

## **PROPOSED BMP'S**

### **Wildlife Mitigation Plan Supplemental Best Management Practices Antero Rifle-Silt (Gravel Trend) Leasehold – March 24, 2010**

#### **1. Drilling and Production**

- No reserve, drill cuttings or frac/flowback pits will be constructed
- Well pads will be constructed with perimeter berm on downslope area
- Well pads, access roads will be graveled to reduce fugitive dust, sediment run-off
- Above-ground facilities will be located to minimize visual effects (e.g. production tanks will be low profile tanks and painted to mitigate visual impacts.)
- Combustor controls will be used to mitigate odors from production tanks
- Well completions will utilize flowback completion technologies and/or flares to reduce odors from plug drillout, and venting of salable and non-salable gas
- High level alarms will be installed on production tanks
- Production tank containment area will be lined with plastic

#### **2. Invasive Non-Native Vegetation Control**

- Weed management plan will be developed and implemented to monitor and control noxious and invasive weeds
- Noxious weed control includes three treatments per year
- Existing weed infestations will be mapped prior to the development of each pad, access road and pipeline when practicable
- Reclamation/revegetation will be used as a weed management tool

#### **3. Planning Infrastructure and Development Activities**

- Directional drilling will be implemented to minimize habitat loss and habitat fragmentation
- Remote monitoring using SCADA systems to reduce truck traffic, fugitive dust
- Water pipeline infrastructure will be installed concurrently with the gas pipeline infrastructure where possible.
- SPCC inspections will be conducted quarterly
- Water used for well completions will be recycled as practicable
- Baseline and post drilling/completion water well testing will be performed for permitted water wells within ½ mile of down-hole location
- Annual planning meeting to be conducted with Rifle-Silt-New Castle Community

#### **4. Stormwater Management**

- Facilities will be operated with a Water Quality Control Division (WQCD) stormwater construction permit.
- Stormwater BMPs in accordance with the Stormwater Management Plan will be implemented in a manner that minimizes erosion, transport of sediment offsite, and site degradation.
- Inspections will be conducted every two weeks or monthly and in accordance with WQCD General Permit to confirm that applicable BMPs are in place, maintained and functioning properly.

## **5. Public Water System Protection Section 317B(d)**

- Best management practices will be implemented to contain any unintentional releases of fluids for locations within 500 feet of surface water
- Locations within 500 feet of surface water will ensure 110 percent secondary containment for any volume of fluids contained at a well site during drilling and completion operations

## **6. Mitigation Plan Best Management Practices**

- Mitigation Plan signed by Ron Velarde, CDOW NW Regional Manager and Kevin Kilstrom, Antero Resources VP Production, on March 24, 2010.
- Closed loop (pitless) drilling system.
- Participation in raptor and other birds (great blue heron) monitoring and surveying with protocol to be developed by CDOW and implemented by Antero when practicable.
- Buried water and gas pipelines as means to reduce truck traffic.
- Seasonal raptor RSOs for species not included in new COGCC rules will be considered where practicable.
- Avoidance/seclusion area in the northeast corner of the CDP (Burning Mountain) unless lease expiration warrants development.
- Restricted rig operation to less than 2 per section within the big game seclusion areas during the winter (to be determined in consultation with CDOW).
- Maintaining a ¼ mile no surface occupancy buffer around active bald eagle nests.
- New pad construction not to exceed 3 acres.
- Pad density not to exceed 1 pad per 120 acres.
- Bury all gas and water pipelines adjacent to roads whenever possible.
- The mitigation opportunities/projects will be defined by the Mitigation Plan for each well pad.
- The mitigation opportunities/projects will be determined cooperatively with the CDOW during the annual Antero Mitigation Plan Review.
- CDOW Actions to Minimize Adverse Impacts to Wildlife Resources is attached to the March 22, 2010 Mitigation Plan