

Petroglyph Energy, Inc.
Well Pad Final Reclamation Evaluation

Well Name: State 4W

Evaluation Date: July 15, 2015

Evaluated by: Wayne Erickson, Principal Scientist, Habitat Management, Inc.

Current Condition

State 4W has fair to good establishment of desirable vegetation on about 10% of the well pad. There is a fair amount of first year growth under the weedy canopy except where weedy plants are very dense. This first year growth has a significant perennial grass component and some forbs, with very few sub-shrubs or shrubs being present.

Cheatgrass (*Bromus tectorum*) and common mullein (*Verbascum thapsus*) are the two noxious weed species present within the reclaimed area. Cheatgrass infestations are present throughout this well pad. The cheatgrass infestation is adversely impacting the establishment and growth of desirable plant species in the reclaimed plant community.

Common mullein is growing on the southeast corner of the well pad (3 plants).

Cheatgrass and common mullein are on the Colorado List C. Control of these List C species is recommended but not required by Huerfano County. Please note that COGCC requires control of these List C species when they are adversely impacting the establishment of desired perennial plant species.

Tall tansymustard (*Sisymbrium altissimum*) is growing in dense stands intermixed with the cheatgrass infestation. While this “weedy nuisance” specie is not on the State of Colorado noxious weed lists, they are aggressive colonizers of disturbed land. The dense pockets of these species are adversely impacting the establishment of desirable perennial plant species in the reclaimed plant community.

Compacted soils are not affecting plant growth. Excessive soil erosion associated with storm water runoff was not observed.

Recommended Actions

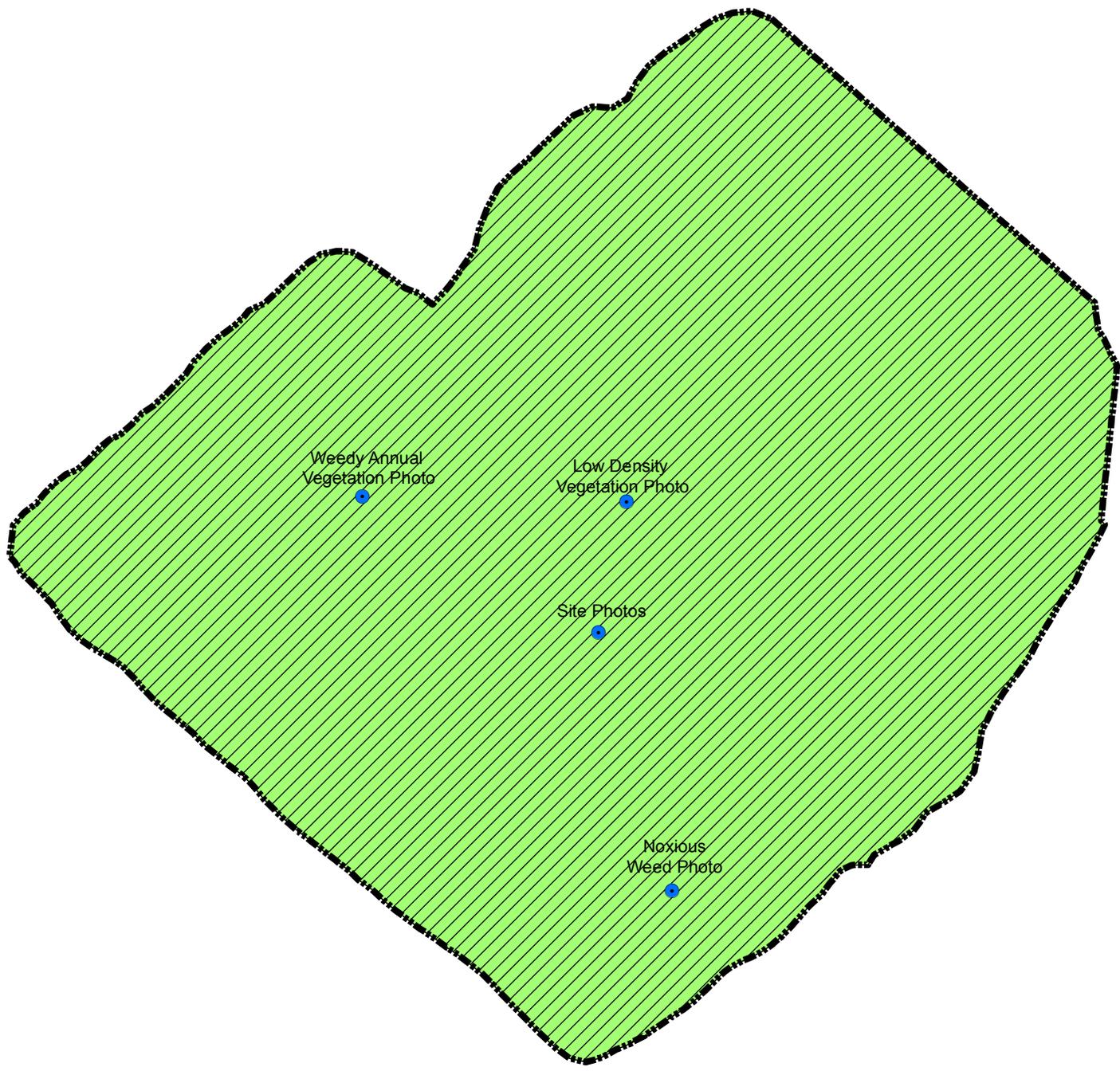
Cheatgrass should be treated in the late summer or early fall with an appropriate germination inhibiting herbicide. Common mullein should be treated in the fall and spring with spot-applications of an appropriate broadleaf selective herbicide to control existing infestations. Also, common mullein’s current year seed heads should be harvested, placed in plastic trash sacks and properly disposed of in the fall. Common mullein is a prolific seed producer and documented seed viability is 80+ years. Tall tumbled mustard should be treated in the spring with an appropriate selective broadleaf herbicide.

Petroglyph Energy, Inc.
Well Pad Final Reclamation Evaluation

Appropriate fall and spring herbicide treatments of cheatgrass, common mullein and tall tumble mustard will reduce seed production and inter-plant competition in 2016 and facilitate the establishment of desirable perennial plant species. Long-term cultural control of these weed species will be realized through competition with the establishment of desirable vegetation on the site.

After spring herbicide treatments the entire well pad should be inter-seeded using no-till planting methods. Mulching is not required on this site.

After spring 2016 management activities are completed the site should be checked periodically for germination and establishment of desirable plant species in the inter-seeded areas, adequate control of existing weed infestations, new infestations of other noxious weed species, and for other conditions that may impact successful reclamation of this site.



Management Activity	Acres
Weed Management	0.94
Interseed	0.94

 Weed Management
  Photo Point
 Interseed
 Well Pad Boundary



Petroglyph Energy 2015

State 4W



Evaluated: 7/16/15
Drawn: 12/14/15
Drawn By: RFB

State 4W



Looking East

Photo Date 7/15/2015

Lat: 37.5724258081 Long: -104.8439958135



Looking North

Photo Date 7/15/2015

Lat: 37.5724258081 Long: -104.8439958135



Looking South

Photo Date 7/15/2015

Lat: 37.5724258081 Long: -104.8439958135



Looking West

Photo Date 7/15/2015

Lat: 37.5724258081 Long: -104.8439958135



Low vegetation density

Photo Date 7/15/2015

Lat: 37.5725142464 Long: -104.8439719872



Noxious weeds

Photo Date 7/15/2015

Lat: 37.5722510011 Long: -104.8439339508



Weedy annual vegetation

Photo Date 7/15/2015

Lat: 37.5725181558 Long: -104.844196452