



**Adelaide Brighton Cement Ltd**

an **ADBRI** company

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## QUARTERLY STACK PARTICULATE REPORT FOR BIRKENHEAD WORKS

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**COMPLIANCE DATE: 30/06/23 – Quarter 2, 2023**

**EPA Licence 1126: Stack Particulate Management Plan (U-749)**

**Licensed site: Adelaide Brighton Cement, Birkenhead Works**

**62 Elder Road, Birkenhead, SA 5015**

**Date of Submission: 31 July 2023**

**Version Number: 1**



Report Submitted by: Advisor Environment - C&L (SA/NSW/NT)

## Glossary

<b>Term</b>	<b>Definition</b>
$\mu\text{g}/\text{m}^3$	micrograms per cubic metre
$\text{mg}/\text{m}^3$	milligrams per cubic metre
m	metre
$\text{m}^3$	cubic metres
$\text{m}^3/\text{s}$	cubic metres per second
$\text{Nm}^3$	Gas volume in dry cubic metres at STP dry basis
<b>Abbreviations</b>	<b>Definition</b>
Air EPP	Environment Protection (Air Quality) Policy 2016
ESP	Electrostatic Precipitator
SA EPA	South Australian Environment Protection Authority
STP dry basis	Standard Temperature and Pressure (zero degrees Celsius and 101.3 kilo Pascals absolute)
TSP	Total Suspended Particulates
SPMP	Stack Particulate Management Plan

<b>Monitoring Objective</b>	<p>All stack particulate emissions events for the reporting quarter, where levels have exceeded the reporting thresholds:</p> <p>In line with the EPA licence issued on the 1/11/2022, the 1-hr reporting thresholds for stack particulate emission events was reduced as follows:</p> <ul style="list-style-type: none"> <li>• from 100 to 80 mg/Nm<sup>3</sup> (1 hour averaging period) on Kiln Stack 4A</li> <li>• from 60 to 50 mg/Nm<sup>3</sup> (1 hour averaging period) on Pre calciner Stack 4B</li> </ul> <p>Particulate Emissions will be reported in a table format providing the following details:</p> <ul style="list-style-type: none"> <li>• date, time and duration</li> <li>• the measured particulate concentration mg/Nm<sup>3</sup> (STP-dry)</li> <li>• immediate actions taken to reduce particulate emissions</li> <li>• cause and corrective actions taken to prevent future reoccurrence</li> </ul>
<b>Monitoring Plan</b>	<p>This monitoring report has been prepared in compliance with Stack Particulate Management Plan, approved 18 June 2018, by SA EPA.</p> <p>The Plan is available on the ABC Birkenhead Community Website:  <a href="https://adelaidebrightoncommunity.com.au/">https://adelaidebrightoncommunity.com.au/</a></p>

## One Hour Stack Particulate Reporting Events

**4A Stack**  
**1 hr > 80**  
**mg/Nm<sup>3</sup>**  
**Rolling**  
**1hr**  
**average**

Date	Time start	Time finish	Duration (min)	Magnitude mg/Nm3	Cause	Immediate Actions Taken	Actions Taken to Prevent a Reoccurrence
05/04/2023	16:08	17:08	60	119	Electrical work on a raw material weigher resulted in a blown fuse which shutdown part of a plant switchboard resulting in loss of cooling sprays on the 4A gas conditioning towers which caused elevated emissions	The fuse was replaced, and plant returned to normal function.	Human error during routine electrical work - no further action required.
22/06/2023	21:08	21:21	13	81.1	The increase in particulate resulted from a faulty thermocouple in the Bypass conditioning tower, which triggered the conditioning tower sprays to turn off and on repeatedly due to faulty temperature readings, resulting in an increase in Bypass ESP temperatures and reduced ESP performance.	The thermocouple was replaced.	No further action required

**4B Stack**  
**1 hr >**  
**50mg/Nm<sup>3</sup>**  
**Rolling**  
**1hr**  
**average**

Date	Time start	Time finish	Duration (min)	Magnitude mg/Nm <sup>3</sup>	Cause	Immediate Actions Taken	Actions Taken to Prevent a Reoccurrence
15/04/2023	20:46	21:29	43	71.9	<p>4B stack emissions became elevated during a calciner start-up. Emissions were elevated due to over-heating of the 4B Electrostatic Precipitator (ESP), reducing the ESP's efficiency.</p> <p>Before feed is introduced during the start-up, conditioning tower spray use is limited to avoid flooding the bottom of the conditioning tower.</p> <p>In this instance, no sprays were used to control the ESP temperature.</p> <p>There is a cold air bleed damper that can be used in this situation to cool the ESP instead</p>	Operators increased the bleed air flow once emissions began to increase.	Amend Calciner warm-up & start-up instructions to provide strict guidelines on use of cold air bleed.
12/05/2023	16:39	17:16	37	63.6	The increase in particulate resulted from a safety combustion trip, triggered by the burner management system, in response to an electrical component failure in a combustion gas analyser.	The electrical component in the gas analyser was replaced.	No Further action required
03/06/2023	9:12	9:53	41	60.4	The increase in particulate resulted when 4B conditioning tower sprays failed to control 4B ESP inlet temp and emissions during a routine 4B raw mill stop. 4B mill was restarted to control emissions. It appears the cause may have been due to a slow closure of a valve on the water system, resulting in insufficient water pressure to the sprays. The issue has not reoccurred. Confirmation of this cause requires investigation of wear on the valve & actuator on the next kiln stop.	4B mill was restarted to control emissions.	Investigation of wear on the valve & actuator on the next kiln stop. Replacement of both valves & actuators

**Air Particulate Complaints**

There were no air particulate related complaints for this reporting period