

Laramie Energy II, LLC

## LARAMIE ENERGY II, LLC

### Best Management Practices (BMP's) To Reduce Impacts to Wildlife For Operations in the Piceance Basin

In an effort to minimize the impacts to wildlife, the following BMP's are part of Laramie Energy II's (LEII) standard operating procedures for drilling and operations within the Piceance Basin. This list is a partial of LEII's policy.

#### Initial Stages for Infrastructure and Roads

##### 1. Road design and General

- No firearms, no dogs on location, and no feeding of wildlife.
- Minimize the amount of traffic on lease roads within 3 hours of sunrise and sunset.
- Use existing routes as much as possible to avoid new disturbance and habitat fragmentation and minimize new road construction.
- Maximize the topography as much as possible in designing roads to reduce, visual, noise, impacts, etc.
- Participate in road sharing agreements with other Operators when possible.
- Design and surface roads based on the traffic, speed, and type of vehicles to reduce, dust, mud, and environmental damage.
- Locate roads away from riparian areas and bottoms of drainages as much as possible or re-route entirely.
- Obtain Army Corp of Engineer Permits for any stream crossings prior to construction.
- Analyze crossings and flow characteristics to determine the best method of crossing, (i.e. culvert, bridge, or low water).
- Armor all stream crossings to reduce erosion and to comply with Stormwater Requirements.
- Implementation of fugitive dust control measures including but not limited to water or magnesium chloride applications, and road surfacing.
- Limit traffic to the minimum needed for safe and efficient operations.
- No driving or parking off of disturbed areas.
- Install and use locked gates or other means when allowed by landowner or Federal Agencies to prevent unauthorized travel on roads and rights-of ways.

##### 2. Well pad design and location

- Locate well pads to maximize directional drilling practices. LEII currently plans and attempts to locate pads for 16-20 wells which equates to roughly 4 well pads per section.
- Design each location to accommodate both current and future gas production.
- Locate well pads to minimize disturbance yet maximize use to reduce surface impacts.
- Review State and Federal GIS mapping to avoid Sensitive Wildlife Habitat (SWH), Restricted Surface Occupancy (RSO) areas, steep slopes, etc., as much as possible with roads and pad location.
- Design and install gathering lines within the disturbed area of new roads and adjacent to as much as possible to reduce disturbance construction.
- Design Rights-of Way widths to the minimum needed for safe and efficient construction of pipelines
- Remote Telemetry for production operations

### **3. Drilling and Production Operations**

- Implement remote telemetry in all operations
- Where topographically possible and subject to landowner approval, use centralized water gathering and transportation systems.
- Install exclusionary devices to prevent bird and other wildlife access to equipment stacks, vents, and openings.
- Locate facilities to minimize visual effects (e.g. paint color, screening, etc.)
- LEII implements a closed system in its operations. No fluid pits are constructed or used during drilling or completion operations.
- LEII implements an aggressive weed management program. LEII incorporates and uses the BLM Glenwood Springs Energy Office's "Noxious and Invasive Weed Management Plan for Oil and Gas Operators- March 2007" for all operations. Each spring, Laramie inventories all pads, roads, and pipelines to insure no noxious weeds have been introduced. If noxious weeds are found, the county will be notified and the weeds will be treated. Weeds are continuously monitored and treated throughout the growing season. Only herbicides approved by the EPA and State are used by certified weed applicators.

### **4. Reclamation**

- Strip and segregate topsoil from other soil horizons during pad, road, and pipeline construction.
- Minimize topsoil degradation by windrowing no higher than 5 feet when possible.
- Immediately seed topsoil to reduce erosion and prevent weed establishment and maintain soil microbial activity.
- Use only certified weed free native seed mixes, unless recommended otherwise by Federal Agencies or the Landowner.
- Use locally adapted seed when available.
- Use diverse seed mixes to mirror the surrounding area unless recommended otherwise by Federal Agencies or the Landowner.
- Monitor re-vegetation success until a minimum of 75% of preferred perennial plant cover (no weeds) is established.
- Perform "interim" reclamation on all disturbed areas not needed for active producing operations.
- If possible, conduct interim and final reclamation during optimum periods (e.g. late fall/early winter or early spring).
- If needed, fence reclaimed areas to minimize livestock/wildlife impact until plant species have are capable of sustaining grazing.

**LARAME ENERGY II, LLC  
BMPS FOR  
Sensitive Wildlife Habitat and Restricted Surface Occupancy  
Areas Specific to Laramie Energy II, LLC  
Operations Within the Piceance Basin  
Garfield County, CO**

**Sensitive Wildlife Habitat (SWH)**

**Black Bear**

- Initiate a food and waste/refuse management program that uses bear-proof food storage containers and trash receptacles.
- Initiate an education program that reduces bear conflicts.
- Establish policy to prohibit keeping food and trash in sleeping quarters.
- Establish policy to support enforcement of state prohibition on feeding of black bear.
- Report bear conflicts immediately to CDOW .

**Deer and Elk**

- Review State GIS and Federal GIS mapping databases at the initial stage of development to identify the locations of mule deer and elk important wintering habitats and production areas. Attempt to avoid any critical habitat patches with roads and development.
- Attempt to avoid oil and gas activities within mule deer critical winter range, elk winter concentration areas, elk production areas, and migration corridors.
- Phase and concentrate all development activities, so that large areas of undisturbed habitat for wildlife remain and thorough reclamation occurs immediately after development and before moving to new sites. Development should progress at a pace commensurate with reclamation success.
- Gate single-purpose roads and restrict general public access to reduce traffic disruptions to wildlife.
- Avoid aggressive non-native grasses and shrubs in reclamation