Decision Report

Application for Licence

Division 3, Part V *Environmental Protection Act 1986*

Licence Number	L9178/2018/1
Applicant	Hancock Prospecting Pty Ltd
ACN	008 676 417
File Number	DER2018/000834
Premises	Mulga Downs Exploration Camp Landfill Part of R47/12 within E656287 N7559031, E656339 N7556031, E656287 N7555959, E656339 N7555959 MULGA DOWNS WA 6751
Date of Report	16 January 2019

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1. Definitions of terms and acronyms

In this Decision Report, the terms in Table 1 have the meanings defined.

Table 1: Definitions

Term	Definition
AACR	Annual Audit Compliance Report
ACN	Australian Company Number
AER	Annual Environment Report
Category/ Categories/ Cat.	Categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
Decision Report	refers to this document.
Delegated Officer	an officer under section 20 of the EP Act.
Department	means the department established under section 35 of the *Public Sector Management Act 1994* and designated as responsible for the administration of Part V, Division 3 of the EP Act.
DWER	Department of Water and Environmental Regulation
EPA	Environmental Protection Authority
EP Act	*Environmental Protection Act 1986* (WA)
EP Regulations	*Environmental Protection Regulations 1987* (WA)
Licence Holder	Hancock Prospecting Pty Ltd
m^3	cubic metres
Minister	the Minister responsible for the EP Act and associated regulations
mtpa	million tonnes per annum
Noise Regulations	*Environmental Protection (Noise) Regulations 1997* (WA)
Occupier	has the same meaning given to that term under the EP Act.
Prescribed Premises	has the same meaning given to that term under the EP Act.
Premises	refers to the premises to which this Decision Report applies, as specified at the front of this Decision Report
Primary Activities	as defined in Schedule 2 of the Revised Licence
Risk Event	As described in *Guidance Statement: Risk Assessment*
UDR	*Environmental Protection (Unauthorised Discharges) Regulations 2004* (WA)

2. Purpose and scope of assessment

An application for a licence (the Application) was received on 15 October 2018 from Hancock Prospecting Pty Ltd (the Applicant) for a putrescible landfill located approximately 1km north-west of the Mulgas Downs exploration camp (Figure1) on tenement R47/1244 located on the Mulga Downs Pastoral Station.

This Decision Report presents and assessment of potential environmental and public health risks from emissions and discharges associated with the operation of the Premises.

2.1 Application details

The Application was received on 15 October 2018 from the Applicant for Prescribed Premises Category 89 to operate a putrescible landfill to cater for the domestic putrescible waste that will be produced by up to 28 personnel accommodated at the Mulga Down's exploration camp. The maximum capacity of the landfill will be about 50 tonnes per year.

Table 2 lists the documents submitted during the assessment process.

Table 2: Documents and information submitted during the assessment process

Document/information description	Date received
Works Approval Compliance report	25 October 2018
Licence application form and associated attachments	15 October 2018

3. Background

The Applicant originally operated the landfill under L8661/2012/1, which was granted in September 2012, until the beginning of 2015 when the Mulga Downs Exploration Camp (MDEC) was placed into care and maintenance.

Works approval W6152/2018/1 was granted on 12 September 2018 to reopen the landfill and ready it for operation. The Applicant will be reinstating the MDEC so exploration of the area can recommence. A landfill is now required to accept the domestic waste produced by the personnel onsite. Up to 28 people will be accommodated at the camp and it is expected that a maximum of 50 tonnes per year of waste will be generated. It is expected that the landfill will operate for a period of 5 years.

Table 3 lists the prescribed premises categories that have been applied for.

Table 3: Prescribed Premises Categories in the Existing Licence

Classification of Premises	Description	Approved Premises production or design capacity or throughput
Category 89	**Putrescible landfill site:** premises on which waste (as determined by reference to the waste type set out in the document entitled "Landfill Waste Classification and Waste Definitions 1996" published by the Chief Executive Officer, as amended from time to time) is accepted for burial.	50 tonnes per annual period

4. Overview of Premises

4.1 Operational aspects

The landfill will consist of four trenches, with only one trench being operational at any given time. The trenches will be 40m long by 2m wide with a depth of 2.5m. The active tipping area will be approximately 30m wide and cover material will be sourced from excavation of the trenches.

Fencing around the landfill already exists and was constructed under the previously held works approval. Fencing consists of 1.8m high cyclone fencing which will be approximately 4m away from the proposed trenches. Signage is already in place, designating specific operational areas within the landfill i.e. tipping area, cover storage etc.

Stormwater will be diverted away from the trenches via an existing bund located outside the fence line. Each trench when open will have bunded sides to reduce the volume of surface water runoff entering the trench. Any stormwater that comes in contact with waste will be retained within the trench or diverted to a sump located along the lowest boundary edge if required.

To manage fire an existing 6m fire break is located outside the landfill fence as well as two multipurpose fire extinguishers which are permanently located at the landfill premises. A trailer mounted 1000 litre firefighting pod is also on standby at the MDEC (1.5kms away) at all times.

The Applicant has committed to the following management measures during operation of the landfill:

- The 30m long tipping area will be covered once a month;
- The cover material will be dense, inert and incombustible material;
- There will be enough cover material at any time stored and readily available on the site for the active tipping area of the site to be covered at least twice; and
- The landfill will be inspected at least once a month for windblown waste, with any such waste being returned to the tipping area of the site.

The Applicant proposes to introduce waste minimization schemes to reduce the volume of materials going to the landfill. Waste volumes and types being disposed of at the landfill will also be recorded in a log book, which will be kept on-site.

4.2 Infrastructure

The Mulga Downs Landfill Facility infrastructure, as it relates to Category 89 activities, is detailed in Table 4 and with reference to the Site Plan (Figure 1).

Table 4 lists infrastructure associated with each prescribed premises category.

Table 4: Mulga Downs landfill facility Category 89 infrastructure

	Infrastructure	Site Plan Reference
1	Landfill trench- 40m long, 2m wide and 2.5m deep.	Trench
2	Stormwater bund around trench	-
3	1.8m high cyclone fence	-

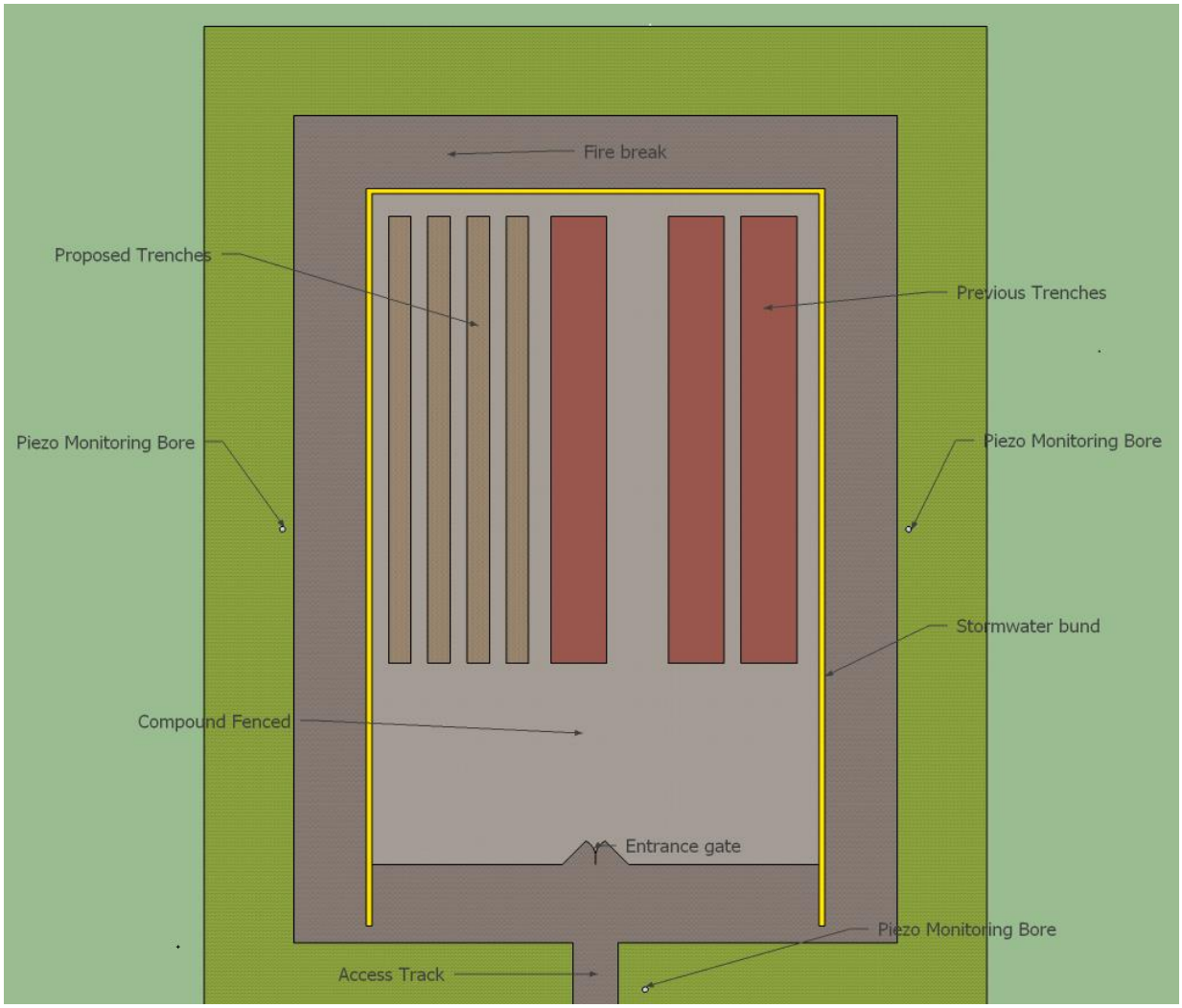

Figure 1: Site layout

5. Legislative context

Table 5 summarises approvals relevant to the assessment.

Table 5: Relevant approvals and tenure

Legislation	Number	Approval
Mining Act 1978	R47/12	Retention licence to explore for iron in accordance with Section 111 of the *Mining Act 1978*

5.1 Part IV of the EP Act

The proposal was not referred to DWER -Environmental Protection Division as it was not deemed to be a 'significant proposal' by the applicant.

5.2 Contaminated sites

R47/12 is not listed on DWER's contaminated sites database.

5.3 Part V of the EP Act

5.3.1 Applicable regulations, standards and guidelines

The overarching legislative framework of this assessment is the EP Act and EP Regulations.

The guidance statements which inform this assessment are:

- *Guidance Statement: Regulatory Principles (July 2015);*
- *Guidance Statement: Setting Conditions (October 2015);*
- *Guidance Statement: Decision Making (February 2017);*
- *Guidance Statement: Risk Assessments (February 2017);* and
- *Guidance Statement: Environmental Siting (November 2016).*

The applicable regulations include:

- *Environmental Protection (Noise) Regulations 1997;* and
- *Environmental Protection (Unauthorised Discharges) Regulations 2004.*

The landfill site will be licensed and not registered for operation as it does not comply with Regulation 9 of the *Environmental Protection (Rural Landfill) Regulations 2002* (Rural Landfill Regulations):

> *Unless otherwise approved in writing, the occupier of a landfill site must ensure that there is no waste within –*
>
> *(a) 35 metres from the fence surrounding the site;*
> *(b) 100 metres of any surface water body at the site; or*
> *(c) 3 metres of the highest level of the water table aquifer at the site.*

The distance to the fencing around the landfill will be located approximately 4m away from the waste. The distance to the nearest surface water body is approximately 94m away from the landfill trenches. These design and location issues have been assessed in Table 14.

5.3.2 Works approval and licence history

Table 6 summarises the works approval and licence history for the premises.

Table 6: Works approval and licence history

Instrument	Issued	Nature and extent of works approval, licence or amendment
W5185/2012/1	19/07/2012	Works approval for the construction of a new landfill Category 89 with an expected throughput of less than 50 tonnes per year.
L8661/2012/1	13/09/2012	Licence to operate a Category 89 landfill to service the Mulga Downs Exploration camp.
L8661/2012/2	10/09/2015	Renewal of licence to operate a Category 89 landfill to service the Mulga Downs Exploration camp. Licence was surrended in 2016 when camp went into care and maintenance.
W6152/2018/1	12/9/2018	Works approval for the construction / reestablish a Category 89 landfill with an expected throughput of less than 50 tonnes per year.
L9178/2018/1	16/1/2019	New Licence to allow operation of the landfill.

5.3.3 Key and recent works approvals

Works Approval W6152 was issued to Hancock Prospecting on 12 September 2018. The Works Approval holder was required to construct trenches 40m long by 2m wide and 2.5m deep as specified in the site layout map and construct a stormwater surrounding the trenches. The Works Approval Holder submitted a report with photos of the trenches and bunds and advised they have completed the works as per works approval W6152.

5.3.4 Compliance inspections and compliance history

A compliance inspection was undertaken on 29 May 2014 at the Premises when it was licenced under the previous licence L866/2012/1. The inspection found that no conditions were found to be non-compliant or non-determined (DWER, 2012).

5.3.5 Clearing

The landfill area is approximately 0.24ha in total. The area has already been cleared prior to the issuing of the previous works approval. No further clearing is required.

6. Consultation

The Application was advertised in the West Australian newspaper and on the DWER website on 26 November 2018. The Works Approval Application was also referred to the Shire of Ashburton on 3 July 2018. No comments have been received.

7. Location and siting

7.1 Siting context

The premises are located with exploration tenement R47/12 located on the Mulga Downs Pastoral Station within the Shire of Ashburton. The landfill is approximately 35km south-east of the town of Wittenoom and is approximately 1km north-west of the Mulga Downs accommodation camp (Figure 2).

7.2 Residential and sensitive Premises

Figure 2 show the location of the Landfill in relation to the nearest residential receptors

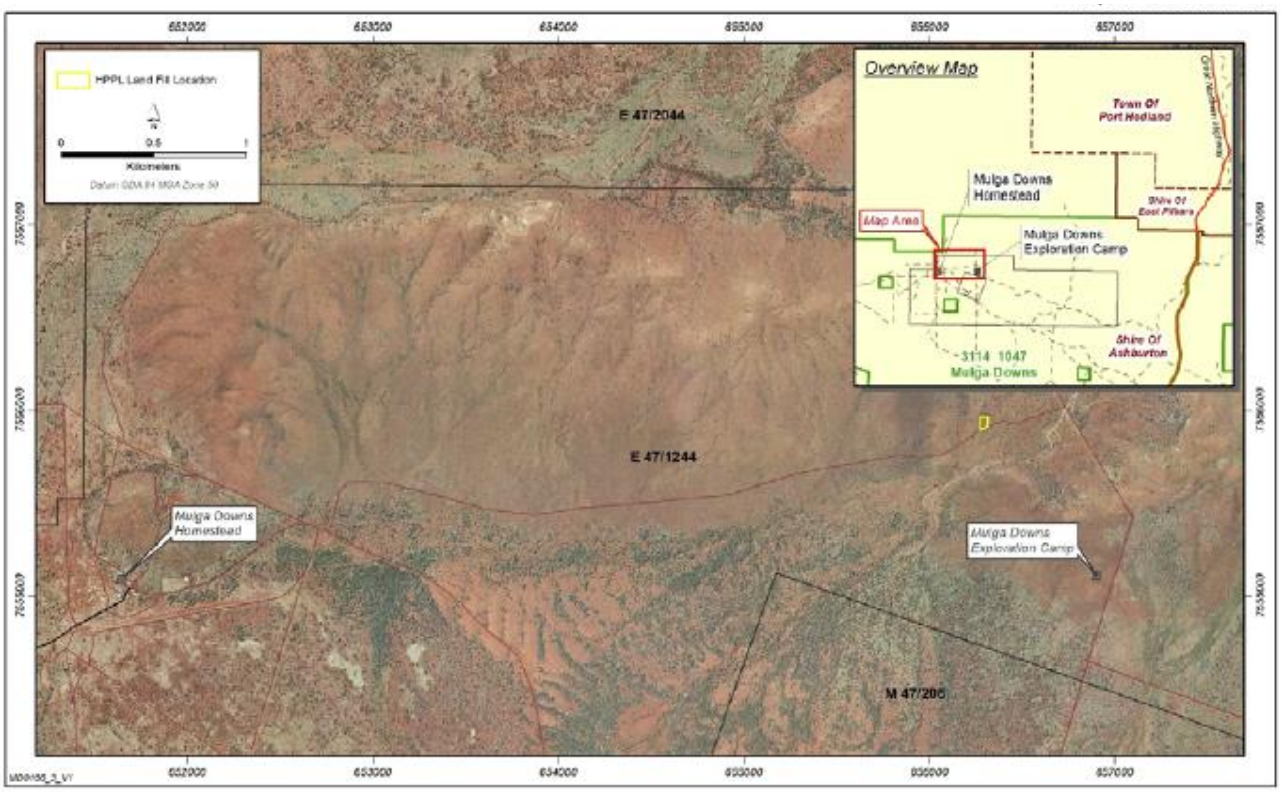

Figure 2: Location of landfill (yellow outline)

The distances to residential and sensitive receptors are detailed in Table 7.

Table 7: Receptors and distance from activity boundary

Sensitive Land Uses	Distance from Prescribed Activity
Mulga Downs Pastoral Station Homestead	Approximately 4.5km west of the landfill
Mulga Downs Exploration Camp	Approximately 1km south east of the landfill (not considered a sensitive receptor)

7.3 Specified ecosystems

Specified ecosystems are areas of high conservation value and special significance that may be impacted as a result of activities at or Emissions and Discharges from the Premises. The distances to specified ecosystems are shown in Table 8. Table 8 also identifies the distances to other relevant ecosystem values which do not fit the definition of a specified ecosystem.

The table has also been modified to align with the *Guidance Statement: Environmental Siting.*

Table 8: Environmental values

Specified ecosystems	**Distance from the Premises**
Ramsar Sites in Western Australia	None within 2 km of the Premises
Geomorphic Wetlands	None within 2 km of the Premises
Parks and Wildlife Managed Lands and Waters	None within 2 km of the Premises
Threatened Ecological Communities and Priority Ecological Communities	None within 2 km of the Premises
Biological component	**Distance from the Premises**
Threatened/Priority Flora	None within a 5 km radius
Threatened/Priority Fauna	None within a 5 km radius

7.4 Groundwater and water sources

The distances to groundwater and water sources are shown in Table 9.

Table 9: Groundwater and water sources

Groundwater and water sources	**Distance from Premises**	**Environmental value**
watercourses	Approximately 390 m from the premises boundary (Yumbilly Creek) Minor drainage line (only flows during rainfall events) is approximately 94m to the west of the premises boundary.	Yumbilly Creek (minor water course) is located approximately 390 m east from the premises boundary. It is an ephemeral creek.
Groundwater	Data from three existing groundwater bores on the proposed premises indicated depth to groundwater to be approximately 12-14 meters below ground level (mbgl).	Water is used for potable and industrial use.

7.5 Meteorology

The area is characterised by a semi-arid climate, influenced by summer rainfall events and a prolonged winter dry season. The average annual rainfall in the area is 459.2 mm with 63% falling during the wet season months (December to April). Average daily maximum temperatures range from 24.2 ºC in winter to 37.7 ºC in summer. Whether data is from the Bureau of Meteorology (BOM) for the town of Wittenoom located approximately 35km south-east of the proposed Premises.

8. Risk assessment

8.1 Determination of emission, pathway and receptor

In undertaking its risk assessment, DWER will identify all potential emissions pathways and potential receptors to establish whether there is a Risk Event which requires detailed risk assessment.

To establish a Risk Event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission. Where there is no actual or likely pathway and/or no receptor, the emission will be screened out and will not be considered as a Risk Event. In addition, where an emission has an actual or likely pathway and a receptor which may be adversely impacted, but that emission is regulated through other mechanisms such as Part IV of the EP Act, that emission will not be risk assessed further and will be screened out through Table 10.

The identification of the sources, pathways and receptors to determine Risk Events are set out in Table 10.

Table 10: Identification of emissions, pathway and receptors during operation

Risk Events						Continue to detailed risk assessment	Reasoning
Sources/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts		
Landfilling operations	Earthmoving activities when waste is covered, dust lift off from cover stockpiles and from vehicle movements on unsealed roads	Dust	Closest sensitive receptor is the Mulga Downs pastoral station approximately 4.5 km to the southwest.	Air / wind dispersion	Amenity impacts	No	Minimal dust is expected to be generated during operation of the landfill. The distance to residential receptors is considered to be too great for dust impacts from operation to occur. The Delegated Officer considers that a pathway for dust emissions does not exist. Any potential dust emissions can be regulated by section 49 of the EP Act.
	Operation of earthmoving equipment and movement of vehicles	Noise					Minimal noise emissions are expected to occur during operation of the landfill. Noise emissions will be intermitted and of short duration (covering events, tipping events) The distance to residential receptors is considered to be too great for noise impacts from operation of the landfill to occur. The Delegated Officer considers that a

Risk Events						Continue to detailed risk assessment	Reasoning
Sources/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts		
							pathway for noise emissions does not exist. The provisions of the *Environmental Protection (Noise) Regulations 1997* are applicable.
	Putrescible waste	Odour	Closest sensitive receptor is the Mulga Downs pastoral station approximately 4.5 km to the southwest.	Air / wind dispersion	Amenity impacts	No	The distance to residential receptors is considered to be too great for odour impacts from operation of the landfill to occur. The Delegated Officer considers that a pathway for odour emissions does not exist.
	Putrescible waste	Windblown waste	Closest sensitive receptor is the Mulga Downs pastoral station approximately 4.5 km to the southwest. Surrounding environment	Air / wind dispersion	Amenity impacts	Yes	See section 8.4
	Putrescible waste	Leachate	Groundwater ~12-14mbgl	Seepage through soil to groundwater	Contamination of groundwater	Yes	See section 8.5
	Surface water drainage contacting putrescible waste	Contaminated stormwater	Yumbilly Creek ~ 390 m east of the landfill Drainage line ~95m to the west of the landfill	Overland flow	Contamination of surface water	Yes	See section 8.6

8.2 Consequence and likelihood of risk events

A risk rating will be determined for risk events in accordance with the risk rating matrix set out in Table 11 below.

Table 11: Risk rating matrix

Likelihood	Consequence				
	Slight	Minor	Moderate	Major	Severe
Almost certain	Medium	High	High	Extreme	Extreme
Likely	Medium	Medium	High	High	Extreme
Possible	Low	Medium	Medium	High	Extreme
Unlikely	Low	Medium	Medium	Medium	High
Rare	Low	Low	Medium	Medium	High

DWER will undertake an assessment of the consequence and likelihood of the Risk Event in accordance with Table 12 below.

Table 12: Risk criteria table

Likelihood		**Consequence**		
The following criteria has been used to determine the likelihood of the Risk Event occurring.		**The following criteria has been used to determine the consequences of a Risk Event occurring:**		
			Environment	**Public health* and amenity (such as air and water quality, noise, and odour)**
Almost Certain	The risk event is expected to occur in most circumstances	Severe	• **onsite impacts**: catastrophic • **offsite impacts local scale**: high level or above • **offsite impacts wider scale:** mid-level or above • Mid to long-term or permanent impact to an area of high conservation value or special significance^ • Specific Consequence Criteria (for environment) are significantly exceeded	• Loss of life • **Adverse health effects:** high level or ongoing medical treatment • Specific Consequence Criteria (for public health) are significantly exceeded • **Local scale impacts:** permanent loss of amenity
Likely	The risk event will probably occur in most circumstances	Major	• **onsite impacts**: high level • **offsite impacts local scale**: mid-level • **offsite impacts wider scale**: low level • Short-term impact to an area of high conservation value or special significance^ • Specific Consequence Criteria (for environment) are exceeded	• **Adverse health effects:** mid-level or frequent medical treatment • Specific Consequence Criteria (for public health) are exceeded • **Local scale impacts**: high level impact to amenity
Possible	The risk event could occur at some time	Moderate	• **onsite impacts**: mid-level • **offsite impacts local scale**: low level • **offsite impacts wider scale**: minimal • Specific Consequence Criteria (for environment) are at risk of not being met	• **Adverse health effects:** low level or occasional medical treatment • Specific Consequence Criteria (for public health) are at risk of not being met • **Local scale impacts:** mid-level impact to amenity
Unlikely	The risk event will probably not occur in most circumstances	Minor	• **onsite impacts**: low level • **offsite impacts local scale**: minimal • **offsite impacts wider scale**: not detectable • Specific Consequence Criteria (for environment) likely to be met	• Specific Consequence Criteria (for public health) are likely to be met • **Local scale impacts:** low level impact to amenity
Rare	The risk event may only occur in exceptional circumstances	Slight	• **onsite impact**: minimal • Specific Consequence Criteria (for environment) met	• **Local scale**: minimal to amenity • Specific Consequence Criteria (for public health) met

^ Determination of areas of high conservation value or special significance should be informed by the *Guidance Statement: Environmental Siting.*

* In applying public health criteria, DWER may have regard to the Department of Health's *Health Risk Assessment (Scoping) Guidelines.*

"onsite**"** means within the Prescribed Premises boundary.

8.3 Acceptability and treatment of Risk Event

DWER will determine the acceptability and treatment of Risk Events in accordance with the Risk treatment Table 13 below:

Table 13: Risk treatment table

Rating of Risk Event	Acceptability	Treatment
Extreme	Unacceptable.	Risk Event will not be tolerated. DWER may refuse application.
High	May be acceptable. Subject to multiple regulatory controls.	Risk Event may be tolerated and may be subject to multiple regulatory controls. This may include both outcome-based and management conditions.
Medium	Acceptable, generally subject to regulatory controls.	Risk Event is tolerable and is likely to be subject to some regulatory controls. A preference for outcome-based conditions where practical and appropriate will be applied.
Low	Acceptable, generally not controlled.	Risk Event is acceptable and will generally not be subject to regulatory controls.

8.4 Risk Assessment – Windblown waste

8.4.1 Description of windblown waste

Windblown waste from the landfilling of putrescible waste may be spread over a wide area by wind movement impacting public amenity and potentially altering local ecosystems.

8.4.2 Identification and general characterisation of emission

Litter from landfilling putrescible waste, especially light items such as paper, plastic film and plastic bags can be spread over a wide area by wind movement. The rate of litter borne from landfilling activities will be dependent on the waste type, ambient weather and efficiency of litter prevention activities onsite.

8.4.3 Description of potential adverse impact from the emission

Litter can result in potential nuisance impacts including degradation to the aesthetic value of the local area as well as potential alteration to local ecosystems.

8.4.4 Criteria for assessment

The landfill site will be licensed and not registered for operation as it does not comply with regulation 9 of the *Environmental Protection (Rural Landfill) Regulations 2002.* However the requirements that are set out in the Rural Landfill Regulations that the site does comply with will be used as part of the criteria for assessment.

Regulation 8 of the Rural Landfill Regulations provides:

> *"The occupier of a landfill site must ensure that –*
>
> (a) *waste does not get washed, or blown, outside the site; and*
>
> (b) *waste that has been washed, or blown, away from the tipping area of the site is returned to the tipping area at least once in each month".*

8.4.5 Applicant controls

Windblown waste will be prevented from spreading by the provision of a 1.8m high chain fence around the entire perimeter of the landfill area. Any windblown waste will also be returned to the tipping area at least once a month in accordance with the Rural Landfill Regulations and the sites licence.

8.4.6 Key findings

The Delegated Officer has reviewed the information regarding windblown waste and has found:

1. *The small quantity of waste being landfilled reduces the potential for windblown waste.*
2. *The 1.8 m high fence surrounding the landfill will help prevent windblown waste escaping the landfill area.*
3. *Monthly collection of windblown waste in accordance with the Rural Landfill Regulations and the sites licence will help prevent the spread of waste outside of the landfill area.*

8.4.7 Consequence

Given the small quantity of waste to be landfilled (less than 50 tonnes/year), the Delegated Officer has determined that the impact of litter on sensitive receptors will be minimal with off-site impacts on a local scale. Therefore, the Delegated Officer considers the consequence of litter to be **Slight**.

8.4.8 Likelihood of Risk Event

The Delegated Officer has determined that the likelihood of windblown waste impacting sensitive receptors will probably not occur in most circumstances. Therefore, the Delegated Officer considers the likelihood to be **unlikely.**

8.4.9 Overall rating of odour emissions

The Delegated Officer has compared the consequence and likelihood ratings described above with the risk rating matrix (Table 12) and determined that the overall rating for the risk of windblown waste impacting sensitive receptors during operation is **low.**

8.5 Risk Assessment – Leachate

8.5.1 Description of Leachate emissions

Waste deposited at the Premises has the potential to generate leachate through seepage of stormwater through waste. Leachate may result in contamination of soil, surface water and groundwater.

8.5.2 Identification and general characterisation of emission

Leachate is formed from the infiltration of water (e.g. from rainfall) into the landfill and also from the moisture content of waste itself. It is highly variable in its chemical characteristics and typically exhibits levels of organics and nutrients.

8.5.3 Description of potential adverse impact from the emission

Leachate from landfilled waste may cause contamination of the groundwater from nutrients metals and other toxicants. This may result in reduced quality of extracted groundwater for human uses and impact the survival or growth of stygofauna within the aquifer beneath the site.

The Application states that data from three existing groundwater bores on the proposed premises (installed as part of the previous expired works approval) indicated depth to groundwater to be approximately 12-14 metres below ground level (mbgl). Groundwater quality is fresh to brackish and is used for potable and industrial use. The closes two offsite bores are 2.2km and 3.7km away.

8.5.4 Criteria for assessment

Relevant land and groundwater quality criteria include the ANZECC 2000 Guidelines for Fresh and Marine Water Quality, and the Assessment of Site Contamination National Environmental Protection Measure (ASC NEPM) 1999 (as amended in 2013) for soils and groundwater.

The landfill site will be licensed and not registered for operation as it does not comply with regulation 9 of the *Environmental Protection (Rural Landfill) Regulations 2002.* However the requirements that are set out in the Rural Landfill Regulations that the site does comply with will be used as part of the criteria for assessment for operation under the licence.

Regulation 9 of the Rural Landfill Regulations states:

> *"Unless otherwise approved in writing, the occupier of a landfill site must ensure that there is no waste within –*
>
> *a) 35 metres from the fence surrounding the site;*
>
> *b) 100 metres of any surface water body at the site; or*
>
> *c) 3 metres of the highest level of the water table aquifer at the site."*

8.5.5 Applicant controls

Waste materials that will be disposed of through the new landfill will be general domestic putrescibles waste from the Mulga Downs exploration camp which will house approximately 28 personnel. The Applicant has stated that a waste hierarchy to minimize waste generation will be implemented.

Waste will be covered regularly to prevent exposure of waste to rainfall. Storm water will be diverted away from waste by a bund surrounding the active trench. The landfill site also has a small windrow that acts as the main storm water diversion which sits outside the fence as part of the fire break.

Three groundwater monitoring bores have been installed under the previously expired works approval. The Applicant has stated within their application that the groundwater will be sampled quarterly and a standard suit of water quality parameters will be tested i.e. organic nitrogen and phosphorus, dissolved oxygen, biochemical oxygen demand, total dissolved solids and pH.

8.5.6 Key findings

The Delegated Officer has reviewed the information regarding leachate and has found:

1. *The small volumes of waste to be deposited and the low rainfall patterns in the area present a low likelihood of significant leachate being generated.*
2. *The depth to groundwater beneath the landfill is 12-14 mbgl and therefore it is unlikely that any leachate generated would reach the groundwater.*
3. *The distance to the nearest surface water body is approximately 94 metres. This is less than the 100m required by the rural landfill regulations.*
4. *The controls proposed by the Applicant are likely to be sufficient to manage the potential for leachate generation.*

8.5.7 Consequence

If seepage of leachate through soil to groundwater occurs, then the Delegated Officer has determined that the impact will be low- level onsite and minimal offsite (due to the very small amount of waste to be deposited). Therefore, the Delegated Officer considers the consequence of leachate to be **minor.**

8.5.8 Likelihood of Risk Event

The Delegated Officer has determined that the likelihood of leachate impacting sensitive receptors will probably not occur in most circumstances. Therefore, the Delegated Officer considers the likelihood to be **unlikely.**

8.5.9 Overall rating of odour emissions

The Delegated Officer has compared the consequence and likelihood ratings described above with the risk rating matrix (Table 12) and determined that the overall rating for the risk of leachate impacting sensitive receptors during operation is **medium.**

8.6 Risk Assessment – Contaminated Stormwater

8.6.1 Description of contaminated stormwater

Stormwater may come into contact with waste, causing run-off and overland flow of contaminated stormwater to surface water.

8.6.2 Identification and general characterisation of emission

Putrescible waste will be disposed of at the Premises. Stormwater may become contaminated with nutrients or organic matter if it comes into contact with waste.

8.6.3 Description of potential adverse impact from the emission

Overland flow of stormwater contaminated with waste from the landfill may cause off-site impacts on neighboring ecosystems. Nutrients and suspended solids in contaminated stormwater may cause eutrophication and degradation of nearby surface water.

The nearest surface water feature is a minor drainage line (only flows during rainfall events) which is approximately 94 m to the west of the premises boundary. Yumbilly Creek, a minor watercourse, is also located approximately 390 m east from the premises boundary.

8.6.4 Criteria for assessment

The landfill site will be licensed and not registered for operation as it does not comply with regulation 9 of the *Environmental Protection (Rural Landfill) Regulations 2002.* However the requirements that are set out in the Rural Landfill Regulations that the site does comply with will be used as part of the criteria for assessment.

Regulation 9 of the *Environmental Protection (Rural Landfill) Regulations 2002* states:

> *"Unless otherwise approved in writing, the occupier of a landfill site must ensure that there is no waste within –*
>
> *a) 35 metres from the fence surrounding the site;*
>
> *b) 100 metres of any surface water body at the site; or*
>
> *c) 3 metres of the highest level of the water table aquifer at the site."*

Regulation 10 of the *Environmental Protection (Rural Landfill) Regulations 2002* states:

> *"The occupier of a landfill site must ensure that stormwater on the site is adequately managed so that –*
>
> *a) it is diverted from areas of the site where there is waste; and*
>
> *b) water that has come into contact with waste is to be diverted into a sump on the site, or otherwise retained on the site."*

8.6.5 Applicant controls

Waste materials that will be disposed of through the new landfill will be general domestic putrescibles waste from the Mulga Downs exploration camp which will house approximately 28 personnel. The Applicant has stated that a waste hierarchy to minimize waste generation will be implemented.

Waste will be covered regularly to prevent exposure of waste to rainfall. Storm water will be diverted away from waste by a bund surrounding the active trench. The landfill site also has a small windrow that acts as the main storm water diversion which sits outside the fence as part of the fire break.

8.6.6 Key findings

The Delegated Officer has reviewed the information regarding contaminated stormwater and has found:

1. *The small volumes of waste to be deposited and the low rainfall patterns (and high evaporation rate) in the area present a low likelihood of significant contaminated stormwater being generated.*
2. *When a licence is in place for category 89, the Environmental Protection (Rural landfill Regulations 2002) do not apply, the landfill Regulations have been used as a guide in this assessment.*
3. *The distance to the nearby surface water features is less than the 100m required by the Rural Landfill Regulations. However due to the small amount of waste deposited and the low rainfall patterns in the area it is unlikely that potential contaminated stormwater will reach surface water.*
4. *The controls proposed by the Applicant are likely to be sufficient to manage the potential for contaminated stormwater to be generated.*

8.6.7 Consequence

The Delegated Officer considers the consequence of contaminated storm water on surface water to be **minor**.

8.6.8 Likelihood of Risk Event

The Delegated Officer has determined that the likelihood of contaminated storm water impacting sensitive receptors will probably not occur in most circumstances. Therefore, the Delegated Officer considers the likelihood to be **unlikely.**

8.6.9 Overall rating of contaminated stormwater

The Delegated Officer has compared the consequence and likelihood ratings described above with the risk rating matrix (Table 12) and determined that the overall rating for the risk of contaminated stormwater impacting sensitive receptors during operation is **medium.**

8.7 Summary of acceptability and treatment of Risk Events

A summary of the risk assessment and the acceptability or unacceptability of the risk events set out above, with the appropriate treatment and control, are set out in Table 14 below. Controls are described further in section 9.

Table 14: Risk assessment summary

	Description of Risk Event			**Applicant controls**	**Risk rating**	**Acceptability with controls (conditions on instrument)**
	Emission	**Source**	**Pathway/ Receptor (Impact)**			
1.	Windblown waste (operation)	Waste being landfilled	Wind carrying waste outside boundary of the premises impacting nearby environment	Infrastructure and equipment controls Monthly collection of wind-blown waste	Slight consequence Unlikely likelihood **Low Risk**	Acceptable subject to Applicants controls
2.	Leachate	Waste being landfilled and rain	Soil to groundwater causing contamination to groundwater.	Infrastructure and equipment controls	Minor consequence Unlikely likelihood **Medium Risk**	Acceptable subject to Applicants controls Operational controls regarding operation of infrastructure and restricting volume and type of waste..
3.	Contamination of stormwater	Waste being landfilled and rain	Soil to surface water causing contamination to surface water.	Infrastructure and equipment controls	Minor consequence Unlikely likelihood **Medium Risk**	Acceptable subject to Applicants controls Operational controls regarding operation of infrastructure.

9. Licence controls

The premises is licensed as a prescribed premises under Category 89 - Putrescible landfill site.

The landfill site is licensed and not registered for operation as it does not comply with regulation 9 of the *Environmental Protection (Rural Landfill) Regulations 2002* which states:

> *"Unless otherwise approved in writing, the occupier of a landfill site must ensure that there is no waste within –*
>
> (a) *35 metres from the fence surrounding the site;*
> (b) *100 metres of any surface water body at the site; or*
> (c) *3 metres of the highest level of the water table aquifer at the site*."

The distance to the fencing around the landfill is approximately 4m away from the nearest trench. The distance to the nearest surface water body is also approximately 94m away from the landfill trenches.

The following controls will be imposed as conditions on the Issued Licence to manage the risk of emissions during operation at the Premises.

A summary of regulatory controls determined to be appropriate for the Risk Event is set out in Table 19. The risks are set out in the assessment in section 8 and the controls are detailed in this section. DWER will determine controls having regard to the adequacy of controls proposed by the Applicant. The conditions of the Licence will be set to give effect to the determined regulatory controls.

Table 15: Summary of regulatory controls to be applied

		Controls	
		10.1.1 Infrastructure	10.1.2 Waste Management
Risk Items (section 8)	1. wind-blown waste	●	●
	2. Leachate impacting groundwater	●	●
	3. Contamination of surface water bodies	●	●

9.2 Licence controls

9.2.1 Operational requirements for the landfill

Site Infrastructure	Management controls
Category 89 Landfill	Tipping area not greater than 30 m in width and 2.5 m in depth. Landfill will be covered on a monthly basis with inert material. Regular inspections. Windblown waste will be collected and put back in the landfill on a monthly basis.

9.2.2 Monitoring requirements for the landfill

Waste acceptance criteria (including waste type, quantity limit and specifications), cover requirements and the monitoring of inputs will be applied to the Issued Licence.

9.2.3 Licence reporting

An Annual Audit Compliance Report will be required to be submitted as a condition of the Issued Licence.

10. Applicant's comments

The Applicant was provided with the draft Decision Report and draft issued Licence on 20 December 2018. The Applicant did not provide comments on the draft documents.

11. Conclusion

This assessment of the risks of activities on the Premises has been undertaken with due consideration of a number of factors, including the documents and policies specified in this Decision Report (summarised in Appendix 1).

Based on this assessment, it has been determined that a Licence will be granted subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

Paul Byrnes
Manager, Process Industries
REGULATORY SERVICES

an Officer delegated under section 20
of the *Environmental Protection Act 1986*

Appendix 1: Key documents

	Document title	In text ref	Availability
1.	Licence Application and supporting documentation– Mulga Downs	Application	accessed at www.der.wa.gov.au
2.	Works Approval (W6152/2018/1) compliance report	Compliance report	DWER records (A1736114)
3.	Works Approval W6152/2018/1	Works Approval W6152	DWER records (A1719776)
4.	DER, July 2015. *Guidance Statement: Regulatory principles.* Department of Environment Regulation, Perth.	NA	accessed at www.dwer.wa.gov.au
5.	DER, October 2015. *Guidance Statement: Setting conditions.* Department of Environment Regulation, Perth.		
6.	DER, August 2016. *Guidance Statement: Licence duration.* Department of Environment Regulation, Perth.		
7.	DER, November 2016. *Guidance Statement: Risk Assessments*. Department of Environment Regulation, Perth.		
8.	DER, November 2016. *Guidance Statement: Decision Making*. Department of Environment Regulation, Perth.		