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State of Utah

DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER
Executive Director

Division of Oil, Gas and Mining

JOHN R. BAZA
Division Director

March 31, 2017

Karin Madsen, Resident Agent
Genwal Resources, Inc.
P.O. Box 910
East Carbon, Utah 84520-0910

Subject: Seismic Monitoring Revision, West Ridge Resources, Inc., West Ridge Mine,
Task ID #5370, C/007/0041

Dear Ms. Madsen:

The Division has reviewed the proposed revisions to the West Ridge Mine's seismic monitoring plan. The Division has identified deficiencies that must be addressed before final approval can be granted. The deficiencies are listed as an attachment to this letter. The deficiencies authors are identified so that your staff can communicate directly with that individual should questions arise. Please resubmit the entire application by no later than April 14th, 2017

When you re-submit the amendment, please revise how changes are identified on the C2 form relative to pages 5-31 through 5-66. As you are not proposing to revise the text of these pages, but rather only the page numbers, please submit a revised Table of Contents that accurately reflects the correct page number for the various sections within that page range. Additionally, the amendment should provide only redline-text for the portions of the MRP that are to be revised (i.e. maintain a black font for the text that is not to be revised).

If you have any questions, please call me at (801) 538-5325.

Sincerely,

Daron R. Haddock
Coal Program Manager

DRH/sqs

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Technical Analysis and Findings

Utah Coal Regulatory Program

PID: C0070041
TaskID: 5370
Mine Name: WEST RIDGE MINE
Title: SEISMIC MONITORING

Operation Plan

Subsidence Control Plan Subsidence

Analysis:

The amendment does not meet the State of Utah R645 requirements for Subsidence Control Plan.

On March 1st, 2017, the Division of Oil, Gas and Mining (the Division) received an amendment to the West Ridge Mining and Reclamation Plan (MRP). The amendment proposes to revise Appendices 5-13 and 5-13A. The two appendices discuss and outline weekly and monthly seismic monitoring requirements that were required for the mining of Panel 7 (Appendix 5-13) as well as panels 18, 19, 20 and 21 (Appendix 5-13A). In order for the Permittee to mine the aforementioned panels, a robust seismic monitoring plan was developed in consultation with the Bureau of Land Management (BLM), East Carbon City, Utah Division of Dam Safety (DWri) and the Division. The seismic monitoring plans were developed in light of concerns that the proximity of mining to the Grassy Trail Reservoir embankment could produce impacts.

Appendix 5-13 and 5-13A both contain language that requires a collective consensus determination between Dam Safety, the Division, BLM and East Carbon City prior to revising the seismic monitoring requirements. On October 27th, 2016, representatives from the aforementioned entities met at the Division's Price Field Office to discuss the seismic monitoring to date. At the October meeting, RB&G (the Permittee's consultant who performs the seismic monitoring) provided a report wherein revisions to the seismic monitoring within Appendix 5-13 and 5-13A was proposed. It was agreed that the group would review the RB&G report and its recommendations for reduced seismic monitoring. Following that review, the group was to submit their comments of the proposed seismic reduction.

On January 19th, 2017, a follow up meeting was conducted with representatives from East Carbon City, Utah Dam Safety, the Division, BLM, West Ridge Mine, Utah Water Rights as well as RB&G consulting. The City of East Carbon had indicated in their comments that they wanted an additional year of monitoring. Dam Safety indicated that they were comfortable with the seismic data within the RB&G report, but wanted additional operational monitoring of the embankment and clarification as to the replacement of impacted inclinometers. The BLM indicated on the call that they had essentially no jurisdiction as to whether or not the seismic monitoring be reduced. The Division indicated that the seismic data demonstrated that movement at the Grassy Trail Reservoir embankment had ceased and that continued monitoring was not necessary. Following the January 19th meeting, the Permittee circulated a proposed revision to the seismic monitoring information and solicited comments from the group.

The previously approved seismic monitoring included the following tasks be performed on a weekly basis: site reconnaissance/visual inspections, electronic photographs from pre-determined viewpoints, flow rates obtained from the east seep, west seep and toe drain, reservoir level elevations and electronic reporting. On a monthly basis, the following

seismic monitoring requirements had been identified: accelerometer readings, piezometer readings, inclinometer readings, relative elevations of subsidence monitoring monuments located on the dam and electronic reports e-mailed to the various stakeholders.

The Permittee has proposed the following monthly seismic monitoring: site reconnaissance/visual inspection, accelerometer readings, inclinometer readings, electronic photographs from pre-determined viewpoints, relative elevations of subsidence monitoring monuments located on the dam and the subsequent monthly electronic reporting e-mails to the stakeholders.

The proposed seismic monitoring revisions identified East Carbon City personnel as being tasked with obtaining the reservoir elevations, piezometer readings and the seepage collection drain measurements. These monitoring requirements will be conducted (per Dam Safety's recommendation) on a monthly basis when the reservoir elevation is below 7,585' in elevation and a weekly basis when the reservoir elevation is equal or exceeds the 7,585' elevation.

The BLM indicated that the proposed revision was acceptable, but wanted the BLM removed as one of the entities listed in the seismic monitoring language. The Mayor of East Carbon City indicated that he was in agreement with the proposed revisions. Utah Dam Safety indicated requested clarification as to the replacement of inclinometers I-2 and I-3 as well as clarification as to the weekly/monthly monitoring requirements to be conducted by East Carbon City. Dam Safety asked that clarification be provided that East Carbon City personnel would monitor reservoir elevation, piezometers and seepage collection measurements on a monthly basis when the reservoir elevation is below 7,585' in elevation and weekly when the reservoir elevation is equal to or exceeds the 7,585' elevation. Of note is that the 7,585' elevation corresponds to 7.5' below the embankment spillway. As noted above, the Permittee added the clarification that Dam Safety had requested relative to the reservoir elevation. The Division provided comments that the proposed revisions were reasonable, but did request the Permittee to clarify the re-installation/replacement of inclinometers I-2 and I-3.

The Permittee provides a commitment in the proposed seismic monitoring that on or before the end of September 2017, West Ridge Resources agrees to installing two new inclinometers at the Grassy Trail Dam to replace inclinometers 2 and 3 per the request of the Division and Dam Safety.

Prior to the January 19th, 2017 meeting among the aforementioned stakeholders, Division engineer Cheryl Parker reviewed the seismic data submitted by RB&G Engineering. Ms. Parker determined that the provided data demonstrated that no significant movement or damage had occurred to the Grassy Trail Dam and Reservoir due to the mining induced seismic events and that the mine should be relieved of all future monitoring. Ms. Parker further found there was no evidence that additional monitoring of the Grassy Trail embankment would show mining related seismic events as all mining operations within any reasonable proximity to the dam have ceased beyond the site recorded delay in expected subsidence. Ms. Parker summarized her findings that the RB&G reports demonstrated a positive correlation between the proximity of longwall mine workings and mining induced seismic events at the Grassy Trail dam. Additionally, it was found that no significant movement or damage had occurred to the Grassy Trail Dam and Reservoir due to mining induced seismic events. Ms. Parker indicated that the Permittee had satisfied all pre-mining, concurrent and post-mining monitoring obligations within the MRP as well as SMCRA and Utah State Code R645-301-525 requirements.

Mining activity at the West Ridge Mine ceased in its entirety in November of 2015. Mining within panel 19 (the last panel to be mined in close proximity to the Grassy Trail Embankment) was completed in September of 2015.

The revised seismic monitoring plan indicates that seismic monitoring will continue through September of 2017. At that time, the data will be reviewed by Dam Safety, the Division, the BLM and East Carbon City. Upon review of that data, if no significant movement has been detected which can be linked to mining-induced seismicity, the Permittee's monitoring responsibilities will cease with any ongoing monitoring of the Grassy Trail Dam to fall under the guidelines of Utah Dam Safety.

On page 5-31 of the proposed revisions to the MRP, the Permittee makes a statement that, at this point in time, is still under review and continued monitoring. The Permittee must delete the 2nd paragraph on page 5-31 of the amendment. The stakeholders identified within the MRP (i.e. East Carbon City, Dam Safety, the Division and the BLM) agreed that continued seismic monitoring will continue through September 2017 to provide additional data and confidence that seismic events caused by mining did not adversely affect the Grassy Trail reservoir and dam. As such, it's inappropriate at this point to make a definitive statements that no adverse effects of mining-induced seismicity have occurred on the dam and that additional monitoring would not show additional mining related seismic events. Once the monitoring has been completed at the end of September 2017 and its determined that the additional data demonstrates no additional seismic activity from the mine and no adverse impacts to the dam, such statements would then be appropriate and recommended for inclusion into the MRP.

Deficiencies Details:

The amendment does not meet the State of Utah R645 requirements for Subsidence Control Plan. The following deficiency must be addressed prior to final approval:

R645-301-525: The Permittee must delete the 2nd paragraph on page 5-31 of the amendment. The stakeholders identified within the MRP (i.e. East Carbon City, Dam Safety, the Division and the BLM) agreed that continued seismic monitoring will continue through September 2017 to provide additional data and confidence that seismic events caused by mining did not adversely affect the Grassy Trail reservoir and dam. As such, it's inappropriate at this time to make a definitive statement that no adverse effects of mining-induced seismicity have occurred on the dam and that additional monitoring would not show additional mining related seismic events. Once the monitoring has been completed at the end of September 2017 and its determined that the additional data demonstrates no additional seismic activity from the mine and no adverse impacts to the dam, such statements would then be appropriate and recommended for inclusion into the MRP.

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