NORTH ANTELOPE ROCHELLE MINE’S APPROACH TO SAGE BRUSH RE-ESTABLISHMENT

Paul Griswold
Sr. Environmental Tech
North Antelope Rochelle Mine

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ENERGIZING THE WORLD ONE BTU AT A TIME
An ecologically based best practice approach will result in successful reclamation that leaves the land in a stable, functional, and sustainable condition in order to achieve desired outcomes.
Seed mixes and timing of seeding will vary depending upon your desired results.

- Post-mining Land Use
- Production
- Diversity
- Shrub Density
- Special Habitats
In House Reclamation Program/2007
NARM was one of first mines in Wyoming to be granted approval to redistribute topsoil at varying depths. Environmental staff studied pre-mine topsoil resources and the distribution of sage grouse habitat. Demonstrating a strong correlation between these components, the team successfully petitioned the regulatory authority for approval of a variable replacement depth plan. The resulting plan will enable NARM to complete topsoil salvage and replacement more efficiently, distribute topsoil in a manner that resembles pre-mine conditions more closely and enhance reclamation of sage grouse habitat.
IMPORTANT FACTORS FOR SUCCESSFUL SPECIES ESTABLISHMENT

- Proper Planting Depth of Seed
- Proper Seed to Soil Contact for Germination
- Soil Fertility and Vigor (Tilth)
- Moisture and Temperature (Mother Nature Affect)
Shrubs:

• Early spring seeding of shrubs (February)
• Snow and frost helps form surface crust
• Shorter duration of wind season
• Snow and frost also breaks down the seed coat for germination
• Reduce competition from other species
• Available moisture
• Timing of seeding according to precipitation events
Factors For Shrub Establishment Failures

- Seasonal Timing of Shrub Seeding
- M.N. Affect (mother nature) Drought & Wind
- Improper seeding techniques/poor seed depth control
- Herbivory of young tender seedlings
Wildlife Exclosures

No Admittance

Free Buffet Table
Seedling Plantings

Protection and Patience
North Antelope Rochelle Mine

Monitoring and husbandry
North Antelope Rochelle Mine

Reclamation

Domestic Grazing

Monitoring and husbandry
Monitoring and Husbandry

Weed Control
Successful Sage Brush stand/19 yrs. old
Successful Sage Brush stand/ 10 yrs. old
Precipitation Events
The Unknowns???

How did this happen?
Peabody’s Mission: ‘When mining is complete, we will leave the land in a condition equal to or better than we found it.’
SEEDING TECHNIQUES AND TIMING

Broadcast seeding
Drill or Mechanical seeding
Hydro seeding
Primary Tillage
Seedbed Preparation

Finish Tillage
Is this possible?
Broadcast seeding

- Brillion or Trillion style Seeder
Seedboxes
Double Disk Opener Drill Seeder

- Dribble Seeding with a Mechanical Style DrillSeeder
Standing Cover Stubble Mulch

Dribble Seeding into stubble mulch with a Mechanical Style Drill Seeder
Hydro-applications of Shrubs

- Hydro seeding
- Hydro mulching
- Tackifying
Questions???