

UTAH ENERGY CORPORATION NOXIOUS WEED AND INVASIVE PLANT CONTROL

1.0 Introduction

This plan was developed to identify noxious weed and invasive plant control practices that would be implemented at the Daneros Mine site in San Juan County, Utah. Utah Energy Corporation (UEC) plans to open the Daneros Mine, which will be an underground uranium mine. The Utah Noxious Weed Act (Utah 2006) defines a noxious weed as any plant that is determined by the Commissioner of Agriculture to be especially injurious to public health, crops, livestock, land, or other property. Equipment and supplies necessary for construction and future operation and maintenance (O&M) activities, and the activities themselves, are possible agents for the spread of noxious and invasive plants (Sheley and others, 1999). Construction, maintenance, and mining vehicles can potentially carry seeds into the project area, and from one part of the area to another. The risk of establishing a weed and invasive plant community increases with ground disturbing maintenance activities (Sheley and others, 1999). Executive Order 13112 requires that each federal agency:

- prevent the introduction and spread of invasive species,
- detect and respond rapidly to control such species,
- monitor invasive species populations, and
- provide for restoration of native species and habitat conditions in ecosystems that have been invaded (USFR 1999).

Nineteen species have been designated in the Utah Noxious Weed Act (Utah 2006) as state noxious weeds. The Utah Bureau of Land Management (BLM) has designated several other invasive plants as new and invading weeds that have the potential to become noxious weeds or otherwise cause problems with the local plant communities (BLM 2004). Noxious weeds listed by the State of Utah and new and invading weeds identified by BLM are presented in Table 1-1.

Table 1 – Utah Noxious and New and Invading Weeds

Utah Noxious Weeds List ¹	
Bermudagrass	<i>Cynodon dactylon</i>
Canada thistle	<i>Cirsium arvense</i>
Diffuse knapweed	<i>Centaurea diffusa</i>
Dyers	woad <i>Isatis tinctoria</i>
Field Bindweed (Wild Morning Glory)	<i>Convolvulus arvensis</i>
Hoary cress (small whitetop, whitetop)	<i>Cardaria draba</i>
Johnsongrass (Perennial sorghum)	<i>Sorghum halepense</i>
Leafy spurge	<i>Euphorbia esula</i>
Medusahead	<i>Taeniatherum caput-medusae</i>
Musk thistle	<i>Carduus nutans</i>
Perennial pepperweed (tall white-top)	<i>Lepidium latifolium</i>
Perennial sorghum	<i>Sorghum halepense</i> and <i>sorghum alnum</i>
Purple loosestrife	<i>Lythrum salicaria</i>
Quackgrass	<i>Agropyron repens</i>
Russian knapweed	<i>Centaurea repens</i>
Scotch thistle	<i>Onopordum acanthium</i>
Spotted knapweed	<i>Centaurea maculosa</i>
Squarrose knapweed	<i>Centaurea squarrosa</i>
Yellow star thistle	<i>Centaurea solstitiali</i>

New and Invading Weeds²

Black henbane	<i>Hyoscyamus niger</i>
Buffalobur	<i>Solanum rostratum</i>
Camel thorn	<i>Alhagi camelorum</i>
Dalmatian toadflax	<i>Linaria dalmatica</i>
Goatsrue	<i>Galega officinalis</i>
Houndstongue	<i>Cynoglossum officinale</i>
Jointed goatgrass	<i>Aegilops cylindrical</i>
Oxeye daisy	<i>Chrysanthemum leucanthemum</i>
Poison hemlock	<i>Conium maculatum</i>
Puncturevine (Goat's head)	<i>Tribulus terrestris</i>
Purple starthistle	<i>Centaurea calcitrapa</i>
Salt cedar (tamarisk)	<i>Tamarix chinensis</i> or <i>T. ramosissima</i>
Small flowered tamarisk	<i>Tamarix parviflora</i>
Silverleaf nightshade	<i>Solanum elaeagnifolium</i>
St. Johnswort	<i>Hypericum perforatum</i>
Sulfur cinquefoil	<i>Potentilla recta</i>
Velvetleaf <i>Abutilon</i>	<i>Abutilon theophrasti</i>
Water hemlock	<i>Cicuta douglasii</i> (<i>C. maculata</i>)
Wild proso millet	<i>Panicum miliaceum</i>
Yellow nutsedge	<i>Cyperus esculentus</i>
Yellow toadflax	<i>Linaria vulgaris</i>

¹. Source: State of Utah Department of Agriculture and Food (UTDAF 2007)

². Source: BLM 2004

2.0 Plan Purpose

The weed control plan is part of the overall operations and reclamation plans. The purpose of this weed control plan is to prevent and control the spread of noxious weeds and invasive plants during and following construction, operations and reclamation. UEC and its contractors will be responsible for carrying out the methods described in this plan.

The Weed Management Plan will implement preventative measures to keep the project area free of species that are not yet established there but which are known to be pests elsewhere in the region. The Plan will set priorities for the control or elimination of weeds that have already established on the site, according to their actual and potential impacts on native species and communities. UEC and its contractors will take action only when careful consideration indicates leaving the weed unchecked will result in more damage than controlling it with available methods. This strategy will be developed in coordination with the BLM. The focus of UEC's weed management efforts will be to prevent the spread of new populations resulting from project activities and to reduce or eliminate existing infestations in the project area. Without concurrent control of weed infestations in the surrounding land, weed control efforts in the project area by UEC will likely be unsuccessful.

3.0 Objectives

For the project area, the objectives of noxious weed and invasive plant control are: to reduce or eliminate existing infestations and prevent the spread of new and existing populations of noxious weeds and invasive plants within the project area to the extent feasible for the life of the project, and to coordinate and consult with designated BLM personnel regarding all noxious weed control activities conducted by UEC to ensure compatibility with existing weed control protocol.

4.0 Weed Control Area

The area for noxious weed and invasive plant control (hereafter referred to as the ‘weed control area’) includes all lands disturbed by construction activities plus a 10-foot buffer area around disturbances. Activity associated with opening of the Daneros Mine includes approximate surface disturbance associated with the opening of two portals and two ventilation holes. Proposed operational disturbance within the mine plan area includes a surface facility area, two portals, and two ventilation holes. Upon completion of the proposed surface facility and sediment control structures, total acreage of the disturbance within the study area would be approximately 4.5 acres, excluding the buffer area. UEC will assume responsibility for control of noxious and invasive plants in the weed control area.

5.0 Noxious Weed Management

Weeds and invasive species are spread by a variety of means including humans (e.g., workers, hikers and recreationalists, etc.), vehicles, construction equipment, construction and reclamation materials, livestock, and wildlife. Implementation of preventive measures to control the spread of noxious weeds and invasive plants is the most cost-effective management approach.

6.0 Preventive Measures

The following preventive measures would be implemented to prevent the spread of noxious/invasive plants during construction and future activities:

1. Prior to construction, UEC and its contractors will be trained on methods for cleaning equipment, identification of problem plant species in the project area, and procedures to follow when an invasive or noxious weed is located. To assist in identification, the contractor will be supplied with a list and pictures of noxious and invasive species that may exist within the project area.
2. Prior to any construction disturbance, all known noxious weed populations will be flagged so that they may be avoided.
3. Prior to entering the project area, vehicles and equipment will be cleaned by manual methods or forced air of all mud, dirt, and plant parts where there is a potential to import weeds. This will be done to remove weed seed that may be attached to this equipment. Dry washing will occur at designated sites that include appropriate containment systems.
4. Equipment, materials, and vehicles will be stored at specified work areas or construction yards. All personal vehicles, sanitary facilities, and staging areas will be confined to a limited number of specified weed-free locations to decrease chances of incidental disturbance and spread of noxious weeds and invasive plants.
5. Disturbed areas will be promptly seeded following completion of activities to reduce the potential for the spread and establishment of noxious weeds and invasive plants. Seeding should occur as soon as possible following the disturbance activities and during the optimal time period. Only county/BLM-approved mixtures of certified “weed-free” seed will be used. All other introduced materials used for the mining activities, such as straw and fill, shall also be certified weed-free.

7.0 Control Measures

If pesticides are used in the project area, an integrated pest management plan would be developed to ensure that applications will be conducted consistent with BLM policies.

Assuming the project will begin construction in 2008, UEC will flag all known noxious/invasive plants (for avoidance) prior to the time of construction to prevent the spread of existing populations found in the designated weed control area. Following construction, annual spraying will begin, likely during the months of May and June; however the potential for fall treatment does exist for some species. Annual spraying will continue as necessary to control noxious/invasive plants in the weed control area for the life of the project.

Using the prior years' survey information, annual spraying will be planned by UEC and coordinated with BLM to ensure spraying will be conducted at the proper growing period, during favorable environmental conditions, and will use the appropriate chemicals to control targeted species. The chemicals used must be approved for use.

Only EPA-registered pesticides will be used. Pesticide use shall be limited to non-persistent, immobile pesticides and will be applied in accordance with label and application permit directions. Spraying will be conducted by UEC mine personnel trained in pesticide use and in consultation with designated BLM personnel. The applicator used must possess a Utah State Pesticide Applicators License. Rather than broad application, the intent of applying herbicide will be to treat only designated areas.

It is anticipated that most spraying will be conducted using ATV-mounted spray equipment, supported by one or more four-wheel drive pickups equipped with water tanks. Pickups will carry necessary chemicals, fluid pumps, tools, and water to provide a base station for refilling of ATV spray tanks. Spraying infestations within the weed control area will be conducted by ATV, using hand-held spray guns with 25 to 50 foot hoses attached to spray tanks or by using 8 to 12 foot spray booms. The spray booms will be utilized for treating larger areas on roadbeds and on gentle to moderately steep terrain. All spraying equipment shall be calibrated to ensure the proper rate of herbicide is applied.

Following annual spraying, a monitoring survey will be conducted to verify locations of noxious weeds and invasive plants in the project vicinity. These monitoring surveys are expected to occur in the late summer/early fall (August-September). The locations of areas with noxious weeds will be identified with GPS coordinates and provided to the BLM.

8.0 Reporting

Beginning with the fall/winter of 2008 (November 2008 to February 2009), UEC will prepare and submit a status report to designated federal, state and county personnel regarding the previous years' weed control activities. The winter 2008 report will detail baseline conditions regarding the occurrence, distribution, and abundance of listed species located in the project area, weed control activities accomplished to date, and expected activities for the following year. Each subsequent years' report will 1) detail the current status of noxious weed and invasive plant occurrence, distribution and abundance, 2) summarize activities conducted in the project area during previous years, and 3) outline projected activities for the following year. This will include timing of surveys, herbicide treatments, amount and types of chemicals applied, and a list of participants and their activities. These reports will continue annually from winter 2008 for the life of the project, or as required by designated federal, state and county personnel to ensure long-term noxious/invasive plan control measures are met in the weed control area.

9.0 References

- Bureau of Land Management (BLM). 2004. Richfield Field Office Resource Management Plan. Management Situation Analysis, June 2004.
- Sheley, R.L., Manoukian, M., and G. Marks. 1999. "Preventing Noxious Weed Invasion," pages 69-72 in, R.L. Sheley and J.K. Petroff, editors. *Biology and Management of Noxious Rangeland Weeds*. Oregon State University Press, Corvallis, OR.
- USFR (U.S. Federal Register). 1999. "Presidential Document, Executive Order 13112. Invasive Species," Federal Register 64:6183-6186.
- Utah Department of Agriculture and Food (UTDAF). 2007. Utah Noxious Weed List. State of Utah Department of Agriculture and Food, Salt Lake City, Utah. Available at http://ag.utah.gov/plantind/nox_utah.html

State Noxious Weeds	
Bermudagrass	
Johnsongrass	
Medusahead	
Quackgrass	
Field Bindweed	
Hoary Cress	
Diffuse Knapweed	
Russian Knapweed	
Spotted Knapweed	
Squarrose Knapweed	
Purple Loosestrife	
Perennial Pepperweed	

County Noxious Weeds		
Buffalobur		Millard, <u>San Juan</u>
Common Burdock		Morgan
Camelthorn		<u>San Juan</u>
Goatsrue		Cache
Jointed Goatgrass		<u>San Juan</u>
Poison Hemlock		Cache, Davis
Black Henbane		Rich, Sanpete
Houndstongue		Wasatch, Sanpete
Blue-Flowering Lettuce		Juab
Western Whorled Milkweed		Iron, <u>San Juan</u> , Washington
Silverleaf Nightshade		<u>San Juan</u>
Yellow Nutsedge		Davis

Leafy Spurge		Puncturevine		Cache, Weber
Yellow Starthistle		Russian-olive		Carbon, Duchesne, Sevier, Uintah, Wayne
Canada Thistle		Saltcedar		Uintah
Musk Thistle		St. Johnswort		Box Elder
Scotch Thistle		Bull Thistle		Beaver
Dyer's Woad		Dalmatian Toadflax		Wasatch
		Yellow Toadflax		Wasatch
		Velvetleaf		Sanpete
		Oxeye Daisy		<i>(cannot find any further info)</i>
		Sulfur Cinquefoil		Wasatch-Cache Forest, Ranger-Logan District

References:
<http://www.utahweed.org/weeds.htm>