

TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

March 18, 2009

TO: Internal File

THRU: Ingrid Wieser, Lead *ww*
Daron Haddock, Permit Supervisor *DRH*

FROM: Peter Hess, Environmental Scientist III, Engineering, Bonding *PHH bm SAS*

RE: Permit Renewal, Energy West Mining Company/ PacifiCorp,
Cottonwood/Wilberg, C/015/0019 and Project # 3224

SUMMARY:

The Permittee submitted a permit renewal application to the Division for the Cottonwood / Wilberg Mine on March 9, 2009.

The Cottonwood / Wilberg Mine was used as an underground conveyance mechanism to the truck loading facility located in Grimes Wash for coal being produced from the Trail Mountain Mine. Trail Mountain produced its last coal in May of 2001; both Mines were sealed, and placed in temporary cessation status at that time.

No new facilities have been constructed at the Cottonwood / Wilberg Mine from 2001 to 2009.

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TECHNICAL ANALYSIS:

OPERATION PLAN

SUBSIDENCE CONTROL PLAN

Regulatory Reference: 30 CFR 784.20, 817.121, 817.122; R645-301-521, -301-525, -301-724.

Analysis:

Performance Standards For Subsidence Control

Subsidence Monitoring

There has not been any secondary extraction at the Cottonwood / Wilberg since 1995. It was assumed during the writing of the 2007 Annual Report review that all areas, which had been undermined, had reached maximum deformation and were stable at that time. Due to a flaw discovered in collected data from the 2007 annual flyover, the Permittee requested an extension of time from the Division to resolve / correct the data error. The Division granted an extension of time to allow for data resolution on June 30, 2009.

PacifiCorp submitted information for the 2007 Annual Report on September 29, 2008. In 2001, secondary extraction activities at the Trail Mountain Mine came to an end and both Mines were sealed and placed in temporary cessation status.

The Permittee submitted subsidence monitoring information for 16 areas which are relevant to secondary extraction for all of the Energy West coal mining properties, (Des-Bee-Dove Mine, Trail Mountain Mine, Cottonwood / Wilberg Mine and Deer Creek Mine).

Of the 16 areas monitored, only four of eight areas related to the Cottonwood / Wilberg Mine had reportable data. The four areas which are no longer monitored are;

- Area #12
- The 2nd Left area of the Wilberg Mine (Area 12) never showed measurable subsidence and is no longer being reported.
- Monitoring areas 15, 16 and 17 have been relinquished and are no longer being monitored.
- The areas for which data has been submitted include Areas 4, 5, 6, 11 and 14.

AREA 4

Area 4 monitors areas of secondary extraction in the Deer Creek Mine 2nd through 17 Right longwall panels, which overlie longwall panels in the Cottonwood / Wilberg Mine (9th, 8th, 5th, and 2nd Left longwall panels). Secondary extraction in the Deer Creek Mine ended in 1991. Longwall mining in the Cottonwood Mine began in 1992 in the 9th Left off of 2nd North. In August of 1995, longwall mining in the Cottonwood Mine was completed.

13 feet of subsidence was measured in the areas of dual seam extraction. Subsidence monitoring from 1995 through 2007 has shown virtually no change. Charts 2 and 3 are subsidence profile charts for the dual seam extraction area.

Figure 4 shows the location of repaired and seeded surface fractures.

The Permittee reports that several springs located in Area 4 on East Mountain have had flow fluctuations, but these fluctuations are considered as the response to precipitation in the area, and not caused by mining.

The monitoring of the ephemeral stream in the left fork of Grimes Wash shows no changes that can be attributed to mining.

AREA 5

Area 5 is also a monitoring area where dual seam secondary extraction has been practiced in the upper Deer Creek Mine, overlying the lower Cottonwood / Wilberg Mine. The longwall panels in Area 5 associated with the Cottonwood Mine were 6th through 1st Right. The last panel, 1st right was completed in August of 1994. The first subsidence noted in Area 5 was noted in 1984.

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As can be seen from Figure 5, more than 13 feet of subsidence has occurred where both coal seams have been mined via longwall methods.

2007 subsidence monitoring showed virtually no change when compared to submitted 2006 data for Area 5.

No surface impacts have been identified in Area 5. The angle of draw in Area 5 has been calculated as varying from 0 to 13 degrees.

Area 6

Area 6 involves the 1st and 2nd West longwall panels in the Wilberg Mine, which saw the completion of secondary extraction activities in June of 1983. The maximum amount of subsidence measured in this area is between four and five feet.

Four springs located above the mining area show no adverse effects from nearby subsidence (as stated in the 2007 Hydrological Monitoring Report submitted by Energy West).

Area 11

Area 11 monitors another section of the permit area where dual seam extraction was practiced (Cottonwood 6th and 7th Right longwall panels). Subsidence exceeding 12 feet has been measured in this area. **Area 11 has been stable since 1994.**

The angle of draw, which has been measured in Area 11, varies from zero to 28 degrees.

Area 14

Mining was completed in the Cottonwood 6th and 7th East longwall panels in September of 1987. This area was relinquished in 1995, although the northern portion remains in the Cottonwood / Wilberg Mine permit area. For this reason, Area 14 will continue to be monitored.

The overburden in Area 14 ranges from 200 to 1400 feet.

Subsidence varying from five feet (on East end of 6th East) to 15 feet has been measured over the 6th East longwall panel, (See Figure 8).

Surface fractures over this area were repaired in 1998.

Energy West's experience with photogrammetric monitoring can probably not be exceeded in Utah. The error, which was reported by them in the 2007 monitoring data, was probably not capable of being resolved, as it is an inherent problem within the photo resolution when overflying steep and rugged terrain. The same "bull's-eye" of subsidence shown in the 1996 data was noted as still being present in the 2007 data.

Helicopter reconnaissance of Area 14 showed no visible evidence of change in the area. *"Any inaccuracies present in the survey are due to the extremely rugged terrain"* (which has been undermined / PHH).

There have been no changes in the last seven years of monitoring.

There are no springs in Area 14.

The angle of draw, which has been measured in this area, is 25 degrees.

Findings:

Based upon information submitted for the five areas being monitored, it appears that all areas where both dual and single seam secondary extraction have been practiced have reached maximum deformation and are stable. All submitted data supports this finding. All significant surface cracks observed by the Permittee have been reported as being repaired. The Permittee states that no springs or stream reaches have been affected. All information is certified by Mr. Ken Fleck, a certified professional geologist in the State of Utah, and Manager of Environmental Affairs for the Permittee.

RECLAMATION PLAN

BONDING AND INSURANCE REQUIREMENTS

Regulatory Reference: 30 CFR Sec. 800; R645-301-800, et seq.

Analysis:

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Form of Bond

The bond held by the Division is a surety posted by the Travelers Casualty and Surety Company of America. The Travelers had an A. M. Best rating of A+ on December 31, 2008.

Determination of Bond Amount

The reclamation bond estimate for the Cottonwood / Wilberg Mine was updated during the 2007 midterm permit review, receiving final Division approval on December 7, 2007.

The Division only recalculates the bond every five years, escalating reclamation costs at each midterm permit review. This is done to minimize the possibility of not re-issuing a current permit due to bond procurement issues.

The reclamation bond estimate will be recalculated during the next midterm permit review in 2011.

The current reclamation bond amounts to \$ 3,252,000.

Terms and Conditions for Liability Insurance

The Permittee renewed the general liability insurance coverage for this site prior to August 28, 2008.

Findings:

The Permittee is meeting the requirements of the R645 Coal Mining Rules relative to reclamation bond coverage and liability insurance.

RECOMMENDATIONS:

The Division should approve the permit renewal.