# Decision Report

## Application for Works Approval

### Part V Division 3 of the *Environmental Protection Act 1986*

| | |
|---|---|
| **Works Approval Number** | W6817/2023/1 |
| **Applicant** | Cockburn Cement Limited |
| **ACN** | 008 673 470 |
| **File Number** | DER2023/000424 |
| **Premises** | Cockburn Cement Limited Munster<br>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 |
| **Date of Report** | 07/11/2023 |
| **Decision** | Works approval granted |

**Amine Fisher**
**A/Manager, Process Industries**
an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

# Table of Contents

# 1. Decision summary

This Decision Report documents the assessment of potential risks to the environment and public health from emissions and discharges during the commissioning and time limited operations of the lime kiln dust (LKD) prilling infrastructure. As a result of this assessment, Works Approval W6817 has been granted.

# 2. Scope of assessment

## 2.1 Regulatory framework

In completing the assessment documented in this Decision Report, the Department of Water and Environmental Regulation (department, DWER) has considered and given due regard to its Regulatory Framework and relevant policy documents which are available at https://www.wa.gov.au/service/building-utilities-and-essential-services/integrated-essential-services/dwer-regulatory-documents.

## 2.2 Application summary

On 29 June 2023, Cockburn Cement Limited (CCL) submitted an application for a works approval to the department under section 54 of the *Environmental Protection Act 1986* (EP Act).

CCL currently operates a lime manufacturing plant (category 43: Cement or lime manufacturing) on Russel Road in Munster (the premises). The plant has two operational lime kilns and is authorised to operate under Part V of the EP Act by licence L4533/1967/15. The application is for installation and operation of infrastructure that will enable LKD to be disposed in an alternate manner. The works proposed will allow the LKD to be processed to less fine material by prilling it to form conglomerated spheres of LKD. CCL expect the proposal to prill LKD prior to disposal will help reduce dust emissions from the LKD disposal area as the prilled LKD material will hold together in a sphere, resulting in less free particulate matter likely to become windblown compared with un-prilled LKD.

The department has considered the infrastructure and equipment relating to the proposed works in line with *Guideline: Risk Assessments* (DWER 2020) and these are outlined in Works Approval W6817.

A more detailed overview of the premises, including the lime manufacturing process used by CCL is provided in the decision report for licence L4533/1967/15 published on the Department of Water and Environmental Regulation (DWER) on its website at https://www.der.wa.gov.au/our-work/licences-and-works-approvals/current-licences.

## 2.3 Infrastructure and operational aspects

CCL currently operates two lime kilns, kiln 5 and kiln 6, on the premises. Both kilns have baghouse dust filters that filter out dust known as lime kiln dust (LKD) from the kiln stack exhaust gases.

The bag houses collect the dust which is then transferred a dedicated storage silo. LKD from the storage silo is loaded into pneumatic trucks and transported to the LKD disposal area where it is mixed with extracted groundwater to create a slurry which is pumped via cannons into the LKD disposal area.

When the LKD dries out it poses a risk of dust emissions as it is a very fine material. CCL has installed sprinklers around the boundary of the LKD disposal area which are operated to reduce dust emissions arising from the area.

CCL is proposing to ‘prill’ the LKD by adding water to the LKD and mechanically agitating it to form small, conglomerated spheres of prilled LKD prior to disposal with the aim of reducing the

risk of dust emissions.

# 3. Risk assessment

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the *Gridline: Risk Assessments* (DWER 2020).

To establish a Risk Event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission.

## 3.1 Source-pathways and receptors

### 3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during the construction and operation of the prilling infrastructure that have been considered in this Decision Report are detailed in Table 1 below. Table 1 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Potential emissions during the construction phase are not risk assessed in detail as the works are limited in scope and duration and will only take place during daytime hours. The Delegated Officer determined that impacts to public health or the environment are not expected to arise as a result of construction phase emissions.

**Table 1: Proposed applicant controls**

| Emission | Sources | Potential pathways | Proposed controls |
|---|---|---|---|
| **Construction** | | | |
| Noise | Construction and installation of LKD prilling infrastructure | Air/windborne pathway | Construction only during daytime hours.<br>Noise emissions expected to comply with the *Environmental Protection (Noise) Regulations 1997*. |
| **Time limited operation** | | | |
| Dust | Operation of LKD prilling infrastructure | Air/windborne pathway | Will comprise fully enclosed auger/screws/chutes and an auger style DustFix 80 prilling system which allows water to be added to LKD through a mixing shaft.<br>The prilling system will have continuous moisture monitoring via a sensor.<br>Moisture content of prilled LKD is expected to be between 12-15%.<br>Prilled LKD to be a solid spheres less likely to generate dust as there will be less free particulate matter. |
| | Loading of prilled LKD into tipper trucks | | Prilled LKD to be in damp state.<br>Loading chute/sock connected to a dust extraction system with a baghouse fitted with a pulse jet air cleaning system which returns collected dust to the prilling feed.<br>Loading area will be partially enclosed comprising an existing concrete pad with walls on the eastern and western side with an automatic roller door to be |

| Emission | Sources | Potential pathways | Proposed controls |
|---|---|---|---|
| | | | installed on the northern end to limit wind exposure.<br>Loading will be via a telescopic loading sock lowered into trucks when loading occurs.<br>Loading area to be swept with street sweeper as required. |
| | Transport of prilled LKD | | LKD to be transported in a damp state.<br>Roads to be wet down as required. |
| | Deposition of prilled LKD | | Prilled LKD to be deposited in a damp state.<br>Water cart/cannon to be used if dust lift off is observed during deposition of prilled LKD.<br>The licence currently contains requirements for CCL to monitor ambient dust at boundary monitors and to inspect potential dust sources and where dust emissions from the premises are identified to take action to mitigate the dust. This includes visually inspecting the LKD disposal area and cease dust generating activities, application of a dust suppressant, activation of the water misting and/or sprinkler system. |
| Noise | Operation of LKD infrastructure | Air pathway | The LKD prilling infrastructure is designed to operate at less than 80dB and is located approximately 750 m from the nearest residential receptor. |

### 3.1.2 Current licence conditions that relate to dust emissions

The premises is currently licensed by L4533/1967/15 which contains conditions that relate to the control of ambient dust emissions including:

- operation of boundary ambient dust monitors;
- actions to be taken if monitors exceed the limits on the licence;
- daily inspections of likely sources of ambient dust including the LKD disposal area; and
- all dust collected from hoppers including LKD is disposed of to the LKD disposal area in a wet state.

### 3.1.3 Receptors

In accordance with the *Guideline: Risk Assessment* (DWER 2020), the Delegated Officer has excluded employees, visitors and contractors of the applicant's from its assessment. Protection of these parties often involves different exposure risks and prevention strategies, and is provided for under other state legislation.

Table 2 below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises *(Guideline: Environmental Siting* (DER 2016)).

**Table 2: Sensitive human and environmental receptors and distance from prescribed activity**

| **Human receptors** | **Distance from prescribed activity** |
|---|---|
| Residential receptors | 750m from LKD prilling infrastructure and truck loading area |
| Residential receptors | 570m from the prilled LKD deposition area |
| **Environmental receptors** | **Distance from prescribed activity** |
| No Environmental receptors likely to be impacted by the prilling of LKD within 1 km of the prilling infrastructure | >1km |


**Figure 1: Distance to residential receptors from the LKD prilling infrastructure and the LKD disposal area**

## 3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DER 2020) for each identified emission source and takes into account potential source-pathway and receptor linkages as identified in Section 3.1. Where linkages are in-complete they have not been considered further in the risk assessment.

Where the applicant has proposed mitigation measures/controls (as detailed in Section 3.1), these have been considered when determining the final risk rating. Where the Delegated Officer considers the applicant's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the works approval as regulatory controls. Additional regulatory controls may be imposed where the applicant's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 3.

Works Approval W6817 that accompanies this Decision Report authorises construction and time-limited operations (including commissioning) to allow the infrastructure to be trialed for the reduction of dust. The conditions in the issued Works Approval, as outlined in Table 3 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

**Table 3: Risk assessment of potential emissions and discharges from the Premises during construction, commissioning and time limited operation**

| **Risk Event** | | | | | **Risk rating[1]**<br>**C = consequence**<br>**L = likelihood** | **Applicant controls sufficient?** | **Conditions[2] of works approval** | **Justification for additional regulatory controls** |
|---|---|---|---|---|---|---|---|---|
| **Source/ Activities** | **Potential emission** | **Potential pathways and impact** | **Receptors** | **Applicant controls** | | | | |
| **Construction** | | | | | | | | |
| Construction and installation of alternative feed location infrastructure | Noise | Air/windborne pathway causing impacts to amenity | Nearest residential area 750m north of the proposed LKD prilling infrastructure. | Refer to Section 3.1 | C = slight<br>L = Unlikely<br>**Low Risk** | Y | NA | The delegated officer has determined that as there are limited works required and these will only take place during daytime hours noise emissions are expected to comply with the *Environmental Protection (Noise) Regulations 1997.* |
| **Operation** | | | | | | | | |
| Operation of LKD prilling infrastructure | Dust emissions | Air/windborne pathway causing wide scale unreasonable dust emission impacts on receptor | Nearest residential area 750m north of the proposed Prilling infrastructure and loading | Refer to Section 3.1 | C = Slight<br>L = Rare<br>**Low Risk** | Y | 1 and 6 | CCL has proposed to install the LKD prilling infrastructure that it believes will result in reduced community dust impacts by reducing the amount of free fine particulate material in the LKD.<br>The delegated officer has determined that the proposed changes will not increase the previously assessed risk of impacts from |

| Risk Event | | | | | Risk rating[1]<br>C = consequence<br>L = likelihood | Applicant controls sufficient? | Conditions[2] of works approval | Justification for additional regulatory controls |
|---|---|---|---|---|---|---|---|---|
| Source/ Activities | Potential emission | Potential pathways and impact | Receptors | Applicant controls | | | | |
| | | amenity | area | | | | | dust emissions, subject to the applicant's proposed controls.<br>**Applicant proposed controls**<br>Prilling takes place in enclosed infrastructure with moisture monitoring to achieve a moisture content of at least 12% or if less it prills will be dust free when exiting the prilling machine.<br>The delegated officer considers this control to be critical to controlling dust so has included as requirements in the works approval as condition 1 and 6.<br>The delegated officer notes that CCL can resort to the current LKD disposal method using pneumatic trucks and disposing of the LKD in a wet state (slurry) if there is an increase in dust due to the prilling operations. |
| Loading of prilled LKD material into tipper trucks | | | | | C = Slight<br>L = Rare<br>**Low Risk** | Y | 1, 6 and 7 | **Applicant proposed controls**<br>The loading infrastructure is equipped with a dust extraction system with a bag house.<br>Prilled material is loaded to trucks using a telescopic loading sock and a road sweeper will be used to prevent dust accumulation.<br>The delegated officer considers these controls to be critical to controlling dust so has included them in the works approval as conditions 1 and 6 and authorized the baghouse emission point through condition 7. A maintenance control relating to the maintenance of baghouse filters was included by the delegated officer to ensure they are appropriately maintained to achieve effective operation and control of dust emissions. |
| Transport of | | | The nearest | | C = Minor | N | 1 and 6 | **Applicant proposed controls** |

| Risk Event | | | | | Risk rating[1]<br>C = consequence<br>L = likelihood | Applicant controls sufficient? | Conditions[2] of works approval | Justification for additional regulatory controls |
|---|---|---|---|---|---|---|---|---|
| **Source/ Activities** | **Potential emission** | **Potential pathways and impact** | **Receptors** | **Applicant controls** | | | | |
| prilled LKD material | | | point of the transport route is approximately 570m from residential receptors | | L = Unlikely<br>**Medium Risk** | | | Prilled LKD material will be transported in a damp state to the LKD disposal area and will be in spheres that are less likely to become wind blown when disposed of to the LKD disposal area.<br>The delegated officer considers these controls to be critical to controlling dust so has included them in the works approval as conditions 1 and 6.<br>**Additional control**<br>The delegated officer has also included a condition to ensure that trucks transporting the prilled material have their trailers covered as there is a risk of the material drying out and creating dust during transport. |
| Deposition of prilled LKD material | | | The point that LKD will be disposed of is approximately 570m from residential receptors | | C = Minor<br>L = Possible<br>**Medium Risk** | Y | 1 and 6 | The delegated officer notes that the current licence requires LKD (dust) to be disposed of to the LKD disposal area in a wet state. Prilled LKD is not considered to be LKD (dust) and as such the delegated officer has determine that the licence conditions do not prevent disposal of prilled LKD in a damp state to the LKD disposal area subject to authorisation of a period of time limited operations under the works approval.<br>**Applicant proposed controls**<br>Prilled material is deposited to the LKD disposal area in a damp state.<br>A water cart is available to wet down the tipping area.<br>The delegated officer considers these controls to be critical to controlling dust so has included them in the works approval as conditions 1 and 6 |

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guideline: Risk Assessments* (DWER 2020).

# 4. Consultation

Table 4 provides a summary of the consultation undertaken by the department.

**Table 4: Consultation**

| Consultation method | Comments received | Department response |
|---|---|---|
| Application advertised on the department's website (24/07/2023) | None received | NA |
| Local Government Authority advised of proposal (20/07/2023) | The City of Cockburn advised that no development application is required and that the City is Supportive of the proposal. | The Department notes the LGA response. |
| Letter sent out to registered Stakeholders on 20 July 2023 | Two responses received from community members, issued raised included:<br>• Burning of coal as a fuel at CCL<br>• Visual impact of CCL<br>• Odours from CCL<br>• Dust from CCL | This proposal does not change the use of any fuels burnt on the premises.<br>This proposal does not change the visual amenity of the site.<br>LKD is not an odorous material.<br>The proposal is likely to reduce dust emissions associated with disposal of LKD on the premises. |
| Applicant comments on draft Works Approval and Decision Report Documents. | The applicant responded on 30 October 2023. The applicant requested amendments as summarised in Appendix 1. | Refer to Appendix 1. |

# 5. Decision

The Delegated Officer has determined to grant a works approval with a duration of two years for the proposed infrastructure. This is expected to provide sufficient time for the installation of the LKD prilling infrastructure and a 180-day time limited operations period during which the works approval holder can submit and have assessed a licence amendment application to include the LKD prilling and alternate disposal on the premises licence.

In determining to grant the works approval, the Delegated Officer took into account the following:

- the applicant has proposed controls which are considered suitable to mitigate risk of dust emission impacts associated with the activity and the prilled material is likely to be less of a dust risk given its denser nature making it less likely to become windblown;
- the works approval is granted for two years on the basis that the LKD prilling is not considered likely to result in an increased risk of dust emissions and dust impacts in the community, subject to the controls applied to the works approval;
- the works approval holder is subject to ambient dust monitoring requirements via licence L4533/1967/15 during this period, which include:
  - premises boundary dust monitoring with limits that require management actions to control dust emissions;
  - management actions for dust sources on site if boundary monitoring shows an

exceedance and the source has been identified as contributing to ambient dust; and

  - daily visual monitoring of ambient dust sources including the LKD disposal area.

- the premises will be subject to ongoing compliance inspections and investigations following incidents and complaints, in accordance with the EP Act; and
- if the proposal is not successful in reducing dust emissions, the applicant can revert back to the current disposal method.

# 6. Conclusion

Based on the assessment in this Decision Report, the Delegated Officer has determined that a works approval will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

# References


1. Department of Environment Regulation (DER) 2016, *Guideline: Environmental Siting*, Perth, Western Australia.
2. DWER 2017, *Guideline: Risk Assessments*, Perth, Western Australia.
3. DER 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
4. Cockburn Cement Limited 2023, Application for works approval (W6817) and supporting documentation (DWER Reference DWERDT799610).

# Appendix 1: Summary of applicant's comments on risk assessment and draft conditions

| Condition | Summary of applicant's comment | Department's response |
|---|---|---|
| **Condition 1, Table 1:1b**<br><br>Design and construction / installation requirements. | Current wording: Must have a design capacity of not more than 40 tonnes per hour.<br><br>Proposed wording: Must have a design capacity of not more than 80m3 per hour.<br><br>Reason: This is the name plate capacity of the DustFix80 which will be used, with m3 per hour not affected by product density unlike tonnes per hour. | The delegated officer (DO) accepted the applicant's reasoning and amended the requirements of Table 1.1b to require the LKD prilling machine to have a design capacity of not greater than $80m^3$ per hour. |
| **Condition 6, Table 2:1a**<br><br>Operational requirements during time limited operations. | Current wording: The moisture content of prilled LKD must be continuously monitored and must meet a moisture content of 12% or higher.<br><br>Proposed wording: The moisture content of prilled LKD must be continuously monitored and must meet a moisture content of 12% or higher, or if lower must be dust free when exiting the prilling infrastructure.<br><br>Reason: Although we envisage moisture content to be 12%-15%, the optimal moisture content may in practice be lower and will be trialled and optimised through commissioning. | The DO accepted the applicant's reasoning and amended the requirements of Table 2.1a to require that prilled LKD must be free of dust when exiting the prilling machine if the moisture content is less than 12%. |
| **Condition 6, Table 2:3c**<br><br>Operational requirements during time limited operations. | Current wording: Blocked, broken or leaking baghouse filters must be immediately replaced when detected.<br><br>Proposed wording: Blocked, broken or leaking baghouse filters must be maintained when detected.<br><br>Reason: CCL maintains baghouse filters according to OEM specification and internal procedures for dust control and timeliness. | The DO took into account the applicant's reasoning and updated the wording of the requirement in Table 2.3c to require for the baghouse filters be maintained, repaired or replaced when detected such that the onus is on the applicant to undertake necessary actions to ensure the baghouse filters remain suitably effective when a fault is found. |