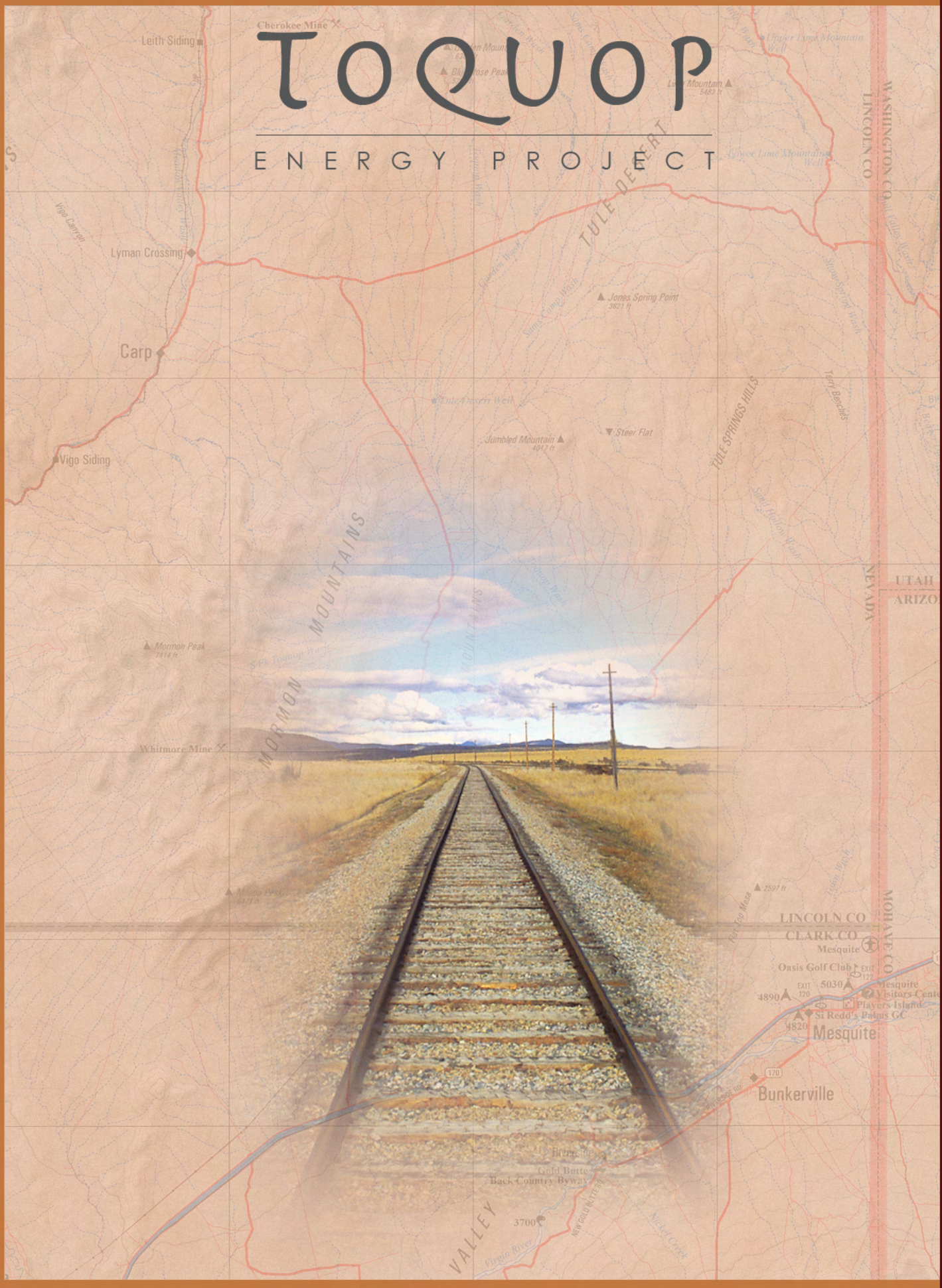
TOQUOP

ENERGY PROJECT



APPENDIX C - STATE OF NEVADA NOXIOUS WEED LIST

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STATE OF NEVADA NOXIOUS WEED LIST

Category ”A”: Weeds not found or limited in distribution throughout the state; actively excluded from the state and actively eradicated wherever found; actively eradicated from nursery stock dealer premises; control required by the state in all infestations.

Category "B": Weeds established in scattered populations in some counties of the state; actively excluded where possible, actively eradicated from nursery stock dealer premises; control required by the state in areas where populations are not well established or previously unknown to occur.

Category "C": Weeds currently established and generally widespread in many counties of the state; actively eradicated from nursery stock dealer premises; abatement at the discretion of the state quarantine officer.

Common Name	Scientific Name
Category A Weeds:	
African rue	*Peganum harmala*
Austrian fieldcress	*Rorippa austriaca*
Austrian peaweed	*Sphaerophysa salsula / Swainsona salsula*
Camelthorn	*Alhagi camelorum*
Common crupina	*Crupina vulgaris*
Dalmation toadflax	*Linaria dalmatica*
Dyer’s woad	*Isatis tinctoria*
Eurasian water-milfoil	*Myriophyllum spicatum*
Giant reed	*Arundo donax*
Giant salvinia	*Salvinia molesta*
Goats rue	*Galega officinalis*
Houndstongue	*Cynoglossum officinale*
Hydrilla	*Hydrilla verticillata*
Iberian star thistle	*Centaurea iberica*
Klamath weed	*Hypericum perforatum*
Leafy spurge	*Euphorbia esula*
Malta star thistle	*Centaurea melitensis*
Mayweed chamomile	*Anthemis cotula*
Mediterranean sage	*Salvia aethiopis*
Purple loosestrife	*Lythrum salicaria, L.virgatum* and their cultivars
Purple star thistle	*Centaurea calcitrapa*
Rush skeletonweed	*Chondrilla juncea*

Sow thistle	*Sonchus arvensis*
Spotted knapweed	Centaurea masculosa
Squarrose star thistle	Centaurea virgata Lam. var. squarrose
Sulfur cinquefoil	*Potentilla recta*
Syrian bean caper	*Zygophyllum fabago*
Yellow star thistle	*Centaurea solstiltialis*
Yellow toadflax	*Linaria vulgaris*
Category B Weeds:	
Carolina horsenettle	*Solanum carolinense*
Diffuse knapweed	*Centaurea diffusa*
Medusahead	*Taeniatherum caput-medusae*
Musk thistle	*Carduus nutans*
Russian knapweed	*Acroptilon repens*
Sahara mustard	*Brassica tournefortii*
Scotch thistle	*Onopordum acanthium*
White horsenettle	*Solanum elaeagnifolium*
Category C Weeds:	
Black henbane	*Hyoscyamus niger*
Canada thistle	*Cirsium arvense*
Green fountain grass	*Pennisetum setaceum*
Hoary cress	*Cardaria draba*
Johnson grass	*Sorghum halepense*
Perennial pepperweed	*Lepidium latifolium*
Poison hemlock	*Conium maculatum*
Puncture vine	*Tribulus terrestris*
Salt cedar (tamarisk)	*Tamarix spp*
Water hemlock	*Cicuta maculata*

SOURCE: Nevada Department of Agriculture, Plant Industry Division 2007

Risk Assessment for Noxious/Invasive Weeds

Project Name: Toquop Energy Project

Date Risk Assessment was completed: March 2007

Methods

URS conducted field surveys for rare plants/noxious and invasive weeds during May and June of 2006 in the proposed project area for the Toquop Energy Project to collect data necessary for completing a National Environmental Policy Act Environmental Impact Statement.

Project Summary

The proposed Toquop Energy Project is a 750-MW coal-fired generation unit and plant-cooling system located on BLM-administered land approximately 12 miles northwest of Mesquite, Nevada, and 50 miles south-southeast of Caliente, Nevada, in southern Lincoln County.

Under the No-Action and Proposed Action Alternatives, a well field and water pipeline would be developed in the Tule Desert hydrographic basin to supply groundwater for use in an evaporative cooling tower system. Facilities would include about 15 deep wells, a manifold system to connect the output from these wells to a single, 24-inch diameter buried pipeline, the extension of this buried pipeline and buried electrical distribution lines to the plant site, and a storage tank (approximately 500,000 gallon capacity). The length of the 24-inch-diameter pipeline would be 12.5 miles, partially along an existing road, with a permanent right-of-way width of 30 feet. New access roads would be constructed to the wells and storage tank as necessary for use during construction and maintenance activities.

To facilitate truck access between Interstate 15 (I-15) and the plant site about 14.4 miles of an existing dirt and gravel road would be upgraded by paving to a width of 24 feet, and some sections would be straightened.

An approximately 31-mile-long rail line would be constructed to connect with an existing Union Pacific Railroad line at Leith Siding, for the purpose of delivering coal to the power plant site. The permanent right-of-way for this rail line would be 100 feet wide.

Table 1
Acres Affected by the Proposed Action

FACILITY	ACRES OF TEMPORARY DISTURBANCE	ACRES OF PERMANENT DISTURBANCE
Power Plant	640	475
Access Road	216*	42
Water Pipeline	90	45
Rail Line	698	356
Well Field (Wells, Roads, Pumps)	17	12
TOTAL ACRES	**1,661**	**930**

NOTE: * Spatial data were not available to calculate the acres of vegetation within the construction right-of-way for the access road. However, the 2003 EIS (BLM 2003) indicated that a total of 216 acres would be within the temporary, construction right-of-way for the road.

Factor 1

Factor 1 assesses the likelihood of noxious/invasive weeds spreading to the project area. A definition of the categories for Factor 1 can be found at the end of this risk assessment. For the Toquop Energy Project, Factor 1 was determined to be **Moderate (7)**.

Table 2
Noxious/Invasive Weeds found in and near the proposed project facility locations.

Species	Common Name	Noxious/ Invasive
Tamarix spp.	Salt Cedar	Noxious
Lepidium latifolium	Tall Whitetop	Noxious
Brassica tournefortii	Sahara Mustard	Noxious
Acroptilon repens	Russian knapweed	Noxious
Bromus rubens	Red Brome	Invasive
Bromus tectorum	Cheatgrass	Invasive
Schismus spp.	Splitgrass	Invasive
Malcolmia africans	African Mustard	Invasive
Sisymbrium irio	London Rocket	Invasive
Salsola tragus	Russian Thistle	Invasive
Erodium spp.	Filaree	Invasive

The Moderate (7) rating was determined based on findings from field surveys conducted during May and June 2006 at and near the proposed facility locations. Three noxious weed species were found during surveys of the proposed project area including salt cedar (*Tamarix* spp.), tall whitetop (*Lepidium latifolium*), and Sahara mustard (*Brassica tournefortii*) (Table 2). A fourth noxious weed, Russian knapweed (*Acroptilon repens*) is known from the area but was not observed during field surveys. In Nevada, a noxious weed is a legal term for a plant that is designated by the State of Nevada as noxious and is, or is likely to be, detrimental or destructive and difficult to control or eradicate (NAC 555.010).

Salt cedar or tamarisk (*Tamarix ramosissima*, *chinensis*, *pentandra*) occurs occasionally along the proposed railroad route in the main forks and major tributaries of Toquop and Meadow Valley washes. The plants are widely scattered in the region of the proposed railroad route, except for Meadow Valley Wash, where dense stands occur at Lyman Crossing, with scattered plants in the frequently-flooded sections downstream of Rainbow Canyon, including Leith Crossing. Recent active stream flows have resulted in the germination of thousands of sprouts of tamarisk in the wet stream sections in the vicinity of Leith. It appears that the potential for mature stands of tamarisk to develop are limited in this section by scouring flood flows.

Tall whitetop (*Lepidium latifolium*) is another likely weed of the Meadow Valley Wash crossing and is present in much of the of the Meadow Valley Wash drainage. Like tamarisk, scouring flood flows limit establishment of this shallowly-rooted weed.

Sahara mustard (*Brassica tournefortii*) was observed throughout the proposed railroad route. The species is a problem in areas of sandy disturbances, in sand fields, and especially on sand dunes, where it competes directly with rare plant species such as Beaver Dam breadroot (*Pediomelum castoreum*), and straw milk-vetch (*Astragalus lentiginosus* var. *stamineus*). Currently, there are few areas along the route that have potential for dense infestation. In the near future it is likely to remain only common along drainages and at areas of heavy surface disturbance in this region. The species will likely become more frequent along the Tule Desert section of the railroad route when blown sands form on the railroad berm.

Additionally, Russian knapweed (*Acroptilon repens*) is found outside the proposed project area in surrounding areas and could potentially spread into the project area.

Several additional invasive weed species were observed during field surveys, including red brome (*Bromus rubens*), cheatgrass (*Bromus tectorum*), Splitgrass (*Schismus* spp.),

African mustard (*Malcolmia africans*), London rocket (*Sisymbrium irio*), Russian thistle (*Salsola tragus*), and filaree (*Erodium* spp.) (refer to Table 2). Invasive species refer to those non-native species that out-compete native vegetation, reducing the quantity and diversity of native plants.

Red brome (*Bromus rubens* ssp. *madritensis*) is the primary weed of concern for this project and the species has caused widespread ecological damage throughout the region in association with long-term chronic disturbances and recent wildfires, especially in the Mormon and Meadow Valley mountains. In the region of the proposed railroad route, the increased fire intensities and shortened fire-return intervals associated with red brome are a threat to non fire-adapted native vegetation.

Cheat grass (*Bromus tectorum*) was detected throughout the route, usually as scattered plants on weedy terraces of washes or sometimes growing up through shrubs. This grass has caused extensive ecological damages in areas of the Great Basin subject to wildfire/brome type conversion. The presence of cheat grass in this region does not seem to warrant additional concern above that which should be dedicated to the control of red brome. Cheat grass is a similar ecological grass, and it is likely out competed by red brome, which is already abundant in the region.

Splitgrass (*Schismus*) is of low concern in this area, and if anything, it is indicative of more benign conditions than in areas of red brome infestation. Splitgrass is common throughout low elevations of southern Nevada and appears to be extending sporadically northward within warm ecotones. In the vicinity of the proposed railroad route, no habitats were observed that are likely to be prone to ecological damage from dense stands of this grass.

African mustard (*Malcolmia africans*) seems to vector in on linear disturbances, especially on the more low-angle, clayey soils. It is abundant now on some sections of the Kern River gas pipeline route in habitats that are similar to the area of the plant site and the proposed railroad route south of Toquop Gap. African mustard was mainly observed along roadsides and in the vicinity of Toquop Wash, with some scattered near the proposed Tule Desert wellfield and near the proposed plant site.

London rocket (*Sisymbrium irio*) is a common weed of the Mojave Desert in Nevada and skeletons from 2005 were observed throughout the proposed railroad route. Despite being ubiquitous, in the Mojave Desert it is usually restricted to growing up through shrubs and seems to be unable to acquire enough water and nutrients to form dense stands. Occasionally the species is very weedy, but usually only after significant chronic

disturbances. The species is likely to be more common in the vicinity of construction areas and may spread weakly into the desert.

Russian thistle (*Salsola tragus*) is present throughout the proposed railroad route and in areas that are frequently disturbed. Along the proposed railroad route the species seems to be most dense and persistent in areas where frequent grazing and irrigation or frequently wetted soils occur. These areas occur mainly along Meadow Valley Wash, Toquop Gap, and the vicinity of the proposed Tule Desert wellfield. In areas where disturbances have time to stabilize, particularly in creosote bush desertscrub, Russian thistle seems to become less abundant over time. Certain areas along the Kern River gas pipeline to the east of Toquop Wash (vicinity of Terry Benches) have had dense infestations of Russian thistle following construction. No areas along the proposed railroad route appeared to have the potential for dense Russian thistle infestation. Sections of Meadow Valley Wash near Lyman Crossing have areas of dense Russian thistle. Elevated nutrient levels from repeated fires could greatly increase the number of Russian thistle present in the region, since it is so widespread (though usually uncommon).

Non-native filarees (*Erodium spp.*) are a potential future problem in the Mojave Desert. Filaree has been a locally dominant widespread weed in California since the 1800s, but is mostly uncommon in southern Nevada where rocky carbonate soils favor the native form (*E. texanum*). Red-stemmed filaree (*Erodium cicutarium*) was observed along the proposed railroad route in recently burned areas, especially south of Toquop Gap.

Due to the large linear extent of the proposed project and the presence of the noxious and invasive weeds mentioned above, a Moderate (7) rating was determined given the likelihood that weeds would be spread into and from the proposed project area as a result of the project.

Factor 2

Factor 2 assesses the consequences of noxious/invasive weed establishment and spread in the proposed project area. A definition of the categories for Factor 2 can be found at the end of this risk assessment. For the Toquop Energy Project, Factor 2 was determined to be **Moderate (7)**.

The Moderate (7) rating was chosen based on the current distribution of weeds in the vicinity of the proposed project area and the impacts of the establishment and spread of noxious and invasive weeds.

An increase in the spread of invasive grasses is likely to have the greatest potential impact to the proposed project area. These grasses compete with native vegetation for resources and lead to changes in the fire regime. The presence of these grasses increases the intensity and size of fires in the desert as well as decreases fire return-intervals. Fire within the proposed project area is likely to create conditions that favor invasive grasses and are deleterious to the non fire-adapted vegetation of the area. Conditions that select for the non-native grasses and against the native vegetation are likely to lead to the conversion of areas from desertscrub into non-native grasslands.

Other noxious and invasive weeds in the project area would compete with native vegetation for resources, change soil characteristics, and generally decrease wildlife habitat value for native species.

Risk Rating

The Risk Rating is obtained by multiplying Factor 1 by Factor 2. For the proposed Toquop Energy Project, the Risk Rating is **Moderate (49).**

Based on this risk rating, preventative management measures are needed for this project to reduce the risk of introduction and spread of noxious and invasive weeds into the area. Preventative measures are as follows:

1. Prior to project approval a site-specific weed survey will occur and a weed risk assessment will be completed. Monitoring will be conducted for a period no shorter than the life of the permit or until bond release and monitoring reports will be provided to the BLM. If the spread of noxious weeds is noted, appropriated weed control procedures will be determined in consultation with BLM personnel and will be in compliance with the appropriate BLM handbook sections and applicable laws and regulations. All weed control efforts on BLM-administered lands will be in compliance with BLM Handbook H-9011, H-9011-1 Chemical Pest Control, H-9014 Use of Biological Control Agents of Pests on Public Lands, and H-9015 Integrated Pest Management. Should chemical methods be approved, the lessee must submit a pesticide Use Proposal to the Authorized Officer 60 days prior to the planned application date. A pesticide Application Report must be submitted to the Authorized Officer by the end of the fiscal year follow chemical application.

2. Prior to the entry of vehicles and equipment to a project area, areas of concern will be identified and flagged in the field by a weed scientist or qualified

biologist. The flagging will alert personnel or participants to avoid areas of concern. These sites will be recorded using global positioning systems or other Ely Field Office approved equipment and provided to the Field Office Weed Coordinator or designated contact person.

3. Prior to entering public lands, the contractor, operator, or permit holder will provide information and training regarding noxious weed management and identification to all personnel who will be affiliated with the implementation and maintenance phases of the project. The importance of preventing the spread of weeds to uninfested areas and importance of controlling existing populations of weeds will be explained.

4. To eliminate the transport of vehicle-borne weed seeds, roots, or rhizomes all vehicles and heavy equipment used for the completion, maintenance, inspection, or monitoring of ground disturbing activities; for emergency fire suppression; or for authorized off-road driving will be free of soil and debris capable of transporting weed propagules. All such vehicles and equipment will be cleaned with power or high-pressure equipment prior to entering or leaving the work site or project area. Vehicles used for emergency fire suppression will be cleaned as a part of check-in and demobilization procedures. Cleaning efforts will concentrate on tracks, feet and tires, and on the undercarriage. Special emphasis will be applied to axels, frames, cross members, motor mounts, on and underneath steps, running boards, and front bumper/brush guard assemblies. Vehicle cabs will be swept out and refuse will be disposed of in waste receptacles. Cleaning sites will be recorded using global positioning systems or other mutually acceptable equipment and provided to the Field Office Weed Coordinator or designated contact person.

5. To eliminate the introduction of noxious weed seeds, roots, or rhizomes all interim and final seed mixes, hay, straw, hay/straw, or other organic products used for reclamation or stabilization activities will be certified free of plant species listed on the Nevada noxious weed list or specifically identified by the BLM Ely Field Office.

6. To eliminate the introduction of noxious weed seeds, roots, or rhizomes all source sites such as borrow pits, fill sources, or gravel pits used to supply inorganic materials used for construction, maintenance, or reclamation will be inspected and found to be free of plant species listed on the Nevada noxious weed list or

specifically identified by the BLM Ely Field Office. Inspections will be conducted by a weed scientist or qualified biologist.

7. Removal and disturbance of vegetation would be kept to a minimum through construction site management (e.g. using previously disturbed areas and existing easements, limiting equipment/materials storage and staging area sites, etc.)

8. Reclamation would normally be accomplished with native seeds only. These would be representative of the indigenous species present in the adjacent habitat. Rationale for potential seeding with selected nonnative species would be documented. Possible exceptions would include use of non-native species for a temporary cover crop to out-compete weeds. Where large acreages are burned by fires and seeding is required for erosion control, all native species could be cost prohibitive and/or unavailable. In all cases, seed mixes would be approved by the BLM authorized Officer prior to planting.

9. Mixing of herbicides and rinsing of herbicide containers and spray equipment would be conducted only in areas that are safe distance from environmentally sensitive areas and points of entry to bodies of water (storm drains, irrigation ditches, streams, lakes, or wells).

10. Methods used to accomplish weed and insect control objectives would consider seasonal distribution of large wildlife species.

11. No noxious weeds will be allowed on the site at the time of reclamation release. Any noxious weeds that become established will be controlled.

12. Areas that are reseeded would be monitored for 5 years to ensure native plants, which have been disturbed during construction, return to the reseeded areas.

Based on this Risk Rating, project modifications **are/are not** (circle one) needed for this project.

Weed Risk Assessment completed by: Jeff Johnson, URS Corporation.

Reviewed by/date reviewed: _____ _____

BLM Noxious Weed Coordinator Date

Factor 1 Categories

None (0)	Noxious weed species are not located within or adjacent to the project area. Project activity is not likely to result in the establishment of noxious weed species in the project area.
Low (1-3)	Noxious weed species are present in the areas adjacent to but not within the project area. Project activities can be implemented and prevent the spread of noxious weeds into the project area.
Moderate (4-7)	Noxious weed species located immediately adjacent to or within the project area. Project activities are likely to result in some areas becoming infested with noxious weed species even when preventative management actions are followed. Control measures are essential to prevent the spread of noxious weeds within the project area.
High (7-10)	Heavy infestations of noxious weeds are located within or immediately adjacent to the project area. Project activities, even with preventative management actions, are likely to result in the establishment and spread of noxious weeds on disturbed sites throughout much of the project area.

Factor 2 Categories

Low to Nonexistent (1-3)	None. No cumulative effects expected.
Moderate (4-7)	Possible adverse effects on site and possible expansion of infestation within the project area. Cumulative effects on native plant communities are likely but limited.
High (7-10)	Obvious adverse effects within the project area and probable expansion of noxious wee infestations to areas outside the project area. Adverse cumulative effects on native plant communities are probable.

Risk Rating Categories

None (0)	Proceed as planned.
Low (1-10)	Proceed as planned. Initiate control treatment on noxious weed populations that get established in the area.
Moderate (11-49)	Develop preventative management measures for the proposed project to reduce the risk of introduction of spread of noxious weeds into the area. Preventative management measures should include modifying the project to include seeding the area to occupy disturbed sites with desirable species. Monitor the area for at least 3 consecutive years and provide for control of newly established populations of noxious weeds and follow-up treatment for previously treated infestations.
High (50-100)	Project must be modified to reduce risk level through preventative management measures, including seeding with desirable species to occupy disturbed site and controlling existing infestations of noxious weeds prior to project activity. Project must provide at least 5 consecutive years of monitoring. Projects must also provide for control of newly established populations of noxious weeds and follow-up treatment for previously treated infestations.