



P.O. Box 910, East Carbon, Utah 84520 794 North "C" Canyon Rd, East Carbon, Utah 84520
Telephone (435) 888-4000 Fax (435) 888-4002

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

March 1, 2017

Attn: Daron Haddock
Permit Supervisor

Re: West Ridge Mine C/007/041
WR17-001 Seismic Monitoring

Dear Mr. Haddock,

Mining operations within any reasonable proximity to the Grassy Trail Dam were ceased as of September, 2015. It has since been determined that any Mining-Induced Seismic Activity that would have possibly occurred, would have already occurred within 6 months of mining. As a result of these findings, and also as a result of it being over a year since last mining, West Ridge Resources, Inc. requests seismic monitoring of the dam to be reduced until September 2017, and after that time period of no significant mining-induced seismic activity, representatives from all designated parties will meet again and approve of the monitoring be ended.

Please find attached the application to curtail the Seismic Monitoring Requirements as outlined in the Current Approved MRP until September, 2017.

If you have any questions, or need any additional information regarding this submittal, please contact me directly at 435-888-4000.

Sincerely,

Karin Madsen
Engineering Tech
UtahAmerican Energy, Inc.

APPLICATION FOR PERMIT PROCESSING

<input checked="" type="checkbox"/> Permit Change	<input type="checkbox"/> New Permit	<input type="checkbox"/> Renewal	<input type="checkbox"/> Transfer	<input type="checkbox"/> Exploration	<input type="checkbox"/> Bond Release	Permit Number: ACT/007/41
Title of Proposal: WR 17-001 Seismic Monitoring						Mine: West Ridge
						Permittee: West Ridge Resources, Inc

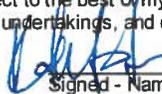
Description, include reason for application and timing required to implement:

Instructions: If you answer yes to any of the first 8 questions (gray), submit the application to the Salt Lake Office. Otherwise, you may submit it to your reclamation

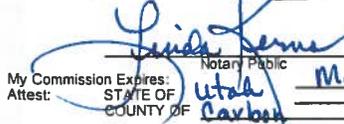
<input type="checkbox"/> Yes	<input type="checkbox"/> No	1. Change in the size of the Permit Area? _____ acres Disturbed Area? _____ acres <input type="checkbox"/> increase <input type="checkbox"/> decrease.
<input type="checkbox"/> Yes	<input type="checkbox"/> No	2. Is the application submitted as a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

X Attach 1 complete digital copy of the application.

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

 / Karin Madsen / Engineering Tech. / 3-17
Signed - Name - Position - Date

Subscribed and sworn to before me this 1st day of March, 2017.

My Commission Expires: _____
Attest:  Notary Public
STATE OF Utah
COUNTY OF Carbon March 27, 2017



Received by Oil, Gas & Mining

ASSIGNED TRACKING NUMBER

Madsen, Karin

From: Rigby, Steven <swrigby@blm.gov>
Sent: Wednesday, March 01, 2017 8:32 AM
To: Madsen, Karin
Subject: Fwd: Grassy Trail Seismic Monitoring

A suggestion from Jeff McKenzie.....

Steve Rigby, Assistant Field Manager - Coal
Bureau of Land Management
Price Field Office
125 South 600 west
Price, Utah 84501
(435) 636-3604 voice
(435) 650-9955 cell
(435) 636-3657 fax
swrigby@blm.gov

----- Forwarded message -----

From: **McKenzie, Jefferson** <jmckenzi@blm.gov>
Date: Wed, Mar 1, 2017 at 8:19 AM
Subject: Fwd: Grassy Trail Seismic Monitoring
To: Steven Rigby <swrigby@blm.gov>, Roger Bankert <rbankert@blm.gov>

----- Forwarded message -----

From: **McKenzie, Jefferson** <jmckenzi@blm.gov>
Date: Wed, Feb 1, 2017 at 12:35 PM
Subject: Re: Grassy Trail Seismic Monitoring
To: "Rigby, Steven" <swrigby@blm.gov>
Cc: Roger Bankert <rbankert@blm.gov>

As a non-expert, it looks ok.

Suggest the following change:

WEST RIDGE Resources and RB&G Engineering will continue to monitor for Seismic activity through September, 2017, where at that time the data will be reviewed by the Division of Dam Safety, Division of Oil, Gas & Mining, ~~Bureau of Land Management~~, East Carbon-Sunnyside City (herein after referred to as: the designated parties), and if no significant movement has been

detected which can be linked to mining-induced seismicity, WEST RIDGE Resources monitoring responsibilities will cease, and any ongoing monitoring at the Grassy Trail Dam will fall under Utah State Dam Safety Guidelines.

On Wed, Feb 1, 2017 at 9:12 AM, Rigby, Steven <swrigby@blm.gov> wrote:

Jeff,

Would you take a look at this and see what you think??

Thanks,

S. Rigby

Steve Rigby, Assistant Field Manager - Coal
Bureau of Land Management
Price Field Office
125 South 600 west
Price, Utah 84501
(435) 636-3604 voice
(435) 650-9955 cell
(435) 636-3657 fax
swrigby@blm.gov

----- Forwarded message -----

From: **Madsen, Karin** <kmadsen@coalsource.com>

Date: Wed, Feb 1, 2017 at 8:46 AM

Subject: Grassy Trail Seismic Monitoring

To: Marc Stilson <MARCSTILSON@utah.gov>, "Hibbs, David" <dhibbs@coalsource.com>, "Madsen, Karin" <kmadsen@coalsource.com>, "mdimick@blm.gov" <mdimick@blm.gov>, "Falk, Stephen" <sfalk@blm.gov>, "SWRigby@blm.gov" <SWRigby@blm.gov>, "mhansen@rbgengineering.com" <mhansen@rbgengineering.com>, "bprice@rbgengineering.com" <bprice@rbgengineering.com>, David Avery <djavery1971@gmail.com>, "eccitybkrauss@yahoo.com" <eccitybkrauss@yahoo.com>, "mike@eastcarboncity.org" <mike@eastcarboncity.org>, Susan Parsons <douglasparsons53@yahoo.com>, "tax@emerytelecom.net" <tax@emerytelecom.net>, Bret Dixon <bretdixon@utah.gov>, Dana Dean <danadean@utah.gov>, Daron Haddock <daronhaddock@utah.gov>, Cheryl Parker <cherylparker@utah.gov>, David Marble <davemarble@utah.gov>, OGMCOAL DNR <ogmcoal@utah.gov>

Good Morning Everyone!

Attached you will find the draft of changes made concerning Monitoring at the Grassy Trail Dam. Please review, and let me know if you have any comments, or if it looks good to you. We would like to get this moving along by the end of the week, however if you feel you need additional time, please let me know.

Madsen, Karin

From: doug parsons <douglasparsons53@yahoo.com>
Sent: Friday, February 17, 2017 10:34 AM
To: Madsen, Karin
Subject: Re: Comments needed for Grassy Trail Seismic Monitoring Changes

Follow Up Flag: Follow up
Flag Status: Completed

Karin,
I have reviewed your comments , East Carbon City is in agreement.

Doug Parsons, Mayor
East Carbon City

From: Madsen, Karin <kmadsen@coalsource.com>;
To: Marc Stilson <MARCSTILSON@utah.gov>; Hibbs, David <dhibbs@coalsource.com>; Steve Christensen <stevechristensen@utah.gov> <stevechristensen@utah.gov>; mdimick@blm.gov <mdimick@blm.gov>; Falk, Stephen <sfalk@blm.gov>; SWRigby@blm.gov <SWRigby@blm.gov>; mhansen@rbgengineering.com <mhansen@rbgengineering.com>; bprice@rbgengineering.com <bprice@rbgengineering.com>; David Avery <djavery1971@gmail.com>; eccitybkrauss@yahoo.com <eccitybkrauss@yahoo.com>; mike@eastcarboncity.org <mike@eastcarboncity.org>; Susan Parsons <douglasparsons53@yahoo.com>; tax@emerytelecom.net <tax@emerytelecom.net>; Bret Dixon <bretdixon@utah.gov>; Dana Dean <danadean@utah.gov>; Daron Haddock <daronhaddock@utah.gov>; Cheryl Parker <cherylparker@utah.gov>; David Marble <davemarle@utah.gov>; OGMCOAL DNR <ogmcoal@utah.gov>;
Subject: Comments needed for Grassy Trail Seismic Monitoring Changes
Sent: Thu, Feb 16, 2017 9:27:31 PM

Good Afternoon All,

Attached you will find the draft of changes made concerning Monitoring at the Grassy Trail Dam that were sent out on February 1st.

I have only heard back from two parties (DOGM and Dam Safety) regarding these changes. If you have not responded, please take a moment to review the attached text, and let me know if you have any comments, or if it looks good to you. This will be the last call for comments before moving along with the process.

Thank you!

Madsen, Karin

From: Bret Dixon <bretdixon@utah.gov>
Sent: Tuesday, February 07, 2017 9:13 AM
To: Madsen, Karin
Cc: Marc Stilson; Hibbs, David; mdimick@blm.gov; Falk, Stephen; SWRigby@blm.gov; mhansen@rbgengineering.com; bprice@rbgengineering.com; David Avery; eccitybkrauss@yahoo.com; mike@eastcarboncity.org; Susan Parsons; tax@emerytelecom.net; Dana Dean; Daron Haddock; Cheryl Parker; David Marble; OGMCOAL DNR; Steve Christensen
Subject: Re: Grassy Trail Seismic Monitoring

Follow Up Flag: Follow up
Flag Status: Flagged

Karin,

We have reviewed your proposed Grassy Trail Dam Monitoring/Inspection Plan and we offer the following comments:

Inclinometers:

- Please clarify that the two inclinometers that will be replaced are the two right (west) dam/abutment inclinometers (I-2 and I-3).

Reservoir Elevation, Piezometer, Seepage Collection Drains:

- There is some uncertainty as to what the monitoring frequency requirements are for East Carbon-Sunnyside City during their monitoring of the reservoir elevation, piezometers and seepage collection drains. Please clarify that these instrumentation are to be taken at the following frequencies:
 - Monthly Basis: When the reservoir elevation is below the 7,585-foot elevation.
 - Weekly Basis: When the reservoir elevation is equal to or exceeds the 7,585-foot elevation.
 - Note: This 7,585-foot elevation is equal to 7.5-feet below the spillway.

Training:

- During the January 23, 2017 meeting, there was a discussion concerning the discrepancy of the seepage drain readings taken between RB&G and East Carbon-Sunnyside City. Please add a comment that East Carbon-Sunnyside City personnel is to receive training from RB&G as to how to properly monitor and report seepage flows from the designated seepage collection points. A member of the Utah Dam Safety office is to be present at this training.

If you have any questions, please don't hesitate to contact Dave Marble ([801-538-7376](tel:801-538-7376)) or Bret Dixon ([801-538-7373](tel:801-538-7373)) of the Utah Dam Safety office.

Bret

On Wed, Feb 1, 2017 at 8:46 AM, Madsen, Karin <kmadsen@coalsource.com> wrote:

Good Morning Everyone!

Attached you will find the draft of changes made concerning Monitoring at the Grassy Trail Dam. Please review, and let me know if you have any comments, or if it looks good to you. We would like to get this moving along by the end of the week, however if you feel you need additional time, please let me know.

Madsen, Karin

From: Steve Christensen <stevechristensen@utah.gov>
Sent: Monday, February 06, 2017 12:56 PM
To: Madsen, Karin
Cc: Cheryl Parker; OGMCOAL DNR; Daron Haddock
Subject: West Ridge- Seismic comments

Follow Up Flag: Follow up
Flag Status: Completed

Hi Karin,

The Division has no substantive comments on the proposed revisions to the seismic monitoring of the Grassy Trail Reservoir/embankment. If by September, the data demonstrates that mining induced seismic activity has not occurred at the embankment, we feel that continued monitoring by West Ridge Mine would not be necessary.

The one suggestion I would make is to make is to clarify which inclinometers are to be replaced (i.e. I-2 and I-3).

Regards,
Steve

--
Steve Christensen
Utah Division of Oil, Gas and Mining
1594 W North Temple, Suite 1210
Salt Lake City, Utah 84116
(801) 538-5350
stevechristensen@utah.gov

Appendix 5-13

GRASSY TRAIL DAM MONITORING/INSPECTION PLAN,

PANEL #7 AND PANEL BLOCK #18-21

- Prior to longwall mining of Panel No. 7 additional subsidence control monuments will be were established across the crest of the dam on 100' centers, across the face of the dam midway down the slope on 200' centers, and along the toe of the dam on 200' centers.
- Prior to longwall mining the upper hillside accelerometer will be was removed, recalibrated, and relocated at the dam. The dam site accelerometer will be was removed, recalibrated, and relocated at a new location on the hillside approximately midway between the dam and the previous upper hillside location. In 2010, the hillside accelerometer was recalibrated and relocated northwest of the reservoir in the Left Fork of Whitmore canyon.
- Prior to longwall mining a seepage collection system will be was installed at the seep area located along the east abutment of the dam. This system will be was designed to collect the entire flow of the seep to a common point to allow accurate measurement of the seepage flow.
- Prior to longwall mining a complete set of premining baseline data will be was established including:
 - Peizometer readings.
 - Accelerometer readings.
 - Inclinometer readings.
 - Relative elevations of all subsidence monitoring monuments located on the dam. (Absolute elevations of all monuments will be were surveyed before and after extraction of longwall Panel No. 7)
 - Flow rates at the east abutment seep, west abutment seep, and toe drain.
 - Visual inspection of inspection of the dam, seeps, and slide area.
 - Electronic photographs at predetermined designated viewpoints.

=

In September, 2015 mining in panel #19 was completed. This was the last panel near Grassy Trail Dam. Following that, three short panels near the portals were mined out and completed in November, 2015. The portals to the mine were then sealed in February, 2016.

Reports compiled by RB&G Engineering show Mining-Induced Seismic Activity near the Grassy Trail Dam and Reservoir between July, 2010 and January, 2017. RB&G's reports conclude there as been no adverse effect of mining-induced seismicity on the dam or reservoir, therefore all commitments by WEST RIDGE Resources have been

satisfied. The data concludes there is no evidence that additional monitoring would show mining related seismic events, as all mining operations within any reasonable proximity to the dam have ceased.

WEST RIDGE Resources and RB&G Engineering will continue to monitor for Seismic activity through September, 2017, where at that time the data will be reviewed by the Division of Dam Safety, Division of Oil, Gas & Mining, Bureau of Land Management, East Carbon-Sunnyside City (herein after referred to as: the designated parties), and if no significant movement has been detected which can be linked to mining-induced seismicity, WEST RIDGE Resources monitoring responsibilities will cease, and any ongoing monitoring at the Grassy Trail Dam will fall under Utah State Dam Safety Guidelines.

On or before the end of September, 2017 WEST RIDGE Resources agrees to the terms of arranging for the installation of two new inclinometers at the Grassy Trail Dam to replace Inclinometers 2 and 3.

Seismic Monitoring:

- *RB&G will be responsible for compiling and distributing the following ~~weekly~~, monthly, and event-driven inspection and monitoring reports. These reports will be generated in an electronic format and emailed on a timely basis to ~~the Division of Dam Safety, Division of Oil, Gas & Mining, Bureau of Land Management, East Carbon City, Sunnyside City, and WEST RIDGE Resources~~ (herein after referred to as the all designated parties).*
- **Week/Monthly Basis:** *After longwall mining has ~~commenced in Panel No. 7~~ ceased, the following monitoring will be ~~done~~ conducted on a ~~weekly~~ monthly basis:*
 - Site reconnaissance/visual inspection (~~weekly~~ inspection will be done by the same individual ~~from WEST RIDGE Resources~~ to ensure consistency of visual observation interpretations).

~~-Electronic photographs from predetermined viewpoints.~~

~~-Flow rates at the east seep, west seep, and toe drain. (These flow rates will be determined by actual measurements not by visual estimates.)~~

~~-Reservoir level.~~

~~-Electronic reports including all reading and photos will be emailed immediately after the inspection to the designated parties.~~

~~————— Monthly Basis: In addition to the weekly monitoring the following monitoring will be conducted on a monthly basis.~~

~~-Accelerometer readings This information will be downloaded by RB&G and attached to the monthly summary.~~

~~-Piezometer readings (to be taken by RB&G)~~

~~-Inclinometer readings (to be taken by RB&G)~~

~~-Electronic photographs from predetermined viewpoints~~

~~-Relative elevations of subsidence monitoring monuments located on the dam. These surveys will be conducted by a registered professional surveyor.~~

~~-Electronic reporting (emails) of the monthly measurements will be combined with the fourth weekly inspection report sent to the designated parties.~~

• **East Carbon-Sunnyside City Responsibilities:**

The following data will be collected by East Carbon-Sunnyside City, as agreed during a tele-conference held on January 23, 2017 with all designated parties, and will be shared with RB&G Engineering to be included in Monthly Report.

East Carbon-Sunnyside City personnel is to receive training from RB&G as to how to properly monitor and report seepage flows from the designated seepage collection points. A member of the Utah Dam Safety will be present at this training.

-Reservoir Elevation, Piezometer readings, Seepage Collection Drains:

MonthlyBasis: When the reservoir elevation is below the 7,585-foot elevation.

Weekly Basis: When the reservoir elevation is equal to or exceeds the 7,585-foot elevation

Note: This 7,585-foot elevation is equal to 7.5-feet below the spillway.

- **Event-driven basis:** In addition to the weekly and monthly inspections the following measures will be taken on an event-driven basis:

=

The University of Utah seismic readings will be monitored on a daily basis, if any events are recorded greater than a magnitude 3.0 within 5 miles of the dam then, within 24 hrs of such

readings, a full site reconnaissance and visual inspection will be conducted, and accelerometer readings will be taken. If the accelerometer readings show any value greater than 1.2g, then inclinometer readings, piezometer ~~peizometer~~ readings and drain-flow measurements (east seep, west seep, and toe drain) will be taken at that time. The results of these measurements will be emailed immediately to all designated parties.

- *The standardized form of the inspection/monitoring reports is included in Appendix 1-17.*

~~*Monitoring and reporting will continue on the prescribed weekly, monthly, and event driven basis during the mining of Panel No. 7 as long as seismic events continue to be recorded. At such time that the frequency and magnitude of the events diminishes sufficiently the agencies (Dam Safety, DOGM, BLM, East Carbon City, and Sunnyside City) will make a collective consensus determination to reduce, modify, and/or eliminate the various elements of the monitoring program.*~~

Chapter 5

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(Continued)

APPENDIX NUMBER	DESCRIPTION
APPENDIX 5-13	Grassy Trail Dam Monitoring/Inspection Plan, Panel #7
APPENDIX 5-13A	5-13 Grassy Trail Dam Monitoring/Inspection Plan, Panel #7 & Panel Block #18-21
APPENDIX 5-14	Bear Canyon Gob Gas Vent Hole (GVH)
APPENDIX 5-15	Catchment Structure, C Canyon Drainage
APPENDIX 5-16	Grassy Trail Dam and Reservoir Mining-Induced Seismicity Summary Report, 2008
APPENDIX 5-17	Grassy Trail Dam and Reservoir Mining-Induced Seismicity Summary Update Report (RB&G Engineering, 2010)
APPENDIX 5-18	Subsidence Monitoring Survey Points, Right Fork of Whitmore Canyon
APPENDIX 5-19	B Canyon Re-Opening Project

**TABLE OF CONTENTS- MAP LIST
R645-301-500 CHAPTER 5**

MAP NUMBER	DESCRIPTION	SCALE
MAP 5-1*	Previous Disturbance	1"=100'
MAP 5-2*	Surface Ownership	1"=1000'
MAP 5-3*	Sub-surface Ownership	1"=1000'
MAP 5-4A*	Mining Projections	1"=1000'
MAP 5-4B*	Mining Projections - Extended Reserves	1"=1000'
MAP 5-5*	Surface Facility Map	1"=1000'
MAP 5-6*	Mine Site Cross-Section & Profile Index Map	1"=1000'
MAP 5-6A*	Mine-Site Cross-Sections	1"=50'
MAP 5-6B*	Mine Site Cross-Sections	1"=50'
MAP 5-6C*	Mine Site Cross-Sections	1"=1000'
MAP 5-7*	Subsidence Map	1"=1000'
MAP 5-8*	Undisturbed Drainage Culvert Profile	1"=100'
MAP 5-9*	Mine Site Reclamation	1"=100'
MAP 5-10*	Construction/Reclamation Area-Types	1"=100'
MAP 5-11*	Construction Sequence	No scale
MAP 5-12*	Reclamation Sequence	No Scale
MAP 5-13*	Pre-construction Drainage Photos Index Map	1" = 100'
MAP 5-13(A-H)*	Pre-construction Drainage Photos	No Scale
MAP 5-14*	Pump House Site Map	1" = 10'
MAP 5-14A*	Pump House Reclamation Map	1" = 10'
MAP 5-14B*	Pump House Cross-Sections	1" = 10'
MAP 5-15*	Roads Map	1" = 100'

*Not included on disk

it is unlikely that the anticipated mining of panel 7 would impact the performance of the dam and reservoir. The analysis of seismic impacts used a large maximum event (3.9 Richter Scale Magnitude) which is well above any recorded event in the immediate area. Using the maximum event, RB&G still anticipates a factor of safety still well above minimum Utah State Dam Safety standards. The BLM accepts the report and agrees with the recommendations. West Ridge is hereby authorized to extract longwall panel #7 per the approved R2P2, having met the conditions for approval."

The seismicity report addressed the issues of dam stability analysis, subsidence, internal erosion potential, reservoir seepage and landslide potential. The report concluded that "it is unlikely that the anticipated mining induced seismicity will impact the performance of the dam and reservoir." The report also recommended the following inspection and monitoring program during the longwall mining of Panel #6 and Panel #7:

- *Bi-weekly site reconnaissance to observe any change of conditions in the embankment crest or slopes and landslide areas. Particular attention should be given to cracking, ground deformation or seepage.*
- *Monthly measurement of inclinometers, piezometers and ground motion monitoring devices.*
- *Annual survey of control points on the embankment and in the landslide areas.*
- *Daily monitoring of the UUSS list of recent seismic events (www.seis.utah.edu/recactivity/recent.shtml) should be performed. A daily record should be maintained of the largest recorded event within 5 miles of the site. When an event greater than 3.0 occurs within 5 miles of the site, a site reconnaissance of the embankment crest, slopes and landslide areas should be performed within 24 hours and a review of ground motion recordings should be made. If recorded ground acceleration exceeds 0.4g, instrumentation readings should be performed.*
- *Site reconnaissance and instrumentation reports should be forwarded to RB&G Engineering and the Utah State Dam Safety Engineer within 24 hours, and the daily monitoring record should be submitted on a monthly basis.*

The BLM R2P2 approval is conditioned upon WEST RIDGE Resources monitoring the inspection/monitoring program as outlined above. Therefore WEST RIDGE Resources, Inc. commits to implementing this inspection/monitoring program effective immediately upon Division approval for full extraction of Panel #7. This monitoring plan has been ~~expanded~~reduced due to address concerns raised by Utah Division the cessation of Dam Safety mining at West Ridge Mine (refer to Appendix 5-13 for reduced monitoring requirements and end date).

—Based on subsequent approval of the mine plan, panel #7 was extracted starting in

In September, 2015 mining in panel #19 was completed. This was the last panel near Grassy Trail Dam. Following that, three short panels near the portals were mined out and completed in November, 2015. The portals to the mine were then sealed in February, 2016.

Reports compiled by RB&G Engineering show Mining-Induced Seismic Activity near the Grassy Trail Dam and Reservoir between July, 2010 and January, 2017. RB&G's reports conclude there as been no adverse effect of mining-induced seismicity on the dam or reservoir, therefore all commitments by WEST RIDGE Resources have been satisfied. The data concludes there is no evidence that additional monitoring would show mining related seismic events, as all mining operations within any reasonable proximity to the dam have ceased.

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 affects 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.

526.100 Mine Structures And Facilities

Surface structures and facilities for the West Ridge Mine, an underground mine, will be constructed in C Canyon near the fork in the canyon, in portions of sections 10, 11, 14 and 15; T14S, R13E, Carbon County, Utah. The function of the surface facility area is to provide for mine access, mine ventilation, coal storage, coal loading, warehousing, offices, and bathhouse. A plan view of this complex is provided on Map 5-5.

Access to the underground mine will be through drift entries on the south side of the mine yard along the outcrop of the coal seam to be mined. Material generated by face up work in the portal area will be used to construct a mine pad area. Mine structures and facilities will be constructed on this mine pad area.

Prior to construction of the mine pad, steel drainage diversion culverts will be placed in the bottom of the main drainage channels. These culverts will allow undisturbed drainage from above the disturbed area to be bypassed underneath the mine yard. After these culverts are in place, they will be covered and backfilled with material excavated from cut slopes or hauled in from an off-site borrow source.

To control runoff and drainage from the disturbed area, all drainage from the constructed mine facility disturbed area will be collected and treated in a properly sized and constructed sediment pond. Ditches and culverts throughout the disturbed area have been designed to effectively convey site drainage to the pond. Inlet structures to the pond will be protected through rip rapping or culverting to prevent channel erosion and scouring.

The final lower cell will be constructed with a combination of 2 spillways. The principal spillway located in the lowest pond cell will be a 36" C.M.P. culvert riser and oil skimmer. This spillway will overflow at an elevation at least 3' below the top of the dam. This spillway will discharge directly into the bypass culvert (UC-OO) which is located beneath the pond. In the unlikely event of failure of the principal spillway, the lower pond cell will also be equipped with a second (emergency) culvert spillway, consisting of a 36" C.M.P. culvert riser and oil skimmer, with a minimum depth of 2.0' below the top of the dam. This spillway will also flow directly into the undisturbed bypass culvert (UC-OO).

Buildings to be constructed at the minesite include: an administrative office, a shop/warehouse building, and a bathhouse/lamphouse building. The shop/warehouse will be used to repair and store mine equipment and supplies. The yard area around these buildings will be used for additional outside storage and parking. The bathhouse and office buildings will be sized to accommodate a workforce of approximately 130 people.

The following facilities will be constructed in conjunction with the mining operation:

a) Administration Office

The main office will be a framed building measuring approximately 40' wide x 60' long. It will handle the administrative functions such as accounting, engineering, payroll, marketing and management. The main office will be located on a dedicated pad at the lower (southernmost) extent of the mineyard. Parking will be made available in the area adjacent to the main office.

b) Sediment Pond

The sediment pond will consist of a two individual cells located at the lower (southern) end of the mineyard. The cells will be designed to accommodate the entire runoff from the disturbed area plus additional runoff from several adjacent undisturbed areas as well. Runoff and sediment will enter both cell A and B. If runoff exceeds the capacity of the upper cell, it will then flow to the lower cell by way of an open channel spillway. The total combined capacity of the cells will be sufficient to handle a 10 year, 24 hour precipitation event. A principal spillway consisting of a 36" cmp culvert riser and oil skimmer will permit runoff in excess of the 10 year-24 hour event to flow into the bypass culvert. A second 36" cmp culvert riser and oil skimmer in cell B will route emergency overflow (in excess of the 25 year, 6 hour) back into the natural canyon drainage through the bypass culvert beneath the pond embankment.

c) Bypass Culvert

A continuous culvert system will be installed within the main drainage channel to carry the natural undisturbed drainage underneath the mineyard, thereby bypassing the disturbed areas of the minesite. This bypass culvert system will effectively segregate drainage coming off the undisturbed areas adjacent to the mine yard from the drainage coming off the disturbed area of the mine operations. The bypass culvert will handle the mine canyon drainage from both the left and right fork of C Canyon. It will also collect drainage from several smaller side drainages in the area of the minesite. The culvert will be sized to adequately handle a 100 year, 6 hour flow event. Risers will be installed at regular intervals to provide hydraulic venting and access for inspection and maintenance.

d) Mine Portals

Mine portals will be located in the right fork on the southeast side of the canyon where the coal seam outcrops. Four portal openings will be constructed to provide surface access to the underground mine workings. Two portals will provide intake ventilation to the mine, one of which will serve as the primary accessway for employees and materials in and out of the mine. One portal will contain the main conveyor belt used to bring coal out of the mine. The fourth portal will accommodate the main mine fan. These portals will be spaced as close together as possible to minimize the length of highwall required for access to the underground workings.

e) Mine Fan

The mine fan will be located at the return air portal. It will be a 12' diameter, direct drive, 1,000 hp, axial vane exhausting type fan. The fan housing will include airlock travel doors for machinery and personnel. The exhaust ductwork will be quipped with acoustical sound-proofing material to keep noise levels at a minimum.

f) Bathhouse/Lamphouse

The bathhouse building will be a pre-fabricated metal structure measuring approximately 40 feet wide by 120 feet long. It will be located in the central part of the mineyard in convenient proximity to the mine portals. An employee parking lot will be located nearby. The bathhouse will be sized to accommodate the anticipated workforce of about 130 employees. Located at one end of the bathhouse building will be the lamp house and the offices for the mine supervisory personnel.

g) Shop/Warehouse

The shop/warehouse building will be a pre-fabricated metal structure measuring approximately 60 feet wide by 160 feet long. It will be located in the northern part of the mineyard conveniently adjacent to the mine portals. A storage area for materials and supplies will be located nearby, as will be the fuel storage, rock dust storage and garbage repository (dumpster) facilities. A 40' x 60' enclosed storage shed will be constructed adjacent to the shop on the south end.

h) Coal Stockpiling Facilities

Coal will be brought out of the mine and delivered to the surface via a 2,000 ton per hour, 60" wide mine conveyor belt. The mine conveyor will exit out of a portal located about 40' high on the east side of the right fork of C Canyon. Even though the mine portals are located in the right fork, the run of mine coal will be stockpiled in a storage area located in the left fork. Coal will be transported from the right fork portals to the left fork stockpile by an

800 foot long, elevated overland conveyor gallery. This 2,000 ton per hour, 60" wide conveyor will be covered, and will be supported along a series of box truss galleries elevated approximately 50-60 feet above the right fork mineyard. These conveyor truss galleries are, in turn, supported by several two-legged steel bents spaced approximately 120' apart. After crossing the nose of land that separates the right and left forks, the conveyor will terminate at a cantilevered discharge structure at a location above the coal stockpile area in the left fork. A conical coal pile will be built directly below the discharge structure. The pile will be about 80 feet high at full capacity and will contain about 30,000 tons of coal. Additional storage can be obtained by pushing the pile northward onto the coal storage pad extending up the left fork.

i) Coal Reclaiming Facilities

A 13 foot diameter multiplate reclaim tunnel will be located below (underneath) the coal pile. Two reclaim draw down ports located at the end of the tunnel will allow coal to be reclaimed from the bottom of the pile directly onto a 54" reclaim conveyor located within the tunnel. Each reclaim port will contain a pile activator, a hydraulically operated single bladed shut-off gate, and a discharge chute leading to the reclaim conveyor. Each port will be capable of loading the reclaim conveyor at a full capacity of approximately 1,400 tons per hour. Once the coal has been loaded onto the reclaim conveyor, it will then be transported out from underneath the pile. The reclaim conveyor will bring the coal out of the tunnel and transport it to a crushing/screening building.

The crusher building will be an open steel structure. It will contain a 40 hp, 8' x 20' scalping screen which will remove all minus 2" coal ahead of the crusher. The plus 2" coal from the top screen deck will be fed to a 300 hp hammermill impact crusher where the coal will be reduced to a 2" x 0" product. All transfer points within the crusher building will utilize enclosed chutework to contain and control fugitive dust emissions. These transfer points include the transfer from the reclaim conveyor to the screen, the screen unders (minus 2") to the loadout conveyor, the screen overs (plus 2") to the crusher, and the crusher discharge (minus 2") to the loadout conveyor.

Within the crusher building will also be located a self cleaning tramp iron magnet (located at the reclaim conveyor discharge pulley ahead of the crusher), and an automated ASTM sampling system. The crusher building and the coal reclaim tunnel will be separated by a wire reinforced earth wall (e.g. Hilfiker wall) constructed about 25 feet high. The crusher building will be located on a bench on the lower (down-canyon) side of the wall and will be positioned in such a manner that gravity flow will aid the movement of coal through the screening, crushing, and sampling operations.

From the crusher building the crushed and screened 2" x 0" coal will then be loaded onto a covered 48" wide loadout conveyor operating at a rate of 1,400 tons per hour. The coal will then be transported to an automated truck loadout

station. The truck loadout will be an elevated steel frame structure constructed high enough to allow the trucks to be positioned under a pant-leg loading chute during loading. Electronic sensors will determine when the truck is properly positioned under the chute. The feed conveyors (i.e. loadout conveyor and reclaim conveyor) will start and stop automatically to load the individual truck trailers with a predetermined amount of coal. Certified belt scales will be used to control the loading process.

The truck loadout will be located at the upper end of the truck loop. The loop will be long enough to accommodate up to 4 empty trucks in the queuing lane waiting to be loaded. After being loaded, the trucks will leave the minesite and haul the coal to a train loading facility located off-site. All conveyors will be covered and all conveyor transfer points will be enclosed.

j) Electrical power

An overhead 46 KV powerline will be installed and maintained by the local utility company. The line will originate from an existing Utah Power 69KV Helper-Columbia #1 powerline near the Sunnyside Junction. From there it will follow the County road to the mine site, where it will terminate at the mine substation. The mine substation will be located in the right fork below the portal bench. The substation will contain a 12 MVA 46 KV/12.5 KV transformer, along with various other electrical power control apparatus (air-break switches, visual disconnects, bussing, ground fault detection, vacuum circuit breakers, power factor capacitor banks, metering equipment, and a control room). From the secondary side of the substation, power will be distributed throughout the mine yard and to the underground workings at 12,500 volts. At various locations within the mineyard, the power will be routed through a set of 12.5 KV/4160 V/480 V transformer banks and motor control centers (MCCs) to operate the surface equipment. These combination transformer/MCC units will be located at the crusher building, overhead conveyor drive station, mine fan, and shop/warehouse. All power poles will be designed and constructed using an approved raptor safe design to protect raptors from electrocution.

k) Water Facilities

Water will be delivered to the site by a 6" pipeline originating in East Carbon City. Water storage facilities (tanks) will be located on the surface to provide storage for culinary (potable) usage and as pre-storage before being pumped into the mine to an underground storage sump for use in the mining operation. The surface storage tanks would be located above the bath house to provide sufficient static head (pressure) for yard distribution.

l) Other Structures

Additional, smaller structures will include miscellaneous storage sheds, pump house, above ground storage tanks (for fuel, water, and dust control chemicals), powder magazines, rock dust storage tanks and trash containment structures. All buildings and structures will be made of conventional construction materials including wood, masonry, or steel. Buildings will be color coordinated to blend in with the natural surroundings.

It should be noted that the pump house area has been added to the minesite permit area, although it is located offsite. This area is shown on Plates 1-1 and 5-14. The pumphouse and related fence area contains approximately 0.44 acres, and is designated as an ASCA. Sediment control is accomplished through use of recontouring, roughening, reseeding and a slag/gravel coating over non-vegetated areas, as shown on Map 5-14. This area will be maintained throughout the life of the project, and reclaimed upon completion. Reclamation will consist of removal of the power supply, fence, pumps and building, along with regrading and reseeding according to the approved plan. Reclamation costs and sediment control for the pumphouse are described in Appendix 5-7. Right of Way information for the waterline and pumphouse is included in Appendix 1-12

Maintenance of Facilities

Maintenance of the mine surface complex will include the following procedures. The sediment pond, drainage control ditches and culverts will be periodically cleaned. Cleanout material will be disposed of off-site in an approved solid waste disposal facility such as ECDC. Dust will be controlled on the conveyor system and transfer points by enclosures, telescoping chutes and sprays as necessary. Dust from unpaved roads will be controlled by applying water or a dust suppressing solution. Drainage culverts will be cleaned and maintained in operable condition. Erosion will be controlled on constructed earth slopes by planting vegetation and/or other suitable methods. All disturbance will be confined within the approved disturbed area boundary. Sediment controls such as the sediment pond, silt fences or straw bales will be utilized.

Reclamation of Facilities

Upon completion of final mining activities, the mine surface complex will be reclaimed in accordance with the approved reclamation plan. Reclamation will begin with the removal of all buildings, structures and concrete. The highwalls will then be backfilled to their approximate original contour utilizing the yard pad material. The undisturbed diversion culverts will be removed to reestablish the canyon drainage channels. The regraded area will then be revegetated. For a detailed discussion of the reclamation plan refer to Appendix 5-5.

526.110 Existing structures

No structures currently exist within the proposed surface facility area other than the monitoring well.

526.200 Utility Installation And Support Facilities

Mining and reclamation will be conducted in a manner which minimizes damage, destruction, or disruption of services provided by oil, gas, and water wells; oil, gas, and coal-slurry pipelines; railroads; electric and telephone lines; and water and sewage lines which pass over, under, or through the permit area. None of the utilities listed above exist within the permit area.

Support facilities will be operated and maintained in accordance with the permit issued for the West Ridge Mine and will be located, operated and maintained in a manner that: prevents or controls erosion and siltation, water pollution and damage to public or private property and, to the extent possible using the best technology currently available, minimize damage to fish, wildlife, and related environmental values. The support facilities will be designed to minimize additional contributions of suspended solids to the stream flow or runoff outside the permit area and, should any contributions occur, such contributions will not be in excess of limitations of Utah or Federal law.

For a discussion of the proposed mine facilities see R645-301-526-100.

526.300 Water Pollution Control Facilities

A spill prevention control and countermeasure plan (SPCC plan) has been developed to protect the undisturbed drainages from accidental spills of oil or other petroleum products within the disturbed area. This plan is included as Appendix 5-6 and will be available for review at the West Ridge mine site after facilities have been constructed.

All drainage from the minesite disturbed area will be conveyed to and treated by a sediment pond located within the disturbed area. This system of collection ditches, culverts, and sediment pond is shown on Map 7-2. (This map also shows the undisturbed drainage culvert system.) The sediment pond size has been calculated based on a 10 year, 24 hour event. Ditch and culvert design are also based on a 10 year, 24 hour event. Refer to Appendix 7-4 for the Sedimentation and Drainage

Control Plan For the West Ridge Mine.

The undisturbed drainage areas contributing to the sediment pond are shown on Map 7-2. Refer to Appendix 7-4 for ditch and pond sizing calculations.

Prior to construction of the mine yard facilities, properly sized undisturbed drainage culverts (bypass culverts) must first be installed in the bottom of the main canyon and side canyons within the proposed disturbed area. These culverts will divert natural drainage under and past the minesite construction area, including the sediment pond embankment. Details of the design of the undisturbed drainage culvert system can be found in Appendix 7-4 and Map 7-2.

Expeditious installation of the bypass culvert system will be a top priority when construction of the mineyard is initiated. This is important for several reasons. First, undisturbed drainage from above the mine yard area must be routed past the facility area by means of the culvert system as quickly as possible to minimize the potential for storm-related impacts. Secondly, the bypass system must be in place prior to the construction of overlying facilities and the sediment impoundment (which will be installed as soon as possible). This construction methodology will provide the most expeditious installation of the bypass culvert in the shortest time frame possible, thus minimizing exposure of the yard area to storm runoff events and providing permanent sediment control for the minesite construction as soon as practical.

Prior to beginning installation of the bypass culvert system, interim (temporary) sediment control measures (berms, silt fences and temporary sediment pond) will be constructed in the drainage near the downstream end of the proposed mine yard area. These features, which will treat disturbed area runoff, will be installed as temporary measures to control sediment during the installation of the bypass culvert system.

Refer to the construction plan in Appendix 5-5 for details regarding the culvert installation and mine yard construction.

As the sediment pond embankment is being constructed, it will be inspected on a regular basis and at critical construction phases by a certified, professional engineer. Following construction, the pond will be inspected and the as-built design will be certified. During routine operation, the pond will be visually inspected daily for unusual conditions.

Details of the sediment pond design are shown on Maps 7-4 and 7-4A and presented in Appendix 7-4. The pond will be composed of two cells. The two cells will be connected from one to the other with open channel spillways. The final (lower-most) cell will be constructed with two 36" riser culverts acting as the principal and emergency spillways. The principal spillway will be a 36" culvert riser combined with an oil skimmer. The emergency spillway also be a 36" culvert riser with the inlet at least one foot higher than the primary spillway and two feet below the top of the dam. The spillway is designed for the flow from a 25 year, 6 hour event. The pond capacity will hold 7.67 acre-feet allowing for an excess of 0.62 acre-foot over the design requirement for the 10 year, 24 hour event.

526.400 Air pollution control facilities

An air quality permit for the West Ridge Mine has been obtained from the Utah Division of Air Quality. The air quality plan will include the following dust control measures:

- a) all conveyors will be covered;
- b) all conveyor transfer points will be enclosed;
- c) the coal pile will be built and reclaimed in a manner that minimizes the drop distance from the conveyor discharge structure to the pile;
- d) coal will be reclaimed from the bottom of the stockpile directly onto a conveyor belt located within an enclosed tunnel located under the pile;
- e) chute work for draw down ports within the reclaim tunnel will be enclosed;
- f) all chutework leading into and exiting from the crusher and the screen will be enclosed;
- g) all chute work and transfer points at the truck loadout will be enclosed;
- h) the coal moisture level within the coal pile will be maintained at approximately 6.0% or greater. This will be accomplished by means of water sprays located on the main mine conveyor;
- i) access roads and high traffic work areas will be treated with water and/or dust suppressant chemicals, as needed;
- j) the truck loop/loading area will be broom swept and/or water flushed as needed;
- k) non-working areas of the minesite (i.e., pad slopes, road embankments, cut slopes, etc.) will be revegetated.

R645-301-527 TRANSPORTATION FACILITIES

527.100 Road classification

Map 4-1 shows all of the roads found within and adjacent to the permit area and their classification. The Carbon County public road will enter the permit area from the southwest. This road will extend into the permit area and terminate at the junction of the truck loop. This road is classified as a primary road within the permit area.

The existing county roads within the permit area have been in existence for a number of years. Map 4-1 shows the relationship of the roads to other roads in the area.

The majority of the roads within the permit area were developed many years ago. They are still in use today as access for grazing permittees, drilling, and recreational vehicles. WEST RIDGE Resources, Inc. may use existing roads on an infrequent basis for purposes such as subsidence monitoring and water monitoring. Carbon County plans to construct/reconstruct a public road to provide improved access into the area.

Approximately 1,960 feet of the northern end of the Carbon County road will extend into the minesite disturbed area. This includes approximately 1000' of road from the original disturbed area boundary up to the junction of the truck loop, and an additional 960' of road above the newly installed gate. The gate was installed at this location to provide better visibility and turn around area for the public during those times the gate is closed. Carbon County has approved the installation and periodic closure of this portion of road (see Appendix 5-2). The road will terminate at the junction of the truck loop. A turn around will be constructed at this terminus to give public vehicles an opportunity to turn around without having to drive through the mine yard. This segment of public road, from the terminus of the road at the truck loop junction to the gate will be included within the permit area of the West Ridge mine and will be classified as a primary road. Carbon County will allow special mine-related utilization of this segment of the road, such as the ability to operate mine vehicles thereon. In return, WEST RIDGE Resources, Inc. will be responsible for maintenance along this road segment, including maintenance of drainage ditches and culverts. Runoff from this road surface will be treated according to the mine's sedimentation and drainage control plan, as presented in Appendix 7-4. Refer to Figure 5-3 West Ridge Road - Typical Cross-Section for the typical engineering cross-section of the Carbon County road.

Other mine roads within the permit's disturbed area are shown on Map 5-15. The road from the county road to the warehouse pad will be classified as a primary road as will the ramp up to the coal storage pad. The road up to the overland belt drive on the "nose" will be classified as an ancillary road.

R645-301-528

HANDLING AND DISPOSAL OF COAL, OVERBURDEN, EXCESS SPOIL AND COAL MINE WASTE

528.100

Coal Removal, Handling, Storage, Cleaning And Transportation Facilities

WEST RIDGE Resources, Inc. proposes to use longwall and continuous miner methods to mine the coal reserve. A conveyor belt system will transport the coal from out of the mine to the surface where it will be crushed and transported, as a run-of-mine product, by truck to railroad loading facilities located off the permit area.

Coal will be transported to the surface from underground by a 60" mine conveyor. The coal will be transported to a discharge structure located at a height of about 80 feet above the ground. The discharge structure will deposit coal on the stockpile. The operational storage capacity of the stockpile is estimated at approximately 30,000 tons.

Draw-down ports located within the reclaim tunnel under the stockpile will feed coal from the bottom of the stockpile onto a reclaim conveyor. Reclaimed coal will then be delivered to a coal crushing structure.

The crusher and all associated chutework will be enclosed to contain fugitive dust emissions. Run-of-mine coal will be reduced from 8 x 0 inch down to a 2 x 0 inch product. Coal will be shipped as a run-of-mine product to various markets. For a more detailed description of the coal handling facilities refer to R645-301-526.100.

All conveyor transfers in the mine yard will be enclosed to minimize fugitive dust emissions. The conveyors leading to the stockpile will be covered. The reclaim tunnel and the chute work leading to and from the crushing structure will also be enclosed.

Dust will be controlled on unpaved roads in the disturbed area by restricting the speed limit, and by treatment with a chemical stabilizer solution as needed. This solution will be applied in accordance with the manufacturers directions and will be applied with a water truck sprayer.

Conveyor transfers in the mine yard will be enclosed to minimize fugitive dust emissions. The reclaim tunnel will be enclosed as will the chutework leading to and from the crushing facility.

Mine facilities will be operated in accordance with an approved air quality permit issued by the Utah Division of Air Quality. For a more detailed discussion of air quality control measures, refer to R645-301-526.400.

Maintenance of the mine surface complex will include the following procedures. Sediment pond and drainage control ditches will be periodically cleaned. Drainage culverts will be kept open and free of obstructions. Erosion will be controlled on constructed earth slopes by planting vegetation or equivalent methods. All disturbances will be confined within the approved disturbed area boundary.

All drainage from the disturbed area will be contained within the sediment pond. Drainage will flow through culverts and ditches that have been sized for the 10 year, 24 hour runoff event. Where the flow velocity is expected to exceed 5 feet per second, a concrete lining or rip rap will be used to minimize erosion of the ditches. Sediment production from the disturbed area will be minimized, where practical, by vegetation cover and land imprinting.

Upon permanent cessation of mining, all facilities will be disassembled and removed. The area will then be regraded to approximate original contour and

revegetated.

- 528.200 Mining will be conducted using underground mining techniques. No overburden will be removed during underground mining operations.
- 528.300 Spoil, Coal Processing Waste, Mine Development Waste And Noncoal Waste Removal, Handling, Storage, Transportation, And Disposal Areas And Structures;
- 528.310 No excess spoil is anticipated at the proposed underground mine site.
- 528.320 Coal Mine Waste
- 528.321 WEST RIDGE Resources, Inc. is not proposing to return any coal processing waste to abandoned, underground workings. There are no plans to wash or process the coal, therefore, no coal mine waste rock is anticipated. If, however, minor amounts of waste rock are developed from inside the mine, (overcast material, roof fall cleanup, etc.) which cannot be stored underground and is brought to the surface, it will be hauled off site after 12 cubic yards total (one truck load) has accumulated or after storage on-site for six months. The waste rock will be disposed of in an approved coal refuse site at the Andalex Wildcat loadout facility or ECDC. Two temporary waste rock storage areas are depicted on Map 5-5.
- 528.322 No refuse piles are being proposed.
- 528.323 Burning And Burned Waste Utilization
- Coal mine waste fires are not anticipated because no coal mine waste will be stored at the minesite.
- 528.330 Noncoal Mine Waste
- Noncoal mine wastes including grease, lubricants, flammable liquids, garbage, abandoned mining equipment, lumber and other combustible materials generated during mining activities will be placed and stored in a controlled manner in a designated portion of the permit area. Refer to Map 5-5 for the Storage Area location. Grease, lubricants, flammable liquids, lumber and other combustible material that are mine supplies and not noncoal mine waste will not be subject to this provision.
- Final disposal of noncoal mine waste will be in a State-approved solid waste disposal site such as ECDC.
- The noncoal mine waste storage site will not be located within eight feet of any coal outcrop or coal stockpile.

Any noncoal mine waste defined as "hazardous" under Resource Conservation and Recovery Act (RCRA) and 40 CFR Part 261 will be handled accordingly and disposed of properly.

528.340 Underground Development Waste

Underground development waste will not be stored in surface excess spoil piles (no surface excess spoil piles are being proposed).

528.350 Disposal Of Acid-Forming, Toxic-Forming And Flammable Materials

Noncoal mine waste, including combustible material, is discussed in R645-301-528.330.

For compliance with R645-301-542.740 and R645-301-747 refer to the discussion under R645-301-528.330.

Noncoal waste will not be permanently disposed of within the permit area.

Also, refer to discussions under: R645-301-537.200, 553.100 through 553.600, and 553.900.

528.400 Dams, Embankments And Other Impoundments

Embankments constructed in conjunction with the sediment pond will be designed and constructed according to standard engineering practices. The embankment of the sediment pond will be constructed using imported fill material. Refer to Maps 7-4 and 7-4A for the design of the sediment pond embankment.

The sediment pond design has been certified by a professional engineer (see Map 7-4). The constructed pond will be certified "as built" upon completion of construction. The pond will be designed to contain the 10 year, 24 hour event as required by the regulations. Two 36" culvert riser primary/emergency spillways are designed to safely handle a 25 year, 6 hour precipitation event and will be utilized to convey overflow from the pond in case of an emergency.

Inspection of the sediment pond will be made on a regular basis by a professional engineer or specialist during construction, upon completion of construction and once per year until the structure is removed or the performance bond released.

A registered, professional engineer will provide a certified report to DOGM after each inspection stating that the impoundment has been constructed and maintained according to the approved design. The report will discuss any detected sign of instability, structural weakness or other hazardous condition, depth and elevation of any impounded water, existing storage capacity, and existing or required monitoring

procedures and instrumentation. A copy of the report will be kept on file at or near the mine site.

In addition to the above certified annual inspection and report, the sediment pond will be inspected on a quarterly basis by a qualified person designated by the operator. Any appearance of structural weakness or other hazards will be reported and addressed, then recorded. A copy of the report will be kept on file at or near the mine site. Weekly inspection requirements of MSHA, 30 CFR 77.216 do not apply.

R645-301-529

MANAGEMENT OF MINE OPENINGS

Portals within the permit area will be sealed by constructing a concrete block wall (or seal) a minimum of 25' inside of the portal entrance. The area between the seal and the entrance to the portal will then be backfilled with incombustible material. The seal will be constructed out of solid concrete blocks with cement mortar joints. The seal will be built on solid footing with two rows of block keyed into the solid rib of coal. Refer to Figures 5-1 and 5-2 for a typical backfilling and seal design.

At most, four portals will have to be sealed. This includes two intake portals, the belt portal and one return portal. Approximate dimensions of each portal to be backfilled would be 8' high by 20' wide by 25' long. Incombustible material will then be graded over the coal seam at the entrance to the portals. This will be done as the yard is being regraded to approximate original contour during final reclamation operations.

Should periods of temporary cessation of mining operations occur, the portals or portal areas will be secured by steel chain-link fence or equivalent physical barriers to prevent access into underground workings by unauthorized persons. The fences will be secured with locks. Gates at points of access will be locked and signs posted to discourage unauthorized access.

R645-301-530

OPERATIONAL DESIGN CRITERIA AND PLANS

R645-301-531

GENERAL

The sediment pond will not be located over old or new works. Mining will not affect the sediment pond, the embankment or any other structure in the area.

R645-301-532

SEDIMENT CONTROL

Sediment control measures within the proposed disturbed area will include the installation of a sediment pond below the disturbed area. All surface, disturbed area runoff, coal fines and sediment will be diverted into the pond. Drainage ditches and culverts designed to convey the 10 year, 24 hour flow will channel runoff to the sediment pond. Refer to Map 7-2 for the minesite drainage control structures.

Ditches and culverts incorporate the 10 year, 24 hour event design requirements applied for temporary structures. The sediment treatment facility has been designed for the 10 year, 24 hour event. The design of the sediment pond incorporates a sediment storage allowance of three years as estimated by the Universal Soil Loss Equation. Refer to Appendix 7-4 for the Sedimentation And Drainage Control Plan and drainage calculations.

Where the flow velocity is determined to be excessive (i.e. in excess of 5 ft/sec), concrete liners or other equivalent erosion control methods will be used to minimize

erosion of the ditches. Sediment production from the disturbed area will be minimized by vegetation cover, grade control and riprapped ditches where necessary.

R645-301-533 IMPOUNDMENTS

- 533.100 The proposed sediment pond does not meet the size or other criteria of 30 CFR 77.216(a). The sediment pond has been designed to be stable under all conditions with a minimum static safety factor of 1.3. Refer to Appendix 5-4 for slope stability analyses.

- 533.200 The foundation for the sediment pond will be excavated down to bedrock or other stable material. All vegetative and organic materials will be removed. Available topsoil material in the sediment pond area will be removed and stockpiled in the designated topsoil storage area prior to constructing the pond facilities. The slopes of the pond embankment will be approximately 2:1 on the inslope and 3:1 on the outslope. Where the pond slopes are incised into competent material, interior slopes (other than those of the embankment) may exceed 2:1.

- 533.300 The bottom and sides of the open channel spillways will be lined with adequately sized riprap or concrete to prevent surface erosion. Slopes will be revegetated to reduce surface erosion.

- 533.400 The outslopes of the pond will be revegetated to the extent possible to provide surface stabilization and prevent erosion. The vegetation planted will consist of forbs and grasses included in the reclamation seed mix. None of the species planted will threaten the integrity of the pond. The vegetation will enhance the stability of the slopes by curbing erosion and holding the soil in place. Seeding will be done immediately following construction. The seed will be spread by hand and raked in. Straw mulch will be applied at a rate of one ton per acre and will be anchored with hydro mulch.

- 533.500 Not applicable.

- 533.600 The sediment pond impoundment proposed for the mine site does not meet the criteria of MSHA, 30 CFR 77.216(a) for the following reasons:
- The proposed total pond capacity is 7.67 acre-feet. The pond can not impound a volume of 20 acre-feet or more, which is the storage volume stated in 30 CFR 77.216(a)(1).
 - The pond can not impounded water, sediment, or slurry to an elevation of 20' or more above the upstream toe of the dam structure as stated in 30 CFR 77.216(a)(2). The maximum height water could be impounded in either of the cells is 16.5 feet (to the principal spillway in cell A). The 36" cmp riser spillway is designed for a 25 year, 6 hour event.
 - The impoundment would not present a hazard to the coal miners per 30 CFR 77.216(a)(3).
 - The design for the sediment pond is shown on Map 7-4. Cross-sections for the pond are shown on Map 7-4A. These maps include construction details for the structure. Refer to the Sedimentation And Drainage Control Plan in Appendix 7-4 for additional calculations.

R645-301-534 ROADS

534.100 Roads within the disturbed area have been designed to prevent damage to public and private property. A nonacid, nontoxic-forming substance (such as gravel or asphalt) will be used to surface the road. Embankments have been designed to be stable at a minimum static safety factor of 1.3 by using standard engineering practices (refer to Appendix 5-4).

Construction of the road, within the disturbed area, will take place once the undisturbed drainage bypass culvert and the sediment pond have been installed. Maintenance of the road within the mine site will be the responsibility of WEST RIDGE Resources, Inc.

The road will have a 24' wide running surface with shoulders and ditches along the length. Cross culverts will be located along the length of the road to facilitate drainage control. Drainage control structures will be sized to handle the 10 year, 24 hour event.

The road will have a crowned, gravel or asphalt surface on top of 6" untreated base coarse overlying a granular borrow sub-base. Concrete "Jersey Barriers" or equivalent will be installed as required along berms and outsoles.

All roads within the disturbed area will be removed and the area reclaimed according to the approved reclamation plan.

Dust will be controlled on unpaved roads within the disturbed area by restricting the speed limit, and by treatment with a chemical stabilizer solution as needed. This solution will be handled in accordance with the manufacturers directions and will be

applied with a water truck sprayer.

Maintenance of the roads within the minesite will include the following procedures. Ditches will be periodically cleaned. Drainage culverts will be checked and cleaned as needed after each storm event.

534.200 The type and size of vehicular use has been considered in the design of the road. A relatively flat grade will be constructed in the truck loop area to better facilitate truck loading. Adequate surface width and appropriate spacing of culvert crossings have been incorporated into the design to prevent road damage and promote safety.

534.300 Primary Roads

The primary road will meet the requirements of R645-301-358, R645-301-527.100, R645-301-527.230, R645-301-534.100, R645-301-534.200, R645-301-542.600, R645-301-762.

The access road (primary road) is a Carbon County road. It is a public road and will remain a public accessway after mining operations have ceased.

Other primary roads are the road from the county road to the warehouse pad and the ramp up to the coal storage pad.

The access road design (within the permit area) has been certified by a registered professional engineer and is included as Figure 5-3. The other primary road designs are shown on Map 5-15.

All drainage culverts installed under the primary road will be designed, installed and maintained according to AASHTO standards as part of the overall Carbon County road design.

R645-301-535 SPOIL

535.100 No excess spoil is anticipated at the proposed underground mine site. Cut and fill operations for the drift entry faceup and yard construction have been balanced so that all materials will be used during final reclamation to restore approximate original contour or taken underground for permanent storage. See Appendix 5-1 for the mass balance calculations.

Earth and rock materials excavated during operations for the portal faceup and yard construction will be placed in the yard fill. The yard area (pad) will be used for the life of the mine. This pad material will be regraded to approximate original contour or permanently stored underground following cessation of mining activities.

535.200 No excess spoil is anticipated. No valley fills or head-of-hollow-fills are proposed.

535.300 No excess spoil is anticipated. Disposal of excess spoil by gravity placement methods is not proposed.

535.400 No excess spoil is anticipated. WEST RIDGE Resources, Inc. Is not proposing disposal of excess spoil by placement on pre-existing benches.

535.500 Rock material resulting from faceup operations for underground coal mine development will be placed in the mine pad fill as part of a cut and fill structure. Fill will be placed in accordance with: R614-301-211, R614-301-212, R614-301-412.300, R614-301-512.210, R614-301-512.220, R614-301-514.100, R614-301-528.310, R614-301-535.100 through R614-301-535.130, R614-301-535.500, R614-301-536.300, R614-301-542.720, R614-301-553.240, R614-301-745.100, R614-301-745.300 and R614-301-745.400. Refer to a discussion of the above referenced regulations in the following text preceded by a # (pound sign).

For the discussion with regard to R614-301-512.210, R614-301-512.220, R614-301-514.100, R614-301-528.310, R614-301-535.100 through R614-301-535.130, and R614-301-535.500 refer to the appropriate section of the permit application.

#210 GENERAL REQUIREMENTS

#211 A description of the pre-mining soil resources as specified under R614-301-221 is presented in Chapter 2. Topsoil will be removed and segregated from other material as required by R614-301-232.

#212 After topsoil has been removed, it will be stockpiled pending redistribution are specified by R645-301-234. Topsoil removal procedures are discussed under R614-301-232. Refer to Appendix 5-5.

#412.300 No excess spoil is anticipated at the proposed underground mine site.

- #536.300 No excess spoil is anticipated at the proposed underground mine site. Coal mine waste will not be disposed of in excess spoil fills.
- #542.720 No excess spoil is anticipated at the proposed underground mine site.
- #553.240 No excess spoil is anticipated at the proposed underground mine site.
- #745.100 No excess spoil is anticipated at the proposed underground mine site.
- #745.300 No excess durable rock spoil is anticipated at the proposed underground mine site.
- #745.400 No excess spoil is anticipated at the proposed underground mine site.

R645-301-536 COAL MINE WASTE.

The proposed surface facilities of the West Ridge Mine do not include any coal preparation systems that will generate processing waste. There are no plans to wash or process the coal, therefore, no coal mine waste rock is anticipated. If, however, minor amounts of waste rock are developed from inside the mine, (overcast material, roof fall cleanup, etc.) which cannot be stored underground and is brought to the surface, it will be hauled off site after either 12 cubic yards (one truck load) has accumulated or 180 days has elapsed. The waste rock will be stored in an approved coal refuse site at the Andalex Wildcat loadout facility. Sediment pond wastes will not be taken into underground workings for disposal. Coal mine waste generated from the cleanout of the sediment pond will be trucked to the ECDC landfill in East Carbon. No refuse disposal facilities will be located within the permit area.

R645-301-537 REGRADED SLOPES

- 537.100 No alternate specifications are being proposed at this time.
- 537.200 Fills utilized during the operational phase of mining will be regraded back to approximate original contour.

R645-301-540 RECLAMATION PLAN

R645-301-541 GENERAL INFORMATION

- 541.100 Upon final cessation of coal mining activities at the proposed site, WEST RIDGE Resources, Inc. will permanently reclaim all affected areas in accordance with the regulations and approved permit.
- 541.200 WEST RIDGE Resources, Inc. is not proposing surface coal mining and reclamation activities.
- 541.300 All surface equipment, structures, or other facilities not designated to be left in conjunction with the post-mining land use plan will be disassembled and removed. The affected area will then be reclaimed.
- 541.400 The reclamation plan for the proposed disturbed areas within the proposed permit area is presented in detail in Appendix 5-5. The plan is outline below for quick reference. Appendix 5-5, however, contains the detail and discussion for the reclamation plan. All proposed plans have been designed to comply with R645-301 and environmental protection requirements.

All lands within the proposed permit area affected by impacts of mining will be reclaimed in accordance with the approved DOGM permit. WEST RIDGE Resources, Inc. commits to mitigate the impacts caused by mining as soon as possible upon discovery of those impacts.

Reclamation of the mine site will begin with the demolition of all buildings and structures. The materials will be removed from the site and hauled to an approved solid waste landfill. After demolition and structural removal of all existing structures at the site, regrading activities will commence. The yard area will be restored to approximate original contour. Excess fill material will be hauled into the abandoned mine entries. The portals will be then be sealed and backfilled according to the approved sealing plan. See Figures 5-1 and 5-2.

The highwalls will be backfilled as described in Appendix 5-9. Fill will be placed to the top of the highwall area. Boulders will be used on the highwall benches to add an additional measure of stability to the fill slopes.

During reclamation activities, the undisturbed drainage diversion culverts will be removed to reestablish the canyon drainages. Diversion culverts will be excavated and the natural drainages re-established beginning at the top of the culverts and working downstream.

As portions of the mineyard are regraded, topsoil will be re-applied and the area gouged to contain runoff and sediment. The area will then be reseeded and mulched. This will be done for the entire reclaimed area. Map 5-9, Mine Site Reclamation, shows the reclamation drainage plan. See Appendix 7-4 for the design details regarding reclaimed channels.

Drainage from the reclaimed areas will be treated prior to entering the undisturbed drainage in the reestablished channels. Surface gouging, silt fences, and straw bales will be utilized for sediment treatment.

Restoration of the drainage channels will seek to present a natural appearance to the drainage while providing a suitable channel configuration. The designs presented are for a permanent structure and calculated for a 100 year, 6 hour event.

The reclaim channel side slopes, widths, and gradients have been designed to closely resemble the premining channel and the channel above and below the disturbed area. The reclaimed channel will be capable of passing the same flow as the undisturbed channel above and below the reclaimed area. As no riparian zone exists along the drainage channel, the regraded slopes will be hydroseeded and mulched with the same treatment used on the yard areas.

In response to a request from the Division an alternate to the approved highwall reclamation plan using a lessor slope is included in Appendix 5-9. The Division approved this alternate reclamation plan on April 24, 2006. Therefore, WEST RIDGE Resources, Inc. has now adopted it as the preferred reclamation plan. Under this "reduced slope" plan, the amount of backfill placed against the highwall will increase by approximately 50,000 cubic yards. However, the amount of excess pad fill which will have to be hauled away will decrease by the same amount. According to the current approved bonding calculations (Nov. 2001) the Division estimates the cost of backfilling the highwall at \$2.15/yd (x 50,000 yd = \$107,000). And the cost of removing the excess pad fill at \$2.92/yd (x 50,000 yd = \$146,000). Therefore the

cost of adopting the “reduced slope” reclamation plan should be approximately \$38,500 less than the currently approved plan. Therefore, the existing reclamation bond should be adequate for the alternate “reduced slope” reclamation plan.

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**TABLE 5-1
RECLAMATION TIMETABLE**

ACTIVITY	SCHEDULE
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542.100 A schedule for the completion of each major step in the reclamation plan is provided on Table 5-1.

542.200 The anticipated final surface configuration is shown on cross-sections of the regraded area (Maps 5-6, 5-6A, 5-6B and 5-6C, Mine Site Cross-Sections). The final surface topography and the replaced drainage channels is depicted on Map 5-9.

Appendix 5-1 contains the details of the reclamation mass balance cut and fill calculations. Appendix 5-5 contains the detailed description of the reclamation plan for the mine site.

As the yard fill is being excavated, the drainage diversion culverts (bypass culverts) will be removed and replaced by open channels. The alignments of the restored channels are shown on Map 5-9. Profiles of the channel gradients are shown on Map 5-8.

During construction activities, up to 6,506 cubic yards of topsoil material will be stockpiled for replacement during final reclamation activities. In addition, approximately 37,000 cubic yards of substitute topsoil material is available to be utilized from the topsoil borrow area, if needed. This substitute material would be used only if necessary to supplement the stockpiled material in order to provide adequate topsoil/growth medium over the regraded yard area.

At the time of final reclamation after the final contouring has been established, the surface will be scarified to a depth of 6" to 12". Topsoil from the stockpile will be trucked to the regraded slope areas and spread with a dozer, loader or grader to the required depth. The area will then be gouged, hydroseeded and mulched. This portion of the reclamation activity will take place as the surface areas are prepared.

On the area where the topsoil has been protected in-place, the geotextile will be removed and a hay mulch applied over the surface at a rate of 2,000 pounds per acre. Then, the surface will be gouged to relieve compaction and promote water infiltration. The area will be either broadcast or hydroseeded with the seed mixture listed in Table 3-2B. The seed will be applied at a rate specified on the table. Next, a weed-free straw mulch will be blown onto the surface at a rate of 2,000 pounds per acre and held to the surface with mulch and a tackifier. If root stock is listed in the seed mix, the containerized plants will be planted at the rate specified in the seed list table. Refer to Appendix 2-6 Plan For Experimental Practice In-Place Topsoil Storage for more details.

Refer to R645-301-537.200, R645-301-552 through R645-301-553.230, and R645-301-553.260 through R645-301-553.900 for additional detail regarding backfilling

and grading during final reclamation.

All water monitoring wells will be sealed in accordance with the requirements for abandonment and reclamation in the Administrative Rules for Water Wells established by the Division of Water Rights. WEST RIDGE Resources, Inc. commits to complying with the requirements for closure and will use a certified water well driller to close the wells. Abandonment reports will be submitted to the Division of Water Rights at the time.

542.300 Map 5-9 shows the anticipated final surface to be achieved for the reclaimed area. The earth work calculations for the reclamation activities are presented in Appendix 5-1.

Maps 5-6A, 5-6B and 5-6C show the approximate original contour that will be replaced during reclamation activities in plan view. Maps and cross-sections have been certified as required by R645-301-512.

Refer to Map 5-9 for the segment of Carbon County road which will remain in the permit area as a permanent feature.

542.400 Before seeking bond release, a description of the site ensuring that all temporary structures have been removed and reclaimed will be submitted to the Division.

542.500 The timetable provided on Table 5-1 provides a schedule which includes removal of the sediment pond.

542.600 The access road within the mine site will be reclaimed during reclamation of the mine site. All other roads within the disturbed area will be removed and the area reclaimed according to the approved reclamation plan. The Carbon County public road will be left in place as an approved post-mining land use. The road will terminate at a turnaround. The road will continue to serve as permanent access to public lands in the West Ridge Area.

542.700 Final Abandonment Of Mine Openings And Disposal Areas

542.710 Map 5-9 shows the proposed final reclaimed surface configuration.

Figure 5-2 shows the method for sealing mine portals upon final reclamation. Refer to the discussion presented under R301-645-529.

Surface exploration holes will be sealed to within one foot of the surface with concrete. The water monitoring well, when deemed no longer necessary for ground water monitoring, will be filled with concrete to within one foot of the surface. Plans for final abandonment of surface and mine openings are in accordance with R645-301-529, R645-301-551, R645-301-631, R645-301-738 and R645-301-765.

542.720 Excess rock and spoil material are not anticipated at this location.

542.730 Not applicable.

542.740 Disposal Of Noncoal Mine Wastes

Noncoal mine wastes including, but not limited to grease, lubricants, paints, flammable liquids, garbage, abandoned mining machinery, lumber and other combustible materials generated during mining activities will be disposed of in a permanent, state approved landfill facility approved for disposal of such materials. These wastes will not be disposed of within the permit area. Grease, lubricants, flammable liquids, lumber and other combustible material that are mine supplies and not noncoal mine waste will not be subject to this provision.

Prior to their permanent disposal, noncoal mine waste will be temporarily placed and stored in a controlled manner (such as dumpsters) in the main yard storage area near the shop/warehouse. Mine waste may be temporarily placed next to the dumpsters until it can be sorted into the proper dumpster (i.e. garbage, scrap metal, recyclables, copper, etc.). The area will be suitable for storage of such materials and will be maintained so reclamation and revegetation will not be hindered. Dumpsters will be used to temporarily store trash.

542.800 A detailed cost estimate for reclamation operations is presented in Appendix 5-1. The costs are based on the criteria presented in R645-301-830.100 through R645-301-830.300, and estimated per assumptions stated in section R645-301-540. Unit costs presented are found in the "Means Site Work Cost Data" book for 1997.

R645-301-550 RECLAMATION DESIGN CRITERIA AND PLANS

Site specific plans which incorporate the required design criteria for reclamation activities are presented below.

R645-301-551 CASING AND SEALING OF UNDERGROUND OPENINGS

When no longer needed for monitoring or mining purposes, each shaft, drift, tunnel or other opening to the surface from mine workings will be capped, sealed and backfilled as required by the Division and MSHA, 30 CFR 75.1771. Permanent closure plans are designed to prevent access to the mine workings by people, livestock, fish, wildlife, machinery and to prevent drainage from entering ground or surface waters.

Portals within the proposed permit area will be sealed by constructing a concrete block wall (seal) a minimum of 25' inside of the portal entrance. The area between the seal and the entrance to the portal will then be backfilled with incombustible material. The seal will be constructed of solid concrete blocks with cement mortar joints. The concrete seal will be built on solid footing with two rows of block keyed into the solid rib of coal. Refer to Figures 5-1 and 5-2 for typical backfilling and seal design.

At most, four portals would be sealed. Approximate dimensions of the portals to be backfilled would be 8' high by 20' wide by 25' long. Incombustible material will then be graded over the coal seam at the entrance to the portals when the mine yard is regraded to approximate original contour during final reclamation operations. Map 5-9 depicts the final reclaimed surface configuration.

R645-301-552 PERMANENT FEATURES

552.100 Gouging or land imprinting is being proposed as a method of water harvesting. Depressions approximately 24" x 36" x 18" are being proposed to assist reclamation efforts.

552.200 No permanent impoundments will be retained. No stock ponds are being proposed as permanent features.

553.100 Upon final cessation of coal mining activities at the proposed site, WEST RIDGE Resources, Inc. will permanently reclaim all affected areas in accordance with the regulations and approved permit.

Disturbed areas will be regraded to achieve approximate original contour, eliminate highwalls and achieve a stable, long term slope having a static safety factor of 1.3. The disturbed areas will be backfilled and graded to minimize erosion and water pollution, and will support the approved postmining land use.

The postmining highwall slopes will be constructed to achieve long-term stability. The slope stability has been analyzed for the steepest highwall fill. In general, 2:1 fill slopes will be used. However, because of existing topography or physical constraints a steeper slope of up to 1:1 is planned for certain areas, such as the portal highwall area and the conveyor gallery nose-cut. The slope stability analyses are found in Appendix 5-4.

During backfilling and grading operations, the sediment pond will remain in place to minimize degradation of the undisturbed drainage. Silt fences and straw bales will be used where needed to supplement erosion and sediment controls.

The portals will be sealed and backfilled according to the design presented in Figures 5-1 and 5-2. Because all of the portals are in the same stratigraphic location and all have a highwall, they will all be reclaimed using the same design. A block wall (seal) will be built a minimum of 25 feet in by the portal. Incombustible material will be used to fill the portal and block the entrance.

In order to comply with MSHA regulations, a minimum of four feet of incombustible material will be used to cover the exposed coal seam. Where the seam has been exposed, a minimum of four feet of material will be compacted over the coal outcrop.

The area will be regraded to approximate original contour. Map 5-9 depicts the final reclaimed surface configuration, and the erosion and water pollution control systems.

The post mining land use of the area will consist of the same uses that presently exist, namely, grazing, recreation, and wildlife habitat. Restoration of the approximate original contour of the mine yard will allow revegetation to be performed on the site. Native plants will be utilized in the revegetation plan. The reclaimed area will resemble the adjacent, undisturbed area and will be capable of supporting the same uses. Refer to Appendix 5-5 for the complete reclamation plan.

The success of natural revegetation within the mine yard area and areas of prior disturbance has demonstrated that reclamation of the land can be achieved. The condition and existing uses of the previously disturbed and regraded land document the fact that backfilling and grading will support the proposed postmining land use.

Several site specific locations within the proposed disturbed area demonstrate this.

553.200 Spoil and Waste

No excess spoil is expected based on cut and fill calculations. Map 5-6A, 5-6B, 5-6C and 5-9 and Figures 5-1 and 5-2 show the methods for sealing mine portals upon final reclamation.

Appendix 5-1 contains the details of the reclamation mass balance cut and fill calculations. Enough material will be on hand to completely regrade the disturbed area. Excess fill material will be hauled off-site or disposed of in the abandoned mine workings.

No terraced excess spoil fills are proposed.

553.250 No refuse piles will be constructed or reclaimed.

553.260 No coal processing wastes or underground development waste will be disposed of in any mined-out surface areas.

553.300 All exposed coal seams will be covered with at least four feet of nontoxic, noncombustible materials during reclamation activities to prevent spontaneous combustion of the seam and to assist with revegetation of the site.

553.400 Terracing is not currently being proposed in the reclamation design.

553.500 Previously Mined Areas

Areas of prior disturbance have been incorporated in the reclamation plan and will be reclaimed at the same time as the proposed surface facilities.

553.600 Approximate Original Contour

The disturbed area will be regraded to approximate original contour. No highwalls will be left.

553.700 The applicant is not proposing surface coal mining activities.

553.800 The applicant is not proposing surface coal mining activities.

553.900 The applicant is not proposing to leave settled and revegetated fills in place at the conclusion of coal mining and reclamation operations.

R645-301-560 PERFORMANCE STANDARDS

Coal mining and reclamation operations will be conducted in accordance with the approved permit and requirements of R645-301-510 through R645-301-553.