

## **Reclamation Criteria**

### **Jonah Interagency Office Recommendations**

#### ***INTRODUCTION***

These reclamation criteria will be used to determine when roll-over and final reclamation have been met on federal lands within the Jonah Infill Drilling Project Area (JIDPA). These criteria were developed as required by the Jonah Infill Drilling Project Record of Decision (ROD) to assure habitat restoration and function in the shortest time possible. Best Management Practices will be implemented into this document as identified and procedures and/or criteria may be modified as necessary.

#### ***OBJECTIVES***

1. Rollover reclamation credit requires establishment of viable site-stabilizing plant growth (e.g., resistant to wind and water erosion) and a plant community that approximates surrounding or ecologically comparable vegetative composition to the maximum extent possible.
2. Final reclamation requires a range of species composition, diversity, cover and production equal to pre-disturbance levels.

#### ***RECLAMATION CRITERIA***

Each reclamation site will utilize a representative reference site for comparison to measure success of reclamation. A reference site must be undisturbed, similar in vegetative composition, soil structure, slope, and aspect. If possible, the reference site should be adjacent to the reclamation site and similar in size.

In recognition that vegetative composition is naturally sporadic, criteria may be met if data falls within  $\pm 5\%$  of the requirement.

See the JIO website for references on recommended plant lists, and Federal, State and County Noxious Weed Lists. References are also available to support scientific validation of the following criteria.

## **Roll-Over Criteria**

### **1. Erosion Control:**

The site must be in stable condition as indicated by the Erosion Control Classification System (BLM Tech Note 346). The percentage of bare ground must be equal to or less than the reference site.

### **2. Vegetative Criteria:**

- a. Native Forbs:** The average density or frequency of forbs must be a minimum of 75% of the reference site. Diversity of forbs on a reclaimed site must be equal to or greater than the reference site.
- b. Native Shrubs:** The average density or frequency of the shrub component must be at least 50% of the reference site. This includes both shrubs and half shrubs (e.g. winterfat, fringed sage, etc.), but rabbitbrush cannot account for more than 10% density or frequency of total shrub composition used to meet criteria. At least 15% density or frequency of the shrub component must be the dominant species from reference site. The diversity of shrubs must be equal to or greater than the reference site. Individual shrub plants younger than 3 years old will not count towards roll-over.
- c. Native Grasses:** Reclaimed sites must have a minimum of 3 native perennial grass species present, 2 of which must be bunch grass species.
- d. Non-Native Weeds:** Sites must be free from all species listed on the Wyoming or Federal noxious weed list. All state and federal laws regarding noxious weeds must be followed. Other highly competitive invasive species such as cheatgrass and other weedy brome grasses are also prohibited.
- e. Plant Vigor:** Plants must be resilient as evidenced by well-developed root systems, flowers, and seed heads. All sites must exhibit the sustainability of the above desired attributes after the removal of external influences. A minimum of 1 growing season without external influences (irrigation, mat pads, fences, etc.) may satisfy this requirement.

## **Final Criteria**

### **1. Ground Cover & Ecological Function:**

The site must be in stable condition as indicated by the Erosion Control Classification System (BLM Tech Note 346). To ensure soil stability and nutrient cycling, ground cover must be equal to or greater than the reference site and vegetative litter must be decomposing into the soil.

## 2. Vegetative Criteria:

- a. **Native Forbs:** The average density or frequency and total diversity of forbs must be equal to or greater than the reference site.
- b. **Native Shrubs:** The average density or frequency of the shrub component must be at least 50% of the reference site. This includes both shrubs and half shrubs (e.g. winterfat, fringed sage, etc.), but rabbitbrush cannot account for more than 10% density or frequency of total shrub composition used to meet criteria. At least 25% density or frequency of the shrub component must be the dominant species from the reference site. Individual shrub plants younger than 3 years old will not count towards final criteria. The diversity of shrubs must be equal to or greater than the reference site.
- c. **Native Grasses:** Reclaimed sites must produce equal to or greater pounds of production per acre compared to the reference site. A minimum of 3 native perennial species must be included with at least 2 bunch grass species.
- d. **Non-Native Weeds:** Sites must be free from all species listed on the Wyoming or Federal noxious weed list. All state and federal laws regarding noxious weeds must be followed. Other highly competitive invasive species such as cheatgrass and other weedy brome grasses are also prohibited.
- e. **Plant Vigor:** Plants must be resilient as evidenced by well-developed root systems and flowers. Shrubs will be well established and in a “young” age class at a minimum (e.g. not comprised of seedlings that may not survive until the following year).

## Glossary

**Annual:** Completing the life cycle in one growing season or single year.

**Decomposition:** The breakdown of dead plant material.

**Density:** The number of individual plants per unit area.

**Diversity:** Composed of different plant species.

**Erosive Features:** Pedestals, flow patterns, rills, gullies, and soil movement.

**Erosion:** The wearing away of the land surface by rain or irrigation water, wind, ice or other natural or anthropogenic agents that abrade, detach and remove soil from one point on the earth's surface and deposit it elsewhere.

**Frequency:** The abundance and distribution of plants.

**Functioning Ecosystem:** The complex of a community of organisms and its environment functioning as an ecological unit.

**Ground Cover:** The soil cover of plant, litter, rocks, and gravel on a site.

**Invasive Species:** A species introduced by human action to a location, area, or region where it did not previously occur naturally (i.e., invasive), that becomes capable of establishing a breeding population in the new location without further intervention by humans, and spreads widely throughout the new location.

**Litter:** Dead plant material that may consist of leaves, twigs, and bark that has fallen to the ground.

**Nutrient Cycling:** In general, a plant using nutrients in the soil to grow, the plant dies over time and decomposes adding nutrients back into the soil for other plants to use repeating the cycle.

**Perennial:** Plants persisting for several years usually with new herbaceous growth from a perennating part.

**Production:** Plant biomass above ground present during a given year.

**Reference Area:** Areas where natural biological and physical processes are functioning normally.

**Resilience:** Plasticity or able to withstand change. The capacity to absorb shocks from environmental factors while maintaining function.

**Stable State:** Resistant to erosion.

**Sustainability:** Capable of being sustained. Two key related concepts are resilience and resistance. Resistance is the likelihood that a system will respond to a disturbance such as drought or pest invasion. A stable system resists large fluctuations in productivity, nutrient losses and other responses to stress. Systems with greater resilience return rapidly and reliably to the original conditions.

**Viability:** Persistence of a population or species into the future.

**Vigor:** Active healthy well-balanced growth.