GEOMORPHIC RECLAMATION OF THE ROSEBUD PIT, WYOMING

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Special Thanks

- Wyoming AML Division
- Arch of Wyoming
- Herrera Environmental Consultants – Len Ballek
- Landowner – Don Calvert
- Mk Weeden Construction – Mark Rosenbaum and Monte Weeden
Presentation Overview

- Project Location
- Rosebud Pit Site Conditions
- Project Goals
- Coordination
- Design Approach
- Project Discussion
- Conclusions

Rosebud Pit, WY – Your new winter destination
Project Location

- South-central Wyoming
- 2 miles west of Hanna, Wyoming
- Elevation – Approx. 6,800ft.
- Hanna Basin
- Within active mining permit boundary
Rosebud Pit Background
Rosebud Site Conditions - Upper

- Highwall
- Pond
- Overburden Pile
- Coal Slack
Rosebud Site Conditions - Lower

Overburden Pile

Highwall

Arch of Wyoming Reclamation
Project Goals

- Mitigate physical hazards
  - Backfill pond
  - Decrease highwall and spoil pile slopes
- Encapsulate coal slack and unsuitable material
- Improve wildlife habitat
- Improve area for stock grazing
Coordination

- Wyoming AML funded and managed reclamation
- Site falls within active mining permit boundary administered by Arch of Wyoming

- Wyoming Land Quality Division
- Memorandum of Understanding
- Wyoming Game and Fish Department
- Private landowner
Design Approach

- Natural Regrade Design using Carlson Civil GeoFluv Software
  - Open basin design
  - Nearby reference areas
  - Reduce erosion
  - Considerable success on Wyoming AML projects

- Pond De-watering and Backfill
  - Discharge
  - De-watering alternatives

- Re-vegetation
  - Soil Amendments
  - Vegetation/soil survey

- Continued Use
  - Landowner
  - Arch of Wyoming
Design Approach – NR Input

- Grading boundary
- Channel locations
- A-channels
- Drainage density
- Straightline Slopes
- Main channel slope at mouth
- Precipitation data
Project Discussion

- De-water the pond
- Removal of coal slack
- Earthmoving
- Re-vegetation

- Bidding
  - 6 qualified bidders
  - $2.5 Mil Avg.

- Contractor
  - Mk Weeden Construction
  - Contract Water Service

- Construction
  - November 2012 – May 2013
Project Discussion – De-watering

- Land application
- Impoundments
- Backfill pond
Project Discussion – Earthmoving

- Earthmoving work began concurrently with de-watering
- Surveying
- Dozer ripping of highwall
- Slot dozing with D10 and D11 bulldozers
- Most of material moved by 637 Scrapers
- Blasting (change order)

Over-cutting makes the superintendent angry!
Project Discussion – Earthmoving
Project Discussion – Earthmoving
Project Discussion – Earthmoving
Project Discussion – Blasting
Project Discussion – Finish Grading
Project Discussion – Re-vegetation

- Pre-ripping/disking
- Manure application
- Fertilizing
- Pit seeding
Conclusion – Final Product

Before

After
Conclusion – Final Product
Conclusion – Final Product

- Regraded surface blends with surroundings
- Revegetation success – Finally!
Conclusion – Lessons Learned

- Under-estimated competency of native sandstone
- More test pitting
- Fill shrink factor
- Additional Information for Contractor
- Weather difficulties
- MOU boundaries
Questions? Comments?