Weed Management Planning Guide: Onshore Petroleum Projects

Introduction

This guide has been written to assist proponents of onshore shale gas development projects in the preparation and submission of a Weed Management Plan (WMP) as a component of an Environment Management Plan (EMP) under the Petroleum (Environment) Regulations 2016. It identifies what should be included in a WMP as a **minimum** expectation. It is acceptable for a proponent to include additional information (e.g. for weed species that are not declared but are of concern to the landholder or proponent) if desired. The plan structure and table formats presented below are examples only, the proponent may present the information in an alternative manner if preferred.

Approvals

The Minister for Environment and Natural Resources is responsible for approval of Environment Management Plans (within which WMP's are a component). Recommendation for the approval or otherwise will be sought from the Department of Environment and Natural Resources as the lead agency for weed management in the Northern Territory.

Contents

Suggested contents for inclusion in a WMP are:

1. Background / Introduction

This section is to assist the reader in understanding the scale and nature of the program, the weed risks, purpose of the plan and details on relevant company policies and/or procedures.

Include:

- A brief summary of the project background and include a location map.
- Discussion about weed spread and introduction risks associated with the various stages of onshore shale gas development, as identified in NT Government publications. For example:
  - The *Final Report of the Scientific Inquiry into Hydraulic Fracturing in the Northern Territory*
  - *Preventing Weed Spread Is Everybody's Business*
- Purpose of the WMP. For example:
  - This weed management plan has been developed to ensure that the risk of weed introduction and spread resulting from activities associated with this project are mitigated to protect the economic, community, industry and environmental interests of the Territory.
- Details of Government legislation / policy under which the weed management plan is required. This plan is a requirement of:
  - Petroleum (Environment) Regulations 2016: An EMP, of which this weed management plan is a component, must be submitted and approved prior to any petroleum exploration or production activity.
- An overview of any relevant company policies/ procedures.

2. Legal requirements

State relevant legislation and statutory obligations.

Petroleum (Environment) Regulations 2016:

- requirement to submit an EMP prior to any petroleum exploration or production activity
- EMP's must include:
  - potential environmental risks or impacts (in this instance relating to the introduction and spread of weeds)
  - appropriate environmental outcomes, environmental performance standards and measurement criteria
  - appropriate implementation strategy and monitoring, recording and reporting arrangements
  - demonstrate that there has been an appropriate level of engagement with directly affected stakeholders in developing the plan.

The WMP presented must address these requirements.

(Refer to https://nt.gov.au/industry/mining-and-petroleum/petroleum-activities/environmental-management/environmental-management-plan for further information).

Weeds Management Act 2001 (the Act):

- Introduce and provide an overview of the Act, and explain the implications for weed management planning.
- Aim of the Act is 'to protect the Territory's economy, community, industry and environment from the adverse impact of weeds'.
- The Act enables the following weed declaration classes:
  - Class A – to be eradicated
  - Class B – growth and spread to be controlled
  - Class C* – Not to be introduced into the Northern Territory
  - All Class A and B weeds are also Class C.
- The Act enables the relevant minister to approve statutory weed management plans. Management obligations in these plans must be adhered to. Currently there are statutory management plans for 10 high priority weed species in the Northern Territory. The weed species these apply to and copies of the plans can be found at https://nt.gov.au/environment/weeds/weed-management-planning.

The WMP must address weeds in accordance with their declaration status and statutory requirements of any relevant weed management plans.

3. Dedicated weed officer

As per recommendation 8.3 of the *Scientific Inquiry into Hydraulic Fracturing* there must be a dedicated weed officer for each gas field.

To ensure the required weed management outcomes, the weed officer must have relevant skills and experience and availability to successfully manage weed related issues for the project, including:

- knowledge of the biology/ecology of local weeds including but not limited to gamba and grader grass
- knowledge of relevant weed management frameworks including NT legislation and plans, the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 and
- understanding of existing weed management arrangements being undertaken by landholders.

They are to be responsible and accountable for delivery of all weed related requirements of the project in accordance with the WMP and the overarching EMP, including:

- planning and execution of weed monitoring requirements, including baseline weed assessments and ongoing monitoring both during periods of gas related activities as well as during the target identification period of February to May
- facilitate training all workers (including contractors) in weed management requirements, with support from the NT Government's Onshore Petroleum Weed Management Officer
- oversight of implementation of weed control mechanisms including but not limited to wash-downs, proactive weed control programs
- ensuring all reporting requirements are met

- act as the designated point of contact for and rapidly responding to any weed-related complaints and incidents in accordance with the pre-determined strategies in the WMP and additional strategies as required developed in consultation with the NT Government's Onshore Petroleum Weed Management Officer and affected landholders and
- review and update of WMP's to remain effective in communication with relevant landholders and the NT Government's Onshore Petroleum Weed Management Officer in consideration of monitoring results and emerging weed issues for both gas and pastoral operations.

This role should have oversight from the Environment Manager to ensure weed management activities are aligned with the overall environmental management framework for the project, and support from the Project Director to ensure all staff and contractors work in accordance with the WMP.

This section should include the job title and contact details for the dedicated weed officer.

4. Weed introduction and spread risks

Identify weed introduction and spread risks for each stage of the project and mitigation measures across the permit or licence area.

For example:

Project stage	Risk		Mitigation measures
	Introduction of new weeds	Spread of existing weeds	
Exploration	Machinery and equipment sourced from other locations infested with weed species not found in or around the Exploration Permit (EP) area.	Traversing of weed infested areas with machinery.	Machinery sourced from properties within the EP area where possible. Machinery wash/blow down plans agreed with land owner / manager and implemented.
	Personnel unable to identify weeds or unaware of weed species present in areas where machinery and equipment is sourced from.	Existing weed distribution not known due to: insufficient survey effort, survey effort conducted at wrong time of year, persons undertaking survey not familiar with/unable to identify declared weed species.	

Where possible, mitigation measures that have the highest potential to eliminate the risk should be identified, and when a less effective mitigation measure must be used, justification as to why should be provided.

Risk example	Risk mitigation measure		
	Preferred option 1	Preferred option 2	Least preferred option
Machinery contamination	Machinery is sourced locally and is only operated in local area.	Machinery is sourced from the surrounding area.	Machinery is sourced from Queensland.

Where appropriate, detail or standard operating procedures about the mitigation measures should be provided. For example, for wash and blow down; how the machinery is washed or blown down, how are these locations documented and reported and what the inspection process is.

5. Weed species information

Identification of declared species (and their declaration status) that:

- are present on the EP area (via desktop data query, discussion with landowner / manager, aerial and on-ground survey)
- have potential for introduction/spread onto the EP area either due to:
  - known occurrences on corridors that pass through the EP area
  - known occurrences within a set distance to the EP area
  - likely occurrences in places where machinery, equipment, vehicles, personnel or other will be sourced from
  - likely occurrence in extractive proppant material (e.g. sand).

Table header rows. For example.

Scientific name	**Common name**	**Declaration**	**Where located** (e.g. on EP, machinery source location, extractive proppant/s, corridors)

Include a weed survey map that demonstrates:

- Survey effort – aerial survey and on-ground survey tracks. Indicate the distance from the survey track that was reliably surveyed. This will vary based on survey method and terrain/landscape type. For example, visibility for an aerial survey over open country might be up to 100m either side of the flight path, visibility from a vehicle might be 10m in closed woodland and up to 50m on open plains.
- Data recorded – location and species of declared weeds found.

Include and refer to distribution maps for any species that are considered a high priority in the region. Regional weed management plans are available for each region which identify the highest priority species in the area and alert weed species. Alert weed species are those that are not yet found in the region that have a high potential for impact should they be introduced.

Copies of the regional weed management plans can be found online at https://nt.gov.au/environment/weeds/weeds-in-the-nt/weed-management-in-your-region.

5.1. Statutory Weed Management Plans

It is important to identify which of the weeds in the table above are subject to statutory weed management plans. These plans include specific information about management requirements that must be considered.

Copies of the statutory weed management plans can be found online at: https://nt.gov.au/environment/weeds/weed-management-planning.

6. Annual action plan

In this section detail planned survey and control activities to be conducted throughout the year. It is important that activities are planned in a manner that will ensure statutory requirements with relation to declaration status and the relevant weed management plans are addressed.

It is beneficial to present this information in a format that can be easily understood by contractors should the intention be to outsource this component of the work.

If the weed issues in the EP area are complex, the area should be broken down into 'weed management areas'. These areas should be named and displayed on a map.

Example annual action plan:

Weed Management Area	Weed species	Management objective	Survey time/s	Treatment time/s	Control method/s	Herbicide
Well pad 1	Mimosa (*Mimosa pigra*)	Eradication	Quarterly	Quarterly	Basal bark	Fluroxypyr
	Grader grass	No spread	Throughout wet season. Event 1 – post first rains Event 2 – as soon as practicable	Immediately upon identification	Fence area. Spray with residual herbicide	Sulfometuron
	Hyptis	No spread	End of wet season	End of wet season	Foliar spray	Metsulfuron methyl
Snappy gum access track						

Refer to the *NT Weed Management Handbook* for herbicide mixing rates.

7. Monitoring

This section should outline how monitoring of management efforts and ongoing survey for new incursions will be implemented.

How monitoring and survey activities are conducted will be largely determined by the weed species identified in section 5. For example, perennial woody weed species, such as prickly acacia (*Vachellia nilotica*) which take more than one year to mature and have an annual seeding cycle, may only require one monitoring event (at least six weeks post control) per year. Conversely, annual grassy weeds such as grader grass (*Themeda quadrivalvis*), which have a short time frame to maturity may require multiple monitoring and survey events throughout the wet season.

8. Notification procedure

It is expected that a commitment to a 48 hour notification timeframe upon discovery of a new weed species in the project area is incorporated into company policy, planning and procedure.

Initial notification may be verbal, with follow-up written notification provided within seven working days.

The notification should include a preliminary species identification and location.

All new weed incursions should be reported, regardless of the source they may be attributable to.

9. Recording

All data weed management, monitoring and survey activities should be recorded in accordance with the NT Weed Data Collection Manual. The manual can be accessed online via https://nt.gov.au/environment/weeds/weed-mapping-and-data-sharing

The WMP should identify the method that will be used to capture the data, any data collection training requirements for environmental staff involved and the procedure for submitting data to the Weed Management Branch.

10. Reporting

With the exception of ‘notifications’, reporting against the WMP is to be submitted annually as a component of environmental reporting requirements.

At a minimum, this should include:

a) details of activities implemented to address weed spread and introduction risks (e.g. vehicle wash down / blow down locations, examples of track construction from working from weed free areas into weed infested areas to reduce spread)

b) submission of all weed data collected

c) details of survey and monitoring events, including dates, personnel, maps and track data (see 5. Weed species information) and

d) overview of weed control events and success rates (weed control should be captured in detail through the data collection process and submitted as a component of (a)).

The annual report will be subject to review by the NT Government’s Onshore Petroleum Weed Management Officer.