



KATHERINE TREE MAINTENANCE PTY LTD
(ACN: 108 347 691) (ABN: 61 108 347 691)
trading as
**NORTHERN WASTE REDUCTION
SERVICES**

EPL # 326-1

EPL # 369



ENVIRONMENTAL RISK ASSESSMENT AND MANAGEMENT PLAN

Introduction

An environmental risk assessment has been undertaken in accordance with Australian and New Zealand Risk Management Standard AS/NZS ISO 3100:2009 for all environmental aspects considered relevant to the proposed development. This is based on the data and information gathered during the planning stages of the assessment, which has been presented in this document

The risk assessment systematically qualifies and quantifies the potential environmental impacts and applies impact mitigation measures to ensure all potential impacts are minimized to an acceptable level.

Only those aspects of the environment that are considered relevant have been included in this risk assessment (i.e. aspects of the environment where there is potential for impact).

The potential significance of an impact is based on the likelihood and consequence of the impact to that aspect of the environment. The definitions used to determine likelihood are shown in **Table 1**. The definitions used to determine the consequence of an impact to environmental aspects are shown in **Table 2**. Following the assessment of likelihood and consequence of the impact, the level of threat can be determined by the matrix shown in **Table 3**.

Table 1 Impact Likelihood Definitions

1	Rare	The outcome is not expected to occur; no record of occurring but not impossible; may occur in exceptional circumstances
2	Unlikely	The outcome will only occur in a few circumstances; uncommon but known to occur elsewhere
3	Possible	The outcome may occur; some evidence to support it will happen
4	Likely	The outcome will occur in most circumstances
5	Almost certain	The outcome is expected to occur

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Table 2 Impact Consequence Definitions for Relevant Environmental Aspects

Aspect	Consequence				
	Insignificant	Minor	Moderate	Major	Critical
General Biodiversity	Negligible effect	Small to medium scale native vegetation / habitat loss; habitat fragmented	Medium to large scale native vegetation loss / habitat fragmented.	Significant impact. Recovery measured in years to decades.	Severe impacts; recovery period decades
Water Quality	Negligible effect	Temporary low-level effect on water quality	Sustained impact on sensitive environmental features	Significant impact. Recovery measured in years to decades.	Extensive off-site contamination; sustained damage to the environment; remediation not possible.
Air Quality	Impacts below detectable levels	Impacts within allowable limits	Temporary impact on local air quality exceeds allowable limit	Significant remediation works required	Long-term damage to local or regional air quality
Social	Very few people indirectly affected, insignificant concern	Very few people directly affected, some concern	Several people directly affected	Large number of people directly affected. significant concern	Long-lasting health or social effects

Table 3 Level of Threat Matrix

Likelihood	Consequence				
	Insignificant	Minor	Moderate	Major	Critical
Almost Certain	Low	Medium	High	Severe	Severe
Likely	Low	Medium	Medium	High	Severe
Possible	Low	Low	Medium	High	Severe
Unlikely	Low	Low	Low	Medium	High
Rare	Low	Low	Low	Medium	High

Risk Assessment

Table 4 contains the Environmental Risk Assessment and associated impact mitigation measures required to reduce risks to acceptable levels. Key risks have been identified as (i.e. those with an inherent risk rating of 'Medium' or higher):

- Contamination of soils and surface waters from water used for firefighting purposes in the event of a tyre fire;
- Dust from trucks driving on the site;
- Toxic smoke from tyre fire affecting air quality;
- Increased noise levels from increased traffic to and from the site; and
- Fire spreading to neighbouring properties and causing air, water and soil pollution.

Table 4 Environmental Risk Assessment and associated impact mitigation measures (shaded rows indicate potential risks from both the site-based and mobile operation; unshaded risks are from the Katherine site only)

1 - With no impact mitigation measures in place						2 - Following the application of appropriate impact mitigation measures			
Serial	Environmental Aspect	Identified Risk	1			Impact Mitigation Measures	2		
			Likelihood	Consequence	Rating		Likelihood	Consequence	Rating
1	Waterways	Contamination of surface waters from water used for firefighting purposes in the event of a tyre fire (in the tyre stockpiles on the site)	Possible	Moderate	Medium	- Stockpiles are separated from each other, and from the boundary of the site in accordance with NT Fire & Rescue regulations. - Ensure that stockpiles are located on flat and level parts of the site.	Rare	Minor	Low
2		Contamination of surface waters from oil, fuel and lubricant spills	Unlikely	Moderate	Low	- Regular inspection and maintenance of all machinery, plant and vehicles. - Trucks to be driven appropriate to weather conditions and stick to enforced speed limits on site (to prevent accidents). - Used oils and lubricants to be disposed of appropriately through licensed site.	Rare	Moderate	Low

1 - With no impact mitigation measures in place						2 - Following the application of appropriate impact mitigation measures			
Serial	Environmental Aspect	Identified Risk	1			Impact Mitigation Measures	2		
			Likelihood	Consequence	Rating		Likelihood	Consequence	Rating
3	Air Quality	Dust from trucks entering and exiting the site (particularly during the dry season when prevailing winds are from the south or north and northeast)	Likely	Minor	Medium	- When necessary hardstand and road watering will be conducted to minimise dust - Enforce 5 km/hr speed limits on the site to reduce dust.	Possible	Minor	Low
4		Exhaust emissions from plant, equipment and vehicles	Possible	Minor	Low	- Maintain appropriate servicing of plant, equipment and vehicles. - Enforce 5 km/hr speed limits on the site to reduce dust.	Possible	Minor	Low
5		Toxic smoke from tyre fire affecting air quality	Unlikely	Moderate	Medium	Current proposal is that two storage cells will be created using concrete block to act as walls .	Rare	Minor	Low

1 - With no impact mitigation measures in place						2 - Following the application of appropriate impact mitigation measures			
Serial	Environmental Aspect	Identified Risk	1			Impact Mitigation Measures	2		
			Likelihood	Consequence	Rating		Likelihood	Consequence	Rating
6	Noise	Increase noise levels from increased traffic to and from site (engine noise, exhaust brakes and reversing alarms from trucks resulting in disturbance to neighbouring residents)	Possible	Moderate	Medium	- Avoid driving trucks before 7 am and after 5 pm on Monday to Friday. - Enforce 5 km/hr speed limit of trucks driving on the site. - All trucks to be fitted with efficient exhaust mufflers. - Regular maintenance of vehicles.	Possible	Minor	Low

7	Fire	Fire spreading to neighbouring properties, and causing air, water and soil pollution	Possible	Major	High	• Execute the Emergency Fire Response Plan in the event of a fire emergency. • Tyres will not be stockpiled long term • Maintain a fire break (minimum 4 m wide). • Maintain a minimum distance of 10 m between the tyre stockpiles, and between any stockpile and the boundary of the site. • Maintain a water access point and fire fighting equipment. • Maintain fire extinguishers on all vehicles and shredder. • Keep vegetation within site boundary to a minimum. • Maintain regular surveillance of fires / smoke of the site, neighbouring properties and the local area. • Yard maintenance equipment (e.g. lawn mowers, whipper snippers) will not be used on the site on days of total fire ban. • Designated smoking areas on site will be established. These areas will be in areas away from any vegetation or flammable materials. • Regular inspection and maintenance of all on site machinery, plant and vehicles.	Rare	Moderate	Low
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1 - With no impact mitigation measures in place						2 - Following the application of appropriate impact mitigation measures			
Serial	Environmental Aspect	Identified Risk	1			Impact Mitigation Measures	2		
			Likelihood	Consequence	Rating		Likelihood	Consequence	Rating
8	Soils	Contamination of soils from oil, fuel and lubricant spills	Unlikely	Moderate	Low	- Regular inspection and maintenance of all machinery, plant and vehicles. - Trucks to be driven appropriate to weather conditions and stick to enforced speed limits on site (to prevent accidents).	Rare	Moderate	Low
9		Contamination of soils from water used for firefighting purposes in the event of a tyre fire (in the tyre stockpiles on the site)	Possible	Moderate	Medium	- Stockpiles are separated from each other, and from the boundary of the site, by not less than 10 m at any point. - Contaminated soil, resulting from a tyre fire, will be excavated and appropriately disposed of or remediated on site with approval and consultation from the NT EPA.	Rare	Minor	Low
10		Leaching of tyre chemicals and heavy metals	Possible	Minor	Low	Regular removal of tyres so that tyres are not left in stockpiles for long periods.	Unlikely	Minor	Low
11		Rubbish / waste contaminating soils	Possible	Minor	Low	- Only used tyres will be accepted to the facility (no other waste/rubbish) - Maintain the site in a neat and tidy fashion.	Possible	Minor	Low

1 - With no impact mitigation measures in place						2 - Following the application of appropriate impact mitigation measures			
Serial	Environmental Aspect	Identified Risk	1			Impact Mitigation Measures	2		
			Likelihood	Consequence	Rating		Likelihood	Consequence	Rating
12	Climate change	Greenhouse gas emissions	Almost certain	Insignificant	Low	All plant and vehicles will be turned off when not in use.	Almost certain	Insignificant	Low
13	Mosquitoes	Creating breeding sites for mosquitoes causing local social and environmental issues	Possible	Minor	Low	Regular removal of tyres so that tyres are not left in stockpiles for long periods.	Possible	Minor	Low

Key Risks

Key risks associated with the operation are noted as those identified in the risk assessment (**Table 4**) as having a risk rating of 'medium' or higher. It is expected that, through the implementation of the mitigation measures listed in **Table 4**, the risk ratings are each reduced to 'low'. The following sections provide contextual information of these risks.

NOISE

New noise sources may be from:

- Engines, exhaust brakes and reversing alarms from trucks, loaders and other machinery associated with the proposed operation; and

The estimated vehicle movements generated by the proposed operation is summarized in **Table 5**. The operation will generate a potential maximum of approximately 1300 movements in and out of the site each year at anticipated maximum production and provided there is no down time (which is unlikely).

Employees (in maximum two vehicles) will enter the site at approximately 7.00 am and depart at approximately 5 pm, one will be two days a week and the other once per week.

Table 5: Estimated maximum vehicle movements.

Transport Type	Visits	Movements (2 x visits)
Collection of used tyres from customers by NRWS	2 per week (104 per year)	4 per week (208 per year)
Trucks transporting used tyres off site	1 per week (52 per year)	2 per week (104 per year)
Plant and equipment maintenance and refueling vehicles	1 per fortnight (26 per year)	2 per fortnight (52 per year)
Private vehicles from employees	12 per week (624 per year)	18 per week (936 per year)
Total	800 per year	1300 per year

FIRES AND ASSOCIATED AIR QUALITY, WATER WAY AND SOIL IMPACTS

Tyres stored on site could burn if set alight, releasing toxic smoke into the air. The most likely causes of a tyre fire are:

- If the tyres are deliberately or unintentionally lit by a person;
- By a neighbouring vegetation fire that spreads to the tyre stockpile;
- By a vegetation fire from within the site.

There are no identified ignition sources within 20 metres of the tyre storage area as firebreaks will be maintained between the storage site and property boundaries.

Vegetation fires in the northern parts of the NT are more likely to occur during the dry season (April to October).

The site is within the Northern Fire Protection Zone and therefore must adhere to the requirements of the NT Fire and Rescue Services.

These requirements have been incorporated into the design and maintenance of the site and impact mitigation measures for the operation.

Groundwater is unlikely to be affected by a tyre fire, however localised contamination of the surface soils and water from firefighting foams and water may result. Tyres may also release oily compounds when burnt. In the event of a fire, inspection of the localised area will be undertaken. Any contaminated soil, resulting from a tyre fire, will be excavated and appropriately disposed of or remediated on site with approval and consultation from the NT EPA.

The range of impact avoidance and mitigation measures because of a tyre fire are shown in **Table 4**. In addition, an Emergency Fire Response Plan has been developed and includes procedures to be used for fire emergencies. It will be located:

- On the site; and
- In each company vehicle (associated with the tyre transport operations)



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Other Considerations

HAZARDOUS MATERIALS AND CHEMICALS

No hazardous materials or chemicals will be used or stored on the site, except for a small amount of oils and lubricants required for minor maintenance for plant and equipment.

If any used tyres sourced from providers are contaminated with any possible hazardous substance or chemicals, NWRS will refuse collection.

Fueling or maintenance of vehicles associated with the operation is not anticipated to be carried out within the site.

5.3 Employee Inductions and Training

Employee inductions will be conducted for all staff. The inductions will include the impact mitigation measures contained within **Table 4** as well as the fire safety and emergency procedures contained in the Emergency Fire Response Plan). If considered necessary, Safe Work Procedures may also need to be developed for staff.

Annual training for all staff will also be undertaken for the Emergency Fire Response Plan.

5.4 Site Rehabilitation

The activities involved with the operation, including the storage of used tyres on the site, is not expected to have any long-term impact on the site. The site should be able to be utilised for appropriate alternative uses should the operation cease.

If the event of a tyre fire and there is soil contamination, NWRS will undertake necessary soil sampling and remediation activities if required by the NT EPA.