



Weed Management Plan
for La Sal Mine Complex
San Juan County, Utah

Prepared by:

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November 2009

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1.0 Introduction

This plan was developed to identify noxious weed and invasive plant control practices that would be implemented at the LaSal Complex Mine sites in San Juan County, Utah. Denison Mines Corp. (“Denison”) operates the LaSal Mine Complex consisting of four underground uranium mines. 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 1) prevent the introduction and spread of invasive species, 2) detect and respond rapidly to control such species, 3) monitor invasive species populations, and 4) 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. Noxious weeds listed by the State of Utah 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 solstitialis</i>

1. Source: United States Department of Agriculture (USDA) Utah State-listed Noxious Weeds (USDA) 2009

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. Denison 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. Denison 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 Utah Division of Oil, Gas, and Mining (UDOGM), the BLM, the United States Forest Service (USFS). The focus of Denison'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 Denison 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 UDOGM, BLM, USFS personnel regarding all noxious weed control activities conducted by DENISON 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 30-foot buffer area around disturbances. Current activity associated with the LaSal Mine Complex includes surface disturbance associated with the portals, shafts, and ventilation holes, and new or improved roads. Denison will assume responsibility to control 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 O&M activities:

1. Prior to construction, Denison 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 weed populations will be flagged so that they may be avoided.
3. 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.
4. 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 construction and during the optimal time period. Only approved mixtures of certified "weed-free" seed will be used. All other introduced construction materials used for the Proposed Project, 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 Department of Interior (DOI) policies.

Denison will flag all known noxious/invasive plants (for avoidance) prior to the time of any new 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 Denison 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 nonpersistent, immobile pesticides and will be applied in accordance with label and application permit directions. Spraying will be conducted using a Denison or a qualified contractor as deemed appropriate by Denison and in consultation with designated BLM, USFS, and UDOGM personnel. 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 by hand or 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).

8.0 Reporting

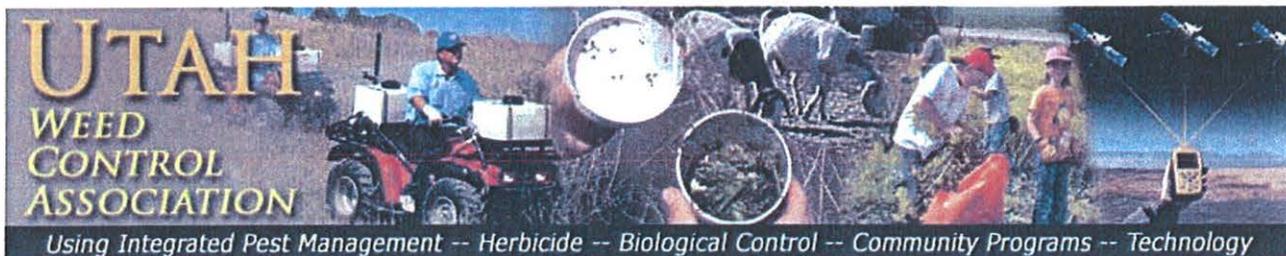
Beginning with the fall/winter, Denison will prepare and submit a status report to designated federal, state and county personnel regarding the previous years' weed control activities. The winter report will detail baseline conditions regarding the occurrence, distribution, and abundance of listed species 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 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

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.

United States Department of Agriculture (USDA). 2009. Utah State-listed Noxious Weeds. Available at <http://www.plants.usda.gov>.



Noxious weeds

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Utah's Noxious Weed List

Please note these links have multiple photos and may take several seconds to load for 56k modem users.

State Noxious Weeds		County Noxious Weeds	
Bermudagrass		Buffalobur	Millard, San Juan
Johnsongrass		Common Burdock	Morgan
Medusahead		Camelthorn	San Juan
Quackgrass		Goatsrue	Cache
Field Bindweed		Jointed Goatgrass	San Juan
Sulfur Cinquefoil		Blue-Flowering Lettuce	Juab
Hoary Cress		Western Whorled Milkweed	Iron, San Juan, Washington
Oxeye Daisy		Silverleaf Nightshade	San Juan
Poison Hemlock		Yellow Nutsedge	Davis
Black Henbane		Puncturevine	Cache, Weber

Houndstongue		Russian-olive		Carbon, Duchesne, Sevier, Uintah, Wayne
St. Johnswort		Bull Thistle		Beaver
Diffuse Knapweed		Velvetleaf		Sanpete
Russian Knapweed				
Spotted Knapweed				
Squarrose Knapweed				
Purple Loosestrife				
Perennial Pepperweed				
Saltcedar				
Leafy Spurge				
Yellow Starthistle				
Canada Thistle				
Musk Thistle				
Scotch Thistle				
Dalmatian Toadflax				
Yellow Toadflax				



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