Government of Western Australia
Department of Environment Regulation

Works Approval

Environmental Protection Act 1986, Part V

Works Approval Holder: Pearl Global Pty Ltd

Works Approval Number: W5565/2013/1

Registered office: Level 1, 8 – 12 Market Street,
FREMANTLE WA 6160

ACN: 123 190 894

Premises address: Pearl Global Waste Tyre & Rubber Recycling Faility
344 Mogumber – Yarawinah Road
MOGUMBER WA 6506
Being Lot 2 on Diagram 33603

Issue date: Thursday, 31 July 2014

Commencement date: Monday, 4 August 2014

Expiry date: Saturday, 5 December 2016

The following category/s from the *Environmental Protection Regulations 1987* cause this Premises to be a prescribed premises for the purposes of the *Environmental Protection Act 1986*:

Category number	Category description	Category production or design capacity	Approved premises production or design capacity
37	Char manufacturing: premises on which wood, carbon material or coal is charred to produce a fuel or material of a carbonaceous nature or of enriched carbon content.	10 tonnes or more per year	900 tonnes per annual period
57	Used tyre storage (general): premises (other than premises in category 56) on which tyres are stored.	100 tyres or more	50 tonnes (at any one time) - equivalent to approximately 2,500 tyres

Conditions
This Works Approval is subject to the conditions set out in the attached pages.

Date signed: 27 November 2015
.....
Officer delegated under section 20
of the *Environmental Protection Act 1986*

Works Approval Conditions

1 General

1.1 Interpretation

1.1.1 In the Works Approval, definitions from the *Environmental Protection Act 1986* apply unless the contrary intention appears.

1.1.2 In the Works Approval, unless the contrary intention appears:

'Act' means the *Environmental Protection Act 1986;*

'AS 4323.1' means the Australian Standard AS4323.1 *Stationary Source Emissions Method 1: Selection of sampling positions;*

'averaging period' means the time over which a limit or target is measured or a monitoring result is obtained;

'CEO' means Chief Executive Officer of the Department of Environment Regulation;

'CEO' for the purpose of correspondence means;

Senior Manager - Industry Regulation (Process Industries)

At the following addresses:
Department Adminstering the Envionmental Protection Act 1986
Locked Bag 33
CLOISTERS SQUARE WA 6850
Email: info@der.wa.gov.au;

'Commissioning' means the process of operation and testing that verifies the works and all relevant systems, plant, machinery and equipment have been installed and are performing in accordance with the design specification set out in the works approval application;

'hardstand' means a surface with a permeability of 10^{-9} metres/second or less;

'NATA' means the National Association of Testing Authorities, Australia;

'NATA accredited' means in relation to the analysis of a sample that the laboratory is NATA accredited for the specified analysis at the time of the analysis;

'**normal operating conditions'** means any operation of a particular process (including abatement equipment) excluding start-up, shut-down and upset conditions, in relation to stack sampling or monitoring;

'**PM'** means total particulate matter including both solid fragments of material and miniscule droplets of liquid;

'Premises' means the area defined in the Premises Map in Schedule 1 and listed as the Premises address on page 1 of the Works Approval;

'Schedule 1' means Schedule 1 of this Works Approval unless otherwise stated;

'**stack-test**' means a discrete set of samples taken over a representative period at normal operating conditions;

'**STP dry**' means standard temperature and pressure (O^0 Celsius and 101.325 kilopascals respectively), dry;

'USEPA' means United States (of America) Environmental Protection Agency

'USEPA Method 5' means the promulgated Test Method 5 – Determination of Particulate Matter Emissions from Stationary Sources (out of stack filter);

'USEPA Method 6C' means the promulgated Test Method 6 – Determination of Sulfur Dioxide Emissions from Stationary Sources (Instrumental Analyzer Procedure);

'USEPA Method 7D or 7E' means the promulgated Test Method 7D or 7E – Determination of Nitrogen Oxides Emissions from Stationary Sources;

'USEPA Method 10' means the promulgated Test method 10 – Determination of Carbon Monoxide Emissions from Stationary Sources;

'USEPA Method 17' means the promulgated Test Method 17 – Determination of Particulate Matter Emissions from Stationary Sources (In stack filtration)

'USEPA Method 18' means the promulgated Test Method 18 – Measurement of Gaseous Organic Compound Emissions by Gas Chromatography;

'USEPA Method 23' means the promulgated Test Method 23 – Determination of Polychlorinated Dibenzo-p-dioxins and Polychlorinated Dibenzofurans from Municpal Waste Combustors;

'USEPA Method 26A' means the promulgated Test Method 26 – Determination of Hydrogen Halide and Halogen Emissions from Stationary Sources, Non-Isokinetec Method;

'USEPA Method 29' means the promulgated Test Method 29 – Determination of Metals Emissions from Stationary Sources;

'**SW-846 Method 0010'** means the promulgated Test Method SW-846 Method 0010 – Modified Method 5 Sampling Train;

'Tyre Storage Catchment Area' means an area of the licensed premises that is large enough to fully and effectively contain no less than 162,000 litres (10 litres per second for 3 hydrants for 90 minutes) of fire water;

'Works Approval' means this Works Approval numbered W5565/2013/1 and issued under the Act; and

'Works Approval Holder' means the person or organisation named as the Works Approval Holder on page 1 of the Works Approval.

1.1.3 Any reference to an Australian or other standard in the Works Approval means the relevant parts of the standard in force from time to time during the term of this Works Approval.

1.1.4 Any reference to a guideline or code of practice in the Works Approval means the current version of the guideline or code of practice in force from time to time, and shall include any amendments or replacements to that guidelines or code of practice made during the term of this Works Approval.

1.2 General conditions

1.2.1 The Works Approval Holder shall construct the works in accordance with the documentation detailed in Table 1.2.1:

Table 1.2.1: Construction Requirements[1]		
Document	**Parts**	**Date of Document**
Works Approval Application AIN:W5565/2013/1. Pearl Global Pty Ltd, Waste Tyre and Rubber Recycling Facility, Mogumber WA	All	26 March 2014
Electronic mail correspondence from Andrew Drennan to DER re: Commercial in confidence. Received at 11:14 am	All	4 April 2014
Electronic mail correspondence from Andrew Drennan to DER re: Commercial in confidence. Received at 11:57 am	All	8 April 2014
Electronic mail correspondence from Andrew Drennan to DER Pearl Global Gas Management. Received at 12:37 pm	All	29 April 2014
Electronic mail correspondence from Andrew Drennan to DER re: Pearl Global. Received at 5:24 am	All	15 May 2014
Electronic mail correspondence from Andrew Drennan to DER re: Works Approval. Received at 7:57 am	All	30 May 2014
Letter from Andrew Drennan to DER: Pearl Global – Mogumber Operations Compliance and Clarification Document and attached P4 Form.	All	15 September 2015
Electronic mail correspondence from Andrew Drennan to DER re: Pearl Global – Works Approval amendment W5565. Received at 2:33 pm	All	9 November 2015
Electronic mail correspondence from Andrew Drennan to DER re: Pearl Global – Works Approval amendment W5565. Received at 9:32 am	All	18 November 2015

Note 1: Where the details and commitments of the documents listed in condition 1.2.1 are inconsistent with any other condition of this works approval, the conditions of this works approval shall prevail.

1.2.2 The Works Approval Holder shall undertake commissioning in accordance with the commissioning plan outlined in Works Approval Application W5565/2013/1, Pearl Global Pty Ltd, Waste Tyre and Rubber Recycling Facility, Mogumber WA, 26 March 2014.

1.2.3 The Works Approval Holder shall commission the Pearl Global Waste Tyre and Rubber Recycling Facility, for a period not exceeding 3 months.

2 Emissions

2.1 General

2.1.1 The Works Approval Holder shall record and investigate the exceedance of any descriptive or numerical limit specified in any part of section 2 of this Works Approval.

2.2 Point source emissions to air

2.2.1 The Works Approval Holder shall ensure that where waste is emitted to air from the emission points in Table 2.2.1 and identified on the site plan in Schedule 1 it is done so in accordance with the conditions of this Works Approval.

Table 2.2.1: Emission points to air

Emission point reference	Emission Point and source	Emission point height (m) above ground level	Source, including any abatement
Environmental monitoring flue (Item 17 on site plan in Schedule 1)	Single stack for venting emissions.	11 m	Combined emissions from heating unit and combustion of non-condensed gases in diesel fired after burner.

2.2.2 The Works Approval Holder shall not cause or allow point source emissions to air greater than the limits listed in Table 2.2.2.

Table 2.2.2: Point source emission limits to air

Emission point Reference	Parameter	Limit (including units)[1,2]	Averaging period
Environmental monitoring flue (Item 17 on site plan in Schedule 1)	Particulates	30 mg/m^3	Stack test (60 minute average)
	Sulfur dioxide	200 mg/m^3	Stack test (30 minute average)
	Nitrogen oxides	400 mg/m^3	Stack test (30 minute average)
	Carbon monoxide	100 mg/m^3	Stack test (30 minute average)
	Total VOCs including reduced sulphurous compounds	20 mg/m^3	Stack test (30 minute average)
	Hydrogen chloride	60 mg/m^3	Stack test (60 minute average)
	hydrogen fluoride	4 mg/m^3	Stack test (60 minute average)
	Mercury, thallium cadmium	0.05 $\mu g/m^3$	Stack test (180 minute average)
	antimony, arsenic, lead, chromium, cobalt, copper, manganese & nickel	0.5 $\mu g/m^3$	Stack test (180 minute average)
	Dioxins and furans	0.1 ng/m^3	Stack test (180 minute average

Note 1: All units are referenced to STP dry

Note 2: Concentration units for A5 are referenced to 6% O_2 .

3 Monitoring

3.1.1 The Works Approval Holder shall ensure that all laboratory samples are submitted to and tested by a laboratory with current NATA accreditation for the parameters being measured.

3.1.2 The Works Approval Holder shall ensure that all monitoring equipment used on the Premises to comply with the conditions of this Works Approval is calibrated in accordance with the manufacturer's specifications.

3.1.3 The Works Approval Holder shall, where the requirements for calibration cannot be practicably met, or a discrepancy exists in the interpretation of the requirements, bring these issues to the attention of the CEO accompanied with a report comprising details of any modifications to the methods.

3.1.4 The Works Approval Holder shall undertake the monitoring specified in Table 3.1.1 during the commissioning period.

Table 3.1.1: Monitoring of point source emissions to air

Emission point reference	Parameter	Units[1, 3]	Averaging period	Frequency[2]	Method
Environmental monitoring flue (Item 17 on site plan in Schedule 1)	Particulates	mg/m^3 g/s	Stack test (60 minute average)	Weekly (with a minimum 3 sampling events)	USEPA Method 5 or USEPA Method 17
	Sulfur dioxide	mg/m^3 g/s	Stack test (30 minute average)		USEPA Method 6C
	Nitrogen oxides	mg/m^3 g/s	Stack test (30 minute average)		USEPA Method 7E or 7D
	Carbon monoxide	mg/m^3 g/s	Stack test (30 minute average)		USEPA Method 10
	Total VOCs including reduced sulphurous compounds	mg/m^3 g/s	Stack test (30 minute average)		USEPA Method 18
	Hydrogen chloride, hydrogen fluoride	mg/m^3 g/s	Stack test (60 minute average)		USEPA Method 26A
	Mercury, thallium cadmium, antimony, arsenic, lead, chromium, cobalt, copper, manganese & nickel	$\mu g/m^3$ g/s	Stack test (180 minute average)		USEPA Method 29
	Dioxins and furans	ng/m^3 g/s	Stack test (180 minute average		USEPA Method 23
	PAH	$\mu g/m^3$ g/s	Stack test (180 minute average)		SW-846 Method 0010

Note 1: All units are referenced to STP dry
Note 2: Monitoring shall be undertaken to reflect normal operating conditions and any limits or conditions on inputs or production.
Note 3: Concentration units for A5 are referenced to 6 % O_2 .

4 Improvements

4.1.1 The Works Approval Holder shall complete the improvements in Table 4.1.1 by the date of completion in Table 4.1.1.

Table 4.1.1: Improvement program

Improvement reference	Improvement	Date of completion
IR1	The Works Approval Holder shall, prior to commencing commissioning of Pearl Global Waste Tyre and Rubber Recycling Facility, submit a report to the Director, verifying that the tyre storage catchment will have a storage capacity of 162,000 L and is on hardstand.	Prior to commencement of commissioning
IR2	The Works Approval Holder shall in accordance with AS 4323.1 install stack sampling port(s) in the exhaust flue (Item 17 on site plan in Schedule 1).	Prior to commencement of commissioning
IR3	The Works Approval Holder shall undertake an air quality impact assessment using appropriate air dispersion modelling techniques and based on actual emissions monitored during commissioning. The report shall be submitted to the Director and shall include, but not be limited to: (a) the method and data input used for modelling of air emissions; (b) the worst, best and most likely case air emissions impact on identified local receptors; (c) comparison of the predicted air quality including existing background levels against the appropriate air quality standards; (d) where they are not met, proposed measures to reduce point source air emissions to assigned levels together with timescales for implementing the proposed measures.	Within one month of completion of commissioning
IR4	The Works Approval Holder shall undertake a noise assessment of the Premises during commissioning. A report on the noise assessment shall be prepared in accordance with Part 3 of the *Environmental Protection (Noise) Regulations 1997 (Noise Regulations).* The report shall be submitted to the Director and shall include: (a) methods used for monitoring and modelling of noise; (b) an assessment of whether noise emissions from the Premises comply with the assigned noise level in the Noise Regulations; and (c) where they are not met, proposed measures to reduce noise emissions to assigned levels together with timescales for implementing the proposed measures.	During commissioning. Report to be submitted within one month of completion of commissioning.

5 Information

5.1 Reporting

5.1.1 The Works Approval Holder shall submit a compliance document to the CEO, following the construction of the works and prior to commissioning of the same.

5.1.2 The compliance document shall:
(a) certify that the works were constructed in accordance with the conditions of the works approval; and
(b) be signed by a person authorised to represent the Works Approval Holder and contain the printed name and position of that person within the company.

5.1.3 The Works Approval Holder shall submit a commissioning report for the Pearl Global Waste Tyre and Rubber Recycling Facility, to the CEO within one month of the completion of commissioning.

5.1.4 The Works Approval Holder shall ensure the report includes;

(a) a summary of the monitoring results recorded under condition 3.1.4;
(b) an air quality impact assessment report specified under condition 4.1.1;
(c) a noise assessment report specified under condition 4.1.1;
(d) a list of any original monitoring reports submitted to the Licensee from third parties for the commissioning period;
(e) a summary of the environmental performance of the Pearl Global Waste Tyre and Rubber Recycling Facility as installed, against the design specification set out in the works approval application;
(f) a review of performance against the works approval conditions; and
(g) where they have not been met, measures proposed to meet the design specification and/or works approval conditions, together with timescales for implementing the proposed measures.

5.2 Notification

5.2.1 The Works Approval Holder shall ensure that the parameters listed in Table 5.2.1 are notified to the CEO at the Contact Address and in accordance with the notification requirements of the table.

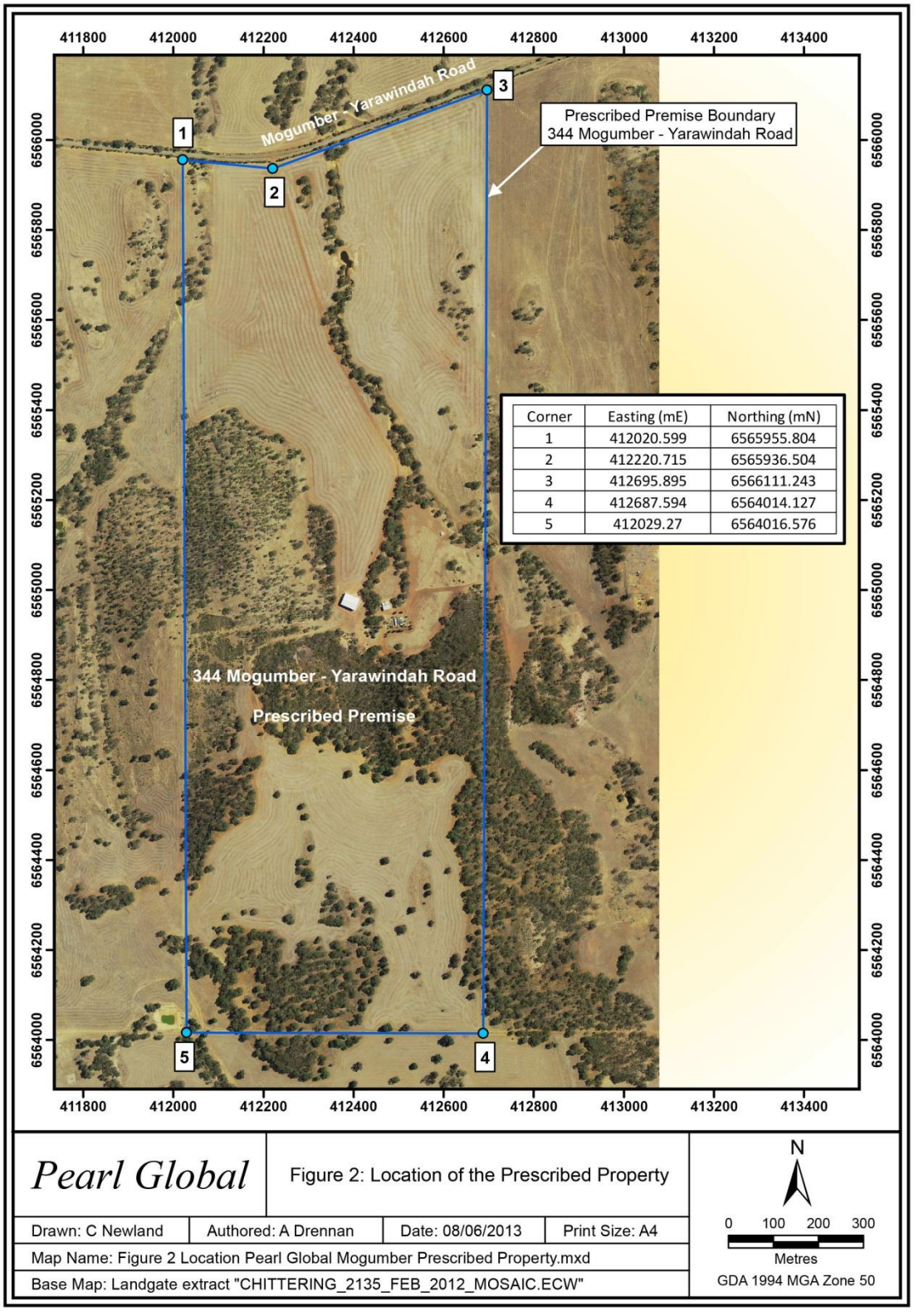
Table 5.2.1: Notification requirements

Condition or table (if relevant)	Parameter	Notification requirement	Format or form
1.2.4	Commencement of commissioning	7 days prior to start	None specified
	Completion of commissioning	7 days after completion	

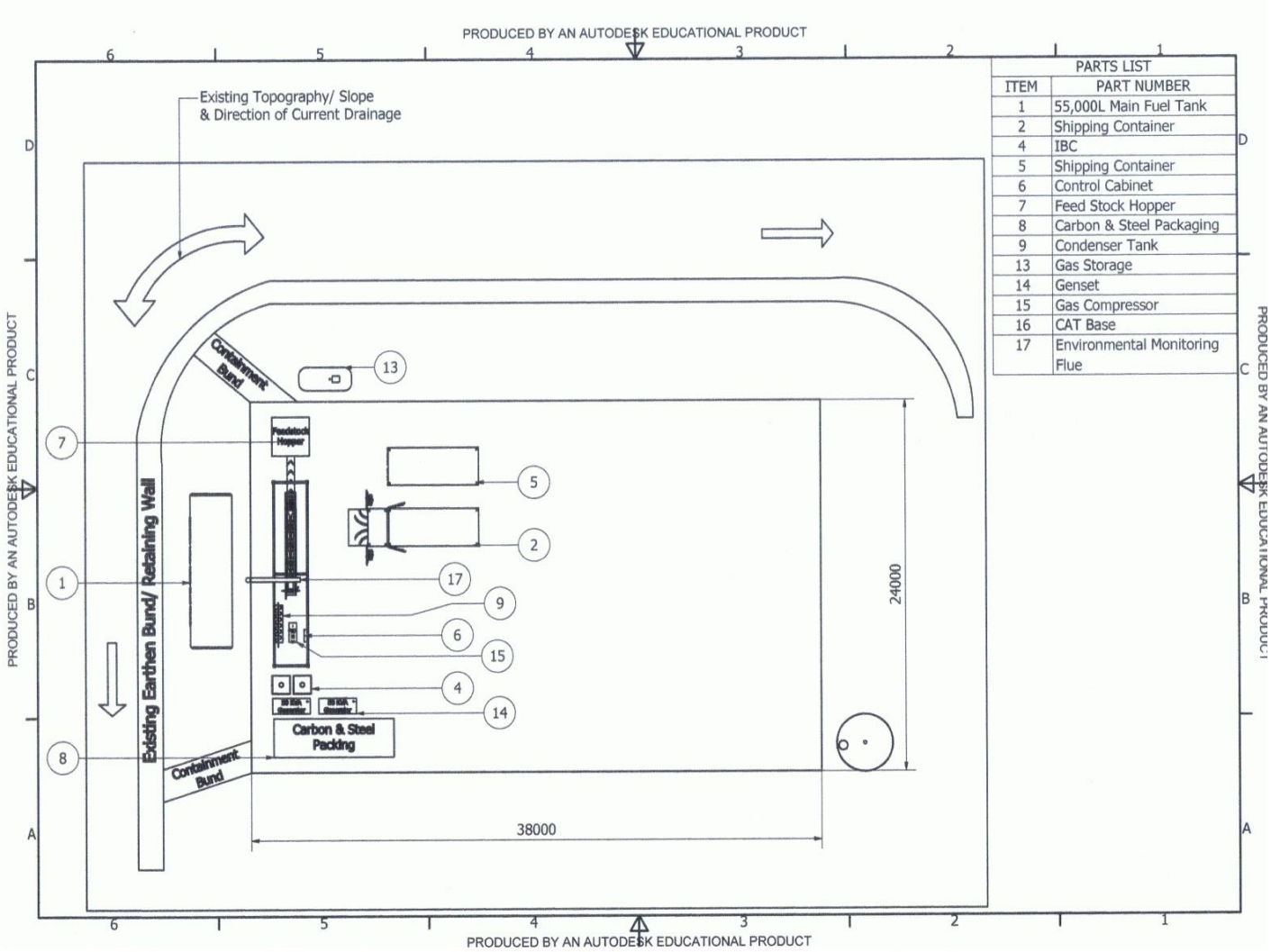
Schedule 1: Maps

Premises map

The Premises is shown in the map below. The blue line depicts the Premises boundary.



Site Plan of Pearl Global Waste Tyre and Rubber Recycling Facility



Government of Western Australia
Department of Environment Regulation

Decision Document

Environmental Protection Act 1986, Part V

Proponent: Pearl Global Pty Ltd

Works Approval: W5565/2013/1

Registered office:	Level 1, 8 – 12 Market Street, FREMANTLE WA 6160
ACN:	123 190 894
Premises address:	Pearl Global Waste Tyre & Rubber Recycling Facility 344 Mogumber – Yarawinah Road MOGUMBER WA 6506 Being Lot 2 on Diagram 33603
Issue date:	Thursday, 31 July 2014
Commencement date:	Monday, 4 August 2014
Expiry date:	Saturday, 5 December 2016

Decision

Based on the assessment detailed in this document, the Department of Environment Regulation (DER), has decided to issue a works approval. DER considers that in reaching this decision, it has taken into account all relevant considerations.

Decision Document prepared by:	Richard Wilson Licensing Officer
Decision Document authorised by:	Lauren Trott A/Manager Licensing Process Industries

Contents

1 Purpose of this Document

This decision document explains how DER has assessed and determined the application for a works approval or licence, and provides a record of DER's decision-making process and how relevant factors have been taken into account. Stakeholders should note that this document is limited to DER's assessment and decision making under Part V of the *Environmental Protection Act 1986.* Other approvals may be required for the proposal, and it is the proponent's responsibility to ensure they have all relevant approvals for their Premises.

2 Administrative summary

Administrative Details		
Application Type	Works Approval ☐ New Licence ☐ Licence amendment ☐ Works Approval amendment ☒	
Activities that cause the premises to become prescribed premises	**Category number(s)**	**Assessed design capacity**
	57	50 tonnes (at any one time)
	37	900 tonnes per annual period
Application verified Application fee paid	Date: NA Date: NA	
Works Approval has been complied with Compliance Certificate received	Yes ☐ No ☐ N/A ☒ Yes ☐ No ☐ N/A ☒	
Commercial-in-confidence claim	Yes ☒ No ☐	
Commercial-in-confidence claim outcome	No commercial in confidence information included in the Decision Document.	
Is the proposal a Major Resource Project?	Yes ☐ No ☒	
Was the proposal referred to the Environmental Protection Authority (EPA) under Part IV of the *Environmental Protection Act 1986*?	Yes ☐ No ☒	Referral decision No: Managed under Part V ☐ Assessed under Part IV ☐
Is the proposal subject to Ministerial Conditions?	Yes ☐ No ☒	Ministerial statement No: EPA Report No:
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the *Environmental Protection Act 1986*)?	Yes ☐ No ☒ Department of Water consulted Yes ☐ No ☒	
Is the Premises within an Environmental Protection Policy (EPP) Area Yes ☐ No ☐ NA ☒		
Is the Premises subject to any EPP requirements? Yes ☐ No ☒		

3 Executive summary of proposal

Pearl Global Pty Ltd (Pearl) is a West Australian owned and operated business which has been operating since November 2012. The company has developed an Australian patented device (Patent No. 2013100048) which thermally decomposes rubber and tyre material to char and condenses the pyrolitic gases to a crude oil. This proposal is based on a small scale pilot plant trialled in Queensland.

This proposal includes the construction and commissioning of a Waste Tyre & Rubber Recycling Facility to receive shredded tyre and rubber products (feedstock) in 500 kg bulka bags and through pyrolysis convert the feedstock into char and pyrolysis gases by utilising Catalytic Reactor Technology (CAT). A maximum of 50 tonnes of feedstock will be stored on the premises at any time. A nominal 10 tonnes of feedstock per shift (proposed daily throughput) will produce up to 4,500L of pyrolysis liquid (crude oil / hydrocarbons), 3,000 kg of carbon black and 1.5 tonnes of steel and approximately 1,000 kg of non-condensible gas based on a 10% non-combustible feedstock fraction per 10 hour shift. Pearl Global's testing has revealed a lower non-condensible fraction during pilot testing but under worst case scenario, a maximum of 1,500 kg (15%) of non-condensible gas could be produced. Figure 1 illustrates the process flowchart.

Pearl Global is intending to transport the plant (in modular form) from the Eastern States and establish (assemble) it at the Waste Tyre & Rubber Recycling Facility Mogumber, Western Australia. Further testing of the plant to optimise process conditions is planned during commissioning. It is envisaged that the Waste Tyre & Rubber Facility will be commercially operational after a 3 month commissioning period.

The Waste Tyre & Rubber Recycling Facility is to be located on part of 344 Mogumber-Yarawindah Road, Mogumber, WA, 6506. The Premises is located approximately 125 km north-north-east of Perth and approximately 15 km south-west from New Norcia. The proposed facility will cover approximately 3,000 m^2 within the 150 hectares Premises boundary.

The majority of the infrastructure and plant will be housed within an existing enclosed 912 m^2 shed (dimensions: 24 m x 38 m) on the Premises. All plant operations will be undertaken within the shed, save storage of crude oil produced and non-condensed gases. A single 11 m high stack (3 m above the building) will be constructed to exhaust gases from the heating unit and combustion of non-condensible gases. The floor of the shed is concrete hardstand. Three air vents are placed on the roof of the shed to provide ventilation. Existing utility supplies are compatible with the facility requirements. No additional ground works are proposed for the site. Two rainwater tanks with a combined capacity of 60,000 L will be located outside the shed on a gravel hardstand to provide water for operations and fire protection. All hazardous materials will be stored in a bunded hardstand areas.

It is proposed to operate the facility at this Premises for a 12 month period, operating Monday to Friday between the hours of 06:00 and 18:00 in 10 hour shifts.

The operation will involve receiving and storing shredded rubber and tyres (feedstock) in bulka bags in sealed shipping containers; this pre-shredded material will still contain steel embedded in it. This feedstock will be loaded into a hopper with a loader from which the feedstock will transfer through a triple air-lock system into the CAT at a rate of approximately 20 kg per 5 minutes. The feedstock will be moved throught the CAT in different heating zones (100-700 ^oC) to enable thermal decomposition and produce pyrolysis gas and solid residue (metal fragments and char). The residence time (1-5 hours) of the feedstock in the different heating zones in the CAT will be controlled by an auger.

The pyrolysis gases will be condensed to produce waste fuel oil. The gas condensing unit will be maintained at 30-35^oC by circulating water through the unit. The condensate liquid (wastefuel oil) will

be directed via pipework to a 55,000 L double-skinned tank outside the shed. Non-condensable gases (residual) will be burnt in a diesel fired after burner and resulting emissions vented through the flue.

Solid residue will be dropped out of the CAT through an exit triple air-lock system where it will be transferred to a 100 kg capacity cooling hopper and then to a fully enclosed hammer mill to be crushed (to approximately 400 micron) and screened to separate the steel fragments into metal fragments and char. Char is transferred by an enclosed conveyor belt to an automated bagging and sealing area. Steel fragments are transferred to a scrap metal collection bin via an enclosed conveyor system. All products are then removed from the premises.

A Programmable Logic Controller (PLC) will be used to monitor and control all electronic processes of the operation. The entire pyrolysis process will be automated and closed to prevent air emissions. A carbon monoxide detection system will be employed across the operating areas to ensure that any unauthorised release of gases is immediately detected. The system will include at least four remote monitors located throughout the plant. The monitors will be tied into the central management system, located on the control panel, and alarm at both local and central locations. The sensors will be used for both emergency and fugitive gas detection for staff health. A series of thermocouples set within the plant are plumbed into the central management system as above and will alarm and shut the plant down if temperatures exceed programmed parameters. There are 2 manual emergency shutdown switches installed at either end of the plant to enable manual shut down if required.

The environmental hazardous material expected to be stored on site at any stage include:

- 50 tonnes of tyre / rubber feedstock stored in bulka bags in sealed shipping containers (equivalent to to 2,300 tyres);
- 55,000L pyrolysis condensate liquid (crude oil / diesel product) in double lined containers on bunded hardstand areas within the shed;
- 23 tonnes of carbon black (up to 25, 900kg bulka bags); and
- 2,000 L of diesel (in double skinned storage tank on compacted gravel bunded hardstand areas) for backup power generation and heating of the CAT (heating system powered by a Riello Light Oil Burner.

The nearest sensitive receptors to the Site are:

- Homestead approximately 410m to the east of the Premises boundary (700 m from the plant) located at 545 Mogumber-Yarrawindah Road, Mogumber. This neighbour has consented to the establishment of the facility.
- The nearest drainage line traverses the Premises (50 m from the plant) which feeds into the Moore River approximately 1500 m to the north.
- Lake Wannamal – approximately 6km south-west from the closest boundary.
- Estimated groundwater depth at approximately 30 m.

The Premises is zoned Rural by the local Planning Scheme No.5. The Shire of Victoria Plains provided a 2 year planning approval for Pearl Global to use an existing shed on the site for use as a Waste Tyre & Rubber Recycling Facility in December 2013. The Minister for Environment endorsed the proposal on 9 July 2014.

The main emission is exhaust combustion gases generated by the thermal oxidiser. Dust emissions will be minimised by only receiving shredded tyres and having dust control measures on processing equipment. No discharges to water, groundwater or land are expected under normal operating conditions due to storage and process operating on hardstand with bunding. Noise emissions may be from the diesel generator and milling. Noise is not expected to be an issue given the location and operating hours but levels will need to be verified to ensure compliance with legislation.

PearlGlobal

Pearl Global
Process Flow Diagram

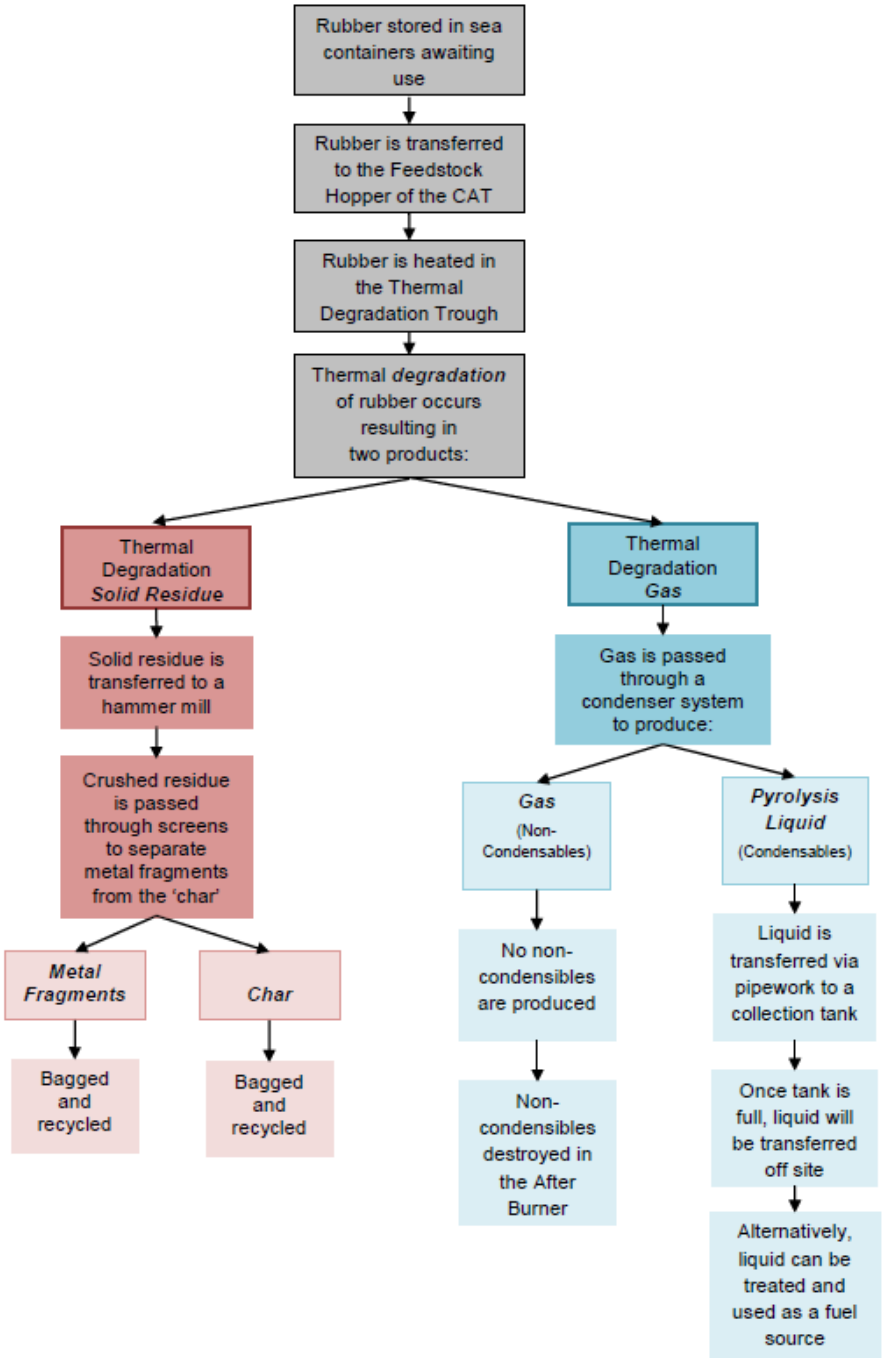


Figure 1: Process Flowchart for Waste Tyre and Rubber Recycling Facility.

The works approval has been amended as the process has been changed. The non-condensable gases are no longer recovered and used to generate power but instead are burnt off using a diesel fired after burner.

DER has considered whether the risk profile of emissions and discharges from the premises has significantly changed since the original works approval was granted. Point source air emissions are expected to change as a result of the proposed amendment. The emissions generated from this process are expected to be less than those generated by the original proposal. Non-condensable gases will now be treated by an after burner which operates at a much higher temperature than the power generating unit which was originally proposed. As a consequence of the increased operating temperature, i.e. >850^{o}C, most potential contaminants will be destroyed prior to discharge. The proponent wishes to retain the monitoring program specified in the works approval; and will retain the original monitoring location at point 17, the environmental flue.

4 Decision Table

All applications are assessed in line with the *Environmental Protection Act 1986*, the *Environmental Protection Regulations 1987* and DER's Operational Procedure on Assessing Emissions and Discharges from Prescribed Premises. Where other references have been used in making the decision they are detailed in the decision document.

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
General Conditions	Previously W1.2.2	Condition 1.2.2 from the previous works approval has not been included in the amended works approval as per the risk assessment below. **Operation (commissioning)** Emission Description *Emission:* Stormwater contaminated with petroleum hydrocarbons or fuel oil produced on site. *Impact:* Contamination of soil, groundwater and/or surface water. A tributary Moore River East flows through the premises and meets Moore River East approximately 1.5 km North from the process area. *Controls:* All materials likely to cause contamination are either stored within the building and/or bunding and tanks are double skinned. The diesel storage tank is double skinned and stored with the shed that has a concrete floor. The fuel oil produced is stored in a double skinned tank outside the shed. Clean stormwater is diverted from areas likely to cause contamination. Risk Assessment *Consequence:* Insignificant *Likelihood*: Unlikely *Risk Rating:* Low Regulatory Controls The premises is subject to the Environmental Protection (Unauthorised	*Environmental Protection (Unauthorised Discharges Regulations, 2004*).

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		Discharges) Regulations 2004 and general provisions of the Act. <u>Residual Risk</u> *Consequence*: Insignificant *Likelihood:* Unlikely *Residual Risk Rating:* Low	
Point source emissions to air including monitoring	W2.2.1	The emissions generated from this process are expected to be less than those generated by the original proposal. Refer to Decision Document for W5565/2013/1, granted 31 July 2014, for original point source emissions to air risk assessment. Non-condensable gases will now be treated by an after burner which operates at a much higher temperature than the power generating unit which was originally proposed. As a consequence of the increased operating temperature, i.e. >850^{o}C, most potential contaminants will be destroyed prior to discharge. The proponent wishes to retain the monitoring program specified in the works approval; and will retain the original monitoring location at point 17, the environmental flue Table 2.2.1 has been updated to remove emission point 14 as the process has changed so non-condensable gases are now being combusted and vent to the environmental flue which is subject to the limits in table 2.2.2.	*Environmental Protection (Unauthorised Discharges Regulations, 2004*). Application supporting documentation W5565/2013/1 – granted 31 July 2014
Monitoring		Table 3.1.1 has been updated to reflect that there is now only a single emission point	
Improvements	W4.1	The Improvement condition IR2 has been updated to reflect that there is now only a single emission point.	

5 Advertisement and Consultation Table

Date	Event	Comments received/Notes	How comments were taken into consideration
23/11/15	Proponent sent a copy of draft instrument	No comments on the licence or decision document received.	N/A

6. Risk Assessment

Note: This matrix is taken from the DER Corporate Policy Statement No. 07 - Operational Risk Management

Table 1: Emissions Risk Matrix

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