



STAR-ORION SOUTH DIAMOND PROJECT
ENVIRONMENTAL IMPACT ASSESSMENT

APPENDIX 7-C
Weed Management Plan



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1.0 INTRODUCTION

The Shore Gold Fort a La Corne (FALC) Diamond Project is located approximately 30 km south of Smeaton, Saskatchewan in the FALC Forest. As described in the FALC Draft Integrated Forest Land Use Plan (SMOE 2005), the FALC Forest is 'an island forest, surrounded by agricultural lands with a long history of activities such as timber harvesting, tourism, hunting, livestock grazing, and some haying'. As a result of the activities in the FALC forest, weed species are present, although native vegetation is predominant. Stands of jack pine make up 98% of the forest (SOME 2005).

1.1 PURPOSE

The purpose of the Weed Management Plan is to:

- Minimize the introduction and establishment of undesirable new weed species
- Establish a monitoring program for weed species that are present or become established
- Develop and implement strategies to quickly remove or prevent the spread of weed species that become established
- Prioritize species requiring control and customize control techniques for different species as required
- Ensure continuous and ongoing control of weed species, including during reclamation activities in order to promote natural revegetation

2.0 DESCRIPTION OF NOXIOUS WEEDS

2.1 NOXIOUS WEED LIST

The Saskatchewan Conservation Data Centre provides a 'Saskatchewan Noxious Species List'. This list will be used to identify what are considered noxious weeds requiring management under this plan. An updated list will be used whenever available. The most recent list was released in February, 2012 and is as follows:

- *Acroptilon repens*; Russian Knapweed;
- *Arctium minus*; Common Burdock;
- *Artemisia absinthium*; Absinthe;
- *Berteroa incana*; Hoary-alyssum;
- *Bromus japonicas*; Japanese Chess;
- *Bromus tectorum*; Downy Chess;
- *Cardaria draba ssp. chalapensis*; Chalapa Hoary-cress;
- *Cardaria pubescens*; Long-stalk Hoary-cress;
- *Carduus nutans*; Nodding Thistle;

- *Cirsium arvense*; Canada Thistle;
- *Cirsium vulgare*; Bull Thistle;
- *Convolvulus arvensis*; Field Bindweed;
- *Crepis tectorum*; Annual Hawksbeard;
- *Erodium cicutarium*; Stork's-bill;
- *Euphorbia cyparissias*; Cypress Spurge;
- *Euphorbia esula*; Leafy Spurge;
- *Galium aparine*; Cleavers;
- *Gypsophila paniculata*; Baby's Breath;
- *Hesperis matronalis*; Dame's Rocket;
- *Hyoscyamus niger*; Black Henbane;
- *Kochia scoparia*; Summer-cypress;
- *Lactuca serriola*; Prickly Lettuce;
- *Leucanthemum vulgare*; Ox-eye Daisy;
- *Linaria vulgaris*; Yellow Toad-flax;
- *Lolium persicum*; Persian Darnel;
- *Lythrum salicaria*; Purple Loosestrife;
- *Malva rotundifolia*; Running Cheeseweed;
- *Matricaria perforate*; Scentless Chamomile;
- *Pastinaca sativa*; Parsnip;
- *Rhamnus cathartica*; Buckthorn;
- *Silene latifolia ssp. alba*; White Campion;
- *Silene noctiflora*; Night-flowering Catchfly;
- *Silene vulgaris*; Bladder Campion;
- *Sonchus asper*; Prickly Sow-thistle;
- *Sonchus oleraceus*; Annual Sow-thistle; and
- *Tanacetum vulgare*; Tansy.

Source: Saskatchewan Conservation Data Centre. February 2012. Saskatchewan Noxious Species List. Regina, Saskatchewan.

3.0 WEED MANAGEMENT

3.1 POTENTIAL IMPACTS

As the mine is developed, areas will be disturbed and exposed, which will create potential opportunities for establishment of new weed species or spreading of existing ones. Some areas



will remain disturbed for long periods of time (years) which increases the likelihood that weed species can become established. Increased traffic and equipment coming to the project site from outside the forest also has the potential to transport weed seeds.

3.2 CONTROL MEASURES

3.2.1 Prevention

The preferred method of weed management is to prevent the establishment and spread of weed species. This will be completed in a number of ways. All vehicles and moving equipment will be expected to be clean and free from outside seed sources when brought onto the project site. Contractors and employees will be made aware that all vehicles and equipment must be clean of outside soil and potential seed carrying material before they enter the project site. Part of the site orientation will include awareness of the importance of maintaining clean equipment, and minimizing transportation of weed seeds.

3.2.2 Removal

The second method of weed management will be the identification and removal of weed species before they become an established population. Regular inspections of all impacted sites and areas of activity will be completed by on site environmental staff. Environmental staff will be trained in the identification of weed species and will look for, and document any areas where weed species are present. These areas will be recorded and a management plan put into place as outlined below.

The physical removal of weed species will be performed by Shore Gold staff using physical, mechanical or chemical means as required and approved. The removal method will depend on the level of infestation and type of weed. Some specific control strategies will include physical removal and incineration, mowing or chemical application. In the case of chemical application, the management plan will first be approved by the Saskatchewan Ministry of Environment (SMOE) because the FALC is a Provincial Forest.

3.2.3 Monitoring

Mapping of the weed species will be ongoing to provide guidance on where monitoring should be concentrated in subsequent years, as well as a history of the successful removal or the potential spread of weeds. Mapping will include species, location, density, and area. This mapping will be critical in assessing the success of the weed management program from one year to the next.

During all aspects of reclamation, including planning and monitoring, weed management will be considered and control measures implemented wherever weed species become established. Progressive reclamation will also ensure that disturbed sites and piles are revegetated with native species as soon as possible, minimizing the amount of time that the areas are susceptible to colonization by weed species.

Access roads (within the FALC forest) can be considered as part of the Project Site in terms of the control of weed species if access roads are determined to be a significant source of weed seeds. All of the inspection and control measures of the Weed Management Plan would then be applied to the access roads. This can be an important part of the overall strategy, as the access roads travel through a significant portion of the forest and have the potential to spread weed seeds in the area for the length of the road.

If a species of weed becomes an established population, then a specific management plan will be created and implemented in order to remove the population, or if that is not possible, minimize any further spread and impacts of the population.

3.3 RESPONSIBLE STAFF

3.3.1 Environmental Manager

- Ensure all aspects of the Weed Management Plan are implemented; and
- Ensure reporting is complete to fulfill requirements.

3.3.2 Site Environmental Team

- Complete the work at the project site, identify weed infestations;
- Assess and improve the Management Plan on an ongoing basis; and
- Keep records and document the data to ensure it is available to fulfill the reporting requirements.

3.3.3 Site Manager

- Work with the Environmental Team to ensure the Weed Management Plan is implemented and accepted;
- Include considerations of this plan when planning new or changes to operations; and
- Ensure the site orientation includes aspects of the weed management plan where applicable.

3.4 RECORDS AND REVIEWS

A summary of the Weed Management Program will be included in the Annual Environmental Report of the Project. This will include:

- A summary of any infestations as well as how they were managed;
- An assessment of the success (or failure) of the management strategy;
- A discussion of how to improve weed control in subsequent years;
- An assessment of the monitoring program and any changes that may be required in order to ensure weeds are quickly detected and removed; and

- Mapping of detected weed species which will be completed whenever a population becomes established.

Mapping will be a key part of the report and will also include a year over comparison to ensure the Weed Management Program is effective and constantly improving. An annual review of the weed species and populations present will also be completed at this time and specific species management plans will be created if shown through the review to be required (i.e. if year over year comparison shows that establishment and population size are increasing). One mapping results are available, then targets, objectives and measures can be established and put into place in order to focus the management program and ensure progress is being made. For example, area covered by weed X to be reduced by XX% within 24 months would be an example of a measurable target.

The Weed Management Plan will also be reviewed and updated every year to reflect the current status of weed populations, as well as incorporate all improvements and updates made to the plan. This update will be after the Annual Report is complete in order to incorporate all the data presented in the Annual Report.

4.0 SUMMARY

This Weed Management Plan will be the basis for the Weed Management Program at the Star-Orion South Diamond Project and will be continuously updated using the information, successes and challenges observed during the project. The key aspects to the Weed Management Plan are:

- Prevention of weed establishment and spreading;
- Removal of problem weeds if they do become established;
- Monitoring and continuous improvement of the program in terms of the presence of weed species; and
- Data collection, management and reporting.