



Weed Management Procedure

Environment

1 Purpose and Scope

This procedure specifies the operational environmental requirements relating to the management of declared and environmental weeds at the Roy Hill Project. This procedure applies to all personnel involved in activities at the Mine, Rail and Port operations that affect weed management.

A weed is a plant that requires some form of action to reduce its negative effect on the economy, the environment, human health and amenity. A weed can be an exotic species or a native species that colonises and persists in an ecosystem in which it did not previously exist. They have the potential to become pests, and be formally declared under the *Biosecurity and Agriculture Management Act 2007* (BAM Act), which supersedes the *Agriculture and Related Resources Protection Act 1976*. For more information see the 'Weed Management Plan' (OP-PLN-00145).

Weed management and monitoring is also part of project compliance with Ministerial Statement (MS) 824 Condition 10, MS 829 Condition 11 and MS 847 Condition 7. Generally, these conditions state that no new species of weeds shall be introduced into the area as a result of the implementation of the proposal and that the coverage of weeds within the rehabilitation areas shall not exceed baseline monitoring.


2 Procedure

2.1 Management Actions

2.1.1 Weed Mapping/Monitoring

1. Undertake weed mapping on all areas prior to clearing for use in topsoil management, in accordance with the 'Clearing and Soil Management Procedure' OP-PRO-00187.
2. Classify all areas with greater than 25% environmental weed cover or which contain declared weeds as Weed Risk Areas.
3. Include all Weed Risk Areas on the Ground Disturbance Permit (GDP) maps, and list the associated weed management requirements as conditions of the GDP.
4. Undertake weed monitoring within rehabilitation sites at the Mine, Rail and Port as specified in the 'Rehabilitation Monitoring Manual' (OP-MAN-00086).
5. Inspect topsoil stockpiles annually using the 'Topsoil Inspection Form' (OP-FRM-00119), to check for evidence of weed infestations.
6. Report any new weed infestations to the Roy Hill Environmental Team.
7. Document all known Weed Risk Areas in the Roy Hill GIS system and upload any new weed infestations.

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2.1.2 Weed Risk Areas Signage and Access

1. Demarcate all Weed Risk Areas in the field by the installing flagging or by uploading the area boundary into WENCO prior to any clearing works.
2. Establish clearly defined entry and exit points at any declared weed infestations located within active mining areas.
3. Install signage at the designated entry/exit points at any declared weed infestations within active mining areas. The signs must state the following on entry and exit respectively:

YOU ARE ENTERING WEED RISK AREA – VEHICLES ENTERING MUST BE CLEAN ON EXIT

YOU ARE EXITING A WEED RISK AREA - VEHICLES MUST BE CLEAN PRIOR TO EXIT

4. Treat any areas of declared weed infestations as avoidance sites wherever possible.

2.1.3 Importing of Equipment and Materials to the Project

1. Inspect ground engaging and tracked equipment for potential weed material (vegetative matter, seeds etc.) once they have arrived on site and prior to use using the 'Vehicle and Mobile Equipment Weed Inspection Form' (OP-FRM-00006). The inspection should be undertaken by the Project Manager, Contract Manager, Supervisor and/or Site Environmental Representative.
2. Obtain supplier certification, prior to arrival on site, for all imported fill, ballast, gravel or other substances or potential weed mediums to provide evidence that these materials are free from weeds. Ensure that the 'Imported Materials Weed Hygiene Inspection Form' (OP-FRM-00005) is completed. Provide the certification to the Roy Hill Environment Team prior to arrival of materials on site.

2.1.4 Weed Wash Down Requirements

1. Undertake a weed hygiene inspection prior to exiting any areas infested with declared weed species, to identify any soil, soil slurry and vegetation materials remaining on the vehicle. Document all inspections using the 'Vehicle and Mobile Equipment Weed Inspection Form' (OP-FRM-00006) – this is the responsibility of the vehicle or mobile equipment operator.
2. Ensure that the following is undertaken where the vehicle and mobile equipment inspection identifies that the vehicle or mobile equipment needs to be cleaned:
 - In dry conditions, brush down in using a stiff bristled brush in an area that will not result in contamination to the non-weed areas
 - In wet conditions, clean vehicles at the LV or HV wash down facilities using a high-pressure spray or using a portable pressure sprayer and /or;
 - If cleaning is not available on site, the equipment is not to be permitted within the project area.
3. Ensure that all facilities used for declared weed wash down on site meet the following minimum requirements:
 - Ensure that dirty wash down water drains efficiently to a bunded earthen infiltration sump and wash down water is contained within the sump bund;
 - Use only water (no detergent or degreaser) for washing down vehicles or mobile equipment;
 - Ensure that the earthen infiltration sump is accessible using a front-end loader, and periodically use a front-end loader to remove wash down sediment;

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- Design the sump to ensure that adequate storage is available, and that overflows of wash-down water are prevented from entering the surrounding environment;
 - Bury sediment (at least 500mm underground) removed from the earthen infiltration sump that was sourced from vehicles or machinery that had entered a declared weed infestation area. Sediment must be buried in areas that are not going to be excavated in the future.
4. Set up (and decommission when no longer required) portable weed washing areas if clearing is undertaken in a declared weed infestation area – this is the responsibility of the department manager that is undertaking the works.

2.1.5 Handling of Weed Contaminated Topsoil

1. Ensure topsoil and vegetation stripped within a Weed Risk Area are not moved to a non-weed risk area.
2. Treat topsoil or vegetation from Weed Risk Areas as waste in accordance with the 'Clearing and Soil Management Procedure' (OP-PRO-00187).

2.1.6 Weed Control/Eradication Programs

1. Develop and implement weed control programs where new species of weeds are detected or where declared weeds are recorded.
2. Refer to the 'Weed Management Plan' (OP-PLN-00145) for details on weed control methods, control issues and timing.
3. Develop and implement weed control programs on rehabilitation sites where monitoring programs have identified weed control as a requirement to meet Ministerial Statement conditions.
4. Undertake weed control programs on topsoil stockpiles, where weed infestations are found.
5. Bury weeds within waste dumps, landfill, backfilled pits or areas that will not be excavated in the future to a minimum depth of 500 mm below the surface.
6. Implement weed control programs for Declared Weeds and/or Weeds of National Significance in accordance with advice from relevant agencies undertaking similar programs in the Pilbara (e.g. Pilbara Mesquite Management Committee) and applicable developed Weed Management Plans.

2.2 Training and Awareness

1. Familiarise all personnel associated with weed management activities with the requirements of this procedure.
2. Include information on weed management requirements (e.g. new weed infestations or infestations of declared weeds to be reported to the site Environmental Team) in site inductions or site communications where relevant.
3. Conduct toolbox talks (e.g. weed identification, prevention to spread weeds, vehicle hygiene etc.) and develop environmental site notices and environmental awareness posters periodically highlighting weed management requirements – this is the responsibility of the Superintendent Environment Mine or Port and Rail (or delegate where required).
4. Display relevant environmental site notices and environmental awareness posters (e.g. new and declared weeds) at prominent workplace locations.
5. Maintain records of toolbox training attendance onsite for audit and inspection purposes.
6. Promote the Significant Flora, Fauna and Weed Species Identification Manual (OP-MAN-00089) to all Roy Hill personnel and their contractors.

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2.3 Incidents, Audits and Inspections

1. Undertake regular inspections of the active work area against the requirements of this procedure.
2. Undertake regular compliance audits in accordance with the 'Environmental Audit Procedure' (OP-PRO-00018).
3. Schedule inspections and audits against the requirements of this procedure in accordance with the approved HSE Integrated Inspection and Audit Schedule.
4. Store copies of all audits and inspections within the Roy Hill Document Management System.
5. Undertake an investigation into the cause(s) of incidents reportable to regulators in accordance with the 'Incident Investigation Specification' (OP-SPC-00156) and develop actions to prevent recurrence of the incident.
6. Enter corrective and preventative actions from incidents, audits and inspections into the Roy Hill Incident Management System.
7. Include weeds as an inspection item on Mine, Port and Rail area inspections and audit forms.
8. Carry out quarterly work area inspections for the identification of new establishments of weeds.
9. Undertake audits of activities in weed risk areas, including weed wash down use and sediment control – this is the responsibility of the Superintendent Environment Mine and Superintendent Environment Port and Rail (or delegate).
10. Undertake weekly visual inspections of the wastewater treatment plant irrigation spray fields for weeds.
11. Undertake annual inspections of all rehabilitated areas to identify any new establishment of weeds.

2.4 Contingency Actions

1. Implement weed control measures/actions if the number and locations of weed species increase.
2. Clean vehicles and mobile equipment in an approved wash down facility prior to use if they have failed the initial weeds and seeds inspection, and undertake a re-inspection of the machine and/or vehicle post cleaning.
3. Undertake a weed hygiene inspection on vehicles and mobile equipment found to be operating onsite without a weed and seed certificate, as soon as possible once identified.
4. Ensure that all imported fill, ballast, gravel or other substances or potential weed mediums without a weed free certificate are not used, and are returned to the supplier as soon as practicable and not stored on site.

2.5 Reporting Requirements

1. Report all non-compliances with this procedure (e.g. new outbreaks of declared/environmental weeds or increase in weed density), all regulatory exceedances and all community complaints as an incident in the Roy Hill Incident Management System.
2. Close out all incidents and corrective actions in accordance with the 'Incident, Non-Conformance and Action Management Procedure' (OP-PRO-00702).
3. Complete all reporting required within the relevant EnviroSys data entry forms or in the 'Contractor Environmental Report' (CER) (OP-FRM-00305).
4. Report any identification of additional major weed locations or outbreaks to the Environment Team and upload to GIS. This is to be undertaken as soon as practicable after the sighting of the weed.

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- Report the presence of any new declared weed infestations to the regulators as per the *Biosecurity and Agriculture Management Act 2007* (refer to Section 10 of the 'Weed Management Plan' (OP-PLN-00145)).

3 Accountabilities

Unless otherwise specified, the following roles are accountable or responsible for the activities outlined in this procedure.

Role	Responsibility
General Managers	Accountable for ensuring that resources are available to support the implementation of this procedure where it is relevant to their area of responsibility
Managers	Accountable for the implementation of this procedure where it is relevant to their area of responsibility
Superintendents	Responsible for the implementation of this procedure where it is relevant to their area of responsibility
Environment Team	Responsible for review and update of this procedure

Table 1: Accountabilities

4 Abbreviations

Abbreviation	Definition
ARRP Act	<i>Agriculture and Related Resources Protection Act 1976</i>
DAFF	Department of Agriculture, Fisheries and Forestry
GDP	Ground Disturbance Permit
GIS	Geospatial Information Systems
MS	Ministerial Statement
WRA	Weed Risk Area

Table 2: Abbreviations

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5 Definitions

Term	Definition
Declared Weed	A weed that has been 'Declared' under the <i>Biosecurity and Agriculture Management Act 2007</i> . The two declared weeds identified within the Roy Hill project are Prickly pear (<i>Opuntia stricta</i>) and Parkinsonia (<i>Parkinsonia aculeate</i>).
Environmental Weed	An introduced plant that establishes in natural ecosystems and adversely modifies natural processes, resulting in decline of invaded communities.
Ground Disturbance	Work that will in any way cause any change or disturbance to the ground surface including (but not limited to): clearing of vegetation, placement of survey pegs, placement of water bore lines, excavations, geotechnical investigations, water bore drilling and release of water, bulk earthworks installation of buildings and infrastructure, construction of roads, access tracks, laydown areas and any work associated with the construction and operation of the project.
Operational Environmental Requirements	A plan, procedure or work instruction that must be complied with.
Shall	It must be undertaken and is not negotiable
Should	It must be undertaken, however if it cannot be undertaken or will significantly impact on time or cost then modification to the requirement may be considered by Manager Environment and Approvals
Subsoil	Soil that is located beneath topsoil and is a source of bulk material for the rehabilitation. This zone is typically referred to as the B horizon. This material is commonly used as a growth medium or bulking material for topsoil during rehabilitation.
Superintendent Environment – Mine Operations	The Superintendent of the Roy Hill Environment Team
Superintendent Rehabilitation	The Superintendent of the Roy Hill Rehabilitation Team
Topsoil	The top layer (100-200 mm) of the soil profile that is the most important for rehabilitation. It contains a seed bank and has a higher nutrient content than the layers below.
Weed Control/Eradication	Is the botanical component of pest control, which attempts to stop weeds, especially noxious or injurious weeds, from competing with native species
Weed Risk Areas	The locations where the number or species (severity/rating) of environmental weed species is high (>25%); these areas are mapped on the GIS database and are included on GDPs.

Table 3: Definitions

6 References

Document number	Title
OP-FRM-00005	Imported Materials Weed Hygiene Inspection Form
OP-FRM-00006	Vehicle and Mobile Equipment Weed Inspection Form
OP-FRM-00119	Stockpile Inspection/Monitoring Form
OP-FRM-00138	Clearing and Soil Management Procedure
OP-MAN-00089	Significant Flora, Fauna and Weed Species Identification Guide
OP-PLN-00044	Rehabilitation Management Plan
OP-PLN-00145	Weed Management Plan
OP-PRO-00702	Incident, Non-Conformance and Action Management Procedure

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Table 4: References

Note that up-to-date environmental documents should be accessed from the e-Care Roy Hill intranet portal to ensure that the current version is being used.

7 Review

This Procedure is to be reviewed as follows:

- Following the grant of or modification to relevant approvals;
- Annually; or
- As a result of findings or actions identified through inspections, audits and incident reporting.

Reviews are to examine the appropriateness of this Procedure, taking into consideration corporate, system and compliance requirement changes since the last review was undertaken.

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