



Amendment Notice 1

Licence Number L6341/1988/10

Licence Holder Simcoa Operations Pty Ltd

ACN 009 064 653

File Number: DER2014/001534

Premises
Kemerton Silicon Smelter
973 Marriott Road
WELLESLEY WA 6233

Being Lot 5548 on Plan 188561 and Lot 5549 on Plan 188562

Date of Amendment 12 June 2017

Amendment

The Chief Executive Officer (CEO) of the Department of Environment Regulation (DER) has amended the above Licence in accordance with section 59 of the *Environmental Protection Act 1986* 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 and follows.

Date signed: 12 June 2017

Caron Goodbourn

A/Manager Licensing – Industry Regulation (Process Industries)

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
ACN	Australian Company Number
Category/ Categories/ Cat.	categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department Administering the <i>Environmental Protection Act 1986</i> Locked Bag 33 Cloisters Square PERTH WA 6850 info@der.wa.gov.au
DER	Department of Environment Regulation
Decision Report	refers to this document
Delegated Officer	an officer under section 20 of the EP Act
EP Act	<i>Environmental Protection Act 1986 (WA)</i>
EP Regulations	<i>Environmental Protection Regulations 1987 (WA)</i>
Existing Licence	The Licence issued under Part V, Division 3 of the EP Act and in force prior to the commencement of and during this Review
KIP	Kemerton Industrial Park
Licence Holder	Simcoa Operations Pty Ltd
MS	Ministerial Statement
NEPM	National Environmental Protection Measure
Prescribed Premises	has the same meaning given to that term under the EP Act.
Premises	refers to the premises to which this Decision Report applies, as specified at the front of this Decision Report.
Risk Event	as described in <i>Guidance Statement: Risk Assessment</i>
SO ₂	Sulfur dioxide
µg/m ³	micrograms per cubic metre

Amendment Notice

This amendment is made pursuant to section 59 of the *Environmental Protection Act 1986* (EP Act) to amend the Licence issued under the EP Act for a prescribed premises as set out below. This notice of amendment is given under section 59B(9) of the EP Act.

The following DER guidance statements have informed the decision made on this amendment:

- *Guidance Statement: Regulatory Principles (July 2015)*
- *Guidance Statement: Setting Conditions (October 2015)*
- *Guidance Statement: Decision Making (February 2017)*
- *Guidance Statement: Risk Assessments (February 2017)*
- *Guidance Statement: Environmental Siting (November 2016)*

Amendment description

Licence L6341/1988/10 was renewed on 9 October 2014 then amended on 31 December 2015 to accommodate the wastewater transfer project. At the renewal in 2014, the requirement to triennially monitor SO₂ emissions in the community (AQ3) and at the premises western boundary (AQ1) was included on the licence. The licence also required limits, based on the NEPM, to be met for SO₂ at both AQ3 and AQ1. The Licence Holder has requested an amendment to remove the SO₂ limits at the western boundary of the premises (AQ1) which is within the Kemerton Industrial Park (KIP).

The Licence Holder has also requested an amendment to the approved premises production or design capacity for category 44: metal smelting or refining from 50,000 to 53,000 tonnes per year. This is due to increased efficiency and metal recovery as a result of the two older furnaces being refurbished.

Other approvals

The Licence Holder has provided the following information relating to other approvals as outlined in Table 2.

Table 2: Relevant approvals

Legislation	Number	Approval
<i>Environmental Protection Act 1986</i>	Ministerial Statement 813	Covers the operations at Kemerton Silicon Smelter and authorises a maximum production of 64,000 tonnes of silicon.

Amendment history

Table 3 provides the amendment history for L6341/1988/10.

Table 3: Licence amendments

Instrument	Issued	Amendment
L6341/1988/10	09/10/2014	Licence renewed
L6341/1988/10	31/12/2015	Licence amended to accommodate the wastewater transfer project
L6341/1988/10	29/04/2016	Amendment Notice to extend expiry date of licence to 12 October 2026
L6341/1988/10	12/06/2017	Amendment Notice 1

		Remove limit for triennial SO ₂ ambient air quality monitoring at AQ1 (western boundary) and increase design capacity of category 44 from 50,000 to 53,000 tonnes per year.
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Location, environmental siting and potential receptors

The premises is located approximately 20 km north of Bunbury within the Shire of Harvey and is zoned as Kemerton Park Industry under the Shire of Harvey's Town Planning Scheme No. 1 and Greater Bunbury Region Scheme. The Kemerton Industrial Park (KIP) and buffer was established in 1985 as a strategic industrial area to provide appropriate buffered land for major (heavy) industry. The distance from the premises boundary to the edge of the KIP buffer is at least 1.3 km in all directions. The closest industry, Kemerton Titanium Dioxide Processing Plant operated by Cristal Pigment Australia Ltd, is located directly east of the premises and is also within the KIP. A piggery and an abattoir are located 950 m NNW and 1.4 km NW respectively and are within the KIP buffer. A wastewater treatment plant and landfill are located approximately 180 m north and 1.4 km south respectively, neither are zoned under the Shire of Harvey's town planning scheme.

Table 4 below lists the relevant sensitive land uses in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

Table 4: Receptors and distance from activity boundary

Residential and sensitive premises	Distance from Prescribed Premises
Rural residential premises	Approximately 1.2 km west of the premises boundary (located within the KIP buffer)
Special residential area	1.3 km west of the premises boundary
Rural residential premises	1.3 km east of premises boundary (located within the Kemerton Ancillary industry zone)

Risk assessment

Table 5 below describes the Risk Events associated with the amendment consistent with the *Guidance Statement: Risk Assessments*. The table identifies whether the emissions present a material risk to public health or the environment, requiring regulatory controls.

Table 5: Risk assessment for proposed amendments during operation

Risk Event						Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities	Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts					
<p>Category 37 and 44 Char manufacturing and Metal smelting or refining</p>	<p>Operation of the charcoal retort to produce charcoal and submerged arc furnaces for metal refining to produce silicon</p>	<p>Point source emissions to air</p>	<p>Rural residential premises located approximately 1.2 km west and 1.3 km east of the premises boundary (within the KIP buffer). Special residential area located approximately 1.3 km west of the premises boundary.</p>	<p>Air</p>	<p>Health and amenity impacts</p>	<p>Minor</p>	<p>Possible</p>	<p>Medium</p>	<p>The Licence Holder has requested to remove the limit for the triennial SO₂ ambient air quality monitoring at the premises boundary (AQ1).</p> <p>The Delegated Officer considers that it is appropriate for triennial SO₂ monitoring of ambient air quality to continue at AQ1 but that the National Environment Protection Measures (NEPM) limit will be removed as AQ1 is within the KIP and triennial SO₂ monitoring of ambient air quality will continue at AQ3 (within the community) with results compared to the NEPM.</p>
<p>Category 44 Metal smelting or refining</p>	<p>Operation of submerged arc furnaces for metal refining to produce silicon</p>	<p>Point source emissions to air</p>	<p>Rural residential premises located approximately 1.2 km west and 1.3 km east of the premises boundary (within the KIP buffer). Special residential area located approximately 1.3 km west of the premises boundary.</p>	<p>Air</p>	<p>Health and amenity impacts</p>	<p>Minor</p>	<p>Possible</p>	<p>Medium</p>	<p>The Licence Holder has requested to increase the approved premises production or design capacity for category 44 due to an increased efficiency and metal recovery as a result of the two older furnaces being refurbished.</p> <p>The Delegated Officer has reviewed current regulatory controls within the licence and considers that existing conditions relating to monitoring of point source emissions to air, monitoring of ambient air quality and the reporting of results of monitoring (conditions 3.2.1 – 3.2.3, 3.5.1 and 4.2.1-4.2.2) and general provisions of the <i>Environmental Protection Act 1986</i> will be sufficient to manage the risk associated with the operation of the submerged arc furnaces for metal refining to produce silicon.</p>

Decision

SO₂ limits

Sulfur dioxide is emitted from the premises during the smelting of silicon and the production of charcoal. The source of emissions from the smelter is the sulfur in reductants (coal, charcoal, char, woodchips and carbon electrodes) which is oxidised during smelting, extracted from the furnaces and emitted from the baghouses. The pyrolysis of wood in the charcoal retorts is also a source of sulfur dioxide, which is discharged into the atmosphere via the retort stack.

Dispersion modelling of sulfur dioxide emissions was submitted with works approval W4247/1988/1 for the installation of the third arc furnace. The modelling is compared to the NEPM, which allows for the adequate protection of human health and well-being, and predicts that the maximum 24-hour and annual average SO₂ concentrations within the KIP will be below the NEPM limits. However, the maximum predicted 1-hour average for SO₂ concentrations within the KIP is 596 µg/m³; slightly above the NEPM of 572 µg/m³.

Triennial SO₂ ambient air quality monitoring has been conducted by the Licence Holder four times over the last 11 years at Leschenault (AQ3) (outside the KIP). The results of that monitoring can be found in Table 6 in comparison to the NEPM. Triennial monitoring at AQ1 is required for the first time in 2017.

Table 6: Triennial SO₂ ambient air quality monitoring results at Leschenault (AQ3)

Averaging period	NEPM	2006	2010	2013	2016
1-hour average (µg/m ³)	572	37	31	20.9	46.6
24-hour average (µg/m ³)	229	7	24	4.8	8.5

The Delegated Officer considers that it is appropriate for the Licence Holder to continue triennial SO₂ monitoring of ambient air quality at the Leschenault location (AQ3) and compare the results to the NEPM. However, considering that AQ1 is within the KIP and monitoring will continue to be compared to the NEPM at AQ3, the Delegated Officer considers that it is appropriate for triennial SO₂ monitoring of ambient air quality to continue at AQ1 but that the NEPM limit will be removed. This is in accordance with DER Guidance *Statement Regulatory Principles* (July 2015).

Approved premises production or design capacity for category 44

The Licence Holder has requested to increase the approved premises production or design capacity for category 44 due to an increased efficiency and metal recovery as a result of the two older furnaces being refurbished. There have been no changes to the inputs or process and therefore, there has been no significant change to current emissions or other environmental impacts. The Delegated Officer has determined that the approved production or design capacity for category 44 will be increased from 50,000 tonnes to 53,000 tonnes per annum. The Delegated Officer has determined that the existing licence conditions and general provisions of the *Environmental Protection Act 1986* are sufficient to manage the risk associated with the operation of the submerged arc furnaces for metal refining to produce silicon.

Licence Holder's comments

The Licence Holder was provided with the draft Amendment Notice on 1 June 2017. The Licence Holder provided written notification on 8 June 2017 that they accept the proposed amendments, wish to waive the consultation period and have the Amendment Notice issued as soon as possible.

Amendment

- The prescribed premises category table on page 1 of the Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the red text shown in underline below.

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 carbonaceous nature or of enriched carbon content.	10 tonnes or more per year	26,000 tonnes per year
44	Metal smelting or refining: premises on which metal ore, metal ore concentrate or metal waste is smelted, fused, roasted, refined or processed.	1,000 tonnes or more per year	50,000 <u>53,000</u> tonnes per year

- Table 3.5.1 of the Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the red text shown in underline below:

Table 3.5.1: Monitoring of ambient air quality						
Monitoring point reference	Parameter	Limit	Units	Averaging period	Frequency	Method
AQ1 & AQ2 ²	TSP ¹	None specified	µg/m ³	24 hours	Annual, with a minimum of 2 samples between 1 October and 31 May.	AS 3580.9.3
<u>AQ1</u>	Sulfur dioxide	<u>None specified</u>		24 hours		
AQ1 & AQ3 ³		229		1 hour		
		572		24 hours		
				1 hour		

Note 1: To be sampled using a High Volume Air Sampler

Note 2: Sampling location is Leschenault Parklands, Leschenault

Note 3: Sampling location is Leschenault.

Appendix 1: Key documents

	Document title	In text ref	Availability
1	Licence amendment application form	Application	DER Records (A1424245)
2	Licence L6341/1988/10 – Simcoa Operations Pty Ltd – Kemerton Silicon Smelter	L6341/1988/10	accessed at www.der.wa.gov.au
3	Simcoa Operations Kemerton Silicon Smelter Annual Environmental Report 2016		DER records (A1403610)
4	Simcoa Operations Kemerton Silicon Smelter Annual Environmental Report 2014		DER records (A889524)
5	Simcoa Operations Kemerton Silicon Smelter Annual Environmental Report 2010		DER records (A384034)
6	Simcoa Operations Kemerton Silicon Smelter Triennial Environmental Report 2007 - 2009		DER records (A333448)
7	E-mail from Daniel Mance to DER, RE: Kemerton Silicon Smelter licence amendment – furnace 3 modelling, received 25 May 2017		DER records (A1438771)
8	E-mail from Daniel Mance to DER, RE: Application Notification – L6341 – Proposed Amendment to Licence Kemerton Silicon Smelter, received 8 June 2017		DER records (A1448515)
9	Ministerial Statement 813	MS 813	accessed at www.epa.wa.gov.au
10	DER, July 2015. <i>Guidance Statement: Regulatory principles</i> . Department of Environment Regulation, Perth.		accessed at www.der.wa.gov.au
11	DER, October 2015. <i>Guidance Statement: Setting conditions</i> . Department of Environment Regulation, Perth.		
12	DER February 2017. <i>Guidance Statement: Risk Assessments</i> . Department of Environment Regulation, Perth.		
13	DER, February 2017. <i>Guidance Statement: Decision Making</i> . Department of Environment Regulation, Perth.		
14	DER, November 2016. <i>Guidance Statement: Environmental Siting</i> . Department of Environment Regulation, Perth.		