CHAPTER 2
LEGAL, FINANCIAL
COMPLIANCE AND
RELATED INFORMATION
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<tr>
<td>2.3.3</td>
<td>Compliance Information</td>
<td>8</td>
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</tbody>
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Gordon Creek No. 2/7/8 Mines

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10/16/94
CHAPTER 2

LEGAL, FINANCIAL, COMPLIANCE, AND RELATED INFORMATION

2.1 Scope.

The scope of the legal, financial, compliance and related information chapter of this mining and reclamation plan is to describe the status of the owner of the Canyon Fuel Company, LLC (hereinafter any reference to "Mountain Coal" or "Mountain Coal Company" should be read to mean "Canyon Fuel Company, LLC") Gordon Creek No. 2, 7 and 8 Mines, including the new federal coal lease, and to document its right to mine the property. Sections within this chapter cover the following major topics; identification of interests, right of entry and operation information, other license and permits, location of public office for filing applications, and newspaper publication.

2.2 Identification of Interests.

For additional information pertaining to this section refer to the General Chapter 1 binder.

2.2.1 Permit Applicant.

The permit applicant, name and address, including telephone number:

Canyon Fuel Company, LLC
Principal Address:
225 North 5th Street, Suite 900
Grand Junction, CO 81501
Utah Address:
597 South State Road 24
Salina, UT 84654
Phone Number (435) 286-4880

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Mining and Reclamation Plan

Gordon Creek No. 2/7/8 Mines

Since the mines are permanently closed, no further abandoned mine land reclamation fees are paid for this property.

2.2.2 Owner of Record of Surface Area and Coal Rights.

Every legal or equitable owner of record of the areas to be affected by surface operations and facilities and every legal or equitable owner of record of the coal to be mined (including contiguous areas):

(a) Surface

(i) Carbon County
   Courthouse Bldg.
   Price, Utah 84501

(ii) Helper Associates
    178 South Main Street
    Helper, Utah 84526

(iii) Novell A. and Catherine P. Jewkes
     730 No. 4th East
     Price, Utah 84501

(iv) Jacob Family Ranch, LLC
     914 East 300 North
     Orem, Utah 84097

(v) Eldred E. Peirce, Jr.
    Rt. 1, Box 143
    Price, Utah 84501

(vi) Wasatch Coal Co.
    1322 Chandler Drive
    Salt Lake City, Utah 84103
Mining and Reclamation Plan
Gordon Creek No. 2/7/8 Mines

(b) Coal

(i) United States of America
Bureau of Land Management
Price River Resource Area
P.O. Box AB
Price, Utah 84501

(ii) Wasatch Coal Co.
1322 Chandler Drive
Salt Lake City, Utah 84103

(iii) Helen Marakis
165 East 1st South
Price, Utah 84501

2.2.3 Holders of Leasehold Interests in Surface Area and of Coal Rights.

The holder of record of leasehold interests in areas to be affected by surface operations of facilities and the holders of record of any leasehold interest in the coal to be mined is shown below:

(a) Leasehold interest in surface:

Jacob Family Ranch LLC
914 East 300 North
Orem, Utah 84097

(b) Leasehold interest in coal: Canyon Fuel Company, LLC

2.2.4 Purchases of Record Under a Real Estate Contract for Surface Area or Coal.

Any purchaser of record under a real estate contract of the area to be affected by surface operations and facilities and any
Mining and Reclamation Plan

Gordon Creek No. 2/7/8 Mines

purchaser of record under a real estate contract of the coal to be mined:

None.

2.2.5 Operator.

The operator, if the operator is a person different from the applicant, including his or her telephone number: The operator is the same as the applicant.

2.2.6 Resident Agent.

The resident agent of the applicant who will accept service of process, including his or her telephone number:

The Corporation Trust Company
1209 Orange Street

Wilmington, Delaware 19801
Telephone Number: 1-(800)441-9820

2.2.7 Business Designation.

A statement of whether the applicant is a corporation; partnership, single proprietorship, association or other business entity: The applicant is a Delaware LLC.

2.2.7.1 Officers and Directors of the Applicant and Principle Shareholder of Applicant.

The names and addresses of every officer, partner, director, or other person performing a function similar to a director of the applicant refer to General Chapter 1.
Mining and Reclamation Plan
Gordon Creek No. 2/7/8 Mines

2.2.7.2 Names Under Which Applicant and Principal Shareholder Operated U.S. Coal Mines.

Names under which the applicant, partner, or principal shareholder previously operated underground or surface coal mining operations in the United States within the five years preceding the date of application:

None

2.2.7.3 Principals, Officers and Resident Agents.

For information pertaining to this section refer to General Chapter 1 binder.

2.2.8 Current, Pending or Previous Coal Mining Permits.

A statement of any current or previous coal mining permits in the United States held by the Applicant subsequent to 1970 and by any person identified in paragraph 2.2.7.3 of this section and of any pending permit application to conduct underground or surface coal mining activities in the United States. The information shall be listed by permit or application number and identify the division for each of those coal mining operations: For additional information pertaining to this section refer to the General Chapter 1 binder.

See Appendix 2-1 - Coal Mining Permits- Approved and Pending.

2.2.9 Owner of Record of Surface and Subsurface Areas Contiguous to Proposed Permit Area.

The names and addresses of the owners of record of all surface and subsurface areas contiguous to any part of the proposed permit area:
Mining and Reclamation Plan
Gordon Creek No. 2/7/8 Mines

(a) Contiguous Surface

(i) Carbon County
Courthouse Bldg.
Price, Utah 84501

(ii) Helper Associates
178 South Main Street
Helper, Utah 84526

(iii) Movel I A. and Cathrine P. Jewkes
730 No. 4th East
Price, Utah 84501

(iv) Calvin K. Jacob and Sons
734 North 4th East
Price, Utah 84501

(v) Eldred E. Peirce, Jr.
Rt. 1, Box 143
Price, Utah 84501

(vi) Wasatch Coal Co.
1322 Chandler Drive
Salt Lake City, Utah 84103

(b) Contiguous Subsurface

(i) United States of America
Bureau of Land Management
Price River Resource Area
P.O. Box AB
Price, Utah 84501

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Mining and Reclamation Plan
Gordon Creek No. 2/7/8 Mines

(ii) Wasatch Coal Co.
1322 Chandler Drive
Salt Lake City, Utah 84103

(iii) Helen Marakis
165 East 1st South
Price, Utah 84501

2.2.10 Mine Name and MSHA Identification.

The name of the proposed mine and the Mine Safety and Health Administration identification number for the mine and all section:

(a) Mine Name

Canyon Fuel Company, LLC
Gordon Creek No.2, 7 and 8 Mines

(b) MSHA Identification Number

No. 2 42-00125
No. 7 42-01814
No. 8 42-01968

2.2.11 Applicant's Interest in Areas Contiguous to Proposed Permit Area.

A statement of all lands, interests in lands, options or pending bids on interests held or made by the applicant for lands which are contiguous to the area to be covered by the permit:

None.
2.3 Compliance Information.

2.3.1 Status of Mining Permits or Bonds.
A statement of whether the applicant, any subsidiary, affiliate or person controlled by or under common control has had any federal or state mining permits suspended or revoked in the last five years or has forfeited a mining bond or security deposit:

a) Permits Suspended or Revoked

None

b) Bond or Security Forfeited

None

2.3.2 Suspension, Revocation or Forfeiture.
Each application shall describe all proceedings identified under 2.3.1 and the status of any suspension, revocation or forfeiture proceedings;

None

2.3.3 Compliance Information

A list of all notices or violations received by the applicant in the past 3 years for violations pertaining to air or water environmental protection:

See Table 1-2 in the General Chapter 1 for the Canyon Fuel Company, LLC Mines.

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2.4 **Right of Entry and Operation Information.**

A description of the documents upon which the applicant bases its legal right to enter and begin underground coal activities in the permit area and whether the rights are the subject of pending litigation. For Underground activities where operations involve the surface mining of coal, evidence of the right to surface mine must be provided:

(a) **Documents Establishing Rights**

See Tables 4-1 and 4-2 for all required leases, easements and right to access.

(b) **Pending Litigations**

None.

(c) **Surface Mining Rights**

None.

(d) **Description of Permit Area**

The permit area is described as follows:

Township 13 South, Range 8 East, SLBM, Section 18: N1/2 SE1/4, N1/2 SW1/4 SE1/4, S1/2 NE1/4 SW1/4, SE1/4 SW1/4, SE1/4 SW1/4 SW1/4. Approximately 161 acres +/-

2.5 **Relationship to Areas Designated Unsuitable for Mining.**

The relationship of the permit area to possible areas designated as being unsuitable for mining, whether an exemption is claimed under the regulations, and whether surface operations will be conducted within 300 feet of occupied dwellings:

(a) **Areas Designated Unsuitable for Mining.**

The proposed permit area is not within an area designated unsuitable for the surface effects of underground coal mine activities under the R645 regulations. Neither is the proposed permit area under study for designation in an administrative proceeding initiated under those parts. Mining would not affect renewable resource lands and would not result in substantial loss of food, fiber, or water supply. The permit area contains no prime farmland or merchandisable timber. Mining
would not affect natural hazard lands and thereby endanger life and property. In addition, the permit area includes no cemeteries, no national trials, no wild and scenic rivers, no wilderness or wilderness study areas, and no sufficient harvestable forest cover.

(b) Exemption

The applicant does not claim exemption.

(c) Dwellings

There are no occupied dwellings within 5 miles of the proposed permit areas.

2.6 Permit Term Information

The number of surface acres to be affected and the horizontal and vertical extent of the workings:

(a) Surface Acres Affected

The number of surface acres disturbed by the operation is 34.88 acres. There are no plans for additional surface disturbance for this operation. Mining is completed at this operation.

(b) Horizontal Extent of Underground Workings

No further mining is anticipated within the permit area.
(c) 2.6.3 Vertical Extent of Workings

The work performed within the permit area will remain within the Castle Gate “A” seam. The Castle Gate “A” seam is only economically minable seam in the area.

(d) Permit Term

This permit will be for the term of the previous permit – starting on August 28, 1994 through August 28, 1999. The permit is expected to be renewed at 5 year intervals until final bond release.

2.7 Personal Injury and Property Damage Insurance Information.

A certificate of liability insurance is located in General Chapter 1, Appendix 1-2.

2.8 Proposed Performance Bond

A performance bond in the name of Canyon Fuel Company, LLC is included. See Appendix 2-4.

2.9 Identification of Other Licenses and Permits.

A list of all other licenses and permits under applicable state and federal law needed by the applicant to conduct underground coal mining activities.

See Appendix 2-5 – Other Licenses and Permits
2.10 Identification of Location of Public Office for Filing of Application.

Canyon Fuel Company, LLC will simultaneously file a complete copy of this permit application for public inspection with:

(a) Utah Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
Salt Lake City, Utah 84114-5801

2.11 Newspaper Advertisement and Proof of Publication.

On the date of the filing of the permit application with the Division of Oil, Gas and Mining, the applicant will also file an advertisement in the Sun-Advocate, a local newspaper with circulation in Carbon County sufficient to cover the locality of the applicants operations. This advertisement will be run as required. A copy of the proposed advertisement is attached.

See Appendix 2-6
APPENDIX 2-1

COAL MINING PERMITS

APPROVED AND PENDING
### Table 2-2
COAL MINING PERMITS - APPROVED AND PENDING

<table>
<thead>
<tr>
<th>Company and Mine Name</th>
<th>Type of Permit</th>
<th>Name and Address of Issuing Authority</th>
<th>Permit or Application Number</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beaver Creek Coal Company Gordon Creek No. 2 Mine</td>
<td>Mine Plan Approval</td>
<td>U.S. Geological Survey Salt Lake City, Utah</td>
<td>U-8319</td>
<td>Approved 01/24/78</td>
</tr>
<tr>
<td>Beaver Creek Coal Company Gordon Creek No. 2/7 Mines</td>
<td>State Mining Permit</td>
<td>Utah Dept. of Natural Resources Division of Oil Gas and Mining Salt Lake City, Utah</td>
<td>ACT/007/016</td>
<td>Issued 08-27-84</td>
</tr>
<tr>
<td>Beaver Creek Coal Company Gordon Creek No. 2 Mine</td>
<td>Mine Plan Approval</td>
<td>U.S. Geological Survey Salt Lake City, Utah</td>
<td>U-8319</td>
<td>Approved 01/24/78</td>
</tr>
<tr>
<td>Beaver Creek Coal Company Gordon Creek No. 3 and 6 Mines</td>
<td>State Mining Permit</td>
<td>Utah Dept. of Natural Resources Division of Oil Gas and Mining Salt Lake City, Utah</td>
<td>INA/007/017</td>
<td>Issued 09-11-86</td>
</tr>
<tr>
<td>Beaver Creek Coal Company Huntington Canyon No. 4 Mine</td>
<td>Mine Plan Approval</td>
<td>U.S. Geological Survey Salt Lake City, Utah</td>
<td>U-33454</td>
<td>Approved 02/16/77</td>
</tr>
<tr>
<td>Beaver Creek Coal Company Huntington Canyon No. 4 Mine</td>
<td>Mine Approval Plan</td>
<td>Utah Dept. of Natural Resources Division of Oil Gas &amp; Mining Salt Lake City, Utah</td>
<td>INA/015/004</td>
<td>Issued 04-30-90</td>
</tr>
<tr>
<td>Beaver Creek Coal Company Castle Valley Spur Coal Processing and Loadout Facility</td>
<td>State Mining Permit</td>
<td>Utah Dept. of Natural Resources Division of Oil, Gas and Mining Salt Lake City, Utah</td>
<td>ACT/007/022</td>
<td>Issued 08-06-84</td>
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<tr>
<td>Thunder Basin Coal Company Black Thunder Mine</td>
<td>Permit to Mine</td>
<td>Land Quality Division Dept. of Environmental Quality Cheyenne, Wyoming</td>
<td>233</td>
<td>Issued 12/03/74</td>
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<tr>
<td>Thunder Basin Coal Company Black Thunder Mine</td>
<td>License to Mine</td>
<td>Land Quality Division Dept. of Environmental Quality Cheyenne, Wyoming</td>
<td>233-L1</td>
<td>Issued 12/03/74</td>
</tr>
<tr>
<td>Atlantic Richfield Company Coal Creek Mine</td>
<td>Licences to Mine</td>
<td>Dept. of Environmental Quality Cheyenne, Wyoming</td>
<td>483-L1</td>
<td>Issued 03/16/79</td>
</tr>
<tr>
<td>Atlantic Richfield Company Coal Creek Mine</td>
<td>Mine Plan Approval</td>
<td>U.S. Office of Surface Mining Washington, D.C.</td>
<td>W4-0003</td>
<td>Approved 03/16/79</td>
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### Table 2-2 (continued)

**COAL MINING PERMITS - APPROVED AND PENDING**

<table>
<thead>
<tr>
<th>Any and Mine Name</th>
<th>Type of Permit</th>
<th>Name and Address</th>
<th>Permit or Application Number</th>
<th>Status</th>
</tr>
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<tbody>
<tr>
<td>Intic Richfield Company</td>
<td>Mine Permit Application</td>
<td>Colorado Mine Land Reclamation</td>
<td>CO-007-80</td>
<td>Issued 07-31-81</td>
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<tr>
<td>Gunnison No. 1 Mine</td>
<td></td>
<td>Reclamation Division</td>
<td></td>
<td></td>
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<td>Dept. of Natural Resources</td>
<td></td>
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<tr>
<td>Intic Richfield Company</td>
<td>Research and Development Testing License Application</td>
<td>Land Quality Division</td>
<td>233-L2</td>
<td>Submitted 02-81</td>
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<td>Y Hill No.1 Underground</td>
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<td>Dept. of Environmental Quality</td>
<td></td>
<td></td>
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<td></td>
<td>Cheyenne, Wyoming</td>
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<td></td>
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<tr>
<td>Intic Richfield Company</td>
<td>License to Mine Overstripping Agreement</td>
<td>Land Quality Division</td>
<td>233-L2</td>
<td>Issued 12/17/77</td>
</tr>
<tr>
<td>Kern Thunder Mine</td>
<td>Kerr McGee Coal Corporation</td>
<td>Dept. of Environmental Quality</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td>Cheyenne, Wyoming</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intic Richfield Company</td>
<td>Permit to Mine Amendment</td>
<td>Land Quality Division</td>
<td>233-A1</td>
<td>01-27-78</td>
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<td>Kern Thunder Mine</td>
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<td>Dept. of Environmental Quality</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>Cheyenne, Wyoming</td>
<td></td>
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<tr>
<td>Intic Richfield Company</td>
<td>State Program Approval</td>
<td>Land Quality Division</td>
<td>TFN 1/207</td>
<td>Submitted 10/31/80</td>
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<td>Kern Thunder Mine</td>
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<td>Dept. of Environmental Quality</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cheyenne, Wyoming</td>
<td></td>
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</tr>
<tr>
<td>Intic Richfield Company</td>
<td>Mine Plan Approval</td>
<td>U.S. Geological Survey</td>
<td>W-2313</td>
<td>Approved 02/24/76</td>
</tr>
<tr>
<td>Kern Thunder Mine</td>
<td></td>
<td>Billings, Montana</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td>W-36094</td>
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<tr>
<td>Intic Richfield Company</td>
<td>Mine Plan Approval</td>
<td>Land Quality Division</td>
<td>483</td>
<td>Approved 03/16/79</td>
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<tr>
<td>Kern Thunder Mine</td>
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<td>Dept. of Environmental Quality</td>
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<td></td>
<td></td>
<td>Cheyenne, Wyoming</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intic Richfield Company</td>
<td>Permit to Mine</td>
<td>Dept. of Environmental Quality</td>
<td>483</td>
<td>Issued 03/16/79</td>
</tr>
<tr>
<td>Kern Creek Mine</td>
<td></td>
<td>Cheyenne, Wyoming</td>
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12/15/92
Mining and Reclamation Plan
Gordon Creek No. 2/7 and 8 Mines

APPENDIX 2-2

COMPLIANCE HISTORY

12/15/92
<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Agency</th>
<th>M.O.V.#</th>
<th>Description</th>
<th>Proceedings</th>
<th>Status</th>
<th>Abatement Action</th>
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</thead>
<tbody>
<tr>
<td>02-09-84</td>
<td>#4</td>
<td>DOG&amp;M</td>
<td>84-6-2-1</td>
<td>Blocked road drainage</td>
<td>Assessment Conf. 5-10-84</td>
<td>Vacated</td>
<td>Remove snow blockage</td>
</tr>
<tr>
<td>02-22-84</td>
<td>#2/7</td>
<td>DOG&amp;M</td>
<td>84-6-3-1</td>
<td>Sediment pond waste</td>
<td>None</td>
<td>03-14-84</td>
<td>Remove material</td>
</tr>
<tr>
<td>04-18-84</td>
<td>#2/7</td>
<td>DOG&amp;M</td>
<td>84-6-5-1</td>
<td>Failure maint.sed.pond</td>
<td>Assessment Conf. 11-1-84</td>
<td>07-16-84</td>
<td>Meet EPA Limits</td>
</tr>
<tr>
<td>06-06-84</td>
<td>#2/7</td>
<td>DOG&amp;M</td>
<td>84-6-6-5(1)</td>
<td>Failure to meet app. plan</td>
<td>Assessment Conf. 11-1-84</td>
<td>07-16-84</td>
<td>Modify plans</td>
</tr>
<tr>
<td>06-06-84</td>
<td>#2/7</td>
<td>DOG&amp;M</td>
<td>84-6-6-5(3)</td>
<td>Short circuit in pond</td>
<td>Assessment Conf. 11-1-84</td>
<td>07-16-84</td>
<td>Repair pond</td>
</tr>
<tr>
<td>06-06-84</td>
<td>#2/7</td>
<td>DOG&amp;M</td>
<td>84-6-6-5(3)</td>
<td>Failure to divert</td>
<td>Assessment Conf. 11-1-84</td>
<td>07-16-84</td>
<td>Repair ditch</td>
</tr>
<tr>
<td>06-06-84</td>
<td>#2/7</td>
<td>DOG&amp;M</td>
<td>84-6-6-5(4)</td>
<td>Contribution of sediment</td>
<td>Assessment Conf. 11-1-84</td>
<td>07-16-84</td>
<td>Completed const.</td>
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<tr>
<td>06-06-84</td>
<td>#2/7</td>
<td>DOG&amp;M</td>
<td>84-6-6-5(5)</td>
<td>Failure to smooth topsoil</td>
<td>Assessment Conf. 11-1-84</td>
<td>07-16-84</td>
<td></td>
</tr>
<tr>
<td>06-15-84</td>
<td>#2/7</td>
<td>DOG&amp;M</td>
<td>84-6-7-1</td>
<td>Failure to meet app. plan</td>
<td>None</td>
<td>06-26-84</td>
<td>Repair barn</td>
</tr>
<tr>
<td>07-17-84</td>
<td>#2-7</td>
<td>DOG&amp;M</td>
<td>84-8-6-1</td>
<td>Plugged culvert</td>
<td>None</td>
<td>08-14-84</td>
<td>Cleaned culvert</td>
</tr>
<tr>
<td>08-28-84</td>
<td>#4</td>
<td>DOG&amp;M</td>
<td>84-6-12-1</td>
<td>Plugged culvert</td>
<td>None</td>
<td>09-18-84</td>
<td>Cleaned culvert</td>
</tr>
<tr>
<td>09-18-84</td>
<td>#2/7</td>
<td>DOG&amp;M</td>
<td>84-6-3-1</td>
<td>Fail to protect hyd. bal</td>
<td>Assessment Conf. 3-4-85</td>
<td>10-12-84</td>
<td>Submit Plans</td>
</tr>
<tr>
<td>12-17-84</td>
<td>#2/7</td>
<td>DOG&amp;M</td>
<td>84-8-4-1</td>
<td>Fail to comply w/permit</td>
<td>Assessment Conf. 7-6-85</td>
<td>01-19-85</td>
<td>Submit response</td>
</tr>
<tr>
<td>01-15-85</td>
<td>#2/7</td>
<td>DOG&amp;M</td>
<td>85-8-2-1</td>
<td>Fail to comply w/permit</td>
<td>Assessment Conf. 3-12-86</td>
<td>01-21-85</td>
<td>Submit monitoring</td>
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<td>01-26-85</td>
<td>#2/7</td>
<td>DOG&amp;M</td>
<td>85-8-4-1</td>
<td>Fail to comply w/permit</td>
<td>None</td>
<td>02-27-85</td>
<td>Repair drainage</td>
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<tr>
<td>03-25-85</td>
<td>#2/7</td>
<td>DOG&amp;M</td>
<td>85-8-5-1</td>
<td>Sediment to stream</td>
<td>Assessment Conf. 2-20-86</td>
<td>Vacated</td>
<td>Clean ditch</td>
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12/15/92
<table>
<thead>
<tr>
<th>Date</th>
<th>Location</th>
<th>Agency</th>
<th>N.O.V.#</th>
<th>Description</th>
<th>Proceedings</th>
<th>Status</th>
<th>Abatement Action</th>
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<tbody>
<tr>
<td>04-12-85</td>
<td>#2/7</td>
<td>DOG&amp;M</td>
<td>C-85-8-2-1</td>
<td>Sediment to stream</td>
<td>Assessment Conf. 3-12-86</td>
<td>04-25-85</td>
<td>Clean structures</td>
</tr>
<tr>
<td>06-04-85</td>
<td>#2/7</td>
<td>DOG&amp;M</td>
<td>C-85-8-2-1</td>
<td>Failure to abate</td>
<td>Assessment Conf. 2-19-86</td>
<td>06-18-85</td>
<td>Repair drainage</td>
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<tr>
<td>06-18-85</td>
<td>C.V.</td>
<td>DOG&amp;M</td>
<td>85-8-9-1</td>
<td>Fail to protect hyd. ba. None</td>
<td>Assessment Conf. 3-12-86</td>
<td>06-18-85</td>
<td>Repair drainage</td>
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<tr>
<td>08-08-85</td>
<td>#2/7</td>
<td>DOG&amp;M</td>
<td>85-8-11-1</td>
<td>Pipe leak to sed. pond None</td>
<td>Assessment Conf. 3-12-86</td>
<td>08-23-85</td>
<td>Repair leak</td>
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<tr>
<td>09-26-85</td>
<td>#2/7</td>
<td>DOG&amp;M</td>
<td>85-8-17-1</td>
<td>Fail to comply w/permit None</td>
<td>Assessment Conf. 3-12-86</td>
<td>02-03-86</td>
<td>Permit disposal</td>
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<td>10-02-85</td>
<td>#4</td>
<td>DOG&amp;M</td>
<td>85-8-18-1</td>
<td>Fail to protect topsoil None</td>
<td>Assessment Conf. 3-12-86</td>
<td>10-02-85</td>
<td>Repair Berm</td>
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<tr>
<td>03-12-86</td>
<td>#2/7</td>
<td>DOG&amp;M</td>
<td>86-4-2-1</td>
<td>Erosion on Class I road</td>
<td>Assessment Conf. 8-27-86</td>
<td>06-17-86</td>
<td>Repair, submit plans</td>
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<td>04-07-86</td>
<td>#3/6</td>
<td>DOG&amp;M</td>
<td>86-8-7-1</td>
<td>Sediment pond outlet None</td>
<td>Assessment Conf. 8-27-86</td>
<td>04-29-86</td>
<td>Repair structure</td>
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<td>08-06-87</td>
<td>#3/6</td>
<td>DOG&amp;M</td>
<td>87-26-5-1</td>
<td>Fail to monitor water None</td>
<td>Assessment Conf. 11-18-87</td>
<td>08-06-87</td>
<td>Monitor per plan</td>
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<td>08-06-87</td>
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<td>DOG&amp;M</td>
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<td>Erosion control</td>
<td>Assessment Conf. 11-18-87</td>
<td>09-03-87</td>
<td>Repair outlets</td>
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<td>08-06-87</td>
<td>#3/6</td>
<td>DOG&amp;M</td>
<td>87-26-7-1</td>
<td>Plugged culverts</td>
<td>Assessment Conf. 11-18-87</td>
<td>09-03-87</td>
<td>Repair culverts</td>
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<td>01-07-88</td>
<td>*#9</td>
<td>DOG&amp;M</td>
<td>88-27-3-1</td>
<td>Failure to Monitor Water</td>
<td>Assessment Conf. 4-12-88</td>
<td>01-11-88</td>
<td>Monitor per plan</td>
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<td>01-25-88</td>
<td>#2/7</td>
<td>DOG&amp;M</td>
<td>88-22-1-1</td>
<td>Failure to Monitor Water</td>
<td>Assessment Conf. 4-12-88</td>
<td>01-25-88</td>
<td>Monitor per plan</td>
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<td>05-09-88</td>
<td>*#9</td>
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<td>88-19-1-1</td>
<td>Failure to Monitor</td>
<td>Assessment Conf. 9-27-88</td>
<td>08-18-88</td>
<td>Monitor per plan</td>
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<tr>
<td>06-22-88</td>
<td>#2/7</td>
<td>OSM</td>
<td>88-02-107-1</td>
<td>Subsidence Inspections on Impoundments None</td>
<td>Assessment Conf. 11-18-87</td>
<td>06-22-88</td>
<td>Begin inspections</td>
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<tr>
<td>08-15-88</td>
<td>C.V.</td>
<td>DOG&amp;M</td>
<td>88-22-2-1</td>
<td>Failure to respond to approval</td>
<td>None</td>
<td>09-19-88</td>
<td>Submit response</td>
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<tr>
<td>09-14-89</td>
<td>#2/7</td>
<td>DOG&amp;M</td>
<td>89-33-2-1</td>
<td>Failure to comply with plan</td>
<td>None</td>
<td>Vacated</td>
<td>N/A</td>
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<td>09-10-90</td>
<td>#4</td>
<td>DOG&amp;M</td>
<td>90-26-25</td>
<td>Sediment Pond Failure</td>
<td>Informal Hearing 4-14-91</td>
<td>06-14-92</td>
<td>Repair Pond</td>
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<td>09-10-90</td>
<td>#4</td>
<td>DOG&amp;M</td>
<td>90-26-25-2</td>
<td>Diversion Erosion</td>
<td>Informal Hearing 4-14-91</td>
<td>11-27-90</td>
<td>Rip-rap Diversion</td>
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<td>11-20-90</td>
<td>#4</td>
<td>DOG&amp;M</td>
<td>C90-2-03-1</td>
<td>Failure to Abate</td>
<td>Informal Hearing 4-14-91</td>
<td>Vacated</td>
<td>Sediment Pond Drawing</td>
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<td>11-04-91</td>
<td>#4</td>
<td>DOG&amp;M</td>
<td>91-35-05-01</td>
<td>Failure to minimize erosion</td>
<td>Informal Hearing 3-19-92</td>
<td>06-16-92</td>
<td>Submit Maps</td>
</tr>
</tbody>
</table>

*Trail Mountain Mine - Sold to Pacificorp 9/30/92.
12/15/92
Mining and Reclamation Plan
Gordon Creek No. 2/7 and 8 Mines

THUNDER BASIN COAL CO.
COMPLIANCE HISTORY

(1987 - 1992)

<table>
<thead>
<tr>
<th>DATE</th>
<th>LOCATION</th>
<th>NOV NO.</th>
<th>DESCRIPTION</th>
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</thead>
<tbody>
<tr>
<td>10/1/90</td>
<td>Black Thunder Mine</td>
<td>100130</td>
<td>Failure to follow Mine Plan</td>
</tr>
</tbody>
</table>

WEST ELK COAL COMPANY
(Now Part of Mountain Coal Company)

N/A - No NOV'S since 1986

12/15/92
APPENDIX 2-3

CERTIFICATE OF LIABILITY INSURANCE
(see accompanying Certificate of Insurance)
CERTIFICATE OF INSURANCE

This Certificate of Insurance neither affirmatively nor negatively
mends, extends or alters the coverage, limits, terms or conditions
of the policies it certifies.

To: Cigna Property and Casualty Companies

State of Utah
Dept. of Natural Resources
Division of Oil, Gas and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

that the following described policy or policies, issued by The Company as coded below,
providing insurance only for hazards checked by “X” below, have been issued to:

NAME AND ADDRESS OF INSURED

Atlantic Richfield Company, its Subsidiaries and subsidiaries
thereof as now or hereinafter constituted, Atlantic Richfield
Plaza, 515 So. Flower Street, Los Angeles, CA 90071

that the following described policy or policies, issued by The Company as coded below,
providing insurance only for hazards checked by “X” below, have been issued to:

NAME AND ADDRESS OF INSURED

Atlantic Richfield Company, its Subsidiaries and subsidiaries
thereof as now or hereinafter constituted, Atlantic Richfield
Plaza, 515 So. Flower Street, Los Angeles, CA 90071

Including Mountain Coal Company and ARCO Coal Company

<table>
<thead>
<tr>
<th>TYPE OF POLICY</th>
<th>HAZARDS CODE</th>
<th>POLICY NUMBER</th>
<th>POLICY PERIOD</th>
<th>LIMITS OF LIABILITY</th>
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<tbody>
<tr>
<td>(a) Standard Workmen’s Compensation &amp; Employers’ Liability</td>
<td>X</td>
<td>ISL G1 519134-A</td>
<td>01/01/93 to 01/01/96</td>
<td>$500,000 Combined Single Limit, per occurrence/aggregate where applicable.</td>
</tr>
<tr>
<td>(b) General Liability Premises—Operations (including “Incidental Contracts” as defined below)</td>
<td>X</td>
<td>ISL G1 519134-A</td>
<td>01/01/93 to 01/01/96</td>
<td>$500,000 Combined Single Limit, per occurrence/aggregate where applicable.</td>
</tr>
<tr>
<td>Bodily Injury</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Property Damage</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(c) Automobile Liability Owned Automobiles</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>X</td>
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<td></td>
</tr>
<tr>
<td>Hired Automobiles</td>
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<td></td>
<td></td>
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<tr>
<td>Non-owned Automobiles</td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td>Property Damage</td>
<td>X</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(d) INCLUDES “XCU” COVERAGE</td>
<td></td>
<td></td>
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</table>

Contractual Footnote: Subject to all the policy terms applicable, specific contractual coverage is provided as respects

<table>
<thead>
<tr>
<th>Check</th>
<th>Purchase order agreements</th>
<th></th>
<th></th>
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</thead>
<tbody>
<tr>
<td>☑</td>
<td>☑</td>
<td>☑</td>
<td>☑</td>
</tr>
</tbody>
</table>

NAME OF OTHER PARTY

Gordon Creek #2, #7 & #8 ACT/007/016

DATE (if applicable) | CONTRACT NO. (if any)

Definitions: “Incidental contract” means any written (1) lease of premises (2) easement agreement, except in connection with construction or demolition opera
tions on or adjacent to a railroad, (3) undertaking to indemnify a municipality required by municipal ordinance, except in connection with work to the municipality, (4) subcontract agreement, or (5) elevator maintenance agreement.
Mining and Reclamation Plan
Gordon Creek No. 2/7 and 8 Mines

APPENDIX 2-4
RECLAMATION PERFORMANCE BOND
FOR
GORDON CREEK NO. 2, 7 AND 8 MINES

12/15/92
RIDER to be attached to and form a part of Bond Number U-629965

on behalf of BEAVER CREEK COAL COMPANY

(Name)

555 SEVENTEENTH STREET, DENVER, COLORADO 80202

(Address)

as Principal, and in favor of STATE OF UTAH, DIVISION OF OIL, GAS AND MINING

as Obligee, executed by UNITED PACIFIC INSURANCE COMPANY as Surety

in the amount of SIX HUNDRED FORTY-ONE THOUSAND FOUR HUNDRED FORTY-THREE AND NO/100

Dollars ($ 641,443.00) effective SEPTEMBER 13, 1990.

It is hereby understood and agreed that effective as of SEPTEMBER 5, 1991, the said bond has been amended as follows:

1) The Principal's Name has been changed from: BEAVER CREEK COAL COMPANY to: MOUNTAIN COAL COMPANY

2) Specific Language has been added:
   "In the event the Cooperative Agreement between the DIVISION and OSM is terminated, then the portion of the bond covering the Federal Lands will be payable only to the United States, Department of Interior, Office of Surface Mining."

Nothing herein contained shall vary, alter or extend any provisions or conditions of the bond other than as above stated.

SIGNED, SEALED AND DATED this 5TH day of SEPTEMBER, 1991.

MOUNTAIN COAL COMPANY

Principal

BY: Thomas H. Parker

Vice President

UNITED PACIFIC INSURANCE COMPANY

Surety

BY: Dorothy M. Yanoff

ATTORNEY-IN-FACT
Date: September 25, 1990
Subject: Rider for State of Utah Reclamation Bond #U-629965
        Gordon Creek #2 and #7 Mine
From/Location: Kim Penoyer, DAT-2165
To/Location: Dick Pick, Grand Jct.

Please sign the attached Rider for the State of Utah Reclamation Bond for Gordon Creek #2 and #7 Mines. We were notified that our bond had an incorrect acreage figure which needed to be updated.

If you will return the signed document to me, I will obtain the proper seal and return it to the State Office.

KP:mjb
attachment
cc: Dan Guy, w/a
RIDER

RIDER to be attached to and form a part of Bond Number U-629965

on behalf of BEAVER CREEK COAL COMPANY

(Name)

555 SEVENTEENTH STREET, DENVER, COLORADO 80202

(Address)

STATE OF UTAH

as Principal, and in favor of DIVISION OF OIL, GAS AND MINING

as Obligee, executed by UNITED PACIFIC INSURANCE COMPANY as Surety,

in the amount of SIX HUNDRED FORTY-ONE THOUSAND FOUR HUNDRED FORTY-THREE AND NO/100

Dollars ($641,443.00) effective JULY 30, 1987.

It is hereby understood and agreed that effective as of SEPTEMBER 13, 1990,
the Acreage on said bond has been amended from: 2,286.05 acres of land

to: 17.2 acres of land

Nothing herein contained shall vary, alter or extend any provisions or conditions
of the bond other than as above stated.

CALIFORNIA

ACKNOWLEDGEMENT BY SURETY

STATE OF CALIFORNIA

COUNTY OF LOS ANGELES ss.

On this 13TH day of SEPTEMBER in the year 1990, before me CORA V. RODRIGUEZ personally

appeared CASSIE J. BERRISFORD personally known to me (or proved to me on the basis of satisfactory evidence) to be the person who executed the within

instrument as attorney-in-fact of UNITED PACIFIC INSURANCE COMPANY

and acknowledged to me that the corporation executed it.

CORR V. RODRIGUEZ

NOTARY PUBLIC - CALIFORNIA

PRINCIPAL OFFICE IN LOS ANGELES COUNTY

My Commission Expires MARCH 24, 1997

Notary Public
HEAD OFFICE, FEDERAL WAY, WASHINGTON

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS, that the UNITED PACIFIC INSURANCE COMPANY, a corporation duly organized under the laws of the State of Washington, does hereby make, execute and deliver this

CASSIE J. BERRISFORD of LOS ANGELES, CALIFORNIA

true and lawful Attorney-in-Fact, to make, execute, seal and deliver for and on its behalf, and as its act and deed

ANY AND ALL BONDS AND UNDERTAKINGS OF SURETYSHIP

and to bind the UNITED PACIFIC INSURANCE COMPANY thereby as fully and to the same extent as if such bonds and undertakings and other writings and instruments in the nature thereof were signed by an Executive Officer of the UNITED PACIFIC INSURANCE COMPANY and sealed and attested by one or more of such officers, and thereby ratifies and confirms all that its said Attorney-in-Fact may do in pursuance hereof.

This Power of Attorney is granted under and by authority of Article VII of the By-Laws of UNITED PACIFIC INSURANCE COMPANY which became effective September 7, 1976, which provisions are now in full force and effect, reading as follows:

ARTICLE VII - EXECUTION OF BONDS AND UNDERTAKINGS

1. The Board of Directors, the President, the Chairman of the Board, any Senior Vice President, any Vice President or Assistant Vice President or other officer designated by the Board of Directors shall have power and authority to (a) appoint Attorney-in-Fact and to authorize same to execute on behalf of the Company, bonds and undertakings, recognizances, contracts of indemnity and other writings, and (b) remove any such Attorney-in-Fact at any time and for any reason and authority given as to such Attorney-in-Fact shall cease and determine.

2. Attorney-in-Fact shall have power and authority, subject to the terms and limitations of the power of attorney issued to them, to execute and deliver on behalf of the Company, bonds and undertakings, recognizances, contracts of indemnity and other writings and instruments in the nature thereof. The power to execute and deliver the same shall, for all purposes, be vested in Attorney-in-Fact as fully and effectually as the Company could execute and deliver the same in person.

3. Attorney-in-Fact shall have power and authority to execute and deliver all instruments required to be executed to bonds, recognizances, contracts of indemnity or other writings, and that they shall have power and authority to certify the financial statements of the Company and to cause the By-Laws of the Company or any of its branches or agencies to be signed.

This power of attorney is signed and sealed by the undersigned and by authority of the following Resolution adopted by the Board of Directors of UNITED PACIFIC INSURANCE COMPANY at a meeting held on the 6th day of June, 1976, at which a quorum was present, and said Resolution has not been amended or repealed.

IN WITNESS WHEREOF, the UNITED PACIFIC INSURANCE COMPANY has caused these presents to be signed by its Vice President, and its corporate seal to be hereunto affixed, this 7th day of May 1990.

UNITED PACIFIC INSURANCE COMPANY

STATE OF Washington
COUNTY OF King

On the 7th day of May 1990 personally appeared Lawrence W. Carlstrom

As Vice-President of the UNITED PACIFIC INSURANCE COMPANY, and acknowledged before me, my Commission Expires

May 15 1990

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of said Company this 13th day of September 1990.

Assistant Secretary

Robert D. Ritzhaun

WASHINGTON
September 4, 1990

Ms. Kim Penoyer
Lease Administrator
Arco Coal Company
555 Seventeenth Street
Denver, Colorado 80202

Dear Ms. Penoyer:

Re: Correcting Acreage, Beaver Creek Coal Company, Gordon Creek #2, #7 and #8 Mines, ACT/007/016, Folder #2, Carbon County, Utah

The bond currently posted for bond #U-629965 for the Gordon Creek #2, #7 and #8 Mines indicates an incorrect acreage on the bond form. Please complete the attached bond form and return it to the Division by September 28, 1990.

If you have any questions, please call me.

Sincerely,

Pamela Grubauh-Littig
Permit Supervisor

djh
Attachment
cc: D. Guy, BCCC
     S. White, DOGM
STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84160-1203
(801) 538-5340

THE MINED LANDS RECLAMATION ACT

BOND

The undersigned

Beaver Creek Coal Company

as principal, and

United Pacific Insurance Company

as surety, hereby jointly and severally bind ourselves, our heirs, administrators, executors, successors and assigns unto the State of Utah, Division of Oil, Gas and Mining, and the U. S. Department of the Interior, Office of Surface Mining in the penal sum of Six Hundred Forty-One Thousand Four Hundred Forty-Three dollars ($641,443.00) as principal estimated in the Mining and Reclamation Plan filed with the Division of Oil, Gas and Mining on the 2nd day of February, 1983, that 2,286.05 acres of land will be disturbed by this mining operation in the State of Utah. A description of the disturbed land is attached hereto as Exhibit "A."

When the Division has determined that the principal has satisfactorily reclaimed the above-mentioned lands affected by mining in accordance with the approved Mining and Reclamation Plan and has faithfully performed all requirements of the Mined Land Reclamation Act, and complied with the Rules and Regulations adopted in accordance therewith, then this obligation shall be void; otherwise it shall remain in full force and effect until the reclamation is completed as outlined in the approved Mining and Reclamation Plan.

If the approved plan provides for reclamation of the land affected on a piecemeal or cyclic basis, and the land is reclaimed in accordance with such plan, then this bond may be reduced periodically.

In the converse, if the plan provides for a gradual increase in the area of the land affected or increased reclamation work, then this bond may accordingly be increased with the written approval of the surety company.

The Division shall only accept the bond of a surety company if the bond is noncancellable by the surety at any time for any reason including, but not limited to nonpayment of premium or bankruptcy of the permittee during the period of liability.

NOTE: Where one signs by virtue of Power of Attorney for a surety company, such Power of Attorney must be filed with this bond. If the principal is a corporation, the bond shall be executed by its duly authorized officer.

Beaver Creek Coal Company
Principal (Company)

By Charles B. Smith
Company Officer - Position
Vice President

Date: August 14, 1987

United Pacific Insurance Company
Surety (Company)

By W. C. Doyle, Attorney-in-Fact
Surety Company Officer - Position

DATE: AUGUST 4, 1987

APPROVED AS TO FORM!

By Assistant Attorney General

(TIHS BOND REPLACES FEDERAL INSURANCE COMPANY BOND NO. 8100-39-72)
AFFIDAVIT OF QUALIFICATION

W. C. DOYLE, being first duly sworn, on oath deposes and says that he/she is the (officer or agent) ATTORNEY-IN-FACT of said Surety Company, and that he/she is duly authorized to execute and deliver the foregoing obligations; that said Surety Company is authorized to execute the same and has complied in all respects with the laws of Utah in reference to becoming sole surety upon bonds, undertakings and obligations.

(Signed)

Surety Company Officer - Position
W. C. DOYLE, ATTORNEY-IN-FACT.

Subscribed and sworn to before me this 4th day of August, 1987.

My Commission Expires:

March 24, 1989.

1282R-1-3
AFFECTED AREA

FEDERAL COAL

LEASE #U-8319
T. 13S., R.8E., Sec.18: Lots 1-4, NW¼ NE¼, S½NE¼, E½NW¼, NE4SW¼.
T. 13S., R.7E., Sec.12: E½, E½SW¼,
Sec. 24: N½NE¼, N½NW¼, NE¼,
N½SW¼, N½NW¼.

LEASE #U-47975
T. 13S., R.7E., Sec.13: S½SW¼, NE¼,
Sec. 14: S½NE¼, E½NE¼, SE¼,
Sec. 24: N½NE¼, NE½NW¼.
T. 13S., R.7E., Sec.19: Lots 1 & 2, SE¼NW¼.

PERMIT TO MINE (U.S.G.S.)
T. 13S., R.8E., Sec. 7: NW¼SW¼, SE¼SW¼.

PRIVATE COAL

COLUMBO LEASE
T. 13S., R.7E., Sec.17: S½SW¼,
Sec. 18: NW¼SW¼,
Sec. 19: NE¼, NE½NW¼, N½SW¼, NW¼SE¼.
UNITED PACIFIC INSURANCE COMPANY

HOME OFFICE, FEDERAL WAY, WASHINGTON

POWER OF ATTORNEY

ALL MEN BY THESE PRESENTS, That the UNITED PACIFIC INSURANCE COMPANY, a corporation duly organized under the laws of the State of Washington, does hereby make, constitute and appoint

W. C. DOYLE of LOS ANGELES, CALIFORNIA——

its true and lawful Attorney-in-Fact, to make, execute, seal and deliver for and on its behalf, and as its act and deed

ANY AND ALL BONDS AND UNDERTAKINGS OF SURETYSHIP——

and to bind the UNITED PACIFIC INSURANCE COMPANY thereby as fully and to the same extent as if such bonds and undertakings and other writings obligatory in the nature thereof were signed by an Executive Officer of the UNITED PACIFIC INSURANCE COMPANY and sealed and attested by one or more of such officers, and hereby ratifies and confirms all that its said Attorney(s)-in-Fact may do in pursuance hereof.

This Power of Attorney is granted under and by authority of Article VII of the By-Laws of UNITED PACIFIC INSURANCE COMPANY which became effective September 7, 1978, which provisions are now in full force and effect, reading as follows:

ARTICLE VII - EXECUTION OF BONDS AND UNDERTAKINGS

1. The Board of Directors, the President, the Chairman of the Board, any Senior Vice President, any Vice President or Assistant Vice President or other officer designated by the Board of Directors shall have power and authority to appoin\\n
Attorney-in-Fact and to authorize them to execute in behalf of the Company, bonds and undertakings, recognizances, contracts of indemnity and other writings obligatory in the nature thereof, and to remove any such Attorney-in-Fact at any time and revoke the power and authority given to him.

2. Attorneys-in-Fact shall have power and authority, subject to the terms and limitations of the power of attorney issued to them, to execute and deliver on behalf of the Company, bonds and undertakings, recognizances, contracts of indemnity and other writings obligatory in the nature thereof. The corporate seal is not necessary for the validity of any bonds and undertakings, recognizances, contracts of indemnity and other writings obligatory in the nature thereof.

3. Attorneys-in-Fact shall have power and authority to execute affidavits required to be attached to bonds, recognizances, contracts of indemnity or other conditional or obligatory undertakings and they shall also have power and authority to certify the financial statement of the Company and rules of the By-Laws of the Company or any article or section thereof.

The power of attorney is signed and sealed with facsimile under and by authority of the following Resolution adopted by the Board of Directors of the UNITED PACIFIC INSURANCE COMPANY at a meeting held on the 5th day of June, 1979, at which a quorum was present, and said Resolution has not been amended or repealed:

"Resolved, that the signatures of such directors and officers and the seal of the Company may be affixed to any such power of attorney or any certificate relating thereto by facsimile, and any such power of attorney or certificate bearing such facsimile signatures or facsimile seal shall be valid and binding upon the Company and any such power to execute and certify by facsimile signatures and facsimile seal shall be valid and binding upon the Company in the future with respect to any bond or undertaking to which it is attached."

WITNESS WHEREOF, the UNITED PACIFIC INSURANCE COMPANY has caused these presents to be signed by its Vice President, and its corporate seal to be hereunto affixed, this 1st day of March 1982.

UNITED PACIFIC INSURANCE COMPANY

[Signature]
Vice President

STATE OF Washington }  
COUNTY OF King }  
On this 1st day of March 1982, personally appeared Charles B. Schmalz, to me known to be the Vice-President of the UNITED PACIFIC INSURANCE COMPANY, and acknowledged that he executed and attested the foregoing instrument and affixed the seal of said corporation thereto, and that Article VII, Section 1, 2, and 3 of the By-Laws of said Company, and the Resolution, set forth therein, are still in full force.


Wit\n
Commision Expires:

June 12, 1982

[Signature]
Notary Public in and for State of Washington
Residing at Tacoma

Charles J. Falskow, Assistant Secretary of the UNITED PACIFIC INSURANCE COMPANY, do hereby certify that the foregoing is a true and correct copy of a Power of Attorney executed by said UNITED PACIFIC INSURANCE COMPANY, which is still in full force and effect.

WITNESS WHEREOF, I have hereunto set my hand and affixed the seal of said Company this 4th day of August 1987.

[Signature]
Assistant Secretary

MO: 1431 4/80
Mining and Reclamation Plan
Gordon Creek No. 2/7 and 8 Mines

APPENDIX 2-5
OTHER LICENSES AND PERMITS
### TABLE 2-4
**BEAVER CREEK COAL COMPANY LICENSES & PERMITS**

<table>
<thead>
<tr>
<th>TYPE</th>
<th>I.D. NUMBER</th>
<th>ISSUING AUTHORITY</th>
<th>APPROVAL DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Utah Pollutant Discharge Elimination System Permit (NPDES Permit)</td>
<td>UTG040004</td>
<td>Utah Department of Health P.O. Box 16690 Salt Lake City, Utah 84116-0690</td>
<td>5-1-89</td>
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<tr>
<td>Spill Prevention Control &amp; Countermeasure Plan</td>
<td>NA</td>
<td>U.S. EPA Region VIII 999 18th Street, Suite 500 Denver, Colorado 80202-2405</td>
<td>NA</td>
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<tr>
<td>Sewage Treatment Permit</td>
<td></td>
<td>Utah Department of Health 6 East Main Street Price, Utah 84501</td>
<td>9-13-75</td>
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</table>

12/15/92
<table>
<thead>
<tr>
<th>TYPE</th>
<th>I.D. NUMBER</th>
<th>ISSUING AUTHORITY</th>
<th>APPROVAL DATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Mining Permit (Permanent Program)</td>
<td>ACT/007/016</td>
<td>State of Utah Division of Oil Gas &amp; Mining 355 West North Temple 3 Triad Center</td>
<td>8/28/89</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Suite 350 Salt Lake City, Utah 84180-1203</td>
<td></td>
</tr>
<tr>
<td>Federal Mining Permit (Permanent Program)</td>
<td>UT-0010,8/84</td>
<td>U.S. Dept. Of Interior Office of Surface Mining Breooks Towers 1020 15th Street</td>
<td>8-24-84</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Denver, Colorado 80202</td>
<td>(Terminated</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>11-17-88)</td>
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<tr>
<td>Revised Mining Permit</td>
<td>ACT/007/016</td>
<td>State of Utah Division of Oil Gas &amp; Mining 355 West North Temple 3 Triad Center</td>
<td>10-11-88</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Suite 350 Salt Lake City, Utah 84180-1203</td>
<td></td>
</tr>
<tr>
<td>No.8 Mine Amendment</td>
<td>ACT/007/016(88A)</td>
<td>State of Utah Division of Oil Gas &amp; Mining 355 West North Temple 3 Triad Center</td>
<td>9-20-88</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Suite 350 Salt Lake City, Utah 84180-1203</td>
<td></td>
</tr>
</tbody>
</table>
Proposed Newspaper Advertisement

Public Notice

Mountain Coal Company has applied for approval of the revision of the Mining and Reclamation Permit for the Gordon Creek No. 2/7/8 Mines.

The applicant is:

Mountain Coal Company
P.O. Box 591
Somerset, Colorado 81434

The permit for which approval is being sought is Utah #ACT/007/016. This is a Mining and Reclamation Permit for the Gordon Creek No. 2, 7 and 8 Mines, which are located in the Bryner Canyon area of Carbon County, Utah in Sections 7, 17, 18, and 19, T. 13 S., R. 8 E., and Sections 1, 12, 13 and 24, T. 13 S., R. 7 E., S.L.B. & M.

Written comments on this application for transfer may be addressed to:

Utah Division of Oil, Gas and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

12/15/92
STATE OF UTAH)  
 ss.  
 County of Carbon.  

I, Dan Stockburger, on oath, say that I am the Publisher of the Sun Advocate, a twice-weekly newspaper of general circulation, published at Price, State and County aforesaid, and that a certain notice, a true copy of which is hereto attached, was published in the full issue of such newspaper for Four (4) consecutive issues, and that the first publication was on the

.....4th.....day of February ........1993.

and that the last publication of such notice was in the issue


Subscribed and sworn to before me this


Notary Public

My Commission expires January 10, 1995
Residing at Price, Utah
Publication fee, $....64.00.....................
AFFIDAVIT OF PUBLICATION

STATE OF UTAH)

County of Carbon,)

I, Richard Shaw, on oath, say that I am the Publisher of the Sun Advocate, a twice-weekly newspaper of general circulation, published at Price, State of Utah a true copy of which is hereto attached, was published in the full issue of such newspaper for 1 (One) consecutive issues, and on the Utah legals.com website, the first publication was on the 8th day of August, 2013, and that the last publication of such notice was in the issue of such newspaper dated the 8th day of August 2013.

Richard Shaw – Publisher

Subscribed and sworn to before me this 8th day of August, 2013.

Linda Thayn

Notary Public My commission expires January 10, 2015 Residing at Price, Utah

Publication fee, $ 50.40
STATE OF UTAH)

ss.

County of Carbon,

I, Ken Larson, on oath, say that I am the Publisher of the Sun Advocate, a twice-weekly newspaper of general circulation, published at Price, State a true copy of which is hereto attached, was published in the full issue of such newspaper for 4 (Four) consecutive issues, and that the first publication was on the 24th day of September, 2002, and that the last publication of such notice was in the issue of such newspaper dated the 15th day of October, 2002.

Ken G Larson - Publisher

Subscribed and sworn to before me this 15th day of October, 2002.

Linda Thayn
Notary Public My commission expires January 10, 2003 Residing at Price, Utah

Publication fee, $ 501.76
**PUBLIC NOTICE**

Application for Phase I Bond Release

Gordon Creek No. 2/7/8 Mines
Permit #ACT/007/016

Mountain Coal Company, L.L.C.
P.O. Box 591
Somerset, Colorado 81434

Mountain Coal Company, P. O. Box 591, Somerset, Colorado, 81434, a wholly owned subsidiary of Arch Western Resources, L.L.C., has filed with the Division of Oil, Gas & Mining an application for partial release of the reclamation performance bond for its Gordon Creek No. 2/7/8 Mines.

The company has completed Phase I of the approved reclamation plan for the Gordon Creek No. 2/7/8 Mines. This is based upon the completion of backfilling, grading, topsoil replacement and drainage control in accordance with the approved plan. There were approximately 34.88 acres of disturbed area associated with this operation. Of this, approximately 1.63 acres were associated with the new sediment ponds (to be reclaimed at a later time) and 0.73 acres were associated with the Sweet’s Canyon Pond, which will not be reclaimed. Phase I Bond Release is requested on all reclaimed area, exclusive of the above pond areas, or 32.52 acres.

The present bond posted for this site is $641,443.00. This is a surety bond. Mountain Coal Company is hereby applying for release of 60% of the original bond, or $384,865.00.

The Gordon Creek No. 2/7/8 Mines are located in Bryner Canyon, approximately 20 road miles northwest of Price, Utah. The permit area is described as follows:

Township 13 South, Range 8 East, SLBM, Utah

Sec. 17: SE ¼ SW ¼ SW ¼

Sec. 18: N ¼ SE ¼, N ¼ SW ¼ SE ¼, S ¼ NE ¼ SW ¼,

SE ¼ SW ¼, SE ¼ SW ¼ SW ¼

The permit area is located on the Jump Creek, Utah, U. S. Geological Survey 7.5 minute quadrangle map.

Federal Coal Leases were #U-53159 and #U-8319.
The Gordon Creek No. 2/7/8 Mines have been operated and reclaimed under permit ACT/007/016. The existing permit was renewed and approved on August 28, 1999.


This notice is being published to comply with the Surface Mining Control and Reclamation Act of 1997 and State and Federal regulations promulgated pursuant to said act.

A request for public hearings or informal conferences concerning this proposal may be made to: State of Utah Department of Natural Resources, Division of Oil, Gas & Mining, 1594 West North Temple, Suite 1210, Box 145801, Salt Lake City, Utah 84114-5801. Comments or request must be made within 30 days of the last date of publication.
Appendix 2-8

Notarized Statement of Reclamation

INCORPORATED
JAN 30 2003
DIV OF OIL GAS & MINING
Statement of Reclamation

I, Chris Hansen, Project Representative and Authorized Representative for Mountain Coal Company, do hereby certify that all applicable reclamation activities described in the Gordon Creek No. 2/7/8 Bond Release Application have been accomplished in accordance with the requirements of the Act, the regulatory program and the approved reclamation program.

Signed - Name - Position - Date

Subscribed and sworn to before me this 2 day of Aug., 2002.

Notary Public

My Commission Expires: 3-20-2004

Attest: STATE OF
COUNTY OF

INCORPORATED
JAN 30 2003
DIV OF CHUCK MINING
Appendix 2-9

Mountain Coal Company

Application for Phase II Bond Release

Gordon Creek No. 2/7/8 Mines

C/007/016

July 2006
Public Notice
**PUBLIC NOTICE**

Application for Phase II Bond Release

Gordon Creek No. 2/7/8 Mines
Permit #ACT/007/016

Mountain Coal Company, L.L.C.
P.O. Box 591
Somerset, Colorado 81434

Mountain Coal Company, P. O. Box 591, Somerset, Colorado, 81434, a wholly owned subsidiary of Arch Western Resources, L.L.C., has filed with the Division of Oil, Gas & Mining an application for partial release of the reclamation performance bond for it's Gordon Creek No. 2/7/8 Mines.

The company has completed Phase II of the approved reclamation plan for the Gordon Creek No. 2/7/8 Mines. This is based upon the establishment of revegetation and sediment control in accordance with the approved plan. There were approximately 34.88 acres of disturbed area associated with this operation. Of this, approximately 1.63 acres were associated with the new sediment ponds (to be reclaimed at a later time) and 0.73 acres were associated with the Sweet's Canyon Pond, which has been released. Phase II Bond Release is requested on all reclaimed area, exclusive of the above pond areas, or 32.52 acres.

The present bond posted for this site is a surety bond in the amount of $256,578.00. Mountain Coal Company is applying for release of an additional $146,578.00.

The Gordon Creek No. 2/7/8 Mines are located in Bryner Canyon, approximately 20 road miles northwest of Price, Utah. The permit area is described as follows:

Township 13 South, Range 8 East, SLBM, Utah
Sec. 17: SE ¼ SW ¼ SW ¼
Sec. 18: N¼SE¼, N¼SW¼SE¼, S¼NE¼SW¼,
SE¼SW¼, SE¼SW¼SW¼

The permit area is located on the Jump Creek, Utah, U. S. Geological Survey 7.5 minute quadrangle map.

Federal Coal Leases were #U-53159 and #U-8319.

The Gordon Creek No. 2/7/8 Mines have been operated and reclaimed under permit ACT/007/016. The existing permit was renewed and approved on August 28, 2004. The Gordon Creek No. 2/7/8 Mines were closed in November, 1990. Site demolition was completed in 1991. Backfilling and grading started in 1995 and finished in August 1997. The majority of the seeding was completed in August 1997 with additional seeding of the regraded area completed in August 1999. Additional regrading was completed in July, 1999. Phase I Bond Release was approved in October 2003. MCC has determined through field study the vegetation meets cover and diversity standards for Phase II Bond Release.

This notice is being published to comply with the Surface Mining Control and Reclamation Act of 1997 and State and Federal regulations promulgated pursuant to said act.

Comments, objections, and/or a request for public hearings or informal conferences concerning this proposal may be made to: State of Utah Department of Natural Resources, Division of Oil, Gas & Mining, 1594 West North Temple, Suite 1210, Box 145801, Salt Lake City, Utah 84114-5801.
Landowner / Agency Notifications
Gentlemen:

Mountain Coal Company, P. O. Box 591, Somerset, Colorado, 81434, a subsidiary of Arch Western Bituminous Group, L.L.C., has filed with the Division of Oil, Gas & Mining an application for partial release of the reclamation performance bond for its Gordon Creek No. 2/7/8 Mines. The company has completed Phase II of the approved reclamation plan for the Gordon Creek No. 2/7/8 Mines. This is based upon the establishment of revegetation and sediment control in accordance with the approved plan. There were approximately 34.88 acres of disturbed area associated with this operation. Of this, approximately 1.63 acres were associated with the new sediment ponds (to be reclaimed at a later time) and 0.73 acres were associated with the Sweet's Canyon Pond, which has been released. Phase II Bond Release is requested on all reclaimed area, exclusive of the above pond areas, or 32.52 acres.

The present bond posted for this site is a surety bond in the amount of $256,578.00. Mountain Coal Company is applying for release of an additional $146,578.00.

The Gordon Creek No. 2/7/8 Mines are located in Bryner Canyon, approximately 20 road miles northwest of Price, Utah. The permit area is described as follows:

Township 13 South, Range 8 East, SLBM, Utah
Sec. 17: SE ¼ SW ¼ SW ¼
Sec. 18: N ½ SE ¼, N ½ SW ¼ SE ¼, S ½ NE ¼ SW ¼,
SE ¼ SW ¼, SE ¼ SW ¼ SW ¼

The permit area is located on the Jump Creek, Utah, U. S. Geological Survey 7.5 minute quadrangle map.

Federal Coal Leases were #U-53159 and #U-8319.

The Gordon Creek No. 2/7/8 Mines have been operated and reclaimed under permit ACT/007/016. The existing permit was renewed and approved on August 28, 2004.
The Gordon Creek No. 2/7/8 Mines were closed in November, 1990. Site demolition was completed in 1991. Backfilling and grading started in 1995 and finished in August 1997. The majority of the seeding was completed in August 1997 with additional seeding of the regraded area completed in August 1999. Additional regrading was completed in July, 1999. Phase I Bond Release was approved in October 2003. MCC has determined through field study the vegetation meets cover and diversity standards for Phase II Bond Release.

This notice is being published to comply with the Surface Mining Control and Reclamation Act of 1997 and State and Federal regulations promulgated pursuant to said act.

A request for public hearings or informal conferences concerning this proposal may be made to:
State of Utah Department of Natural Resources, Division of Oil, Gas & Mining, 1594 West North Temple, Suite 1210, Box 145801, Salt Lake City, Utah 84114-5801.

Respectfully,

Chris Hansen
Project Manager

cc: Phil Schmidt
Dan Guy
File
Mr. Robert Jewkes  
2651 Hiawatha Circle  
Salt Lake City, Utah 84108

Re: Application for Partial Bond Release  
Gordon Creek No. 2/7/8 Mines  
ACT/007/016  
Carbon County, Utah

Gentlemen:

Mountain Coal Company, P. O. Box 591, Somerset, Colorado, 81434, a subsidiary of Arch Western Bituminous Group, L.L.C., has filed with the Division of Oil, Gas & Mining an application for partial release of the reclamation performance bond for its Gordon Creek No. 2/7/8 Mines. The company has completed Phase II of the approved reclamation plan for the Gordon Creek No. 2/7/8 Mines. This is based upon the establishment of revegetation and sediment control in accordance with the approved plan. There were approximately 34.88 acres of disturbed area associated with this operation. Of this, approximately 1.63 acres were associated with the new sediment ponds (to be reclaimed at a later time) and 0.73 acres were associated with the Sweet's Canyon Pond, which has been released. Phase II Bond Release is requested on all reclaimed area, exclusive of the above pond areas, or 32.52 acres.

The present bond posted for this site is a surety bond in the amount of $256,578.00. Mountain Coal Company is applying for release of an additional $146,578.00. The Gordon Creek No. 2/7/8 Mines are located in Bryner Canyon, approximately 20 road miles northwest of Price, Utah. The permit area is described as follows:

Township 13 South, Range 8 East, SLBM, Utah

Sec. 17: SE ¼ SW ¼ SW ¼
Sec. 18: N½SE¼, N½SW¼SE¼, S½NE¼SW¼, SE¼SW¼, SE¼SW¼SW¼

The permit area is located on the Jump Creek, Utah, U. S. Geological Survey 7.5 minute quadrangle map.

Federal Coal Leases were #U-53159 and #U-8319.

The Gordon Creek No. 2/7/8 Mines have been operated and reclaimed under permit ACT/007/016. The existing permit was renewed and approved on August 28, 2004.
The Gordon Creek No. 2/7/8 Mines were closed in November, 1990. Site demolition was completed in 1991. Backfilling and grading started in 1995 and finished in August 1997. The majority of the seeding was completed in August 1997 with additional seeding of the regraded area completed in August 1999. Additional regrading was completed in July, 1999. Phase I Bond Release was approved in October 2003. MCC has determined through field study the vegetation meets cover and diversity standards for Phase II Bond Release.

This notice is being published to comply with the Surface Mining Control and Reclamation Act of 1997 and State and Federal regulations promulgated pursuant to said act.

A request for public hearings or informal conferences concerning this proposal may be made to: State of Utah Department of Natural Resources, Division of Oil, Gas & Mining, 1594 West North Temple, Suite 1210, Box 145801, Salt Lake City, Utah 84114-5801.

Respectfully,

Chris Hansen
Project Manager

cc:  Phil Schmidt
     Dan Guy
     File
Wasatch Coal Company
c/o George N. Cannon Co.
1322 Chandler Drive
Salt Lake City, Utah 84103

Gentlemen:

Mountain Coal Company, P. O. Box 591, Somerset, Colorado, 81434, a subsidiary of Arch Western Bituminous Group, L.L.C., has filed with the Division of Oil, Gas & Mining an application for partial release of the reclamation performance bond for its Gordon Creek No. 2/7/8 Mines.

The company has completed Phase II of the approved reclamation plan for the Gordon Creek No. 2/7/8 Mines. This is based upon the establishment of revegetation and sediment control in accordance with the approved plan. There were approximately 34.88 acres of disturbed area associated with this operation. Of this, approximately 1.63 acres were associated with the new sediment ponds (to be reclaimed at a later time) and 0.73 acres were associated with the Sweet's Canyon Pond, which has been released. Phase II Bond Release is requested on all reclaimed area, exclusive of the above pond areas, or 32.52 acres.

The present bond posted for this site is a surety bond in the amount of $256,578.00. Mountain Coal Company is applying for release of an additional $146,578.00.

The Gordon Creek No. 2/7/8 Mines are located in Bryner Canyon, approximately 20 road miles northwest of Price, Utah. The permit area is described as follows:

Township 13 South, Range 8 East, SLBM, Utah
Sec. 17: SE 1/4 SW 1/4 SW 1/4
Sec. 18: N1/2SE1/4, N1/2SW1/4SE1/4, S1/2NE1/4SW1/4,
SE1/4SW1/4, SE1/4SW1/4SW1/4

The permit area is located on the Jump Creek, Utah, U. S. Geological Survey 7.5 minute quadrangle map.

Federal Coal Leases were #U-53159 and #U-8319.

The Gordon Creek No. 2/7/8 Mines have been operated and reclaimed under permit ACT/007/016. The existing permit was renewed and approved on August 28, 2004.
The Gordon Creek No. 2/7/8 Mines were closed in November, 1990. Site demolition was completed in 1991. Backfilling and grading started in 1995 and finished in August 1997. The majority of the seeding was completed in August 1997 with additional seeding of the regraded area completed in August 1999. Additional regrading was completed in July, 1999. Phase I Bond Release was approved in October 2003. MCC has determined through field study the vegetation meets cover and diversity standards for Phase II Bond Release.

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A request for public hearings or informal conferences concerning this proposal may be made to: State of Utah Department of Natural Resources, Division of Oil, Gas & Mining, 1594 West North Temple, Suite 1210, Box 145801, Salt Lake City, Utah 84114-5801.

Respectfully,

Chris Hansen
Project Manager

cc: Phil Schmidt
    Dan Guy
    File
Re: Application for Partial Bond Release
Gordon Creek No. 2/7/8 Mines
ACT/007/016
Carbon County, Utah

Gentlemen:

Mountain Coal Company, P.O. Box 591, Somerset, Colorado, 81434, a subsidiary of Arch Western Bituminous Group, L.L.C., has filed with the Division of Oil, Gas & Mining an application for partial release of the reclamation performance bond for its Gordon Creek No. 2/7/8 Mines.

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The Gordon Creek No. 2/7/8 Mines are located in Bryner Canyon, approximately 20 road miles northwest of Price, Utah. The permit area is described as follows:

Township 13 South, Range 8 East, SLBM, Utah
Sec. 17: SE ¼ SW ¼ SW ¼
Sec. 18: N SE ¼, N SW ¼ SE ¼, S NE ¼ SW ¼,
 SE SW ¼, SE SW ¼ SW ¼

The permit area is located on the Jump Creek, Utah, U.S. Geological Survey 7.5 minute quadrangle map.

Federal Coal Leases were #U-53159 and #U-8319.

The Gordon Creek No. 2/7/8 Mines have been operated and reclaimed under permit ACT/007/016. The existing permit was renewed and approved on August 28, 2004.
The Gordon Creek No. 2/7/8 Mines were closed in November, 1990. Site demolition was completed in 1991. Backfilling and grading started in 1995 and finished in August 1997. The majority of the seeding was completed in August 1997 with additional seeding of the regraded area completed in August 1999. Additional regrading was completed in July, 1999. Phase I Bond Release was approved in October 2003. MCC has determined through field study the vegetation meets cover and diversity standards for Phase II Bond Release.

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Respectfully,

Chris Hansen
Project Manager

cc: Phil Schmidt
    Dan Guy
    File
Gentlemen:

Mountain Coal Company, P. O. Box 591, Somerset, Colorado, 81434, a subsidiary of Arch Western Bituminous Group, L.L.C., has filed with the Division of Oil, Gas & Mining an application for partial release of the reclamation performance bond for its Gordon Creek No. 2/7/8 Mines.

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The Gordon Creek No. 2/7/8 Mines are located in Bryner Canyon, approximately 20 road miles northwest of Price, Utah. The permit area is described as follows:

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Sec. 17: SE ¼ SW ¼ SW ¼
Sec. 18: N½SE¼, N½SW¼SE¼, S½NE¼SW¼, SE¼SW¼, SE¼SW¼SW¼

The permit area is located on the Jump Creek, Utah, U. S. Geological Survey 7.5 minute quadrangle map.

Federal Coal Leases were #U-53159 and #U-8319.

The Gordon Creek No. 2/7/8 Mines have been operated and reclaimed under permit ACT/007/016. The existing permit was renewed and approved on August 28, 2004.
The Gordon Creek No. 2/7/8 Mines were closed in November, 1990. Site demolition was completed in 1991. Backfilling and grading started in 1995 and finished in August 1997. The majority of the seeding was completed in August 1997 with additional seeding of the regraded area completed in August 1999. Additional regrading was completed in July, 1999. Phase I Bond Release was approved in October 2003. MCC has determined through field study the vegetation meets cover and diversity standards for Phase II Bond Release.

This notice is being published to comply with the Surface Mining Control and Reclamation Act of 1997 and State and Federal regulations promulgated pursuant to said act.

A request for public hearings or informal conferences concerning this proposal may be made to: State of Utah Department of Natural Resources, Division of Oil, Gas & Mining, 1594 West North Temple, Suite 1210, Box 145801, Salt Lake City, Utah 84114-5801.

Respectfully,

Chris Hansen
Project Manager

cc: Phil Schmidt
    Dan Guy
    File
Re: Application for Partial Bond Release
Gordon Creek No. 2/7/8 Mines
ACT/007/016
Carbon County, Utah

Gentlemen:

Mountain Coal Company, P. O. Box 591, Somerset, Colorado, 81434, a subsidiary of Arch Western Bituminous Group, L.L.C., has filed with the Division of Oil, Gas & Mining an application for partial release of the reclamation performance bond for its Gordon Creek No. 2/7/8 Mines.

The company has completed Phase II of the approved reclamation plan for the Gordon Creek No. 2/7/8 Mines. This is based upon the establishment of revegetation and sediment control in accordance with the approved plan. There were approximately 34.88 acres of disturbed area associated with this operation. Of this, approximately 1.63 acres were associated with the new sediment ponds (to be reclaimed at a later time) and 0.73 acres were associated with the Sweet's Canyon Pond, which has been released. Phase II Bond Release is requested on all reclaimed area, exclusive of the above pond areas, or 32.52 acres.

The present bond posted for this site is a surety bond in the amount of $256,578.00. Mountain Coal Company is applying for release of an additional $146,578.00.

The Gordon Creek No. 2/7/8 Mines are located in Bryner Canyon, approximately 20 road miles northwest of Price, Utah. The permit area is described as follows:

Township 13 South, Range 8 East, SLBM, Utah
Sec. 17: SE ¼ SW ¼ SW ¼
Sec. 18: N¼SE¼, N¼SW¼SE¼, S¼NE¼SW¼,
               SE¼SW¼, SE¼SW¼SW¼

The permit area is located on the Jump Creek, Utah, U. S. Geological Survey 7.5 minute quadrangle map.

Federal Coal Leases were #U-53159 and #U-8319.

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Respectfully,

Chris Hansen
Project Manager

cc: Phil Schmidt
    Dan Guy
    File
United States of America
Bureau of Land Management
Moab District Office
Price River Resource Area
P.O. Box AB
Price, Utah 84501

Re: Application for Partial Bond Release
Gordon Creek No. 2/7/8 Mines
ACT/007/016
Carbon County, Utah

Gentlemen:

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A request for public hearings or informal conferences concerning this proposal may be made to: State of Utah Department of Natural Resources, Division of Oil, Gas & Mining, 1594 West North Temple, Suite 1210, Box 145801, Salt Lake City, Utah 84114-5801.

Respectfully,

Chris Hansen
Project Manager

cc: Phil Schmidt
    Dan Guy
    File
Mr. Robert Davis  
Price River Distribution System  
45 West 500 South  
Price, Utah 84501  

Re: Application for Partial Bond Release  
Gordon Creek No. 2/7/8 Mines  
ACT/007/016  
Carbon County, Utah

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Respectfully,

Chris Hansen
Project Manager

cc: Phil Schmidt
    Dan Guy
    File
Maps
DISTURBED (BONDED) AREA
34.15 ac.

PHASE I BOND RELEASE
APPROVED - 34.15 ac.

PROPOSED FOR PHASE II
BOND RELEASE - 32.52 ac.

FINAL BOND RELEASE APPROVED
0.73 ac.

RIGHT TO SURFACE USE
BY MOUNTAIN COAL COMPANY
(PERMIT AREA) - 170 ac.
GORDON CREEK 2/7/8 MINES
SEEDING DATES

Sweet's Pond
Final Bond Release
Approved

REGRADED/RESEEDED
08/1999 - 10.06 ac.

DISTURBED (BONDED) AREA
34.15 ac.

RIGHT TO SURFACE USE
BY MOUNTAIN COAL COMPANY
(PERMIT AREA) - 170 ac.
Notarized Statement of Completion of Reclamation
In Accordance with R645- Rules
Arch Western Bituminous Group
Gordon Creek Mine
C/007/006

Phase II Bond Release on 32.52 acres of land within the Gordon Creek 2, 7, and 8 Mine Permit area.

I hereby certify to the best of my knowledge and belief all the information contained in this request is true and correct and that all applicable reclamation activities have been accomplished in accordance with the requirements of the Act, the regulatory program, and approved Gordon Creek 2, 7, and 8 Mining and Reclamation Plan.

Gene E. DiClaudio
Print Name

[Signature]
Sign Name, Position, Date

Subscribed and sworn to before me this 20th day of July, 2006

F. Jean Morris
Notary Public

Attest: State of Colorado
County of Mesa
Appendix 2-10

Canyon Fuel Company, LLC

Application

For Phase III Bond Release

Gordon Creek 2, 7 & 8 Mines

C/007/0016

INCORPORATED

DEC 10 2019

Div. of Oil, Gas & Mining

October 2019
Public Notice
Public Notice
Application for Phase III Bond Release for
Remaining 34.15 Acres of Reclaimed Surface
Canyon Fuel Company, LLC Gordon Creek 2, 7 & 8 Mines
Permit C/007/0016

Notice is hereby given that Canyon Fuel Company, LLC, 9815 South Monroe St. Suite 203, Sandy, Utah 84070 has filed an application with the Utah Division of Oil, Gas & Mining (Division) for Phase III Bond Release for the remaining 34.15 acres of reclaimed lands at the Gordon Creek 2, 7 & 8 Mines. The Mine’s permit number is C/007/0016. The Mining Permit for this mine was renewed for 5 years on August 28th, 2019. Canyon Fuel Company, LLC (CFC) has fulfilled the necessary requirements contained within the mine’s Mining and Reclamation Plan to obtain Phase III Bond Release for the remaining disturbed acres associated with the mine. All areas for bond release have met the requirements as described in the Utah Coal Rules R645-301-400 and R645-301-880.330. The legal description of the permit area for which bond release has been applied follows:

Township 13 South, Range 8 East, SLBM, Utah. Section 18: N2SE4, N2SW4SE4, S2NE4SW4, SE4SW4, SE4SW4SW4

Coal mining ceased at the mines in late 1990, the portals sealed in 1992, and approximate original contour and natural drainages re-established in August 1997. Reclamation Phase I Bond Release was obtained for the entire mine site along with Phase III Bond Release of the Sweet’s Pond Area in October 2003. Vegetation success standards were achieved and no contribution of additional suspended solids to receiving stream flows or runoff outside the permit was occurring by late 2005. Phase II Bond Release was approved for the remaining reclaimed mine acreage in March 2007.

The current amount of the surety bond for the 34.15 acres of reclaimed land is $171,000. The Division will evaluate the proposal for bond release to determine if it meets all the criteria set forth for Phase III Bond Release in the Utah Coal Mining Rules. Written comments, objections and requests for public hearing or informal conference on this proposal may be addressed to:

Utah Coal Program
Utah Division of Oil, Gas and Mining
1594 West North Temple, Suite 1210
P.O Box 145801
Salt Lake City, Ut 84114-5801

Said comments must be submitted thirty (30) days from the date of the last publication of this notice. This notice is being published to comply with the Surface Mining Control and Reclamation Act of 1997, and State and Federal regulations promulgated pursuant to said Act.

Published in the ETV News Progress for four consecutive weeks beginning October 16, 2019.
Landowner/Agency Notifications

INCORPORATED
DEC 10 2019
Div. of Oil, Gas & Mining
October 15, 2019

RE: Notification of Application for Phase III Bond Release on 34.15 Acres, Canyon Fuel Company, LLC, Gordon Creek 2, 7 & 8 Mine, C/007/0016, Carbon County, Utah

Canyon Fuel Company, LLC (CFC) has completed reclamation of the remaining 34.15 acres of the Gordon Creek 2, 7 & 8 Mines located in Carbon County, Utah. CFC is applying for Phase III, or final bond release, for the area. Final bond release is predicated on meeting the vegetation and water quality requirements as set forth in sections R645-301-880 and R645-301-400 of the State Utah Coal Mining Rules. As required by these regulations, CFC is hereby giving notice of their application for the total release of the surety bond posted for the 34.15 acres in the bond amount of $171,000.

The permit area is identified in the attached map. The reclaimed area is within Bryner Canyon as depicted on the Jump Creek U.S G.S. 7.5 minute quadrangle map. The legal description of the permit area that contains the reclaimed disturbed area for which final bond release is being requested is:

Township 13 South, Range 8 East, SLBM, Utah. Section 17: SE4SW4SW4. Section 18: N2SE4, N2SW4SE4, S2NE4SW4, SE4SW4, SE4SW4SW4.

Comments concerning Phase III bond release from the legal or equitable owner of record of the surface areas and from the Federal, Utah and local government agencies which would have to initiate, implement approve or authorize the proposed use of the land following reclamation should be mailed to:

Canyon Fuel Company, LLC
Attention: Chris D. Hansen
9815 South Monroe Street, Suite 203
Sandy, Utah 84070

Sincerely,

Chris D. Hansen
Director of Regulatory Compliance and Government Relations
Wolverine Fuel, LLC

Attachments: Location Map
Notice List
List of Landowners and Agencies Receiving Notice of Application for Phase III Bond Release:

Mark Jacob
Jacob Family Ranch, LLC
914 East 300 North
Orem, UT 84097

Pete Jr. and Sharon Stamatakis
1111 South 450 West
Price, UT 84501

Hidden Splendor Resources
1700 Coronet Drive
Reno, NV 86509

Nielsen, LLC
P.O. Box 620
Huntington, UT 84528

Planning and Zoning
Carbon County
751 East 100 North
Suite 2600
Price, UT 84501

Howard Strand, Manager
Denver Field Branch
Office of Surface Mining
1999 Broadway, Suite 3320
Denver, CO 80202-3050

Mark Stilson, Regional Engineer
State of Utah
Division of Water Rights
319 Carbonville Rd, Suite B
Price, UT 84501

Price River Water Improvement District
P. O. Box 903
265 South Fairgrounds Road
Price, UT 84501

State of Utah
Division of Wildlife Resources
319 North Carbonville Rd. Suite A
Price, UT 84501
United States of America
Bureau of Land Management
Attn: Mr. Steven Falk
125 South 600 West
Price, UT 84501

Carbon County Commissioners
751 East 100 North
Suite 2700
Price, UT 84501

INCORPORATED
DEC 10 2019
Div. of Oil, Gas & Mining
Vegetation Monitoring

For

Phase III Bond Release

at the

Gordon Creek 2, 7 & 8 Mines

2019 Mt Nebo Scientific Report

Includes 2009 and 2010 Vegetation Monitoring Reports
VEGETATION MONITORING
FOR PHASE III BOND RELEASE
AT THE GORDON CREEK 2/7/8 MINE SITE
CARBON COUNTY, UTAH
2019

FOR
WOLVERINE FUELS

Gordon Creek 2/7/8 Mine Site: Reclaimed Area (foreground), Aspens and Conifers
Prepared by

MT. NEBO SCIENTIFIC, INC.
330 East 400 South, Suite 6
P.O. Box 337
Springville, Utah 84663
(801) 489-6937

by

Patrick Collins, Ph.D.

for

WOLVERINE FUELS
9815 South Monroe St., Ste. 203
Salt Lake City, Utah 84070

October 2019
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INTRODUCTION

Study Area & History

The Gordon Creek 2/7/8 Mine site is located in the Bryner Canyon and Beaver Creek areas of Carbon County, Utah. Elevation of the area is about 8,000 ft above sea level. The study area is shown on the Jump Creek USGS 7.5 minute series quadrangle map in Section 18, Township 13 South, Range 8 East (Figure 1). Native plant communities surrounding the reclaimed site include Mountain Brush/Grass, Oak Shrubland, Sagebrush/Grass, Aspen and Douglas Fir.

The Gordon Creek 2/7/8 Mine site is an area where coal mining operations had been conducted for many years beginning as early as 1907. More recently in 1998, when the mining operations had been terminated earlier, the mine portals were sealed and final reclamation activities began to restore the land to a condition that is consistent with the post-mining land use. The post-mining land use of the site was determined by the landowner and has been designated primarily for livestock grazing.

Following the earthwork done for reclamation that included regrading and re-contouring the site to the approximate original contours and post-mining topography, final seedbed preparations were made and re-seeding began. Most of the area was seeded in October 1998 with follow-up seeding on the regraded roads in October 1999. Seeding in all areas was accomplished using seeds of native and approved introduced plant species (Figure 2).

Following reclamation and when the “Responsibility Period” has been ended, or the period of time of extended obligation mandated by state and federal regulations following final reclamation and revegetation procedures, vegetation sampling was conducted at the reclaimed Gordon Creek 2/7/8 Mine site for Final or Phase III Bond Release. The Responsibility Period is considered to be enough time for vegetation to become adequately established for it to become “diverse, effective and permanent” and has the potential to meet post-mining land use standards. Quantitative sampling of the vegetation for final bond release was first conducted for two consecutive years – 2009 and 2010. Results from the two consecutive sample years was submitted previously in following reports.
Vegetation Monitoring for Phase III Bond Release
at the Gordon Creek 2/7/8 Mines
Year 1: 2009

Vegetation Monitoring for Phase III Bond Release
at the Gordon Creek 2/7/8 Mines
Year 2: 2010

For a number of reasons the application for bond release was not filed directly after the above-mentioned vegetation sampling was completed. Moreover, a significant precipitation event occurred in September 2014 at and adjacent to the reclaimed mine site. It was soon determined that this event created flooding that exceeded the approved permit design flows which consequently resulted in the displacement of rip-rap in certain sections of the reclaimed drainage channels. Repair work was completed on the damaged sections of the channels in 2015. This repair work was done in accordance with the existing approved permit through the State of Utah, Division of Oil, Gas & Mining (DOGM). Following channel repairs including filter material and rip-rap replacement, the areas were re-seeded with the approved seed mixture mentioned above. Additional details about the precipitation event and followup repair work at the site can be found in the Gordon Creek 2/7/8 Mining and Reclamation Plan (MRP), Section 3.6, pp. 3-78 through 3-80.

Objectives of the Study

Because a certain amount of time had lapsed since the two consecutive sample years were conducted (2009 and 2010) and the channel repairs described above were accomplished (2015), DOGM staff members recommended the reclaimed mine site and its reference area be sampled for an additional year prior to submitting the final bond release application. Consequently, quantitative sampling was conducted once again in 2019. The objective of the 2019 study was to confirm (or counter) the findings made from the earlier sample years.
METHODS

For this study, quantitative and qualitative data were taken from the vegetation of the reclaimed areas at the Gordon Creek 2/7/8 Mine site as well as the Mountain Brush/Grass Reference Area. Sampling was conducted September 2-5, 2019. Methodologies used for sampling were performed in accordance with the Vegetation Information Guidelines supplied by DOGM and were consistent with the aforementioned 2009 and 2010 study years.

<table>
<thead>
<tr>
<th>COMMON NAME</th>
<th>SCIENTIFIC NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SHRUBS</strong></td>
<td></td>
</tr>
<tr>
<td>Bitterbrush</td>
<td>(Purshia tridentata)</td>
</tr>
<tr>
<td>Mtn. Mahogany</td>
<td>(Carocarpus pedifolius)</td>
</tr>
<tr>
<td>Rubber rabbitbrush</td>
<td>(Chrysothamnus nauseosus)</td>
</tr>
<tr>
<td>Blue elderberry</td>
<td>(Sambucus caerulea)</td>
</tr>
<tr>
<td>Snowberry</td>
<td>(Symphoricarpus albus)</td>
</tr>
<tr>
<td>Sagebrush</td>
<td>(Artemisia tridentata ssp. vaseyana)</td>
</tr>
<tr>
<td><strong>FORBS</strong></td>
<td></td>
</tr>
<tr>
<td>Northern sweetvetch</td>
<td>(Hedysarum boreale)</td>
</tr>
<tr>
<td>Ciero milkvetch</td>
<td>(Astragalus cicer)</td>
</tr>
<tr>
<td>Purple daisy fleabane</td>
<td>(Erigeron corymbosus)</td>
</tr>
<tr>
<td>Little sunflower</td>
<td>(Helianthus uniflor)</td>
</tr>
<tr>
<td>Rocky Mtn. panstemon</td>
<td>(Penstemon strictus)</td>
</tr>
<tr>
<td>Yellow sweet clover</td>
<td>(Melilotus officinalis)</td>
</tr>
<tr>
<td>Alfalfa (Ladak)</td>
<td>(Medicago sativa)</td>
</tr>
<tr>
<td>Pacific Aster</td>
<td>(Aster chilensis)</td>
</tr>
</tbody>
</table>

**GRASSES**

| Thickspike wheatgrass | (Elymus lanceolatus)               |
| Bluebunch wheatgrass  | (Elymus spicatus)                  |
| Slender wheatgrass    | (Elymus trachycaulus)              |
| Indian ricegrass      | (Stipa hymenoides)                 |
| Gt. Basin wildrye     | (Elymus cinereus)                  |

Figure 2: Final Seed Mixture for the Gordon Creek 2/7/8 Mine Site

Transect and Quadrat Placement

In all sample years, random/regular placement of sample quadrats was designed with an attempt to provide unbiased accuracy of the data compiled. This was accomplished by establishing transect lines on the entire length of the reclaimed and reference areas. At regular intervals along the transect lines, random numbers were generated and used to measure distances at right angles to determine sample locations. Whether these random numbers were odd or even determined which side of the transect a given quadrat was placed. The random number selected were high enough to place quadrats to the lateral limits of the sample areas and all areas in-between. This insured that the sample quadrats were placed randomly over the entire study area with the intent to adequately represent the study site as a whole.
Cover, Frequency and Composition

Cover estimates were made using meter square quadrats. Species composition and relative frequencies were also assessed from the quadrats. Additional information recorded on the raw data sheets were: estimated precipitation, slope, exposure, grazing use, animal disturbance and other appropriate notes. Plant nomenclature followed A Utah Flora (Welsh et al. 2008) ¹.

Annual Production

Total annual production was recorded by clipping, drying and weighing current annual growth in sample quadrats. "Double sampling" methods were employed by placing four additional quadrats around each clipped quadrat, then estimating the production of them relative to the clipped plot. Herbaceous and woody species production weights were recorded separately.

Sample Size and Adequacy

Sampling adequacy was calculated using the formula given below.

\[ n_{MIN} = \frac{t^2s^2}{(dx)^2} \]

where,

- \( n_{MIN} \) = minimum adequate sample
- \( t \) = appropriate confidence t-value
- \( s \) = standard deviation
- \( x \) = sample mean
- \( d \) = desired change from mean

The values used for "t" and "d" insured that sample adequacy was met with 90% confidence within a 10% deviation from the true mean.

Diversity Indices

MacArthur's Diversity Index was employed as an effective diversity measurement and is computed using the following equation:

$$1/\sum p_i^p$$

where,

$p_i$ is the proportion of sum frequency contributed by the $i$th species in the sample area of concern.

The proportional contribution of each species is then squared and the values for all species in the sample areas are summed. This index integrates the number of species and the degree to which frequency of occurrence was equitably distributed among those species.

Another diversity measurement was provided that shows the average number of species encountered at each quadrat. Finally, a third measure of diversity or “richness” was reported and is simply the total number of species encountered in the quadrats.

Photographs

Color photographs of the sample areas were taken at the time of sampling and a subset of them have been included in this report.

RESULTS

Reclaimed Area

In 2019, the reclaimed area at the Gordon Creek 2/7/8 Mine was dominated by the grasses: Gt. Basin wildrye (Elymus cinereus), thickspike wheatgrass (E. lanceolatus), Western wheatgrass (E. smithii), bluebunch wheatgrass (E. spicatus) and Kentucky bluegrass (Poa pratensis). The most important forbs in the area were: gumweed aster (Machaeranthera grindelioides) and cicer milkvetch (Astragalus cicer). The most common shrub by a wide margin was mountain snowberry (Symphoricarpos oreophilus). For a complete list of all the plant species present in the sample quadrats showing their cover and frequency values refer to Table 1.
### Table 1: Gordon Creek 2/7/8 Mine. Total cover, standard deviation and frequency by species (2019).

<table>
<thead>
<tr>
<th>Reclaimed Areas</th>
<th>Mean Percent</th>
<th>Standard Deviation</th>
<th>Percent Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>UNDERSTORY</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>SHRUBS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Artemisia tridentata</em></td>
<td>0.45</td>
<td>3.61</td>
<td>2.00</td>
</tr>
<tr>
<td><em>Chrysothamnus nauseosus</em></td>
<td>1.75</td>
<td>8.26</td>
<td>5.00</td>
</tr>
<tr>
<td><em>Gutierrezia sarothrae</em></td>
<td>0.40</td>
<td>2.71</td>
<td>3.00</td>
</tr>
<tr>
<td><em>Purshia tridentata</em></td>
<td>0.74</td>
<td>4.37</td>
<td>4.00</td>
</tr>
<tr>
<td><em>Rosa woodsii</em></td>
<td>0.26</td>
<td>2.49</td>
<td>1.00</td>
</tr>
<tr>
<td><em>Salix exigua</em></td>
<td>0.25</td>
<td>2.49</td>
<td>1.00</td>
</tr>
<tr>
<td><em>Symphoricarpos oreophilus</em></td>
<td>6.95</td>
<td>14.56</td>
<td>23.00</td>
</tr>
<tr>
<td><strong>FORBS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Artemisia ludoviciana</em></td>
<td>0.25</td>
<td>1.79</td>
<td>2.00</td>
</tr>
<tr>
<td><em>Astragalus cicer</em></td>
<td>4.30</td>
<td>11.73</td>
<td>18.00</td>
</tr>
<tr>
<td><em>Bassia scoparia</em></td>
<td>0.05</td>
<td>0.50</td>
<td>1.00</td>
</tr>
<tr>
<td><em>Cynoglossum officinale</em></td>
<td>0.15</td>
<td>1.11</td>
<td>2.00</td>
</tr>
<tr>
<td><em>Machaeranthera grindelioides</em></td>
<td>4.35</td>
<td>8.74</td>
<td>29.00</td>
</tr>
<tr>
<td><em>Malcolmia africana</em></td>
<td>0.45</td>
<td>4.01</td>
<td>2.00</td>
</tr>
<tr>
<td><em>Medicago sativa</em></td>
<td>1.45</td>
<td>5.21</td>
<td>8.00</td>
</tr>
<tr>
<td><em>Mellilotus officinalis</em></td>
<td>0.25</td>
<td>1.48</td>
<td>3.00</td>
</tr>
<tr>
<td><em>Penstemon palmeri</em></td>
<td>0.11</td>
<td>1.00</td>
<td>2.00</td>
</tr>
<tr>
<td><em>Penstemon strictus</em></td>
<td>1.05</td>
<td>4.08</td>
<td>8.00</td>
</tr>
<tr>
<td><em>Rumex crispus</em></td>
<td>0.25</td>
<td>1.79</td>
<td>2.00</td>
</tr>
<tr>
<td><em>Stymbrium altilissimum</em></td>
<td>0.05</td>
<td>0.50</td>
<td>1.00</td>
</tr>
<tr>
<td><strong>GRASSES</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Agropyron cristatum</em></td>
<td>2.75</td>
<td>9.96</td>
<td>9.00</td>
</tr>
<tr>
<td><em>Bromus carinatus</em></td>
<td>1.85</td>
<td>6.31</td>
<td>10.00</td>
</tr>
<tr>
<td><em>Elymus cinereus</em></td>
<td>19.15</td>
<td>23.82</td>
<td>51.00</td>
</tr>
<tr>
<td><em>Elymus lanceolatus</em></td>
<td>7.80</td>
<td>15.66</td>
<td>29.00</td>
</tr>
<tr>
<td><em>Elymus salinus</em></td>
<td>1.15</td>
<td>8.12</td>
<td>2.00</td>
</tr>
<tr>
<td><em>Elymus smithii</em></td>
<td>5.55</td>
<td>11.72</td>
<td>23.00</td>
</tr>
<tr>
<td><em>Elymus spicatus</em></td>
<td>3.15</td>
<td>10.46</td>
<td>12.00</td>
</tr>
<tr>
<td><em>Poa pratensis</em></td>
<td>4.30</td>
<td>10.72</td>
<td>18.00</td>
</tr>
</tbody>
</table>
The total living cover in the reclaimed area was estimated at 68.84% (Table 2-A). This cover was comprised of 65.38% grasses, 18.98% forbs and 15.64% shrubs (Table 2-B).

<table>
<thead>
<tr>
<th>Reclaimed Areas (n=100)</th>
<th>Mean Percent</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. TOTAL COVER</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understory</td>
<td>68.84</td>
<td>11.18</td>
</tr>
<tr>
<td>Litter</td>
<td>8.64</td>
<td>4.74</td>
</tr>
<tr>
<td>Bareground</td>
<td>10.51</td>
<td>6.61</td>
</tr>
<tr>
<td>Rock</td>
<td>12.01</td>
<td>9.40</td>
</tr>
<tr>
<td>B. % COMPOSITION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shrubs</td>
<td>15.64</td>
<td>24.77</td>
</tr>
<tr>
<td>Forbs</td>
<td>18.98</td>
<td>22.30</td>
</tr>
<tr>
<td>Grasses</td>
<td>65.38</td>
<td>31.64</td>
</tr>
</tbody>
</table>

The total annual production of the reclaimed site was measured at 2,530.57 pounds per acre, of which 1,982.29 pounds were from herbaceous plants and 548.28 pounds were from woody plants (Table 3).

<p>| Table 3: Production at Gordon Creek 2/7/8 (2019). |
| Reclaimed Areas (n=50) |</p>
<table>
<thead>
<tr>
<th>Pounds/Acre</th>
<th>LIFEFORM</th>
<th>MEAN</th>
<th>STD. DEV</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Herbaceous</td>
<td>1982.29</td>
<td>1574.04</td>
</tr>
<tr>
<td></td>
<td>Woody</td>
<td>548.28</td>
<td>981.76</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td>2530.57</td>
<td>1126.33</td>
</tr>
</tbody>
</table>
Reference Area

The area chosen to be compared with the reclaimed area and represent revegetation success standards was an undisturbed, native plant community adjacent to the mine site called the Mountain Brush/Grass Reference Area.

The plant species encountered in the reference area reported by cover and frequency are shown in Table 4. The most important plants here was the grass, Salina wildrye (Elymus salinus) and the shrubs, broom snakeweed (Gutierrezia sarothrae) and alder-leaf mountain-mahogany (Cercocarpus montanus). The most common forb species were James' buckwheat (Eriogonum jamesii) and Prince's plum (Stanleya pinnata).

Table 4: Gordon Creek 2/7/8 Mine. Total cover, standard deviation and frequency by species (2019).

<table>
<thead>
<tr>
<th>Mountain Brush/Grass Reference Area</th>
<th>Mean Percent</th>
<th>Standard Deviation</th>
<th>Percent Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>UNDERSTORY</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TREES &amp; SHRUBS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amelanchier utahensis</td>
<td>1.90</td>
<td>5.91</td>
<td>12.00</td>
</tr>
<tr>
<td>Artemisia tridentata vasoeyana</td>
<td>0.90</td>
<td>6.30</td>
<td>2.00</td>
</tr>
<tr>
<td>Cercocarpus montanus</td>
<td>3.40</td>
<td>7.58</td>
<td>24.00</td>
</tr>
<tr>
<td>Eriogonum corymbosum</td>
<td>0.70</td>
<td>3.10</td>
<td>6.00</td>
</tr>
<tr>
<td>Gutierrezia sarothrae</td>
<td>7.30</td>
<td>8.50</td>
<td>54.00</td>
</tr>
<tr>
<td>Purshia tridentata</td>
<td>1.80</td>
<td>5.55</td>
<td>12.00</td>
</tr>
<tr>
<td>Symphoricarpos oreophilus</td>
<td>0.20</td>
<td>1.40</td>
<td>2.00</td>
</tr>
<tr>
<td>FORBS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Descurainia pinnata</td>
<td>0.10</td>
<td>0.70</td>
<td>2.00</td>
</tr>
<tr>
<td>Eriogonum jamesii</td>
<td>2.30</td>
<td>5.76</td>
<td>16.00</td>
</tr>
<tr>
<td>Penstemon sp.</td>
<td>0.40</td>
<td>1.69</td>
<td>6.00</td>
</tr>
<tr>
<td>Stanleya pinnata</td>
<td>1.20</td>
<td>3.94</td>
<td>10.00</td>
</tr>
<tr>
<td>GRASSES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elymus salinus</td>
<td>23.40</td>
<td>11.51</td>
<td>96.00</td>
</tr>
<tr>
<td>Elymus spicatus</td>
<td>0.90</td>
<td>4.44</td>
<td>4.00</td>
</tr>
<tr>
<td>Sida huanghoides</td>
<td>0.30</td>
<td>2.10</td>
<td>2.00</td>
</tr>
</tbody>
</table>
The mean total living cover in the reference area was 44.80% (Table 5-A) of which consisted of 57.43% grasses, 33.29% shrubs and 9.28% forbs (Table 5-B).

<table>
<thead>
<tr>
<th>Mountain Brush/Grass Reference Area (n=50)</th>
<th>Mean Percent</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. TOTAL COVER</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understory</td>
<td>44.80</td>
<td>10.29</td>
</tr>
<tr>
<td>Litter</td>
<td>11.30</td>
<td>6.07</td>
</tr>
<tr>
<td>Bareground</td>
<td>17.20</td>
<td>10.01</td>
</tr>
<tr>
<td>Rock</td>
<td>26.70</td>
<td>12.23</td>
</tr>
<tr>
<td>B. % COMPOSITION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shrubs</td>
<td>33.29</td>
<td>24.26</td>
</tr>
<tr>
<td>Forbs</td>
<td>9.28</td>
<td>15.38</td>
</tr>
<tr>
<td>Grasses</td>
<td>57.43</td>
<td>26.85</td>
</tr>
</tbody>
</table>

Total annual production at the site was 1,328.29 pounds per acre and was comprised of 789.79 pounds of herbaceous plants and 538.50 pounds of woody plants (Table 6).

<table>
<thead>
<tr>
<th>Mountain Brush/Grass Reference Area (n=50)</th>
<th>Pounds/Acre</th>
<th>MEAN</th>
<th>STD. DEV.</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIFEFORM</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Herbaceous</td>
<td>789.79</td>
<td>664.97</td>
<td></td>
</tr>
<tr>
<td>Woody</td>
<td>538.50</td>
<td>723.00</td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td>1328.29</td>
<td>338.11</td>
<td></td>
</tr>
</tbody>
</table>
Comparisons to the Revegetation Success Standards (2019)

Like the previous sample years, 2019 comparisons were made between the datasets of the reclaimed areas at the Gordon Creek 2/7/8 Mine site and the Mountain Brush/Grass Reference Area. To begin, statistical tests were employed that compared the total living cover of the two areas. A Student's t-test analysis suggested that the reclaimed area's total living cover was significantly greater than the reference area (Figure 3).

When total annual production of the reclaimed area was compared statistically to that of the reference area, results here also suggested there was significantly more in the reclaimed area (Figure 4).

MacArthur's Diversity Index was then employed to the datasets of the reclaimed and reference areas. A comparison of the values between these two areas suggested that the total diversity of the reclaimed area was greater than that of the reference area by quite a wide margin (Figure 5).

Another method of comparing species diversity of the two areas was to simply calculate the average number of species present in the sample quadrats. Unlike the previous sample years the reference area value was a little greater when compared to the reclaimed area (Figure 6).
Finally, another diversity-type computation, or the total number of species encountered in the sample quadrats, was compared. Again the reclaimed area had more plants encountered in the samples compared to the reference area (Figure 7).

FIGURE 5. MacARTHUR'S INDEX - A diversity comparison between the reclaimed area at Gordon Creek 2/7/8 and its reference area (2019).

\[ \frac{1}{\sum p_i^2} = \]

- Reclaimed Area: 11.242
- Reference Area: 5.539

FIGURE 6. AVERAGE NUMBER OF SPECIES PER SQUARE METER - A diversity comparison between the reclaimed area at Gordon Creek 2/7/8 and its reference area (2019).

\[ \times \text{NO. SPP/M}^2 = \]

- Reclaimed Area: 2.71
- Reference Area: 3.52

FIGURE 7. TOTAL SPECIES PRESENT - A diversity comparison between the reclaimed area at Gordon Creek 2/7/8 and its reference area (2019).

- Reclaimed Area: 27
- Reference Area: 18

This document was created to report the findings of an additional sample year beyond the previously reported two consecutive sample years to provide additional data for potential final bond release at the reclaimed Gordon Creek 2/7/8 Mine site. As mentioned above, detailed results for the first sample year (2009) and the second sample year (2010) were reported in a previously-submitted documents. These final reports have also been included in their entirety in this document in Appendix A and Appendix B, respectively. However, to facilitate comparisons between all sample years, graphs have been prepared and included in this report that show comparisons for total living cover, production and diversity for all three years (Figures 8-12).
DISCUSSION

Prior to final reclamation, the primary post-mining land use as determined by the land owner, is grazing by domestic livestock. Consequently, Gordon Creek’s Mining and Reclamation (MRP) identifies “stock grazing” as the post-mining land use, but it also states that “reclamation is also particularly important as a means of controlling erosion and restoring disturbed areas to productive wildlife habitat”.

Because the primary post-mining land use was to be focused on livestock grazing, the parameters to be used for final revegetation success standards described in the MRP were total living cover and production. Sample results in 2009, 2010 and 2019 show that the total living cover and annual production of the reclaimed area exceeded that of the reference area (Figures 8 and 9, respectively).

Although they were not specifically required in the MRP, other parameters were also compared in addition to evaluate specific wildlife habitat qualities of the reclaimed land when compared to the reference area. These parameters consisted of diversity indices because species and habitat diversity are important components for restoring wildlife habitat. Almost without exception, the diversity indices employed to the datasets suggest that the reclaimed area is more diverse than the reference area in all sample years (Figures 10 - 12).

Because additional sampling was conducted, thus creating a longer time period to make observations of the reclaimed plant communities compared to other final bond release vegetation monitoring, some interesting patterns can provide the reviewer with greater insights to the revegetation progress and succession of the restored plant communities. First, total living cover values of all sample years were relatively similar. However, the composition of the plant cover has changed. For example, woody plants were relatively unimportant in the in 2009 and 2010 at 3.93% and 3.78%, respectively, but in 2019 this value was elevated to 15.64% – close to a 400% increase. Also, forb composition decreased over time, probably due to the reduction of alfalfa, an introduced species, that dominated the reclaimed area in 2009 and 2010. This decrease favored grass species composition which increased by nearly 70%. Annual production increased substantially in the reclaimed and reference areas in 2019 when compared to 2009 and 2010, probably due to an increase in precipitation that year.
SUMMARY & CONCLUSIONS

To summarize and draw some conclusions, results from the first two consecutive sample years, 2009 and 2010, suggested the reclaimed Gordon Creek 2/7/8 Mine site could be a candidate for Phase III or Final Bond Release through the State of Utah, Division of Oil, Gas & Mining (DOGM). As described above, there had been some time-lapse since that sampling was conducted along some necessary repairs due to a flood event that exceeded the approved designed flows in the reconstructed stream channels of the reclaimed area. Consequently, DOGM staff members recommended the reclaimed mine site and its reference area (a native, undisturbed adjacent plant community that was previously chosen to represent success standards for final revegetation) be sampled for an additional year prior to submitting the final bond release application. Therefore, to confirm the reclaimed mine site has maintained values consistent with the revegetation success standards dictated by the reference area, and also to confirm whether or not the findings and conclusions made in the 2009 and 2010 datasets remain valid to-date, additional vegetation sampling was conducted in 2019 and have been reported in this report.

In conclusion, it appears that vegetation sampling at the Gordon Creek 2/7/8 Mine site in 2019 has confirmed the findings found in the earlier sample periods. The reclaimed site has met or exceeded the revegetation success standards for total living cover and annual productivity. Moreover, diversity when compared to the Mountain Brush/Grass Reference Area, was also greater in the reclaimed area. With those parameters in mind, the reclaimed area of the mine site appears to be a likely candidate for Phase III Bond Release through the State of Utah.

INTEGRATED
DEC 10 2019
Div. of Oil, Gas & Mining
COLOR PHOTOGRAPHS
OF THE
SAMPLE AREAS
2019
THE RECLAIMED AREAS

INCORPORATED
DEC 10 2019
Div. of Oil, Gas & Mining
THE MOUNTAIN BRUSH/GRASS REFERENCE AREA
APPENDIX A
Report for
Year 1 (2009)
VEGETATION MONITORING
FOR PHASE III BOND RELEASE
AT THE GORDON CREEK 2/7/8 MINES
YEAR 1: 2009

FOR
MOUNTAIN COAL COMPANY, LLC
Prepared by

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by

Patrick Collins, Ph.D.

for

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1056 West 2060 North
Helper, Utah 84526

and

MOUNTAIN COAL COMPANY
HC35 Box 380
Helper, Utah 84526

May 2010

INCORPORATED

DEC 10 2019
Div. of Oil, Gas & Mining
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INTRODUCTION

General Site Description

The Gordon Creek 2/7/8 Mine site is located in the Bryner Canyon and Beaver Creek area of Carbon County, Utah. Elevation of the area is about 8,000 ft above sea level. The study area is shown on the Jump Creek USGS 7.5 minute series quadrangle map in Section 18, Township 13 South, Range 8 East (Figure 1). General plant communities surrounding the area include Mountain Brush/Grass, Oak Shrubland, Sagebrush/Grass, Aspen, and Douglas Fir.

Gordon Creek 2/7/8 is an area where coal mining had been conducted for many years. More recently, the area has been reclaimed and the land restored to a condition that is consistent with the pre-mining and post-mining land uses, or primarily livestock grazing. The post-mining land use of the site following final reclamation was determined by the landowner.

Once the mine portals were sealed during reclamation activities, earthwork operations began to return the area back to its approximate original topography. Final seeding was accomplished using seeds of native and approved introduced plant species (see Figure 2). Final seedbed preparations and seeding for most of the area occurred in October 1998 with follow-up seeding on the regraded roads in October 1999.
Study Objectives

This report describes the findings of quantitative sampling the vegetation at Gordon Creek 2/7/8 Mine site in 2009. The site has been reclaimed long enough that the "Responsibility Period" of the mine operator has passed. This means that theoretically enough time has passed for vegetation to become adequately established on reclaimed land.

After that time period, an application for bond release can be initiated. Thus, Mountain Coal Company may soon submit the application for Final or Phase III Bond Release through the State of Utah, Division of Oil, Gas and Mining (DOGM). Vegetation sampling in 2009 was conducted with that in mind. Because sample adequacy and statistical analyses meet the required levels, this dataset can be used as "Year 1" of the two consecutive years of vegetation monitoring required to apply for final bond release.

<table>
<thead>
<tr>
<th>COMMON NAME</th>
<th>SCIENTIFIC NAME</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SHRUBS</strong></td>
<td></td>
</tr>
<tr>
<td>Bitterbrush</td>
<td><em>Purshia tridentata</em></td>
</tr>
<tr>
<td>Mtn. Mahogany</td>
<td><em>Cercocarpus ledifolius</em></td>
</tr>
<tr>
<td>Rubber rabbitbrush</td>
<td><em>Chrysanthamnus nauseosus</em></td>
</tr>
<tr>
<td>Blue elderberry</td>
<td><em>Sambucus canadensis</em></td>
</tr>
<tr>
<td>Snowberry</td>
<td><em>Symphoricarpus albus</em></td>
</tr>
<tr>
<td>Sagebrush</td>
<td><em>Artemisia tridentata ssp. vaseyana</em></td>
</tr>
<tr>
<td><strong>FORBS</strong></td>
<td></td>
</tr>
<tr>
<td>Northern sweetvetch</td>
<td><em>(Hedysarum boreale)</em></td>
</tr>
<tr>
<td>Cicer milkvetch</td>
<td><em>(Astragalus cicer)</em></td>
</tr>
<tr>
<td>Purple daisy fleabane</td>
<td><em>(Erigeron corymbosus)</em></td>
</tr>
<tr>
<td>Little sunflower</td>
<td><em>(Helianthella uniflora)</em></td>
</tr>
<tr>
<td>Rocky Mt. penstemon</td>
<td><em>(Penstemon strictus)</em></td>
</tr>
<tr>
<td>Yellow sweet clover</td>
<td><em>(Melilotus officinalis)</em></td>
</tr>
<tr>
<td>Alfalfa (Ladak)</td>
<td><em>(Medicago sativa)</em></td>
</tr>
<tr>
<td>Pacific Aster</td>
<td><em>(Aster chilensis)</em></td>
</tr>
<tr>
<td><strong>GRASSES</strong></td>
<td></td>
</tr>
<tr>
<td>Thickspike wheatgrass</td>
<td><em>(Elymus lanceolatus)</em></td>
</tr>
<tr>
<td>Bluebunch wheatgrass</td>
<td><em>(Elymus spicatus)</em></td>
</tr>
<tr>
<td>Slender wheatgrass</td>
<td><em>(Elymus trachycaulus)</em></td>
</tr>
<tr>
<td>Indian ricegrass</td>
<td><em>(Stipa hymenoides)</em></td>
</tr>
<tr>
<td>Grt. Basin wildrye</td>
<td><em>(Elymus cinereus)</em></td>
</tr>
</tbody>
</table>

Figure 2: Final Seed Mixture for the Gordon Creek 2/7/8 Mine Site

INTEGRATED

INCORPORATED

DEC 10 2019

Div. of Oil, Gas & Mining
Reference Area

A reference area, or a native undisturbed Mountain Brush/Grass plant community that was previously chosen to be represent success standards for final revegetation has also been sampled. These data have been compared with the reclaimed areas of the Gordon Creek 2/7/8 Mine site.

METHODS

Quantitative and qualitative data were taken from the vegetation of the reclaimed areas at the Gordon Creek 2/7/8 Mine site as well as the Mountain Brush/Grass Reference Area. Sampling was conducted September 6-9, 2009. Methodologies used for sampling were performed in accordance with the Vegetation Information Guidelines supplied by DOGM.

Transect and Quadrat Placement

Random/regular placement of sample quadrats were designed in an attempt to provide unbiased accuracy of the data compiled. This was accomplished by establishing transect lines the entire length of the reclaimed and reference areas. At regular intervals along the transect lines, random numbers were generated and used to measure distances at right angles to determine sample locations. Whether these random numbers were odd or even determined which side of the transect a given quadrat was placed. The random number selected would be high enough to place quadrats to the lateral limits of the sample areas and all areas in-between. This insured that
the sample quadrats were placed randomly over the entire study area in an attempt to adequately represent the site as a whole.

Cover, Frequency and Composition

Cover estimates were made using ocular methods with meter square quadrats. Species composition and relative frequencies were also assessed from the quadrats. Additional information recorded on the raw data sheets were: estimated precipitation, slope, exposure, grazing use, animal disturbance and other appropriate notes. Plant nomenclature follows "A Utah Flora" (Welsh et al. 2008).

Production

Total annual biomass production was estimated by clipping, drying and weighing current annual growth in each sample quadrat. "Double sampling" methods were employed by placing four additional quadrats around the clipped quadrat, then estimating the production of them relative to the clipped plot. Herbaceous and woody species production weights were recorded separately.

Sample Size & Adequacy

Sampling adequacy was calculated using the formula given below.
\[ nMIN = \frac{t^2 s^2}{(dx)^2} \]

where,

- \( nMIN \) = minimum adequate sample
- \( t \) = appropriate confidence t-value
- \( s \) = standard deviation
- \( x \) = sample mean
- \( d \) = desired change from mean

The values used for "t" and "d" insured that sample adequacy was met with 90% confidence within a 10% deviation from the true mean.

**Diversity Indices**

MacArthur's Diversity Index is an effective diversity measurement and is computed using the following equation:

\[ 1/\sum p_i^2 \]

where,

- \( p_i \) is the proportion of sum frequency contributed by the \( i \)th species in the sample area of concern.

The proportional contribution of each species is then squared and the values for all species in the sample areas are summed. This index integrates the number of species and the degree to which frequency of occurrence was equitably distributed among those species.
Another diversity measurement was provided that shows the average number of species encountered at each quadrat. Finally, a third measure of diversity or “richness” is simply the total number or species encountered in the quadrats.

Photographs

Color photographs of the sample areas were taken at the time of sampling and have been included within this report.

Raw Data

The raw data for total cover, cover by species, frequency and composition are available upon request from DOGM or Mountain Coal Company.

RESULTS

Reclaimed Areas

The reclaimed areas were greatly dominated by the forb species, alfalfa (Medicago sativa), however, there were also several grasses that were well-represented including Gt. Basin wildrye (Elymus cinereus), thickspike wheatgrass (E. lanceolatus), western wheatgrass (E. smithii), bluebunch wheatgrass (E. spicatus) and Kentucky bluegrass (Poa pratensis). For a list of all species present in the sample quadrats, refer to Table 1.
### Table 1: Gordon Creek 2/7/8 Mine. Total cover, standard deviation and frequency by species (2009).

<table>
<thead>
<tr>
<th>Reclaimed Areas (n=150)</th>
<th>Mean Percent</th>
<th>Standard Deviation</th>
<th>Percent Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SHRUBS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Artemisia tridentata</em></td>
<td>0.30</td>
<td>2.33</td>
<td>2.00</td>
</tr>
<tr>
<td><em>Chrysothamnus nauseosus</em></td>
<td>1.70</td>
<td>7.52</td>
<td>5.33</td>
</tr>
<tr>
<td><em>Gutierrezia sarothrae</em></td>
<td>0.17</td>
<td>1.46</td>
<td>1.33</td>
</tr>
<tr>
<td><em>Purshia tridentata</em></td>
<td>0.13</td>
<td>1.63</td>
<td>0.67</td>
</tr>
<tr>
<td><em>Symphoricarpos oreophilus</em></td>
<td>0.27</td>
<td>1.98</td>
<td>2.00</td>
</tr>
<tr>
<td><strong>FORBS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Astragalus cicer</em></td>
<td>2.63</td>
<td>10.86</td>
<td>12.00</td>
</tr>
<tr>
<td><em>Cynoglossum officinale</em></td>
<td>0.80</td>
<td>3.52</td>
<td>6.00</td>
</tr>
<tr>
<td><em>Hedysarum boreale</em></td>
<td>0.13</td>
<td>1.15</td>
<td>1.33</td>
</tr>
<tr>
<td><em>Linum lewisii</em></td>
<td>0.07</td>
<td>0.81</td>
<td>0.67</td>
</tr>
<tr>
<td><em>Medicago sativa</em></td>
<td>33.53</td>
<td>29.18</td>
<td>72.00</td>
</tr>
<tr>
<td><em>Penstemon strictus</em></td>
<td>1.27</td>
<td>4.59</td>
<td>9.33</td>
</tr>
<tr>
<td><strong>GRASSES</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><em>Agropyron cristatum</em></td>
<td>1.17</td>
<td>5.58</td>
<td>5.33</td>
</tr>
<tr>
<td><em>Bromus carinatus</em></td>
<td>0.13</td>
<td>1.15</td>
<td>1.33</td>
</tr>
<tr>
<td><em>Bromus tectorum</em></td>
<td>0.03</td>
<td>0.41</td>
<td>0.67</td>
</tr>
<tr>
<td><em>Dactylis glomeratus</em></td>
<td>0.27</td>
<td>2.37</td>
<td>1.33</td>
</tr>
<tr>
<td><em>Elymus cinereus</em></td>
<td>7.77</td>
<td>15.52</td>
<td>29.93</td>
</tr>
<tr>
<td><em>Elymus lanceolatus</em></td>
<td>6.53</td>
<td>12.83</td>
<td>26.67</td>
</tr>
<tr>
<td><em>Festuca arundinacea</em></td>
<td>1.43</td>
<td>6.36</td>
<td>6.00</td>
</tr>
<tr>
<td><em>Elymus smithii</em></td>
<td>5.55</td>
<td>14.15</td>
<td>19.33</td>
</tr>
<tr>
<td><em>Elymus spicatus</em></td>
<td>4.31</td>
<td>11.17</td>
<td>16.67</td>
</tr>
<tr>
<td><em>Poa pratensis</em></td>
<td>3.57</td>
<td>10.84</td>
<td>12.67</td>
</tr>
</tbody>
</table>

Total living cover of the reclaimed areas was estimated at 71.77%, all of which came from understory cover (Table 2-A). Although much the composition (51.98%) was comprised of forb species (mostly due to alfalfa), grasses were ranked close behind (44.09%). Shrubs followed at a distant 3.93% of the composition (Table 2-B).
Table 2: Gordon Creek 2/7/8 Mine. Total cover, standard deviation and sample size (2009).

<table>
<thead>
<tr>
<th>Reclaimed Areas (n=150; nMIN= 6.31)</th>
<th>Mean Percent</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. TOTAL COVER</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understory</td>
<td>71.77</td>
<td>10.96</td>
</tr>
<tr>
<td>Litter</td>
<td>9.84</td>
<td>5.78</td>
</tr>
<tr>
<td>Bareground</td>
<td>9.25</td>
<td>6.12</td>
</tr>
<tr>
<td>Rock</td>
<td>9.14</td>
<td>6.35</td>
</tr>
<tr>
<td><strong>B. % COMPOSITION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shrubs</td>
<td>3.93</td>
<td>12.77</td>
</tr>
<tr>
<td>Forbs</td>
<td>51.98</td>
<td>34.17</td>
</tr>
<tr>
<td>Grasses</td>
<td>44.08</td>
<td>31.29</td>
</tr>
</tbody>
</table>

nMIN = Sample Adequacy  
n = Sample Size

Total annual biomass production of the reclaimed areas was estimated at 1,164.24 pounds per acre of which 1,138.88 pounds came from herbaceous species (forbs and grasses) and only 25.26 pounds came from woody plants (Table 3).

Table 3: Production at Gordon Creek 2/7/8 (2009).

<table>
<thead>
<tr>
<th>Reclaimed Areas (n=150; nMIN=40.12)</th>
<th>Pounds/Acre</th>
<th>MEAN</th>
<th>STD. DEV.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LIFEFORM</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Herbaceous</td>
<td>1138.88</td>
<td>471.59</td>
<td></td>
</tr>
<tr>
<td>Woody</td>
<td>25.36</td>
<td>114.03</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>1164.24</td>
<td>448.25</td>
<td></td>
</tr>
</tbody>
</table>

Reference Area

The dominant plant by cover and frequency at the Mountain Brush/Grass Reference Area was the grass species Salina wildrye (*Elmus salinus*). There were four shrub species that were also
relatively common here including alder-leaf mountain-mahogany (*Cercocarpus montanus*), corymb buckwheat (*Eriogonum corymbosum*), broom snakeweed (*Gutierrezia sarothrae*) and antelope bitterbrush (*Purshia tridentata*). Forb species were relatively uncommon in the reference area (Table 4).

| Table 4: Gordon Creek 2/7/8 Mine. Total cover, standard deviation and frequency by species (2009). |
|-------------------------------------------------|-----------------------------------------------------------------|-------------------------------|
| Mountain Brush/Grass Reference Area (n=90; NSM= 23.37) | Mean Percent | Standard Deviation | Percent Frequency |
| OVERSTORY | | | |
| *Cercocarpus montanus* | 0.22 | 2.10 | 1.11 |
| UNDERSTORY | | | |
| SHRUBS | | | |
| *Amelanchier utahensis* | 1.11 | 4.82 | 7.78 |
| *Artemisia frigida* | 0.11 | 1.05 | 1.11 |
| *Artemisia tridentata var. vaseyi* | 0.72 | 4.69 | 3.33 |
| *Cercocarpus montanus* | 3.17 | 7.17 | 20.00 |
| *Eriogonum corymbosum* | 2.83 | 8.43 | 15.56 |
| *Gutierrezia sarothrae* | 1.56 | 2.95 | 23.33 |
| *Purshia tridentata* | 1.22 | 4.55 | 11.11 |
| *Symphoricarpos oreophilus* | 0.17 | 1.57 | 1.11 |
| FORBS | | | |
| *Eriogonum jamesii* | 0.56 | 1.89 | 8.89 |
| *Machaeranthera grindelioides* | 0.11 | 0.74 | 2.22 |
| *Stanleya pinnata* | 0.17 | 0.90 | 3.33 |
| GRASSES | | | |
| *Elymus salinus* | 28.72 | 11.04 | 98.89 |
| *Stipa hymenoides* | 0.44 | 4.19 | 1.11 |

The total living cover for the Reference Area was 41.11% (Table 5-A). Most of this cover was understory cover (there was only 0.22% cover that consisted of overstory). The understory cover was comprised of 73.65% grasses, 24.00% shrubs and 2.35% grasses (Table 5-B).
Table 5: Gordon Creek 2/7/8 Mine. Total cover, standard deviation and sample size (2009).

<table>
<thead>
<tr>
<th>Mountain Brush/Grass Reference Area</th>
<th>Mean Percent</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>A. TOTAL COVER</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Oversiory (o)</td>
<td>0.22</td>
<td>2.10</td>
</tr>
<tr>
<td>Understory (u)</td>
<td>40.89</td>
<td>11.73</td>
</tr>
<tr>
<td>Litter</td>
<td>14.33</td>
<td>5.44</td>
</tr>
<tr>
<td>Bareground</td>
<td>21.44</td>
<td>11.84</td>
</tr>
<tr>
<td>Rock</td>
<td>23.33</td>
<td>12.32</td>
</tr>
<tr>
<td>o + u</td>
<td>41.11</td>
<td>12.08</td>
</tr>
<tr>
<td><strong>B. % COMPOSITION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shrubs</td>
<td>24.00</td>
<td>23.56</td>
</tr>
<tr>
<td>Forbs</td>
<td>2.35</td>
<td>6.17</td>
</tr>
<tr>
<td>Grasses</td>
<td>73.65</td>
<td>23.85</td>
</tr>
</tbody>
</table>

Total annual biomass production of the reference area was estimated at 850.05 pounds per acre of which 603.39 pounds came from herbaceous species and 246.66 came from woody plants (Table 6).

Table 6: Production at Gordon Creek 2/7/8 (2009).

<table>
<thead>
<tr>
<th>Mountain Brush/Grass Reference Area</th>
<th>Pounds/Acre</th>
<th>MEAN</th>
<th>STD. DEV</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LIFEFORM</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Herbaceous</td>
<td>603.39</td>
<td>222.68</td>
<td></td>
</tr>
<tr>
<td>Woody</td>
<td>246.66</td>
<td>252.20</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>850.05</td>
<td>300.91</td>
<td></td>
</tr>
</tbody>
</table>
Dataset Comparisons

Comparisons were made between the datasets of the reclaimed areas at Gordon Creek 2/7/8 and the Mountain Brush/Grass Reference Area. To begin, statistical tests were implemented comparing the total living plant cover of the two areas. A Student's t-test analysis suggested that the reclaimed area's total living cover was significantly greater statistically when it was compared to the reference area (Figure 3).

When total annual biomass production of the reclaimed area was statistically compared to that of the reference area, results also suggested there was significantly more in the former (Figure 4).

MacArthur’s Diversity Index was also employed to the datasets of the reclaimed and reference areas. A comparison of the values between these two areas suggested that the total diversity of the reclaimed area was greater than
that of the reference area by quite a wide
margin (Figure 5).

Another method of comparing species diversity
of the two areas was to simply calculate the
mean number of species present in the sample
quadrats. Results from this method also
suggested that the reclaimed area was more diverse with respect to species when compared to the
reference area (Figure 6).
Finally, another diversity-type computation, the total number of species encountered in the sample quadrats, were compared. Again, the reclaimed area value was greater when compared to the reference area (Figure 7).

**FIGURE 7. TOTAL SPECIES PRESENT - A diversity comparison between the reclaimed area at Gordon Creek 2/7/8 and its reference area (2009).**

- Reclaimed Area: 21
- Reference Area: 13
DISCUSSION & CONCLUSIONS

Subsequent to final reclamation, the primary post-mining land use as determined by the land owner, will primarily be that of grazing by domestic livestock. Consequently, Gordon Creek’s Mining and Reclamation (MRP) identifies “stock grazing” as the post-mining land use, but it also mentions that “reclamation is also particularly important as a means of controlling erosion and restoring disturbed areas to productive wildlife habitat.”

Because the primary post-mining land was to be focused on livestock grazing, the parameters to be used for final revegetation success standards dictated in the MRP were total living cover and annual biomass productivity. Sample results in 2009 show that the total living cover and biomass productivity of the reclaimed area exceeded that of the reference area.

Although they were not specifically called for in the MRP, other parameters were also compared herein to evaluate specific wildlife habitat qualities of the reclaimed land when compared to the reference area. These parameters were diversity indices because species and habitat diversity are important components for restoring wildlife habitat. The diversity indices employed to the datasets suggest that the reclaimed area was more diverse than the reference area in 2009.
SUMMARY

This document reports the results of quantitative sampling the vegetation of the reclaimed area at the Gordon Creek 2/7/8 Mine site. The datasets in this report represent Year 1 of the two consecutive years required for an application for final bond release to be submitted through the State of Utah, Division of Oil, Gas & Mining (DOGM). A reference area was chosen early in the process to one day provide an area for comparison for future revegetation success standards. This Mountain Brush/Grass Reference Area was also sampled and the results were reported in this document.

For Year 1 (2009), when the total living cover, annual biomass production, MacArthur’s Divisity Index, average number of species per quadrat and the total number of species of the reclaimed areas were compared with the reference area, all analyses suggested the reclaimed areas met or exceeded those parameters.

Year 2 (2010) sample period will be conducted to meet the required number of sample years for a Phaze III Bond Release application.
COLOR PHOTOGRAPHS
OF THE
SAMPLE AREAS
THE RECLAIMED AREAS
APPENDIX B
Report for
Year 2 (2010)
VEGETATION MONITORING
FOR PHASE III BOND RELEASE
AT THE GORDON CREEK 2/7/8 MINE SITE
YEAR 2: 2010

FOR
MOUNTAIN COAL COMPANY, LLC

Revegetation at the Gordon Creek 2/7/8 Area
Prepared by

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by

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for

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Helper, Utah 84526

November 2011
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INTRODUCTION

Although the vegetation at the Gordon Creek 2/7/8 Mine site has been sampled and monitored since it was reclaimed, this document reports the second of two consecutive years of more comprehensive quantitative sampling that has been conducted at the site. Consequently, in order for mine owners/operators to achieve “final” or Phase III Bond Release, state and federal regulations require more rigorous sample data to be recorded following the “responsibility period” of the site, or the period of time of extended obligation mandated by the regulations following final reclamtion and revegetation procedures. This means that theoretically enough time has passed for vegetation to become adequately establishment on the reclaimed land to become “diverse, effective and permanent” and has the potential to meet post-mining land use standards.

Results from the first of the two consecutive sample years was submitted previously in a report titled:

Vegetation Monitoring for Phase III Bond Release
at the Gordon Creek 2/7/8 Mines
Year 1: 2009

To facilitate comparisons between years, this report has also been included in Appendix A of this document.
General Site Description & Brief History

The reclaimed Gordon Creek 2/7/8 Mine site is located in the Bryner Canyon and Beaver Creek areas of Carbon County, Utah. Elevation of the area is about 8,000 ft above sea level. The study area is shown on the Jump Creek USGS 7.5 minute series quadrangle map in Section 18, Township 13 South, Range 8 East (Figure 1). General native plant communities surrounding the reclaimed site include Mountain Brush/Grass, Oak Shrubland, Sagebrush/Grass, Aspen, and Douglas Fir.

Gordon Creek 2/7/8 Mine site is an area where coal mining operations had been conducted for many years. More recently, the area has been reclaimed and the land restored to a condition that is consistent with the pre-mining and post-mining land uses, or primarily livestock grazing. The post-mining land use of the site following final reclamation was determined by the landowner.

Once the mine portals were sealed during reclamation activities, earthwork operations began to return the area back to its approximate original topography. Final seeding was accomplished using seeds of native and approved introduced plant species (Figure 2). Final seedbed preparations and seeding for most of the area occurred in October 1998 with follow-up seeding on the regraded roads in October 1999.
Figure 1: Gordon Creek 2/7/8 Mine Study Area
Study Objectives

This report describes the findings of quantitative sampling the vegetation at the Gordon Creek 2/7/8 Mine site in 2010. The site has been reclaimed long enough that the aforementioned responsibility period has passed. As mentioned above, after that time period an application for bond release can be initiated.

Thus, Mountain Coal Company may soon submit the application for final or Phase III Bond Release through the State of Utah, Division of Oil, Gas and Mining (DOGM). Vegetation sampling in both 2009 and 2010 were conducted with that in mind. Because sample adequacy and statistical analyses met the required confidence levels, this dataset can be used as Year 2 of the two consecutive years of vegetation monitoring required to apply for bond release. Year 1 data also meet appropriate confidence levels (see report in Appendix A).
Reference Area

A reference area, or a native, undisturbed Mountain Brush/Grass plant community that was previously chosen to represent success standards for final revegetation has also been sampled both years. These datasets have been compared with the reclaimed areas of the Gordon Creek 2/7/8 Mine site data.

METHODS

For this report, quantitative and qualitative data were taken from the vegetation of the reclaimed areas at the Gordon Creek 2/7/8 Mine site as well as the Mountain Brush/Grass Reference Area. Sampling was conducted September 7-10, 2010. Methodologies used for sampling were performed in accordance with the *Vegetation Information Guidelines* supplied by DOGM and were consistent with the 2009 methods.

Transect and Quadrat Placement

Random/regular placement of sample quadrats was designed in an attempt to provide unbiased accuracy of the data compiled. This was accomplished by establishing transect lines the entire length of the reclaimed and reference areas. At regular intervals along the transect lines, random numbers were generated and used to measure distances at right angles to determine sample...
locations. Whether these random numbers were odd or even determined which side of the transect a given quadrat was placed. The random number selected would be high enough to place quadrats to the lateral limits of the sample areas and all areas in-between. This insured that the sample quadrats were placed randomly over the entire study area with the intent to adequately represent the site as a whole.

Cover, Frequency and Composition

Cover estimates were made using employing methods with meter square quadrats. Species composition and relative frequencies were also assessed from the quadrats. Additional information recorded on the raw data sheets were: estimated precipitation, slope, exposure, grazing use, animal disturbance and other appropriate notes. Plant nomenclature follows "A Utah Flora" (Welsh et al. 2008).

Production

Total annual biomass production was estimated by clipping, drying and weighing current annual growth in sample quadrats. "Double sampling" methods were employed by placing four additional quadrats around the clipped quadrat, then estimating the production of them relative to the clipped plot. Herbaceous and woody species production weights were recorded separately.
Sample Size & Adequacy

Sampling adequacy was calculated using the formula given below.

\[ n_{MIN} = \frac{t^2 s^2}{(dx)^2} \]

where,

- \( n_{MIN} \) = minimum adequate sample
- \( t \) = appropriate confidence t-value
- \( s \) = standard deviation
- \( x \) = sample mean
- \( d \) = desired change from mean

The values used for “t” and “d” insured that sample adequacy was met with 90% confidence within a 10% deviation from the true mean.

Diversity Indices

MacArthur's Diversity Index was employed as an effective diversity measurement and is computed using the following equation:

\[ 1/\sum p_i^2 \]

where,

- \( p_i \) is the proportion of sum frequency contributed by the \( i \)th species in the sample area of concern.
The proportional contribution of each species is then squared and the values for all species in the sample areas are summed. This index integrates the number of species and the degree to which frequency of occurrence was equitably distributed among those species.

Another diversity measurement was provided that shows the average number of species encountered at each quadrat. Finally, a third measure of diversity or “richness” is simply the total number or species encountered in the quadrats.

Photographs

Color photographs of the sample areas were taken at the time of sampling and have been included in this report.

RESULTS

Reclaimed Areas

Similar to the 2009 sample results, in 2010 the reclaimed areas were greatly dominated by the forb species known as alfalfa (*Medicago sativa*). However, there were also several grasses that were well-represented including Gt. Basin wildrye (*Elymus cinereus*), thickspike wheatgrass (*E. lanceolatus*), western wheatgrass (*E. smithii*) and bluebunch wheatgrass (*E. spicatus*). Shrubs were also present in the dataset, but were relatively uncommon. For a list of all species present
in the sample quadrats, refer to Table 1.

<table>
<thead>
<tr>
<th>Reclaimed Areas</th>
<th>Mean Percent</th>
<th>Standard Deviation</th>
<th>Percent Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SHRUBS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Artemisia tridentata</td>
<td>1.33</td>
<td>7.54</td>
<td>4.00</td>
</tr>
<tr>
<td>Chrysothamnus nauseosus</td>
<td>0.83</td>
<td>6.01</td>
<td>2.00</td>
</tr>
<tr>
<td>Gutierrezia sarothrae</td>
<td>0.07</td>
<td>0.81</td>
<td>0.67</td>
</tr>
<tr>
<td>Symphoricarpus oreophilus</td>
<td>0.20</td>
<td>1.51</td>
<td>2.00</td>
</tr>
<tr>
<td><strong>FORBS</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Artemisia ludoviciana</td>
<td>0.20</td>
<td>1.51</td>
<td>2.00</td>
</tr>
<tr>
<td>Astragalus cicer</td>
<td>2.20</td>
<td>6.47</td>
<td>13.33</td>
</tr>
<tr>
<td>Cynoglossum officinale</td>
<td>2.27</td>
<td>5.64</td>
<td>20.67</td>
</tr>
<tr>
<td>Hedysarum boreale</td>
<td>0.17</td>
<td>1.46</td>
<td>1.33</td>
</tr>
<tr>
<td>Lappula occidentalis</td>
<td>0.07</td>
<td>0.81</td>
<td>0.67</td>
</tr>
<tr>
<td>Medicago sativa</td>
<td>24.42</td>
<td>21.65</td>
<td>69.33</td>
</tr>
<tr>
<td>Penstemon strictus</td>
<td>1.83</td>
<td>7.47</td>
<td>8.00</td>
</tr>
<tr>
<td>Sisymbrium altissimum</td>
<td>0.03</td>
<td>0.41</td>
<td>0.67</td>
</tr>
<tr>
<td><strong>GRASSES</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Agropyron cristatum</td>
<td>1.03</td>
<td>3.93</td>
<td>6.67</td>
</tr>
<tr>
<td>Bromus carinatus</td>
<td>0.97</td>
<td>4.57</td>
<td>5.33</td>
</tr>
<tr>
<td>Bromus tectorum</td>
<td>0.10</td>
<td>0.91</td>
<td>1.33</td>
</tr>
<tr>
<td>Elymus cinereus</td>
<td>11.08</td>
<td>15.98</td>
<td>46.00</td>
</tr>
<tr>
<td>Elymus lanceolatus</td>
<td>6.16</td>
<td>9.44</td>
<td>38.67</td>
</tr>
<tr>
<td>Elymus salinus</td>
<td>0.27</td>
<td>3.26</td>
<td>0.67</td>
</tr>
<tr>
<td>Elymus smithii</td>
<td>5.02</td>
<td>9.80</td>
<td>30.00</td>
</tr>
<tr>
<td>Elymus spicatus</td>
<td>3.70</td>
<td>9.15</td>
<td>20.67</td>
</tr>
<tr>
<td>Poa pratensis</td>
<td>0.30</td>
<td>2.02</td>
<td>2.67</td>
</tr>
</tbody>
</table>

Total living cover of the reclaimed areas was estimated at 62.23%, all of which came from understory cover (Table 2-A). Forbs and grasses were nearly equally represented in the composition at 49.55% and 46.67%, respectively, whereas shrubs followed at a distant 3.78%
(Table 2-B).

<table>
<thead>
<tr>
<th>Reclaimed Areas (n=150; nMIN=8.89)</th>
<th>Mean Percent</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. TOTAL COVER</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Understory</td>
<td>62.23</td>
<td>11.28</td>
</tr>
<tr>
<td>Litter</td>
<td>11.57</td>
<td>6.00</td>
</tr>
<tr>
<td>Bareground</td>
<td>14.60</td>
<td>9.16</td>
</tr>
<tr>
<td>Rock</td>
<td>11.60</td>
<td>6.67</td>
</tr>
</tbody>
</table>

| B. % COMPOSITION                  |              |                    |
| Shrubs                            | 3.78         | 15.92              |
| Forbs                             | 49.55        | 31.35              |
| Grasses                           | 46.67        | 30.63              |

Total annual biomass production of the reclaimed areas was estimated at 1,085.96 pounds per acre of which 1,041.27 pounds came from herbaceous species (forbs and grasses) and only 44.69 pounds came from woody plants (Table 3).

<table>
<thead>
<tr>
<th>Table 3: Production at Gordon Creek 2/7/8 (2010).</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reclaimed Areas (n=120; nMIN=49.51)</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td>LIFEFORM</td>
</tr>
<tr>
<td>Pounds/Acre MEAN STD. DEV.</td>
</tr>
<tr>
<td>Herbaceous</td>
</tr>
<tr>
<td>Woody</td>
</tr>
<tr>
<td>TOTAL</td>
</tr>
</tbody>
</table>

Color photographs of the reclaimed areas have been included at the end of this report.
Reference Area

The dominant plant by cover and frequency in the Mountain Brush/Grass Reference Area was the grass species, Salina wildrye (*Elymus salinus*). The most common shrub species in the 2010 dataset were antelope bitterbrush (*Purshia tridentata*), alder-leaf mountain-mahogany (*Cercocarpus montanus*) and corymb buckwheat (*Eriogonum corymbosum*). Forb species were relatively uncommon in the reference area, each of which consisted of less than 1% of the living cover (Table 4).

Color photographs of the reference area have been included at the end of this report.
Table 4: Gordon Creek 2/7/8 Mine. Total cover, standard deviation and frequency by species (2010).

<table>
<thead>
<tr>
<th>Mountain Brush/Grass Reference Area</th>
<th>Mean Percent</th>
<th>Standard Deviation</th>
<th>Percent Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>OVERSTORY</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Quercus gambelii</td>
<td>0.22</td>
<td>1.47</td>
<td>2.22</td>
</tr>
<tr>
<td>UNDERSTORY</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SHRUBS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Amelanchier utahensis</td>
<td>1.33</td>
<td>6.49</td>
<td>4.44</td>
</tr>
<tr>
<td>Artemisia frigida</td>
<td>0.11</td>
<td>1.06</td>
<td>1.11</td>
</tr>
<tr>
<td>Artemisia tridentata var. vaseyana</td>
<td>1.11</td>
<td>6.23</td>
<td>3.33</td>
</tr>
<tr>
<td>Cercocarpus montanus</td>
<td>2.83</td>
<td>6.71</td>
<td>20.00</td>
</tr>
<tr>
<td>Erinogonum corymbosum</td>
<td>2.44</td>
<td>8.51</td>
<td>8.89</td>
</tr>
<tr>
<td>Gutierrezia sarothrae</td>
<td>0.44</td>
<td>1.77</td>
<td>6.67</td>
</tr>
<tr>
<td>Mahonia repens</td>
<td>0.28</td>
<td>1.37</td>
<td>4.44</td>
</tr>
<tr>
<td>Opuntia fragilis</td>
<td>0.17</td>
<td>0.90</td>
<td>3.33</td>
</tr>
<tr>
<td>Purshia tridentata</td>
<td>4.11</td>
<td>11.24</td>
<td>16.67</td>
</tr>
<tr>
<td>Quercus gambelii</td>
<td>0.11</td>
<td>1.05</td>
<td>1.11</td>
</tr>
<tr>
<td>Symphoricarpus oreophilus</td>
<td>0.06</td>
<td>0.52</td>
<td>1.11</td>
</tr>
<tr>
<td>FORBS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Artemisia ludoviciana</td>
<td>0.06</td>
<td>0.52</td>
<td>1.11</td>
</tr>
<tr>
<td>Erinogonum jamesii</td>
<td>0.11</td>
<td>1.05</td>
<td>1.11</td>
</tr>
<tr>
<td>Machaeranthera grindelioides</td>
<td>0.17</td>
<td>0.90</td>
<td>2.22</td>
</tr>
<tr>
<td>Stanleya pinnata</td>
<td>0.67</td>
<td>2.00</td>
<td>6.67</td>
</tr>
<tr>
<td>GRASSES</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Festuca salinus</td>
<td>27.94</td>
<td>12.76</td>
<td>94.44</td>
</tr>
</tbody>
</table>

The total living cover for the reference area was 42.16% (Table 5-A); most of this cover was understory cover (there was only 0.22% cover was overstory). The understory cover was comprised of 69.50% grasses, 28.15% shrubs and 2.36% grasses (Table 5-B).
Table 5: Gordon Creek 2/7/8 Mine. Total cover and standard deviation (2010).

<table>
<thead>
<tr>
<th>Mountain Brush/Grass Reference Area (n=90; nMIN=88.89)</th>
<th>Mean Percent</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. TOTAL COVER</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overstory (o)</td>
<td>0.22</td>
<td>1.47</td>
</tr>
<tr>
<td>Understory (u)</td>
<td>41.94</td>
<td>9.57</td>
</tr>
<tr>
<td>Litter</td>
<td>15.61</td>
<td>8.43</td>
</tr>
<tr>
<td>Bareground</td>
<td>19.39</td>
<td>9.36</td>
</tr>
<tr>
<td>Rock</td>
<td>23.06</td>
<td>10.84</td>
</tr>
<tr>
<td>o + u</td>
<td>42.16</td>
<td>9.52</td>
</tr>
<tr>
<td>B. % COMPOSITION</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trees/Shrubs</td>
<td>28.15</td>
<td>30.55</td>
</tr>
<tr>
<td>Forbs</td>
<td>2.36</td>
<td>5.99</td>
</tr>
<tr>
<td>Grasses</td>
<td>69.50</td>
<td>30.42</td>
</tr>
</tbody>
</table>

Total annual biomass production of the reference area was estimated at 598.51 pounds per acre of which 398.30 pounds came from herbaceous species and 200.21 came from woody plants (Table 6).

Table 6: Production at Gordon Creek 2/7/8 (2010).

<table>
<thead>
<tr>
<th>Mountain Brush/Grass Reference Area (n=90; nMIN=66.91)</th>
<th>Pounds/Acre</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIFEFORM</td>
<td>MEAN</td>
</tr>
<tr>
<td>Herbaceous</td>
<td>398.30</td>
</tr>
<tr>
<td>Woody</td>
<td>200.21</td>
</tr>
<tr>
<td>TOTAL</td>
<td>598.51</td>
</tr>
</tbody>
</table>
Comparisons to the Revegetation Success Standards (2010)

Comparisons were made between the datasets of the reclaimed areas at the Gordon Creek 2/7/8 Mine site and the Mountain Brush/Grass Reference Area. To begin, statistical tests were implemented that compared the total living vegetative cover of the two areas. A Student’s t-test analysis suggested that the reclaimed area’s total living cover was significantly greater statistically than the reference area (Figure 3).

When total annual biomass production of the reclaimed area was compared statistically to that of the reference area, results here also suggested there was significantly more in the former (Figure 4).

MacArthur’s Diversity Index was then employed to the datasets of the reclaimed and reference areas. A comparison of the values between these two areas suggested that the total diversity of
the reclaimed area was greater than that of the reference area by quite a wide margin (Figure 5).

Another method of comparing species diversity of the two areas was to simply calculate the mean number of species present in the sample quadrats. Results from this method also suggested that the reclaimed area was more diverse with respect to species when compared to the reference area (Figure 6).

Finally, another diversity-type computation, or the total number of species encountered in the sample quadrats, was compared. Again, the reclaimed area value was greater when compared to the reference area (Figure 7).
Graphic Comparisons to the Revegetation Success Standards (2009-2010)

As mentioned above, this document is intended to report the findings for the second consecutive year (Year 2, 2010) of two sample years to determine the potential for obtaining final bond release at the reclaimed Gordon Creek 2/7/8 Mine site. Also stated beforehand, detailed results for the first sample year (Year 1, 2009) were reported in a previously-submitted document (Appendix A). Nonetheless, to facilitate comparisons between the two consecutive years required for potential bond release without referring to the Year 1 report, a summary of the results for both years, 2009 and 2010, have been prepared and illustrated in this report (Figures 8 - 12).
DISCUSSION & SUMMARY

Subsequent to final reclamation, the primary post-mining land use as determined by the land owner will primarily be that of grazing by domestic livestock. Consequently, Gordon Creek’s Mining and Reclamation (MRP) identifies “stock grazing” as the post-mining land use, but it also states that “reclamation is also particularly important as a means of controlling erosion and restoring disturbed areas to productive wildlife habitat”.

Because the primary post-mining land use was to be focused on livestock grazing, the parameters to be used for final revegetation success standards dictated in the MRP were total living cover and annual biomass productivity. Sample results in 2009 and 2010 show that the total living cover and biomass productivity of the reclaimed area exceeded that of the reference area (Figures 8 and 9, respectively).
Although they were not specifically required in the MRP, other parameters were also compared to evaluate specific wildlife habitat qualities of the reclaimed land when compared to the reference area. These parameters consisted of diversity indices because species and habitat diversity are important components for restoring wildlife habitat. The diversity indices employed to the datasets suggest that the reclaimed area was more diverse than the reference area in both sample years (Figures 10 - 12).

CONCLUSIONS

In conclusion, it appears that revegetation at the Gordon Creek 2/7/8 Mine site has met or exceeded the revegetation success standards for total living cover and annual biomass productivity. Moreover, diversity when compared to the Mountain Brush/Grass Reference Area, was also greater in the reclaimed area. With those parameters in mind, the reclaimed area of the mine site appears to be a likely candidate for Phase III Bond Release through the State of Utah.
COLOR PHOTOGRAPHS
OF THE
SAMPLE AREAS
2010
THE RECLAIMED AREAS
THE MOUNTAIN BRUSH/GRASS REFERENCE AREA
Reclamation Certification
Canyon Fuel Company, LLC  
Gordon Creek 2, 7 & 8 Mines  
C/007/0016

Phase III Bond Release of 34.15 Acres of Land in the  
Gordon Creek 2, 7 & 8 Mine Permit

I hereby certify to the best of my information and belief all the information contained in this application for Phase III Bond release is true and correct and that all applicable reclamation activities have been accomplished in accordance with the requirement of the Act, the regulatory program and the approved reclamation plan.

Chris D. Hansen  
Print Name

Director of Regulatory Compliance and Government Relations, Wolverine Fuels, LLC  
Position

[Signature]  
Date

Subscribed and sworn to before me this 15th day of October, 2019

[Signature]  
Notary Public

My Commission Expires: September 29th, 2023
State of Utah  
County of Salt Lake
Bond Release Calculation
Bond Release Calculation

Gordon Creek 2, 7 & 8 Mines Phase III Bond Release Reduction on the Remaining 34.15 Acres

The current reclamation bond amount is $171,000. This is an application for final bond release for the Gordon Creek 2, 7 & 8 Mines Permit area. Therefore, the bond will be reduced to zero dollars.