Overview

- Definition
- Framework
- Soil Chemical Limitation Example
- Soil Depth/Geology Limitation
Limited Reclamation Potential

- Limited Reclamation Potential (LRP) - Areas possessing unique landscape characteristics (e.g., sensitive geologic formations, extremely limiting soil conditions, biological soil crusts, badlands, rock-outcrops, etc.) often make reclamation success impractical and/or unrealistic due to physical, biological, and/or chemical challenges. When disturbed, these areas may require unconventional reclamation strategies to address the ten requirements established by this Policy. (BLM Wyoming IM-WY-2012-032)
LRP Decision

Pre-Onsite Evaluation

Onsite Evaluation

Avoidance

Minimization

Rectify

Offsite Mitigate
Project Evaluation: Reclamation Objectives

• Identification of Reclamation Objectives
  • Requirements of Onshore Oil and Gas Order #1
  • Requirements of BLM Land Use Plans
  • Requirements in Programmatic Environmental Impact Statements and Environmental Assessments
  • Reclamation Policies
  • State Reclamation Objectives
Project Evaluation: Pre-Onsite Data Collection

- Surface Geology
- Topography
- Land Use
- Ecological Site Descriptions
- Soil Surveys
- Nearby Reclamation Projects
- Hydrology Information
- Precipitation
- Reclamation Research and Information
- Reclamation Experts
- Cooperators
- Community Members
Identification of Limited Reclamation Potential
Project Evaluation: Onsite Data Collection

- Topography
- Aspect
- Slope
- Hydrology
- Topsoil and Subsoil
- Vegetation
- Land Use
Identification of Limited Reclamation Potential

• Decision Point:

• Can this site be reclaimed to the standards set forth in the Regulations, Land Use Plan and other applicable agreement, environmental impact statements

• Supported with Data Collection from Pre-Onsite and Onsite Evaluation.

• Discussion on alternative standards for Reclamation Success

• How the site will be managed and evaluated
Management of Limited Reclamation Potential

• Option 1: Avoidance
• Preferred Option
• Most Proposed Projects with Limited Reclamation Potential are solved at this stage
• Most effective solution

Note: It is important for operators who avoid Limited Reclamation Potential area because of an internal process still communicate this to the BLM
Management of Limited Reclamation Potential

• Minimization of Impact
• Altering Project to minimize effect
• Examples:
  • Use of Mats for drilling to reduce surface disturbance
  • Reduction in foot print (Central Facilities for completion and production)
  • Use of different drilling methods, if feasible
  • Topsoil Management Techniques
Management of Limited Reclamation Potential

• Rectify or Fix Issue
  • Use Unique reclamation practices
    • Live haul topsoil
    • Local seed collection
    • Major soil amendments
  • Alternative re-contouring to blend with a system
Example 1
Example 1: Poor Chemical Soil Conditions

- Pre-Onsite Soil Conditions:
  - Saline Lowland 7-9” Green River Great Divide Basin
    - Greasewood Dominated Location
    - high Clay
    - Appears to be near an endorheic lake
  - Land Uses
    - Wildlife: Sage Grouse Lek Near by, Sensitive Plant Habitat
    - Grazing: Cattle Use
    - Recreation: Dispersed camping, hunting

- Provided input by NRCS, UW Extension, WYGF and others
Example 1: Onsite Evaluation

- Pre-disturbance Site Evaluation
- Vegetation Transect: Bare ground 87%, Greasewood 12%, Inland Saltgrass 1%
Example 1: Avoidance

• Discussed in this Situation
• Unable to move out of Clayey site due to Sage Grouse Lek no surface occupancy
• Also difficult moving due to Horizontal Drilling
Minimization

- Reduce Disturbance
- Drilling Mats
- Centralized Facilities
- Closed Loop Drilling
- Other Options
Example 1: Reclamation Plan

• Resource Management Plan Reclamation Standard:
  • 80 % Vegetative Cover of the Surrounding
  • 90% Dominate Species
  • Erosion equal or less than the surrounding
  • No noxious weeds
Alternative Standards

- Built off an old site nearby that had been reclaimed 26 years before proposed project.
  - Location exhibited similar soils both in the adjacent and on the location to the proposed Example
  - Location had reached 60% of surrounding vegetative cover in 26 years.
  - Surrounding Vegetation Cover is 5%
  - Frequency of vegetation was similar to surrounding
  - No unusual practices were used to reclaim this location
- 30-60% Relative Native Vegetation Cover
- Similar vegetation frequency to surrounding
- Erosion similar to surrounding
- No Noxious weeds
Reclamation Plan Development

• Operator Wanted to Drill Seed
  • Greasewood – 4 Lbs. PLS/acre
  • Inland Salt Grass – 2 Lbs. PLS/Acre
  • Alkali Sacaton – 2 Lbs. PLS/Acre

• Localized Seed Collection
  • Greasewood
  • Adjacent to Location
  • Broadcast Seeded on Location

• Topsoil Collection Around Greasewood
Example 1: Results (Year 2)

• Good News:
  • No Noxious Weeds
  • No major erosion issues

• Bad News:
  • No Vegetation Growth
  • Little Sign of Germination
Example 1: Results Year 3

• Good News:
  • No Noxious Weeds
  • No major erosion issues
  • Some Greasewood Germination

• Bad News:
  • Greasewood Seedlings appears in poor condition
  • Little Sign of Germination
Questions?