Application for Licence

Division 3, Part V *Environmental Protection Act 1986*

Licence Number	L9261/2020/1
Applicant	Winsek Pty Ltd
ACN	627 147 380
File Number	DER2020/000358
Premises	Gemec Environmental Consultants 353 Pye Road, Mt Adams Part of Lot 4 on Plan 13178 Certificate of Title Volume 1560 Folio 863
Date of Report	12/11/2020
Status of Report	Final

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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
ACN	Australian Company Number
AS4482.1	Means the Australian Standard AS4482.1-2005 *Guide to the sampling and investigation of potentially contaminated soil – Non-volatile and semi-volatile substances*
AS4482.2	Means the Australian Standard AS 4482.2-1999 *Guide to the sampling and investigation of potentially contaminated soil – Volatile substances*
Category/ Categories/ Cat.	Categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
CS Act	*Contaminated Sites Act 2003* (WA)
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 As of 1 July 2017, the Department of Environment Regulation (DER), the Office of the Environmental Protection Authority (OEPA) and the Department of Water (DoW) amalgamated to form the Department of Water and Environmental Regulation (DWER). DWER was established under section 35 of the *Public Sector Management Act 1994* and is responsible for the administration of the *Environmental Protection Act 1986* along with other legislation.
EPA	Environmental Protection Authority
EP Act	*Environmental Protection Act 1986* (WA)
EP Regulations	*Environmental Protection Regulations 1987* (WA)
Works Approval Holder	Winsek Pty Ltd
m^3	cubic metres

Minister	the Minister responsible for the EP Act and associated regulations
NEPM	National Environmental Protection Measure
Noise Regulations	*Environmental Protection (Noise) Regulations 1997* (WA)
Occupier	has the same meaning given to that term under the EP Act.
PM	Particulate Matter
PM_{10}	used to describe particulate matter that is smaller than 10 microns (µm) in diameter
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)
$\mu g/m^3$	micrograms per cubic metre
µg/L	micrograms per litre

2. Purpose and scope of assessment

The Applicant has applied for a Licence to operate within part of Lot 4 on plan 13178 Pye, Mt Adams, WA 6525. The premises was issued a Works Approval W6239/2019/1 on 29 November 2019 to allow Construction of the Category 61A and Category 63 Prescribed premises.

The Applicant submitted a compliance report document of the Works Approval on 19 August 2020.

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

Operations for the Premises were assessed under W6239/2019/1.

2.1 Application details

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
DWER Application Form including following supporting information: 1. Attachment 1A – Certificate of Title and memorandum of understanding; 2. Attachment 1B – ASICS Company Extract; 3. Attachment 2 – Premises maps, Access & boundary map; site layout map 4. Attachment 3B – Waste Facility compliance document & Environmental Management Plan	19 August 2020

3. Background

On 13 March 2019, Winsek Pty Ltd submitted an application for a works approval under the EP Act for a bioremediation pad to remediate Class II and Class III hydrocarbon contaminated soil and for an inert landfill for the internment of waste drilling mud (Inert waste type 1) into cells within an existing depression resulting from historical sand extraction activities at the site. Works Approval W6239/2019/1 was issued on 29 November 2019 authorising the construction works.

The bioremediation pad is located within an existing gravel hardstand area in the vicinity of the proposed internment area. Prior to sand extraction activities and establishment of the gravel hardstand, the area was used as pasture and dryland cropping. Both operations will be carried out within the north-western portion of lot 4. The bioremediated soil will be sampled and disposed at the inert landfill onsite if deemed suitable for disposal at the facility or will be disposed at a landfill facility in compliance with *Landfill Waste Classification and Waste Definitions 1996*

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 61A	Solid waste facility: premises (other than premises within category 67A) on which solid waste produced on other premises is stored, reprocessed, treated, or discharged onto land	8,000 tonnes per year
Category 63	Class I inert 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 and as amended from time to time) is accepted for burial.	24,000 tonnes per year

4. Overview of Premises

4.1 Operational aspects

The following information in relation to the premises has been summarised from the application.

The facility will be operated by Mid West Remediation Services Pty Ltd (MWRS), a sister company of Gemec and Lenane Holdings Pty Ltd (Lenanes), under approval from the site owner – Revive Nominees Pty Ltd (Revive). Gemec have been operating as contaminated land environmental consultants for 20 years and have conducted contaminated sites assessments, investigations, monitoring events and remediation activities for oil and gas facility and exploration sites in the Mid West. A subsidiary of Gemec has run a bioremediation facility (Licence No. L8520/2011/1) at Cataby since 2011. Lenane Holdings is an earthmoving and haulage company that specialises in the oil and gas industry.

The bio-pad and land fill sites are located within the north-western portion of Lot 4, approximately 550 m and approximately 650 m north of Pye Rd as shown on Figures 1 and 2.

The bio-pad was constructed over an existing gravel hardstand, which previously represented the Hovea-02 gas wellsite. The well was recently plugged and abandoned, and associated pipework was removed from the area. The landfill site designated for the waste drilling mud internment cells is a topographical depression within pasture land at 353 Pye Rd. The depression is a result of extensive historical sand quarrying between 2002 and 2012.

Several historical gas wellsites have existed within Lot 4, from which several drilling mud sumps have been consolidated and buried in the past. In 2014, an investigation was carried out into the mud sumps located throughout the area, and Lot 4 subsequently classified as 'not contaminated – unrestricted use '. The former mud sumps and associated sand quarry on Lot 4 were therefore considered suitable for "General Farming", as per the Shire of Irwin's Local Planning Scheme No. 5, as the drill muds were not considered to pose a risk to either human health or the environment.

Bioremediation

- The proposed bioremediation process is via land farming, a biological process which uses naturally occurring micro-organisms, such as bacteria and fungi to eliminate, attenuate or transform polluting or contaminating substances in soils;
- The process involves the spreading of excavated contaminated soils in a thin layer, followed by the stimulation of aerobic microbial activity within the soils via aeration and/or the addition of minerals, nutrients and moisture;
- The aeration of petroleum hydrocarbon impacted soils will be attained predominantly via periodic tilling, with the material irrigated predominantly via rainfall;
- The requirement for supplementary irrigation will be determined by the nature of the impacted soil, frequency or rainfall and time constraints for the completion of the bioremediation process;

- Any further chemical or microbial requirements will be based on the nature and extent of contamination.
- A leachate retention pond is situated down gradient of the bio-pad;
- The retention pond is of sufficient capacity to receive run-on from a 1 in 100 year rainfall event;
- The retention pond will be checked after rainfall events to assess its integrity and determine whether water or sediment build up may need to be removed to maintain the capacity of the retention pond;
- Bioremediated soil will be sampled and disposed at the inert landfill onsite if deemed suitable for disposal at the facility or will be disposed at a landfill facility in compliance with Landfill Waste Classification and Waste Definitions 1996.

Landfill

- The material intended for internment is waste drilling mud and drill cuttings material recovered during conventional gas well installation in the Shire of Irwin;
- The waste material is stored on-site in plastic lined retention ponds following the drilling process and pending disposal;
- To ensure the drilling mud and cuttings material is spadeable for transportation and internment, the material will be dried (muds will have undergone a drying process of between one and four years) and subsequently mixed with insitu soil prior to transportation;
- Each volume of inert waste received at the facility (estimated to be 2,000m^3) will be interned within an existing depression resulting from historical sand extraction activities;
- Sufficient existing soil will be cut-back from the burial area for subsequent capping;
- Following internment, apply and compact 0.2 m of gravel capping to the upper surface of the buried material at a minimum gradient of 5% and extending laterally to at least one metre beyond the outer extents of the waste cell;
- Reinstate approximately one metre of cut-back soil as the final cap over the compacted gravel layer appropriate for the future pasture use;
- Level cell with surrounding landscape as required maintaining at least approximately one metre of cover over each cell.

4.2 Infrastructure

The Applicants infrastructure, as it relates to Category 61A and 63 activities, is detailed in Table 4 and with reference to the Site Plan (attached in the Works Approval).

Table 4 lists infrastructure associated with each prescribed premises category.

Table 4: Gemec facility Category 61A and 63 infrastructure

	Infrastructure	**Site Plan Reference**
	Prescribed Activity Category 61A	
Bioremediation to treat petroleum hydrocarbon impacted soils		
1	Compacted gravel hardstand base (minimum 300 mm) with a permeability of no greater than $1x10^{-9}$ m/s and minimum 2% drainage gradient to ensure the free drainage of all leachate to leachate	Site plan

	Infrastructure	Site Plan Reference
	collection infrastructure	
2	impervious ($1x10^{-9}$ m/s) 500mm kerb bunding around the perimeter of the bioremediation pad and leachate pond	Site plan
3	Infrastructure for the collection of leachate	Site plan
4	Leachate pond with a capacity to store a 24 hour duration, 1 in 20 year ARI critical rainfall event without overflow.	Site plan
	Prescribed Activity Category 63	
internment of waste drilling mud and drill cuttings material recovered during conventional gas well installation within an existing depression resulting from historical sand extraction activities		
1	5 inert landfill cells approximately 25m x 25m x 3m in dimension 0.2 m gravel capping and 1 m overburden will be applied to each cell regardless of its dimensions.	Site plan
2	5 m gap between each cell	Site plan
3	A monitoring bore	
4	Sufficient soil and gravel cover	Site plan
5	Trucks to transport capping material	NA
6	Machinery used for capping and excavation	NA
7	Front End Loader	NA

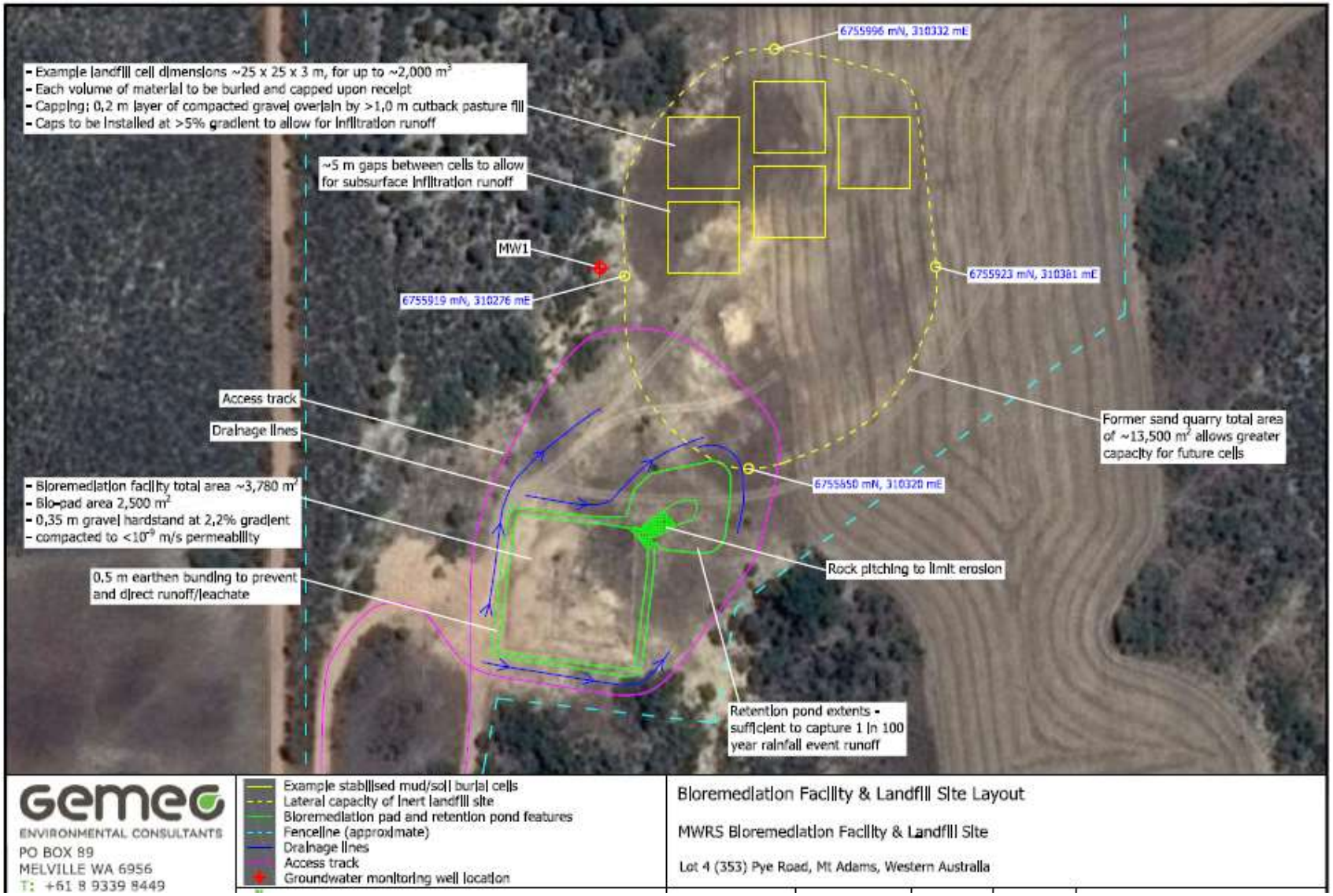


Figure 1: Proposed site layout

4.3 Exclusions to the Premises

The Hovea Oil and Gas Production Facility and Xris Gas Production Facility (Environmental Licence: L7847/2003/7) which are also located on Lot 4 (refer to map below) is not within the scope of this assessment.

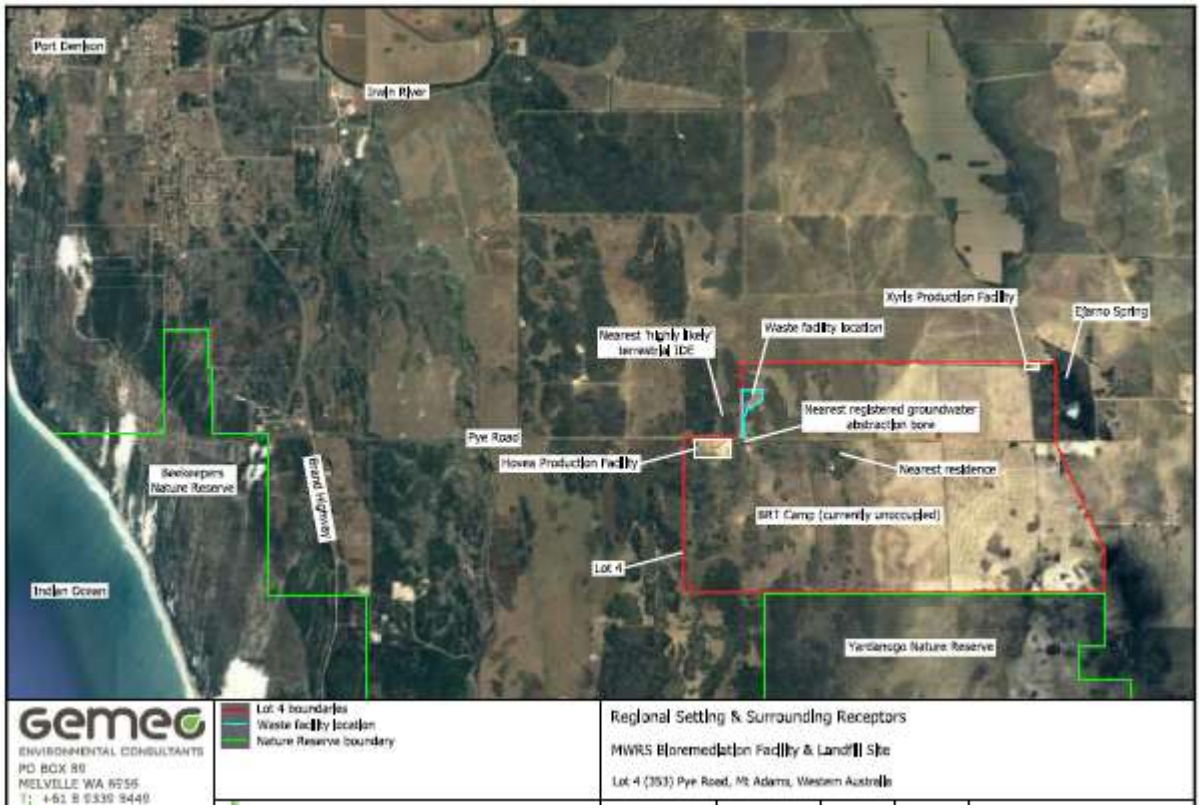


Figure 2: Showing oil and gas production site on lot 4

4.4 Contaminated sites

This site was reported to the former Department of Environment Regulation (DER) as per reporting obligations under section 11 of the 'Contaminated Sites Act 2003' (the Act), which commenced on 1 December 2006. The site has been classified under section 13 of the Act based on information submitted to DER by November 2014.

The site was reported because oil exploration drilling operations were carried out at these locations over the period 2001-2007. The general practice at the time was to dispose of the drilling mud materials on site in adjacent mud sumps. Drilling mud sumps were dug into the soil (approximate size 5 metres x 7 metres x 2 metres), and utilised to evaporate liquids from drilling muds and drill cuttings removed from the well bore.

Drilling muds and cuttings have previously been contained and buried at the proposed landfill site known as Hovea-02 (H-02). The H-02 soil sample results had exceeded Environmental Investigation Level (EIL) guidelines but they were within the Landfill Waste Classification and Waste Definitions (1996) levels. The drilling sump was constructed in a manner of a class 1 landfill, with muds buried to a depth of greater than two metres.

One of the sumps on lot 4, known as 'Hovea 11', was ranked as the highest-risk sump amongst those present at this site. This sump is understood to have received the drill muds and cutting from multiple well sites, including oil production wells. In 2014, an investigation was carried out to characterise the soils and drilling mud residues within the Hovea 11 sump. No potential contaminants were detected within the soils of the sump above the relevant

assessment criteria. On the basis of these investigations it was concluded that this site posed no unacceptable risk to the environment, human health or any environmental value. Investigation found that no contamination is present and there are no restrictions on use applicable to the site. The mud pits shown in pink below was classified by the contaminated sites regulation team as *not contaminated – unrestricted use.*

As such, the former mud sumps and associated sandpit on lot 4 are considered suitable for "General Farming", as per the Shire of Irwin's Local Planning Scheme No. 5, as the drill muds are not considered to pose a risk to either human health or the environment.

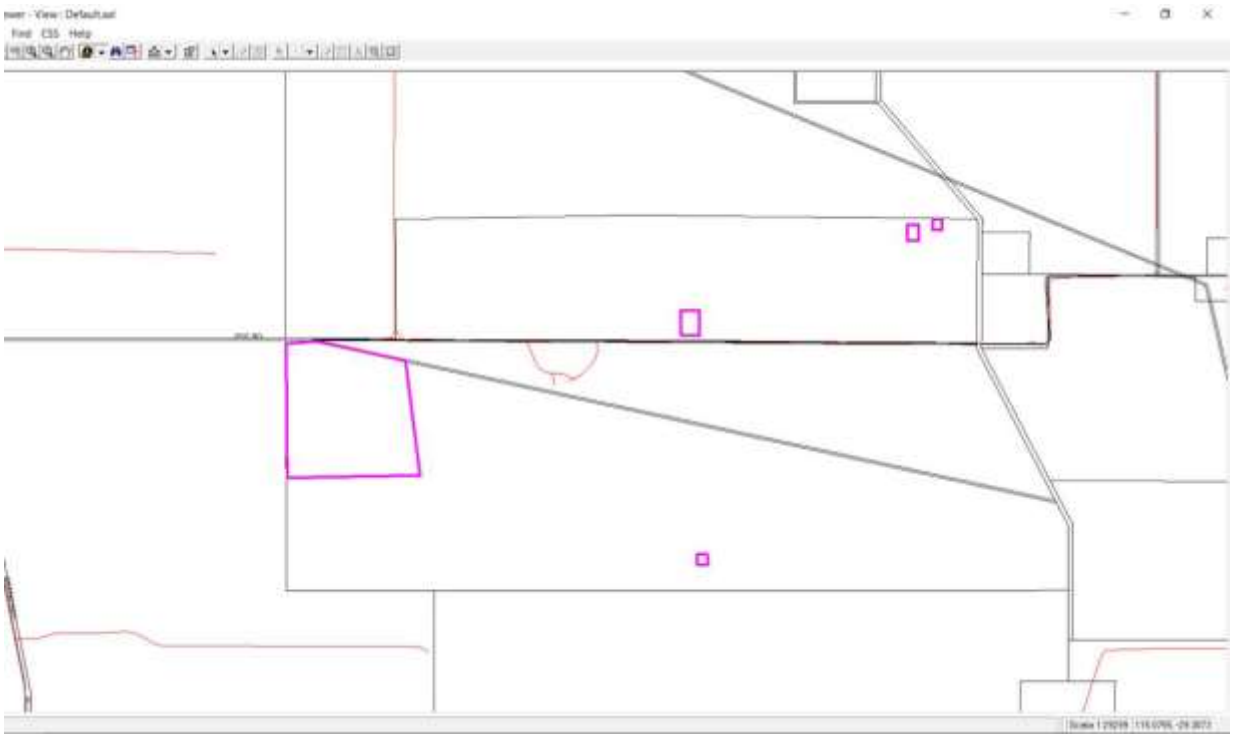


Figure 3: Showing mud pits on lot 4

4.5 Other relevant approvals

4.5.1 Planning approvals

The Shire of Irwin granted an approval to commence development for the works on 1 May 2019.

4.6 Part V of the EP Act

4.6.1 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: Land Use Planning (February 2017)*
- *Guidance Statement: Licence Duration (August 2016)*

- *Guidance Statement: Decision Making (February 2017)*
- *Guidance Statement: Risk Assessments (February 2017)*
- *Guidance Statement: Environmental Siting (November 2016)*

4.6.2 Works approval and licence history

Table 5 summarises the works approval and licence history for the premises.

Table 5: Works approval and licence history

Instrument	Issued	Nature and extent of works approval, licence or amendment
W6239/2019/1	29/11/2019	New works approval for category 61A (solid waste facility) and category 63 (Class I inert landfill)
L9261/2020/1	TBA	New licence for category 61A (solid waste facility) and category 63 (Class I inert landfill)

5. Consultation

The Application was advertised for public comment in The West Australian newspaper on 28 September 2020 seeking comments within 21 days. Comments are due by 19 October 2020.

The licence application was referred to the Shire of Irwin on 5 October 2020.

DWER received the following advice from Shire of Irwin on 26 October 2020:

- provided the operations (tonnages/truck movements over time) are generally consistent with that contained in the March 2019 DA report, the Shire is satisfied.

6. Location and siting

6.1 Siting context

The facility is located approximately 360 kilometres (km) north of Perth and 12km southeast of the Dongara, Western Australia.

The following information in relation to site location has been summarised from the application:

- The proposed location for the waste drilling mud internment cells is a depression within lot 4 (353 Pye Rd);
- The depression is a result of historical sand quarrying between 2002 and 2012;
- The proposed location for the bio-pad is an existing gravel hardstand area in the nearby vicinity of the proposed internment area;
- Both proposed facility locations are within the north-western portion of Lot 4; and
- The total combined area to be fenced off containing both proposed facilities is approximately 8.3 hectares (ha).

6.2 Residential and sensitive Premises

The distances to residential and sensitive receptors are detailed in Table 6.

Table 6: Receptors and distance from activity boundary

Sensitive Land Uses	Distance from Prescribed Activity
BRT Camp- currently not in use	Nearest accommodation is approximately 700m south from the proposed facilities within the same lot
Residential premises	Approximately 1.6 km from the facilities
Residential premises	Approximately 2.8 km from the facilities

6.3 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 7. Table 7 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 7: Environmental values

Specified ecosystems	Distance from the Premises
Ejarno Spring	Approximately 5.1 k m to the east
Yardanogo Nature Reserve	Approximately 3 km to the south

6.4 Groundwater and water sources

The distances to groundwater and water sources are shown in Table 8.

Table 8: Groundwater and water sources

Groundwater and water sources	Distance from Premises	Environmental value
Public drinking water source areas	11 km to the north	Allanooka-Dongara Water Reserve
Groundwater	Depth to groundwater encountered at approximately 60m below ground level (based on SWL information from the Hovea Production Facility). Three registered groundwater abstraction bores are located south –southwest of the proposed facilities. Two are known water supply bores for onshore oil and gas operations. The next nearest registered bore is approximately 1.2 km down gradient from the proposed facility.	Groundwater recharge at the site is likely to be mainly direct infiltration from rainfall and upward groundwater flow from the underlying Yarragadee aquifer (DoW 2017)[i]. The assumed groundwater flow direction for the site is west-southwest based on groundwater hydrological data for the area, site topography and the proximity of the nearest surface water bodies to the site (DoW 2017).

6.5 Soil type

Table 9 details soil types and characteristics relevant to the assessment.

Table 9: Soil and sub-soil characteristics

Groundwater and water sources	Distance from Premises	Environmental Value
Soil type classification	The site is underlain by the shallow Superficial aquifer of the Swan Coastal Plain, consisting predominantly of Tamala Limestone within the vicinity of the site, with potential surficial lenses of Bassendean Sand.	The site currently consists of pasture land and has been used for broad scale dryland cereal cropping.

6.6 Meteorology

6.6.1 Wind direction and strength

Wind speed and wind direction are important factors influencing the pathway of emissions. It effects noise propagation and transport of fugitive dust. The closest available wind data for the area can be sourced from the Mingenew weather station (number 008088). The Bureau of Meteorology (BoM) provides the 9am and 3pm wind speed and direction for Mingenew weather station. Prevailing winds are to the east, north and south easterly in the mornings, and to the west, south easterly and south westerly in the afternoons.

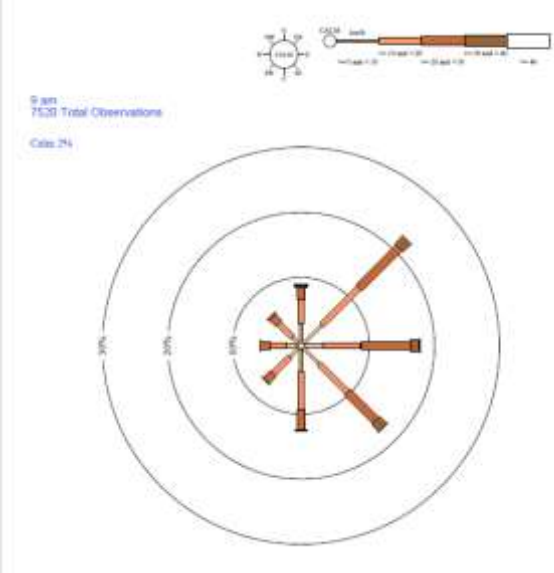


Figure 3: Mingenew weather station 9 am average wind speed and direction showing bias to easterly and south easterly winds

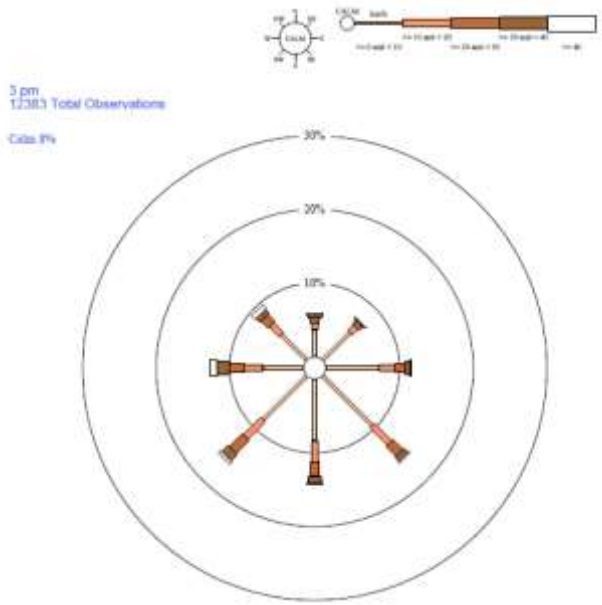
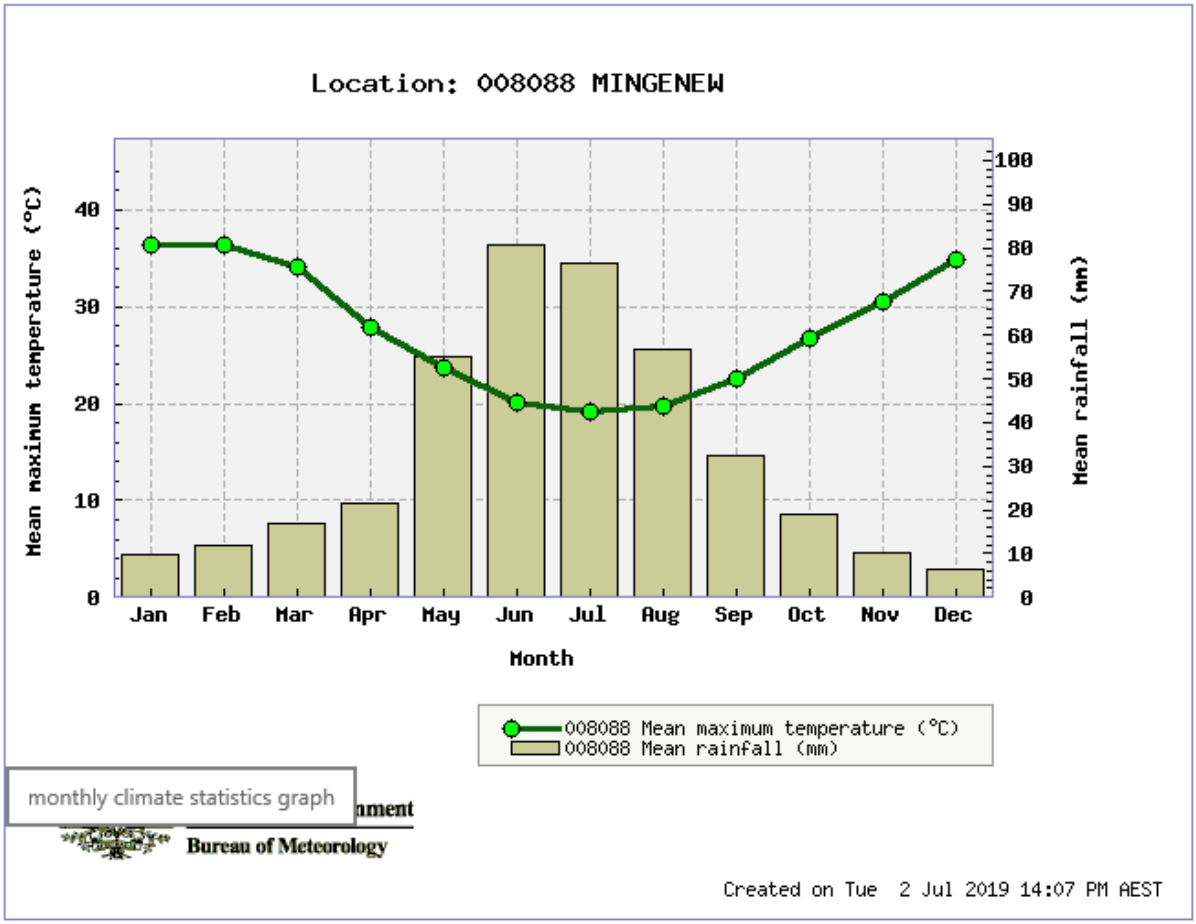


Figure 4: Mingenew weather station 3 pm average wind speed and direction showing

6.6.2 Rainfall and temperature



7. Risk assessment

7.1 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 Tables 10 below.

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**		
Bioremediation activity	*Waste acceptance and Vehicle movement*	*Dust*	*No residences in close proximity. BRT Camp located approximately 700m from the facility, currently not in use.* *Workers at the Hovea Oil, Gas Production Facility and Xris Gas Production Facility is located on the same lot.*	*Air / wind dispersion*	*Amenity and health impacts*	*No*	*The Delegated Officer considers that the provisions of section 49 of the EP Act is sufficient to regulate dust emissions during construction.*
		Noise			*Amenity and health impacts*	*No*	*Noise regulations apply* *The Delegated Officer considers that any noise impacts that may arise can be regulated under the provisions of the Noise Regulations.*
	Bioremediation	*Odour: associated with solid waste storage and treatment*			*Amenity and health impacts*	*No*	*The Delegated Officer considers that the provisions of section 49 of the EP Act is sufficient to regulate dust emissions during construction.*
		Dust: associated with solid waste storage and treatment				*No*	*The Delegated Officer considers that the provisions of section 49 of the EP Act is sufficient to regulate dust emissions during construction.*
		Leachate: Seepage to groundwater or overland flow of leachate	*Surrounding land, Groundwater – depth approximately 60m and surface water drainage system*	*Overland flow, soil, surface water drainage and seepage into groundwater*	*Surrounding land and groundwater contamination impacting upon dependent vegetation*	*Yes*	*Refer to section 7.4* *Potential for soil and groundwater contamination inhibiting vegetation growth and temporary loss of habitat*

Risk Events						Continue to detailed risk assessment	Reasoning
Sources/Activities		**Potential emissions**	**Potential receptors**	**Potential pathway**	**Potential adverse impacts**		
		High contaminants- Disposal/ reuse post remediation	*Contamination of disposal area*	*Direct Discharge- Contaminant present in remediated soil*	*Health Impacts, surrounding land and groundwater contamination impacting upon dependent vegetation*	*Yes*	*Refer to section 7.5* *Unauthorised discharges*
Landfilling activity	*Waste disposal and Vehicle movement*	*Dust*	*No residences in close proximity. BRT Camp located approximately 700m from the facility, currently not in use.* *Workers at the Hovea Oil, Gas Production Facility and Xris Gas Production Facility is located on the same lot.*	*Air / wind dispersion*	*Amenity and health impacts*	*No*	*The Delegated Officer considers that the provisions of section 49 of the EP Act is sufficient to regulate dust emissions during construction.*
		Noise		*Air / wind dispersion*	*Amenity and health impacts*	*No*	*Noise regulations apply* *The Delegated Officer considers that any noise impacts that may arise can be regulated under the provisions of the Noise Regulations.*
	Covering and compacting cells when full	*Noise*			*Amenity and health impacts*	*No*	*Noise regulations apply* *The Delegated Officer considers that any noise impacts that may arise can be regulated under the provisions of the Environmental Protection (Noise) Regulations 1997.*
	Disposal of Inert waste Type 1 and Type 2	*Leachate*	*Groundwater*	*Direct discharge to land and potential seepage to groundwater*	*Reduction in groundwater quality impacting upon dependent vegetation*	*Yes*	*Refer to section 7.4* *Potential for soil and groundwater contamination inhibiting vegetation growth and temporary loss of habitat*

Risk Events						Continue to detailed risk assessment	Reasoning
Sources/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts		
		Fire/smoke- (abnormal operation)	*No residences in close proximity. BRT Camp located approximately 700m from the facility, currently not in use.* *Workers at the Hovea Oil, Gas Production Facility and Xris Gas Production Facility is located on the same lot.*	*Air/windborne pathway*	*Causing impacts to health and amenity (smoke)*	*Yes*	*See section 7.5*
		Fire water leachates (Abnormal operation)	*Groundwater dependent ecosystems.*	*Direct discharge to land and potential seepage*	*contamination of groundwater/soil*	*Yes*	*See section 7.5*

7.2 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.

7.3 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.

7.4 Risk Assessment – Leachate and contaminated runoff

7.4.1 Description of Risk Event

Waste deposited at the Premises has the potential to generate leachate (Inert Waste Type 1). Leachate may result in contamination of soil, surface water and the groundwater. Rainfall may come into contact with waste, causing run-off and overland flow of contaminated stormwater to neighbouring properties and surface water. The proposed activities represents a significant potential for leachate and contaminated stormwater runoff generation if managed incorrectly.

7.4.2 Identification and general characterisation of emission

Stormwater may become contaminated if it comes into contact with waste material at the Premises. Leachate is formed from the infiltration of water (e.g. from rainfall) into the landfill and also from the moisture content of the waste itself. The proposed bioremediation process will involve the addition of water via rainfall. The requirement for supplementary irrigation will be determined by the nature of the impacted soil and the frequency of rainfall.

Leachates can be acidic, especially when they are generated under anaerobic conditions. They can cause the dissolution of metals and therefore metallic compounds may be present.

The sources of leachate and contaminated stormwater runoff at the Premises include:

- Landfill cells
- Leachate collection system
- Leachate pond; and

- Bioremediation pad

7.4.3 Description of potential adverse impact from the emission

Contaminated storm water and leachates from the proposed operation have the potential to pollute groundwater, and may cause contamination of the surrounding land. They may contain elevated metals other hazardous chemicals and can be high in nutrients. Stockpiles of raw materials and processed materials have the potential to pollute because leachate may be generated when the stockpiled materials contain excessive moisture.

7.4.4 Criteria for assessment

ANZECC and ARMCANZ, 2000 provide recommended trigger values for environmental water quality and the *Assessment and management of contaminated sites* provides ecological and human health assessment levels for soil.

Impacts to groundwater can also be assessed against the Non-Portable Use Guidelines (DoH, 2014).

Investigation levels for soil and ground water can be assessed against National Environment Protection (Assessment of Site Contamination) Measure (as amended 2013).

7.4.5 Applicant controls

This assessment has reviewed the controls set out in Table 14 below.

Table 14: Applicant's proposed controls for Leachate and contaminated stormwater runoff

Site infrastructure	Description	Operation details	Reference to issued licence plan (Schedule 1)
Controls for leachate and contaminated runoff			
Inert Landfill cells	*1) Prior to internment, the applicant will test the materials to ensure contaminants are within the Class 1 inert landfill levels.* *2) The application details that the waste material is predominantly composed of bentonite clay, plant cellulose and various salts with a very low leachability and mobility, and its alkalinity limits dissolution of metals from the material.* *3) The application details that sufficient existing soil will be cut back from the burial area for capping.* *4) The application details that 0.2m of gravel capping and 1 m overburden will be applied to each cell regardless of its*	*Infrastructure on site will be maintained in good condition.* *Freeboard level for leachate pond will be monitored.* *Leachate pond to be maintained without leaks and water held for evaporation or recycling through the bioremediation process.* *Sludge and sediment removed from the pond annually or re-treated.* *A groundwater monitoring program will be established during the operation of the landfill and the*	*Figure 1- Site layout*

Site infrastructure	Description	Operation details	Reference to issued licence plan (Schedule 1)
	dimensions and compacted to the upper surface of the buried material at a minimum gradient of 5% and extending to at least one metre beyond the outer extents of the waste cell. *5) Approximately one metre of cut-back soil will be used as the final cap over the compacted gravel layer, appropriate for future pasture use.* *6) The cap will be used to reduce the amount of water ingress into the landfill during winter periods when rainfall frequency is much higher.*	*bioremediation pad to assess whether the internment of stabilised drilling mud and cuttings have resulted in impacts to the underlying groundwater quality.* *The groundwater monitoring will be conducted annually during the operation of the landfill.*	
Bioremediation pad	*1) To prevent infiltration of leachate from the bioremediation process into the underlying soil profile, the bioremediation activities will be conducted on an existing compacted gravel hardstand pad at the site.* *2) The pad will be penetration tested to ensure a maximum vertical seepage velocity of $1x10^{-9}$ and the final surface gradient of 2%.* *3) 500mm kerb bunding will be installed around the perimeter of the bioremediation pad*		
Leachate pond and leachate collection infrastructure	*1) Will be constructed of gravel hardstand >0.2 m in depth, compacted to achieve a vertical seepage velocity $1x10^{-9}$ m/s.* *2) 500mm kerb bunding will be installed to ensure leachate/run-on is directed toward the retention pond and to prevent off-site runoff from entering.* *3) Capacity to store a 72-hour duration, 1 in 20*		

Site infrastructure	Description	Operation details	Reference to issued licence plan (Schedule 1)
	year ARI critical rainfall event without overflow. *4) The water level in the leachate pond will be maintained at 0.5m deep at all times. 500mm freeboard level at all time.*		

7.4.6 Key findings

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

1. *That all leachate collection infrastructure and leachate dams on the premises will be designed to contain a 1 in 20 year ARI rainfall event, which provides a suitable level of containment for the risk of leachate/runoff impacts.*
2. *Depth to groundwater is approximately 60m below ground level.*
3. *The landfill cells will have approximately 5 metre gap to allow for subsurface infiltration runoff.*
4. *That the cells will be capped and therefore infiltration of rain water will not be possible.*
5. *That leaching through the underlying soil profile and erosion of overlying soil are prevented by the capping of the material*
6. *The bioremediation pad will be bunded to retain any run off from the hardstand prior to discharge into the leachate pond.*
7. *A bioremediation management plan and an Environmental management plan should be prepared for all bioremediation processes.*
8. *All waste subjected to bioremediation process must be covered in the event of extreme wind events to prevent or limit emissions of vapours or particle matter and to prevent the escape of leachate or other substances.*

7.4.7 Consequence

If Leachate and contaminated runoff risk event occurs, then the Delegated Officer has determined that the impact of leachate and contaminated runoff will be most likely limited to on-site impacts at a low level. Therefore, the Delegated Officer considers the consequence to be **minor**.

7.4.8 Likelihood of Risk Event

The Delegated Officer has determined that based upon the proposed infrastructure and management actions the likelihood of Leachate and contaminated runoff risk event occurring will be unlikely. Therefore, the Delegated Officer considers the likelihood to be **unlikely**.

7.4.9 Overall rating of leachate and contaminated stormwater runoff

The Delegated Officer has compared the consequence and likelihood ratings described above with the risk rating matrix (Table 11) and determined that the overall rating for the risk of

Leachate and contaminated runoff risk event is **medium**.

7.5 Risk Assessment – Elevated contaminant level post-remediation

7.5.1 Description of Risk Event

Proper remediation of hydrocarbon contaminated soil is a necessity in order to have a safe and healthy environment. The bioremediation activities can also impact the surrounding soil matrix.

7.5.2 Identification and general characterisation of emission

Petroleum is composed of hundreds or thousands of aliphatic, branched and aromatic hydrocarbons and other organic compounds. Many of them are toxic to humans, animals and vegetation. The timeframe for bioremediation is often case-specific. Treatment is only complete when targets have been achieved, or it can be demonstrated that the chemicals of concern do not pose a risk to human health or the environment.

7.5.3 Description of potential adverse impact from the emission

Soil contaminated with petroleum can represent a hazard to human and ecological health and causes environmental problems as well. Some petroleum hydrocarbon components have been known to belong to the family of carcinogens and neurotoxic organic pollutants

7.5.4 Criteria for assessment

The suitability of bioremediated soils for re-use as a resource can be assessed in accordance with appropriate criteria eg. the requirements of *the National Environmental Protection (Assessment of site Contamination) Measure 1999 and* DWER's *Landfill Waste Classification and Waste Definitions 1996 (as amended 2019).*

7.5.5 Applicant controls

This assessment has reviewed the controls set out in Table 15 below.

Table 15: Applicant's proposed controls for elevated contaminant levels post-remediation

Site infrastructure	Description	Operation details	Reference to issued licence plan (Schedule 1)
Elevated contaminant levels			
Bioremediation of Class 2 and 3 petroleum hydrocarbon impacted soils	*1) As the facility is to receive petroleum hydrocarbon impacted soils for treatment, the soil assessments will predominantly target associated CoPC such as:* • *Benzene, toluene, ethylbenzene, xylenes and naphthalene (BTEXN);* • *Total recoverable hydrocarbon (TRH)*	*Infrastructure on site will be maintained in good condition.* *The bio-pad will be established and operated in conformance with DWER licencing requirements and the NSW EPA Landfarming Best Practice Note (2014),*	*Site Plan*

Site infrastructure	Description	Operation details	Reference to issued licence plan (Schedule 1)
	fractions in the C6-C40 range; • *Polynuclear aromatic hydrocarbons (PAHs); and* • *Phenolic compounds (phenols).* *2) Prior to commencement and following final decommissioning, soil assessments will be conducted to obtain baseline and validation soil chemical data to determine whether bioremediation activities have impacted the surrounding soil matrix.*		

7.5.6 Key findings

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

1) *That bioremediated soils are to be sampled and tested to determine their suitability for reuse or landfill.*
2) *If the treated materials are only suitable for disposal to landfill, the classification of the materials for disposal is to be made.*
3) *The suitability of bioremediated soils for use as a resource needs to be assessed and the results are to be compared with suitable criteria.*
4) *The number of samples to be collected and analysed for the validation of bioremediated and stockpiled soil should be adequate to provide a statistically reliable result, taking into account the intended use of the soil.*
5) *Licence conditions relating to product testing to ensure that the final products contaminant levels are in compliance with the intended use.*

7.5.7 Consequence

The Delegated Officer has determined that if residual concentrations of chemical substance are above the target criteria, potential impacts to human will include those requiring occasional medical treatment and most likely limited to on-site impacts at a mid-level. Therefore, the Delegated Officer considers the consequence to be **moderate**.

7.5.8 Likelihood of Risk Event

The Delegated Officer has determined that the likelihood of activities affecting human health and the environment will probably not occur in most circumstances. Therefore, the Delegated Officer considers the likelihood to be **unlikely**.

7.5.9 Overall rating of elevated contaminant level post-remediation

The Delegated Officer has compared the consequence and likelihood ratings described above with the risk rating matrix (Table 11) and determined that the overall rating for the risk of elevated contaminant levels post-remediation is **medium**.

7.6 Risk Assessment – Fire risk event

7.6.1 Description of fire risk

The premises has the potential to result in a fire risk through:

- abnormal ignition sources outside of the premises operation (arson or external fire sources entering the premises boundary) within the inert waste type 2 disposal area.

7.6.2 Identification and general characterisation of emission

The burning of plastic will result in dense, heavy, black smoke that will require fire water or fire retardant chemicals to effectively extinguish the source of the fire. The smoke is likely to contain high amounts of particulate matter and toxic gases like carbon dioxide and carbon monoxide, water, alkanes, alkenes and aromatic compounds that may included BTEXN and PAHs.

7.6.3 Description of potential adverse impact from the emission

Smoke generation has the ability to cause acrid, potentially carcinogenic (toxic) smoke that will affect the health and amenity of people within the immediate vicinity and may cause respiratory issues. The toxic substances released could pose a threat to vegetation, human and animal health and environment as a whole.

The discharged fire waters may result in the contamination of surrounding soil/ land if discharged off the premises boundary and not adequately captured through the use of temporary bunding, or escape via stormwater drainage channels/ pipelines.

7.6.4 Criteria for assessment

The National Environment Protection (Ambient Air Quality) Measure (NEPM) 2003 recommends air quality standards that must be maintained. The potential discharges to air that will occur during a fire on the Premises would contain mostly very fine particulates that can cause significant health impacts if inhaled. The NEPM contains criterion for these fine particles ($PM_{2.5}$) which have been applied to inform this Assessment.

Any discharges into the environment may be subject to the Environmental Protection (Unauthorised Discharges) Regulations 2004. Fire wastewater and any other wastes generated in the event of a fire may be subject to the Environmental Protection (Controlled Waste) Regulations 2004.

7.6.5 Applicant controls

This assessment has reviewed the controls set out in Table 16 below.

The applicant has confirmed that no inert waste type 2 will be stored on site. The Applicant will dispose and bury all inert type 2 by the end of the working day or as soon as practicable. Sufficient cover materials will be made available at all times. Trained personnel to respond to

fire events. The landfill site will be fenced.

Table 16: Applicant's proposed fire controls

Site infrastructure	Description	Operation details	Reference
Controls for fire			
Disposal area	Disposing of Inert Waste Type 1 (drilling mud from the 5 sumps) and Type 2 (mud sump plastic liners)	Day time operation only; Landfill fenced securely; Inert waste type 1 and type 2 from the sump will be mixed with in situ soil loaded and transported and interred directly in each waste cells at the landfill; Interred waste will be buried by the end of each working day or as soon as possible Inert waste type 2 will not be stored on site. Sufficient cover materials will be made available at all times; Only trained personnel will respond to fire events at the landfill. Fire-fighting equipment's will be maintained on the Premises (water cart and fire extinguishers); Use of temporary bunding to contain firewater. Regular maintenance of the equipment's	Application supporting documentation

7.6.6 Key findings

The Delegated Officer has reviewed the information regarding the fire risk and has found:

1. *That no inert type 2 waste will be stored on site.*
2. *Sufficient cover materials will be available to ensure that all type 2 inert waste will be*

covered as soon as practicable or by end of each working day.

3. *The risk event is quite low and acceptable subject to multiple regulatory and proponent controls.*

7.6.7 Consequence

If a fire event occurs, then the Delegated Officer has determined that the impact of a fire risk or contaminated firewater will have mid-level on-site environmental impacts and low level off site impacts. Therefore, the Delegated Officer considers the consequence of *a fire water/contaminated fire water* risk event to be **moderate**.

7.6.8 Likelihood of Risk Event

The Delegated Officer has determined that the likelihood of a fire event affecting human health and the environment will probably not occur in most circumstances. Therefore, the Delegated Officer considers the likelihood to be **unlikely**.

The Delegated Officer has determined that the likelihood of a fire water risk causing disruptions to the ecosystem nearby (with consideration of application controls) will probably not occur in most circumstances if type 2 inert waste are disposed and covered appropriately. Therefore, the Delegated Officer considers the likelihood of a fire water risk to be **unlikely**.

7.6.9 Overall rating of emission during fire

The Delegated Officer has compared the consequence and likelihood ratings described above with the risk rating matrix (Table 13) and determined that the overall rating for the risk of a fire or contaminated firewater emission event is **medium.**

7.7 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 17 below. Controls are described further in section 8.

Table 17: Risk assessment summary

	Description of Risk Event			**Applicant controls**	**Risk rating**	**Acceptability with controls (conditions on instrument)**
	Emission	**Source**	**Pathway/ Receptor (Impact)**			
1.	Leachate and contaminated runoff	Landfill cells, leachate collection system, leachate pond and bioremediation pad	Overland flow, soil, surface water drainage, direct discharge and seepage into groundwater	Infrastructure and management controls. As detailed in table 15	Minor consequence Unlikely likelihood **Medium Risk**	Acceptable subject to regulatory controls
2.	Elevated contaminant levels post-remediation	Materials used as backfill for the former sand pit depression or used as capping material for the	Direct Discharge-Contaminant present in remediated soil posing a risk to human health and or	Infrastructure and management controls. As detailed in table 16	Moderate consequence Unlikely likelihood **Medium risk**	Acceptable subject to proponent controls conditioned / outcomes based controls

	Description of Risk Event			Applicant controls	Risk rating	Acceptability with controls (conditions on instrument)
	Emission	**Source**	**Pathway/ Receptor (Impact)**			
		buried drilling mud waste.	environment, including leaching to groundwater.			
3	Fire/ Smoke (abnormal operation)	Burning of inert waste type 2 (plastic liners)	Air/ wind dispersal Health/ amenity (smoke), Respiratory problems	Applicant controls as detailed in 7.6.5	Moderate consequence Unlikely likelihood **Medium Risk**	Acceptable subject to proponent controls conditioned / outcomes based controls
4	Fire Water	Contaminated fire water (abnormal operation)	Directed discharge to environment causing impacts on groundwater water quality and surrounding environment	Applicant controls as detailed in 7.6.5	Moderate consequence Unlikely likelihood **Medium Risk**	Acceptable subject to proponent controls conditioned / outcomes based controls

8. Regulatory controls

A summary of regulatory controls determined to be appropriate for the Risk Event is set out in Table 18. The risks are set out in the assessment in section 7 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 18: Summary of regulatory controls to be applied

		Controls (references are to sections below, setting out details of controls)				
		8.1.1 Throughput and waste acceptance	**8.1.2 Infrastructure and equipment**	**8.1.3 Specified action**	**8.1.4 Monitoring**	**8.1.5 Reports**
Risk Items (see risk analysis in section7)	**1. Leachate and contaminated run-off**	●	●	●	●	●
	2. Contaminants	●			●	●
	Fire/smoke	●				
	Firewater		●	●	●	●

8.1 Licence controls

- Licence condition 1 outlines infrastructure, equipment maintenance and operational requirements
- Licence conditions 2 and 3 outlines waste acceptance and removal requirements;
- Licence condition 4 outlines waste processing requirements;
- Licence condition 5 outlines containment infrastructure requirements;
- Licence condition 6 outlines cell completion requirements;
- Licence condition 7 outlines the monitoring of waste volumes (input and output) requirements;
- Licence condition 8 outlines monitoring requirements of contaminated soil, pre and post treatment;
- Licence condition 9 outlines ambient groundwater monitoring requirements;
- Licence conditions 10 – 13 outlines the requirements of reporting to DWER.

The following controls has been imposed as conditions on the Licence to manage the risk of emissions from operating the landfill and bioremediation facility. It should be noted that these controls are not final and will be subject to compliance with conditions of the Works Approval

and may change if additional information becomes available to further inform the risk assessment (as per *Guidance Statement: Risk Assessments*).

8.1.1 Throughput and waste acceptance

The licence holder will be subject to total annual limits on throughput of raw materials and the contaminating material shall only consist of petroleum type hydrocarbons with defined concentration limits as shown in table 19 below.

Table 19: Bioremediation facility inputs

<table>
<tr><td colspan="3">Waste acceptance</td></tr>
<tr><td>Waste type</td><td>Quantity limit</td><td>Specification[1]</td></tr>
<tr><td>Contaminated soil</td><td>8,000 tonnes per annual period</td><td>Contaminating substance shall only consist of petroleum type hydrocarbons not exceeding the following concentration limits (in mg/kg):
<table>
<tr><td>C_6-C_9 petroleum hydrocarbons</td><td>28,000</td></tr>
<tr><td>>C_{16}-C_{35} petroleum hydrocarbons (aromatics)</td><td>4,500</td></tr>
<tr><td>>C_{10}->C_{35} petroleum hydrocarbons (aliphatics)</td><td>280,000</td></tr>
<tr><td>PAHs (total)</td><td>1,000</td></tr>
<tr><td>Benzo(a)pyrene</td><td>50</td></tr>
<tr><td>Toluene</td><td>5,180</td></tr>
<tr><td>Xylenes (total)</td><td>18,000</td></tr>
</table></td></tr>
</table>

The proponent has indicated that several sumps in the area may be available for decommissioning purposes and the landfill voids in the area are large enough to receive over 64,000 tonnes of inert waste. However this assessment has only allowed for disposal of 16,000 tonnes waste (category 63) only following consultation with Shire of Irwin since any significant changes to the quantities assessed in the development approval may require further planning approval.

8.1.2 Infrastructure and equipment to be maintained to control contaminated run-on and runoff and onsite fire risk events,

The following environmental controls, infrastructure and equipment should be maintained and operated onsite for control of contaminated runoff:

- impervious ($1x10^{-9}$ m/s) 500mm kerb bunding around the perimeter of the bioremediation pad and leachate pond
- lined impervious ($1x10^{-9}$ m/s) leachate collection infrastructure for directing potentially contaminated water to the settling pond;
- lined impervious ($1x10^{-9}$ m/s) leachate pond with minimum freeboard level of 500mm;

- Maintenance of all firefighting equipment's within the premises in accordance with relevant Australian Standards.
- Use of temporary bundings, absorption material for the containment of any leachates or fire water generated as a result of accidental fire at the premises.

8.1.3 Specified actions

The following management actions will be included in the licence to prevent leachate/contaminated runoff:

- Maintaining leachate collection infrastructure free of debris and accumulation of sediment;
- Removing vegetation growing inside leachate ponds; and
- Ensure the operational guidelines and management plan are adhered to at all times
- Fire water removed via a controlled waste carrier for disposal to a licenced facility, in accordance with the *Environmental Protection (Controlled Waste) Regulations 2004.*

8.1.4 Monitoring requirements

The licence includes pre and post remediation monitoring conditions to ensure;

- that highly contaminated waste are not accepted at the premises (bioremediation of Class 2 and 3 petroleum hydrocarbon impacted soil only),
- the re-use of the treated contaminated soil does not cause health or environment damage; and
- that groundwater quality is not impacted from the operation of the class 1 inert landfill and the bioremediation facility.

8.1.5 Monitoring reports

The Licence Holder will be required to submit an Annual Audit Compliance Report and Annual Environmental Report demonstrating the extent to which the premises has complied with the conditions of the licence.

9. Determination of Licence conditions

The conditions in the issued Licence in Attachment 1 have been determined in accordance with the *Guidance Statement: Setting Conditions*.

Table 20 provides a summary of the conditions to be applied to this licence.

Table 20: Summary of conditions to be applied

Condition Ref	Grounds
Infrastructure and Equipment 1	These conditions are valid, risk-based and contain appropriate controls.
Waste acceptance, processing and disposal 2, 3, 4, 5 and 6	These conditions are valid, risk-based and contain appropriate controls.
Monitoring 7, 8 and 9	This condition is valid, risk-based and consistent with the EP Act.
Record-keeping and reporting 10, 11, 12 and 13	These conditions are valid and are necessary administration and reporting requirements to ensure compliance.

DWER notes that it may review the appropriateness and adequacy of controls at any time and that, following a review, DWER may initiate amendments to the *works approvals* under the EP Act.

10. Applicant's comments

The Applicant was provided with the draft Decision Report and draft Licence on 2 November 2020. Comments received from the Applicant have been considered by the Delegated Officer as shown in Appendix 2.

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 the Issued Licence will be granted subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

Steve Checker

Digitally signed by Steve Checker
Date: 2020.11.12 13:25:51 +08'00'

STEPHEN CHECKER
MANAGER WASTE INDUSTRIES
REGULATORY SERVICES
Delegated Officer under section 20 of the *Environmental Protection Act 1986*

Appendix 1: Key documents

	Document title	In text ref	Availability
1.	DWER Application Form including following supporting information: 1. Attachment 1A – Certificate of Title and memorandum of understanding; 2. Attachment 1B – ASICS Company Extract; 3. Attachment 2 – Premises maps, Access & boundary map; site layout map 4. Attachment 3B – Waste Facility compliance document & Environmental Management Plan	L9261/2020/1	DWER records (A1927722)
2.	DER, July 2015. *Guidance Statement: Regulatory principles.* Department of Environment Regulation, Perth.	DER 2015a	accessed at www.dwer.wa.gov.au
3.	DER, October 2015. *Guidance Statement: Setting conditions.* Department of Environment Regulation, Perth.	DER 2015b	
4.	DER, August 2016. *Guidance Statement: Licence duration.* Department of Environment Regulation, Perth.	DER 2016a	
5.	DER, November 2016. *Guidance Statement: Risk Assessments*. Department of Environment Regulation, Perth.	DER 2016b	
6.	DWER, June 2019. *Guideline: Decision Making.* Department of Water and Environmental Regulation, Perth.	DWER 2019a	
7.	DWER, June 2019. *Guideline: Industry Regulation Guide to Licensing.* Department of Water and Environmental Regulation, Perth.	DWER 2019b	

Appendix 2: Summary of applicant's comments on risk assessment and draft conditions

Condition	Summary of Licence Holder comment	DWER response
Licence		
Table 1, row 5	Details on types of fire prevention system available on site provided	Noted. Table 1 updated
Table 1, row 5	Petroleum hydrocarbon impacted soil is not specifically to be sourced from the five drilling mud sump sites referenced.	Noted. Table 2 updated.
Table 3	Plan to allow for windrows to be up to 1 m in height without presenting an unacceptable risk to surrounding potential receptors.	Noted. Table 3 updated to allow windrows height up to 1000mm in height.
Table 6	Error noted	Corrected
Table 7	Our proposed analytical suite used for the baseline assessment is listed in s. 8.3 of the Waste Facility & Environmental Management Plan (FEMP, July 2020). Aromatic/aliphatic speciation of petroleum hydrocarbons is not considered necessary as these fractions are contained within the C6-C40 TRH analysis.	Agreed. Table 7 amended. Ambient groundwater monitoring will include BTEXN and C6-C40 analysis.
Table 9	Correct premises boundary coordinates provided	Table 9 updated
Decision Document		
Figures 1 and 3	Updated maps provided	Adopted

Condition	Summary of Licence Holder comment	DWER response
Table 10 onwards	Numbering not correct	Corrected
Table 14	Request to change groundwater monitoring frequency to annually	Agreed. Table 14 updated
Section 7.4.3	Error noted	Corrected
Section 7.4.6	A Fire & Environmental Management Plan has been prepared for all bioremediation and landfill operations at the facility.	Noted
Section 7.5.4	Can include the DWER *Landfill Waste Classification and Waste Definitions 1996 (as amended 2019)*.	Adopted
Section 7.6.2	Typographical changes requested	Typographical changes adopted
Section 7.6.3	Typographical changes requested	Typographical changes adopted
Table 16	Typo noted	Corrected
Table 19	Typo noted	Corrected
Section 8.1.3 4th dot point	Typographical changes requested	Typographical changes adopted
Section 8.1.4 1st dot point	Typographical changes requested	Typographical changes adopted

Reference

[i] https://www.water.wa.gov.au