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**ENVIRONMENTAL IMPROVEMENT PROGRAMME (EIP)
QUARTERLY REPORT FOR BIRKENHEAD WORKS
EPA Approved Document no: 1126 EIP Version 1**

**COMPLIANCE DATE: 15/05/20 – Quarter 1, 2020
EPA Licence 1126: Environmental Improvement Programme
(U-583)**

Licensed site: Adelaide Brighton Cement, Birkenhead Works

62 Elder Road, Birkenhead, SA 5015

Date of Submission: 15 May 2020

Version Number: 1





Report Submitted by: Environmental Engineer

I certify that I have reviewed this report and to the best of my knowledge and ability that all the information provided in this report is a true and accurate reflection of the regulatory monitoring.

Purpose	The purpose of the Environmental Improvement Programme (EIP) is to reduce noise and fugitive particulate emissions from the site.
Background Information	<p>In order to reduce its environmental impact, Adelaide Brighton Cement Ltd, has developed an EIP that contains projects to reduce noise and fugitive particulate emissions. These projects were identified from the following inputs:</p> <ul style="list-style-type: none"> • Adelaide Brighton Cement Limited Report, August 2018, “Assessment of Options Report” • Katestone Environmental Report, August 2018 “Birkenhead Cement Plant – Options Assessment Report” • Katestone Environmental Report 2017 “Air Quality Assessment of the Birkenhead Cement Plant” • Vipac Engineers and Scientists Report, August 2018 “Environmental Noise Model Update” • Vipac Engineers and Scientists Report, February 2019 “Noise model update and Abatement Options” <p>Thirteen fugitive particulate and three noise improvement projects were identified and incorporated into an EPA approved EIP.</p> <p>EIP project implementation is tracked through the completion of 52 compliance actions over the life of the EIP.</p> <p>The EIP approved by the EPA on 28 February 2019 is available on the ABC Birkenhead Community Website: http://www.birkenheadcommunity.com.au/</p>
Reporting Objective	<p>Quarterly EIP progress report providing:</p> <ul style="list-style-type: none"> • Details of steps taken to progress compliance actions • Details of proposed next steps to be taken
Quarterly Report	The EIP progress report for the quarter is tabled below

**Adelaide Brighton Cement Ltd (ABC) Environmental Improvement Programme (EIP)
1 March 2019 – December 2022**



EIP Project	Category	Project	Compliance Action	Project Milestones (Compliance actions)	Actions & Outcomes
1	Fugitive Dust - Stockpile emission reduction	Relocate Bauxite Stockpile and cover with Geofabric	3	<p>Subject to obtaining capital approval by 23/08/2019, ABC will complete implementation of Geofabric on the Bauxite Stockpile at the Southern end of the plant by 18/10/2019</p> <p><i>Variation:</i> <i>At the time of developing the EIP, ABC was not cognisant of the long lead times associated with the delivery of the geofabric material which is sourced from overseas manufacturers and the production timing coinciding with a seasonally related busy period.</i></p> <p><i>A revised completion date of 28/02/2020, and application of chemical dust suppressant to the stockpile as an interim fugitive dust control measure, was approved by the SA EPA.</i></p> <p>Project completed</p>	<p>ABC completed installation of the covers on the relocated Bauxite Stockpile at the Southern end of the plant on 13/02/2020.</p> <ul style="list-style-type: none"> Relocated Bauxite stockpile close to the material handling system reduces vehicle movements and associated fugitive dust. Covering inactive areas of stockpile with heavy duty shade cloth prevents wind erosion and fugitive dust from surface of stockpile. Predicted to reduce maximum 24-hr average concentrations of PM₁₀ at the Community Park by 0.2 µg/m³.  <ul style="list-style-type: none"> Dust suppression (green) applied to stockpile before covers added  <ul style="list-style-type: none"> Bauxite Stockpile with heavy duty shade cloth covers applied

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2	Fugitive Dust - Stockpile emission reduction	Wind curtain - Limestone stockpile	4	<p>By 27/02/2020, ABC will complete a detailed cost-benefit analysis and technical assessment to enable capital approval to be obtained for the installation of a wind curtain for the limestone stockpile on shell block. The project will proceed if the front-end engineering costs are in line with the project selection criteria.</p>	<ul style="list-style-type: none"> • In line with the EIP – Project 2 scope, ABC obtained budget quotations for a 15 metre high wind fence along the Western perimeter of the limestone stockpile, from two companies that specialise in wind fence technology. • Design, supply and install quotations for wind fences were obtained from the Australian agents for Weather Solve Structures and Dust Solutions Incorporated, “Dust Tamer Wind Fences”. • Proposals received, provided estimated costs for foundations, but noted geotechnical assessments were required to enable final foundation designs for the wind fence to be determined. In addition, the proposals excluded the costs to determine and manage potential impacts of the wind fence on a legacy hydrocarbon plume and High Density Polyethylene (HDPE) barrier on the limestone stockpile site. • ABC’s engineering study has determined that it fails to meet the criteria specified in the EIP for the project to proceed. <p>ABC is currently discussing with the EPA an alternative proposal to use a combination of control measures as follows:</p> <ul style="list-style-type: none"> • Portable wind fencing with a height of 6m and length of 50 m placed near the working face of the stockpile • A sand tarp/mesh fabric placed on 11,500 m² of inactive non working exposed surface areas of the limestone stockpile • Chemical dust suppressant polymers on all stockpile wall surfaces • Increased haul road surface to cover 35% of unsealed exposed areas around the stockpile including unsealed exposed traffic flow/movement areas around the stockpile • Air Quality Consultants (Katestone) have assessed the alternative proposal and found it will provide the same level of reduction of PM₁₀ emissions as the original EIP wind fence proposal




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3	Fugitive Dust - Stockpile emission reduction	Geofabric – Limestone stockpile	11	<p>Subject to obtaining capital approval by 27/09/2019, ABC will complete the installation of Geo fabric on the 11,500 m² Of inactive stockpile areas by 13/03/2020</p> <p>Variation: Subject to obtaining capital approval by 27/09/2019, ABC will complete the installation of Geo fabric on 11,500 m² of inactive stockpile areas by 30/09/2020.</p> <p>This variation has been accepted by the EPA</p>	<p>ABC has purchased “sand tarps” to cover 11,500 m² of inactive surface area.</p> <p>At the time of preparing the EIP, ABC anticipated 11,500 m² of inactive surface area would be available by the 13th March 2020, to which a cover could be applied. Due to the dynamic nature of the stockpile build, the stockpile is not ready for the complete application of covers on 11,500m².</p> <p>ABC will progressively apply covers as the stockpile build enables this to occur. ABC anticipates application of covers will be completed by 30/9/2020.</p> <p>Installation of covers on 4,080 m² of inactive stockpile area was completed on 18 March 2020.</p>  


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6	Fugitive Dust – Storage/processing buildings	CM6 CF6 Clinker Transfer Point Dust Collector	22	<p>Subject to capital approval by 28/11/2019 and CM6 mill shutdown commencing 14/04/2020, ABC will complete commissioning of dust collection system by 6/07/2020.</p> <p><i>Variation: Subject to capital approval by 28/11/2019 and CM6 mill shutdown commencing in January 2021, ABC will complete commissioning of the dust collection system by 8/3/2021</i></p> <p><i>EPA has accepted the variation.</i></p>	<p>Due to the COVID-19 pandemic and the need to minimise health risks, the scope of work for CM6 shutdown has been significantly restricted to only those activities critical to ensure ongoing and safe operation of the mill.</p> <p>ABC advises that it is unable to install the dust collection system within the timeframes required by EIP Project 6 (during the CM6 shutdown) and seeks a variation in the completion date for the EIP Project.</p> <p>ABC proposes to install the dust collection system on the next CM6 shutdown which is expected to be during the annual shutdown planned for January 2021.</p> <p>ABC therefore requested a revised completion date of 8/3/2021:</p> <p>EPA has accepted the proposed variation.</p>



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8	Fugitive Dust – Dust Collectors	CM1Dust Collector – Redirect outlet	28	Subject to development approval by 29/10/2019, ABC will obtain the capital expenditure for changing the CM1 dust collector outlet to a vertical discharge by 28/01/2020	<p>ABC has obtained the funding to change the CM1 dust collector outlet to a vertical discharge.</p> <p>ABC plans to complete the installation of the redirected CM1 dust collector outlet in February 2020, as the planned CM1 shutdown has been brought forward from April 2020.</p>
8	Fugitive Dust – Dust Collectors	CM1Dust Collector – Redirect outlet	29	<p>Subject to capital approval by 28/01/2020 and cement mill 1 shut down for maintenance commencing on the 14/04/2020, ABC will complete the installation of the redirected CM1 dust collector outlet by 20/04/2020.</p> <p align="center">Project completed</p>	<ul style="list-style-type: none"> • Funding obtained and changes completed on 04/02/2020, as CM1 shutdown was brought forward from April 2020. • A vertical outlet on the dust collector improves dispersion and is predicted to reduce maximum 24-hr average concentrations of PM₁₀ at the Community Park by 0.45 µg/m³ • Project has also reduced ground level noise on eastern side of CM1 building by 25 dBA <div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  <p>Horizontal outlet</p> </div> <div style="text-align: center;">  <p>Vertical outlet</p> </div> <div style="text-align: center;">  <p>Vertical outlet through roof</p> </div> </div>

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14	Noise	CM1/CM7 Clinker Gantry Dust Collector Fans	48	<p>Subject to capital approval by 17/10/2019 and annual plant shutdown commencing on 6/01/2020, ABC will implement the CM1/CM7 Clinker Gantry Dust Collection Fans by the 31/01/2020.</p> <p>Project completed</p>	<p>ABC has installed splitter silencers, designed by the dust collector fan supplier, on the CM1/CM7 Clinker Gantry Dust Collection Fans.</p>  <ul style="list-style-type: none"> • Measured noise levels from the dust collectors fitted with the new designed splitter silencer at 59-61 dBA • The new silencers have achieved a significant noise reduction of 10-12 dBA at source when compared with Vipac Engineers baseline measurements of 71dBA. <p>ABC will engage an acoustic engineer in accordance with EIP compliance action 51 to assess and validate the reductions achieved.</p>

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15	Noise	BH Gas Train noise abatement (APA Project)	49	<p>By the 27/02/2020, ABC will work with APA Group (owners of the Gas Train and equipment) to assess and implement further noise abatement options. APA is solely responsible for the selection and implementation of noise attenuation measures.</p> <p align="center">Project completed</p>	<ul style="list-style-type: none"> • ABC has worked with APA to further reduce noise levels from the Gas Train • APA installed axial flow regulators, flow meter, associated pipework on duty leg of gas train - completed 19/02/2020 • A significant reduction of 10 - 12 dBA with the new equipment is indicated • ABC will engage an acoustic engineer in accordance with EIP action 51 to validate noise reduction <div style="text-align: center;">  <p>Before Modifications</p>  <p>After Modifications</p> </div>