS) facility installation – various locations
Nextel Communications, surveys and evaluations throughout western United States
Cultural Resource Assessment and site recordation on US Naval Oil Preserve
10400 South Street – Salt Lake City, archaeological survey and historic building assessment
SUFCO Subsidence Mine Monitoring and Survey – Southern Wasatch Plateau
Hinckley Drive Road Improvement Project (SR 79), survey and collection
Joe's Valley Road Improvement Project – San Rafael Swell, survey and analyses
Martin Quarry Project – Central Utah, survey and testing
Nevada Automotive Testing Center proving Grounds, survey and analyses
Skull Valley Land Exchange, survey and testing
Survey and Testing in Red Cliffs Desert Reserve – St. George, survey and testing
Carbonville Road Project – Carbonville, Inventory
Mona Ridge BLM Fuels Inventory

SELECTED BIOLOGICAL PROJECT EXPERIENCE

Threatened and Endangered Species evaluations for telecom projects throughout California, Nevada, Arizona, Washington, Oregon, and Utah
Wetland and Sensitive Habitat evaluation for the Red-Legged Frog in the Sacramento Valley, California
Biological Inventory of the proposed ACDC gravel pit lease on the Uinta-Ouray Reservation
Biological Inventory of proposed French Drain locations along the White River
Biological Inventory for the proposed Wellington, Utah Walking Trail

KNOWLEDGE AND SKILLS

Public Lands Policy Coordination Office (PLPCO) Archaeological Permit # 177
AHERA Building Inspector (#D10620)
National Environmental Policy Act (NEPA) regulations.
Soil chemical prospecting techniques for archaeological sites.
C13/C14 carbon analyses for identifying early agricultural corn production.
Carbon sequestration verification services.
RCRA regulations and procedures.
40-Hour HAZWOPER Training.
Plant and soil analysis.
Stream flow monitoring and water testing procedures.

Soil and plant sampling and analysis procedures.
Mapping programs including; Arch View, Arch Map and Surfer.
Soil map generation and evaluation.
TOPCON total station mapping and various GPS mapping techniques.
ICP/AES analysis procedures.
Atomic Absorption analysis procedures.
Fluent Spanish (speaking, reading, writing).

AWARDS

Recipient of the 2003 BYU Graduate Student Association Research Presentation Award
Graduate Student Assistantship 2001-2003
Tuition Scholarship 2001-2003

AFFILIATIONS

Member of the Society of American Archaeologists
Member of the Association of American Geographers

SELECTED PUBLICATIONS AND PRESENTATIONS

First Author

Soil Resources of the Motul de San Jose Maya: Correlating soil taxonomy and modern Itza Maya soil classification within a Classic Maya archaeological zone. Christopher T. Jensen, Matthew D. Moriarti, Kristofer D. Johnson, Richard E. Terry, Kitty Emery, and Sheldon D. Nelson. *Geoarchaology: An International Journal*, Volume 22, No. 3, 337-357 (2007).

Soil Chemical Investigations of agricultural resource control and distribution in Chunchucmil, Mexico and Motul de San Jose, Guatemala. Christopher T. Jensen. A thesis presented to the Brigham Young University Department of Plant and Animal Sciences in fulfillment of a Master of Science Degree. 2003.

The use of soil chemical analysis and ethnographic studies to define marketplace activities in the site of Chunchucmil, Mexico. Christopher Jensen, Richard E. Terry, Bruce Dahlin. A manuscript submitted to *Science*. 2004.

Connections between settlement patterns and soil types in the close-periphery of Motul de San José, Guatemala. Christopher Jensen, Kristoffer Johnson, Richard Terry, Matt Moriarti. A manuscript submitted to *Geoarchaeology*, an international journal. 2003.

Soil typologies and connections between agriculture and settlement at Motul de San Jose, Guatemala. Christopher Jensen, Matthew Moriarti, Richard E. Terry, Kitty Emery. Paper presented at the 2003 Society of American Archaeologists in Milwaukee, MI.

Soil chemistry of ancient and modern Maya marketplaces. Christopher Jensen, Richard E. Terry, David R. Wright. Paper presented at the 2003 American Association of Geographers meetings in New Orleans, LA.

Soil chemical signatures at Motul de San Jose, Guatemala. Christopher Jensen, Kris Johnson, Richard E. Terry. Paper presented at the 2002 Society of American Archaeologists meetings in Denver, Colorado.

The Pakbeh regional economy program. Report of the 2001 field season: Chemical analysis of soils at Chunchucmil. Chris Jensen, Bruce Dahlin, Richard E. Terry.

Proyecto Arqueologico Motul de San Jose. Informe #4, Temporada de campo 2001: Analisis quimico de suelos en Motul de San Jose. Chris Jensen, Kris Johnson, Richard E. Terry.

Second Author

In Search of an Ancient Maya Market. Bruce H. Dahlin, Christopher T. Jensen, Richard E. Terry, David R. Wright, and Timothy Beach. *Latin American Antiquity*, 18(3), 2007 pp 121-143.

Interpreting ancient Maya behavior through soil chemical analysis of activity areas in Chunchucmil, Mexico. Travis L. Thomason, Christopher Jensen, Richard E. Terry. Presentation at the 2002 American Society of Agronomy meetings in Indianapolis, IN.

Soil chemical signatures and Classic Maya land use at Motul de San Jose, Guatemala. Richard E. Terry, Christopher Jensen, Kris Johnson. Presentation at the 2001 American Society of Agronomy meetings in Charlotte, NC.

CHAPTER 7 HYDROLOGY

7.10 Introduction

7.1.1 General Requirements

This chapter presents a description of:

- Existing hydrologic resources within the permit and adjacent areas;
- Proposed operations and the potential impacts to the hydrologic balance;
- Methods of compliance with design criteria;
- Applicable hydrologic performance standards; and
- Hydrologic reclamation plans for the COVOL Dry-Coal Cleaning Facility.

7.1.2 Certification

All appropriate maps, plans, and cross sections presented in this chapter have been certified by a qualified, registered professional engineer.

7.1.3 Inspection

Impoundments associated with the mining and reclamation operations will be inspected as described in Section 5.1.4.3 of this document.

7.20 Environmental Description

7.2.1 General Requirements

This section presents a description of the pre-operational hydrologic resources within the permit and adjacent areas that may be affected or impacted by the operation and reclamation of the facility and site.

7.2.2 Cross Sections and Maps

7.2.2.1 Location and Extent of Subsurface Water

~~Based on published information and logs of nearby wells~~ Data collected from the Savage Coal Terminal, located about 0.25 mile north of the COVOL permit area, indicates that According to Gloyn et al. (2003), groundwater in the general area ~~occurs in~~ is potentially located in both shallow, discontinuous, perched Quaternary ~~unconsolidated colluvial~~ deposits above bedrock and in the Ferron Sandstone Member of the Mancos Shale, which is approximately 700 feet below the ground surface at the permit area ~~(Savage Services Corporation, 1983)~~. These two potential water-bearing units are separated by the Bluegate Shale Member of the Mancos Shale, which is highly impermeable. A generalized hydrostratigraphic cross section of the ~~permit and adjacent areas~~ is presented in Figure 7-1.

Shallow, perched groundwater may occur in the area in disconnected, unconsolidated materials that overly relatively impermeable bedrock. The primary sources of recharge to these layers are precipitation, infiltration from losing reaches of streams, irrigation, and groundwater discharge from bedrock. These water-bearing units generally range in thickness from a few feet to up to several tens of feet. Groundwater in these units generally contains high total dissolved solids (“TDS”) concentrations (Gloyn et al., 2003). ~~Groundwater monitoring wells and a French drain installed at the Savage Coal Terminal, located approximately 0.25 mile north of the COVOL Dry-~~

~~Coal Cleaning Facility, were constructed from 6 to 20 feet deep into these materials. Water samples from these wells often contain over 2,000 mg/L TDS (Savage Services Corporation, 1983).~~

COVOL installed a monitoring well in the permit area in December 2008. Since shallow groundwater generally follows the surface contour, the direction of shallow groundwater flow beneath the permit area was assumed to be toward the southeast. To monitor the effects, if any, of facility operation, the well was installed near the southeast corner of the operating facility at the location indicated in Figure 7-2. This well was drilled using hollow-stem auger methods to a depth of 13 feet in the Mancos Shale, at which point refusal was encountered. The well was completed with 2-inch diameter PVC screen and casing, with a 20- to 40-mesh silica sand filter pack and a bentonite surface seal. Lithologic and completion logs for the well are provided in Appendix 7-1.

The monitoring well was sampled on December 24, 2008, with the data collected during that monitoring event presented in Table 7-1. As indicated, the depth to groundwater in December 2008 was 12.0 feet. The water had a temperature of 12.1°C, with a field pH of 7.40 and a field specific conductance of 9.900 mS. The water is a sodium-sulfate type, with a total dissolved solids concentration of 11,000 mg/L. Total and dissolved iron concentrations were detected at 300 and <0.050 mg/L, respectively. Total and dissolved manganese concentrations were detected at 3.9 and 0.57 mg/L, respectively. ~~These findings are consistent with the generalized hydrostratigraphic diagram presented in Figure 7-1 and the data collected from the nearby Savage Coal Terminal.~~ Analyses of subsequent samples collected from this monitoring well show similar results (see Table 7-1).

The Ferron Sandstone consists of very fine-grained, silty sandstone with abundant interbedded carbonaceous shale. It is located about 700 feet below the ground surface of the permit area, and is approximately 80 feet thick in the region (Gloyn et al, 2003). A coal-bed methane well constructed in Township 14S Range 10E, SLBM (one township north of the permit area) and completed in the Ferron Sandstone contained 6,500 to 9,000 mg/L TDS (Gloyn et al, 2003).

Another well drilled into the Ferron Sandstone about 0.3 mile north of the coal cleaning facility did not encounter any groundwater (source: DOGM Oil and Gas Well Database).

7.2.2.2 Location of Surface Water Bodies

A map showing the location of surface water bodies in the area, ~~including the only nearby water right,~~ is provided in Figure 7-23. A listing of water rights data is presented in Appendix 7-12. ~~As indicated in that appendix, 69 point-of-use water rights exist in Section 14, T. 15 S., R. 10 E. (the section in which the permit area is located). The vast majority of these rights are held by the Price River Water User's Association and represent water that is diverted remote from the permit area and delivered via distribution systems throughout the region for industrial use (as well as limited stockwatering and domestic use). The only point-of-diversion water rights filed in the vicinity of the facility is~~Section 14 are for stock watering on Miller Creek (see Figure 7-23). This map also shows the locations of the facility sedimentation ponds, which are the only permitted discharge locations at the site.

7.2.2.3 Locations of Monitoring Stations

~~As indicated in Section 7.4.2.2, all runoff from the permit area flows into sedimentation ponds located in the downstream portions of the site. These ponds were constructed to contain far more than the quantities of sediment and runoff required by the DOGM regulations. Hence, surface outflows from the permit boundary are not anticipated except under conditions of extreme precipitation. Since all surface runoff from the permit area will flow into the sedimentation ponds, No surface or groundwater monitoring stations other than the pond outlets have been installed for this facility. The locations of these ponds are shown on Plate 5-1. COVOL is required to monitor the discharges from these ponds in accordance with UPDES discharge permit No. UTR000685 issued by the Utah Division of Water Quality.~~

~~However, COVOL will installed one monitoring well during the fourth quarter of in December 2008 to monitor groundwater at the downgradient edge of the permit area. The location of this monitoring well, as shown on Figure 7-2, will be was selected in consultation with DOGM.~~ Groundwater resources are not used at or near the site, and it is unlikely that they are impacted by activities within the permit area. The shallow ~~Quaternary sediments groundwater~~ beneath the site ~~are is~~ not beneficially used and ~~likely contains~~ poor quality water, as indicated in Section 7.2.2.1.

The facility uses municipal water and site runoff is controlled in accordance with the R645 rules and a Storm Water Pollution Prevention Plan. ~~There are n~~No perennial water bodies ~~occur~~ within the permit ~~or adjacent~~ areas.

7.2.2.4 Location and Depth of Water Wells

No water-supply wells ~~or groundwater monitoring wells~~ ~~currently~~ exist in the permit ~~or adjacent~~ areas. ~~However, as noted above, a monitoring well will be was installed within the permit area in the fourth quarter of 2008. Stratigraphic and completion logs of this well will be are provided after it is installed in Appendix 7-1.~~

7.2.2.5 Surface Topography

Surface topographic features in the permit and adjacent areas are shown on Plate 5-1. Note that, other than the sedimentation ponds, the topography shown on this map was surveyed prior to site grading at the facility. The size and locations of the sedimentation ponds are based on a survey performed ~~by EIS Environmental and Engineering Consulting (EIS, 2007) and superimposed on the pre-existing topography in September 2008.~~ The site is relatively flat and only minor site regrading was performed to facilitate the drainage of storm water runoff. Since the existing site contours approximate the original site contours and the sedimentation ponds have a great deal of extra capacity, the hydrology calculations discussed in this chapter should adequately represent site conditions.

7.2.3 Sampling and Analysis

~~In accordance with the agreement between COVOL and DOGM, no groundwater sampling has been conducted at this facility. A groundwater monitoring well will be installed within the permit area during the fourth quarter of 2008. Water-level data and water-quality samples were collected in December 2008 and will be collected from this well on a quarterly basis for the first year following installation of the well and during the first year of reclamation after plant operations cease. Analytical parameters will to be analyzed are listed in Table 7-1. These parameters were determined in consultation with DOGM.~~

As discussed in Section 7.2.2.3, all runoff from the permit area flows into sedimentation ponds located in the downstream (southern) portion of the site. Hence, surface water monitoring will consist of sampling discharges (if any) from the sedimentation ponds in accordance with the UPDES permit.

7.2.4 Baseline Information

Surface water, groundwater, and climatic resource information is presented in this section to assist in determining the baseline hydrologic conditions which exist in the area of the facility. This information provides background data on the hydrologic balance of the area.

7.2.4.1 Groundwater Information

A brief discussion of groundwater information is included in section 7.2.2.1 of this document. Groundwater in the vicinity of the COVOL Dry-Coal Cleaning facility has been found in localized shallow, perched zones within unconsolidated surficial materials weathered from the Bluegate Shale and within the Ferron Sandstone. Based on the findings from a groundwater monitoring wells drilled for the nearby Savage Coal Terminal in the permit area, shallow

groundwater is saline, contains high levels of dissolved solids, and is generally poorly suited for drinking or irrigation (~~Savage Services Corporation, 1983~~).

7.2.4.2 Surface Water Information

The COVOL Dry-Coal Cleaning Facility is located on land that drains to the south toward Miller Creek, located approximately 2000 feet south of the permit area. Drainage occurs as overland flow or in ephemeral washes that flow in direct response to precipitation events. Based on field observations of vegetation, geomorphic conditions, and the presence of some surface water in the late summer/early autumn of 2007 and 2008 as well as the late winter/early spring of 2009, it appears that Miller Creek is a small-perennial stream at its location south of the permit area. These observations are supported by the fact that Miller Creek appears on the USGS topographic map of the area as a solid line (the symbol used for perennial streams). Miller Creek stream that feeds into the Price River in Wellington, Utah. The Price River is a tributary of the Green River. Stream gage data collected from 1972 to 1986 shows that the average annual flow volume of the Price River just below its confluence with Miller Creek is 105,565 acre-feet (Utah Division of Water Resources, 2000). No historical stream gage data exist for Miller Creek.

Figure 7-23 shows a tributary to Miller Creek approximately 400 feet southwest of the southwest corner of the permit area. Based on field observations of vegetation, geomorphic conditions, the lack of surface water, and the lack of a well-defined surface flow path within the greater channel, this tributary is appear to be an ephemeral channel that receives surface runoff in response to rainfall and snowmelt events. These observations are supported by the limited drainage area and the fact that this stream is represented on the USGS topographic map with a symbol other than a sold line. Irrigation return flow may also discharge into this channel 900 to 1000 feet south-southeast of the permit area.

As part of the UPDES permit, water samples will be collected from the sedimentation ponds before any impounded water is released. A copy of the UPDES Permit is included in

Appendix 7-23. Published water quality data for the Price River show a decrease in water quality as it flows from the Wasatch Plateau toward the Green River. This decrease is attributed to the presence of soluble minerals in the surrounding rocks (principally the Mancos Shale), saline soils, and irrigation return flows (~~Savage Services Corporation, 1983~~). Typical TDS values are 400 mg/L in the upper reaches of the Price River, 600 to 2,400 mg/L near Wellington, and 2,000 to 4,000 mg/L at Woodside, which is several miles downstream (~~Savage Services Corporation, 1983~~ Mundorff, 1972).

7.2.4.3 Geologic Information

Geologic information related to the permit and adjacent areas is presented in Chapter 6 of this document.

7.2.4.4 Climatological Information

Based on regional data collected from June 1980 to January 2005, normal annual precipitation at the permit area is about 9.2 inches per year. Most of this precipitation occurs during July through September as a result of summer thunderstorms (Western Regional Climate Center - <http://www.wrcc.dri.edu/index.html>).

The station closest to the facility that reports wind data is located at the airport at Price, Utah (approximately 5 miles west of the facility). The average annual wind speed at this location between 1996 and 2006 was 6.8 mph (Western Regional Climate Center web site).

The normal annual temperature at the Price Warehouses, Utah station (located 5 miles west of the facility) is 49.9° F. Seasonally, this temperature varies from a normal monthly low of 13.4° F in January to a normal monthly high of 90.0° F in July (Western Regional Climate Center web site).

7.2.4.5 Supplemental Information

No supplemental information is required at this time.

7.2.4.6 Survey of Renewable Resource Lands

The existence and recharge of aquifers in the permit and adjacent areas is discussed in Sections 7.2.2.1 and 7.2.4.1 of this document.

7.2.4.7 Alluvial Valley Floor Requirements

Information regarding the presence or absence of alluvial valley floors in the permit and adjacent areas is presented in Chapter 9 of this document.

7.2.5 Baseline Cumulative Impact Area Information

Information concerning the hydrology of the region is available in various publications, including Mundorff (1972), Waddell et al. (1981), Waddell et al. (1982), Waddell et al. (1986), and Gloyn et al. (2003). Since the hydrologic impact of the operations will be insignificant, it is not anticipated that revisions are-will be needed to the Cumulative Hydrologic Impact Assessment of the area.

7.2.6 Modeling

No numerical groundwater or surface water modeling was conducted in support of this document.

7.2.7 Alternative Water Source Information

No surface mining has been or will be conducted in the permit and adjacent areas. Therefore, this section does not apply to the COVOL Dry-Coal Cleaning Facility.

7.2.8 Probable Hydrologic Consequences

This section addresses the probable hydrologic consequences of coal cleaning and reclamation operations in the permit and adjacent areas. Mitigating measures are discussed generally in this section and as well as in Section 7.3 of this document.

7.2.8.1 Potential Impacts to Surface and Groundwater

Potential impacts of coal cleaning on the quality and quantity of surface and groundwater flow are discussed in the facility's Storm Water Pollution and Prevention Plan and may include the following:

- Coal ~~fin~~es, equipment fuels and fluids from the truck dump and coal storage area;
- Equipment fuels and fluids from the front end loader;
- Coal ~~fin~~es and lubricant from the conveyor belt; and
- Coal ~~fin~~es and lubricant from the silo.

A copy of the SWP3 is included in Appendix 7-34. These potential impacts are addressed in the following sections of this document.

7.2.8.2 Baseline Hydrologic and Geologic Information

Baseline geologic information is presented in Chapter 6 of this document. Baseline hydrologic information is presented in Sections 7.2.4.1 and 7.2.4.2 of this document.

7.2.8.3 PHC Determination

Potential Impacts to the Hydrologic Balance. Potential impacts to the hydrologic balance are addressed in the following subsections of this document.

Acid- or Toxic- Forming Materials. ~~No acid- or toxic-forming materials are present at the COVOL Dry-Coal Cleaning Facility.~~ As noted in Section 5.2.8.3, the coal processed in the permit area comes from coal fields that historically have not produced significant acid or toxic materials. This greatly minimizes the potential for acid- or toxic-forming materials to be present at the site. Furthermore, coal is only temporarily stored in the permit area, the native soils at the site are alkaline, and sediment and runoff are retained on site through the use of sedimentation ponds. This further minimizes the potential for drainage from the site to adversely affect water quality, vegetation, public health, and safety of workers and the public.

Sediment Yield. The potential impact of mining and reclamation on sediment yield is an increase in sediment in the surface waters downstream from disturbed areas. Sediment-control measures (such as sedimentation ponds, drainage ditches, etc.) have been designed and constructed to minimize this impact. All runoff from the facility is directed toward one of two on-site sedimentation ponds that allow for sediment to settle. The ponds contain spillways to control discharge in the unlikely event that the ponds overflow. All runoff controls are regularly inspected (see Section 5.1.4) and maintained. The facility operates under UPDES Permit UTR000685, and also has a Storm Water Pollution Prevention Plan and a Spill Prevention Control and Countermeasure Plan. Copies of these permits are attached in Appendices 7-2, 7-3, and 7-4 respectively.

Acidity, Total Suspended Solids, and Total Dissolved Solids. Probable impacts of operations on the acidity and total suspended solids concentrations of surface and groundwater in the permit and adjacent areas were addressed previously in this section.

Flooding or Streamflow Alteration. The disturbed area is isolated from surrounding areas by runoff control structures such as earthen berms, diversion ditches, and sedimentation ponds.

Runoff from all disturbed areas flows to sedimentation ponds prior to discharge to adjacent undisturbed drainages. Since ~~there will be~~ no mining or exploration will occur at this site, there will be no impact on flooding or stream flows due to subsidence.

Groundwater and Surface Water Availability. Runoff controls at the site will minimize impacts to adjacent surface resources. As noted in Section 7.2.4.2, impacts to groundwater are also considered to be insignificant due to a combination of limited groundwater resources, poor groundwater quality, and relatively impermeable geologic materials at the site. Furthermore, the coal cleaning facility uses limited amounts of water, thereby further minimizing potential adverse impacts to surface and groundwater.

Potential Hydrocarbon Contamination. Diesel fuel, oils, greases, and other hydrocarbon products are stored and used at the site for a variety of purposes. Diesel is stored in an above-ground tank that is provided with secondary containment. Spills onto the ground have the potential to occur during filling of the storage tank or filling of mobile equipment. Similarly, spills from drums containing greases and other oils may potentially occur during use at the site.

The probable future extent of the contamination caused by diesel and oil spillage is expected to be small for four reasons. First, all tanks and drums are stored in secondary containment structures that prevent leaks from reaching the ground. Second, spills caused by filling operations outside of the secondary containment structures will be minimized due to the economic value of the product. Third, because the tanks and drums are located above ground, leakage from the tanks can be readily detected and repaired. Finally, the Spill Prevention Control and Countermeasure Plan included in Appendix 7-45 mandates inspection, training, and operational measures to minimize the extent of contamination resulting from the use of hydrocarbons at the site.

Road Salting. No salting of the haul road occurs within the permit area. Hence, no impact will result from this action in the permit or adjacent areas.

Coal Haulage. Coal is hauled on the haul road within the permit area. Coal spillage will be promptly picked up. In addition to spills, wind may carry coal dust or small pieces of coal away from the open top of coal trucks. The impact from fugitive coal dust is considered to be insignificant due to the fugitive dust control measures implemented at the site.

7.2.9 Cumulative Hydrologic Impact Assessment (CHIA)

Information is provided in this application that will allow DOGM to update a Cumulative Hydrologic Impact Assessment if necessary.

7.30 Operation Plan

7.3.1 General Requirements

This permit application includes an operation plan which addresses the following:

- Groundwater and Surface Water Protection and Monitoring Plan
- Design Criteria and Plans
- Performance Standards
- Reclamation Plan.

7.3.1.1 Hydrologic-Balance Protection

Groundwater Protection. As indicated in Section 7.2.8.3, No significant potential exists for acid- or toxic-forming materials are disposed of at the site to be present in the permit area. If these materials are found to be present, they will be handled in accordance with Section 7.3.1.3. In this manner, COVOL will manage operations to prevent or control discharges of pollutants to the groundwater.

Surface Water Protection. A runoff control plan has been implemented to minimize, to the extent possible, additional contributions of suspended solids to streamflow outside the permit area, and otherwise prevent water pollution. COVOL will maintain adequate runoff- and sediment-control facilities to protect local surface waters.

7.3.1.2 Water Monitoring

Groundwater Monitoring. ~~No COVOL will installed one groundwater monitoring well within the permit area during the fourth quarter of 2008 is conducted at this facility. Monitoring parameters of this well will be determined in consultation with DOGM occur as outlined in Section 7.2.3.~~

Surface Water Monitoring. ~~No streams exist within permit or adjacent areas. The closest perennial stream (Miller Creek) is located about 2000 feet south of the permit area. Therefore, only storm water will be monitored where it discharges from the sedimentation ponds. Surface water monitoring is of these discharges will be conducted in the permit and adjacent areas in accordance with the requirements of the UPDES permit.~~

7.3.1.3 Acid- and Toxic-Forming Materials

~~Acid and toxic-forming materials are not permanently stored at the COVOL Dry-Coal Cleaning Facility. In the event that acid or toxic-forming materials are brought to the facility, they will be handled appropriately. As noted in Section 7.2.8.3, no significant potential exists for acid- or toxic-forming materials to be present at the site or to adversely affect water quality, vegetation, public health, and safety of workers and the public. To further minimize the potential for surface- and groundwater contamination, COVOL will request data concerning acid- and toxic-forming materials from clients who provide the coal that is being processed. If such materials are present (based on a comparison of the client-provided data with DOGM guidelines) and this coal will be retained on site for longer than one month, sample all coal and coal waste that remains on site after~~

an inactive period of 30 days. COVOL will collect one sample for every 2,000 yd³ of the residual coal-on-site material, composite these samples for the like material, and have this sample analyzed for acid- and toxic-forming materials in accordance with Tables 7 and 8 of DOGM's Guidelines for the Analysis of Topsoil and Overburden. Coal material that is verified to contain acid- and toxic-forming materials will be processed no longer than one month following the receipt of verifying analyses of the COVOL samples.

7.3.1.4 Transfer of Wells

No wells exist at the facility.

7.3.1.5 Discharges

Two UPDES discharges are associated with the COVOL Dry-Coal Cleaning Facility – one for each sedimentation pond.

7.3.1.6 Stream Buffer Zones

The facility is not located within 100 feet of any perennial or intermittent stream channels. Thus, no buffer zones have been designated.

7.3.1.7 Cross Sections and Maps

The locations of water rights for current users of surface water in the general area are provided on Figure 7-23. Discharges associated with the sedimentation ponds are located as presented on this figure.

7.3.1.8 Water Rights and Replacement

~~Since there is no surface mining at the COVOL Dry-Coal Cleaning Facility, this section does not apply. COVOL will replace the water supply of an owner of interest in real property who obtains all or part of his or her supply of water for domestic, agricultural, industrial, or other legitimate use from an underground or surface source, where the supply has been adversely impacted by contamination, diminution, or interruption proximately resulting from activities conducted by COVOL in the permit area.~~

7.3.2 Sediment Control Measures

The existing sediment control measures within the permit area have been designed, constructed, and maintained to prevent additional contributions of sediment to streams or to runoff outside the permit area. In addition, they have been designed to meet applicable effluent limitations, and minimize erosion. The structures to be used for the runoff control at the site include diversion channels, sedimentation ponds, containment berms, silt fences, and road diversions and culverts.

7.3.2.1 Siltation Structures

The siltation structures within the permit area consist of the sedimentation ponds described in Section 7.3.2.2.

7.3.2.2 Sedimentation Ponds

Two sedimentation ponds store precipitation runoff from the facility. Ordinarily, runoff collected in these ponds is allowed to evaporate or percolate into the ground. Sediment that accumulates in the ponds will be removed as needed. Runoff may be pumped out of the sediment ponds and used for dust suppression in accordance with the air quality permit.

Compliance Requirements. All sedimentation ponds will be maintained until the site is reclaimed or transferred to a future landowner. The sedimentation ponds were designed to contain sediment in addition to the runoff resulting from the 10-year, 24-hour storm event. The spillways for the sedimentation ponds were designed to adequately pass the peak flow resulting from the 25-year, 6-hour precipitation event.

MSHA Requirements. The sedimentation ponds at the site do not meet the size criteria of MSHA requirements defined in 30 CFR 77.216.

7.3.2.3 Diversions

The objective of the runoff control plan is to isolate, to the maximum degree possible, runoff from disturbed areas ~~from that of undisturbed areas~~. All diversion ditches are maintained with adequate erosion protection in the ditch sections where flow velocities are great enough that a ditch lining is necessary. Adequate ditch capacities are maintained in all ditch sections. Culverts are kept free of debris. Detailed diversion design is presented in Section 7.4.2.

7.3.2.4 Road Drainage

Road drainage facilities include diversion ditches, culverts, and containment berms. Additional road drainage design information is presented in Section 7.4.2. All road drainage diversions will be maintained and repaired as needed following the occurrence of a large storm event. Culvert inlets and outlets will be kept clear of sediment and other debris.

7.3.3 Impoundments

7.3.3.1 General Plans

~~There are t~~Two sedimentation ponds ~~operating~~ at the facility as described in Section 7.3.2.2.

Certification. All maps and cross sections of the sedimentation ponds have been prepared by or under the direction of and certified by a qualified, registered, professional engineer.

Maps and Cross Sections. The topography and cross sections for the sedimentation ponds are located on Plate 7-1. The geometry of drainage channels and the sedimentation ponds were measured in the field, and placed on the map using an aerial photograph of the site.

Narrative. A description of each sedimentation pond is presented in Sections 7.3.2.2 and 7.4.2 of this document.

Subsidence Survey Results. Since ~~there is~~ no mining occurs at the site, a subsidence survey is not presented.

Hydrologic Impact. The hydrologic and geologic information required to assess the hydrologic impacts of the impoundments can be found in Section 7.2.4 and Chapter 6, respectively.

Design Plans and Construction Schedule. ~~There are n~~No additional impounding structures are proposed for the facility at this time. Designs of all existing structures are described in this document.

7.3.3.2 Permanent and Temporary Impoundments

Requirements. Impoundments at the facility consist of the two sedimentation ponds. These ponds will be retained following closure of the site for use by the future landowner to control runoff from the property. They have been designed and constructed using current, prudent, engineering practices. Since they have been constructed below grade, they are considered to be

stable. Specific hydrologic design criteria for each impoundment are presented in Section 7.4.3. Each impoundment will be inspected regularly based on the schedule contained in Section 5.1.4.3. The sedimentation ponds meet the requirements for retention as permanent impoundments as indicated below:

- R645-301-733.221: The future use of the ponds would be for runoff and sediment control. The ponds were designed in accordance with the requirements of the R645 rules, which requirements are consistent with the storm-water control requirements of the Utah Division of Water Quality. Thus, the size and configuration of the impoundments is adequate for their future intended use as storm-water control structure.
- R645-301-733.222: The ponds have been designed to meet the water-quality requirements of the R645 rules, which rules are consistent with Utah and federal water-quality standards for storm-water control structures. Hence, discharges from the ponds will meet applicable effluent limitations and will not degrade the quality of receiving waters below applicable Utah and federal water-quality standards.
- R645-301-733.223: The ponds will function in the future as runoff-control structures. As such, their operation is independent of water-level fluctuations.
- R645-301-733.224: The ponds are designed as runoff- and sediment-control structures. It is not intended that they be accessed by water users, either now or in the future.
- R645-301-733.225: The effect of the ponds on the quantity and quality of water in the general area is discussed in Section 7.2.8.3 of this application. Beneficial effects to water quality and insignificant effects on water quantity will continue in the future.
- R645-301-733.226: The ponds were designed to serve as storm-water control structures. This is accomplished by retaining sediment and detaining runoff on site to minimize the effects of site development on adjacent lands. The ponds are suitable to serve these functions in the future.

Hazard Notifications. The sedimentation ponds will be examined for structural weakness and erosion at least four times per year.

7.3.4 Discharge Structures

The discharge structures at the site include the spillways on the sedimentation ponds. These discharge structures are described in Section 7.4.4.

7.3.5 Disposal of Excess Spoil

~~There is n~~No excess spoil ~~is~~ generated at the facility.

7.3.6 Coal Mine Waste

No coal mine waste is stored at the facility.

7.3.7 Noncoal Mine Waste

Non-coal mine waste is not stored ~~and-or~~ disposed of on site (see Chapter 5).

7.3.8 Temporary Casing and Sealing of Wells

~~There are no~~The future groundwater monitoring wells at the facility will be constructed in compliance with R645-301-748.

7.40 Design Criteria and Plans

7.4.1 General Requirements

This section includes site-specific plans that incorporate minimum design criteria for the control of drainage from disturbed ~~and-undisturbed~~ areas. Refer to Appendix 7-56 for a description of the hydrologic design methods used to design the sedimentation ponds and diversion structures at the facility.

7.4.2 Sediment Control Measures

7.4.2.1 General Requirements

Design. Existing sediment control measures have been designed, constructed and maintained to:

- Prevent additional contributions of sediment to stream flow or to runoff outside the permit area,
- Meet the effluent limitations defined in R645-301-751, and
- Minimize erosion to the extent possible.

Measures and Methods. The sediment control measures at the facility include:

- Retention of sediment within the disturbed area
- Diversion of runoff using channels or culverts through disturbed areas to prevent additional erosion
- Provide straw bale dikes, riprap, dugout ponds, silt fencing, and other measures that reduce overland flow velocities, reduce runoff volumes or trap sediment.

7.4.2.2 Siltation Structures

General Requirements. Additional contributions of suspended solids and sediment to stream flow or runoff outside the permit area is being prevented to the extent possible using two sedimentation ponds as siltation structures. They are located in the southeast and southwest corners of the disturbed area. Each structure has been certified by a qualified registered professional engineer. They have been designed, constructed and maintained as described in Chapter 5 and Sections 7.3.3 and 7.4.3.

Sedimentation Ponds. The sedimentation ponds are designed to work individually. One pond receives runoff from the eastern portion of the disturbed area, and one pond receives runoff from the western portion of the disturbed area. ~~The sedimentation ponds within the downstream portion of the disturbed area.~~ Neither of the ponds is located within a perennial stream channel.

Sediment Storage Volume. The sedimentation ponds were designed to contain sediment in addition to runoff from the design storm event. The expected annual sediment volume reporting to each of the sedimentation ponds was calculated using a modified form of the Universal Soil Loss Equation developed specifically for conditions in Utah (Israelsen et al., 1984). As indicated in Table 7-1-2 and Appendix 7-67, the calculated annual sediment volume deposited in the eastern sedimentation pond is 333 cubic feet, and the calculated annual sediment volume deposited in the western sedimentation pond is 134 cubic feet.

The east and west sedimentation ponds have been constructed to store 16,930 and 12,730 cubic feet of sediment, respectively. These volumes correspond to approximately 51 and 95 years of average annual sediment storage for the east and west ponds, respectively. The practical effect of the substantial sediment storage life of the ponds will be to provide excess runoff storage during the period of facility operation. Based on a bottom elevation of 5,493.8 feet in the east sedimentation pond and 5,498.2 feet in the west sedimentation pond, the elevation in each sedimentation pond corresponding to the maximum sediment storage is 5,498.6 feet in the east pond (4.8 feet above the bottom) and 5,505.4 feet in the west pond (7.2 feet above the bottom). The 60% sediment cleanout elevations for the east and west sedimentation ponds are 5,497.3 feet and 5,503.4 feet, respectively (3.5 and 5.2 feet above the bottoms, respectively). Refer to Appendix 7-67 for sediment storage calculations.

Detention Time. Given the substantial storage volume of the ponds relative to standard site requirements, an adequate detention time will be provided in each pond to allow the effluent to meet UPDES limitations. Prior to discharge of pond water to the adjacent area, this water will be sampled to ensure that it meets the above-referenced effluent limitations. Water may be periodically pumped from the ponds and used for dust suppression within the permit area.

Design Runoff Event. The sedimentation ponds are designed to fully contain runoff resulting from the 10-year, 24-hour precipitation event. The drainage characteristics, including contributing area, runoff curve number, and hydraulic length were calculated as shown in Appendix

7-67. The runoff storage volumes for the design event were calculated to be 36,970 and 14,850 cubic feet for the east and west ponds, respectively. In order to contain runoff from the design precipitation event and the design sediment volume, the elevations of the spillways were located at 5,503.8 feet and 5,508.0 feet for the east and west sedimentation ponds, respectively.

Sediment Removal. Sediment will be removed from the when the sediment level reaches an elevation corresponding to 60% of the total sediment storage volume. As noted in Plate 7-1 and Appendix 7-67, the 60% clean-out elevation is 5,497.3 feet and 5,503.4 feet for the east and west sedimentation ponds, respectively. Sediment that contains a significant amount of coal will be processed at the coal cleaning facility. Sediment that contains an insignificant amount of coal will be blended with byproduct produced at the facility.

Excessive Settlement. The sedimentation ponds within the permit area were excavated into natural soil. Excessive settlement has not been observed and, given the excavated construction, is not anticipated in the future at either sedimentation pond.

Embankment Material. Sedimentation pond embankment materials are free of sod, large roots, frozen soil, and acid- or toxic forming coal-processing waste.

Compaction. During construction the sedimentation ponds, the limited embankments were compacted using standard construction practices.

MSHA Sedimentation Ponds. The sedimentation ponds at the site do not meet the size criteria of MSHA requirements defined in 30 CFR 77.216.

Sedimentation Pond Spillways. Each sedimentation pond is equipped with a swale on its downstream side that serves as a spillway. Each spillway is trapezoidal in cross section and measures approximately 2 feet deep and 1 foot wide with 1H:1V side slopes. These spillways were designed to safely discharge the peak flow resulting from the 25-year, 6-hour precipitation event

(see Appendix 7-67). If the ponds spill, this water will discharge as overland flow, eventually reaching Miller Creek if it does not first infiltrate. The design spillway event was modeled using HydroCAD 8.5 computer software. Since the sedimentation ponds contain sufficient volume to contain several years' worth of sediment yield, it is likely that the ponds will not spill during COVOL operations.

In the eastern pond, the peak inflow during the 25-year, 6-hour precipitation was calculated to be 9.99 cubic feet per second ("cfs"), and the peak outflow through the spillway was calculated to be 2.29 cfs with a peak velocity of 2.01 feet per second ("fps"). Since the peak outflow velocity is less than approximately 5 fps, it is considered non-erosive, and erosion protection is not required. The peak stage during this event was calculated to be 5,504.3 feet (10.5 feet above the pond bottom).

In the western pond, the peak inflow during the 25-year, 6-hour precipitation was calculated to be 3.24 cfs, and the peak outflow was calculated to be 0.04 cfs with a peak velocity of 0.46 fps. Since the peak outflow velocity is less than approximately 5 fps, it is considered non-erosive, and erosion protection is not required. The peak stage during this event was calculated to be 5,508.03 feet (9.8 feet above the pond bottom).

Other Treatment Facilities. ~~There are n~~No other water treatment facilities are located within the permit area.

Exemptions. No exemptions to the requirements of R645-301-742.200 and R645-301-763 are being sought by this application.

7.4.2.3 Diversions

General Requirements. The diversions within the permit area consist of drainage ditches and culverts. All diversions within the permit area have been designed to minimize adverse

impacts to the hydrologic balance, to prevent material damage outside the permit area, and to assure the safety of the public. They have been designed, located, constructed, maintained, and used to:

- Be stable
- Provide protection against flooding and resultant damage to life and property
- Prevent, to the extent possible, additional contributions of suspended solids to stream flow outside the permit area
- Comply with all applicable local, state, and federal laws and regulations

Peak discharge rates from the drainages within the permit area were calculated for use in determining the adequacy of the existing diversion ditches and culverts. Since the diversions will remain in place for the future landowner following cessation of COVOL operations, runoff was calculated assuming permanent diversion structures based on the 100-year, 6-hour precipitation event of 1.74 inches. Curve numbers were based on those defined in Appendix 7-67. A description of the methods used to determine the peak discharge rates is presented in Appendix 7-78.

Watershed boundaries for the facility are presented on Plate 7-2. The disturbed area boundary is surrounded by a berm along the upstream edge and its sides in order to divert runoff around the site. Thus, the watersheds that drain the facility consist only of disturbed areas. The watershed contributing to the east sedimentation pond has been divided into five sub-watersheds which total 17.4 acres in area. The watershed contributing to the west sedimentation pond has been divided into three sub-watersheds which total 7.0 acres in area. The remaining 5.6 acres of the site are situated along the edges of the facility, outside of the diversion ditches, and is not disturbed. All of the area within the watersheds reporting to the ditches and the sedimentation ponds has been considered to be disturbed in the hydrology calculations.

The size and location of each existing diversion ditch and culvert were mapped using an aerial photograph of the site and verified in the field. All diversions are shown on Plate 7-2. The capacity and freeboard of each diversion ditch were determined based on the minimum ditch slope, while the maximum velocity and need for erosion protection were verified based on the maximum

ditch slope. The capacity of each culvert was determined using the minimum culvert slope and the outlet velocity and riprap protection was verified using the culvert outlet slope. Slopes were measured from a pre-construction contour map of the site. A description of the methods used to determine diversion capacities, flow velocities, and erosion protection requirements is presented in Appendix 7-56. All diversion calculations are presented in Appendix 7-78.

Diversion of Perennial and Intermittent Streams. There are no diversions of perennial or intermittent streams at the facility.

Diversion Ditches and Culverts. A summary table of the geometry, channel slope, peak discharge, erosion protection, maximum flow velocity and minimum depth values for each diversion ditch and culvert at the facility is presented in Table 7-23. Diversion hydrology calculations are detailed in Appendix 7-78. Each ditch and culvert has been constructed to safely pass the peak flow resulting from the 100-year, 6-hour precipitation event. A description of the diversion ditches and culverts within the facilities area is presented below. The ditches are named according to the watersheds that they drain. Ditches prefixed by the letter "E" ultimately report to the east sedimentation pond, and ditches prefixed by the letter "W" ultimately report to the west sedimentation pond. Since some watersheds are drained by culverts instead of ditches, the ditches are not numbered strictly chronologically. Refer to Plate 7-2 for the locations of each watershed and diversion structure.

- **Ditch E-1 (Upper).** This ditch exists on the east edge of the permit area just within the permit area boundary. It conveys runoff from the northern portion and eastern edge of the site southward toward the east sedimentation pond. This V-shaped ditch is approximately 1,100 feet long, is 1.5 feet deep, and has 1H:1V side slopes. It begins at the outlet of culvert C-1 and continues to the outlet of culvert C-2.
- **Ditch E-1 (Lower).** This ditch conveys runoff southward from the outlet of culvert C-2 to the inlet of the east sedimentation pond. This V-shaped ditch is approximately 700 feet long, has 1.5H:1V side slopes, and is 1.5 feet deep.

- **Ditch E-3.** This ditch conveys runoff from the southeastern corner of the inner yard to the east sedimentation pond. This trapezoidal ditch has an eastern side slope of 1H:1V and a western side slope of 2.5H:1V. It is 1.5 feet deep, has a 6-inch bottom width, and is approximately 550 feet long.
- **Ditch E-4.** This ditch conveys runoff southward from the region between the top of the truck dump hopper embankment and the road on the east edge of the permit area. This V-shaped ditch has an eastern side slope of 3H:1V and a western side slope of 1H:1V. It is one foot deep and approximately 950 feet long.
- **Ditch E-5.** This ditch conveys runoff eastward along the southern edge of the permit area toward the east sedimentation pond. It captures runoff from the eastern watershed of the inner yard that is not captured by ditch E-3. Ditch E-5 is V-shaped with 4H:1V side slopes. It is 1 foot deep and approximately 515 feet long.
- **Ditch W-1 (Upper).** This ditch runs along the west edge of the permit area just within the permit area boundary. It conveys runoff from the northern portion and western edge of the site southward toward the west sedimentation pond. This V-shaped ditch has 2H:1V side slopes. It is 2 feet deep and approximately 1,400 feet long. It begins just west of the northwest corner of the yard access road and extends to the outlet of culvert C-3.
- **Ditch W-1 (Lower).** This ditch runs from the outlet of culvert C-3 to the inlet of the west sedimentation pond. It conveys runoff from the W-1 (Upper) Ditch and the W-2 Ditch into the west sedimentation pond. Ditch W-1 (Lower) is V-shaped with 2H:1V side slopes. It is 2 feet deep and approximately 700 feet long.
- **Ditch W-2.** This ditch runs on the east side of the silo and its access road, and drains the area located to the east. It drains into culvert C-3, which feeds into Ditch W-1 (Lower). Ditch W-2 is V-shaped with a western side slope of 4.5H:1V and an eastern side slope of 1H:1V. It is 1 foot deep and approximately 1,050 feet long.
- **Ditch W-3.** This ditch conveys runoff westward along the southern edge of the permit area toward the west sedimentation pond. It captures runoff from the area south of the perimeter access road that drains toward the west sedimentation pond. Ditch W-3 is V-shaped with 4H:1V side slopes. It is 1 foot deep and approximately 395 feet long.
- **Culvert C-1.** This culvert conveys runoff under the truck turn-around road in the northeastern corner of the site. It provides drainage for the area enclosed by the road embankments for the yard perimeter road and the truck turn-around. The culvert is 45 feet long and consists of 18-inch diameter corrugated polyethylene pipe. Riprap

with a median diameter of 3 inches will be placed in the channel bottom for a distance of 10 feet downstream from the culvert outlet to provide erosion protection.

- **Culvert C-2.** This culvert conveys runoff under the road in the southeastern corner of the permit area. It provides drainage for the area enclosed by the road embankments for the yard perimeter road and the truck dump hopper. The culvert is 45 feet long and consists of 18-inch diameter corrugated polyethylene pipe.
- **Culvert C-3.** This culvert conveys runoff under the road in the southwestern corner of the permit area. It provides a route for drainage from Ditch W-2 to travel under the road and into Ditch W-1 (Lower). The culvert is 30 feet long and is constructed from 18-inch diameter corrugated polyethylene pipe. Riprap with a median diameter of 3 inches will be placed in the channel bottom for a distance of 10 feet downstream from the culvert outlet to provide erosion protection.

7.4.2.4 Road Drainage

Roads at the facility include an access road that leads from Ridge Road into the main yard, a road around the perimeter of the main yard, and a truck turnaround north of the main yard. All of the roads have been constructed to include adequate drainage control with the use of diversion ditches, culverts, and containment berms. None of the roads are located in the channel of an intermittent or perennial stream. All roads have been located to minimize downstream sedimentation and flooding. Diversion ditches and culverts for all roads are described in Section 7.4.2.3 above.

7.4.3 Impoundments

The existing impoundments within the permit area consist of two sedimentation ponds along the southern boundary of the disturbed area. Pertinent information regarding these ponds is presented in Sections 7.3.2.2 and 7.4.2.2.

7.4.4 Discharge Structures

The discharge structures within the permit area consist of the spillways on each sedimentation pond. The spillways have been designed to safely pass the peak discharge resulting from the 25-year, 6-hour rainfall event, assuming starting pond storage equal to the 60% sediment cleanout volume and the 10-year, 24-hour runoff volume. Detailed information for each sedimentation pond is presented in Sections 7.3.2.2 and 7.4.2.2.

Each sedimentation pond is equipped with a swale on its downstream side that serves as a spillway. Small embankments have been constructed adjacent to the spillways. Each spillway is trapezoidal in cross section and measures approximately 2 feet deep and 3 feet wide with 1H:1V side slopes. The spillways are ~~is~~ armored with rip rap ($D_{50} = 4$ inches). If they spill, this water will discharge as overland flow toward Miller Creek.

7.4.4.1 Erosion Protection

Each discharge structure was evaluated to determine the adequacy of the existing riprap and the hydraulic capacity of the structure during the 25-year, 6-hour precipitation event. The calculations for the discharge structures within the facilities area are presented in Appendix 7-67. Peak discharges from all of the discharge structures during their design events did not exceed 5 feet per second (fps). Thus, the flows are considered non-erosive.

7.4.4.2 Design Standards

All discharge structures within the permit area were designed and constructed according to standard engineering design procedures.

7.4.5 Disposal of Excess Spoil

~~There is n~~No excess spoil is generated or disposed of within the permit area.

7.4.6 Coal Mine Waste

7.4.6.1 General Requirements

~~There is n~~No coal mine waste ~~that~~ is permanently stored on site.

7.4.6.2 Refuse Piles

~~There are n~~No refuse piles are located at the facility.

7.4.6.3 Impounding Structures

~~There are n~~No impounding structures within the permit area ~~that are~~have been constructed of coal mine waste or are used to impound coal mine waste.

7.4.6.4 Return of Coal Processing Waste to Underground Workings

~~There are n~~No underground workings are located at this facility.

7.4.7 Disposal of Noncoal Mine Waste

Disposal of noncoal waste is discussed in Chapter 5.

7.4.8 Casing and Sealing of Wells

~~There are no wells located at the facility.~~ The groundwater monitoring well to be installed in the permit area will be cased and sealed at the surface to prevent potential acid or other toxic drainage from entering groundwater via the well. The surface will be completed with a lockable steel casing to protect the well and ensure the safety of people, livestock, wildlife, and machinery.

7.50 Performance Standards

All operations and reclamation will be conducted to minimize disturbance to the hydrologic balance within the permit and adjacent areas, prevent material damage to the hydrologic balance outside the permit area, and support approved post operations land uses.

7.5.1 Water Quality Standards and Effluent Limitations

Discharges of water from disturbed areas will be in compliance with all applicable Utah and federal water quality laws and regulations and with applicable effluent limitations for coal mining contained in 40 CFR Part 434.

7.5.2 Sediment Control Measures

All sediment control measures will be located, maintained, constructed and reclaimed according to plans and designs presented in Sections 7.3.2, 7.4.2, and 7.6.0.

7.5.2.1 Siltation Structures and Diversions

Siltation structures and diversions will be located, maintained, constructed and reclaimed according to plans and designs presented in Sections 7.3.2, 7.4.2, and 7.6.3.

7.5.2.2 Road Drainage

All roads will be located, designed, constructed, reconstructed, used, maintained and reclaimed according to plans and designs presented in Sections 7.3.2.4, 7.4.2.4, and 7.6.2. All roads have been designed to:

- Control or prevent erosion and siltation by maintaining or stabilizing all exposed surfaces in accordance with current, prudent engineering practices;
- Control or prevent additional contributions of suspended solids to stream flow or runoff outside the permit area;
- Neither cause nor contribute to, directly or indirectly, the violation of effluent standards given under Section 7.5.1.
- Minimize the diminution to or degradation of the quality or quantity of surface- and ground-water systems;
- Refrain from significantly altering the normal flow of water in streambeds or drainage channels.

7.5.3 Impoundments and Discharge Structures

Impoundments and discharge structures will be located, maintained, constructed and reclaimed as described in Sections 7.3.3, 7.3.4, 7.4.3, 7.4.5, and 7.6.0.

7.5.4 Disposal of Excess Spoil, Coal Mine Waste and Noncoal Mine Waste

Handling and disposal of coal mine waste and noncoal mine waste is described in Sections 7.3.6, 7.3.7, 7.4.6, 7.4.7, 7.6.0 and Chapter 5.

7.5.5 Casing and Sealing of Wells

There are no wells located at the facility. When no longer needed, the groundwater monitoring well in the permit area will be abandoned in accordance with R645-301-765 and the requirements of the Utah Division of Water Rights.

7.60 Reclamation

7.6.1 General Requirements

A detailed reclamation plan for the facility is presented in Section 5.40. In general, COVOL will ensure that all temporary structures are removed and reclaimed. Permanent diversions will be maintained properly and will meet the requirements of the approved reclamation plan for permanent structures and impoundments. COVOL will renovate the diversion structures if necessary to meet the requirements of R614-301 and R614-302 and to conform to the approved reclamation plan.

7.6.2 Roads

All site roads will be retained for use under the operational industrial land use.

7.6.2.1 Restoring the Natural Drainage Patterns

The facility does not interfere with natural drainage patterns that require restoration.

7.6.2.2 Reshaping Cut and Fill Slopes

~~There are n~~No cut and fill slopes ~~are~~ located at the facility.

7.6.3 Siltation Structures

7.6.3.1 Maintenance of Siltation Structures

All siltation structures will be maintained in accordance with the approved reclamation plan.

7.6.3.2 Removal of Siltation Structures

It is anticipated that siltation structures at the site will be retained following reclamation, for use by the future landowner, in accordance with the reclamation plan presented in Section 5.40.

7.6.4 Structure Removal

A timetable for the removal of each structure is presented in Table 5-2.

7.6.5 Permanent Casing and Sealing of Wells

There are no wells located at the facility. When no longer needed, the groundwater monitoring well in the permit area will be abandoned in accordance with R645-301-765 and the requirements of the Utah Division of Water Rights.

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TABLE 7-1

Results of Groundwater Analyses,
 COVOL Monitoring Well

Parameter	Dated Sampled		
	24 Dec 2008	17 Mar 2009	15 Jun 2009
<u>Field Analyses (units as indicated)</u>			
Depth to water (ft) ^(a)	12.00	12.01	12.53
Temperature (°C)	12.1	11.0	15.7
pH (std units)	7.40	7.13	6.71
Specific conductance (mS)	9,900	--	9,370
<u>Laboratory Analyses (mg/L)</u>			
Bicarbonate as CaCO ₃	270	270	260
Calcium	390	370	390
Carbonate as CaCO ₃	<10	<10	<10
Chloride	84	68	66
Iron, dissolved	<0.050	<0.050	0.97
Iron, total	300	5.6	0.27
Magnesium	270	270	260
Manganese, dissolved	0.57	0.60	0.58
Manganese, total	3.9	0.75	0.58
Nitrate/Nitrite as N	0.34	0.015	0.41
Potassium	36	26	28
Sodium	1,900	2,000	2,000
Sulfate	5,700	5,600	5,500
Total dissolved solids	11,000	8,900	8,800

^(a) Measured as depth from ground surface

CHAPTER 8 BONDING AND INSURANCE

8.10 Bonding Definitions and Division Responsibilities

This chapter provides information regarding the bonding for coal mining and reclamation operations at the COVOL Dry Coal Cleaning Facility. The applicant has on file with DOGM a bond made payable to DOGM for performance of all the requirements of the State Program.

8.20 Requirement to File a Bond

The area covered by the bond is outlined on Plate 5-12, which includes all disturbed areas. The disturbed areas and specific acres to be reclaimed are ~~listed in Section 1-1.6~~ indicated on Plate 5-2. The performance bond period is for the duration of the coal processing and reclamation operations. The bond is in the form of a surety bond and is described in Section 8.60.

8.30 Determination of Bond Amount

The bond amount was determined ~~by using unit costs obtained from RS Means Heavy Construction Cost Data, adjusted for the Price, Utah area by using a per-acre reclamation cost provided by DOGM and applied to the acreage of the facility (see based on the quantities provided in Table 8-1).~~ The total estimated bond amount is \$165,000 indicated in Appendix 8-1. The present bond ~~should be~~ is sufficient to assure the completion of the reclamation plan.

8.40 General Terms and Conditions of the Bond

The performance bond is in the amount determined by DOGM as described in Section 8.30 and payable to DOGM. In the event the surety company becomes insolvent, DOGM will be

notified by the permittee. The surety company and permittee will notify DOGM of any changes in the bonding terms for COVOL. Duration of the bond is described in Section 8.20.

8.50 Bonding Requirements

The applicant qualifies for a long-term period of liability and therefore will comply with the stipulation that the bond coverage be extended 30 days prior to the expiration of the bond term. A performance bond for a new term will be submitted to DOGM 30 days prior to expiration of coverage.

8.60 Forms of Bonds

The surety bond for the applicant has been executed by Western Surety Company, a corporate surety licensed to do business in Utah. The surety bond will be noncancellable during its term except with the prior consent of DOGM.

8.70 Replacement of Bonds

COVOL does not currently plan to replace the bond for the permit area. However, should a replacement bond be required, the replacement bond will be submitted to and approved by DOGM prior to the cancellation of the original bond.

8.80 Requirements to Release Performance Bonds

The applicant will comply with the requirements described in Section R-645-301-880 of DOGM regulations when applying for the release of performance bonds.

8.90 Terms and Conditions for Liability Insurance

A Certificate of Insurance applicable to the COVOL Dry Coal Cleaning Facility is provided in Appendix 8-12. The policy provides for personal injury and property damage protection consistent with the amounts designated in R645-301-890.100.

The insurance policy will be maintained in full force during the life of the permit including the liability period necessary to complete all reclamation operations. The policy will include a rider stating that DOGM be notified of any changes in the policy including termination or failure to renew.

TABLE 8-1

Reclamation Bond Quantity Estimates

Reclamation Area (acres)	Unit Reclamation Cost (\$/ac) ^(a)	Estimated Reclamation Cost (\$)
30	5,500	165,000

^(a) Unit cost provided by DOGM

Structure/Area	Dimensions	Reclamation Task
110' x 10' Truck Scale	Concrete 1,402 cf / Steel 151.8 cf	Demolition
Truck Unload Hopper	Concrete 4,310 cf / Steel 36.4 cf	Demolition
Radial Stacker #1	Concrete 1,740 cf / Steel 30.9 cf	Demolition
Plant Feeder/ Blended Hopper	Concrete 2,284 cf / Steel 37.0 cf	Demolition
Screen and Crusher	Concrete 412 cf / Steel 46.9 cf	Demolition
Plant Feeder	Concrete 200 cf / Steel 4.2 cf	Demolition
Course/ Fine Coal Conveyors	Concrete 246 cf / Steel 112.9 cf	Demolition
Air Jig	Concrete 4,619 cf / Steel 222.1 cf	Demolition
Transfer Tower	Steel 10.2 cf	Demolition
Blending Area	Concrete 1,037 cf	Demolition
High Rise Conveyor	Steel 2.2 cf	Demolition
Blending Conveyor	Concrete 63 cf / Steel 19.1 cf	Demolition
Self Cleaning Magnet	Concrete 16 cf / Steel 3.2 cf	Demolition
Conveyors C-06/07	Concrete 1,904 cf / Steel 80.0 cf	Demolition
Radial Stacker 02/03	Concrete 1,880 cf / Steel 34.4 cf	Demolition
200 Ton Bin Conveyor	Concrete 3,481 cf / Steel 36.9 cf	Demolition
200 Ton Bin	Concrete 3,377 cf / Steel 129.2 cf	Demolition
160' x 10' Truck Scale	Concrete 2,309 cf / Steel 184.9 cf	Demolition
Alternate/ Secondary Load Station	Concrete 3,447 cf / Steel 27.3 cf	Demolition
MCC Control Room/Transformer	Concrete 1,458 cf	Demolition
Misc. Structure Pads and Barriers	Concrete 686 cf	Demolition
Cut Area	1,079 ey	Re-Grading
Fill Area	1,100 ey	Re-Grading
Topsoil	500 ey	Spreading
Vegetative Area	10.4 ae	Revegetation

COVOL Engineered Fuels, LC
Dry-Coal Cleaning Facility

Permit Application
~~January~~ ~~October 2008~~ July 2009

APPENDIX 8-1

Reclamation Bond Cost Estimate

COVOL Engineered Fuels, LC
| Dry-Coal Cleaning Facility

Permit Application
~~January~~ ~~October 2008~~ July 2009

This cost estimate is being developed by DOGM. The spreadsheet will be inserted when the estimate is completed.

**EarthFax Engineering, Inc.
Reclamation Cost Estimate**

Project: COVOL Reclamation Bond Estimate
 Project #: UC 1091-02
 Estimator: Timothy A. Jimenez
 Date: 6-Jul-09
 Costs: Means 2009 Heavy Construction Cost Data, except as otherwise noted

Means No./Source	Description	Units	Est. Quan.	Unit Price	Adj. Price	Total Price
	Price, Utah cost adjustment	-	-	-	78.0%	-
0241 16.17 0440	Demolish concrete slab with rebar	CY	624	\$7.30	\$5.69	\$ 3,553
0241 16.17 1140	Demolish footing, 2'x3' with rebar	LF	1,856	\$26.95	\$21.02	\$ 39,015
0241 16.17 2500	Demolish concrete, 12" thick with rebar	CY	188	\$24.20	\$18.88	\$ 3,549
0241 16.13 0500	Demolish small building, steel	CF	576	\$0.32	\$0.25	\$ 144
0241 13.38 2700	Demolish water pipe, 4" diameter	LF	220	\$5.25	\$4.10	\$ 901
0241 13.40 0160	Demolish 18" CMP	Each	215	\$4.28	\$3.34	\$ 718
0241 13.38 1600	Remove electric conduit	LF	1,055	\$1.88	\$1.47	\$ 1,547
0241 13.38 1600	Remove telephone condnt	LF	62	\$1.88	\$1.47	\$ 91
3123 16.13 0062	Trench for conduiit removal*	CY	460	\$5.80	\$4.52	\$ 2,081
3123 23.20 4098	Haul debris to landfill (20 mi RT)**	LCY	1,320	\$4.83	\$3.77	\$ 4,973
G1030 125 1300	Cut and fill soil to final grade	CY	1,100	\$13.20	\$10.30	\$ 11,326
3291 19.13 0400	Spread topsoil	CY	500	\$5.30	\$4.13	\$ 2,067
3292 19.14 5300	Apply seed mix	MSF	453	\$27.50	\$21.45	\$ 9,717
3123 23.20 4018	Haul residual coal to Commonwealth Coal Services area at Savage facility (2 mi RT)***	LCY	14,815	\$2.54	\$1.98	\$ 29,351
SUBTOTAL						\$ 109,032
Misc. Costs as a Percent of the Subtotal:						
	Mobilization/demobilization			5 %		\$ 5,452
	Misc. supplies			5 %		\$ 5,452
	Engineering			6 %		\$ 6,542
	Construction inspection			6 %		\$ 6,542
	Contingency			10 %		\$ 10,903
TOTAL ESTIMATED COST						\$ 143,922

*Excavating for electrical and telephone conduit, water main and 18" CMP assumed to be 2' wide and 4' deep.

**No cost for disposal of construction waste at Carbon County Landfill, Price, Utah.

***Assumes 10,000 tons of residual coal with a unit weight of 50 lb/ft³ (1350 lb/ton) - see Standard Handbook for Civil Engineers, Fourth Edition (1996), Table 15.2(c), average of anthracite and bituminous piled coal

- Notes:
1. Adjusted unit price based on total Location Factor of 78.0 for Price, Utah (see Means, p. 532)
 2. Commonwealth Coal Services, Inc. has indicated that they will accept the residual coal at no cost.
 3. Steel demolition cost to be paid for by the salvage value of the structures.