Foote Creek I Wind Project Weed Management Plan

HWY 13, McFadden, WY 82083

(41.620316 -106.185295)

Plan Dated: November 1, 2017

Plan developed by Quality Weed Control, L.L.C., a Utah limited liability company after request by and on behalf of PacifiCorp Renewable Resources.

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Foote Creek Site Overview

The Foote Creek I wind project ("**Foote Creek"**) is a 40-megawatt wind project located near Arlington, Carbon County, Wyoming. Operations of this site in April 1999. The project contains 69, 600-kilowatt wind turbines. PacificCorp is entitled to 32.62 MW and the Eugene Water and Electric Board is entitled to 8.72 MW of the total output of the facility. The project is surrounded by rolling hills and native vegetation to the Central Wyoming area. Access to the site is made through Arlington, Wyoming by way of HWY 13 then North approximately two (2) miles on HWY 13. All sixty- nine (69) turbines are located on the north side of HWY 13. The project is located within a combination of private fee and land owned by the State of Wyoming and the Bureau of Land Management. The road and site orientation is set forth below:

HWY 13 to Arlington

Native Vegetation Overview

Central Wyoming is home to many native trees, shrubs, ground cover and grasses. Foote Creek is located in the Rolling Sagebrush Steppe Ecoregion of Wyoming. This ecoregion is a broad arid basin interrupted by hills and low mountains and is dominated by grasslands and shrublands. Much of this region is used for livestock grazing, although many areas lack sufficient forage to support this activity. Average annual precipitation for this is region is 6 to 16 inches and varies with elevation and proximity to mountains.

Natural vegetation is mostly sagebrush steppe, with parts of the region having more mixed grass prairie (largely bluegrass and wheatgrass). Wyoming big sagebrush is the most common shrub with silver and black sagebrush occurring in the lowlands and mountain big sagebrush in the higher elevations.[1] Some of the most common vegetation in sagebrush steppe, include the following native plants[2]:

Wyoming Big Sagebrush

Badlands Mules-Ears

Indian Paintbrush

Porter's Sagebrush

Frequent fires in the region have affected the sagebrush steppe and, in some places, European and other annual grasses have largely replaced it. The dominant plant component of these semi-arid, drought tolerant communities is perennial grasses (both tall and short). Native grasses in this region establish extensive, prolific root systems, which allow them to take up water even in relatively dry conditions. Over time, these grass roots improve the soil by leaving behind organic matter as they die and decompose. This organic matter acts as a

[1]For more information on the Wyoming Basin Rolling Sagebrush Steppe Ecoregion, visit:

http://ecologicalregions.info/data/wy/wy_front.pdf

http://uwyoextension.org/uwrange/rangeland-resources/wyoming-ecoregions/

https://www.blm.gov/programs/natural-resources/native-plant-communities/about-native-plants/wyoming

[2] For a complete review of grasses, grass-likes, forbs, or woody plants native to Wyoming, visit:

http://www.wyoextension.org/publications/html/B1265/

sponge and helps keep the soil moist for longer periods of time. Given the typical weather conditions in Central Wyoming, where these mixed perennial grasses exist, their grazing value varies depending on the time of year grazing occurs.

Typical mixed grass ecosystem in early summer

Typical mixed grass ecosystem in late summer

In performing weed control at the Foote Creek wind project, applicators should be cognizant of the native vegetation and ecosystem in order to minimize environmental impact from their weed control efforts.

Weed/Pervasive Species Overview

While Central Wyoming is home to a diverse range of native plant species, it is also home to to a number of noxious invasive species that if left untreated can lead to disastrous results to landowners. A complete discussion of each of the noxious weeds found in the region is beyond the scope of this Weed Management Plan. However, identification of and discussion about each of the most prevalent weeds will follow. The six noxious weeds identified and discussed below are those most species most prevalent at Foote Creek. For a list of those weeds currently designated as noxious by the Carbon County Weed and Pest Control District, please see pages 19-21 of this Weed Management Plan:

1. ***White Top* (*lepidium draba*). Other common names: hoary cress, whitened, peppergrass*)**

Native of: Eurasia
Introduction to U.S.: Late 1800s
Type: Perennial forb growing up to 19 inches tall. A member of the mustard family.
Life Cycle: Blooms in May or June, the appearance is flat-topped and covered with dense, white flowers
Impact: Crowds out native species and can take over agricultural fields
Regeneration: Whitetop can spread rapidly and regenerates from its thick roots. Resprouting can occur from intact roots or those damaged from control efforts. A single plant can produce 4,800 seeds which remain viable in the soil for up to 3 years
Control Tips: Perhaps more than some other noxious species, landowners should spray Whitetop multiple times a year to maintain a desirable level of control.
Current Herbicide Recommendations: Escort (1 to 2 ounces/acre) or Telar (1/2 to 1 ounce/acre) each mixed with 2,4-D (1 quart/acre)

2. *Russian Thistle* **(salsola tragus). Other common names: tumbleweed**

Native of: Eurasia

Introduction to U.S.: 1870s

Type: Perennial forb growing up to 36 inches tall.

Impact: Crowds out native species and can take over agricultural fields

Regeneration: Russian Thistle can spread rapidly and regenerates primarily through seeding. Rapid generation and seeding establishment can occur with very limited amounts of precipitation. Seeds can remain viable for up to one year.

Control Tips: Burning and or mechanical control are not viable methods of control as each will lead to rapid reseeding. Herbicide use is the only method to achieve any level of control.

Current Herbicide Recommendations: 2,4-D (1 quart/acre) and glyphosate at maximum application rates

3. *Musk Thistle (carduus nutans).* **Other names: nodding thistle**

Native of: Eurasia
Introduction to U.S.: 1850s
Type: Bienniel weed that reproduces only from seed
Impact: Crowds out native species and can take over agricultural fields
Regeneration: Musk Thistle can spread rapidly and regenerates primarily through seeding. Musk thistle flowers and starts to produce seed 45 to 55 days after it boltsRapid generation and seeding establishment can occur with very limited amounts of precipitation. Up to 20,000 seeds can be generated by one plant but only 1/3 of those seeds are viable. Seeds can remain viable for up to one year.
Control Tips: Key to control is to prevent seed production and spray in the early vegetative stages. Musk thistle's tolerance to most herbicides increases after the bolt stage. Rapidly growing grasses compete with musk thistle.
Current Herbicide Recommendations: Milestone, Perspective 2,4-D to musk thistle rosette. Apply Escort or Telar during early flower growth. See additional recommendations depending on vegetative state.[3]

4. ***Halogeten (halogeten glomeratus).*** **Other common names: saltlover**

Native of: Eurasia
Introduction to U.S.: Early 20th Century
Type: Winter and Summer Annual growing up to 12 inches tall
Impact: Crowds out native species
Regeneration: Halogeten can spread rapidly and regenerates primarily through seeding. Rapid generation and seeding establishment can occur with very limited amounts of

[3] See Table 1 for recommended chemicals and application rates based upon life cycle of musk thistle. http://extension.colostate.edu/topic-areas/natural-resources/musk-thistle-3-102/

precipitation. A plant can produce as many as 75 seeds per inch of stem and is typically dispersed by wind, water, animal and human activities. Seeds remain viable for one year.

Control Tips: Plant thrives on disturbance areas (such as road grading or other construction activities). For herbicide control, early application is key to obtaining desirable level of control and, where possible, planting native species.

Current Herbicide Recommendations: 2,4-D LV Ester (1 to 2 lb/acre) and Escort at 0.45 ai per acre

5. ***Black Henbane (hyoscyamus niger).*** **Other common names: henbane, nightshade and insane root**

Native of: Europe and Northern Africa

Introduction to U.S.: 17th Century for ornamental and medicinal plant

Type: Annual or Biennial plant that grows up to 3 feet tall

Impact: Crowds out native species and replace desirable vegetation. Weed is poisonous to livestock, poultry and swine.

Regeneration: Black Henbane spreads and regenerates primarily through seeding. Two rows of 1 inch long, five lobbed, pineapple shaped fruits appear after flowing. Each fruit capsule contains black, pitted seeds. Each plant can produce between 10,000 to 500,000 seeds.

Control Tips: Burning and or mechanical control are not viable methods of control as each will lead to rapid reseeding. Herbicide use is the only method to achieve any level of control.

Current Herbicide Recommendations: Herbicide recommendations vary depending on the cycle of the plant at the time of treatment: (i) actively growing - Milestone at 5 to 7 oz/acre; (ii) rosette to bolting - Dicamba at 6 to 32 oz/acre; (iii) bolting to early flowering - Escort at .5 to 1 oz/acre

6. ***Kochia (kochia scoparia).*** **Other common names: burningbush, ragweed, cypress and Mexican firebrush or fireweed**

Native of: Eurasia

Introduction to U.S.: Around 1900

Type: Annual form with a taproot that forms pyramidal or rounded bushes up to 7 feet tall

Impact: Crowds out native species and can be highly invasive taking over areas in a short amount of time

Regeneration: Kochia spreads primarily through seeding. Germination of Kochia seed can happen many times during one growing season enabling it to take advantage of moisture when available. When Kochia matures it breaks off the stem and becomes a tumbleweed which disperses seedRapid generation and seeding establishment can occur with very limited amounts of precipitation. Seed viability reduces dramatically over time (down to 5% after one year and 1% after three years)

Control Tips: Kochia has become increasingly resilient throughout the intermountain west. Applicators should consult the Department of Agriculture, extension or chemical supplier to determine the best herbicides to utilize.

Current Herbicide Recommendations: Varies. Kochia has shown broad resilience to 2,4-D regardless of formulation, dose or timing of application

Chemical Mixes & Programs

Given the broad range of available chemicals, there is no "one size fits all chemical mix program." Applicators have to be well-attuned to the environment, the historical chemicals utilized on the project site, and be cognizant of growing resiliency concerns with certain noxious species. For example, in the last few years, *kochi scoparia* (commonly referred to as Kochia weed) has been developing and illustrating resiliency to many of the most commonly used noxious weed control chemicals in the Idaho, Utah and Colorado regions of the West.[4]

Because our environment is not static and meteorological and resiliency concerns are real, applicators must be adaptable and willing to modify not only application rate but chemical mixes all together in order to combat these problems over time. While the chemical programs identified below are not intended to be an all-inclusive list of available options, it will provide a foundational basis for establishing a successful weed management program in the future at the project site location. We have identified a number of potential chemical mixes that can be utilized to maintain a desired level of weed control. These programs should be combined with the weed specific recommendations made in the immediately prior section of this Weed Management Plan to develop an annual program which meets the weed management needs for the project site location.

Non-Selective (Soil Sterilant) Programs*

Program 1

Brand Names	Active Ingredients	Application Rate	Herbicide Type
Piper	Flumioxhan (33.5%), Pyroxasulfone (42.5%), Other (24%)	Ten (10) ounces per acre	Water dispensable granule
Esplanade	Indaziflam	Five (5) ounces per acre	Liquid flowable
Ranger Pro	Isopropylamine salt of glyphosate(41%)	1 to 2 quarts per tank for existing vegetation	Liquid

[4] See e.g., http://www.thefencepost.com/news/csu-researchers-tackle-super-weeds-tumbling-across-the-colorado-plains/

Program 2

Brand Names	Active Ingredients	Application Rate	Herbicide Type
Method 240 SL	Potassium salt of aminocyclopyrachlor, potassium salt of 6-amino-5-chloro-2-cyclopropyl-4-pyrimidinecarboxylic acid (25%)	Eighteen (18) ounces per acre	Soluble liquid
Esplanade	Indaziflam	Five (5) ounces per acre	Liquid flowable
Ranger Pro	Isopropylamine salt of glyphosate(41%)	1 to 2 quarts per tank for existing vegetation	Liquid

Program 3

Brand Names	Active Ingredients	Application Rate	Herbicide Type
Krovar	Bromacil (40%), Diuron (40%)	10 to 12 lbs per acre	Water dispersible granule

Program 4

Brand Names	Active Ingredients	Application Rate	Herbicide Type
Krovar	Bromacil (40%), Diuron (40%)	10 to 12 lbs per acre	Water dispersible granule
Piper	Flumioxhan (33.5%), Pyroxasulfone (42.5%), Other (24%)	Ten (10) ounces per acre	Water dispersible granule
Ranger Pro	Isopropylamine salt of glyphosate(41%)	1 to 2 quarts per tank for existing vegetation	Liquid

* For each of the selected programs, the applicator should include a high quality surfactant and dye to ensure proper coverage and avoiding over application above approved label rates. Additionally, these programs shall be modified so as to be in compliance with the Pesticide Use Proposal then on file with the Bureau of Land Management. This may require changing

some or all of the chosen chemicals for those areas. Chemical mixes should be adjusted to comply with such requirements as approved by the BLM from time to time.

Selective (Noxious) Programs*

Program 1

Brand Names	Active Ingredients	Application Rate	Herbicide Type
Milestone	Aminopryralid Trilisopropanolamine Salt (40.6%), Triisopropanolamine (1.5%)	Seven (7) ounces per acre	Liquid
Weedmaster	Dimethylamine Salt of 2,4-Dicholorophenoxyacetic Acid (36.8%), Dimethylamine Salt of Dicamba (13%)	One (1) quart per acre	Liquid
SS MSO (Super Spread MSO)		One (1) quart per 100 gallons of mix	Oily surfactant

Program 2

Brand Names	Active Ingredients	Application Rate	Herbicide Type
LV4 EC	2,4-Dichlorophenoxyacetic acid, isoocytl (2-ethylhexyl) ester (67.2%)	Per label instructions depending on weed varieties being controlled	Liquid
When no trees or desirable vegetation exists, a light mix of a sterilant may be added			

Program 3

Brand Names	Active Ingredients	Application Rate	Herbicide Type
Telar XP	Chlorsulfuron (75%), Modified Lingin Sulfonate Sale (5-10%)	1 to 1.5 ounces per acre	Dry flowable

Brand Names	Active Ingredients	Application Rate	Herbicide Type
SS MSO (Super Spread MSO)		One (1) quart per 100 gallons of mix	Oily surfactant

* For each of the selected programs, the applicator should include a high quality surfactant (if not designated above) and dye to ensure proper coverage and avoiding over application above approved label rates.

Please also note that specific mixes may need to be utilized to combat certain predominant noxious weed species for which the basic outlined program may be inappropriate. Applicators should be prepared to identify the predominant weed species which are persisting and adapt a chemical mix to properly control such noxious weed species.

Timing for Applications; Factors Influencing Application Timing

In recent years, the Foote Creek wind project has gained significant weed management efficiencies by following the general approximate timetable for the applications specified below:

Application Type	Application Timeline
Non-selective (soil sterilant at substation, office, parking lot, wind turbine pads, cattle guards)	May - June Annually
Roadside Noxious Application 1	June - July Annually
Roadside Noxious Application 2 (Fall)	September Annually

The foregoing basic program should be followed in order to maintain a good level of overall weed control at Foote Creek. Deviations on timing of application should be minimal (generally within a 2 week window on either side of the proposed application date). For the non-selective soil sterilant application, the timing in June will largely be dependent on the snowpack from the prior winter. For example, during a light snow year, the applicator should use reasonable best efforts to complete the non-selective application during the mid-to-late May time period. In a heavy snow year, this would generally require that the non-selective application be completed during the month of June.

As with all applications, but especially in high wind areas, the conditions for application must not demand that the application be postponed. The applicator should review the onsite conditions, consider the risks for drift and other undesired consequences from proceeding with the application and then make a reasoned conclusion on whether the work should be rescheduled based on these conditions.

In most years, the non-selective and first selective roadside treatment can be applied on the same trip. If only one truck is being utilized, triple rinse principles should be followed before switching the chemical mixes applied to avoid undesirable results to the selective areas being sprayed.

Application Methods

The preferred application method will vary depending on a number of factors to be considered and evaluated by onsite licensed applicators. These variables include: (i) type of application, (ii) site conditions observed, and (iii) weather and other meteorological factors. Each discussed further immediately below:

Type of Application

PacifiCorp's wind projects lend themselves to two (2) types of applications: (i) a broad based soil sterilant which is primarily used on and around site substations, office buildings and adjacent parking lots, turbine pads and cattle guards; and (ii) a noxious weed application (s) aimed at controlling non-native or pervasive weed species found in the area and that permeate roadsides and other areas throughout the wind project.

Due to the nature and environmental impact of using a broad based soil sterilant, a broad based soil sterilant is only appropriate for use in areas of concrete, gravel or defined rights of way. Application is primarily made by direct boom (broadcast application) or hand spraying using available application technologies (including hose & gun and backpack). This is a non - selective treatment aimed at killing all vegetation in the defined area. This application typically occurs once annually.

A noxious application, as a selective application is aimed primarily at the control of invasive and unwanted species of plants, primarily for broadleaf control. Given the nature of these applications, a broadcast application is generally undesirable unless in designated and defined areas such as alongside a road. More typical, is for the licensed applicator to hand spray locations to obtain the desired level of control, this may be done by hose & gun or backpack application and requires a high level of attentiveness to both identify the undesirable species and apply chemical at the proper legal application rate for the desired level of control.

Site Conditions Observed

Impacting the applicators decisions on application method will be the general site conditions observed on site. Given Foote Creek's geographical location, elevation changes throughout the project, and the nature of the topography of the site, applicators must carefully determine the optimal application method to utilize. For example, a heavy broadcast application is generally undesirable where berms, hills and other elevation changes result in excess runoff causing chemical to pool in low elevation areas. For such locations, multiple hand spray applications may be required to obtain the desired level of control.

Weather and Other Meteorological Factors

Application methods should be adjusted based on need at the time of application. One major factor in application method choice is the meteorological factors existing at the time of the scheduled applications. APPLICATORS SHOULD NEVER MAKE AN APPLICATION IN VIOLATION OF APPLICABLE LAW AND SUPPORTING REGULATIONS. Weather patterns in and around Foote Creek can cause frequent delays in timing of application due to high wind, heavy rain, or other conditions which lead to less than necessary results.

Site Specific Operational Requirements & Approvals

Pursuant to the POD, the project area included a combination of federal, state and private land. SeaWest had obtained all easements from all interested parties to construct and operate the wind project on state and private land.

Review of Weed Control Related Laws & Requirements

In connection with the preparation of this Weed Management Plan, Quality Weed Control, L.L.C. reviewed relevant sections of the following laws, permits and applications for permit:

- Plan of Development Seawest Energy Land Associates, LLC Windfarm Project prepared by Mariah Associates Inc. dated October 1997. ("***POD***")
- U.S. Department of the Interior Pesticide Use Proposal dated May 7, 2015 ("***PUP***")
- The Wyoming Weed and Pest Control Act of 1973 (WY 11-5-101 *et seq.*, the "***Act***")[5]

Foote Creek is located within Carbon County, Wyoming and does not fall within a rare or unique vegetation community.. Such communities may or may not contain special-status plants. The operation of Foote Creek does not result in any impacts to rare vegetation communities in the area of influence, including cumulative loss or degradation of these resources.

Pursuant to Section 6.1.3 of the POD, PacifiCorp shall take the following measures to reduce vegetation impacts:

- PacifiCorp and its contractors shall exercise care to preserve the natural landscape and shall conduct construction and maintenance operations to prevent unnecessary damage to, or destruction of, natural vegetation features.
- If herbicides are used, only BLM-approved herbicides will be used, and they will be applied in compliance with federal, state and local regulation.
- Utilize proper weed management practices, including application of herbicide to minimize the potential for the introduction or spread of noxious weeds.

The Act was codified for the purpose of controlling designated and declared weeds and pests in Wyoming. Pursuant to the Act, each Wyoming county has been designated as a district to aid in the control of weeds and pests throughout their county boundaries and have been given certain duties and powers to implement effective programs for the control of designated weeds and pests. WY 11-5-103 to 105.

[5] *See also* Wyoming Weed & Pest Control Law Book (updated May 2015), available here: http://legisweb.state.wy.us/InterimCommittee/2016/SSD-0708APPENDIXG.pdf

Pursuant to the Act, in the event that the district has probable cause to believe that there exists land infested by weeds or pests which are liable to spread and contribute to the injury or detriment of others, the district has certain authority to, upon providing notice, perform an investigation of the landowner's property. WY Section 11-5-109. In the event that the property is confirmed, by resolution of the district board, to be infested, the district board may set forth minimum remedial requirements for control of the infested area. WY 11-5-109(a)-(b). A landowner who is responsible for an infestation and fails or refuses to perform the remedial requirements for control within the time frame designated may be fined up to $50.00 per day and up to $2,500 per year. WY 11-5-109(e). Any such fine is a lien against the property. *Id.*

In addition, a district may cary out a weed special management program in accordance with WY 11-5-301 *et seq*. As of the date of this Weed Management Plan, no special weed management program has been instituted that would impact the Foote Creek project.

The Wyoming Board of Agriculture and Wyoming Weed and Pest Council has designated the below weeds as "designated noxious weeds" in Carbon County, Wyoming. As such, these weeds are considered detrimental, destructive, injurious or poisonous, either by virtue of their direct effect or as carries of diseases or parasites. **Bold** indicates that these weeds are on the Carbon County, Wyoming "established weed" list and are a current priority for control within the county:

- Field Bindweed (Convolvulus arvensis)
- **Canada thistle (*Cirsium arvense*)**
- **Leafy spurge (*Euphorbia esula*)**
- Perennial sowthistle (*Sonchus arvensis*)
- Quackgrass (Agropyron repens)
- **Hoary Cress (Whitetop) (*Cardaria draba* and *Cardaria pubescens*)**
- **Perennial pepperweed (Giant whitetop) (*Lepidium latifolium*)**
- **Oxeye daisy (Chrysanthemum leucanthemum)**
- Skeletonleaf bursage *(Franseria discolor*)
- **Russina Knapweed (*Centaurea repens*)**
- **Yellow toadflax (*Linaria vulgaris*)**
- **Dalmatian toadflax (*Linaria dalmatica*)**

- Scotch thistle (*Onopordum acanthium*)
- **Musk thistle (*Carduus nutans*)**
- **Common burdock (*Arctium minus*)**
- Plumeless Thistle (*Carduus acanthoides*)
- Dyers woad (Isatis tinctoria)
- **Houndstongue (Cynoglossum officinale)**
- **Spotted knapweed (*Centaurea maculosa*)**
- Diffuse Knapweed (*Centaurea diffusa)*
- Purple loosestrife (*Lythrum salicaria*)
- **Salt Cedar (Tamarix ramosissima)**
- Common St. Johnswort (*Hypericum perforatum*)
- Common tansy (*Tanacetum vulgare*)
- Russian Olive (Elaeagnus angustifolia)
- **Black Henbane (*Hyoscyamus niger* L.)**

And have placed these additional plants on the declared list of invasive species also impacting Carbon County, Wyoming:

- Larkspur (*delphinium spp)*
- Halogeten (*halogeten glomeratus)*
- Wyeth Lupine *(luoinus wyethii S)*
- Pricklypear cactus *(opuntia stricta)*
- Common Cockle Bur *(xanthium strumarium)*

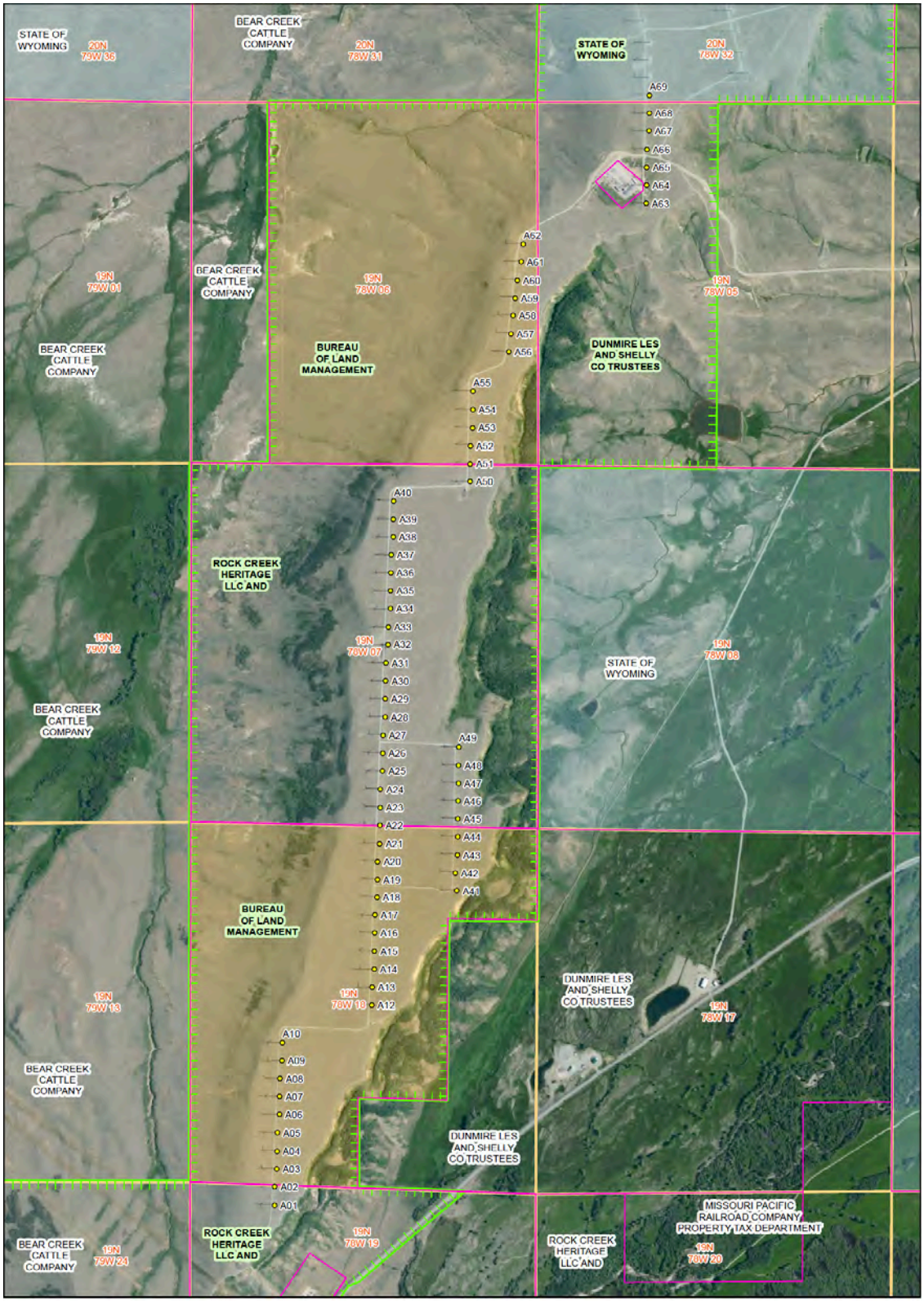
Applicators should take the proper time to observe and record the existence of any of the noxious weeds listed above and properly adjust this Weed Management Plan to obtain a satisfactory level of control of any new noxious species that are observed.

Additional Considerations

All applications should be coordinated with onsite personnel and management to ensure results are optimized to the extent possible, that problem areas are adequately and promptly addressed.

Additional Site Maps

Ownership and site orientation map.



Site orientation and terrain map.