

#3

# WEST RIDGE MINE

## 007/041

### MINING AND RECLAMATION PLAN REVISION

TO INCLUDE STATE LEASES  
ML47711 & ML49287

RESPONSE TO SECOND TECHNICAL  
ANALYSIS  
(TASK #2289)

Mine #	<i>C/007/0041</i>
File	<i>Incoming</i>
Record #	<i>0030</i>
Doc. Date	<i>8.25.05</i>
Recd. Date	<i>8.25.05</i>

SUBMITTED: AUGUST 25, 2005

**~WEST RIDGE MINE - PERMIT APPLICATION PACKAGE~**

**TABLE OF CONTENTS- CHAPTER 1  
R645-301-100 PERMIT APPLICATION REQUIREMENTS: GENERAL  
CONTENTS**

<u>REGULATION NUMBER</u>	<u>CONTENTS</u>	<u>PAGE NUMBER</u>
R645-301-112	Identification of Interests .....	1
R645-301-113	Violation Information .....	10
R645-301-114	Right of Entry Information .....	11
	Table 1-1 Federal Coal Lease Properties .....	12
	Table 1-2 State Coal Lease Properties .....	13
	Table 1-3 Surface Ownership .....	13a
	Table 1-4 Legal Description of Permit Area .....	13b
R645-301-115	Status of Unsuitability Claims .....	14
R645-301-116	Permit Term .....	14
R645-301-117	Insurance, Proof of Publication and Facilities or Structures Used In Common .....	15
R645-301-118	Filing Fee .....	15
R645-301-123	Notarized Statement .....	15
R645-301-130	Reporting Of Technical Data .....	15
R645-301-142	Maps And Plans .....	16

**TABLE OF CONTENTS- APPENDICES  
R645-301-100 CHAPTER 1**

<b>APPENDIX NUMBER</b>	<b>DESCRIPTION</b>	
APPENDIX 1-1	Certifications, Verifications, Publications	
	Attachment 1-1 Certificate of Liability . . . . .	1
	Insurance	
	Attachment 1-2 Newspaper Advertisement . . . . .	2
	Attachment 1-3 Proof of Publication . . . . .	3
	Attachment 1-4 Filing Fee Verification . . . . .	4
	Attachment 1-5 Verification Statement . . . . .	5
APPENDIX 1-2	Violation Information - R645-301-113.300	
APPENDIX 1-3	Reference List	
APPENDIX 1-4	Proof of Lease Assignment	
APPENDIX 1-5	Current and Previous Coal Mining Permits	
APPENDIX 1-6	Consultation and Coordination	
APPENDIX 1-7	Identification of Interests	
APPENDIX 1-8	Letter from Carbon County	
APPENDIX 1-9	Coal Lease Modification	
APPENDIX 1-10	SITLA - Special Use Lease (Topsoil Borrow Area)	
APPENDIX 1-11	Material Deposit Special Use Lease Agreement	
APPENDIX 1-12	Waterline/Pump House Right of Way	
APPENDIX 1-13	Correspondence Regarding Security Gate	
APPENDIX 1-14	Penta Creek Fee Lease	
APPENDIX 1-15	Legal Description of Grassy Trail Reservoir	
APPENDIX 1-16	Proof of State Lease Assignment (ML-47711 and ML-49287)	

**TABLE OF CONTENTS- MAP LIST  
R645-301-100 CHAPTER 1**

<b>MAP NUMBER</b>	<b>DESCRIPTION</b>	<b>SCALE</b>
MAP 1-1	Location Map	1" = 4000'

## **R645-301-100 PERMIT APPLICATION REQUIREMENTS: GENERAL CONTENTS**

### **SCOPE**

The objective of this chapter is to set forth all relevant information concerning ownership and control of WEST RIDGE Resources, Inc., the ownership and control of the property to be affected by mining activities and all other information and documentation required under Part UMC.

### **R645-301-112 IDENTIFICATION OF INTERESTS**

112.100 WEST RIDGE Resources, Inc. is a corporation organized and existing under the laws of Utah and qualified to do business in Utah.

112.200 The applicant, WEST RIDGE Resources, Inc. will also be the operator.

WEST RIDGE Resources, Inc.  
P.O. Box 1077  
Price, Utah 84501  
(435) 888-4000  
Samuel C. Quigley - Vice President of Western Operations

Employer Identification Number: 87-0585129

112.220 The resident agent of the applicant, WEST RIDGE Resources, Inc., is:

**Gary E. Gray**  
WEST RIDGE Resources, Inc.  
P.O. Box 1077  
Price, Utah 84501

(435) 888-4000

112.230 WEST RIDGE Resources, Inc. will pay the abandoned mine land reclamation fee.

112.300

The person's name, address, and employer identification number for each person who owns or controls the applicant is listed below.

### Ownership and Control

WEST RIDGE Resources, Inc. is the permittee and operator of the WEST RIDGE Mine. WEST RIDGE Resources, Inc. is a wholly owned subsidiary of ANDALEX Resources, Inc.. WEST RIDGE Resources, Inc. is a Utah corporation licensed to do business in the State of Utah. WEST RIDGE Resources, Inc. is the operating agent for the WEST RIDGE PROJECT. ANDALEX Resources, Inc. and the Intermountain Power Agency (I.P.A.) are tenants in common (co-owners) of the WEST RIDGE PROJECT, each having an undivided 50% ownership interest in the PROJECT. ANDALEX Resources, Inc. is a Delaware corporation and Intermountain Power Agency is a political subdivision of the State of Utah. All leases associated with the WEST RIDGE Mine are owned jointly (undivided 50% ownership) by ANDALEX Resources, Inc. and Intermountain Power Agency.

#### 1) WEST RIDGE RESOURCES, INC. (permittee, operator)

OFFICERS	TITLE	DATE POSITION WAS ASSUMED
Peter B. Green	Chairman of Board of Directors	01/09/95
Douglas H. Smith	President	01/09/95
John Bradshaw	Vice President Finance & Treasurer	01/09/95
Samuel C. Quigley	Vice President Operations	01/09/95

DIRECTORS	TITLE	DATE POSITION WAS ASSUMED
Peter B. Green	Director	12/13/94
Ronald C. Beedie	Director	12/13/94
Douglas H. Smith	Director	12/13/94

The address for the above officers and directors is:

WEST RIDGE Resources, Inc.  
45 West 10000 South, Suite 401  
Sandy, Utah 84070  
(801) 568-8900

## 2) INTERMOUNTAIN POWER AGENCY (Tenant in Common)

OFFICERS	TITLE	MONTH/YEAR POSITION WAS ASSUMED
Ray Farrell	Chairman, Board of Directors	12/98
R. Leon Bowler	Vice-Chairman, Board of Directors	12/84
Ted L. Olson	Secretary	1/02
Clifford C. Michaelis	Treasurer	1/90

  

DIRECTORS	TITLE	MONTH/YEAR POSITION WAS ASSUMED
R. Leon Bowler	Director	6/77
Ray Farrell	Director	12/79
Clifford C. Michaelis	Director	1/88
Ted L. Olson	Director	1/90
Russell F. Fjeldsted	Director	1/92
Walter Meacham	Director	1/99
Gary O. Merrill	Director	1/02

The address and telephone number for the above officers and directors is:

Intermountain Power Agency  
480 East 6400 South, Suite 200  
Murray, Utah  
(801) 262-8807

Name and address of IPA's general manager:

Reed T. Searle  
Intermountain Power Agency  
480 East 6400 South, Suite 200  
Murray, Utah 84107  
Telephone (801)262-8807  
Assumed position September, 1989

Resident Agent for IPA:

Mark Buchi  
Holme, Roberts, and Owen  
111 East Broadway, Suite 1100  
Salt Lake City, Utah 84111  
Assumed position January, 1988

IPA Designated representative to the Crandall Canyon Project and West Ridge Project Management Boards:

Eric J. Tharp  
Operating Agent  
Los Angeles Department of Water & Power  
111 North Hope Street, Room 1263  
Los Angeles, California 90012-2694  
Telephone (213)367-0286

Principle Shareholders of IPA:

IPA has no shareholders. IPA is a political subdivision of the State of Utah created under the Interlocal Cooperation Act, Title II, Chapter 13, Utah code Ann. 1953, as amended, and as such, has not issued stock.

### **3) ANDALEX RESOURCES, INC. (Tenant in Common)**

Officers: Peter B. Green, Chief Executive Officer and Chairman  
"Overbay" 106 Pitt's Bay Road  
Pembroke, HM 11  
Bermuda  
Assumed this Position : 05-11-90

Douglas H. Smith, President  
45 West 10000 South, Suite 401  
Sandy, Utah 84070  
Assumed this Position: 03-07-94

John Bradshaw, Vice President (Finance), Secretary  
45 West 10000 South, Suite 401  
Sandy, Utah 84070  
Assumed this Position: 02-05-90

Samuel C. Quigley, Vice President (Operations)  
45 West 10000 South, Suite 401  
Sandy, Utah 84070  
Assumed this Position: 02-24-95

Directors: Peter Green (Chairman)  
"Overbay" 106 Pitt's Bay Road  
Pembroke, HM 11  
Bermuda  
Assumed this Position : 01-05-88

Ronald C. Beedie  
2 Manse Road  
Roslin, Midlothian,  
Scotland EH259LF  
Assumed this Position: 01-05-88

Douglas H. Smith  
45 West 10000 South, Suite 401  
Sandy, Utah 84070  
Assumed this Position: 03-07-94

Alexander Harold Samuel Mitchell Green  
"Overbay" 106 Pitt's Bay Road  
Pembroke, HM 11  
Bermuda  
Assumed this Position : 01-11-02

The address for ANDALEX RESOURCES, Inc. is:

ANDALEX Resources, Inc.  
45 West 10000 South, Suite 401  
Sandy, Utah 84070  
Employer ID No. 61-0931325

Stockholder: Andalex Hungary, Ltd.  
Vaci ut 18  
1132 Budapest, Hungary  
Assumed this Position: 12-28-00  
Percentage of Ownership: 100%

Other names under which ANDALEX Resources, Inc. is or has operated in the United States within the last five years preceding the date of this application are listed below:

ANDALEX Resources, Inc., Tower Division  
ANDALEX Resources, Inc., Cimarron Division  
AMCA Coal Leasing, Inc.  
ANDALEX Resources, Inc., Little Creek Division  
GENWAL Resources, Inc.

#### 4) ANDALEX HUNGARY, LTD.

Directors: Ian Buchanan  
66 Merrion Square  
Dublin 2  
Ireland  
Assumed this Position: 12-28-00

Katalin Csokasi  
Terez Krt 28  
1066 Budapest  
Hungary  
Assumed this Position: 12-28-00

Marriana Fodor  
Kolozsvari u 38  
1255 Budapest  
Hungary  
Assumed this Position: 12-28-00

Stockholder: Andalex Investments BV  
MeesPierson Trust, Aert van Nesstraat 45  
P.O. Box 548  
3000 AM Rotterdam  
Netherlands  
Assumed this Position: 12-28-00  
Percentage of Ownership: 100%

#### 5) ANDALEX INVESTMENTS BV

Directors: MeesPierson Trust BV  
Attn: Robert Stroeve  
Blaak 16, P.O. Box 548  
3000 AM Rotterdam, Netherlands  
Assumed this Position: Business Entity

Ian Buchanan  
66 Merrion Square  
Dublin 2  
Ireland  
Assumed this Position: 04-08-91

Stockholders: Misland (Cyprus) Investments Limited  
1<sup>st</sup> Floor, Lazaros Centre

Office 101-102  
9 Arch Makarios Avenue  
Lamaca, Cyprus P.C. 6017  
Assumed this Position: 10-14-03  
Percentage of Ownership: 99.9%

A&A Investments Ltd.  
"Overbay" 106 Pitt's Bay Road  
Pembroke, HM 11  
Bermuda  
Assumed this Position : 01-19-01  
Percentage of Ownership: 0.1%

#### 6) MISLAND (CYPRUS) INVESTMENTS LIMITED

Directors:	Ian Buchanan 66 Marrion Square Dublin 2 Ireland Assumed this Position: 10-14-03	Peter Rochow 66 Marrion Square Dublin 2 Ireland Assumed this Position: 10-14-03
	Chrysanthi Coucouni 1 <sup>st</sup> Floor, Lazaros Centre Office 101-102 9 Arch Makarios Avenue Lamaca, Cyprus P.C. 6017 Assumed this Position: 10-14-03	Tasos Coucouni 1 <sup>st</sup> Floor, Lazaros Centre Office 101-102 9 Arch Makarios Avenue Lamaca, Cyprus P.C. 6017 Assumed this Position: 10-14-03
	Loulla Kyriakou 1 <sup>st</sup> Floor, Lazaros Centre Office 101-102 9 Arch Makarios Avenue Lamaca, Cyprus P.C. 6017 Assumed this Position: 10-14-03	
Stockholder:	A&A Investments Ltd. "Overbay" 106 Pitt's Bay Road Pembroke, HM 11 Bermuda	

Assumed this Position : 10-14-03  
Percentage of Ownership: 100%

#### **7) A&A INVESTMENTS LTD.**

Directors: Peter Green  
"Overbay" 106 Pitt's Bay Road  
Pembroke, HM 11  
Bermuda  
Assumed this Position : 11-29-96

Ian Buchanan  
66 Marrion Square  
Dublin 2  
Ireland  
Assumed this Position: 08-14-97

RolfLuthie  
"Overbay" 106 Pitt's Bay Road  
Pembroke, HM 11  
Bermuda  
Assumed this Position : 03-01-01

Stockholder: Mitchell Green Family Trust  
"Overbay" 106 Pitt's Bay Road  
Pembroke, HM 11  
Bermuda  
Assumed this Position : 01-25-98  
Percentage of Ownership: 100%

#### **8) MITCHELL GREEN FAMILY TRUST**

Trustee: Mitchell Green Private Trust Company Ltd.  
"Overbay" 106 Pitt's Bay Road  
Pembroke, HM 11  
Bermuda  
Assumed this Position : 06-25-98  
Percentage of Ownership: 100%

9) MITCHELL GREEN PRIVATE TRUST COMPANY, LTD.

Directors: Peter Green  
"Overbay" 106 Pitt's Bay Road  
Pembroke, HM 11  
Bermuda  
Assumed this Position : 06-25-98  
Ronald C. Beedie  
2 Manse Road  
Roslin, Midlothian,  
Scotland EH259LF  
Assumed this Position: 06-25-98

Ian Buchanan  
66 Merrion Square  
Dublin 2  
Ireland  
Assumed this Position: 06-25-98

Henry Christensen, III  
125 Broad Street  
New York, New York 10004-2498  
Assumed this Position: 06-25-98

112.340 Each additional name and identifying number under which the person owns or controls, or previously owned or controlled, a coal mining and reclamation operation in the United States within five years preceding the date of the application;

ANDALEX Resources, Inc., Tower Division  
Centennial Mine (1)  
Wildcat Loadout (1)  
ANDALEX Resources, Inc., Cimarron Division(1)  
ANDALEX Resources, Inc., Little Creek Division(1)  
AMCA Coal Leasing, Inc.(1)  
GENWAL Resources, Inc.(2)

(1) Ownership: 100% ANDALEX Resources, Inc.  
(2) Ownership: 50 % ANDALEX Resources, Inc., 50% Intermountain Power Agency

IPA is currently engaged in the reclamation of the Horse Canyon Mine, under permit ACT/007/013, located in Emery County, Utah and was previously associated with the Wellington Preparation Plant prior to the sale of IPA's holdings to NEICO in Jan. 1995.

Permit numbers, regulatory authority and the dates of issuance are attached as Appendix 1-5.

112.350 The application number or other identifier of, and the regulatory authority for, any other pending coal mine operation permit application filed by the person in any State of the United States.

There are no pending coal mining and reclamation operation permit applications in the United States.

112.410 Name, address, identifying numbers, including employer identification number, Federal or State permit number and MSHA number, the date of issuance of the MSHA number, and the regulatory authority;

The employer identification number is: 87-0585129

MSHA number 42-02233 was issued on March 12, 1999.

A list of current and previous coal mining permits held by ANDALEX and its affiliates is included in Appendix 1-5 "Current and Previous Coal Mining Permits". This list includes the Federal or State permit number and MSHA number, the date of issuance of the MSHA number, and the regulatory authority for other coal mining and reclamation operations owned by ANDALEX.

112.420 Ownership or control relationship to the applicant, including percentage of ownership and location in organizational structure.

Information regarding ownership or control relationship to the applicant is presented in Appendix 1-7.

112.500 Names and addresses of each legal or equitable owner of record of the surface and mineral property to be mined, each holder of record of any leasehold interest in the property to be mined, and any purchaser or record under a real estate contract for the property to be mined.

Surface Owners:

Bureau of Land Management  
Utah State Office  
136 East South Temple  
Salt Lake City, Utah 84111

Glen Wells  
700 West U.S. Hwy 6  
Price, Utah 84501

Penta Creek, LLC  
140 S. Newton  
Albert Lea, MN 56007

Dave Hinkins  
155 West 100 South  
Orangeville, Utah 84537

School and Institutional Trust  
Lands Administration  
355 West North Temple, Suite 400  
Salt Lake City, Utah 84180-1204

Matt Rauhala  
1236 East Main  
Price, Utah 84501

Subsurface Owners:

Bureau of Land Management  
Utah State Office  
136 East South Temple  
Salt Lake City, Utah 84111

Penta Creek, LLC  
140 S. Newton  
Albert Lea, MN 56007

School and Institutional Trust  
Lands Administration  
355 West North Temple, Suite 400  
Salt Lake City, Utah 84180-1204

WEST RIDGE Resources, Inc. is the holder of record for federal lease SL-068754 and UTU 78562 (see Table 1-1), state lease ML 47711 and ML 49287 (see Table 1-2A) and the Penta Creek Fee lease (see Table 1-2B).

Proof of lease assignment for lease SL-068754 and UTU 78562 is provided in Appendix 1-4, lease ML 47711 and ML 49287 in Appendix 1-16, and the Penta Creek fee lease in Appendix 1-14.

112.600 Names and addresses of owners of record of all property (surface and subsurface) contiguous to any part of the permit area.

Same as listed in 112.500 with the following additions:

Contiguous surface owners:

Bureau of Land Management  
Utah State Office  
136 East South Temple  
Salt Lake City, Utah 84111

Dave Hinkins  
155 West 100 South  
Orangeville, Utah 84537

Glen Wells  
700 West U.S. Hwy 6  
Price, Utah 84501

Penta Creek, LLC  
140 S. Newton  
Albert Lea, MN 56007

School and Institutional Trust  
Lands Administration  
355 West North Temple, Suite 400  
Salt Lake City, Utah 84180-1204  
Contiguous subsurface owners:

School and Institutional Trust  
Lands Administration  
355 West North Temple, Suite 400  
Salt Lake City, Utah 84180-1204

Penta Creek, LLC  
140 S. Newton  
Albert Lea, MN 56007

Bureau of Land Management  
Utah State Office  
136 East South Temple  
Salt Lake City, Utah 84111

Dave Hinkins  
155 West 100 South  
Orangeville, Utah 84537

112.700 The MSHA numbers for all mine associated structures that require MSHA approval.

MSHA Identification Number: MSHA number 42-02233 was issued on March 12, 1999.

112.800 There are no pending interests or bids existing on lands contiguous to the present leased area.

112.900 After WEST RIDGE Resources, Inc. is notified that the application is approved, but before the permit is issued, WEST RIDGE Resources, Inc. will update, correct or indicate that no change has occurred in the information previously submitted under R645-301-112.100 through R645-301-112.800.

**R645-301-113 VIOLATION INFORMATION**

113.100 The applicant or any subsidiary, affiliate or persons controlled by or under common control with the applicant has not had a federal or state permit to conduct coal mining and reclamation operations suspended or revoked in the five years preceding the date of submission of the application.

113.120 The applicant etc. has not forfeited any performance bond or similar security

- 113.200 Not applicable
- 113.300 A listing of violations received by the applicant in connection with any coal mining and reclamation operation during the three year period preceding the application date is provided in Appendix 1-2. MSHA numbers for the operations listed in Appendix 1-2 can be found in Appendix 1-5. **There have been no unabated violations or cessation orders issued to any affiliated companies during the previous three years.**
- 113.400 After WEST RIDGE Resources, Inc. is notified that the application is approved, but before the permit is issued, WEST RIDGE Resources, Inc. will update, correct or indicate that no change has occurred in the information previously submitted under R645-301-113.

**R645-301-114 RIGHT OF ENTRY INFORMATION**

- 114.100 WEST RIDGE Resources, Inc., currently holds 4,297.01 acres of federal coal (2,650.67 acres leased under SL-068754 and 1646.34 acres leased under UTU 78562) in the Book Cliffs coal field (refer to Map 5-4A). WEST RIDGE currently holds 1682.34 acres of state coal (801.24 acres under ML 47711 and 881.10 under ML 49287. ~~These leases are not included in the permit area.~~ WEST RIDGE also holds a 382.08 acre lease on contiguous private (fee) coal lands located along the eastern side of the mineable reserve (see Appendix 1-14). Within this fee lease 124.92 acres are included in the **pending** permit area. These leases are not the subject of any pending litigation. WEST RIDGE Resources, Inc. bases its legal right to enter and conduct mining activities in the permit area pursuant to the language contained in the Federal Coal Lease, Part I Lease Rights Granted which reads as follows:

"That the lessor, in consideration of the rents and royalties to be paid and the covenants to be observed as hereinafter set forth, does hereby grant and lease to the lessee the exclusive right and privilege to mine and dispose of all the coal in, upon, or under the following described tracts of land, situated in the State of Utah... together with the right to construct all such works, buildings, plants, structures and appliances as may be necessary and convenient for the mining and preparation of the coal for market, the manufacture of coke or other products of coal, the housing and welfare of employees, and subject to the conditions herein provided, to use so much of the surface as may reasonably be required in the exercise of the rights and privileges herein granted."

The substitute topsoil borrow area, which is also included within the permit area, is located on lands administered by the State of Utah, School and Institutional Trust Lands Administration (SITLA). This area is located within the SE1/4 of

section 16, T 14 S, R 13 E. SITLA has issued a long term special use permit to WEST RIDGE Resources, Inc. which provides full assurance that the topsoil resource in this area will be available for (and, indeed dedicated to) final reclamation of the West Ridge minesite if needed. (See Appendix 1-4)

Coal lease SL-068754-U-01215 was modified by the BLM. Refer to Appendix 1-9 for the coal lease modification.

The **pending** permit area consists of federal coal leases SL-068754-U-01215 and UTU 78562 (4297.01 acres as described in Table 1-1) state coal leases ML-47711 and ML-49287 (1,682.34 acres as described in Table 1-2A), the Penta Creek fee lease (124.92 acres as described in Table 1-2B). The permit area also includes a special use state surface lease (9.6 acres as described in Table I-2A). The two areas are not contiguous however. The 9.6 acre state surface lease is for a possible topsoil borrow site if it is needed at the time of final reclamation. This permit area also includes a 0.23 acre right-of-way issued by the BLM for a water pumping station (refer to Appendix 1-12). The permit area also includes a 0.79 acre area along the Carbon County C Canyon Road down to and including the security gate (refer to Appendix 1-13). The total **pending** permit area is 6,114.89 acres. Refer to Map 1-1 for the permit area location. Refer to Table 1-4 for the legal description of the permit area.

WEST RIDGE Resources has hired R, B & G Engineering to prepare a study of the risk to the Grassy Trail dam and reservoir from seismicity and subsidence associated with longwall mining in the West Ridge Mine. This study will involve collection of additional data from newly-installed accelerometers, subsidence monitoring stations, and piezometers in the area around the dam. This study is being conducted with input from BLM, DOGM, Division of Dam Safety, and East Carbon City. Stipulation 17 of Federal Lease UTU-78562 states the following:

*"17. SEISMIC STIPULATION: Mining operations shall be conducted in a manner to prevent seismic events that would cause damage to surface or subsurface structures such as: power lines or mine pillars and other structures such as Grassy Trail Reservoir and/or create hazardous conditions such as landslides.*

*The Lessee shall: (1) Provide a seismic risk assessment of the Grassy Trail Reservoir to the AO prior to mining in the lease. (2) Prior to mining in the lease, the Lessee shall provide a plan to monitor the Reservoir and the steps necessary to mitigate any damage created by the lessee. These plans shall be updated by the Lessee as deemed necessary by the AO.*

*The AO will either approve or may prescribe the mining methods used, the*

*amount of coal recovered or determine the corrective measures necessary to assure protection of surface or subsurface structures and resources. The Lessee is and will remain liable for any and all damages or hazardous conditions resulting from the mining operations under the lease.”*  
(Refer to Appendix 1-4)

In the most recent R2P2 approval (see Appendix 5-3A), BLM approved longwall mining in panel #6. Development of the tail-gate entries for panel #7 is also approved. However, the R2P2 states, “*Longwall mining of Panel 7 is not approved at this time. Approval of Panel 7 will be contingent on receipt of final seismic analysis report(s), updated data from the on-going monitoring, and receipt of BLM of adequate contingency plan(s) addressing mitigating steps.*” Therefore, WEST RIDGE Resources acknowledges that Division approval of the Incidental Boundary Change for the Penta Creek fee lease is only for first mining of the tail-gate entries for panel 7 and that approval of longwall mining (i.e. full extraction mining) in panel 7 will not be issued until the seismic analysis is completed, the conditions of Lease Stipulation 17 have been complied with to the satisfaction of BLM and the Division, and R2P2 approval of full extraction of panel 7 has been granted by BLM. When the seismic analysis report is finalized WEST RIDGE Resources will apply to the Division for an amended MRP based on the conclusions of the report and BLM concurrence thereof. At that time, the seismicity analysis report will be added to the MRP as Appendix 5-9.

114.200

Not applicable, the fee lease mineral estate is not severed from the surface estate.

**TABLE 1-1  
FEDERAL COAL LEASE PROPERTIES**

<u>LEASE SERIAL NUMBER</u>	<u>DATE ISSUED</u>	<u>LEASE ACREAGE</u>	<u>LEGAL DESCRIPTION+ ASSIGNMENT</u>
SL-068754-U-01215	3-27-97	2,570.67	T 14 S, R 13 E Note 1  Section 10: NE $\frac{1}{4}$ , N $\frac{1}{2}$ SE $\frac{1}{4}$ , E $\frac{1}{2}$ NW $\frac{1}{4}$ Section 11: All Section 12: S $\frac{1}{2}$ SW $\frac{1}{4}$ , NW $\frac{1}{4}$ SW $\frac{1}{4}$ Section 13: NW $\frac{1}{4}$ , S $\frac{1}{2}$ , S $\frac{1}{2}$ NE $\frac{1}{4}$ , NW $\frac{1}{4}$ NE $\frac{1}{4}$ Section 14: E $\frac{1}{2}$ , N $\frac{1}{2}$ NW $\frac{1}{4}$ , SE $\frac{1}{4}$ NW $\frac{1}{4}$ Section 24: N $\frac{1}{2}$ SE $\frac{1}{4}$ , N $\frac{1}{2}$ , NE $\frac{1}{4}$ SW $\frac{1}{4}$
SL-068754 (Lease Modification)	9/1/98	80.0	T 14 S, R 13 E  Section 10: SE $\frac{1}{4}$ SE $\frac{1}{4}$ Section 15: NE $\frac{1}{4}$ NE $\frac{1}{4}$
UTU-78562	12/12/01	1,646.34	T 13 S, R 13 E  Section 35: SE $\frac{1}{4}$ , S $\frac{1}{2}$ SW $\frac{1}{4}$  T 14 S, R 13 E  Section 1: Lots 2-7 S $\frac{1}{2}$ NW $\frac{1}{4}$ , SW $\frac{1}{4}$ , W $\frac{1}{2}$ SE $\frac{1}{4}$ , SW $\frac{1}{4}$ NE $\frac{1}{4}$  Section 12: Lots 1-4 S $\frac{1}{2}$ N $\frac{1}{2}$ , SE $\frac{1}{4}$ , NE $\frac{1}{4}$ SW $\frac{1}{4}$  Section 13: NE $\frac{1}{4}$ NE $\frac{1}{4}$  T 14 S, R 14 E  Section 6: Lot 6  Section 7: Lots 3 and 4  Section 18: Lot 1 E $\frac{1}{2}$ NW $\frac{1}{4}$
<b>TOTAL FEDERAL LEASE ACREAGE -</b>		<b><u>4,297.01</u></b>	

+ Utah State legal description utilizing Salt Lake Base and Meridian.

Note 1: Coal lease assigned from The Standard Oil Company to AMCA Coal Leasing on March 27, 1997.

**TABLE I-2A  
STATE COAL LEASE PROPERTIES\***

<u>LEASE SERIAL NUMBER</u>	<u>DATE ISSUED</u>	<u>LEASE ACREAGE</u>	<u>LEGAL DESCRIPTION+</u>
ML 47711*	04/01/2003	641.24	T 14 S, R 13 E Sec. 2: Lots 1-4, S½N½, S½ (all)
		160.0	T 13 S, R 13 E Sec. 36: SW¼
<b>TOTAL</b>		<b>801.24</b>	
ML 49287*	04/01/2004	881.10	T 14 S, R 13 E Section 3: Lots 1-3, S½ N ½, S½
			Section 10: W½ NW¼, SW¼, SW¼SE¼
<b>TOTAL</b>		<b>881.10</b>	

**STATE SURFACE LEASE**

SPECIAL USE LEASE

<u>LEASE NUMBER</u>	<u>DATE ISSUED</u>	<u>LEASE ACREAGE</u>	<u>LEGAL DESCRIPTION+</u>
Special Use Lease Agreement #1163		9.6	T 14 S, R 13 E Sec. 16: (9.6 acres within the NE¼SE¼)
<b>TOTAL</b>		<b>9.6</b>	
<b>TOTAL STATE</b>		<b>1691.94</b>	

\* Inclusion of these state leases in the permit area is pending DOGM permitting action.

+ Utah State legal description utilizing the Salt Lake Base and Meridian.

**TABLE I-2B  
PENTA CREEK FEE LEASE PROPERTY  
ACQUIRED JANUARY 1, 2003**

<u>LEGAL DESCRIPTION (TOTAL LEASE)</u>	<u>ACREAGE</u>
T 14 S, R 14 E S.L.B.& M	
Section 6: Lot 7, SE $\frac{1}{4}$ SW $\frac{1}{4}$	76.56
Section 7: Lot 1*, Lot 2*, NE $\frac{1}{4}$ NW $\frac{1}{4}$ ,* E $\frac{1}{2}$ SW $\frac{1}{4}$ ,* SW $\frac{1}{4}$ SE $\frac{1}{4}$	190.60
Section 18: Lots2, Lot 3, NW $\frac{1}{4}$ NE $\frac{1}{4}$	114.92
<p style="margin-left: 40px;">Less and excepting from the portion of the above legal subdivisions in Section 7 (marked with *), those lands under and around Grassy Trail Dam and Reservoir owned by East Carbon City and Sunnyside City, such lands being more accurately described in Appendix 1-15.</p>	
<b>Total Penta Creek Fee Lease:</b>	<b>382.08</b>

<u>LEGAL DESCRIPTION (PERMIT AREA ONLY)**</u>	<u>ACREAGE</u>
T 14 S, R 14 E S.L.B.& M	
Section 7: SE $\frac{1}{4}$ SW $\frac{1}{4}$ , SW $\frac{1}{4}$ NE $\frac{1}{4}$ SW $\frac{1}{4}$	50.00
Section 18: Lot 2, Lot 3	74.92
<b>Total Penta Creek Fee Lease Within Pending Permit Area:</b>	<b>124.92**</b>

**\*\* Inclusion of this part of the fee lease is pending DOGM permitting action.**

**Table 1-3  
Surface Ownership of Pending Permit Area**

T(S)/R(E)	Section	BLM	Penta Creek	Hinkins	Wells	Rauhala	SITLA	Total
13/13	35	-	-	148.16	91.84	-	-	240.0
13/13	36	-	160**	-	-	-	-	160
14/13	1	283.75	285.77	-	-	39.92	-	609.44
14/13	2	-	641.24**	-	-	-	-	641.24
14/13	3	-	-	-	80.66**	-	520.44**	601.10
14/13	10	360	-	-	-	-	280**	640
14/13	11	650.87	-	-	-	-	-	650.87
14/13	12	-	648.96	-	-	-	-	648.96
14/13	13	640	-	-	-	-	-	640
14/13	14	440	-	-	-	-	-	440
14/13	15	40.79	-	-	-	-	-	40.79
14/13	16	-	-	-	-	-	9.6	9.6
14/13	21	0.23	-	-	-	-	-	0.23
14/13	24	440	-	-	-	-	-	440
14/14	6	36.41	-	-	-	-	-	36.41
14/14	7	74.08	50.00**	-	-	-	-	124.08
14/14	18	117.25	74.92	-	-	-	-	192.17
		<b>3083.38</b>	<b>1860.89</b>	<b>148.16</b>	<b>172.5</b>	<b>39.92</b>	<b>810.04</b>	<b>6114.89</b>

\*\* Denotes areas of pending DOGM permitting action.

**TABLE 1-4  
LEGAL DESCRIPTION OF PERMIT AREA**

<u>PARCEL</u>	<u>ACREAGE</u>	<u>LEGAL DESCRIPTION</u>
FEDERAL LEASE SL-068754-U-01215	2,570.67	T 14 S, R 13 E  Section 10: NE $\frac{1}{4}$ , N $\frac{1}{2}$ SE $\frac{1}{4}$ , E $\frac{1}{2}$ NW $\frac{1}{4}$ Section 11: All Section 12: S $\frac{1}{2}$ SW $\frac{1}{4}$ , NW $\frac{1}{4}$ SW $\frac{1}{4}$ Section 13: NW $\frac{1}{4}$ , S $\frac{1}{2}$ , S $\frac{1}{2}$ NE $\frac{1}{4}$ , NW $\frac{1}{4}$ NE $\frac{1}{4}$ Section 14: E $\frac{1}{2}$ , N $\frac{1}{2}$ NW $\frac{1}{4}$ , SE $\frac{1}{4}$ NW $\frac{1}{4}$ Section 24: N $\frac{1}{2}$ SE $\frac{1}{4}$ , N $\frac{1}{2}$ , NE $\frac{1}{4}$ SW $\frac{1}{4}$
FEDERAL LEASE SL-068754 (Lease Modification)	80.0	T 14 S, R 13 E  Section 10: SE $\frac{1}{4}$ SE $\frac{1}{4}$ Section 15: NE $\frac{1}{4}$ NE $\frac{1}{4}$
FEDERAL LEASE UTU-78562	1,646.34	T 13 S, R 13 E  Section 35: SE $\frac{1}{4}$ , S $\frac{1}{2}$ SW $\frac{1}{4}$  T 14 S, R 13 E Section 1: Lots 2-7 S $\frac{1}{2}$ NW $\frac{1}{4}$ , SW $\frac{1}{4}$ , W $\frac{1}{2}$ SE $\frac{1}{4}$ , SW $\frac{1}{4}$ NE $\frac{1}{4}$ Section 12: Lots 1-4 S $\frac{1}{2}$ N $\frac{1}{2}$ , SE $\frac{1}{4}$ , NE $\frac{1}{4}$ SW $\frac{1}{4}$ Section 13: NE $\frac{1}{4}$ NE $\frac{1}{4}$  T 14 S, R 14 E Section 6: Lot 6 Section 7: Lots 3 and 4 Section 18: Lot 1 E $\frac{1}{2}$ NW $\frac{1}{4}$

**TABLE 1-4 (CONTINUED)**  
**LEGAL DESCRIPTION OF PENDING PERMIT AREA**

<u>PARCEL</u>	<u>ACREAGE</u>	<u>LEGAL DESCRIPTION</u>
STATE LEASE ML 47711*	801.24	T 14 S, R 13 E Section 2: Lots 1 thru 4, S½N½, S½ T 13 S, R 13 E Section 36: SW¼
STATE LEASE ML 49287*	881.10	T 14 S, R 13 E Section 3: Lots 1,2,3, S½N½, S½ Section 10: W½NW¼, SW¼, SW¼SE¼
PENTA CREEK FEE LEASE	124.92	T 14 S, R 14 E Section 7: SE¼SW¼,* SW¼NE¼SW¼* Section 18: Lots 2, 3
PUMPING STATION (BLM R.O.W. UTU-77120)	0.23	T 14 S, R 13 E Section 21: NE¼NE¼
TOPSOIL SALVAGE AREA (SITLA special use agreement #1163)	9.6	T 14 S, R 13 E Section 16: NE¼SE¼
SECURITY GATE (Carbon County authorization)	0.79	T 14 S, R 13 E Section 15: NW¼SE¼NE¼
TOTAL PERMIT AREA	6114.89	

\* Inclusion of these leases is pending DOGM permitting action.

**R645-301-115 STATUS OF UNSUITABILITY CLAIMS**

115.100 The proposed permit area is not within an area designated as unsuitable for mining. WEST RIDGE Resources, Inc. is not aware of any petitions currently in progress to designate the area as unsuitable for coal mining and reclamation activities.

The area in which the proposed facility will be located has been evaluated within area management plans. It has not been found unsuitable for mining activities under any categories of examination.

115.200 Not applicable.

115.300 WEST RIDGE Resources, Inc. will not be conducting mining operations within 100 feet of an occupied dwelling. WEST RIDGE Resources, Inc. has received permission from Carbon County to construct facilities and operate coal mining activities within 100 feet of a public road. Refer to the letter from Carbon County in Appendix 1-8.

**R645-301-116 PERMIT TERM**

116.100 The anticipated starting and termination dates of the coal mining and reclamation operation are as follows:

	<u>Begin</u>	<u>Complete</u>
Construction of Mining Pad, Mining Support Structures, and Portals	Apr. 1999	Dec. 1999
Begin Mining	Jan. 2000	
Terminate Mining		Dec. 2017*
Remove Facilities	Jan. 2018*	June 2018*
Regrade Area	July 2018*	Sept. 2018*
Revegetate Site	Oct. 2018*	Nov. 2018*

\*This assumes mine life extended through acquisition of adjacent state and federal coal reserves.

Approximately 6,114.89 acres are within the pending permit boundary. Of this acreage, about 25 acres will be utilized for surface facilities and structures. The proposed surface facilities should be capable of supporting the life of the mine operations as presented in this permit application.

116.200 The initial permit application will be for a five year term with successive five year permit renewals.

**R645-301-117 INSURANCE, PROOF OF PUBLICATION AND FACILITIES OR STRUCTURES USED IN COMMON**

117.100 The Certificate of Liability Insurance is included as Attachment 1-1 in Appendix 1-1.

117.200 A copy of the newspaper advertisement of the application for a permit and proof of publication are included as Attachment 1-2 and 1-3 respectively, in Appendix 1-1. A copy of the newspaper advertisement for the Whitmore lease revision is included as Attachment 1-3 in Appendix 1-1.

117.300 Not applicable.

**R645-301-118 FILING FEE**

Verification of filing fee payment is included as Attachment 1-4 in Appendix 1-1.

**R645-301-123 NOTARIZED STATEMENT**

A notarized statement attesting to the accuracy of the information submitted can be referenced as Attachment 1-5 in Appendix 1-1.

**R645-301-130 REPORTING OF TECHNICAL DATA**

Technical reports prepared by consultants specifically for WEST RIDGE Resources, Inc. Resources are typically presented in an appendix format and, in general, provide the name and address of the person or company (consultant) preparing the report, the name of the report, the date of collection and analysis of the data, and descriptions of the methodology used to collect and analyze the data. The body of the report usually will provide the date the actual field work was conducted and a description of the methodology used to collect and analyze the data. The format of each report may vary depending on the contents of the report and organization preparing it.

For laboratory analyses, such as Appendix 7-2 and 7-3, the company performing the analyses as well as the date of the analyses, is presented on the laboratory report rather than the cover page.

A list of consultants and their appended reports is contained in Appendix 1-6, Consultation and Coordination. Sources used in the preparation of the permit application are referenced in Appendix 1-3. References in all chapters are keyed to this main reference list.

Mining and exploration activities had been conducted in the currently proposed disturbed area prior to August 3, 1977. A road existed into C Canyon in 1952 when drill hole B-6 was drilled in the right fork. A road was also constructed up the left fork of C Canyon to a drill hole site during the same year. In addition to the drill holes, the coal outcrop in the left fork of C Canyon was exposed for sampling purposes. A small pad was built at the outcrop location and it was left in place as were the roads.

In 1986, another drill hole, 86-2, was drilled west of the first drill hole in the right fork. A minor amount of road work was done in conjunction with this second drill hole. Kaiser Coal Company obtained permission from the BLM to grade the existing road and make it passable for the drill rig. The drill hole site was reclaimed but the road, a public road, was left in place.

Through use of aerial photography and site evaluations, it is possible to document previous mining related disturbances in C Canyon. Refer to Map 5-1 for delineation of the disturbance prior to August 3, 1977.

The total of all the previously disturbed areas within the proposed disturbed area is estimated to be as follows:

roads in right and left forks	=	1.27 acres
road culvert	=	.05 acres
water monitoring well	=	.05 acres
material storage pad	=	.05 acres
		<hr/>
		1.62 acres

WEST RIDGE Resources, Inc. is proposing to utilize the entire previously disturbed area in their current proposal and to reclaim it upon cessation of mining operations.

**R645-301-321      VEGETATION INFORMATION**

321.100      Vegetation types for the region are shown on Map 3-1 (a generalized map depicting regional vegetation types) for the permit area and surrounding area. This information was derived from mapping done by Dr. Patrick Collins, Mt. Nebo Scientific. The vegetation map is presented as an overview of the regional vegetation and based on aerial photographs taken in June 1997. The general vegetation type listed for each different area constitutes the generally predominate vegetation for that area.

A vegetation survey of the proposed disturbed area in C Canyon and the proposed borrow area west of C Canyon was performed during June 1997 by Dr. Patrick Collins of Mt. Nebo Scientific. The survey entitled "Plant Communities of the West Ridge Project Mine Area" is appended as Appendix 3-1. A survey and general description of the riparian habitat near Grassy Trail Creek within the permit area was conducted by Mt. Nebo Scientific, Inc. during the growing season of 2002. This report is included in Appendix 3-12, "A Survey of the Riparian Plant Communities Near Grassy Trail Creek for the West Ridge Mine". The riparian areas along Grassy Trail Creek are shown on Map 3-1 as interpreted from aerial photographs. The plant communities located within the Penta Creek fee area includes Aspen, Sagebrush/Grass, Mountain Brush and Riparian. Mining in the area is more than 2000' deep and will therefore have no impact to surface vegetation.

C Canyon is a narrow, rugged box canyon dissected by ephemeral drainages. The main canyon drainage forks about one half mile up the canyon with the main branch continuing northeastward and the left fork cutting off to the north. The drainage bottom is dry, rocky and strewn with branches, leaves and other vegetative debris. The canyon appears to be very dry with no sign of runoff down the main or side channels. Due to the dryness of this drainage, no riparian vegetation exists along the drainage channels in C Canyon. Vegetation for forage in the canyons is also limited due to the steep, rocky slopes of the canyons.

Vegetation within the proposed mine site disturbed area is depicted on Map 3-2, Mine Site Vegetation Map. Also included on this map are the reference areas for the mine yard disturbed area. The reference area for the Douglas Fir/Maple vegetation type is shown on Map 3-1. Specific information on vegetation species and productivity at these sites is included in Appendix 3-1.

The proposed substitute topsoil borrow area was also mapped during the June 1997 field work. Refer to Map 3-3, Vegetation of the Topsoil Borrow Area. This information is provided in Appendix 3-1.

321.200      Productivity and range conditions estimates for the mine site disturbed area and the proposed borrow area were performed by the Natural Resource Conservation Service. Those estimates are presented in Appendix 3-1.

R645-301-322

## FISH AND WILDLIFE INFORMATION

322.100

Appendix 3-3 presents a listing of species that potentially occur in the West Ridge area. This information was compiled by the Utah Division of Wildlife Resources for the Kaiser Coal permit application. The report is included for reference. The Division, in consultation with state and federal agencies, will be contacted in regard to designing the protection and enhancement plan required by R645-301-333.

Bear Canyon is situated in the northwest portion of the permit area within the SITLA lease area. This canyon is unique because it is within the right fork of this drainage that the cover over the longwall subsidence zone is the shallowest of anywhere in the entire permit area. In one part of the bottom of the (right fork) Bear Canyon drainage the cover over the longwall panes is approximately 325'. Due to the increased potential for the effects of subsidence to reach the surface in this area special attention has been focused on the hydrologic character of the Bear Canyon drainage.

Bear Canyon is typical of the canyons draining the southwest-facing front slopes of the Book Cliffs in this area. These canyons are generally shorter and drier than those drainages on the back-side of the Cliffs. Several baseline surveys of Bear Canyon right fork done in the late 1980's showed the drainage to be *mostly* dry and the canyon was identified as ephemeral along with other similar front-facing canyons in the permit area, such as "C" Canyon, "B" Canyon, and "A" Canyon. However, during site visits in June and July of 2005, substantial stream-flow was observed in the drainage. This occurrence of flow, along with the observation of riparian vegetation in the lower stretches of the canyon, has led to a re-evaluation of the classification of the drainage as intermittent. Also, because the area of the Bear Canyon watershed is greater than one square mile the drainage is classified as intermittent under DOGM regulations.

Historical observation of Bear Canyon shows the streamflow in the bottom of the drainage to be a combination of surface flow and subsurface flow. In those areas where bedrock is at or close to the surface, flow is forced up to the surface. In other areas where the alluvium in the channel is thick and porous the flow is subsurface and the stream channel is often dry. The stretches of channel exhibiting surface flow as opposed to subsurface flow will vary from season to season, and year to year depending on prior precipitation trends in the watershed. There are times when the entire length of the channel could be expected to exhibit surface flow, and other times when surface flow is confined to certain segments. And, according to past monitoring observations, there are often times when there is no flow *in the stream channel*. In order to better define the hydrologic character of the canyon WEST RIDGE Resources will expand the monitoring program in Bear Canyon by adding two new monitoring sites and relocating a third site (see Map 7-7 and Table 7-1).

As mentioned previously, there is a point in the right fork of Bear Canyon where cover

over the longwall panel will be about 325' which is the shallowest surface cover of any place within the current WEST RIDGE mine plan. This, along with the fact that there are state-appropriated surface water rights in this drainage (refer to Appendix 7-5), makes this an area of special interest. There is reason to expect that full-extraction longwall mining will not adversely affect the hydrologic resources of the canyon in this area. According to Syd S. Peng, ("*Coal Mine Ground Control*", 1978, Wiley, New York) a general rule-of-thumb is that subsidence-related fractures can be expected for a distance above the coal seam equal to 50 times the mining height, which works out to be 316' for the shallow point in Bear Canyon, which is slightly less than the cover in that area. Therefore due to the shallowness of cover in this area there could be subsidence fractures which reach the surface in the bottom of the canyon, and mitigation will be done to protect the resource.

*The shallow overburden* point coincides with the inflection point of the longwall subsidence profile. Based on a 22 degree angle of draw the tension zone will extend along the surface from the inflection point (shallow point) downstream approximately 130'. Areas upstream from the inflection point will be in compression as the longwall panel are extracted in progression from the southwest to the northeast according to the approved mining plan. Cracks are more likely to open up in the tension zone as compared to the compression zone where lateral forces are pushing toward each other rather than pulling apart. As mining progresses to the northeast, cover increases rapidly because of the gradient of the channel bottom and the dip of the coal seam, and surface effects of subsidence should diminish in that direction. Therefore, it is expected that any cracking which might reach the surface should most likely appear in the canyon bottom in the 130' (plus/minus) tension zone down-canyon from the inflection point. Special subsidence monitoring will be focused on this area.

WEST RIDGE will establish two new hydrologic monitoring sites in the right fork of Bear Canyon. The first site (ST-11) will be located within the tension zone described above. This site was chosen because this location should be well-suited to determine if tension cracks have affected stream flow. It is also, coincidentally, one of the areas where the bedrock nature of the channel bottom forces water to the surface, thereby making streamflow measurements more accurate. The second site (ST-12) will be located about 2400' farther up-canyon in another area where, again, the bedrock nature of the channel allows for a more accurate streamflow measurement. A third monitoring site (ST-13) will be located below the forks of Bear Canyon just outside the permit area boundary. This site will replace the existing monitoring site ST-4.

During the flow season of 2005 and 2006 (that is, May 15 through September 15) site ST-11 will be monitored monthly as long as flow is present. This monthly monitoring will help better define the nature of streamflow prior to longwall extraction in the area, which is presently scheduled for May, 2007. Thereafter, monitoring will be done on the regular quarterly basis. Site ST-12 is more inaccessible, and could be dangerous to reach

in the winter. Therefore this site will be monitored twice a year, once during late spring/early summer (expected peak flow) and once in late summer/early fall, when the canyons are normally much drier. Site ST-13 will be monitored quarterly.

The longwall is presently scheduled to pass under Bear Canyon in the spring of 2007. Prior to that, WEST RIDGE will complete a survey of a series of subsidence monitoring points established up the bottom of the drainage on either side of the inflection point. After the longwall has passed under the drainage these points will be re-surveyed and an accurate account undermined WEST RIDGE will visually inspect the area to determine if any effects of subsidence are apparent. *Within thirty days of the inspection WEST RIDGE will submit a written report to the Division outlining the results of this inspection.*

Recent site visits have determined the existence of riparian type vegetation in the lower reaches of Bear Canyon below the forks. WEST RIDGE commits to preparing a detailed vegetation survey and mapping of the canyon bottom with emphasis on the existence of riparian specie. This survey will be conducted during the growing season of 2005 or 2006. The survey will be done in consultation with Division biologists and the completed report will be added to the Mining and Reclamation Plan as an appendix.

If it is determined that mining-related subsidence has adversely impacted the hydrologic resources of Bear Canyon, including and state-appropriated water rights, WEST RIDGE will mitigate the damage. The first option would be to seal any cracks with the application of bentonite clay. Bentonite sealing compounds are available commercially made specifically for such applications. Access to the are would be by pack animals along the remnants of an old existing drill-hole access road. If larger mechanical equipment is needed. Access could be improved as necessary because the surface is owned by the BLM and SITLA and the coal leases held by WEST RIDGE provides for such surface rights. If bentonite sealing proved ineffective, WEST RIDGE would propose the installation of piping to transport stream water across the fracture zone to continue the flow downstream. *Any work done in the stream channel would most likely require the issuance of a channel alteration permit from the Utah Division of Water Rights.*

Spring Canyon is located in the northern part of the permit area in SITLA lease 44771. There are no state-appropriated water rights on this lease. (Refer to Appendix 7-5 for additional details.) The surface is privately owned by Penta Creek with whom WEST RIDGE maintains coal mining rights. Longwall mining in this area is not scheduled until the year 2014. In this area the coal seam is 2500' deep under the bottom of the Canyon. Spring Canyon, as the name would imply, contains several springs. The drainage area of Spring Canyon is well in excess of one square mile. The canyon supports a number of beaver dams indicative of perennial flow. WEST RIDGE will add three additional monitoring points *to collect baseline water monitoring data* in Spring

Canyon, namely ST-15 located upstream from the junction of Grassy Trail Creek, SP-101 located on a channel-bottom spring a short ways up Little Spring Canyon (a fork of Spring Canyon), and SP-102 located about 1000' upstream from the junction of Little Spring Canyon. This spring emanates from the west side of the canyon approximately 200' up from the canyon bottom. Refer to Map 7-7 and Table 7-1 for details. *For the first two years (starting with the third quarter of 2005) these sites will be monitored on a quarterly basis for baseline data according to the field measurements and laboratory measurements outlined in Table 7-2 (Surface Monitoring) and Table 7-3 (Groundwater Monitoring). Thereafter, all sites will be monitored for flow and field parameters on a quarterly basis.*

322.200

#### Wildlife Of The Proposed Permit Area

The diversity of wildlife species in and around the permit area is large. Vertebrate species total almost 360 species (Dalton and others 1977), of which the most common are mule deer, cougar (mountain lion), bobcat, black bear, coyote, red fox, gray fox, kit fox, raptors, chukar partridge, blue and ruffed grouse, mourning doves, and rabbits.

Mule deer are the most prevalent big game species found in the vicinity of the permit area. They are found in low abundance during the summer on the ridges above B and C canyons but seldom sighted in the canyons.

Pronghorn antelope occur west of the cliffs in the flat areas. Elk are found to the north and east of the permit area. Coyotes are the most prevalent mammalian carnivore and golden eagles the most abundant avian carnivore. Eagle nests are found throughout the canyons and western face of the Book Cliffs. No peregrine falcons or black-footed ferrets occur in or near the proposed permit area.

The permit area is located in the Anthro/Range Creek herd unit #11 where wildlife is managed by the UDWR. Herd Unit #11 occupies the central and eastern portion of Carbon County, part of the northeast corner of Emery County, the southeast corner of Duchesne County and a small area in the southwest portion of Uinta County (Utah Division of Wildlife Resources, 1997). The unit is bounded by the Green River on the east and highways 191 and 6 on the northwest and southwest. The permit area lies in the south-central area of the unit. The only commonly occurring big game species in the permit area is mule deer. The higher elevations (habitats of mixed mountain conifer, pinyon-juniper woodland, mixed mountain brush, and sage/grass) are considered to be summer range. The lower elevations (habitats of mixed mountain conifer, pinyon-juniper woodland and sagebrush shrubland) are considered winter range. A transition zone area is used as winter snow depth begins increasing. The mine site facility area would be located in the transition zone between summer and winter deer range. Deer summer range exists on West Ridge, Patmos Ridge and higher elevations to the north and east. Winter range exists at lower elevations in Whitmore Canyon and the flatter Pinyon-Juniper areas to the west of C Canyon. Winter range is generally utilized between November 1 and May 15 of each year, depending on the weather conditions.

**TABLE OF CONTENTS- APPENDICES  
R645-301-500 CHAPTER 5**

<b>APPENDIX NUMBER</b>	<b>DESCRIPTION</b>
APPENDIX 5-1	Reclamation Bond Calculations
APPENDIX 5-2*	Letter from Carbon County Commission
APPENDIX 5-3*	Resource Recovery and Protection Plan (R2P2)
APPENDIX 5-3A	Amended R2P2 Approval Letter (BLM)
APPENDIX 5-4*	Stability Evaluation for Construction and Reclaimed Slopes, West Ridge Mine
APPENDIX 5-5	Construction/Reclamation Plan
APPENDIX 5-6	Spill Prevention Control and Countermeasure Plan (SPCC)
APPENDIX 5-7	Pump House Reclamation and Sediment Control
APPENDIX 5-8*	Letter Regarding Pre-Subsidence Survey (Mayo and Associates)
APPENDIX 5-9	Assessment of Potential Effects of Longwall Mining on the Grassy Trail Dam and Reservoir. (R, B & G Engineering) ***** <b>TO BE ADDED LATER</b> *****
APPENDIX 5-10	SITLA Mine Plan Approval State Lease ML-47711 and ML-49287

\*Not included on disk

**R645-301-520            OPERATION PLAN****R645-301-521            GENERAL**

WEST RIDGE Resources, Inc. holds federal coal leases SL-068754 and UTU-75862, state lease ML 47711 and ML 49287 and the Penta Creek fee lease, totaling 6361.43 acres in the West Ridge area of eastern Carbon County. Much of the Penta Creek Fee Lease, is not included within the permit area at this time and cannot be mined until the permit is amended. Refer to Map 5-4B, Mining Projections - Extended Reserves.

The mine, ~~as proposed~~, will consist of one longwall and two continuous miner sections. The mining sequence for the first five year term is shown on Map 5-4A, Mining Projections. Initial mine production will come from reserves located in the southeastern portion of the existing lease area. ~~If WEST RIDGE Resources, Inc. acquires the state reserves, a permit modification will be submitted to incorporate the new lease area(s) into the existing permit. WEST RIDGE Resources, Inc. will propose to extend the longwall panels onto this new lease area.~~ Panels will be developed to the north and south of the mains, progressing in an eastward direction. With the existing leases, the projected life of the West Ridge Mine is 15 years. ~~However, acquisition of additional state coal reserves in the West Ridge area would extend the life of the mine to nearly 15 years.~~ After the economically recoverable reserves within the permit area have been depleted, the portals would be sealed and reclamation of the surface facility area would begin unless additional leases were acquired.

Surface facilities will be located in C Canyon, where the left and right forks converge, in a previously disturbed area. The extent of the previous disturbance includes access roads, outcrop excavations and exploration drill holes. Previous disturbance at this site is estimated to be approximately 1.62 acres. The total proposed surface disturbed area, as delineated by the tan line on the maps, amounts to approximately 29 acres. Actual anticipated disturbance for surface facilities and topsoil stockpiles (within the disturbance area) is estimated at 26.02 acres. This includes approximately 0.79 acres of Carbon County road which has been included in the disturbed area down to the C Canyon gate, and 0.23 acres for the pumphouse area located below the minesite.

An alternate (substitute) topsoil borrow area would be located about 1 ½ miles to the west of the proposed mine site on a ten acre parcel of State School Trust land. This area would not be included unless needed for final reclamation. No surface disturbance would take place at this location until the time of final reclamation. No additional acreage should be required for the project as proposed in this permit application.

## 521.100 Cross Sections And Maps

The lease area is located northwest of the old Sunnyside No. 1 underground mine workings. The lease was, at one time, held by U.S. Steel Corp., who authorized Kaiser Coal Company to extend a set of test entries from the Sunnyside No. 1 mine part way through the lease. These test entries were driven to the surface in B Canyon. The portal for this test entry breakout exists presently although it has been sealed. B Canyon is located approximately one mile southeast of C Canyon where the surface facilities for the West Ridge Mine are being proposed. The extent of the underground test entry development within the lease is shown on Map 5-7, Subsidence Map. The old Sunnyside Mine test entries driven north into the proposed permit area were mined in 1959 and 1960, are now inactive and sealed to prevent public access.

The proposed surface facilities are to be situated in C Canyon, north of the old underground mine workings in the Sunnyside No. 1 Mine. The location of the old workings with respect to the proposed development is shown on Map 5-4A. Map 5-1, Previous Disturbance, shows the areal extent of the previous surface disturbance in C Canyon.

## 521.120 Existing Surface And Subsurface Facilities And Features

No surface or subsurface features, such as **commercial** buildings, transmission lines, pipelines, or agricultural related features, exist in or near the proposed permit area. Refer to Map 4-1. A pre-mining (pre-subsidence) survey was conducted prior to mining operations, which included the area of lease UTU-78652. Refer to Appendix 5-8. **A recreational cabin (seasonal occupation) and trailer are located in Spring Canyon in the northern part of the permit area. In this area, the depth of cover exceeds 2500'. Within 18 months prior to longwall mining in this area a pre-subsidence survey of the cabin/trailer will be conducted. The location of this cabin is shown on Map 4-1, 5-2 and 5-7.**

Man-made features in or near the proposed permit area consist primarily of roads. Refer to Map 4-1. Several small roads exist within the permit area. These roads are Carbon County RS2477 roads. They are used primarily to access the top of West Ridge by ranchers in the area.

Approximately 960' of the existing Carbon County road into "C" Canyon has been added to the West Ridge Mine permit and included as disturbed area. The addition of this portion of road was necessitated by the placement of a gate (owned by Carbon County) to allow for better visibility and turnaround area for the public during those times when the gate is closed by the operator.

Roads that lie in or within 100 feet of the proposed permit area are depicted on Map 4-1.

No spoil, waste, noncoal waste, dams, embankments, sediment pond, water treatment or air pollution control facilities exist within the proposed permit area. A small portion of the Grassy Trail Reservoir (less than 0.6 acres) lies within a corner of the permit area.

521.130 Landownership And Right Of Entry Maps

Ownership boundaries and the names of the present owners of record for surface lands as well as underground are depicted on Maps 5-2, Surface Ownership and 5-3, Subsurface Ownership.

Map 5-4B delineates the federal coal lease SL-068754 and UTU-78562, state lease ML 47711 and ML49287 and the Penta Creek fee lease, totaling 6,114.89 acres held by WEST RIDGE Resources, Inc., which is the area for which WEST RIDGE Resources, Inc. Resources has the legal right to enter and begin coal mining and reclamation operations. ~~The state leases and~~ Much of the Penta Creek Fee Lease is not included within the permit area at this time.

Included in Appendix 5-2 is a letter from Carbon County granting WEST RIDGE Resources, Inc. permission to conduct mining operations within 100 feet of the Carbon County road. This would basically be that segment of road where the road enters the mine facility area.

Also included in Appendix 5-2 is an approval letter from Carbon County, allowing for the periodic closure of approximately 960' of the "C" Canyon Road from the gate to the original mine permit area. The permit area has been extended to the gate, as shown on Plate 4-1.

A public notice has been published providing for request for a public hearing as provided in R645-103-234. A copy of this notice is also included in Appendix 5-2.

521.140 Mine Maps And Permit Area Maps

The permit area proposed to be affected by the coal mining and reclamation operation is shown on Map 5-3. Permit renewals will be reapplied for on five year intervals.

521.141 The mining operation has been divided into five year mining blocks in an attempt to show future areas that will be mined under the permit renewals. The mining blocks are shown on Map 5-4B. All projections and timing are preliminary and general in nature and may change in the future depending on mining, marketing, environmental conditions and/or acquisition of additional state and federal reserves.

Surface support facilities in C Canyon will be utilized for the life of mine operations. The proposed mine surface facility area is depicted on Map 5-5, Surface Facility Map.

A suitable marker (such as a red or yellow steel, wood or fiberglass post or brightly colored rope tied around a tree trunk) will be used to mark the perimeter of the disturbed area prior to conducting mining activities. The proposed disturbed area is depicted on most of the 100 scale maps regardless of subject covered by each map.

521.260 Buffer Zone Markers

By regulatory definition (i.e. drainage area greater than one square mile) the left fork of C Canyon is classified as an ephemeral drainage as it has a drainage area of 231 acres. The right fork is classified as an intermittent drainage by regulatory definition. The drainage are for this fork is just over one square mile, at 687 acres. A stream gauge located in the right fork channel never detected any channel flow even during heavy precipitation events in the summer of 1997.

The right and left fork drainages will be culverted beneath the mine yard facilities; flows will be released down stream from the mine office pad. A sediment pond will be used to treat site drainage to prevent intermingling with the undisturbed area drainage. A stream buffer zone sign will be posted at the upper end of the right fork of the mine yard and below the office pad to indicate a stream buffer zone.

521.270 Topsoil Markers

Signs will be posted to identify stockpiled topsoil materials.

**R645-301-522 COAL RECOVERY**

A Resource Recovery and Protection Plan (R2P2), has been approved by the BLM. The R2P2 will assure that coal mining and reclamation operations are conducted so as to maximize the utilization and conservation of the coal, while utilizing the best technology currently available to maintain environmental integrity, so that re-affecting the land in the future through coal mining and reclamation operations is minimized. Refer to Appendix 5-3 and 5-3A for the R2P2 which includes a discussion of coal resource utilization and conservation. The Utah School and Institutional Trust Lands Administration (SITLA), with concurrence from the BLM, has approved the mining plan for State Leases ML-47711 and ML-59287 (See Appendix 5-10).

**R645-301-523 MINING METHODS**

Both longwall and continuous miner methods will be employed to recover the coal resource. Longwall will be the primary production method, while continuous miners will be used mainly for mine development to support the longwall. The longwall panels shown on Map 5-4B have been laid out to maximize recovery of the primary coal reserves. Continuous miners will be utilized to develop main entries, longwall gate entries, sumps and other similar development areas.

Initial mine production has come from reserves located in the southeastern portion of the existing lease area. Panels will be developed to the north and south of the mains, progressing in an eastward direction. Longwall panel layout may change depending on conditions encountered in the underground workings.

The projected life of the West Ridge Mine is 15 years. Acquisition of additional federal coal reserves in the West Ridge area would extend the life of the mine beyond 15 years. In the unlikely event that non federal reserves cannot be acquired then the mine plan projection will be altered to maximize the economic and recovery of federal coal in the irregular blocks not amenable to mining. After the economically recoverable reserves within the lease area have been depleted, the portals would be sealed and reclamation of the surface facility area would begin unless additional leases were acquired.

The West Ridge mine is being proposed as an average size underground longwall mine by Utah industry standards, producing at an average rate of about 3 million tons per year. Mine production is subject to normal fluctuations depending on operational variables such as

panels. The subsidence base net was established in May 1982 and extended in August 1986 to determine the vertical extent of subsidence in an area with the least amount of overburden and the greatest coal height remaining to be mined. This area was chosen to provide a worst case scenario. The maximum subsidence observed was 3 feet over an mined out area where the coal was 10.5 feet high. The low amount of subsidence measured is probably due to the underlying massive, 150 foot thick, Castlegate Sandstone. This sandstone appears to act as a buffering action for subsidence by limiting the vertical extent of the cave and reduce the total amount of subsidence that is measured. The sandstone appears to act as a monolithic slab thus providing a vertical barrier to upward migration of the underlying cave. The sandstone is located about 200 feet over the coal seam which was mined.

It is likely that the affects of mining may cause disruption and dewatering of the strata immediately above the coal seam and for about 100 feet above the mined out area. The areas in excess of 100 feet above the mine out area will experience increasingly lesser effects from subsidence. The remaining Blackhawk between the coal seam and the bottom of the Castlegate ranges from 165 feet to almost 400 feet. Taking a minimum of 165 feet of Blackhawk plus a minimum of 120 feet of Castlegate above that, it is unlikely that there will be any effect on the aquifers above the mining area. Overburden in the mining area averages 1,800 feet, getting up to as much as 2,500 feet under the top of West Ridge.

Based on field surveys and the findings of the Probable Hydrologic Consequence (PHC report), it is concluded that the area above the mine should not be adversely affected by coal mining operations.

As previously discussed, the massive Castlegate Sandstone would minimize the affect of subsidence on the land surface, seeps and springs.

#### Surface Structures

No surface structures such as pipelines, **commercial** buildings, or fences exist within the permit area. Several single lane, unmaintained roads occur on public land throughout the permit area. These roads could easily be regraded if subsidence were to occur. Warning signs would be posted and fences established, if necessary, to protect the public. **A recreational cabin (seasonal occupation) and trailer are located in Spring Canyon in the northern part of the permit area. In this area, the depth of cover exceeds 2500'. Within 18 months prior to longwall mining in this area a pre-subsidence survey of the cabin/trailer will be conducted. The location of this cabin is shown on Map 4-1, 5-2 and 5-7.**

### Prime Farmland

The BLM and NRCS (Natural Resource Conservation Service) have determined that no prime farmland exists on or near West Ridge. Historically, the area has not been utilized for agricultural production. Unless a dependable, economical source of water could be established, farming is not likely to take place. The rough terrain and steep slope would

## Mitigation

Mitigation measures may include: grading of damage resulting from subsidence on grazable lands (where accessible), fencing to restrict access (where necessary) and restoration of adversely affected roads and trails. Graded areas will be reseeded using a seed mix designated by the BLM.

### 525.130 *State Appropriated Waters-Quantity and Use*

*Refer to Appendix 7-5 for all state appropriated water right within and adjacent to the permit area, including appropriated quantities and designated usage.*

### 525.200 Subsidence Control

WEST RIDGE Resources, Inc. will adopt measures which are technologically and economically feasible to prevent subsidence under areas to be protected and to provide for planned controlled subsidence in all other areas. WEST RIDGE Resources, Inc. will comply with all provisions of the approved subsidence control plan.

Material damage resulting from subsidence will be corrected to the extent technologically and economically feasible. Where possible, the land will be restored to a condition comparable to the use it supported prior to subsidence.

Mining will not be conducted beneath or adjacent to public buildings, churches, schools, hospitals. None of these structures exist within or adjacent to the permit area. A small portion of Grassy Trail Reservoir (less than 0.6 acres) lies within a corner of the permit area. Grassy Trail Reservoir impounds more than 20 acre feet of water. However, there will be no mining or mining related subsidence below this reservoir.

Longwall panel layout may change depending on conditions encountered in the underground workings. As longwall mining approaches Grass Trail Reservoir, existing ongoing subsidence monitoring information will be used to determine the actual angle of draw and subsidence ratio specific to this area. Based on this empirical information the underground workings will be designed to ensure that the reservoir is not adversely affected by mining activity.

The Grassy Trail Reservoir, which impounds more than 20 acre-feet of water, is located partially within and adjacent to the permit area. There will be no mining conducted beneath the reservoir or impoundment structure. As presently planned, Panel 7 is the closest longwall panel to Grassy Trail Reservoir, located approximately 995' from the reservoir measured horizontally. This panel is also 1664' below the reservoir at this point.

WEST RIDGE Resources has hired R, B &G Engineering to prepare a study of the risk

to the Grassy Trail dam and reservoir from seismicity and subsidence associated with longwall mining in the West Ridge Mine. This study will involve collection of additional data from newly-installed accelerometers, subsidence monitoring stations, and piezometers in the area around the dam. This study is being conducted with input from BLM, DOGM, Division of Dam Safety, and East Carbon City. Stipulation 17 of federal lease UTU-78562 states the following:

*"17. SEISMIC STIPULATION: Mining operations shall be conducted in a manner to prevent seismic events that would cause damage to surface or subsurface structures such as: power lines or mine pillars and other structures such as Grassy Trail Reservoir and/or create hazardous conditions such as landslides.*

*The Lessee shall: (1) Provide a seismic risk assessment of the Grassy Trail Reservoir to the AO prior to mining in the lease. (2) Prior to mining in the lease, the Lessee shall provide a plan to monitor the Reservoir and the steps necessary to mitigate any damage created by the lessee. These plans shall be updated by the Lessee as deemed necessary by the AO.*

*The AO will either approve or may prescribe the mining methods used, the amount of coal recovered or determine the corrective measures necessary to assure protection of surface or subsurface structures and resources. The Lessee is and will remain liable for any and all damages or hazardous conditions resulting from the mining operations under the lease."*

(Refer to Appendix 1-4)

In the most recent R2P2 approval (see appendix 5-3A), BLM approved longwall mining in panel #6. Development of the tail-gate entries for panel #7 is also approved. However, the R2P2 states, "Longwall mining of Panel 7 is not approved at this time. Approval of Panel 7 will be contingent on receipt of final seismic analysis report(s), updated data from the on-going monitoring, and receipt of BLM of adequate contingency plan(s) addressing mitigating steps." Therefore, WEST RIDGE Resources acknowledges that Division approval of the Incidental Boundary Change for the Penta Creek fee lease is only for first mining of the tail-gate entries for panel 7 and that approval of longwall mining (i.e. full extraction mining) in panel 7 will not be issued until the seismic analysis is completed, the conditions of Lease Stipulation 17 have been complied with to the satisfaction of BLM and the Division, and R2P2 approval of full extraction of panel 7 has been granted by BLM. When the seismic analysis report is finalized it will be added to the MRP as Appendix 5-9.

525.300 Public Notice of Proposed Mining

No coal mining will be conducted under any buildings, facilities or impoundments (other than the recreational cabin referred to in 521.120). The BLM will be kept informed as

to the dates and locations of mining activities. All owners of surface property and structures (BLM) above the underground works will receive notification at least six months prior to mining of the specific areas in which mining will take place, dates of mining and the location at which the subsidence control plan may be examined.

525.480 *State Appropriated Water Replacement Mitigation*

*WEST RIDGE Resources, Inc. commits to mitigate the diminution or degradation of state appropriated waters within or adjacent to the permit area caused by surface effects of mine related subsidence. Mitigation measures would include such measures as sealing surface cracks with expansive clay materials (such as bentonite), trucking water, piping across fracture zones, transfer of water rights, installation of wildlife guzzlers and/or compensation to water rights owners.*

525.480 Bear Canyon is situated in the northwest portion of the permit area within the SITLA lease area. This canyon is unique because it is within the right fork of this drainage that the cover over the longwall subsidence zone is the shallowest of anywhere in the entire permit area. In one part of the bottom of the (right fork) Bear Canyon drainage the cover over the longwall panes is approximately 325'. Due to the increased potential for the effects of subsidence to reach the surface in this area special attention has been focused on the hydrologic character of the Bear Canyon drainage.

Bear Canyon is typical of the canyons draining the southwest-facing front slopes of the Book Cliffs in this area. These canyons are generally shorter and drier than those drainages on the back-side of the Cliffs. Several baseline surveys of Bear Canyon right fork done in the late 1980's showed the drainage to be *mostly* dry and the canyon was identified as ephemeral along with other similar front-facing canyons in the permit area, such as "C" Canyon, "B" Canyon, and "A" Canyon. However, during site visits in June and July of 2005, substantial stream-flow was observed in the drainage. This occurrence of flow, along with the observation of riparian vegetation in the lower stretches of the canyon, has led to a re-evaluation of the classification of the drainage as intermittent. Also, because the area of the Bear Canyon watershed is greater than one square mile the drainage is classified as intermittent under DOGM regulations.

Historical observation of Bear Canyon shows the streamflow in the bottom of the drainage to be a combination of surface flow and subsurface flow. In those areas where bedrock is at or close to the surface, flow is forced up to the surface. In other areas where the alluvium in the channel is thick and porous the flow is subsurface and the stream channel is often dry. The stretches of channel exhibiting surface flow as opposed to subsurface flow will vary from season to season, and year to year depending on prior precipitation trends in the watershed. There are times when the entire length of the channel could be expected to exhibit surface flow, and other times when surface flow is confined to certain segments. And, according to past monitoring observations, there are

often times when there is no flow *in the stream channel*. In order to better define the hydrologic character of the canyon WEST RIDGE Resources will expand the monitoring program in Bear Canyon by adding two new monitoring sites and relocating a third site (see Map 7-7 and Table 7-1).

As mentioned previously, there is a point in the right fork of Bear Canyon where cover over the longwall panel will be about 325' which is the shallowest surface cover of any place within the current WEST RIDGE mine plan. This, along with the fact that there are state-appropriated surface water rights in this drainage (refer to Appendix 7-5), makes this an area of special interest. There is reason to expect that full-extraction longwall mining will not adversely affect the hydrologic resources of the canyon in this area. According to Syd S. Peng, (*"Coal Mine Ground Control"*, 1978, Wiley, New York) a general rule-of-thumb is that subsidence-related fractures can be expected for a distance above the coal seam equal to 50 times the mining height, which works out to be 316' for the shallow point in Bear Canyon, which is slightly less than the cover in that area. Therefore due to the shallowness of cover in this area there could be subsidence fractures which reach the surface in the bottom of the canyon, and mitigation will be done to protect the resource.

The shallow overburden point coincides with the inflection point of the longwall subsidence profile. Based on a 22 degree angle of draw the tension zone will extend along the surface from the inflection point (shallow point) downstream approximately 130'. Areas upstream from the inflection point will be in compression as the longwall panel are extracted in progression from the southwest to the northeast according to the approved mining plan. Cracks are more likely to open up in the tension zone as compared to the compression zone where lateral forces are pushing toward each other rather than pulling apart. As mining progresses to the northeast, cover increases rapidly because of the gradient of the channel bottom and the dip of the coal seam, and surface effects of subsidence should diminish in that direction. Therefore, it is expected that any cracking which might reach the surface should most likely appear in the canyon bottom in the 130' (plus/minus) tension zone down-canyon from the inflection point. Special subsidence monitoring will be focused on this area.

WEST RIDGE will establish two new hydrologic monitoring sites in the right fork of Bear Canyon. The first site (ST-11) will be located within the tension zone described above. This site was chosen because this location should be well-suited to determine if tension cracks have affected stream flow. It is also, coincidentally, one of the areas where the bedrock nature of the channel bottom forces water to the surface, thereby making streamflow measurements more accurate. The second site (ST-12) will be located about 2400' farther up-canyon in another area where, again, the bedrock nature of the channel allows for a more accurate streamflow measurement. A third monitoring site (ST-13) will be located below the forks of Bear Canyon just outside the permit area boundary. This site will replace the existing monitoring site ST-4.

During the flow season of 2005 and 2006 (that is, May 15 through September 15) site ST-11 will be monitored monthly as long as flow is present. This monthly monitoring will help better define the nature of streamflow prior to longwall extraction in the area, which is presently scheduled for May, 2007. Thereafter, monitoring will be done on the regular quarterly basis. Site ST-12 is more inaccessible, and could be dangerous to reach in the winter. Therefore this site will be monitored twice a year, once during late spring/early summer (expected peak flow) and once in late summer/early fall, when the canyons are normally much drier. Site ST-13 will be monitored quarterly.

The longwall is presently scheduled to pass under Bear Canyon in the spring of 2007. Prior to that, WEST RIDGE will complete a survey of a series of subsidence monitoring points established up the bottom of the drainage on either side of the inflection point. After the longwall has passed under the drainage these points will be re-surveyed and an accurate account undermined WEST RIDGE will visually inspect the area to determine if any effects of subsidence are apparent. *Within thirty days of the inspection WEST RIDGE will submit a written report to the Division outlining the results of this inspection*

Recent site visits have determined the existence of riparian type vegetation in the lower reaches of Bear Canyon below the forks. WEST RIDGE commits to preparing a detailed vegetation survey and mapping of the canyon bottom with emphasis on the existence of riparian specie. This survey will be conducted during the growing season of 2005 or 2006. The survey will be done in consultation with Division biologists and the completed report will be added to the Mining and Reclamation Plan as an appendix.

If it is determined that mining-related subsidence has adversely impacted the hydrologic resources of Bear Canyon, including and state-appropriated water rights, WEST RIDGE will mitigate the damage. The first option would be to seal any cracks with the application of bentonite clay. Bentonite sealing compounds are available commercially made specifically for such applications. Access to the are would be by pack animals along the remnants of an old existing drill-hole access road. If larger mechanical equipment is needed. Access could be improved as necessary because the surface is owned by the BLM and SITLA and the coal leases held by WEST RIDGE provides for such surface rights. If bentonite sealing proved ineffective, WEST RIDGE would propose the installation of piping to transport stream water across the fracture zone to continue the flow downstream. *Any work done in the stream channel would most likely* require the issuance of a channel alteration permit from the Utah Division of Water Rights.

Spring Canyon is located in the northern part of the permit area in SITLA lease 44771. There are no state-appropriated water rights on this lease. (Refer to Appendix 7-5 for additional details.) The surface is privately owned by Penta Creek with whom WEST RIDGE maintains coal mining rights. Longwall mining in this area is not scheduled until the year 2014. In this area the coal seam is 2500' deep under the bottom of the Canyon.

Spring Canyon, as the name would imply, contains several springs. The drainage area of Spring Canyon is well in excess of one square mile. The canyon supports a number of beaver dams indicative of perennial flow. WEST RIDGE will add three additional monitoring points *to collect baseline water monitoring data* in Spring Canyon, namely ST-15 located upstream from the junction of Grassy Trail Creek, SP-101 located on a channel-bottom spring a short ways up Little Spring Canyon (a fork of Spring Canyon), and SP-102 located about 1000' upstream from the junction of Little Spring Canyon. This spring emanates from the west side of the canyon approximately 200' up from the canyon bottom. Refer to Map 7-7 and Table 7-1 for details. *For the first two years (starting with the third quarter of 2005) these sites will be monitored on a quarterly basis for baseline data according to the field measurements and laboratory measurements outlined in Table 7-2 (Surface Monitoring) and Table 7-3 (Groundwater Monitoring). Thereafter, all sites will be monitored for flow and field parameters on a quarterly basis.*

Burnout Creek and upper Grassy Trail Creek, both being relatively steep-gradient mountain streams, are in many senses generally comparable. However, while overburden thicknesses in the Burnout Canyon area range from about 600 to 850 feet, overburden thicknesses beneath Grassy Trail Creek are approximately 2,000 feet. Therefore, it is reasonable to assume that the hydrologic impacts to upper Grassy Trail Creek, where only single seam extraction under significantly greater cover, will be similar to (or lesser than) the minimal impacts experienced in the Burnout Canyon area.

For the reasons discussed above, it is believed that the impacts to Grassy Trail Creek above Grassy Trail Reservoir as a result of longwall mining beneath the creek will be negligible.

No mining is proposed beneath or within the angle of draw of Grassy Trail Reservoir. Therefore, the potential for loss of water from reservoir leakage is believed to be negligible.

Bear Canyon is situated in the northwest portion of the permit area within the SITLA lease area. This canyon is unique because it is within the right fork of this drainage that the cover over the longwall subsidence zone is the shallowest of anywhere in the entire permit area. In one part of the bottom of the (right fork) Bear Canyon drainage the cover over the longwall panes is approximately 325'. Due to the increased potential for the effects of subsidence to reach the surface in this area special attention has been focused on the hydrologic character of the Bear Canyon drainage.

Bear Canyon is typical of the canyons draining the southwest-facing front slopes of the Book Cliffs in this area. These canyons are generally shorter and drier than those drainages on the back-side of the Cliffs. Several baseline surveys of Bear Canyon right fork done in the late 1980's showed the drainage to be *mostly* dry and the canyon was identified as ephemeral along with other similar front-facing canyons in the permit area, such as "C" Canyon, "B" Canyon, and "A" Canyon. However, during site visits in June and July of 2005, substantial stream-flow was observed in the drainage. This occurrence of flow, along with the observation of riparian vegetation in the lower stretches of the canyon, has led to a re-evaluation of the classification of the drainage as intermittent. Also, because the area of the Bear Canyon watershed is greater than one square mile the drainage is classified as intermittent under DOGM regulations.

Historical observation of Bear Canyon shows the streamflow in the bottom of the drainage to be a combination of surface flow and subsurface flow. In those areas where bedrock is at or close to the surface, flow is forced up to the surface. In

other areas where the alluvium in the channel is thick and porous the flow is subsurface and the stream channel is often dry. The stretches of channel exhibiting surface flow as opposed to subsurface flow will vary from season to season, and year to year depending on prior precipitation trends in the watershed. There are times when the entire length of the channel could be expected to exhibit surface flow, and other times when surface flow is confined to certain segments. And, according to past monitoring observations, there are often times when there is no flow *in the stream channel*. In order to better define the hydrologic character of the canyon WEST RIDGE Resources will expand the monitoring program in Bear Canyon by adding two new monitoring sites and relocating a third site (see Map 7-7 and Table 7-1).

As mentioned previously, there is a point in the right fork of Bear Canyon where cover over the longwall panel will be about 325' which is the shallowest surface cover of any place within the current WEST RIDGE mine plan. This, along with the fact that there are state-appropriated surface water rights in this drainage (refer to Appendix 7-5), makes this an area of special interest. There is reason to expect that full-extraction longwall mining will not adversely affect the hydrologic resources of the canyon in this area. *According to Syd S. Peng, ("Coal Mine Ground Control", 1978, Wiley, New York) a general rule-of-thumb is that subsidence-related fractures can be expected for a distance above the coal seam equal to 50 times the mining height, which works out to be 316' for the shallow point in Bear Canyon, which is slightly less than the cover in that area. Therefore due to the shallowness of cover in this area there could be subsidence fractures which reach the surface in the bottom of the canyon, and mitigation will be done to protect the resource.*

*The shallow overburden point coincides with the inflection point of the longwall subsidence profile. Based on a 22 degree angle of draw the tension zone will extend along the surface from the inflection point (shallow point) downstream approximately 130'. Areas upstream from the inflection point will be in compression as the longwall panel are extracted in progression from the southwest to the northeast according to the approved mining plan. Cracks are more likely to open up in the tension zone as compared to the compression zone where lateral forces are pushing toward each other rather than pulling apart. As mining progresses to the northeast, cover increases rapidly because of the gradient of the channel bottom and the dip of the coal seam, and surface effects of subsidence should diminish in that direction. Therefore, it is expected that any cracking which might reach the surface should most likely appear in the canyon bottom in the 130' (plus/minus) tension zone down-canyon from the inflection point. Special subsidence monitoring will be focused on this area.*

WEST RIDGE will establish two new hydrologic monitoring sites in the right fork

of Bear Canyon. The first site (ST-11) will be located within the tension zone described above. This site was chosen because this location should be well-suited to determine if tension cracks have affected stream flow. It is also, coincidentally, one of the areas where the bedrock nature of the channel bottom forces water to the surface, thereby making streamflow measurements more accurate. The second site (ST-12) will be located about 2400' farther up-canyon in another area where, again, the bedrock nature of the channel allows for a more accurate streamflow measurement. A third monitoring site (ST-13) will be located below the forks of Bear Canyon just outside the permit area boundary. This site will replace the existing monitoring site ST-4.

During the flow season of 2005 and 2006 (that is, May 15 through September 15) site ST-11 will be monitored monthly as long as flow is present. This monthly monitoring will help better define the nature of streamflow prior to longwall extraction in the area, which is presently scheduled for May, 2007. Thereafter, monitoring will be done on the regular quarterly basis. Site ST-12 is more inaccessible, and could be dangerous to reach in the winter. Therefore this site will be monitored twice a year, once during late spring/early summer (expected peak flow) and once in late summer/early fall, when the canyons are normally much drier. Site ST-13 will be monitored quarterly.

The longwall is presently scheduled to pass under Bear Canyon in the spring of 2007. Prior to that, WEST RIDGE will complete a survey of a series of subsidence monitoring points established up the bottom of the drainage on either side of the inflection point. After the longwall has passed under the drainage these points will be re-surveyed and an accurate account undermined WEST RIDGE will visually inspect the area to determine if any effects of subsidence are apparent. *Within thirty days of the inspection WEST RIDGE will submit a written report to the Division outlining the results of this inspection.*

Recent site visits have determined the existence of riparian type vegetation in the lower reaches of Bear Canyon below the forks. WEST RIDGE commits to preparing a detailed vegetation survey and mapping of the canyon bottom with emphasis on the existence of riparian specie. This survey will be conducted during the growing season of 2005 or 2006. The survey will be done in consultation with Division biologists and the completed report will be added to the Mining and Reclamation Plan as an appendix.

If it is determined that mining-related subsidence has adversely impacted the hydrologic resources of Bear Canyon, including and state-appropriated water rights, WEST RIDGE will mitigate the damage. The first option would be to seal any cracks with the application of bentonite clay. Bentonite sealing compounds are available commercially made specifically for such applications. Access to the are

would be by pack animals along the remnants of an old existing drill-hole access road. If larger mechanical equipment is needed. Access could be improved as necessary because the surface is owned by the BLM and SITLA and the coal leases held by WEST RIDGE provides for such surface rights. If bentonite sealing proved ineffective, WEST RIDGE would propose the installation of piping to transport stream water across the fracture zone to continue the flow downstream. *Any work done in the stream channel would most likely* require the issuance of a channel alteration permit from the Utah Division of Water Rights.

Spring Canyon is located in the northern part of the permit area in SITLA lease 44771. There are no state-appropriated water rights on this lease. (Refer to Appendix 7-5 for additional details.) The surface is privately owned by Penta Creek with whom WEST RIDGE maintains coal mining rights. Longwall mining in this area is not scheduled until the year 2014. In this area the coal seam is 2500' deep under the bottom of the Canyon. Spring Canyon, as the name would imply, contains several springs. The drainage area of Spring Canyon is well in excess of one square mile. The canyon supports a number of beaver dams indicative of perennial flow. WEST RIDGE will add three additional monitoring points *to collect baseline water monitoring data* in Spring Canyon, namely ST-15 located upstream from the junction of Grassy Trail Creek, SP-101 located on a channel-bottom spring a short ways up Little Spring Canyon (a fork of Spring Canyon), and SP-102 located about 1000' upstream from the junction of Little Spring Canyon. This spring emanates from the west side of the canyon approximately 200' up from the canyon bottom. Refer to Map 7-7 and Table 7-1 for details. *For the first two years (starting with the third quarter of 2005) these sites will be monitored on a quarterly basis for baseline data according to the field measurements and laboratory measurements outlined in Table 7-2 (Surface Monitoring) and Table 7-3 (Groundwater Monitoring). Thereafter, all sites will be monitored for flow and field parameters on a quarterly basis.*

## 728.320 Presence of acid-forming or toxic-forming materials

Acid-forming materials in western coal mines generally consist of sulfide minerals, namely pyrite and marcasite, which, when exposed to air and water, are oxidized causing the production of  $H^+$  ions (acid). Oxidation of pyrite will occur in the mine; however, acidic waters will not be observed in the mine. The acid is quickly consumed by dissolution of abundant, naturally occurring carbonate minerals. Iron is readily precipitated, as iron-hydroxide, and excess iron will be not observed in mine discharge water.

No other acid-forming materials or any toxic-forming materials have been identified or are suspected to exist in materials to be disturbed by mining.

## 728.331 Sediment yield from the disturbed area

Undisturbed drainage from C Canyon upstream from the mine yard facility area will, for the most part, be culverted underneath the mine site by means of a 4' diameter corrugated metal pipe in the right fork and a 3' diameter culvert in the left fork drainage. This culvert has been sized to meet or exceed the design storm for this drainage area. Runoff from the mine site disturbed area and whatever natural runoff which flows onto the disturbed area will be channeled to the mine site sediment pond. The drainage control system for the mine site is shown on Map 7-2.

The culvert and ditch system is designed to handle drainage from a 10 year, 24 hour event. Any storm event that exceeds this amount will flow through the mine yard drainage structures to the sediment pond. If a storm should exceed the design event and the magnitude of the runoff exceeds the pond capacity, the over flow will be channeled through the pond cells and out the emergency spillway to the natural drainage channel below the sediment pond. This overflow will have a lower suspended solid content than the inflow to the pond or any drainage which may be flowing down the natural drainage channel. The sediment pond will detain the inflowing water and allow suspended solids to settle out in the pond cells prior to discharge. Given the ephemeral nature of the drainages and the fact that the sediment pond is designed for the complete retention of the 10 year, 24 hour storm event, it is unlikely that discharge from the sediment pond will occur very often if ever. Since the sediment pond is designed to completely contain the 10 year, 24 hour event, only a limited amount of outflow, that in excess of the design event, would be discharged. Excess water contained in the sediment pond following runoff events would be

**Table 7-1 Hydrologic monitoring protocols and locations****MONITORING PROTOCOLS***Discharge and water level measurements*

Protocol	Applies to	Parameter	Frequency
A	Streams	discharge	quarterly
B	Springs	discharge	quarterly
C	Monitoring wells	water level	quarterly

*Water quality*

Protocol	Applies to	Parameters	Table	Frequency
1	Streams	operational field and laboratory for two years, then field only with DOGM concurrence	7-2	*quarterly
2	Springs	operational field and laboratory for two years, then field only with DOGM concurrence	7-3	quarterly
3	Monitoring wells	operational field and laboratory for two years, then field only with DOGM concurrence	7-3	quarterly

\*samplers will be checked following precipitation events

**MONITORING LOCATIONS**

Site	Protocols	Comments
<i>Streams</i>		
ST-3	A,1	Grassy Trail Creek upstream of permit area
ST-4	A,1	Bear Creek downstream of permit area ( <i>Note 1</i> )
ST-5*	A,1	B and C Canyon downstream of permit area
ST-6A*	A,1	C Canyon upstream of mine site area
ST-6*	A,1	C Canyon downstream of mine site area
ST-7*	A,1	A Canyon downstream of permit area
ST-8	A,1	Grassy Trail Creek downstream of permit area
ST-9	A,1	Grassy Trail Creek at Grassy Trail Reservoir inlet
ST-10	A,1	Grassy Trail Creek above permit area
ST-11	A,1	Bear Canyon Shallow Point ( <i>Note 2</i> )
ST-12	A,1	Bear Canyon Falls ( <i>Note 3</i> )
ST-13	A,1	Bear Canyon Below Forks
ST-15	A,1	Spring Canyon Stream ( <i>Note 4</i> )
<i>Springs</i>		
SP-12	B,2	Colton Fm. upper Whitmore Canyon
SP-13	B,2	Colton Fm. upper Whitmore Canyon
SP-15	B,2	Colton Fm. near Grassy Trail Reservoir
WR-1	B,2	Colton Fm. on West Ridge

WR-2	B,2	Colton Fm. on West Ridge
SP-16	B,2	North Horn Fm. in Whitmore Canyon
SP-8	B,2	North Horn Fm. in C Canyon
SP-101	B,2	Little Spring Bottom (Note 5)
SP-102	B,2	Spring Canyon Hillside (Note 5)
S-80	B,2	Hanging Rock Spring
<i>Wells</i>		
DH86-2	C-3	Sunnyside Sandstone in C Canyon

*Note 1: ST-4 was discontinued in the third quarter of 2005 and replaced with ST-13.*

*Note 2: ST-11 will be monitored monthly from May 15 through September 15 as long as flow is present during the flow season of 2005 and 2006 and quarterly throughout the remainder of the year. Thereafter, monitoring will be done on a quarterly basis.*

*Note 3: ST-12 will be monitored twice a year (late spring/early summer and late summer/early fall) during 2005 and 2006. Based on the results of this monitoring, the plan will be reassessed to determine if this site should be included in the permanent monitoring plan.*

*Note 4: ST-15 will be monitored for baseline data for the first two years (starting third quarter 2005) according to the surface water monitoring parameters outlined in Table 7-2.*

*Note 5: SP-101 and SP-102 will be monitored for baseline data for the first two years (starting third quarter 2005) according to the ground water monitoring parameters outlined in Table 7-3.*

**Table 7-2 Surface water operational water quality monitoring**

<u>FIELD MEASUREMENTS</u>	<u>REPORTED AS</u>
flow*	gpm
pH	pH units
Specific Conductivity	$\mu\text{s}/\text{cm}$ @ 25°C
Dissolved Oxygen	mg/l
Temperature	°C
 <u>LABORATORY MEASUREMENTS</u>	
Total Dissolved Solids	mg/l
Total Suspended Solids	mg/l
Carbonate	mg/l
Bicarbonate	mg/l
Alkalinity, total	mg/l
Hardness,	mg/l
Calcium (dissolved)	mg/l
Chloride	mg/l
Iron (dissolved)	mg/l
Iron (total)	mg/l
Magnesium (dissolved)	mg/l
Manganese (dissolved)	mg/l
Manganese (total)	mg/l
Potassium (dissolved)	mg/l
Sodium (dissolved)	mg/l
Sulfate	mg/l
 Oil and grease	 mg/l
Cations	meq/l
Anions	meq/l
Cation/Anion Balance	%

\* For those sites with crest gauges