



Application for Licence

Division 3, Part V *Environmental Protection Act 1986*

Applicant: Elan Energy Matrix Pty Ltd

ACN: 611 714 580

Licence Number: L9041/2017/1

File Number: DER2017/000368

Premises: Elan Energy Management
9 Fargo Way, WELSHPOOL WA 6986
Lot 60 on Deposited Plan 13025
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Definitions of terms and acronyms

Term	Definition
Applicant	Elan Energy Matrix Pty Ltd
Category/Categories (Cat.)	categories of prescribed premises as set out in Schedule 1 of the EP Regulations
Category Threshold	means the production or design capacity threshold for the prescribed premises category as defined under Schedule 1 of the <i>Environmental Protection Regulations 1987</i>
Decision Report	this document
Delegated Officer	An officer under section 20 of the EP Act.
DER	Department of Environment Regulation
EPA	Environmental Protection Authority
EPU	means Equivalent Passenger Unit. <ul style="list-style-type: none"> • An EPU is a standardised measure for the quantity of end-of-life tyres. • One EPU contains as much rubber and other materials as a 'typical' passenger tyre. • The assumed weight of one new EPU is taken to be 9.5 kilograms and one used EPU is taken to be 8 kilograms.
EP Act	means the <i>Environmental Protection Act 1986 (WA)</i>
EP Noise Regulations	means the <i>Environmental Protection (Noise) Regulations 1997(WA)</i>
EP Regulations	means the <i>Environmental Protection Regulations 1987</i>
Prescribed Premises	Premises prescribed under Schedule 1 to the EP Regulations

1. Purpose and scope of assessment

An application for a licence was received from Elan Energy Matrix Pty Ltd (**the Applicant**) to have emissions from its tyre recycling facility located at 9 Fargo Way in Welshpool (**the Premises**). Tyres will be accepted, shredded, stored, and then transported off site. The relocation of its operations and equipment to this premises (creating a new prescribed premises at this location) was authorised under Works Approval (W5982/2016/1).

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

2. Background

The Applicant is a privately owned Western Australian company which collects used tyres from tyre retailers for the purpose of shredding and on-sale.

The Applicant currently holds Licence L8682/2012/1 for a *Category 57: Used tyre storage* and *Category 61A: Solid waste facility* for the premises located at Lot 106, 101 Dowd Street, Welshpool. This facility has been operational since December 2012.

On 21 July 2016, the Applicant submitted a works approval application to undertake tyre storage and shredding at Lot 60, 9 Fargo Way, Welshpool. Works Approval W5982/2016/1 was issued on 21 April 2017 and the Licence Holder has submitted a compliance certificate on 11 May 2017 to confirm that the relocation and works have been completed as per the issued Works Approval.

The Premises, located within the City of Canning, is leased by the Applicant from Farway Holdings Pty Ltd. The Applicant proposes to store whole used tyres inside the tyre storage and shredding building in bins placed on a concrete floor and in overflow stockpile pods. Shredded tyres will be transferred to containers located outside the tyre storage and shredding building for transport off-site. The Tyre shredder will be located and operated within the tyre storage and shredding building.

Table 1: Prescribed Premises Categories

Classification of Premises	Description	Approved premises production or design capacity or throughput
Category 57	Used tyre storage (general): premises (other than premises within category 56) on which used tyres are stored.	Not more than 10,000 whole tyres and a maximum of 7,560 EPU shredded tyres at any one time within the premises
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.	Not more than 20,000 tonnes of tyres shredded per year

3. Overview of Elan Energy Management

3.1 Infrastructure

The facility infrastructure, as it relates to Category 57 and 61A activities, is detailed in Table 2 and with reference to the Site Plan.

Table 2: Elan Energy Management Categories infrastructure

Infrastructure	
Prescribed Activity Categories 57 and 61A	
Whole used tyres are received on the premises on a 'just in time' basis, where they are unloaded and temporarily stored in bins inside the tyre storage and shredding building. The used tyres are shredded and the shredded tyres are transported to the export containers via front end loaders. Once the containers are full, the shredded tyres are transported off site.	
1	Tyre storage and shredding building for the storage of used tyres(in stockpile pods) and the operation of a tyre shredding machine
2	Fully bunded and concreted external yard area
3	Used tyre receival bins for the receipt and storage of whole used tyres prior to shredding
4	One tyre shredder for the shredding of whole tyres
5	Containers for the storage and export of shredded material

3.2 Exclusions to the premises

Within the premises there is a second large building. The Applicant intends in the future to construct a tyre pyrolysis plant within this building and is currently going through the Public Environmental Review process with the **EPA** for this (assessment number 2093). This proposal is not included within this assessment or licence.

Key Finding: The proposed tyre pyrolysis plant within the second building on the premises is not included within this application and as such not assessed and not included within the authorisation of the licence.

3.3 Operational aspects

Used tyres from tyre retailers will be collected by the Applicant and transported to the premises by a vehicle on a '*just-in-time*' basis. In this way, large numbers of tyres will not be stored on the site. It is planned that seven deliveries of tyres per day will be received, each containing up to 500 tyres of different sizes including passenger, light truck, heavy vehicle and off-road tyres.

The delivery trucks will be unloaded, and the tyres will be stored inside the tyre storage and shredding building in one of two used tyre receival bins (72m³ capacity each) before being directly fed into the tyre shredder located within the Tyre Storage and Shredding Building.

The shredder has the capacity to shred up to 900 tyres per hour. On a normal production day (about 8 hours) approximately 7000 tyres can be shredded. The Applicant expects to process up to 20,000 tonnes of tyres per year.

Following the shredding process, the shredded material (rubber and steel fragments) will be conveyed to one of two enclosed shipping containers (76m³ capacity each) located within the yard area. Once the containers are full, the shredded material will be transported offsite.

An area to store excess tyres will be maintained to manage times when the receival bins are full at the time of a new delivery or in the event that the shredder is not operational. Provision will be made for up to four excess storage stockpile pods for used passenger tyres, each with a proposed maximum capacity of 158 m³. One storage pod will be maintained for off road tyres with a proposed maximum capacity of 158 m³.

Stormwater generated outside the building is collected within the premises and is then discharged to the City of Canning's storm water system.

The external yard area is fully bunded, comprised of a concrete and bitumen hardstand, so that, in the event of a fire at the premises, contaminated firefighting water will be contained on site. The hardstand is bunded along the entire boundary of the premises to prevent egress of stormwater to adjacent sites. The containment volume of the bunded area has been based on the use of three fire hydrants operating at a discharge rate of 10L/sec water for a period of 90 minutes, as required by Fire and Rescue NSW guideline, "*Guideline for bulk storage of rubber tyres*", 2014. A shut-off valve is located on the discharge pipe from the final drain to prevent potentially contaminated firefighting water discharging from the premises into the stormwater drainage system.

4. Legislative context

4.1 Other relevant approvals

4.1.1 Planning approval

Development Approval from the City of Canning for the tyre storage and tyre shredding facility was issued on 11 April 2017. The Development Approval was granted subject to six specific conditions, with Conditions 5 and 6 relevant to environmental aspects. Condition 5 states that "No liquid waste or waste water shall be discharged into the stormwater drainage system" and Condition 6 states that "The external storage of tyres is not permitted within the property; all storage is to be contained within the building". There is no expiry date. These conditions are in line with the proposed activities as contained within the application.

4.2 Part V of the EP Act

4.2.1 Applicable Regulations, Standards and Guidelines

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

DER Guidance Statements which inform the assessment are:

- Guidance Statement: Regulatory Principles (July 2015)
- Guidance Statement: Licence and works approvals process (September 2015)
- Guidance Statement: Setting Conditions (October 2015)
- Guidance Statement: Land Use Planning (October 2015)

Another important document that was used for the assessment and the determination of the licence conditions was the Fire Safety Guideline, Guideline for bulk storage of rubber tyres from the NSW Government Fire & Rescue NSW, dated 5 December 2014. This document has been used as a guide to determine the relevant conditions according to the premises specifications.

4.2.2 Works approvals

Works Approval W5982/2016/1 was issued on 21 April 2017 and the Applicant has submitted a compliance certificate on 11 May 2017 to confirm that the relocation of equipment and works have been completed as per the issued Works Approval.

4.2.3 Compliance inspections and compliance history

DER uses a database to record complaints received by DER (Incident and Complaints Management System (ICMS)). These complaints investigated for any non-compliance issues. A search of ICMS was undertaken on the Applicant and their known association to the current licensed prescribed premises (Licence L8682) and Controlled Waste Carrier Licence T00711.

A summary of the compliance matters identified is provided below:

ICMS no.	Date	Incident Description
25852	31/08/2012	The Applicant's facility on Dowd Street, Welshpool was found to be operating without a licence. An Environmental Field Notice (EFN) was issued by DER on 16 October 2012. The Applicant applied for and was granted Licence L8682/2012/1 in December 2012.
27805	14/03/2013	A letter of warning was issued following non-compliances with the licence conditions regarding the storage of tyres and bunding requirements. The issues were resolved by the Applicant.
31923	25/02/2014	Tyres were found being stored at premises which did not hold a licence for the storage of tyres. A letter of warning was issued on 9 May 2014 and the tyres were removed from the premises and processed within the licensed premises at Dowd Street.

Key Finding:

The Delegated Officer has reviewed the information regarding the assessment of occupier and has found:

- 1. Previous non-compliance issues have been resolved satisfactorily and the Applicant has continued to operate a prescribed premises at Dowd Street, Welshpool.*

5. Consultation

DER advertised the application for a licence on the DER internet page on 27 March 2017 and in the *West Australian* on 3 April 2017 inviting public comment on the application. DER did not receive any comments.

DER also sent a letter to the City of Canning on 27 March 2017 advising the city of the application. No response was received on this letter from the City of Canning.

6. Location and siting

6.1 Siting context

The premises is located in an industrial area in Welshpool, approximately 12 kilometers south-east of the Perth CBD. The nearest residential area is Wattle Grove, approximately 600m to the east. Between this residential area and the premises are other existing industrial premises and a major road, Roe Highway. The western side of the premises is adjacent to other industrial and commercial operators.

6.2 Residential and sensitive premises

The distances to residential and sensitive receptors are shown in Table 3 and Figure 1.

Table 3: Receptors and distance from premises boundary

Residential/Sensitive Land Uses	Distance from premises boundary
Residential Premises	600m to the south-east and 850m to the west of the tyre recycling and shredding facility.
Commercial/Industrial	Immediately adjacent to the premises are other industrial premises

Figure 1: Premises location



6.3 Specified ecosystems

There are no surface water bodies within the premises or in close proximity of the premises. Specified ecosystems near the premises are described in **Table 4**.

Table 4: Specified ecosystems

Specified ecosystems	Distance from activity boundary
Bush Forever sites: <ul style="list-style-type: none"> - Site No: 2842 - Site No: 4242 	<ul style="list-style-type: none"> - 640m to the east - 730m to the west
Conservation site	<ul style="list-style-type: none"> - 785m to the south

6.4 Groundwater and water sources

There are no surface water bodies within a 500 m radius of the premises. As identified by the Perth Groundwater Atlas, groundwater depth is expected to be approximately 5.5 m below ground level (mBGL) with the base of the aquifer expected to be approximately 20.5 mBGL.

Groundwater flow is inferred in a southwesterly to southerly direction from the premises.

There are a couple of groundwater bores within the industrial area of Welshpool, however it is unknown how these bores are used.

6.5 Soil type

The soil beneath the premises is categorised as Bassendean Sands, which is quartz sand and intringes with the Guildford Formation.

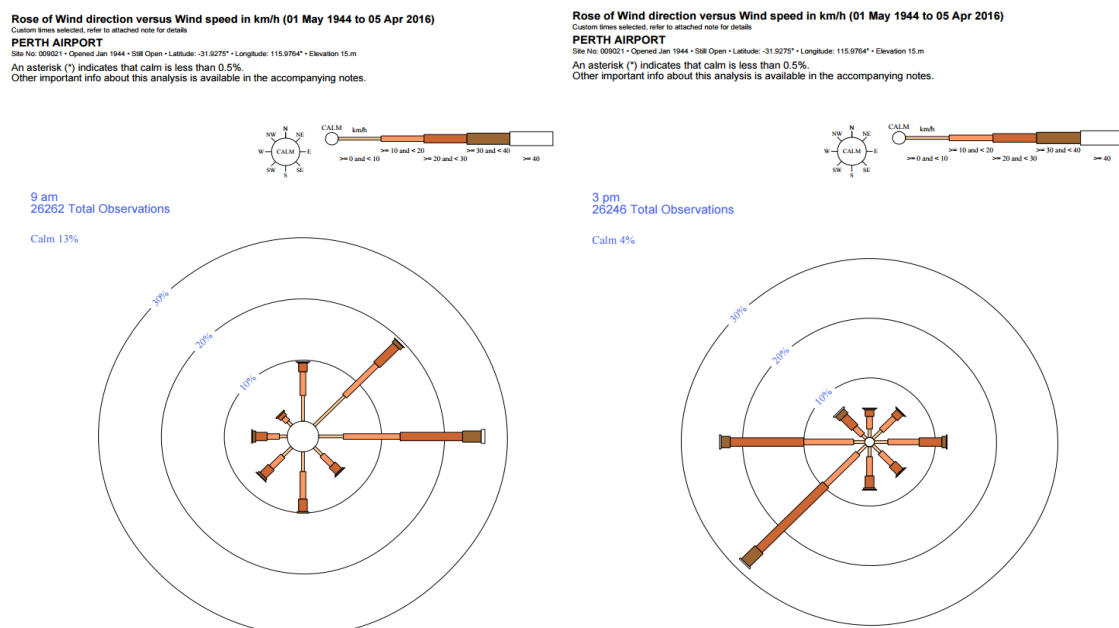
6.6 Meteorology

The premises are located on the Swan Coastal Plain in the Perth Region. The Perth Region experiences a Mediterranean climate characterised by mild and wet winters and warm to hot dry summers. Highest temperatures occur between December to March with average monthly maximum ranges from 30°C in December to 34°C in January. The summer period also experiences heat waves that last up to four to five days. Most rainfall occurs during winter in association with cold fronts from the south-west.

6.6.1 Wind direction and strength

The closest Bureau of Meteorology monitoring station is located at Perth Airport. The average wind direction in Perth region at 9am and 3pm is presented in Figure 2. The following wind roses represent the various percentage of wind occurrences recorded at 9am and 3pm over 50 years.

Figure 2: Wind Rose, Perth Airport 1944 – 2016 annual average at 09:00am and 03:00pm

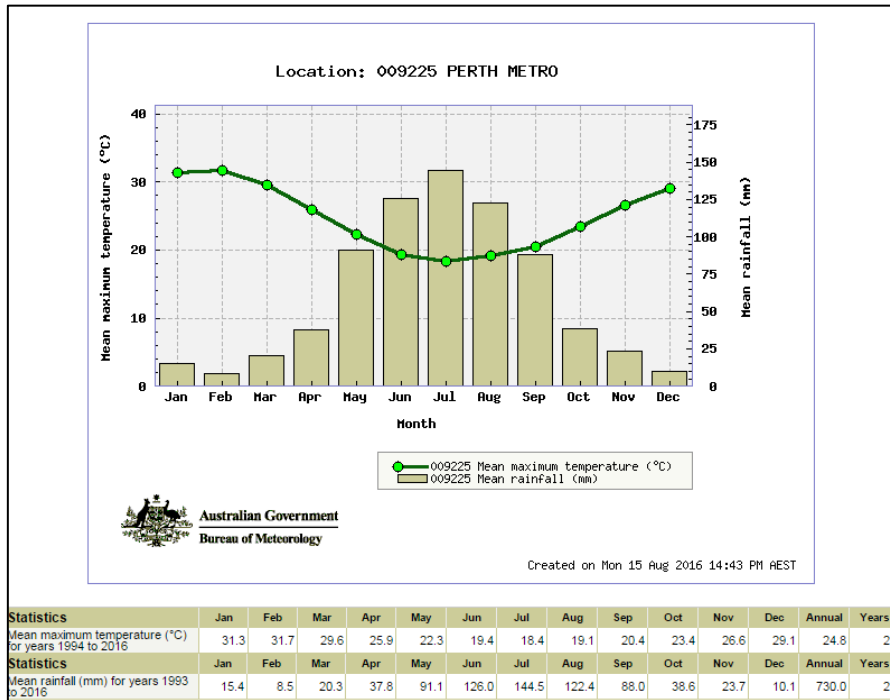


(Sourced from www.bom.gov.au on 13 September 2016)

6.6.2 Rainfall and temperature

The average rainfall, temperature and evaporation data is presented in Figure 3. As indicated by the average rainfall data below; most rainfall occurs in the winter.

Figure 3: Average rainfall and temperature



(Sourced from www.bom.gov.au on 15 August 2016)

7. Risk Assessment

7.1 Determination of emission, pathway and receptor

In undertaking its risk assessment, DER 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 5.

The identification of the sources, pathways, receptors to determine Risk Events are set out in Table 5 below.

Table 5: 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			
Waste acceptance and handling (whole used tyres)	Receipt and unloading of used tyres by trucks	Noise from trucks	Residential premises 600m to the south-east and 850m to the west of the premises	Air / Wind dispersion	Amenity impacts	No	The Delegated Officer considers that the separation distance between the source and potential receptors is sufficient and the activity will be carried out in an established industrial area.
		Dust from trucks			Amenity and health impacts	No	
Waste processing	Shredding of whole used tyres	Noise from the tyre shredder	Residential premises 600m to the south-east and 850m to the west of the premises	Air / wind dispersion	Amenity impacts	Yes	See Section 7.6.
Storage of waste (whole and shredded used tyres)	Fire within the premises resulting in the combustion of tyres and shredded tyres	Air emissions	Residential Premises 600m to the south-east and 850m to the west of the premises Neighboring industrial premises	Air / wind dispersion	Amenity and health impacts	Yes	See Section 7.4

Risk Events					Continue to detailed Risk Assessment	Reasoning
Sources/Activities	Potential Emissions	Potential Receptors	Potential Pathway	Potential Adverse Impacts		
	Firefighting water-potentially containing pyrolytic oils and perfluorooctanoic acid (PFOA) and per- and poly-fluoroalkyl substances (PFAS)	Soil and groundwater	Discharge to land and stormwater system; infiltration to groundwater	Land, surface water, and groundwater contamination.	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 6 below.

Table 6: 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

DER will undertake an assessment of the consequence and likelihood of the Risk Event in accordance with Table 7 below.

Table 7: 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	<ul style="list-style-type: none"> on-site impacts: catastrophic off-site impacts local scale: high level or above off-site 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 	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> on-site impacts: high level off-site impacts local scale: mid level off-site 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 	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> on-site impacts: mid level off-site impacts local scale: low level off-site impacts wider scale: minimal Specific Consequence Criteria (for environment) are at risk of not being met 	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> on-site impacts: low level off-site impacts local scale: minimal off-site impacts wider scale: not detectable Specific Consequence Criteria (for environment) likely to be met 	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> on-site impact: minimal Specific Consequence Criteria (for environment) met 	<ul style="list-style-type: none"> 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, DER may have regard to the Department of Health’s, *Health Risk Assessment (Scoping) Guidelines*

“on-site” means within the prescribed premises boundary.

7.3 Acceptability and Treatment of Risk Event

DER will determine the acceptability and treatment of Risk Events in accordance with the Risk Treatment Table below:

Table 8: Risk Treatment Table

Rating of Risk Event	Acceptability	Treatment
Extreme	Unacceptable.	Risk Event will not be tolerated. DER 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 – Air Emissions During Fire

7.4.1 Description of Air Emissions During Fire

The risk event is described as follows: *During a fire within the premises emissions from burning tyres would leave the premises through the air causing negative health impacts at neighboring industrial premises or residents at the nearby residential area.*

7.4.2 Identification and general characterisation of emission

The risk of fire has been demonstrated by a number of tyre fires that occurred in Western Australia and across the country. The intense radiant heat can cause damage to neighboring properties and inhibit fire-fighting efforts, and the incomplete combustion of tyres can cause a health risk from the inhalation of particulates. Tyre fires are very difficult to extinguish and are dangerous to firefighters.

7.4.3 Description of potential adverse impact from the emission

If a fire were to occur at the premises, emissions generated from combustion of the tyres will contain a number of pollutants including particulate matter (PM), sulfur dioxide (SO₂), polyaromatic hydrocarbons (PAHs) and elemental carbon. These compounds can cause amenity and health impacts to the human population.

7.4.4 Criteria for assessment

The National Environment Protection (Ambient Air Quality) Measure (NEPM) 2003 recommends air quality standards that must be maintained. The smoke that is being emitted during a fire contains mostly very fine particles that can cause significant health impacts. The NEPM contains a criterion for these fine particles (PM_{2.5}).

7.4.5 Applicant controls

Potential sources of ignition will be restricted in the tyre storage and processing areas, and fire-fighting equipment will be maintained on the premises.

The burning time and severity of tyre fires can be reduced by the appropriate storage of whole tyres and shredded tyres. The application stated that the Licence Holder has knowledge of the NSW Fire & Rescue Guideline for bulk storage of rubber tyres and that the tyre storage is intended to comply with this guideline. Proposed Applicant controls are set out in Table 9.

Table 9: Applicant proposed controls for Air Emissions During Fire (from Application)

Control	Description
Infrastructure	<p>All whole used tyres will be stored inside the tyre storage and shredding building in bins or stockpile pods; shredded material will be stored in the external yard area in containers.</p> <p>A small stockpile of shredded material may remain inside the shed depending on the export container loading requirements.</p> <p>Tyre storage areas will not exceed:</p> <ul style="list-style-type: none">• stockpile pods for passenger tyres, no more than 30m² and 111m³;• Up to two stockpile pods for off road tyres, no more than 30m² and 111m³; and• Two bins of 72m³ capacity.
Management	<p>The premises will be secured when unattended;</p> <p>Tyre stockpiles will be a minimum distance of 1m from the roof;</p> <p>Tyre stockpiles will be a minimum of 3m from other tyre storage; and</p> <p>Tyre stockpiles will be a minimum of 3m from any wall of the building.</p>

7.4.6 Key findings

The Delegated Officer has reviewed the information regarding the impact of air emissions generated during a fire and has found:

1. *Tyre storage limits can reduce the risk of impacts from fire;*
2. *Storage of whole and shredded tyres can be regulated through the conditions of the licence;*
3. *The risk event is acceptable subject to multiple regulatory controls.*

7.4.7 Consequence

If emissions are released from a fire within the premises, then the Delegated Officer has determined that the impact of the emissions of this fire will be of a low level local scale impact with short term adverse health effects requiring medical treatment. Therefore, the Delegated Officer considers the consequence of air emissions during fire to be **Moderate**.

7.4.8 Likelihood of consequence

The Delegated Officer has determined that the likelihood of air emissions during a fire causing negative health impacts will probably occur in most circumstances. Therefore, the Delegated Officer considers the likelihood of air emissions during a fire causing negative health impacts to be **Likely**.

7.4.9 Overall rating of Air Emissions During Fire

The Delegated Officer has compared the consequence and likelihood ratings described above with the Risk Rating Matrix (Table 6) and determined that the overall rating for the risk of negative health impacts from air emissions during a fire is **High**.

7.5 Risk Assessment – Liquid Emissions From A Tyre Fire

7.5.1 Description of Liquid Emissions From A Tyre Fire

The risk event is described as follows: During a fire within the premises, pyrolytic oils and contaminated firefighting water is discharged to ground and stormwater systems potentially causing the soil and groundwater to be contaminated.

7.5.2 Identification and general characterisation of emission

During a tyre fire, pyrolytic oils containing hydrocarbons, metals and particulate matter can be generated. In addition, the use of firefighting foams could result in perfluorooctanoic acid (PFOA) and per- and poly-fluoroalkyl substances (PFAS), surfactants, organic solvents, and corrosion inhibitors being discharged to the environment.

7.5.3 Description of potential adverse impact from the emission

The discharged materials do not break down readily in the environment or in humans and can contaminate land, surface water, or groundwater. This can then have negative health impacts to users of the water or of the land. PFAS are highly persistent in the environment, moderately soluble, can be transported long distances (in some cases many kilometres) and transfer between soil, sediment, surface water and groundwater.

PFAS have been shown to be toxic to some animals, and because they don't break down they can bioaccumulate and biomagnify in some wildlife, including fish. This means that fish and animals higher in the food chain may accumulate high concentrations of PFAS in their bodies.

7.5.4 Criteria for assessment

Australian water quality guidelines (ANZECC and ARMCANZ 2000) provide recommended trigger values for freshwater and marine water. DER Guideline: Assessment and Management of Contaminated Sites provide ecological and human health assessment levels for soil.

7.5.5 Applicant controls

The Applicant's controls to manage pyrolytic oils and firefighting water are set out in **Table 10**.

Table 10: Applicant proposed controls for Liquid Emissions From A Tyre Fire (From Application)

Control	Description
Infrastructure	Under normal operating conditions, uncontaminated stormwater is collected from the premises via a system of stormwater drains and is discharged to the City of Canning's

Control	Description
	<p>storm water system.</p> <p>In order to contain and prevent contaminated firefighting water discharging to the stormwater drainage system and the environment, the following controls have been proposed by the Applicant:</p> <ul style="list-style-type: none"> • The entire premises is surfaced with concrete/bitumen; • Bunding to be installed along all boundaries of the premises to prevent the egress of firefighting water off site; • The bunded yard area will be designed to be able to contain at least 162,000L of firewater as outlined in "Guideline for bulk storage of rubber tyres", Fire and Rescue NSW, dated 5 December 2014. • A shut-off valve will be installed on the discharge pipe from the final drain to ensure that during a fire, the discharge point can be closed off to prevent contaminated stormwater from entering the stormwater system. The shut-off valve is shown on the map in Attachment 1.
Management	<ul style="list-style-type: none"> • The stormwater shut-off valve will be closed in the event of a fire. • Contaminated firefighting water contained in the bunded yard area will be collected and transported and disposed of off-site by a licensed contractor.

7.5.6 Key findings

The Delegated Officer has reviewed the information regarding the groundwater impacts from Liquid Emissions From A Tyre Fire and has found:

1. *The containment capacity of the bunded area (minimum of 162,000L) is compliant with guidance published by Fire and Rescue NSW.*
2. *The Delegated Officer considers that in the event of a tyre fire, that all firefighting water can be adequately contained, collected and disposed of at a licensed waste facility*

7.5.7 Consequence

If liquid emissions from a tyre fire are released to the environment, then the Delegated Officer has determined that this can cause contamination of soil and groundwater such that relevant criteria are at risk of not being met and a low level impact can occur at local scale. Therefore, the Delegated Officer considers the consequence of liquid emissions from a tyre fire to be **Moderate**.

7.5.8 Likelihood of consequence

The Delegated Officer has determined that the likelihood of liquid emissions from a tyre fire causing a negative impact on the soil and groundwater will be unlikely, due to the Applicant's controls. Therefore the Delegated Officer considers the likelihood of a negative impact on soil and groundwater from liquid emissions from a tyre fire to be **Unlikely**.

7.5.9 Overall rating of Air Emissions During Fire

The Delegated Officer has compared the consequence and likelihood ratings described above through the Risk Matrix (Table 6) and determined that the overall rating for the risk of liquid emissions from a tyre fire during operation is **Medium**.

7.6 Risk Assessment – Noise Emissions

7.6.1 Description of Noise Emissions

The risk event is described as follows: Noise emissions from the operation of the tyre shredder leaving the building causing unacceptable noise levels at neighboring premises which negatively impact on workers' health and amenity.

7.6.2 Identification and general characterisation of emission

General operation of heavy machinery within the Premises and the explicit operation of the tyre shredder generate noise from the Premises. The tyre shredder when operational is expected to have around 94dB(A) at the roller doors. This level may cause noise levels at the boundary of the premises that could exceed the assigned noise levels at the boundary of the premises, as per the *Environmental Protection (Noise) Regulations 1997*.

7.6.3 Description of potential adverse impact from the emission

Industrial noise can cause health issues at various levels. The higher the noise levels the more severe noise can impact on someone's health and well being.

7.6.4 Criteria for assessment

The *Environmental Protection (Noise) Regulations 1997* contains criteria for noise from industrial premises on neighboring premises and sensitive receptors.

7.6.5 Applicant controls

The Applicant's controls to manage noise emissions are set out in **Table 10**.

Table 11: Applicant proposed controls for Noise Emissions (From Application)

Control	Description
Infrastructure	<ul style="list-style-type: none">The tyre shredder will be operated within a building and doors will be kept closed when not required to be opened for the vehicle access.
Monitoring	<ul style="list-style-type: none">Noise monitoring will be conducted after start of shredding operations on the Premises to assess compliance against the <i>Environmental Protection (Noise) Regulations 1997</i>.

7.6.6 Key findings

The Delegated Officer has reviewed the information regarding the impacts from noise emissions and has found:

1. *that the Applicant control to operate the tyre shredder within an enclosed building is an important control that should be prescribed in the licence; and*
2. *that the Applicant control to conduct noise monitoring is also important to ensure that noise from the shredding operations does not exceed the assigned noise levels at the boundary of the premises.*

7.6.7 Consequence

If noise emissions from the operating of the shredder are released at levels above the assigned noise levels at the boundary of the premises, then the Delegated Officer has

determined that this means that relevant criteria are at risk of not being met and a low level impact can occur at local scale. Therefore, the Delegated Officer considers the consequence of noise emissions to be **Moderate**.

7.6.8 Likelihood of consequence

The Delegated Officer has determined that the likelihood of noise emissions causing a negative impact on the workers next door will be possible, as doors may not be able to be kept closed all times that the shredder is being operated. Therefore the Delegated Officer considers the likelihood of a negative impact from noise emissions to be **Possible**.

7.6.9 Overall rating of noise emissions

The Delegated Officer has compared the consequence and likelihood ratings described above through the Risk Matrix (Table 6) and determined that the overall rating for the risk of noise emissions during operation 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 11 below. Controls are described further in section 8.

Table 12: Risk assessment summary

	Description of Risk Event	Applicant controls	Risk Rating	Acceptability with controls
1	During a fire within the premises emissions from burning tyres would leave the premises through the air causing negative health impacts at neighboring industrial premises or residents at the nearby residential area.	Management controls: Storage of whole tyres and shredded tyres in line with NSW Fire & Rescue Guideline for bulk storage of rubber tyres	Moderate consequence Likely to occur High Risk	Acceptable subject to Applicant controls conditioned
2	During a fire within the premises, pyrolytic oils and contaminated firefighting water is discharged to ground and storwater systems potentially causing the soil and groundwater to be contaminated.	Infrastructure controls: Concrete/bitumen surfacing, bunded yard area, shut-off valve Management controls: Maintenance of shut-off valve	Moderate consequence Unlikely to occur Medium Risk	Acceptable subject to Applicant controls conditioned
3	Noise emissions from the operation of the tyre shredder leaving the building causing unacceptable noise levels at neighboring premises which negatively impact on workers' health and amenity.	Infrastructure controls: Tyre shredder only to be operating inside the building Monitoring controls: Noise monitoring to be conducted within two months after issue of the licence.	Moderate consequence Possible to occur Medium Risk	Acceptable subject to Applicant controls conditioned

8. Regulatory Controls

A summary of regulatory controls determined to be appropriate for the Risk Events is set out in Table 12. The risks are set out in the assessment in section 7 and the controls are detailed in this section. DER 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 13: Summary of regulatory controls to be applied

		Controls (references are to sections below setting out details of controls)		
		9.2 Specified infrastructure and equipment requirements	9.3 Management	9.4 Monitoring
Risk Items (see risk analysis in section 7)	1. Air emissions		•	
	2. Firefighting water	•	•	
	3. Noise emissions	•		•

8.1 Licence controls

8.1.1 Specified infrastructure and equipment requirements

The following infrastructure and equipment should be maintained and operated onsite for the control of emissions of air and liquid emissions from a tyre fire and noise from the operation of the equipment on site.

Table 14 Infrastructure Requirements Table

Column 1	Column 2
Site Infrastructure	Specified Requirements
Tyre storage and shredding building	Enclosed building of approximately 1,400 m ² in area; with a concrete floor. (Noise and fire)
Two Tyre receival bins storage of whole tyres	Bins Located within the tyre storage and shredding building; and each with a capacity of approximately 72m ³ (Fire)
Tyre shredder	Operated only within the tyre storage and shredding building; Generally doors to be kept closed when shredder is operating; (Noise)

Column 1	Column 2
Site Infrastructure	Specified Requirements
Stockpile pods for storage of excess whole tyres	Located within building and separation distances of at least 3m between each stockpile pod or any wall or other object and at least 1m from the roof. (Fire)
Shredded tyre containers(sea containers)	Located in external yard area; and Two enclosed metal containers with a capacity of 76m ³ each. (Fire)
External yard area	Fully hardstand (concrete/bitumen) and enclosed with a bund with a capacity to contain at least 162,000L of water; and Stormwater collection and drainage system with a shut-off valve located on the discharge pipe from the final drain to prevent water discharging from the premises. (Fire)

8.1.2 Specified management controls

Management controls will be contained in the licence regarding the tyre storage specifications and management actions for firewater management and noise

Conditions include the following as derived from Applicant controls and existing Licence for the Dowd Road premises.

Table 14 Management Controls in the Licence conditions

Control	Description
Management	The premises must be secured when unattended; Tyre storage areas must not exceed 30m ² in area and 3.7m in height; Tyre storage must be a minimum distance of 1m from the roof; Tyre storage must be a minimum of 3m from other tyre storage; and Tyre storage must be a minimum of 3m from any wall of the building. The stormwater shut-off valve must be closed in the event of a fire and firefighting water needs to be contained within the premises.

8.1.3 Monitoring controls

The Applicant committed in the application to conduct noise monitoring once the premises was normal operating. It is expected that this will be within a period of weeks. As such to ensure that noise monitoring is conducted a condition will be included in the licence regarding the requirement to conduct the noise monitoring and to provide a report to DER within 2 months of issue of the licence. Depending on the outcome of the monitoring DER may initiate a licence amendment.

9. Appropriateness of Licence conditions

The conditions in the Issued Licence in Attachment 1 have been determined in accordance with DER's *Guidance Statement: Setting Conditions*.

DER's *Guidance Statement: Licence Duration* has been applied and the Issued Licence

expires in 20 years from date of issue.

Table 15 Conditions reference and grounds

Condition Ref	Grounds
Emissions: 1	This condition is included to provide clarity on what kind of emissions are allowed in accordance with the licence conditions.
Information 2 – 6	These conditions are valid, risk-based and enable flexibility in operations.
Waste Acceptance, Storage and Processing 7 - 10	These conditions are valid, risk-based and contain appropriate controls (see section 8).
Firefighting Water 11 and 12	These conditions are valid, risk-based and contain appropriate controls (see section 9).
Waste record keeping 13	This condition is to ensure that accepted waste is recorded and as such auditable.
Noise monitoring 14 - 16	This condition is included to ensure compliance with the <i>Environmental Protection (Noise) Regulations 1997</i>

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

10. Applicant's comments

The Applicant was provided with the draft decision report and draft licence on 5 May 2017. The Applicant provided a response on the draft on 5 May 2017, only to state that they do not wish to have the optional material change conditions included. These have been removed from the final licence conditions.

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.

Caron Goodbourn
Acting Manager Licensing (Process Industries)
Delegated Officer
under section 20 of the *Environmental Protection Act 1986*

Appendix 1: Key Documents

	Document Title	In text ref	Availability
1	Elan Energy Matrix Pty Ltd – Tyre Storage and Shredding operations Works Approval Application Supporting Document	The Application	DER Records (A1156865)
2	Letter dated 29 August 2016 from Strategen Environmental, Project No: EEM16113.01	The Application	DER Records (A1156867)
3	Email dated 20 September 2016 from Strategen Environmental	The Application	DER Records (A1168060)
4	DER <i>Guidance Statement on Regulatory principles</i> , July 2015	N/A	accessed at http://www.der.wa.gov.au
5	DER <i>Guidance Statement on Setting conditions</i> , September 2015		
6	DER <i>Guidance Statement on Licence duration</i> , November 2014		
7	DER <i>Guidance Statement on Licensing and works approvals processes</i> , September 2015		
8	NSW Government Fire & Rescue NSW – Fire Safety Guideline, Guideline for bulk storage of rubber tyres (version 03 – 5 December 2014)	NSW Guideline	https://www.fire.nsw.gov.au/gallery/files/pdf/guidelines/rubber_tyres.pdf
9	Notice of Determination on Application for Development Approval, City of Canning, 11 April 2017	N/A	DER Records (A1411780)

Attachment 1: Issued Licence L9041/2017/1

Attachment 2: Maps

Premises Map

The Premises are shown in the map below. The pink line depicts the boundary to the Premises.

Elan Energy Matrix Pty Ltd



LEGEND

- Road Centrelines
- Perth Metropolitan Area Central 15cm Orthomosaic - Landgate 2014
- Cadastre**
- Freehold
- Crown Reserve
- State Forest / Timber Reserve
- Marine Park
- Crown Lease
- Lease / Reserve
- Lease on State Forest / Timber Reserve
- Public Roads
- Unallocated Crown Land
- Water

** Project Data. This data has not been quality assured. Please contact map author for details.*

N

0 ————— 75 m

Scale 1:2589
(Approximate when reproduced at A4)


Geocentric Datum Australia 1994

Note: the data in this map have not been projected. This may result in geometric distortion or measurement inaccuracies.

Prepared by: Peter Knol
Prepared for: Department of Environment Regulation
Date: 22/05/2016 4:12:36 PM

Works Approval W982/2016/1

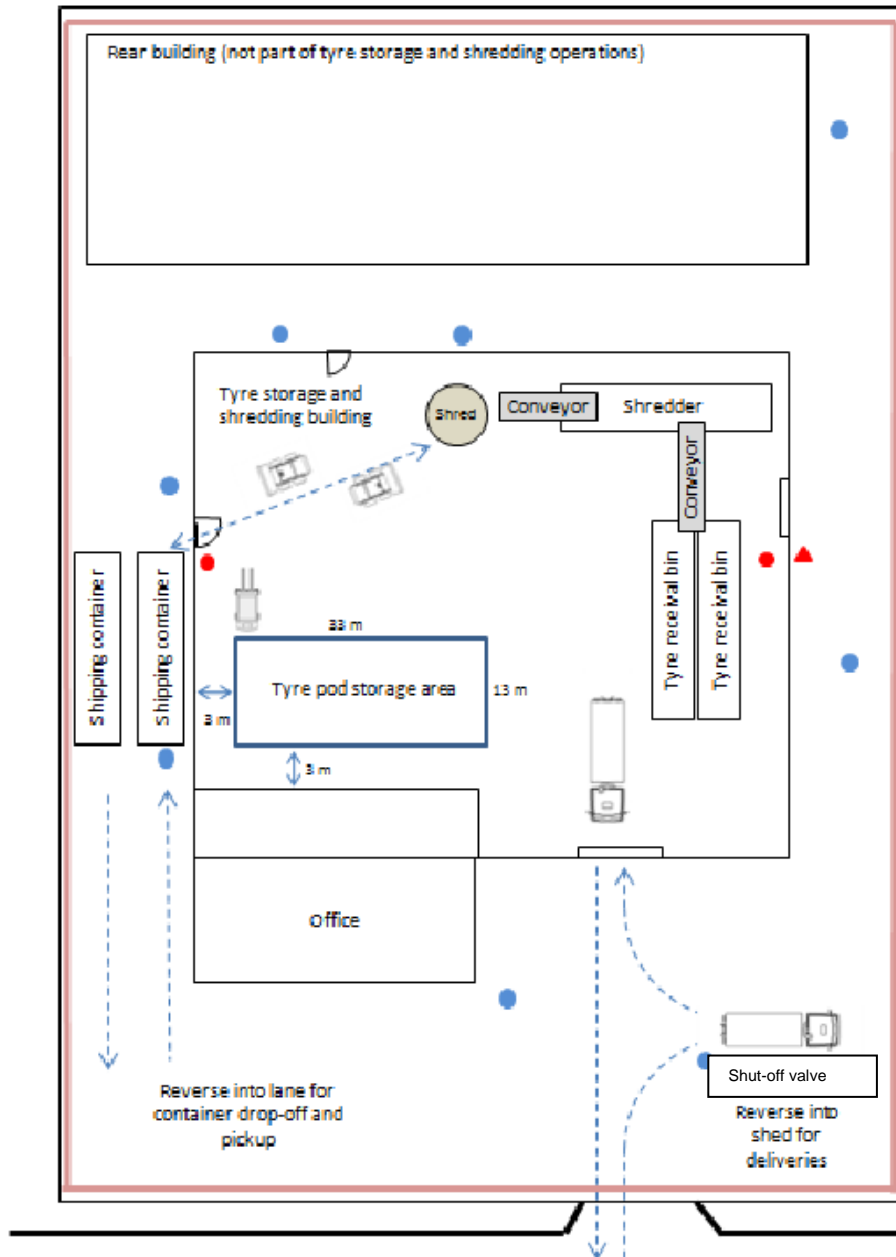
Information derived from this map should be confirmed with the data custodian acknowledged by the agency acronym in the legend.



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Department of Environment Regulation

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Premises Layout



Legend

- Fire hose reel
- ▲ Hydrant
- ▭ Roller door
- Bunding
- Stormwater drain

Fargo Way