Government of **Western Australia**
Department of **Environment and Conservation**

Your ref: L8709/2012/1
Our ref: DEC14337
Enquiries: Chris Malley
Phone: (08) 9333 7484
Fax: (08) 9333 7550
Email:

Mr Les Vogiatzakis
Matrix Composites & Engineering Ltd
PO Box 87
Wattleup WA 6166

Dear Mr Vogiatzakis

***ENVIRONMENTAL PROTECTION ACT 1986*: LICENCE GRANTED**
Premises
Matrix Composites and Engineering
Marine Engineering Facility, Lot 102 on Plan 63358 Quill Way, Henderson
Licence Number: L8709/2012/1

A licence under the *Environmental Protection act 1986* (the Act) has been granted for the above premises. The Department of Environment and Conservation will advertise the issuing of this licence in the public notices section of *The West Australian* newspaper.

The licence includes attached conditions. Under Section 58(1) of the Act, it is an offence to contravene a condition of a licence. This offence carries a penalty of up to $125,000 and a daily penalty of up to $25,000

In accordance with section 102(1)(c) of the Act, you have 21 days to appeal the conditions of the licence. Under section 102(3)(a) of the Act, any other person may also appeal the conditions of the licence. To lodge an appeal contact the Office of the Appeals Convenor on 6467 5190 or by email at admin@appealsconvenor.wa.gov.au.

Where a licence is issued for more than one year it requires payment of an annual fee and will cease to have effect if the fee is unpaid. It is the occupier's responsibility to lodge a fee application and pay the annual fee in sufficient time to avoid incurring a late payment fee and for processing to be completed before the licence anniversary date.

If you have any queries regarding the above information, please contact Chris Malley on (08) 9333 7484.

Yours sincerely

Ruth Dowd
Officer delegated under Section 20
of the *Environmental Protection Act 1986*

Friday, 25 January 2013

enc: *Environmental Protection Act 1986* Licence L8709/2012/1
cc: City of Cockburn

Department of
Environment and Conservation
Our environment, our future

Licence

Environmental Protection Act 1986, Part V

Licensee: Matrix Composites & Engineering Limited

Licence: L8709/2012/1

Registered office: 150 Quill Way
Henderson
WA 6166

ACN: 009 435 250

Premises address: Lot 102 on Plan 63358 Quill Way
Henderson
WA 6166

Licence period: 5 years

Commencement date: Friday, 25 January 2013

Expiry date: Wednesday, 24 January 2018

Issue date: Friday, 25 January 2013

Prescribed Premises Category
Schedule 1 of the Environmental Protection Regulations 1987

Category number	Category description	Category production or design capacity	Premises production or design capacity
33	Chemical blending or mixing: premises on which chemicals or chemical products are mixed, blended or packaged in a manner than causes or is likely to cause a discharge of waste to the environment.	500 tonnes or more per year	16,000 tonnes per year

Conditions of Licence
Subject to the conditions of licence set out in the attached pages.

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Officer delegated under Section 20
of the *Environmental Protection Act 1986*

Contents

Introduction

This Introduction is not part of the Licence conditions.

Who we are
The Department of Environment and Conservation (DEC) is a Government Department in the portfolio of the Minister for the Environment. Our purpose is to protect and conserve the State's environment on behalf of the people of Western Australia.

Our industry licensing role
DEC has responsibilities under Part V of the *Environmental Protection Act 1986* for the licensing of prescribed premises. We also monitor and audit compliance with works approvals and licence conditions, take enforcement action as appropriate and develop and implement licensing and industry regulation policy.

Licence requirements
This licence is issued under Part V of *the Environmental Protection Act 1986*. Conditions contained with the licence relate to the prevention, reduction or control of emissions and discharges and to the monitoring and reporting of them.

Where other statutory instruments impose obligations on the Premises/Licensee the intention is not to replicate them in the licence conditions. You should therefore ensure that you are aware of all your statutory obligations under the *Environmental Protection Act 1986* and any other statutory instrument. These can be accessed through the State Law Publisher website using the following link:
http://www.slp.wa.gov.au/legislation/statutes.nsf/default.html

For your Premises relevant statutory instruments include but are not limited to obligations under the:

- Environmental Protection (Unauthorised Discharges) Regulations 2004 – these Regulations make it an offence to discharge certain materials such as contaminated stormwater into the environment other than in the circumstances set out in the Regulations.

- Environmental Protection (Controlled Waste) Regulations 2004 - these Regulations place obligations on you if you produce, accept, transport or dispose of controlled waste.

- Environmental Protection (Noise) Regulations 1997 – these Regulations require noise emissions from the Premises to comply with the assigned noise levels set out in the Regulations.

You should comply with your licence. Non-compliance with your licence is an offence and strict penalties exist for those who do not comply. Additional guidance on pollution prevention can be found in the Department of Water's Water Quality Protection Notices accessed through: http://www.water.wa.gov.au/Managing+water/Water+quality/Water+quality+protection+guidelines/default.aspx

Ministerial conditions
If your Premises has been assessed under Part IV of the *Environmental Protection Act 1986* you may have had conditions imposed by the Minister for the Environment. You are required to comply with any conditions imposed by the Minister.

Premises description and Licence summary
Matrix Composites & Engineering Limited (MCE) is a company providing engineered product solutions for the offshore, subsea, mineral processing, military and manufacturing industries and specialises in composite materials, engineered plastics and elastomers. MCE's premises in Henderson is for the manufacture of subsea high buoyancy syntactic foam modules. It involves the mixing of syntactic resins, polystyrene bead expansion, fibre reinforced epoxy composite surface coating and fibre reinforced plastics manufacturing.

The main emissions are VOC's from tank/vessel vents and roof top vents from painting, curing and polystyrene bead blowing areas however, VOC emissions are assessed to be trivial when compared to relevant environmental and health standards. The paint chamber is fitted with a water curtain that collects paint overspray and recirculates water. MCE maintain a number of bag house extraction systems and also work booths fitted with extraction and filtration for dust producing activities. The abrasive blasting chamber is robotically operated and is a closed system. A management plan for the operation and maintenance of all dust extraction and filtration systems (including painting booths) was prepared and submitted by MCE as a condition of the works approval for construction of the site. MCE store significant volumes of Dangerous Goods and environmental hazardous chemicals on site. The premises has no permitted discharges of wastewater to the environment.

This Licence is for the operation of a new facility established under works approval W4636/2010/1

The licences and works approvals issued for the Premises since 06/05/2010 are:

Instrument log		
Instrument	**Issued**	**Description**
W4636/2010/1	06/06/2010	Works approval to allow construction of the site
L8709/2012/1	18/01/2013	New Licence

Severance
It is the intent of these Licence conditions that they shall operate so that, if a condition or a part of a condition is beyond the power of this Licence to impose, or is otherwise *ultra vires* or invalid, that condition or part of a condition shall be severed and the remainder of these conditions shall nevertheless be valid to the extent that they are within the power of this Licence to impose and are not otherwise *ultra vires* or invalid.

END OF INTRODUCTION

Licence conditions

1 General

1.1 Interpretation

1.1.1 In the Licence, definitions from the Act apply unless the contrary intention appears.

1.1.2 In the Licence, unless the contrary intention appears:

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

"annual" means the inclusive period from 1 January until 31 December in each year;

"Code of Practice for the Storage and handling of dangerous goods" means the Storage and handling of dangerous goods, Code of Practice, Department of Mines and Petroleum, Government of Western Australia;

"Contact Address" for the purpose of correspondence and advice means:
Team Leader, Industry Regulation, Swan Region
Department of Environment and Conservation
Locked Bag 104
BENTLEY DC WA 6154
Telephone: (08) 9333 7510
Facsimile: (08) 9333 7550;

"dangerous goods" has the meaning defined in the Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007;

"Director" means Director, Environmental Regulation Division of the Department of Environment and Conservation for and on behalf of the Chief Executive Officer as delegated under Section 20 of the *Environmental Protection Act 1986;*

"environmentally hazardous material" means material (either solid or liquid raw materials, materials in the process of manufacture, manufactured products, products used in the manufacturing process, by-products and waste) which if discharged into the environment from or within the premises may cause pollution or environmental harm;

"fugitive emissions" means all emissions not arising from point sources identified in Sections 2.3;

"Licence" means this Licence numbered L8709/2012/1 and issued under the *Environmental Protection Act 1986;*

"Licensee" means the person or organisation named as Licensee on page i of the Licence;

"placard quantity" has the meaning defined in the Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007;

"Premises" is as defined by Condition 1.2.3 of the Licence;

"waste" has the meaning defined in the *Environmental Protection Act 1986*;

1.1.3 Any reference to an Australian or other standard in the Licence means the relevant parts of the current version of that standard.

1.2 General conditions

1.2.1 Nothing in the Licence shall be taken to authorise any emission that is not mentioned in the Licence, where the emission amounts to:
(a) pollution;
(b) unreasonable emission;
(c) discharge of waste in circumstances likely to cause pollution; or
(d) being contrary to any written law.

1.2.2 The Licensee shall maintain all pollution control and monitoring equipment to the manufacturer's specification and any internal management system.

1.2.3 The Licensee, except where storage is prescribed in section 1.3, shall only store substances that are classed as dangerous goods below placard quantities or environmentally hazardous materials not classified as dangerous goods if they are stored in accordance with the Code of Practice for the Storage and handling of dangerous goods.

1.2.4 The Licensee shall immediately recover, or remove and dispose of spills or leaks of environmentally hazardous materials outside its storage vessel.

Stormwater control

1.2.5 The Licensee shall ensure that uncontaminated stormwater is kept separate from contaminated or potentially contaminated stormwater. Where stormwater has come into contact with a possible source of contamination, it should be treated as contaminated.

1.3 Premises operation

There are no specified conditions relating to Premises operation in this section.

2 Emissions

2.1 General

2.1.1 The Licensee shall record and investigate the exceedance of any limit, and/or target in this section.

2.2 Point source emissions to air

2.2.1 The Licensee is permitted, subject to conditions in the Licence, to emit waste to the atmosphere from the emissions points listed in Table 2.2.1 and identified in the Map of emission points in Schedule 1.

Table 2.2.1: Emission points to air

Emission point reference	Emission point reference on Map of emission points	Emission Point	Source, including any abatement
A1	Building B	Paint drying oven vent 1	Paint drying oven
A2		Spray painting chamber vents 1 - 4	Spray painting chamber with recirculating water curtain for paint overspray capture
A3		Maintenance booth vents 1 - 8	Maintenance booths with air extraction via dust filter media
A4		Deflash booth' vents 1 – 4	Deflash booths with air extraction via dust filter media
A5	Building C	Resin curing oven vents 1- 3	Resin curing oven
A7	Building E	Macroballoon production and extraction emission points 1 – 2	Macroballoon production and extraction area with air extracted via a mechanical dust collection system
A8	Building F	Steam boiler vent 1	Steam boiler
A9		EPS expansion machine vents 1 - 3	Expandable polystyrene bead expansion machine

2.2.2 The Licensee shall take the relevant management action in the case of an event in Table 2.2.4

Table 2.2.4: Management actions			
Emission point reference	**Event/action reference**	**Event**	**Management action**
A2	EA1	The spray painting chamber water curtain ceases to operate while spray painting is being undertaken.	The Licensee shall cease spray painting as soon as practicable and ensure that further spray painting does not occur until the water curtain is reactivated.
A3, A4	EA2	The dust filter media is damaged or partially/ fully dislodged	The Licensee shall cease activities within the affected booth as soon as practicable until the dust filter media has been repaired or replaced
A7	EA3	Visible dust emissions are observed from a mechanical dust collection system	The Licensee shall investigate and undertake troubleshooting to rectify the cause or otherwise cease the applicable extracted air feed within 30 minutes.
	EA4	A dust collection system ceases to operate while its extraction source is operational.	The Licensee shall cease extracted air feed to the affected dust collection system(s) within 30 minutes unless the dust collection system(s) have been reactivated.

2.3 Point source emissions to surface waters and groundwater

There are no specified conditions relating to point source emissions to surface waters and groundwater in this section.

2.4 Emissions to land

There are no specified conditions relating to emissions to land in this section.

2.5 Fugitive emissions

2.5.1 The Licensee shall ensure that no visible dust generated by the activities of the Premises crosses the boundary of the Premises.

2.6 Odour

2.6.1 The Licensee shall ensure that odour emitted from the Premises does not unreasonably interfere with the health, welfare, convenience, comfort or amenity of any person who is not on the Premises.

3 Monitoring

3.1 General monitoring

There are no specified conditions relating to monitoring in this section.

3.2 Monitoring of point source emissions to air, surface water and groundwater

There are no specified conditions relating to monitoring of point source emissions to air, surface water and groundwater in this section.

3.3 Monitoring of emissions to land, inputs, process, environmental quality and meteorology

There are no specified conditions relating to emissions to land, inputs, process, environmental quality and meteorological monitoring in this section.

4 Improvements

4.1 Improvement programme

There are no specified improvement conditions in this section.

5 Information

5.1 Records

5.1.1 All information and records required by the Licence shall:
- (a) be legible;
- (b) if amended, be amended in such a way that the original and subsequent amendments remain legible or are capable of retrieval;
- (c) except for records listed in 5.1.1(d) be retained for at least 6 years from the date the records were made or until the expiry of the Licence or any subsequent licence; and
- (d) for those following records, be retained until the expiry of the Licence and any subsequent licence:
  - (i) off-site environmental effects; or
  - (ii) matters which affect the condition of the land or groundwater.

5.1.2 The Licensee shall ensure that:
- (a) any person left in charge of the Premises is aware of the conditions of the Licence and has access at all times to the Licence or copies thereof; and
- (b) any person who performs tasks on the Premises is informed of all of the conditions of the Licence that relate to the tasks which that person is performing.

5.1.3 The Licensee shall complete an Annual Audit Compliance Report indicating the extent to which the Licensee has complied with the conditions of the Licence, and any previous licence issued under Part V of the Act for the Premises for the previous year.

5.1.4 The Licensee shall implement a complaints management system that as a minimum records the number and details of complaints received concerning the environmental impact of the activities undertaken at the Premises and any action taken in response to the complaint.

5.2 Reporting

5.2.1 The Licensee shall submit to the Director at the Contact Address an annual environmental report within 28 calendar days after of the end of the annual period. The report shall contain the information listed in Table 5.2.1 in the format or form specified in that table.

Table 5.2.1: Annual environmental report

Condition or table (if relevant)	Parameter	Format or form[1]
-	Summary of any failure or malfunction of any pollution control equipment or any incidents that have occurred during the year and any action taken	None specified
5.1.3	Compliance	AACR
5.1.4	Complaints summary	None specified

Note 1: Forms are in Schedule 2

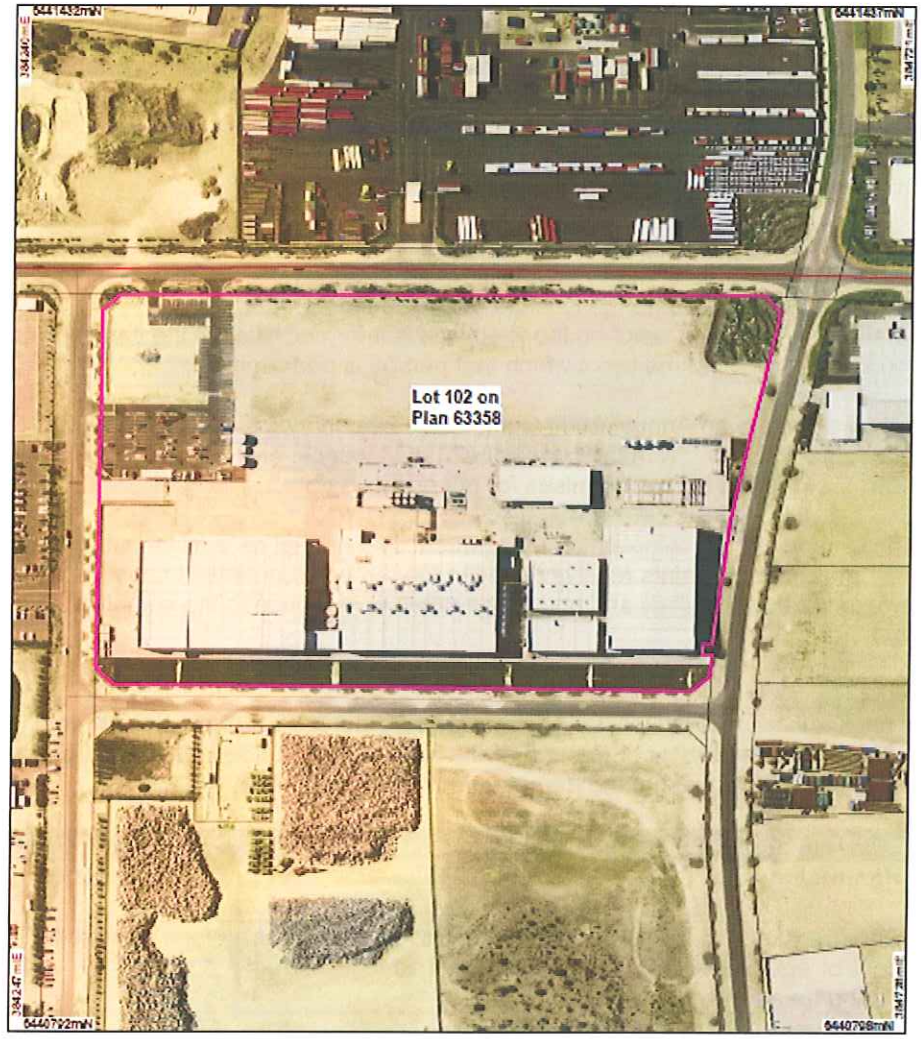
5.3 Notification

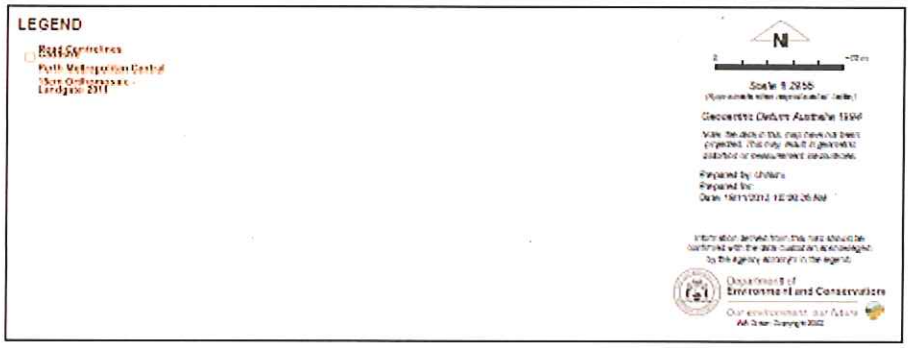
There are no specific notification requirements in this section.

Schedule 1: Maps

Premises map

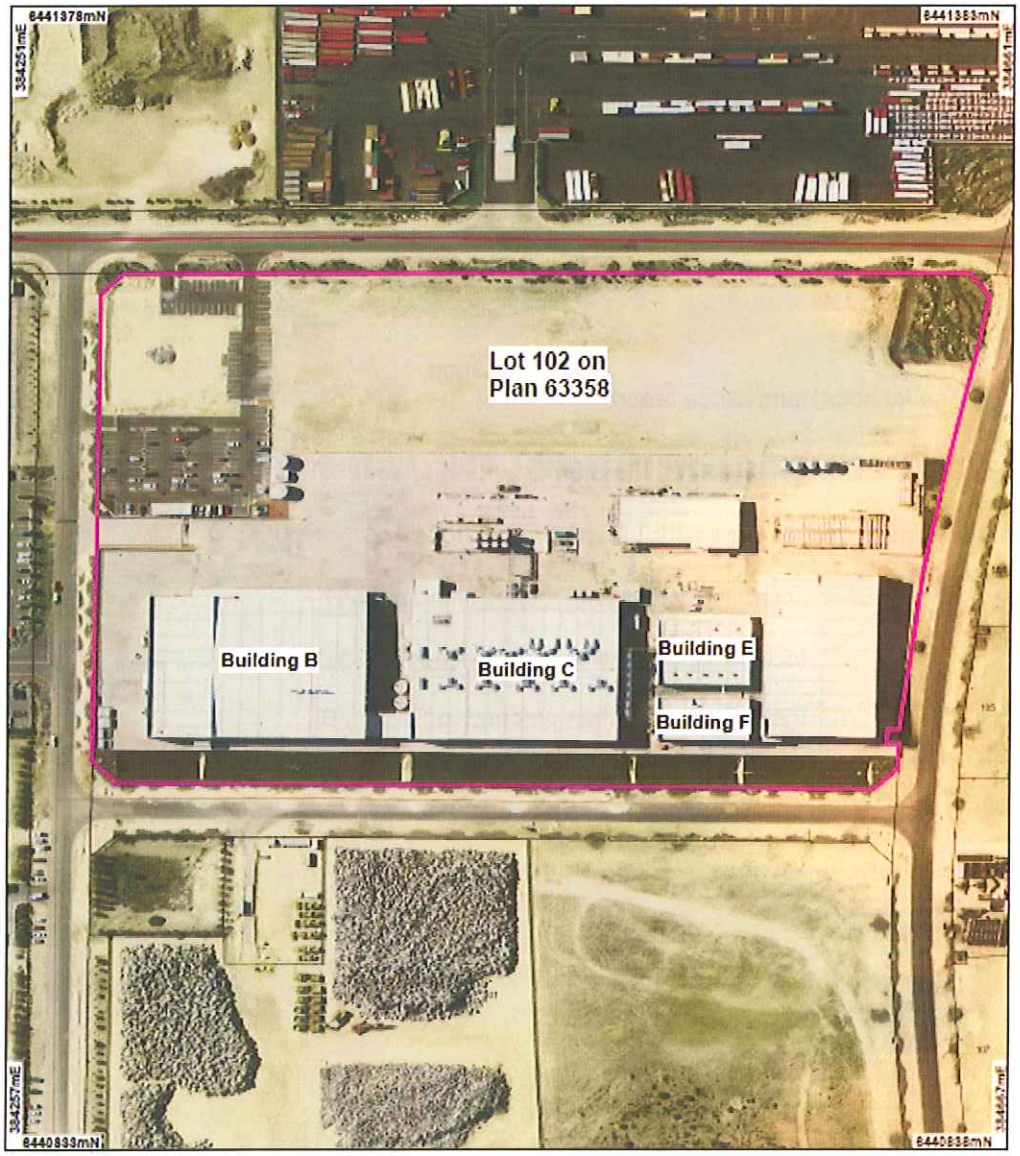
The Premises is shown in the map below. The pink line depicts the Premises boundary but it is defined in Table 1.2.1 which should prevail if any discrepancy exists.

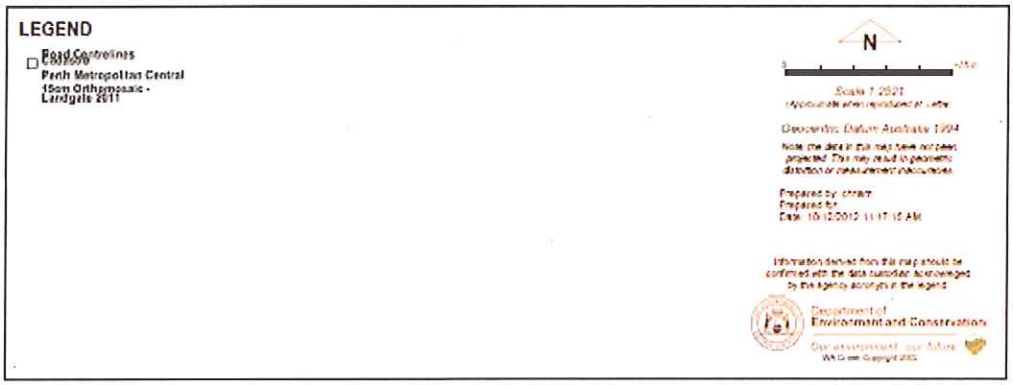




Map of emission points

The locations of the emission points defined in Table 2.2.1 is shown below.





Schedule 2: Reporting & notification forms

These forms are provided for the proponent to report monitoring and other data required by the Licence. They can be requested in an electronic format.

Copies of the original monitoring reports must also be submitted.

Licence: L8709/2012/1 Licensee: Matrix Composites & Engineering Pty Ltd
Form: AACR Period :
Name: Annual audit compliance report

Annual audit compliance report

Section A: Statement of compliance with Licence conditions

Were all conditions of licence complied with within the reporting period?		
Yes	□	Initial Sections A & B, then proceed to Section C
No	□	Initial Section A, then proceed to Section B

Each page must be initialled by the person(s) who signs Section C of this annual audit compliance report (AACR).

Initial:

Section B: Details of non-compliance with Licence condition

a) Licence condition not complied with?	
b) Date(s) b) Date(s) and time(s) the non compliance occurred, if applicable?	
c) Was this non compliance reported to DEC?	
☐ Yes, and ☐ Reported to DEC verbally Date ☐ Reported to DEC in writing Date	☐ No
d) Has DEC taken, or finalised any action in relation to the non compliance?	
e) Summary of particulars of non compliance, and what was the environmental impact?	
f) If relevant, the precise location where the non compliance occurred (attach map or diagram)	
g) Cause of non compliance	
h) Action taken or that will be taken to mitigate any adverse effects of the non compliance	
i) Action taken or that will be taken to prevent recurrence of the non compliance	

Please use a separate page for each Licence condition that was not complied with. Each page must be initialled by the person(s) who signs Section C of this AACR

Initial:

Section C: Signature and certification

This AACR may only be signed by a person(s) with legal authority to sign it as defined below. Please tick the box next to the category that describes how this AACR is being signed. If you are uncertain about who is entitled to sign or which category to tick, please contact the licensing officer for your premises.

If the Licence holder is		The AACR must be signed and certified:
an individual	□	by the individual Licence holder, or
	□	by a person approved in writing by the Chief Executive Officer (CEO) of DEC to sign on the Licensee's behalf.
a corporation	□	by affixing the common seal of the Licensee in accordance with the Corporations Act 2001; or
	□	by two directors of the Licensee; or
	□	by a director and a company secretary of the Licensee, or
	□	if the Licensee is a proprietary company that has a sole director who is also the sole company secretary – by that director, or
	□	by the principal executive officer of the Licensee; or
	□	by a person with authority to sign on the Licensee's behalf who is approved in writing by the CEO of DEC.
A public authority (other than a local government)	□	by the principal executive officer of the Licensee; or
	□	by a person with authority to sign on the Licensee's behalf who is approved in writing by the CEO of DEC.
a local government	□	by the CEO of the Licensee; or
	□	by affixing the seal of the local government.

It is an offence under section 112 of the *Environmental Protection Act 1986* for a person to give information on this form that to their knowledge is false or misleading in a material particular. There is a maximum penalty of $50,000 for an individual or body corporate.

I/We declare that the information in this AACR is correct and not false or misleading in a material particular.

Signature:

_____

Name: (printed)

_____

Position:

_____

Date:

_____/_____/_____

Signature:

_____

Name: (printed)

_____

Position:

_____

Date:

_____/_____/_____

Seal (if signing under seal)

LICENCE NUMBER: L8709/2012/1
FILE NUMBER: DEC14337
APPLICATION DATE: 08/08/2012

PREMISES DETAILS

LICENSEE AND OCCUPIER
Matrix Composites & Engineering Ltd
150 Quill Way
Henderson WA 6166
ACN: 009 435 250

PREMISES
Matrix Composites and Engineering
Lot 102 on Plan 63358 Quill Way
Henderson WA 6166

PRESCRIBED PREMISES CATEGORY

Category number	Category Description*	Category Production or Design Capacity*	Premises Production or Design Capacity#	Premises Fee Component**
33	Chemical blending or mixing: premises on which chemicals or chemical products are mixed, blended or packaged in a manner that causes or is likely to cause a discharge of waste to the environment.	500 tonnes or more per year	16,000 tonnes per year	More than 10,000 but not more than 50,000 tonnes per year.

* From Schedule 4 of the *Environmental Protection Regulations 1987*

This Environmental Assessment Report (EAR) has been drafted for the purposes of detailing information on the management and mitigation of emissions and discharges from the prescribed premises. The objective of the EAR is to provide a risk assessment of emissions and discharges, and information on the management of other activities occurring onsite which are not related to the control of emissions and discharges from the prescribed premises activity. This does not restrict the Department of Environment and Conservation (DEC) to assessing only those emissions and discharges generated from the activities that cause the premises to become prescribed premises

Basis of Assessment
Matrix Composites and Engineering (MCE), which has been assessed as "prescribed premises" category number 33, under Schedule 1 of the Environmental Protection Regulations 1987.

The premises was constructed in accordance with works approval W4636/2010/1 and MCE submitted an application for licence to commission and operate the site.

MCE propose to feed chemicals from bunded bulk storage vessels into a chemical blending plant. Wet resins and powder fillers are combined in large planetary vacuum mixers to produce a homogenous syntactic material that is dispensed into a mould for the manufacture of syntactic buoyancy modules. Mixed or blended chemicals include resins, epoxy curing agents, resin modifiers, resin additives and catalysts. The facility has a number of roof stack air emission points

for the discharge of vapours such as VOC's. The production or design capacity of the proposed facility to mix or blend chemical is 16,000 tonnes per year.

Note: Since the issue of a works approval in 2010, Schedule 2 of the Environmental Protection Regulations 1987 has been rescinded and a Registration is not required for fibre reinforced plastics manufacturing activities. MCE are still required to comply with the Environment Protection (Fibre Reinforced Plastics Manufacturing) Regulations 1998.

1.0 BACKGROUND

1.1 GENERAL COMPANY DESCRIPTION

MCE is an engineering company providing engineered product solutions for the offshore, subsea, mineral processing, military and manufacturing industries. MCE specialises in the design, application and manufacturing of products based on advanced composite materials, engineering plastics and elastomers. MCE designs and manufactures high performance products through its oil & gas, mineral and industrial and advanced materials businesses. MCE is an Australian based company that services the international market via a global network of agents, distributors, and subsidiaries. MCE currently exports to 37 countries. MCE is accredited to ISO 9000: 2000 by QAS and is seeking API Q1 accreditation.

MCE currently operate facilities at a number of separate sites throughout Perth as part of the manufacturing process.

1.2 LOCATION OF PREMISES

Lot 102 Quill Way in Henderson is part of the Australian Marine Complex, approximately 500m from the Indian Ocean to the west and a series of Environmental Protection Policy (EPP) Lakes starting approximately 500m to the east. The wetlands are known as Little Henderson North, Little Henderson South, Brownman Swamp and Anderson Rd Swamp. Bush Forever is also located several hundred metres to the south and the east. The primary soil type is siliceous sands with a shallow water table.

As the site is within the Australian Marine Complex, it is surrounded by other similar light industrial premises and approximately 1.5km further east is the Hope Valley Wattleup redevelopment Area. The site can be considered distant from areas containing dwellings and the nearest residential area is likely to be in Coogee approximately 3.5km north. The Woodman Pt Holiday Park is 3km to the north.

1.3 PROCESS DESCRIPTION

The complex incorporates an integrated buoyancy manufacturing facility that includes bulk chemical storage, warehousing, composite sphere manufacturing, composite layup and casting, painting, dispatch and a hyperbaric testing centre.

The primary activity is the manufacture of sub sea high buoyancy syntactic foam modules that are a combination of spherical, hollow bodies (macroballoons) encapsulated in a polymeric matrix (epoxy resin). Figure 1 below is a process diagram.

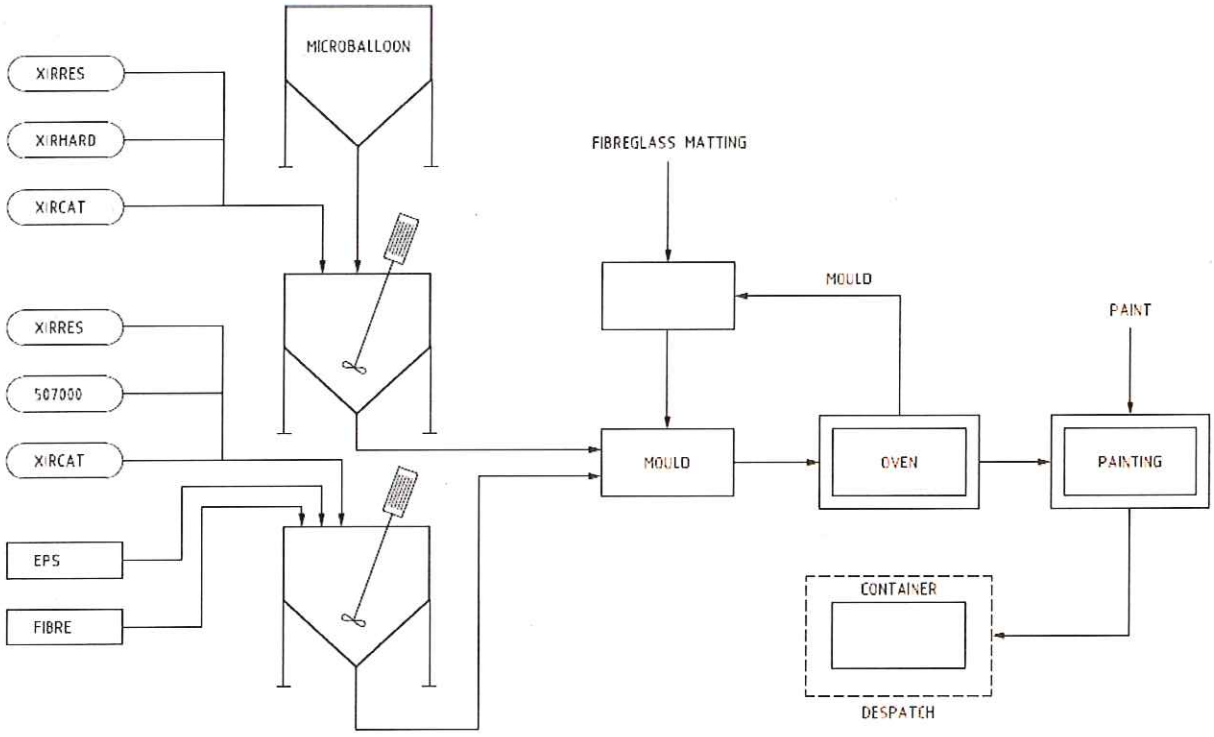


Figure 1: Process diagram for the manufacture of syntactic buoyancy vessels.

Manufacture of Syntactic Resin

The syntactic resin mixing plant is located in "Building C" inside a bunded area and contained within a room with mechanical extraction ventilation.

Chemical components are blended for the bulk syntactic resin material to be used in the injection area. These chemicals include expoxy resin, XirRes 503001, XirRes 502000, XirHard 503000, XirCat 504000, curing agent and microballoons which are mixed in mixing vessels and stored in tanks.

Expansion of Expandable Polystyrene (EPS) Beads

EPS Expansion-Expandable Polystyrene bead, containing pentane as a blowing agent, is expanded using low pressure steam to create polystyrene spheres. The spheres are stored in silos before being transferred to the macroballoon manufacturing process.

Manufacture of Macroballoons

Polystyrene spheres are surface coated with a fibre reinforced epoxy composite. The macroballoons are conveyed to storage silos before being used to fill the moulds for modules. The macroballoon manufacturing building consists of two rooms for powder unloading (wollastonite and carbon fibre). There is a tumbler room, motor control centre, laboratory and testing facility.

Manufacture of Buoyancy Modules

Within the injection area of "Building C", moulds are prepared with a fibre reinforced plastic skin and filled with macroballoons. The moulds are then placed in a vacuum chamber and the syntactic resin mixture is injected into the moulds. The mixers for the syntactic resin injection are intermittently cleaned with hot water and a detergent solution which is recovered, collected and replaced when necessary. The spent solutions, recovered microballoons and resin from the cleaning process are disposed off site to appropriate

facilities. The moulds are placed in gas fired ovens to assist the resin cure then the moulds are emptied, cleaned and returned to the process.

Within "Building B" the product buoyancy is tested by submersion in a large tank. The completed modules are abraded and painted. A two part epoxy paint system is used. The painting process occurs within a spray both with a water curtain to control overspray. The modules are dried within ovens suitable for handling flammable vapours and have adequate ventilation. The modules are loaded into shipping containers and transported to an external storage facility awaiting ship loading and transport to customers.

1.4 REGULATORY CONTEXT

1.4.2 Part V Environmental Protection Act 1986, Environmental Management

Legislation

- *Environmental Protection Act 1986;*
- Environmental Protection Regulations 1986;
- Environmental Protection (Unauthorised Discharges) Regulations 2004;
- Environment Protection (Fibre Reinforced Plastics Manufacturing) Regulations 1998;
- Environmental Protection (Noise) Regulations 1997; and
- Environmental Protection (Controlled Waste) Regulations 2004.

Standards / Guidelines / Codes of Practice

- AS/NZS 4114.1: 2003 - Spray painting booths, designated spray painting areas and paint mixing rooms - design, construction and testing;
- AS/NZS 1940: 2004 – The storage and handling of flammable and combustible liquids;
- AS/NZS 3780: 2008 – The storage and handling of corrosive substances;
- AS/NZS 3833: 2007 – The storage and handling of mixed classes of dangerous goods in packages and intermediate bulk containers; and
- AS/NZS 4452: 1997 – The storage and handling of toxic substances,

1.4.3 Other DMA's Legislation which applies

Department of Mines and Petroleum (DMP)

- *Dangerous Goods Act 2004* and associated Regulations – site is subject to Dangerous Goods licensing for the storage of Class 3, 6 and 8 Dangerous Goods and C1 combustibles.

1.4.5 Local Government Authority

The site is located in the City of Cockburn and has development approval.

2.0 STAKEHOLDER AND COMMUNITY CONSULTATION

SUBMISSIONS RECEIVED DURING 21 DAY PUBLIC COMMENT PERIOD

The Application for Licence details for this facility were advertised in the West Australian newspaper on 24 December 2012 as a means of advising stakeholders and to seek public comments. No submissions were received.

3.0 EMISSIONS AND DISCHARGES RISK ASSESSMENT

DEC considers that conditions should focus on regulating emissions and discharges of significance. Where appropriate, emissions and discharges which are not significant should be managed and regulated by other legislative tools or management mechanisms.

The following section assesses the environmental risk of potential emissions from MCE. In order to determine the site's appropriate environmental regulation, an emissions and discharges risk assessment was conducted of MCE using the environmental risk matrix outlined in Appendix B. The results of this are summarized in Table 2.

Table 2: Risk assessment and regulatory response summary table.

Risk factor	Significance of emissions	Socio-Political Context of Each Regulated Emission	Risk Assessment	DoE Regulation (EP Act - Part V)	Other management (legislation,tools,agencies)
Air emissions (point source)	MCE has roof stack ventilation points for vapours that are mechanically extracted from buildings. Sources include bulk and process vessel filling, polystyrene expansion process and painting. **Bulk Tank & Process Vessel Filling** *1 – Volatile Organic Compounds (VOC's)* During filling of chemical tanks and vessels, air is displaced through tank vent points. This displaced air contains VOC's however, calculations provided by the proponent estimate the emission rates as being negligible. Total VOC's from all bulk tank filling is estimated at 1.66 kg/week and process vessels at 1.65kg/week for a total of 3.32 kg/week or 173 kg/year. **Polystyrene Expansion Process** *1 – VOC's* The Polystyrene Expansion Process involves the use of pentane as a blowing agent. As a result, pentane off gases will be mechanically vented through a stack 3m above height of the roof. The proponent has calculated that 65% of total pentane will be emitted during expansion/ageing which equates to 28.314 kg/day of pentane discharge. Pentane has the potential to cause odour emissions and has been further assessed below in the odour section. **Painting** *1 – VOC's* Paints will contain VOC's that are released during the painting process. Vapours will be mechanically extracted and vented through a stack 3m above the height of the roof. The proponent has stated that supplier datasheets indicate a mixture of butanol, xylene, ethylbenzene, solvent naptha, hexane, n-butyl acetate and <1% non TDI isocyanate. Total paint VOC emissions are estimated at 24,394 kg/year or 3.9 kg/hr. This is calculated on the basis of VOC's in equals VOC's out. For the purposes of screening VOC's against relevant guidance levels (i.e. UK Guidance Note IPPC H1 *Environmental Assessment and Appraisal of BAT*), DEC assumes worst case to be that an	No – The site is considered distant from any dwellings that approximately 3 km away. The site is adjacent to other industrial and commercial premises in the Australian Marine Complex. There is no significant community interest or concern in air emissions.	D - EIPs, other management mechanisms/licence conditions (monitoring/reporting)/other regulatory tools)	LIC – Conditions Approved air emission points and generic template conditions.	Environmental Protection (Unauthorised Discharges) Regulations 2004. General provisions of the *Environmental Protection Act 1986.*

	individual VOC represents the total VOC emission. This means that for worst case, relevant VOC's are likely to be <10% of their respective short-term benchmark limits in Appendix D of UK Guidance Note IPPC H1. For example ethylbezene will be ~7% of its benchmark limit and xylene ~6%. These levels are low but not low enough to be considered trivial. Matrix provided additional information on VOC percentage makeup in paints and investigated the potential for using low VOC emission paints. Under normal operating conditions, the examples of ethylbenzene and xylene would be 1% and 3.5% of the short-term benchmark limits. VOC emissions are therefore insignificant. DEC enquired about low VOC paint use and as a result of Matrix trials, Matrix have committed to utilising one of the lower VOC emission systems from the four potentials identified in Figure 2 in Appendix A. This will achieve even lower VOC emission rates to that assessed above, reducing VOC's to a trivial level from the activity of painting. The licence will need to list the approved point source emission points which are series of vents for processes such as (but not limited to) paint curing, resin curing, spray painting and maintenance booths. As emissions are assessed to be trivial, no further air emission conditions are required other than standardised conditions on all refire licences.				
Dust emissions	**1 - Point source particulates** *Powder Bag Handling* Small powder bags enter a hooded automatic bag slitter and are emptied via conveyor. The contents enter a hopper with a hood under negative pressure. Dust will be extracted through a collector with filter bags and filtered air discharged outside the building. Bulk powder bags are discharged to the hopper via gravity. The discharge system is to be close coupled between the bulk bag and the hopper to minimise dust generation. The hopper will vent to the dust collector. Conveyance systems are sealed/contained under negative pressure to minimise dust emission. *Microballoons* Microballoons are stored in silos and transferred into weigh vessels in the resin processing area via a sealed system. Silos and weigh vessels will be enclosed and have dust filters on outlets to minimise dust during transfer and storage.	No – The site is considered distant from any dwellings that approximately 3 km away. The site is adjacent to other industrial and commercial premises in the Australian Marine Complex. There is no significant community interest or concern in dust emissions.	D - EIPs, other management mechanisms/licence conditions (monitoring/reporting)/other regulatory tools	LIC – Standardised fugitive emissions condition only	Operation & maintenance procedure prepared under works approval. Environmental Protection (Unauthorised Discharges) Regulations 2004.

	Macroballoon Production Area Tumblers will operate under negative pressure with dust ducted to a dust collector with filters and extraction. Filtered air is discharged externally of the building. Emissions of particulate from air passed through filter extraction systems are likely to negligible during normal operating conditions when the systems are properly maintained and performing to a satisfactory standard. Worst case operating conditions relate continued operations with failed or severely degraded extraction or filter performance resulting in unacceptable particulate emissions. DEC required a management plan for operation and maintenance of extraction/filter systems under works approval as procedures were to be developed prior to operation. This plan was submitted with the compliance certification. DEC is therefore satisfied that the sources are low risk, will be appropriately maintained and the licence will have the generic fugitive emission condition.				
Odour emissions	**Bulk Tank & Process Vessel Filling** *1 –VOC's* Emission rates are insignificant such that this activity is unlikely to result in odour issues beyond the premises boundary. **Polystyrene Expansion Process** *1 – VOC's* A basic screening assessment by DEC indicated that pentane had the potential to cause odour beyond the premises boundary. However, further investigation and information supplied by Matrix indicates that with a discharge stack 3 m above the height of the roof (14 m from ground level), a discharge velocity of 15 m/s and the required dilution factors, pentane is unlikely to be detectable beyond the premises boundary. Odour thresholds for pentane are quoted in a broad range from 2.2 ppm to 5000 ppm. Using the worst case of 2.2ppm, Matrix would require a dilution factor of at least 1 odour unit at the boundary. This means that the potential for pentane odour beyond the boundary is a low risk. **Painting** *1 – VOC's* In addition to potential health affects, VOC's have the potential to cause unreasonable odour beyond the premises boundary. Investigation of VOC's by both Matrix and DEC indicates that VOC	No – The site is considered distant from any dwellings that approximately 3 km away. The site is adjacent to other industrial and commercial premises in the Australian Marine Complex. There is no significant community interest or concern in odour emissions.	D - EIPs, other management mechanisms/licence conditions (monitoring/reporting)/other regulatory tools	LIC – Standardised odour emission condition	N/A

	emissions from the currently proposed paints will be insignificant and furthermore will be further reduced with the use of low VOC emission paints (see Figure 2 in Appendix A). Odour is assessed to be an insignificant factor and therefore the licence conditions will be limited to a generic odour condition.				
Noise emissions	1 – Sources include traffic, pumps, process equipment, air compressors, fans/blowers and infrequent emergency sirens. The majority of equipment is located inside buildings. Equipment specification of 80dBA at 1m. Site is located in the Australian Marine Complex and there is a significant distance to noise sensitive premises. Noise is assessed to be an insignificant factor and no noise conditions will be placed on the licence. The licensee is still subject to the E.P (Noise) Regulations 1997.	No – The site is considered distant from any dwellings that approximately 3 km away. The site is adjacent to other industrial and commercial premises in the Australian Marine Complex. There is no significant community interest or concern in noise emissions .	D - EIPs, other management mechanisms/licence conditions (monitoring/reporting)/other regulatory tools	LIC – No specified conditions	Environmental Protection (Noise) Regulations 1997.
Light emissions	1 – Site will have internal and external lighting to permit operation of the facility during night hours. Also security lighting. Light intensity mapping indicates that lux levels beyond the boundary are predicted to be very low and have minimal if any impact. Light is assessed to be an insignificant factor and no conditions are required.	No – The site is considered distant from any dwellings that approximately 3 km away. The site is adjacent to other industrial and commercial premises in the Australian Marine Complex. There is no significant community interest or concern in light emissions .	D - EIPs, other management mechanisms/licence conditions (monitoring/reporting)/other regulatory tools	LIC – No specified conditions	N/A
Discharges to water	Not applicable. No direct discharge to a water course or body.	N/A	N/A	LIC – No specified conditions	Environmental Protection (Unauthorised Discharges) Regulations 2004. General provisions of the *Environmental Protection Act 1986.*
Discharges to land	1 – Not applicable. Matrix had intended to treat and sample some contaminated water for discharge, it revised its approach and all process or contaminated waters are separate from stormwater.	No – The site is considered distant from any dwellings that approximately 3 km away. The site is adjacent to other industrial and commercial premises in the Australian Marine Complex. There is no significant community interest or concern in land discharges.	D - EIPs, other management mechanisms/licence conditions (monitoring/reporting)/other regulatory tools	LIC – No specified conditions	Environmental Protection (Unauthorised Discharges) Regulations 2004. General provisions of the *Environmental Protection Act 1986.*
Solid / liquid wastes	**Solid Waste** 1 – Industrial waste in the form of syntactic foam, fibreglass off-cuts, plastics, rubber, cured and uncured resin, silicone gasket	No – The site is considered distant from any dwellings that approximately 3 km away. The site is adjacent to other	D - EIPs, other management mechanisms/licence conditions (monitoring/reporting)/other	LIC – No conditions	Environmental Protection (Unauthorised Discharges) Regulations 2004.

	material and microballoons. Where waste cannot be reused or recycled it is disposed off site at an appropriate waste disposal facility. **Liquid Waste** 1 – Liquid waste generated during the cleaning of in line resin mixers with hot water. Recycled with the solid waste slurry collected and disposed off site. Cleaning water intermittently replaced and disposed off site when it has become too fouled to recycle.	industrial and commercial premises in the Australian Marine Complex. There is no significant community interest or concern in solid/liquid wastes.	regulatory tools		General provisions of the *Environmental Protection Act 1986.*
Hydrocarbon/ chemical storage	MCE is Dangerous Goods (DG) licensed. Site will also have storage areas (tanks/vessels) for non-DG substances which would still be considered environmentally hazardous chemicals. The non-DG tank farms and isotainers storage areas will be contained within a bunded area. These storage areas were constructed according to DEC generic chemical storage condition under works approval. The generic condition will now be placed on the licence applying to all DG goods below placard quantity and any environmentally hazardous chemicals.	No – The site is considered distant from any dwellings that approximately 3 km away. The site is adjacent to other industrial and commercial premises in the Australian Marine Complex. There is no significant community interest or concern in light emissions.	D - EIPs, other management mechanisms/licence conditions (monitoring/reporting)/other regulatory tools	LIC – Standardised condition for storage and containment of environmentally hazardous chemicals and dangerous goods below placard quantity	Department of Mines and Petroleum Licensing of Dangerous Goods.

4.0 GENERAL SUMMARY AND COMMENTS

The primary issues associated with this proposal are potential for point source air emissions (VOC's), dust/particulates and odour emissions (VOC's). The site is prescribed due to the blending and mixing of resins early in the process and it is noted that a majority of site activities are not necessarily prescribed. The site are a number of dust filtration systems on parts of the process and a water curtain within the spray paint chamber. The site is assessed to be of a relatively low environmental risk in terms of its emissions and discharges and a licence will be issued with a relatively base set of environmental conditions.

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APPENDIX A: EMISSIONS AND DISCHARGES

1.1 AIR EMISSIONS

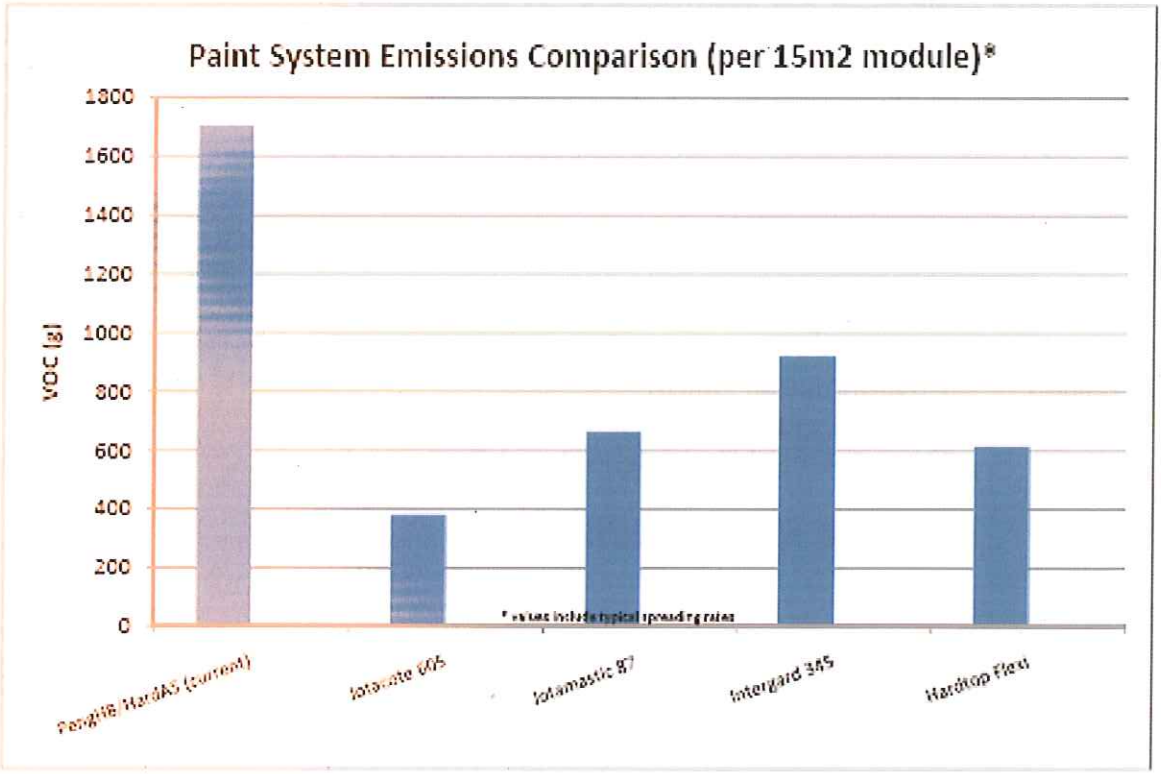

Figure 2: Paint VOC emission comparison between from the formerly proposed paint (PengHB/HardAS) and low VOC emission paints that will now be utilised.

APPENDIX B: EMISSIONS AND DISCHARGES RISK ASSESSMENT MATRIX

Table 3: Measures of Significance of Emissions

Emissions as a percentage of the relevant emission or ambient standard		Worst Case Operating Conditions (credible worst case scenario)			
		>100%	50 – 100%	20 – 50%	<20%*
Normal Operating Conditions	>100%	5	N/A	N/A	N/A
	50 – 100%	4	3	N/A	N/A
	20 – 50%	4	3	2	N/A
	<20%*	3	3	2	1

*For reliable technology, this figure could increase to 30%

Table 4: Socio-Political Context of Each Regulated Emission

		Relative proximity of the interested party with regards to the emission				
		Immediately Adjacent	Adjacent	Nearby	Distant	Isolated
Level of Community Interest or Concern*	5	High	High	Medium High	Medium	Low
	4	High	High	Medium High	Medium	Low
	3	Medium High	Medium High	Medium	Low	No
	2	Low	Low	Low	Low	No
	1	No	No	No	No	No

Note: These examples are not exclusive and professional judgement is needed to evaluate each specific case

*This is determined by DEC using the DEC "Officer's Guide to Emissions and Discharges Risk Assessment" May 2006.

Table 5: Emissions Risk Reduction Matrix

		Significance of Emissions				
		5	4	3	2	1
Socio-Political Context	High	A	A	B	C	D
	Medium High	A	A	B	C	D
	Medium	A	B	B	D	D
	Low	A	B	C	D	D
	No	B	C	D	D	D

PRIORITY MATRIX ACTION DESCRIPTORS
A = Do not allow (fix)
B = licence condition (setting limits + EMPs - short timeframes)(setting targets optional)
C = licence condition (setting targets + EMPs - longer timeframes)
D= EIPs, other management mechanisms/licence conditions (monitoring/reporting)/other regulatory tools

Note: The above matrix is taken from the DEC Officer's Guide to Emissions and Discharges Risk Assessment May 2006 & Supplementary Officer's Guide May 2009.