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29 June 2018


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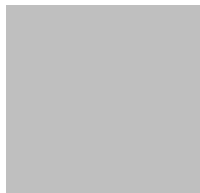
June 2018 update

**Adelaide Brighton Cement Ltd (ABC) Environmental Improvement Program 1126 EIP
Version 3:**

31 January – 30 June 2018

I refer to Adelaide Brighton Cement's Environmental Improvement Program. As required, I provide the final update report (attached).

Yours sincerely




Operations Manager SA


**Adelaide Brighton Cement Ltd (ABC) Environmental Improvement Program 1126 EIP Version 3:
31 January – 30 June 2018**

Compliance Action	Description	Actions and outcomes
<p align="center">1</p>	<p>By 31 March 2018, ABC will have completed an upgrade of the 4A Bypass and the 4A Gas Conditioning Towers (GCT) Spray System which is expected to lower particle emissions from the 4A tower during both stable and unstable operation.</p> <p>Work involved includes:</p> <ul style="list-style-type: none"> • upgrading from single (water only) to dual phase (air/water) sprays; & • installing thermodynamic feed forward controls. <p>These improvements will facilitate conditions for smaller droplets resulting in greater surface area and faster more efficient evaporation and is expected to result in lower particle emissions from the 4A tower.</p>	<p>External Computational Fluid Dynamics (CFD) modelling completed on the 4A Bypass and the 4A conditioning towers. CFD modelling used to optimise gas flows and heat transfers through the towers and subsequently ensured the correct number of sprays and placement throughout the tower were achieved. This in effect provided for the most effective conditioning of the gases in the towers.</p> <p>Installation was completed in March 2018 and included:</p> <ul style="list-style-type: none"> • Electrical switchboards and wiring for compressors, spray equipment, control systems, 400 meters of cabling, electrical load centre tie ins • Purchase and installation of 4 compressors, operating panels, air receivers and compressed air lines • Fabrication of platforms for the spray equipment • Fabrication, installation of spray nozzles, mounting brackets etc. • Specialised engineering support (from Europe) to assist with commissioning the GCT Spray system <p>Key features of the new GCT Spray system include:</p> <ul style="list-style-type: none"> • Fully automated control, • Full equipment redundancy/backup • Misting created by compressed air and low pressure water • Water droplet size significantly smaller for more effectively temperature control • Nozzles not prone to wear • Fast automatic control • Significantly lower risk of introducing excess water into the process



**Adelaide Brighton Cement Ltd (ABC) Environmental Improvement Program 1126 EIP Version 3:
31 January – 30 June 2018**

Compliance Action	Description	Actions and outcomes
		 <p align="center">Dual redundancy/backup system</p> <p>Early results indicate lower and more stable emissions from the 4A stack and significantly faster response times to process changes.</p> <p>On the 21/5/18, ABC delivered a comprehensive presentation on the project to the ABC Community Liaison Group at its quarterly public meeting.</p> <p>The performance of the spray system needs to be analysed under a wide range of plant operating conditions. An analysis of the effectiveness of the new spray system in reducing particulate emissions, will be provided when this has been completed.</p> <p>Completed</p>


**Adelaide Brighton Cement Ltd (ABC) Environmental Improvement Program 1126 EIP Version 3:
31 January – 30 June 2018**

Compliance Action	Description	Actions and outcomes
<p>2</p>	<p>Adelaide Brighton Cement will undertake the following identified noise abatement works which will reduce noise emissions from the site:</p> <p>(a) – By 30th June 2018 Adelaide Brighton Cement Ltd in cooperation with the APA Group (owners of the Gas Train and surrounding equipment) will have assessed noise abatement options. As ABC does not own or have control over the gas train and associated equipment, the selection, timing and implementation of noise abatement options (if feasible) is the sole prerogative of APA Group.</p>	<p>(a) In June 2018 the APA Group installed a prefabricated wider spool to reduce restrictions within the Gas Train system as their preferred noise abatement measure.</p> <p>Noise intensity reduced by 6 dB(A) at the source (Vipac Engineers report: 50B-18-0036-TRP-805631-1)</p>  <p>Completed</p>

**Adelaide Brighton Cement Ltd (ABC) Environmental Improvement Program 1126 EIP Version 3:
31 January – 30 June 2018**

Compliance Action	Description	Actions and outcomes
	<p>(b) – By 30th June 2018 Adelaide Brighton Cement Ltd will have designed, manufactured and installed an effective noise abatement solution for the main dust collector fan on top the 20,000-ton Blending silo.</p> <p>(c) – By 30th June 2018 Adelaide Brighton Cement Ltd will have designed, manufactured and installed an effective noise abatement solution for the 4A discharge fan located on level 6 of main tower on the south side.</p>	<p>(b) ABC designed, manufactured and installed a new 75 dB rated silencer in April 2018.</p> <p>Noise intensity reduced by 4 dB(A) at the source (Vipac Engineers report: 50B-18-0036-TRP-805631-1) Note: measurement included several background sources within the vicinity.</p>  <p>Completed</p> <p>(c) ABC refurbished internal silencer, sealed all openings and coated the fan housing with Decidamp, a constrained layer/visco-elastic damping material, designed to reduce structural vibration and sound transmission within light gauge materials during the March 2018 shutdown.</p> <p>Noise intensity reduced by 7 dB(A) at the source (Vipac Engineers report: 50B-18-0036-TRP-805631-1) Note: measurement included several background sources within the vicinity.</p>  <p>Completed</p>

**Adelaide Brighton Cement Ltd (ABC) Environmental Improvement Program 1126 EIP Version 3:
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Compliance Action	Description	Actions and outcomes
	<p>(d) – In late 2017 Adelaide Brighton Cement Ltd achieved substantial noise abatement (up to 10 dBA at the source, based on internal measurements) on the 4B Air slide transport system located at the top of the 20,000T Blending silo (adjacent main plant tower) by replacing the gearbox assembly.</p>	<p>(d) In late 2017 ABC replaced the entire gearbox assembly on the 4B Air slide transport system located at the top of 20,000 T Blending silo (adjacent main plant tower).</p> <p>Noise intensity reduced by 9 dB(A) at the source (Vipac Engineers report: 50B-18-0036-TRP-805631-1) Note: measurement included several background sources within the vicinity.</p>  <p>Completed</p>
<p>3</p>	<p>By 30th June 2018 Adelaide Brighton Cement will have independent Acoustic consultants assess the reductions achieved for each of the projects listed in compliance actions 2a 2b, 2c and 2d and provide an updated site and residential SoundPlan 3D Noise Model impact report.</p>	<p>Vipac Engineers & Scientists completed and submitted the following reports in late June:</p> <ol style="list-style-type: none"> 1. 2018 Environmental Noise model update (50B-18-0036-TRP-805631-1). Report includes noise reductions for compliance actions 2a 2b, 2c and 2d and provides an updated site and residential SoundPlan 3D Noise Model impact report. Key outcomes include: <ol style="list-style-type: none"> a. Reductions in predicted noise levels between 1-3 dB(A) were observed at 16 of the 19 representative receiver locations for neutral weather conditions b. Reductions of up to 2 dB(A) were observed at 12(50B-18-0036-TRP-805631-1)for worst –case weather conditions, reflecting a general improvement in noise levels c. Further reductions in noise levels at the APA owned Gas Train are recommended d. Notably, reductions of up to 9dB(A) have been achieved for the noise emissions of some sources, such that they no longer contribute significantly to the predicted levels. 2. Attended Noise Survey June 2018 (50B-18-0036-TRP-805659-0). Report includes attended day/night measurements at 19 residential locations in accordance with the Environment Protection Noise Policy 2007. <p>Completed</p>