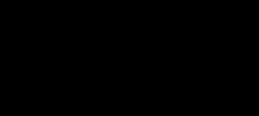




<b>Works Approval Number</b>	W6167/2018/1
<b>Works Approval Holder ACN</b>	Cockburn Cement Limited 008 673 470
<b>Registered business address</b>	Level 1, 157 Grenfell Street Adelaide SA 5000
<b>File Number</b>	DER2018/001321
<b>Duration</b>	25 January 2019 to 25 July 2019
<b>Date of issue</b>	25 January 2019
<b>Prescribed Premises</b>	<b>Category 43 – Cement of lime manufacturing</b> Category 12 – Screening etc. of material Category 61A – Solid waste facility Category 63 – Class I inert landfill
<b>Premises</b>	Cockburn Cement Limited Munster  Being Lot 450 on Plan 249735 Rockingham Rd, Lot 50 on Diagram 6065, Lot 88 on Plan 22127, Lot 246 on Plan 226117, Lot 5 and Lot 4 on Diagram 18525 and Lot 311 on Plan 300770 Russell Road, MUNSTER 6166

This Works Approval is granted to the Works Approval Holder, subject to the following conditions, on 25 January 2019, by:



**James Milne**

**A/ Senior Manager Process Industries**

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

## Explanatory notes

These explanatory notes do not form part of this Works Approval.

### Defined terms

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Definition of terms used in this Works Approval can be found at the start of this Works Approval. Terms which are defined have the first letter of each word capitalised throughout this Works Approval.

### Department of Water and Environmental Regulation

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The Department of Water and Environmental Regulation (DWER) is established under section 35 of the *Public Sector Management Act 1994* and designated as responsible for the administration of Part V, Division 3 of the *Environmental Protection Act 1986* (WA) (EP Act). The Department also monitors and audits compliance with licences and works approvals, takes enforcement action and develops and implements licensing and industry regulation policy.

### Works Approval

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Section 52 of the EP Act provides that an occupier of any premises commits an offence if any work is undertaken on, or in relation to, the premises which causes the premises to become, or to become capable of being, Prescribed Premises, except in accordance with a works approval.

Section 56 of the EP Act provides that an occupier of Prescribed Premises commits an offence if Emissions are caused or increased or permitted to be caused or increased, or Waste, noise, odour or electromagnetic radiation is altered or permitted to be altered from Prescribed Premises, except in accordance with a works approval or licence.

Categories of Prescribed Premises are defined in Schedule 1 of the *Environment Protection Regulations 1987* (WA) (EP Regulations).

This Works Approval does not authorise any activity which may be a breach of the requirements of another statutory authority including, but not limited to, the following:

- conditions imposed by the Minister for Environment under Part IV of the EP Act;
- conditions imposed by DWER for the clearing of native vegetation under Part V, Division 2 of the EP Act;
- any requirements under the *Waste Avoidance and Resource Recovery Act 2007*;
- any requirements under the *Environmental Protection (Controlled Waste) Regulations 2004*; and
- any other requirements specified through State legislation.

It is the responsibility of the Works Approval Holder to ensure that any action or activity referred to in this Works Approval is permitted by, and is carried out in compliance with, statutory requirements.

The Works Approval Holder must comply with the Works Approval. Contravening a Works Approval Condition is an offence under s.55 of the EP Act.
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### Responsibilities of Works Approval Holder

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Separate to the requirements of this Works Approval, general obligations of Works Approval Holders are set out in the EP Act and the regulations made under the EP Act. For example, the Works Approval Holder must comply with the following provisions of the EP Act:

- the duties of an occupier under s.61; and

- restrictions on making certain changes to Prescribed Premises unless the changes are in accordance with a Works Approval, Licence, closure notice or environmental protection notice (s.53).

Strict penalties apply for offences under the EP Act.

### Reporting of incidents

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The Works Approval Holder has a duty to report to the Department all Discharges of Waste that have caused or are likely to cause Pollution, Material Environmental Harm or Serious Environmental Harm, in accordance with s.72 of the EP Act.

### Offences and defences

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The EP Act and its regulations set out a number of offences including:

- Offence of emitting an Unreasonable Emission from any Premises under s.49.
- Offence of causing Pollution under s.49.
- Offence of dumping Waste under s.49A.
- Offence of discharging Waste in circumstances likely to cause Pollution under s.50.
- Offence of causing Serious Environmental Harm (s.50A) or Material Environmental Harm (s.50B).
- Offence of causing Emissions which do not comply with prescribed standards (s.51).
- Offences relating to Emissions or Discharges under regulations prescribed under the EP Act, including materials discharged under the *Environmental Protection (Unauthorised Discharges) Regulations 2004 (WA)*.
- Offences relating to noise under the *Environmental Protection (Noise) Regulations 1997 (WA)*.

Section 53 of the EP Act provides that a Works Approval Holder commits an offence if Emissions are caused, or altered, from a Prescribed Premises unless done in accordance with a Works Approval, Licence or the requirements of a closure notice or an environmental protection notice.

Defences to certain offences may be available to a Works Approval Holder and these are set out in the EP Act. Section 74A(b)(iii) provides that it is a defence to an offence for causing Pollution, in respect of an Emission, or for causing Serious Environmental Harm or Material Environmental Harm, or for discharging or abandoning Waste in water to which the public has access, if the Works Approval Holder can prove that an Emission or Discharge occurred in accordance with a Works Approval.

This Works Approval specifies the Emissions and Discharges, and the limits and Conditions which must be satisfied in respect of specified Emissions and Discharges, in order for the defence to offence provision to be available.

### Authorised Emissions and Discharges

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The specified and general Emissions and Discharges from the Works authorised through this Works Approval are authorised to be conducted in accordance with the Conditions of this Works Approval.

### Amendment of Works Approval

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The Works Approval Holder can apply to amend the Conditions of this Works Approval under s.59 of the EP Act. An application form for this purpose is available from DWER.

The CEO may also amend the Conditions of this Works Approval at any time on the initiative

of the CEO without an application being made.

#### [Duration of Works Approval](#)

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The Works Approval will remain in force for the duration set out on the first page of this Works Approval or until it is surrendered, suspended or revoked in accordance with s.59A of the EP Act.

#### [Suspension or revocation](#)

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The CEO may suspend or revoke this Works Approval in accordance with s.59A of the EP Act.

# Definitions and interpretation

## Definitions

In this Works Approval, the terms in Table 1 have the meanings defined.

**Table 1: Definitions**

Term	Definition
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 <a href="mailto:info@dwer.wa.gov.au">info@dwer.wa.gov.au</a>
Condition	means a condition to which this Works Approval is subject under s.62 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	means the <i>Environmental Protection Act 1986</i> (WA).
EP Regulations	means the <i>Environmental Protection Regulations 1987</i> (WA).
Inspector	means an inspector appointed by the CEO in accordance with s.88 of the EP Act.
Premises	refers to the premises to which this Works Approval applies, as specified at the front of this Works Approval and as shown on the map in Schedule 1 to this Works Approval.
SW-846	refers to the USEPA SW-846 series of publications, generally titled Test Methods for Evaluating Solid Waste, Physical/Chemical Methods
TEQ	means the toxic equivalent which is a singular number expressing the toxicity of a mixture of dioxins and dioxin-like compounds in terms of equivalent 2, 3, 7, 8-tetrachloro-dibenzodioxin (2, 3, 7, 8-TCDD – the most toxic dioxin) and is defined in the 1998 publication, Executive Summary of the Assessment of the health risk of dioxins issued by the International Programme on Chemical Safety (IPCS) which is an organ of the World Health Organisation.
USEPA	means United States Environmental Protection Agency
Works	refers to the Works described in Table 2, at the locations shown in Schedule 1 of this Works Approval to be carried out at the Premises, subject to the Conditions.
Works Approval	refers to this document, which evidences the grant of the works approval by the CEO under s.54 of the EP Act, subject to the Conditions.
Works Approval Holder	refers to the occupier of the Premises being the person to whom this Works Approval has been granted, as specified at the front of this Works Approval.

## Interpretation

In this Works Approval:

- (a) the words 'including', 'includes' and 'include' will be read as if followed by the words 'without limitation';

- (b) where any word or phrase is given a defined meaning, any other part of speech or other grammatical form of that word or phrase has a corresponding meaning;
- (c) where tables are used in a Condition, each row in a table constitutes a separate Condition;
- (d) any reference to an Australian or other standard, guideline or code of practice in this Works Approval means the version of the standard, guideline or code of practice in force at the time of granting of this Works Approval and includes any amendments to the standard, guideline or code of practice which may occur from time to time during the course of the Works Approval; and
- (e) unless specified otherwise, any reference to a section of an Act refers to that section of the EP Act.

## Conditions

### Authorised works

1. The Works Approval Holder must carry out the Works within the Premises in accordance with Table 2.

**Table 2: Authorised Works**

Works	Specifications
Construction of bunded area for bulk neutraliser storage tanks and pump	Constructed of a material that meets a hydraulic conductivity of less than $1 \times 10^{-9} \text{m/s}$ . Bunded to be able to contain at least 110% of the total volume of stored product.
Installation of Aireactor OWD™ injection system to Kiln 5 stack and Kiln 6 stack and associated injectors and pipe work.	Injectors capable of an injection rate of 10L/minute installed in Kiln 5 and 6 stacks located in the stacks post pollution abatement.

2. Within 30 days of the completion of the Works specified in Table 2 and prior to commencing Trial 1, the Works Approval Holder must provide to the CEO a report confirming that all items of Works specified in Table 2 have been constructed or installed as specified.

### Location of works

3. The Works Approval Holder must locate the Works in accordance with the Works Map in Schedule 1.

### Trial operations

4. Subject to the completion of the Works authorised under Condition 1 and submission of the report required by Condition 2, the Works Approval Holder may operate the Aireactor OWD™ injection system for the trial periods set out in Table 3.

**Table 3: Trial duration and specification**

Trial period	Kiln	Duration	Specifications
1	5 and 6	Trial shall not exceed a 48 hour non-continuous period over a maximum of 96 hours. Trial only conducted between 6am to 6pm on weekdays.	10L/min injection rate of diluted Aireactor OWD™ at dilution ratios (in water) of 1:0.0006, 1:0.001, 1:0.0015 and 1:0.002.
2		Trial shall not exceed a 24 hour non-continuous period over a maximum of 48 hours. Trial only conducted between 6am to 6pm on weekdays.	10L/min injection rate of diluted Aireactor OWD™ Conducted at optimum dilution ratio of between 1:0.0006 and 1:0.002 (in water) as determined by Trial 1.

## Monitoring and reporting

5. The Works Approval Holder must undertake stack test monitoring for the parameters listed in Table 4:
- (a) in the corresponding units;
  - (b) at the corresponding location;
  - (c) at the corresponding frequency and timing;
  - (d) for the corresponding minimum averaging sampling period; and
  - (e) using the corresponding methods.

**Table 4: Point source air quality monitoring for Trial period 1 and 2**

Trial period	Parameter	Unit <sup>1</sup>	Location	Frequency and timing	Minimum averaging sampling period	Method <sup>2,3</sup>
1	Odour concentration and odour emission rate	OU and OU.m <sup>3</sup> /s	Kiln 5 stack and Kiln 6 stack	<b>Trial Period 1</b> At each dilution ratio detailed in Table 3 for Trial period 1 while the respective stack is being injected at rate of 10L/min.	N/A	AS/NZS 4323.3:2001
2	Odour concentration and odour emission rate	OU and OU.m <sup>3</sup> /s		<b>Trial period 2</b> At least once per stack: a) during trial period 2 as detailed in Table 3 and while Aireactor OWD™ is being injected at 10L/min into the relevant stack, at the optimum odour reducing concentration determined by trial period 1; and b) during the 4 hour period either before or after the stack test in a) has taken place and while no injection of Aireactor OWD™ is occurring.	N/A	AS/NZS 4323.3:2001
	Volumetric Flow rate	m <sup>3</sup> /s			N/A	USEPA Method 2
	PM	mg/m <sup>3</sup> and g/s			60 minutes	USEPA Method 5 Or 17
	PM <sub>10</sub>					USEPA Method 201A
	Sulfur Dioxide				1 minute averages over 30 minutes	USEPA Method 6C
	Nitrogen Oxides				1 minute averages over 30 minutes	USEPA Method 7E
	Carbon Monoxide				1 minute averages over 30 minutes	USEPA Method 10
	Polycyclic-Aromatic Hydrocarbons (PAH)	µg/m <sup>3</sup> and mg/s			60 minutes	SW-846 Method 0010



Trial period	Parameter	Unit <sup>1</sup>	Location	Frequency and timing	Minimum averaging sampling period	Method <sup>2,3</sup>
	Volatile Organic Compounds	µg/m <sup>3</sup> and g/s			30 minutes	USEPA Method 18
	Dioxins and Furans	pg/m <sup>3</sup> in TEQ and µg/s			60 minutes	USEPA Method 23
	Hydrogen Chloride	mg/m <sup>3</sup> and g/s			60 minutes	USEPA Method 26 or 26A
	Hydrogen Fluoride					
	Mercury	µg/m <sup>3</sup> and g/s			60 minutes	USEPA Method 29
	Thallium					
	Cadmium					
	Antimony					
	Arsenic					
	Lead					
	Total Chromium					
	Cobalt					
	Copper					
	Manganese					
	Nickel					

1: Concentrations to be corrected to **STP** at 10% oxygen on a dry basis;

2: Duplicate runs to be conducted consecutively on same sampling day;

3: Where USEPA methods refer to USEPA Method 1 for the sampling plane, this should be read as a referral to AS/NZS 4323.1:2001.

- 6.** The Works Approval Holder must submit to the CEO within 42 days after the completion of each respective trial period 1 and 2, a report. The report must detail the results from monitoring undertaken in Table 4 for that trial and a comparison to emissions of the previous three years stack testing results. The report shall also include the parameters listed in Table 5.

**Table 5: Reporting parameters**

Trial period	Frequency	Reporting parameters
1 and 2	During the period of any trial taking place	<ul style="list-style-type: none"> <li>• Wind Speed;</li> <li>• Wind Direction;</li> <li>• Injection rate;</li> <li>• Dilution ratio used; and</li> <li>• Date and time injection of Aireactor OWD™ takes place</li> </ul>
	During any stack test undertaken as specified in Table 4	CEMS data; and Production details including: <ul style="list-style-type: none"> <li>• Kiln status;</li> <li>• Production rates; and</li> <li>• Fuel type and ratio.</li> </ul>

## Emissions

7. The Works Approval Holder must not cause any emissions from the Works authorised through this Works Approval except for specified emissions and general emissions described in Table 6, subject to the corresponding exclusions, limitations or requirements specified in Table 6.

**Table 6: Authorised Emissions table**

Emission type	Exclusions/Limitations/Requirements
<b>Specified emissions</b>	
Emissions which arise from the use of Aireactor OWD™ during trial period 1 or trial period 2	Subject to compliance with Condition 4 and Condition 5
<b>General emissions (excluding specified emissions)</b>	
Emissions which arise from undertaking the Works set out in Table 2.	Emissions excluded from General Emissions are: <ul style="list-style-type: none"> <li>• Unreasonable Emissions; or</li> <li>• Emissions that result in, or are likely to result in, Pollution, Material Environmental Harm or Serious Environmental Harm; or</li> <li>• Discharges of Waste in circumstances likely to cause Pollution; or</li> <li>• Emissions that result, or are likely to result in, the Discharge or abandonment of Waste in water to which the public has access; or</li> <li>• Emissions or Discharges which do not comply with an Approved Policy; or</li> <li>• Emissions or Discharges which do not comply with prescribed standard; or</li> <li>• Emissions or Discharges which do not comply with the conditions in an Implementation Agreement or Decision; or</li> <li>• Emissions or Discharges the subject of offences under regulations prescribed under the EP Act, including materials discharged under the <i>Environmental Protection (Unauthorised Discharges) Regulations 2004</i>.</li> </ul>

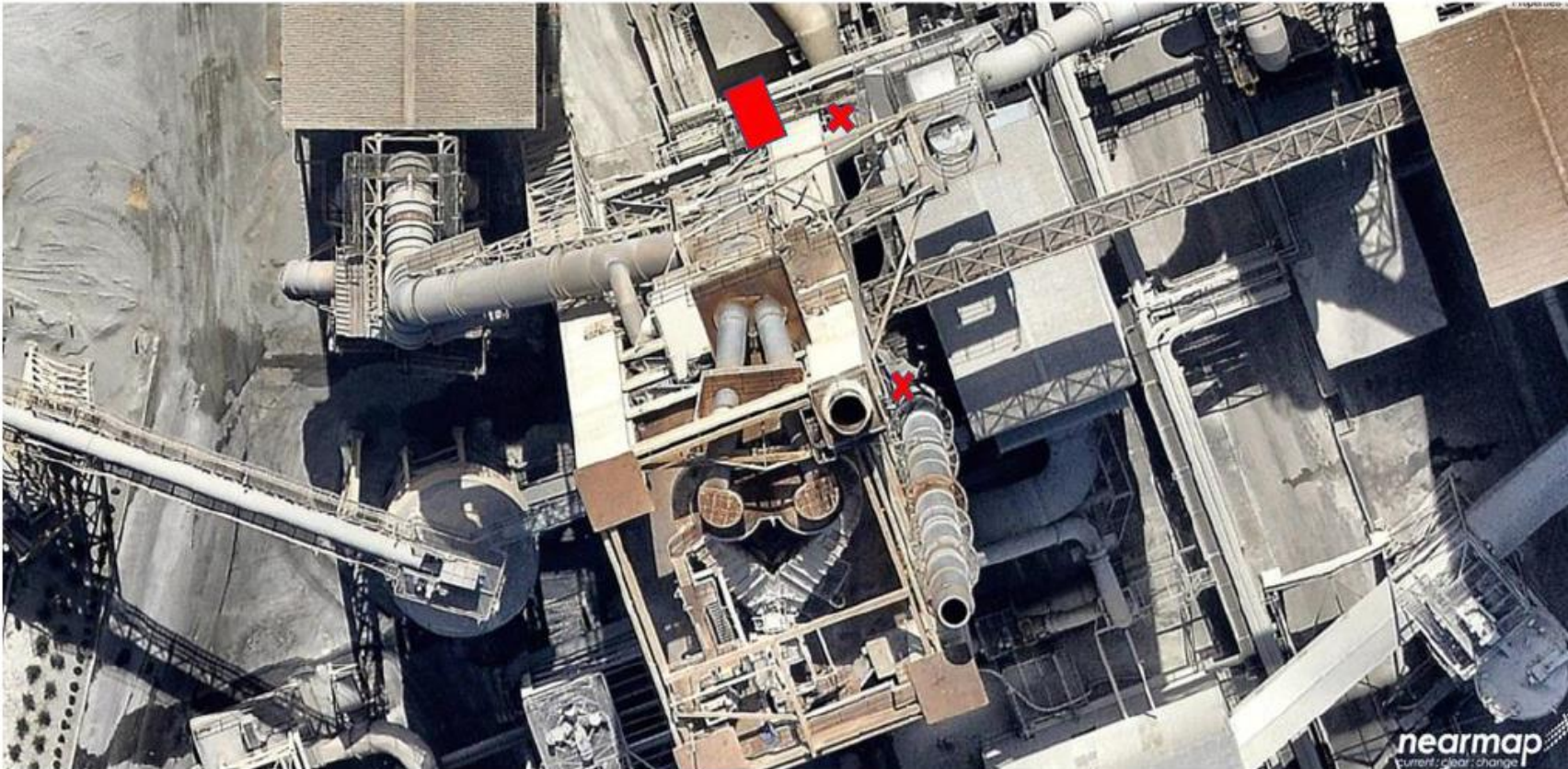
## Record-keeping

8. The Works Approval Holder must maintain accurate books including information, reports and data in relation to the Works and the books must:
- (a) be legible;
  - (b) if amended, be amended in such a ways that the original and subsequent amendments remain legible or are capable of retrieval;
  - (c) be retained for at least 3 years from the date the books were made;
  - (d) be available to be produced to an Inspector or the CEO.

## Schedule 1: Maps

### Works map

The locations for the Works on the Premises are shown in the map below.



#### Legend



Bund area for bulk neutraliser, dosing system, storage tank and pumps



Location of injection points on stack (Far, Kiln 6), (Near, Kiln 5)