

Geomorphic Reclamation of the Rosebud Pit, Wyoming

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Abstract:

The Wyoming Abandoned Mine Land Program continues to recognize the advantages of employing landform grading techniques to develop geomorphically stable reclamation landforms. Application of these approaches, which result in diverse reclamation landscapes that blend with the native terrain, has allowed the Wyoming Program to alleviate physical site hazards while also improving long-term site stability. The Rosebud reclamation project, completed in the spring of 2013, is one of the Program's latest applications of landform grading. The closed-basin site consisted of a water-inundated pit with an adjacent dangerous highwall, a large spoil/overburden pile. The pre-law site is surrounded by reclamation associated with a coal mine in reclamation bond release. The Project Team developed a reclamation landform that reduced remnant highwalls, backfilled the water filled-pit, addressed unsuitable spoils, and re-established a historical drainage. The reclamation design incorporated the use of natural landform grading techniques to develop an open-basin design. Construction commenced in fall 2012. The pond was de-watered by nearly five meters using pump and spray land application techniques. Construction activities generated approximately 900,000 cubic yards of fill material across 74 acres, through excavation of the highwall and overburden pile. Additionally, 20,000 cubic yards of rock was generated through blasting of competent sandstone in two of the landform sub-channels. The project involved intensive coordination with multiple stakeholders including a private landowner and adjacent subdivision, the mining company that completed reclamation adjacent to the site, and the Wyoming Land Quality Division. The Project Team developed a Memorandum of Understanding between the Wyoming Program, Wyoming Land Quality Division, and the mining company. The private landowner and adjacent mining company were drawn in as active participants throughout the reclamation process.

Keywords: Surface Mine Reclamation, Geomorphic Reconstruction, Natural Landform Re-grading, Abandoned Mine Lands, De-watering, Partnership