



**Licence Number** L8375/2009/2

**Licence Holder** Future Foams Pty Ltd

**ACN** 078 361 547

**File Number:** 2010/006317

**Premises** Future Foams  
8 Biscayne Way  
JANDAKOT WA 6164  
  
Legal description –  
Lot 242 on Plan 29703  
Certificate of Title Volume 2537 Folio 489

**Date of Amendment** 15/12/2017

## Amendment

The Chief Executive Officer (CEO) of the Department of Water and Environmental Regulation (DWER) has amended the above Licence in accordance with section 59 of the *Environmental Protection Act 1986* (EP Act) as set out in this Amendment Notice. This Amendment Notice constitutes written notice of the amendment in accordance with section 59B(9) of the EP Act.

Date signed: 15 December 2017

Paul Byrnes  
Manager Licensing (Process Industries)  
REGULATORY SERVICES (ENVIRONMENT)

an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

# Definitions and interpretation

## Definitions

In this Amendment Notice, the terms in Table 1 have the meanings defined.

**Table 1: Definitions**

Term	Definition
Amendment Notice	refers to this document
AS 4156.6 – 2000	Australian Standard AS 4156.6 – 2000: Determination of Dust/moisture Relationship for Coal.
Delegated Officer	an officer under section 20 of the EP Act
Department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> and designated as responsible for the administration of Part V, Division 3 of the EP Act.
DWER	Department of Water and Environmental Regulation
EP Act	<i>Environmental Protection Act 1986 (WA)</i>
EP Regulations	<i>Environmental Protection Regulations 1987 (WA)</i>
NEPM	National Environmental Protection Measure
PM	Particulate Matter
PM <sub>10</sub>	used to describe particulate matter that is smaller than 10 microns (µm) in diameter.
Risk Event	as described in <i>Guidance Statement: Risk Assessment</i>
µg/m <sup>3</sup>	micrograms per cubic metre
µg/L	micrograms per litre

## Amendment Notice

This amendment is made pursuant to section 59 of the *Environmental Protection Act 1986* (EP Act) to amend the Licence granted to Future Foam in respect of its foam manufacturing facility located at Biscayne Way, Jandakot. This notice of amendment is given under section 59B(9) of the EP Act.

### Amendment description

The Licence Holder lodged a licence amendment application on 3 August 2017 seeking to remove the annual stack testing requirement for TDI toluene-2,4-di-iso-cyanate; and toluene-2,6-di-iso-cyanate (TDI) and Methylene chloride (dichloromethane) (MeCl).

On 5 December 2017 the Licence Holder modified the application seeking approval to increase the approved production capacity from 200 to 390 tonnes per annum, reflecting the current level of production.

This report re-examines the requirement for monitoring TDI and MeCl in the context of the risks posed to the environment by the foam manufacturing activities conducted on site. It also examines the request to increase the approved production capacity. The report also outlines the decision making by the Delegated Officer in deciding to grant the application.

The documents that form the amendment application and key documents used in decision making are listed in Appendix 1.

### Amendment history

Table 2 provides the history for L8375/2009/2.

**Table 2:** Licence history

Approval	Granted	Comment
L8375/2009/2	24 July 2014	Licence granted
L8375/2009/2	29 April 2016	Notice of Amendment to extend the licence duration to 2033
L8375/2009/2	15 December 2017	Amendment Notice 1 to remove stack testing requirement and increase the approved production capacity

### Location and receptors

Table 3 below lists the relevant sensitive land uses in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

**Table 3: Receptors and distance from activity boundary**

Residential and sensitive premises	Distance from Prescribed Premises
Residential area (Treeby)	~200m to the north
Residential area (Treeby)	~250m to the east

### Risk assessment

The premises are located in close proximity to the Treeby residential area in Cockburn and there is the potential for emissions from the foam manufacturing process to impact upon Treeby's residents.

### Operations and emissions

The manufacture of foam involves mixing of chemicals containing TDI and or MeCl. The

process generates waste gases that can contain potentially harmful quantities of hazardous chemicals (TDI and MeCl).

Foam is manufactured on site in a batch process and generally occurs during the morning of normal business hours, Monday to Friday. The process involves mixing chemicals (polyol, TDI, MeCl, colourant and water) in a mould to create a large rectangular block of foam (a foam bun). To create a foam bun takes about 15 minutes per batch with approximately 10 minutes of down time between each batch. The Applicant has advised that waste gases are only emitted for about 3 minutes per batch during one particular step of the batch process. The site's current production is on average 12 foam buns per day which equates to about 36 minutes per day of waste gas emissions to the environment – usually during the morning.

Waste gases from the manufacturing process are collected and treated through a foam scrubber before being emitted to air.

Waste gases are emitted from a 10.5m high stack, approximately 3m above the roof line of the building.

## Identification and general characterisation of emission

Waste gases from the foam manufacturing process have been monitored for TDI and MeCl annually as per the licence conditions. The monitoring results are shown in Table 4 below for the previous three years. The applicant has advised that operational processes changed in 2014 and the Delegated Officer has only considered monitoring results since 2014.

**Table 4 Stack testing results**

Date stack testing	TDI results in mg/m <sup>3</sup>	MeCl results in mg/m <sup>3</sup>
12/02/2014	<0.06	17
12/02/2014	0.04	87
09/02/2016	0.096	1289
09/02/2016	0.039	2426
05/04/2017	0.058	486
05/04/2017	0.058	868
Average	0.0585	862

## Criteria for assessment

Worksafe Australia lists the following exposure Standard for TDI:

0.02 mg/m<sup>3</sup>, on a time weighted average basis (TWA) and 0.07 mg/m<sup>3</sup>, for short term exposures (STEL) TDI is not particularly odorous and it would take a concentration 10 to 20 times the level of the exposure standard before it would be detected.

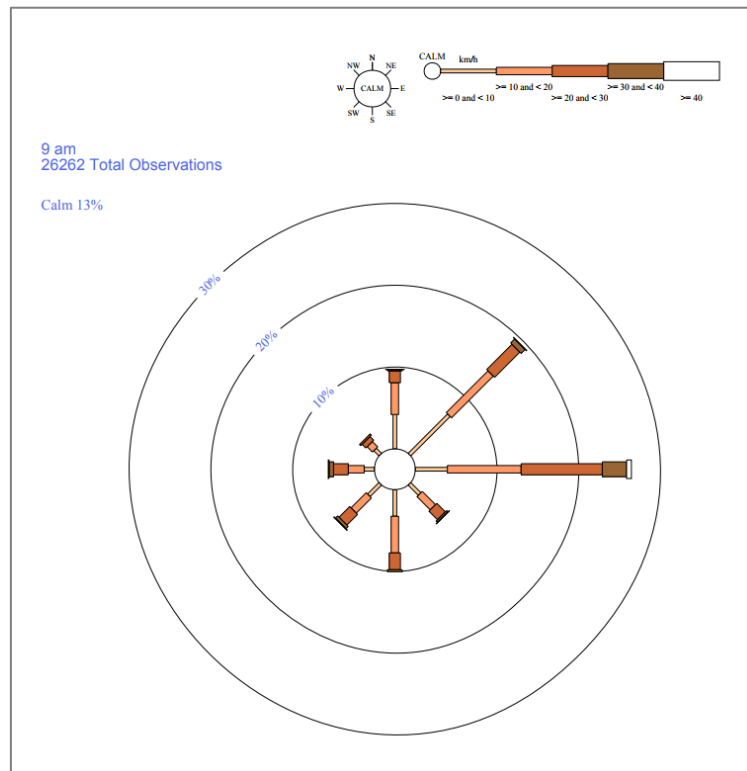
For MeCl Worksafe Australia states that it is allowable for workers to be exposed to 50 parts per million of MeCl over an eight hour shift. Worksafe Australia has determined that MeCl is a Category 3, suspected carcinogen. According to the Guide to Occupational Exposure Values, a publication from the American Conference of Governmental Hygienists (ACGIH), 50ppm equates to 174 mg/m<sup>3</sup>.

## Consequence of the emission of TDI and MeCl

The monitoring result for TDI and MeCl are within TWA and STEL limits and considering atmospheric dispersion, operating times and the distance to Treeby, the Delegated Office considers the risk to Treeby residents to be **Low**.

In relation to weather patterns for the morning, the Bureau of Meteorology provided the following wind-rose for 9am.

**Figure 1:** Wind rose Perth at 9 am



Accessed on 1 December 2017 at: [http://www.bom.gov.au/cgi-bin/climate/cgi\\_bin\\_scripts/windrose\\_selector.cgi?period=Annual&type=9&location=09021&Submit=Get+Rose](http://www.bom.gov.au/cgi-bin/climate/cgi_bin_scripts/windrose_selector.cgi?period=Annual&type=9&location=09021&Submit=Get+Rose)

Morning winds in the area are general from the east or north east as shown in Figure 1. This further reduces the impact of emissions from Future Foam as it usually manufactures foam in the morning.

### Increase to approved production capacity

The Applicant has also sought approval to amend the approved production capacity. The Delegated considers that this request is not a material matter as the pattern of production (batch production in the morning) and the nature and impacts of emissions remains largely unchanged.

### Observations and Recommendations

In assessing the application the Delegated Officer has noted the following matters and considers that it would be prudent to implement the following changes on site, as detailed in the table below.

Observation	Recommendation
Stack height	Increase of stack height to increase dispersion
Stack velocity	Increase of stack velocity to at least 10 m/s
Filter pad – change or replacement.	Reduction of foam replacement timeframes to once every two months.

### Decision

The Delegated Officer has decided to grant the application and remove the stack testing requirements from the licence conditions and also any related conditions.

### **Licence Holder's comments**

The Licence Holder was provided with a draft Amendment Notice on Wednesday 6 December 2017 and provided comments on 11 December 2017 supporting the proposed amendment.

## Details of the Amendment

- The table on the Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the red underlined text shown below:

Category number	Category description	Category production or design capacity	<del>Approved Premises production or design capacity</del> <u>Nominated capacity</u>
51	Foam products manufacturing: premises on which residue is used to prepare or manufacture plastic foam or plastic foam products using MDI (diphenylmethane di-isocyanate) or TDI (toluene-2, 4-di-isocyanate)	1 tonne or more per year	<del>200 tonnes per annual period</del> <u>390 tonnes per year</u>

- Condition 1 of the Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the red underlined text shown below:

~~'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 CEO of the Department of Environment Regulation;~~

~~'CEO' for the purpose of correspondence means;~~

~~Manager Licensing (Greater Swan)  
Department of Environment Regulation  
Locked Bag 33  
CLOISTERS SQUARE WA 6850  
Telephone: (08) 9333 7510  
Facsimile: (08) 9333 7550  
Email: swanindustryreg@der.wa.gov.au;~~

~~'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;~~

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

~~'STP dry' means standard temperature and pressure (0oCelsius and 101.325 kilopascals respectively), dry;~~

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

~~'USEPA Method 2' means the USEPA Method 2 Determination of Stack Gas Velocity and Volumetric Flow Rate (Type S Pitot Tube);~~

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

~~'USEPA CTM-0 36' means the USEPA Conditional Test Method 036 Method for Sampling Isocyanate Stack Emissions;~~

~~'CEO' means Chief Executive Officer. CEO for the purposes of notification means:  
Director General  
Department Administering the Environmental Protection Act 1986  
Locked Bag 33 Cloisters Square  
PERTH WA 6850  
[info-der@dwer.wa.gov.au](mailto:info-der@dwer.wa.gov.au)~~

3. The Licence is amended by the deletion of Condition 2.2.2 and the deletion of Table 2.2.2 and its associated note, as shown in strikethrough below:

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

<b>Table 2.2.2: Point source emission limits to air</b>			
<b>Emission point Reference</b>	<b>Parameter</b>	<b>Limit (including units)<sup>†</sup></b>	<b>Averaging period</b>
A1	TDI	0.2 g/min	Stack test

~~Note 1: All units are referenced to STP dry~~

4. The Licence is amended by the deletion of Conditions 3.1, 3.1.1, 3.1.2, 3.2, 3.2.1 and Table 3.2.1 and its associated notes as shown in strikethrough below:

~~**3.1 General monitoring**~~

~~3.1.1 The Licensee shall record production or throughput data and any other process parameters relevant to any non-continuous monitoring undertaken.~~

~~3.1.2 The Licensee shall ensure that all monitoring equipment used on the Premises to comply with the conditions of this Licence is calibrated in accordance with the manufacturer's specifications and the requirements of the Licence.~~

~~3.1.3 The Licensee 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.~~



**3.2 Monitoring of point source emissions to air**

~~3.2.1 The Licensee shall undertake the monitoring in Table 3.2.1 according to the specifications in that table.~~

<b>Emission-point reference</b>	<b>Parameter</b>	<b>Units<sup>1</sup></b>	<b>Averaging-period</b>	<b>Frequency<sup>3</sup></b>	<b>Method</b>
A1	Volumetric flow rate	m <sup>3</sup> /s	n/a	Annually	USEPA-Method 2
	TDI	g/s	Batch <sup>2</sup>		USEPA-GTM-036
	Methylene chloride	g/s	Batch <sup>2</sup>		USEPA-Method 18

~~Note 1: All units are referenced to STP dry.~~

~~Note 2: Averaging period should extend for at least the duration of the batch process unless the batch time exceeds the minimum runtime as specified in the respective method.~~

~~Note 3: Monitoring shall be undertaken to reflect normal operating conditions and any limits or conditions on inputs or production.~~

5. The Licence is amended by the deletion of Conditions 3.2.2 and 3.2.3 as shown in strikethrough below:

~~3.2.2 The Licensee shall ensure that sampling required under Condition 3.2.1 of the Licence is undertaken at sampling locations in accordance with the AS 4323.1.~~

~~3.2.3 The Licensee shall ensure that all non-continuous sampling and analysis undertaken pursuant to condition 3.2.1 is undertaken by a holder of NATA accreditation for the relevant methods of sampling and analysis.~~

6. Table 5.2.1 of the Licence is amended by the deletion of rows 4 and 7 and the text shown in strikethrough as shown below:

<b>Condition or table (if relevant)</b>	<b>Parameter</b>	<b>Format or form<sup>1</sup></b>
-	Summary of any failure or malfunction of any pollution control equipment and any environmental incidents that have occurred during the annual period and any action taken	None specified
<del>Table 3.2.1</del>	<del>Volumetric flow rate, TDI, methylene chloride</del>	<del>None specified</del>
Condition 5.1.3	Compliance	Annual Audit Compliance Report (AACR)
Condition 5.1.4	Complaints summary	None specified
<del>Condition 3.1.2</del>	<del>Calibration report</del>	<del>None specified</del>

Note 1: Forms are in Schedule 2

7. The Licence is amended by the deletion of Condition 5.2.2 as shown in strikethrough below:

~~5.2.2 The Licensee shall ensure that the Annual Environmental Report also contains:~~

- ~~(a) any relevant process, production or operational data recorded under Condition 3.1.1;~~
- ~~(b) an assessment of the information contained within the report against previous monitoring results and Licence limits and/or targets; and~~
- ~~(c) a list of any original monitoring reports submitted to the Licensee from~~

~~third parties for the annual period and make these reports available on request.~~

8. Table 5.3.1 of the Licence is amended by the deletion of the text shown in strikethrough as shown below:

<b>Table 5.3.1: Notification requirements</b>			
<b>Condition or table (if relevant)</b>	<b>Parameter</b>	<b>Notification requirement<sup>1</sup></b>	<b>Format or form<sup>2</sup></b>
<del>Condition 2.1.1</del>	<del>Breach of any limit specified in the Licence</del>	Part A: As soon as practicable but no later than 5pm of the next usual working day.  Part B: As soon as practicable	N1
-	Any failure or malfunction of any pollution control equipment or any incident, which has caused, is causing or may cause pollution		

Note 1: Notification requirements in the Licence shall not negate the requirement to comply with s72 of the Act

Note 2: Forms are in Schedule 2

## Appendix 1: Key documents

	Document title	In text ref	Date	Comment
1	Licence amendment application		03/08/17	#A1498899
2	Licence L8375/2009/2	Licence		accessed at <a href="http://www.dwer.wa.gov.au">www.dwer.wa.gov.au</a>
3	DEC NSW (2005). Approved Methods for the Modelling and Assessment of Air Pollutants in New South Wales. Department of Environment and Conservation: Sydney		2005	<a href="http://www.environment.nsw.gov.au">www.environment.nsw.gov.au</a>
4	Guide to handling isocyanates – Safe work Australia (July 2015)	Worksafe Standard	July 2015	<a href="http://www.safeworkaustralia.gov.au">www.safeworkaustralia.gov.au</a>
5	The Guide to Occupational Exposure Values, ©2006 by American Conference of Governmental Industrial Hygienists		2006	ISBN: 1-882417-63-1
6	DER, July 2015. <i>Guidance Statement: Regulatory principles</i> . Department of Environment Regulation, Perth.	DER 2015a		accessed at <a href="http://www.dwer.wa.gov.au">www.dwer.wa.gov.au</a>
7	DER, October 2015. <i>Guidance Statement: Setting conditions</i> . Department of Environment Regulation, Perth.	DER 2015b		
8	DER, August 2016. <i>Guidance Statement: Licence duration</i> . Department of Environment Regulation, Perth.	DER 2016a		
9	DER, November 2016. <i>Guidance Statement: Risk Assessments</i> . Department of Environment Regulation, Perth.	DER 2016b		
10	DER, November 2016. <i>Guidance Statement: Decision Making</i> . Department of Environment Regulation, Perth.	DER 2016c		