

ACHIEVING CONTEMPORANEOUS GEOMORPHIC RECLAMATION AT EL SEGUNDO MINE, NEW MEXICO¹

Emily Hydrusko²

Abstract: Traditional coal mine reclamation in the southwest includes rolling hills with 7:1 side slopes incised with large drains generally located along ramps to each pit. This approach leaves much to be desired in creating a natural post-mining landscape and creates maintenance issues prolonging the release of reclaimed lands. The El Segundo Mine is cultivating a geomorphic method to contemporaneous reclamation. The method includes using volumetric cut and fill balance, traditionally used in mine reclamation to create the final post mining topography, to develop a base set of contours. Once this set of contours is completed and the drains checked for capacity of the entire watershed, the side slopes can be divided into small Geofluv boundaries or sub-watersheds to be designed using Natural Regrade on Carlson or other similar methods. Each small area must meet the criteria for reclamation set in the mine permit including drainage density. Each area must be cut and fill balanced to ensure there is enough material to build the design effectively. When all the areas are designed they can be combined on one map depicting all of the geomorphic contours blended into the original post-mining topography contours. Implementing the designs takes skill and extensive planning. In order to make this as contemporaneous as possible the designs are scheduled to be put in when the mining operation is in that particular pit or in the pit closest to an area. Allowing for short hauls and ease of access for idle equipment to continue finish work. The detail of these designs can create some issues with timing contemporaneous reclamation. As each designed area is implemented it can leave a stable landform requiring little post reclamation maintenance. Fast paced surface mining can produce a stable, natural looking landform contemporaneously through careful design and planning throughout the mine life.

¹ Oral paper presented at the 2013 National Meeting of the American Society of Mining and Reclamation, Laramie, WY *Reclamation Across Industries*, June 1–6, 2013. R.I. Barnhisel (Ed.). Published by ASMR, 3134 Montavesta Rd., Lexington, KY 40502

² Emily Hydrusko, Engineer I, Peabody Energy New Mexico