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**October 2017 quarterly update
Adelaide Brighton Cement Ltd (ABC) Environmental Improvement Program (EIP):
01 January 2016 – 30 October 2017**

I refer to Adelaide Brighton Cement's Environmental Improvement Program. As required, I provide the October 2017 quarterly update report (attached).

Yours sincerely



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Compliance Action	Description	Actions and outcomes
1	<p><i>By 30 September 2016, ABC will complete a 'Stack Emission Improvement Study' of all its 4A and 4B Stack emission control equipment - to be undertaken by FLS (global cement industry technical experts). The study will include a desk top study, industry benchmarking assessment of the best available emissions reduction techniques and a review of the current process both during operational and shutdown phases (planned shutdown March 2016).</i></p> <p><i>A final report which will table options to reduce stack emissions will be submitted to the EPA for assessment. The options contained in the report will include the following:</i></p> <p><i>a) The expected reduction in particulate emissions of each option;</i></p> <p><i>b) The annualised total mass emissions and short term variability projected using the different options; and</i></p> <p><i>c) The projected reduction in emissions under both stable and unstable operations for each option</i></p>	<p>On 30 September 2016, ABC completed a 'Stack Emission Improvement Study' of its 4A and 4B stack emission control equipment which was undertaken by FLSmidth (global cement industry technical experts).</p> <p>The study included a desk top study, industry benchmarking assessment of the best available emissions reduction techniques and a review of the current process both during operational and shutdown phases.</p> <p>A final report with options to reduce stack emissions was submitted to the EPA for assessment.</p> <p>The final report includes:</p> <ul style="list-style-type: none"> • The expected reduction in particulate emissions of each option; • The annualised total mass emissions and short term variability projected using the different options; and • The projected site reduction in emissions under both stable and unstable operations for each option <p>In mid-November 2016 a detailed presentation was given by ABC staff to the EPA on the methodology used for the selected options.</p> <p>On the 16th December 2016, at the request of the EPA (letter dated 25/11/16), ABC provided further details on the selected options and the practical benefits submitted in the original report and was followed up at a meeting at the EPA office on the 20th December 2016 in which ABC presented the additional information as requested by EPA.</p> <p>Completed</p>
2	<p><i>By 31st December 2016, ABC will submit a revised EIP to the EPA that will include an action plan for implementing the agreed emission reduction actions approved by the EPA as detailed in the FLS study report. The revised EIP will include timeframes for completion of the works to be undertaken. Actions to be implemented will need to be reasonable and practical whilst ensuring the best possible outcomes for the adjacent community.</i></p>	<p>On the 21st December 2016, a meeting was held with the ABC Community Liaison Group and two EPA representatives (Site Licence Coordinator and Team Leader - Industry Branch) to communicate with the CLG members the Stack Emission Improvement Study (Compliance action 1) outcomes:</p> <ul style="list-style-type: none"> • Identified options to reduce emissions • Options identified by study that have been implemented (EIP compliance actions, 3, 4 & 6) • Options examined and not feasible • Methodology for selection of options for implementation • Details on selected options for implementation • Plant trials conducted to help validate the selected options <p>ABC subsequently submitted a revised action plan to the EPA on the 28 December 2016 that included the timeframes for completion of the works to be undertaken for the selected emissions reduction</p>

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		<p>projects.</p> <p>The revised action plan projects were approved by EPA and an updated EIP “Document number 1126 EIP version 2, dated 28 December was issued in late January 2017. See Compliance Actions 2A, 2B & 2C listed in the first column.</p> <p>Completed</p>
2A	<p>By 31 October 2017, ABC will have completed an upgrade of the 4A Bypass Gas Conditioning Tower (GCT) Spray System which is expected to lower particle emissions from 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 was completed on the 4A Bypass and the 4A conditioning towers. CFD modelling accurately determines the gas flows and heat transfers through the towers and subsequently ensures the correct number of sprays and placement throughout the tower are achieved. This in effect will provide for the most effective conditioning of the gases in the towers.</p> <p>Subsequently, the infrastructure support required for the new sprays system was installed during the planned March 2017 annual shutdown.</p> <p>A major shut down is required for the final internal works to be completed.</p> <p>The re-scheduling of the planned October 2017 shutdown to January 2018 and delays in the overseas shipping delivery of four 90 KW compressors from Germany has affected the implementation date of 31 October 2017 for Compliance Actions 2A & 2B.</p> <p>Consequently, ABC has requested a change to the Compliance date to the 12 February 2018.</p> <p>Note: The reason for delays and proposed variation to the compliance date will be formally communicated to the ABC Community Liaison Group.</p>
2B	<p>By 31 October 2017, ABC will have completed an upgrade of the 4A (GCT) Spray System which is also expected to lower particle emissions from 4A tower during both stable and unstable operation.</p> <p>The work and the improvements will be the same as that in compliance action 2A above.</p>	As above
2C	By 31 October 2017, ABC will have completed an upgrade of the 4A Clinker Cooler Baghouse Controller and Particulate Detection System	During the March 2017 kiln shutdown, a new Differential Pressure control system and particle sensor to detect broken bags were installed on the 4A Clinker Cooler Baghouse. The clinker cooler bag filter takes hot gas from the kiln cooler and de-dusts it before being exhausted in 4A stack. The new control system

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	<p>which is expected to lower particle emissions from 4A tower.</p> <p>Work involved includes:</p> <ul style="list-style-type: none"> • upgrading the Differential Pressure Controller (dP); & • installing Particle Sensor to detect broken bags. <p>These improvements will enable broken bags to be immediately detected and isolated and allow pulsing to be adjusted to optimise cleaning and minimise wear on bags and is expected to lower particle emissions from the 4A tower.</p>	<p>allows for much higher degree of process optimization of the pressure and pulsation cleaning frequency of the bags. The broken bag detection system allows for the rapid detection of faults in bags and their subsequent isolation. This will greatly increase bag life and performance over the campaign.</p> <p>In addition, during the March 2017 shutdown outage, the entire Cooler Baghouse was completely fitted with new bags. This is also expected to increase performance and campaign life of the bags.</p> <p>Initial assessments of the system improvements post shutdown are indicating the Cooler Baghouse is performing extremely well. A longer term assessment will be required to fully evaluate the improved performance.</p> <p align="center">Completed</p>
<p align="center">4</p>	<p><i>By 3 March 2016, ABC will have completed a trial of new filter bag technology in the Cooler Bag filtering process. The intent is to optimise bag life and Cooler Bag performance associated with the 4A Stack gas stream by a noticeable percentage. An analysis report detailing the effectiveness of the trial actions (bag life performance) will be provided to the EPA for assessment.</i></p>	<p>During the March 2016 shutdown, a new type of filter bag was installed as a trial in the Cooler Bag house of Kiln 4 (280 bags were trialled in one of the six cells/chambers). The new bag type was chosen based on the findings of a 12-month investigation. The new bag features a heavier weave and a reinforced cuff that is predicted to greatly increase the lifespan of the bags and therefore the performance of the bag filter in reducing emissions.</p> <p>Assessment of the performance of the new bag type undertaken during unscheduled plant maintenance shutdowns have indicated significant improved performance as predicted. The wear rate has been far less than that of the previous type of bag used. As a result, a further 280 of the new bag type were installed in another chamber during quarter 3 2016 during a plant outage.</p> <p>In the March 2017 shutdown as a proactive measure and to more accurately assess the improvements completed in compliance action 2C, the Cooler Baghouse was fitted with new bags.</p> <p align="center">Completed</p>
<p align="center">5</p>	<p><i>By 30 June 2016, ABC will have determined and installed suitable back-up power supply provisions for Stack 4A and Stack 4B emission monitors during power failures, to ensure that particulate emissions are monitored at all</i></p>	<p>Back-up power has been installed on Stack 4A and 4B emission monitors. Although site power failures are a rare and typically a short event, this project will allow particulate levels to be measured during these periods.</p>


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	<i>times.</i>	Completed
6	<i>By 30 April 2016, Adelaide Brighton Cement Ltd will have optimised the performance of its Electrostatic Precipitators(ESP's). This action will reduce stack particulate emissions across variable plant operating conditions</i>	Further to the actions undertaken and reported for quarter one in 2016, improvements made to the 4A Bypass gas conditioning system have had a marked effect on improving the performance of the Bypass Electrostatic Precipitator which forms part of the 4A stack stream. Subsequently, emission peaks for the 4A stream have sustained an average baseline emission reduction which has been maintained (Reference: Birkenhead Stack Monitoring Report – Quarter 3 2016). Completed
7	<i>By 31st March 2016, Adelaide Brighton Cement Ltd will have installed a five-metre-high, three sided concrete bunker to store/contain all slag material in the same location on site. This action item will assist in reducing fugitive particulate emissions from this source.</i>	Bunker was completed and the first shipment of slag was successfully unloaded in February 2016. The bunker has a minimum height of five metres high and used over 1500 concrete interlocked blocks. The Bunker has significantly reduced fugitive dust impacts as the slag is now well contained (wind/weather, runoff effects, etc.), all loading and unloading activities are now conducted within the confines of the bunker, significant reduction in traffic movements has occurred as bunkering system is now adjacent the slag dryer and the entire area is concrete/hard surfaced which results in less dust from vehicles movements and surface can be regularly cleaned by site sweeper. Completed
8 and 12	<i>By 30 June 2016, ABC will have a dedicated water truck/cart and will have commenced applying dust suppressant/sealing agents (typically green) in real-time, to all external raw material stockpiles and unsealed access areas whenever they are being worked or used. This action item will assist in reducing fugitive particulate emissions from these sources.</i> <i>Commencing 1 January 2016 Adelaide Brighton Cement Ltd will apply, using a dedicated water truck/cart, a road stabilisation agent to all unsealed surfaces around the site, as required, to ensure fugitive dust is minimised from these areas (this may be more frequently undertaken in warm and/or windy conditions).</i>	Since January 2016 a dedicated water cart has been used to apply dust suppressant and sealing agents to all external raw material stockpiles and unsealed access areas whenever they are being worked or regularly used. Completed

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<p align="center">9</p>	<p><i>Commencing on 1 January 2016, ABC will have a preventative maintenance and cladding replacement program for the main Clinker Storage Gantry. Actions outlined in the maintenance and replacement program will be carried out continuously throughout this EIP. This action item will assist in reducing fugitive particulate emissions from this source.</i></p>	<p>A quarterly preventative maintenance program was implemented for this Gantry building to ensure its cladding is maintained in a satisfactory condition. By design, this Gantry building is maintained under negative pressure by a large dust collector to ensure minimal escape of fugitive dust. Thus, adequate sealing of this building is vital to the effective operation of this dust collector.</p> <p>In quarter one of 2016, the sealing of the eaves and cladding on western side (Victoria Road) of the Gantry using a crane was completed after an inspection.</p> <p>In the second quarter of 2016 an inspection identified an opening on the north west side on the Gantry, directly adjacent the eaves and was subsequently sealed.</p> <p>In the third quarter of 2016 an inspection identified an opening in the eve on the east side of Gantry and was subsequently sealed.</p> <p>Inspections during Oct – Dec 2016 did not identify any issues with Gantry cladding.</p> <p>In the first quarter of 2017 an inspection identified two small openings on the east side of the Gantry and were subsequently sealed.</p> <p>In the second quarter of 2017 an inspection identified a small opening in the eaves on northeast side of the Gantry and were subsequently repaired.</p> <p>Completed</p>
<p align="center">10</p>	<p><i>By 31st January 2017, Adelaide Brighton Cement Ltd will have bitumen sealed the traffic area/road at southern end of cement mill 1. Action will assist in reducing fugitive particulate emissions from this source.</i></p>	<p>The initial completion date of January 31st 2017 was not possible due to a series of unforeseen events, including:</p> <ul style="list-style-type: none"> • Bringing forward Cement Mill 1 shutdown from April 17 to January 17 • Longer than expected Cement 7 shutdowns in January 17 • Changes in shipment schedules due to stock levels <p>Both mills and activities listed above involved a large number of personnel and traffic movements directly adjacent the site. Consequently, access to the site was heavily restricted and for safety concerns the project was not able to be completed by the due date of 31st of January as originally scheduled.</p> <p>Further delays we caused as the bitumen contractors were very busy and had limited slots to supply asphalt, with the next available opportunity being May 2017.</p>



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		<p>The EPA were formally notified of the delays and the revised compliance date of the 31st May 2017.</p>  <p>All heavy traffic areas at the southern end of the plant adjacent the cement mill 1 Gantry have been bitumen sealed. All traffic movements will now travel on the sealed surfaces, subsequently reducing fugitive particulate emissions. The sealed surfaces will also allow for the area to be regularly road swept, which will further reduce and contain particulate emissions</p> <p>Completed</p>
11	<p><i>By 28th February 2017, Adelaide Brighton Cement Ltd will have installed a new fully enclosed conveyor system to allow all internal site clinker movements to occur without the use of trucks. Action will assist in reducing</i></p>	<p>The initial compliance date of 28th February 2017 was not possible.</p> <p>Long lead times of equipment and the complexities and safety concerns of the project required that the installation and commissioning of the conveyors and associated infrastructure inside the main clinker storage gantry required several short stoppages/shutdowns.</p>

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	<p><i>fugitive particulate emissions from this source.</i></p>	<p>Comprehensive infrastructure works took place in the March 2017 shutdown.</p> <p>The EPA were formally notified of the delays and the revised compliance date of the 31st October 2017.</p> <p>The final works and commissioning has been completed.</p> <p>Completed</p>
<p>13</p>	<p><i>From 31 January 2016, and to be continued throughout this EIP, ABC, will undertake a Noise Impact Mapping/ Modelling Program. The modelling program will be undertaken by acoustic consultants employed by ABC, who will manage and complete the modelling program in addition to the current noise monitoring program that has been in progress for the last four years. The Program will continue to inform noise abatement actions to be undertaken on site.</i></p> <p><i>Regular reports from monitoring and modelling undertaken will be provided to the EPA for assessment within one calendar month of any such report being received by ABC from the acoustic consultants. Noise abatement actions to be implemented will be agreed by the EPA, be reasonable and practical and ensure the best possible outcomes for the adjacent community.</i></p>	<p>A comprehensive noise mapping and model was developed and submitted to EPA (ref: 50B-15-0069-TRP-472941-3). The model was based on sound pressure measurements and surveys of all primary noise emitting sources (mechanical plant and equipment) on-site. Noise prediction was carried out using the validated SoundPlan acoustic modelling software and assessed against the EPA 2007 Noise Policy.</p> <p>The model is based on both worst case scenario meteorological conditions (5 m/s wind in the direction of the adjacent community) and under neutral (no wind) conditions to ensure maximum community impacts were captured. The model was calibrated/validated against actual readings taken late at night to ensure minimal traffic impacts on the measurements at a series of noise sensitive residential locations.</p> <p>The model can be used both as a predictive tool and is updated as noise abatement projects are implemented.</p> <p>In the third quarter of 2016, a comprehensive night time noise study was conducted and completed by Vipac Engineering (ref: 50B-16-0068-DPR-799861-3) to identify the next phase of noise abatement projects for the site. The report was submitted to the EPA and subsequently approved.</p> <p>Key findings and recommendations include:</p> <ul style="list-style-type: none"> • Noise abatement of two dust collector fans on level 3 on the west side of the plant, adjacent Victoria Road • Refurbishment and harmonisation of the sites three largest plant fans is scheduled for the March 2017 major shutdown. <p>A summary of all noise report findings was sent to Community Liaison Group members prior to the 26 September 2016 quarterly meeting and discussed at the meeting.</p> <p>In the fourth quarter of 2016 the design and specifications of two new noise abatement silencers to fit the</p>

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		<p>two fans on level 3 on the west side of the plant were completed and ordered.</p> <p>The two silencers were installed in the March 2017 shutdown and have reduced noise levels significantly at the source.</p> <div style="display: flex; justify-content: space-around;">   </div> <p><u>Design, fabrication & installation of two new noise silencers - installed in March shutdown</u></p> <p>Completed</p> <p>In the first and second quarters of 2017 three noise studies were conducted and completed by Vipac Engineering. They include:</p> <ol style="list-style-type: none"> 1. A continuous 24/7 independent noise monitor was placed directly opposite the main plant on the roof of the ABC social club pre, during and post the March 2017 main plant shutdown to record noise levels. REF: 50B-16-0007-TRP-457761-2, 12 July 2017 <u>Key findings:</u> <ul style="list-style-type: none"> • Traffic from Victoria road was the dominant noise source during the day-time and night-time for the entire logging duration

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		<p>2. Attended noise measurements – 19 residential locations measured during the day and night in-line with the Environmental Protection Noise Policy 2007. REF:50B-16-0007-TPR-804784-2, July 2017</p> <p><u>Key findings:</u></p> <ul style="list-style-type: none"> • Measurements heavily influenced by traffic during the day and night time • Several marginal exceedances of the night time limits occurred. These locations were closer to the plant and Victoria road and the traffic is potentially considered to be a factor influencing these exceedances <p>3 Noise Abatement & Modelling. REF: 50B-16-0007-tpr-457895-2, July 2017</p> <p><u>Key findings:</u></p> <ul style="list-style-type: none"> • Noise intensity reduced by up to 15 dB(A) at the source for the above silencers • Revised model implies a reduction of up to 3dB(A) at residential sensitive receivers as a result of the noise abatement projects • Four new noise abatement projects were identified. Currently working with EPA to gain agreement of implementation of projects as per the requirements of the EIP Compliance Action 13. <p>All the above reports have been submitted to the EPA for assessments and approval of the new noise abatement projects. It is anticipated the above projects will be incorporated in the revised EIP under the new licence.</p> <p>Completed</p>
<p>14</p>	<p><i>Adelaide Brighton Cement will undertake the following identified noise abatement works which will reduce noise emissions from the site:</i></p> <p><i>(a) – By 30th April 2016 Adelaide Brighton Cement Ltd will replace/upgrade the entire operational chain assembly of the Limestone Reclaiming Conveyor System in the limestone shed.</i></p> <p><i>(b) – By 31st January 2016 Adelaide Brighton Cement Ltd will install an energy efficient and quieter motor system in Cement Mill 1 Dust</i></p>	<p>(a) Operational chain assembly of the Limestone Reclaiming Conveyor System in the limestone shed was completed during March 2016 major shutdown. Community feedback very positive – <i>‘noise can no longer be heard’</i>. Noise intensity reduced by 10 db(A) at the source</p> <p>(b) Installation of an energy efficient and quieter motor system in Cement Mill 1 Dust Collector was completed during January 2016 Cement Mill annual shutdown – <i>significant reduction in noise intensity</i>. Noise intensity reduced by 11 db(A) at the source</p> <p>(c) Installation of an upgraded noise abatement silencer in Stack 4B was completed during March 2016 major shutdown.</p>

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	<p>Collector.</p> <p>(c) – By 30th April 2016 Adelaide Brighton Cement Ltd will install an upgraded noise abatement silencer in Stack 4B.</p> <p>(d) – By 31st March 2016 Adelaide Brighton Cement Ltd will have designed, manufactured and installed an effective noise abatement solution for the Cement Mill 1 Compressor.</p>	<p>No noise intensity measurements could not be ascertained due to height of stacks and related hazards</p> <p>(d) The design, manufacture and installation of an effective noise abatement solution for Cement Mill 1 Compressor was completed in March 2016 – ‘complete abatement - no noise can be heard emanating from original outlet source’</p> <p>Noise intensity reduced by 11 db(A) at the source</p> <p>Completed</p>
15	<p>By 31 October 2017, ABC will replace all required personal access (PA) doors site wide. PA doors are to be of a self-closing and self-sealing design. This action will assist in reducing fugitive particulate emissions from buildings and reduce noise in dust sensitive areas containing fire alarm sensors.</p>	<p>A comprehensive inspection, maintenance and replacement program was put into place. Twenty-three new doors were replaced. The new doors are self-closing and sealing, contain a rubber flange at bottom for high wear areas as required (prevents damage when opening and closing), prevent alarms going off from load centres (dust ingress) and fugitive dust escaping buildings. Additionally, all major site doors are locked and controlled under a Shift Supervisor’s master key.</p> <p>Existing doors are regularly inspected and maintained by site personnel.</p> <p>Completed</p>
16	<p>By 30 November 2016, ABC will ensure a vibration study/impact assessment is undertaken in the adjacent community to determine affected areas and any associated impacts. The outcome of the study will be an action plan to determine vibration impacts associated with plant operations. The action plan will be submitted to the EPA for assessment by 31 December 2016.</p>	<p>Leading independent external consultant firm, Resonate, were engaged to initiate and manage this program.</p> <p>During the March 2016 plant shutdown and post shutdown, three ground vibration monitors were placed along the ABC boundary on Victoria Road and in the plant to determine activities/vibration with plant off and on. The initial report identified “vibrations from traffic on nearby roads and other activities are generally higher than the vibrations likely attributable to ABC. Vibration levels of these transient events, such as traffic etc. are likely to have a higher impact when they occur than the baseline vibration levels which are attributable to ABC plant”. However further residential measurements were recommended. The report was submitted to the EPA for consideration (ref: A15623RP3).</p> <p>The second phase of the project included an independent community survey of the adjacent neighbourhood and technical assessment to identify the subsequent residential properties to be tested for ground vibrations. The Community Liaison Group resident members, in conjunction with ABC and the consultants, developed the scope of the survey questionnaires and subsequent information that was provided to local residents. The report was submitted to the EPA and the Community Liaison Group (ref: A15623RP4) for assessment.</p>

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		<p>The third and final phase of the study was to undertake internal vibration monitoring of six cross sectional residences directly adjacent the main plant. The survey and residential locations tested were conducted and chosen by the independent consultants to ensure full confidentiality and impartiality.</p> <p>The final report (ref: A15623RP5) was submitted to the EPA for assessment on the 30th November 2016. The report identified that vibration levels at the selected residences was significantly less than the “not uncomfortable” perception level based the Australian and International standard 2631.2 2014 and that the short term higher vibration measured were caused due to localised activity adjacent the vibration monitors or due to vehicle movements on the adjacent Victoria Road.</p> <p>On the 5th December 2016 independent consultants, Resonate Acoustics, presented the findings of the study at the ABC Community Liaison Group open meeting.</p> <p>Residents on whose properties the vibration testing has been conducted as part of the vibration study have also been provided with communications letter and a copy of the consultant’s report.</p> <p>In view of the final report findings and the community consultation that has been undertaken the requirement to prepare an action plan to determine vibration impacts associated with plant operations was deemed as not warranted at this point in time. This was communicated to the EPA in a letter dated 23rd December 2016.</p> <p>In a letter dated 10 January 2017, the EPA accepted that the report findings have achieved compliance with the EIP requirements and notes that there is no further work required on this action.</p> <p>No vibration complaints or feedback has been received from residents who were involved in the survey and associated testing.</p> <p>Completed</p>
<p>17</p>	<p><i>From 31 January 2016 and continuing through to 31 October 2017 ABC, will implement and undertake a site greening/earth-care program. Plantings of native trees and shrubs will be undertaken in the following areas:</i></p> <ul style="list-style-type: none"> • <i>Southern area of the site adjacent to Cement Mill 1 Gantry and on the river side of railway line;</i> 	<p>In quarter two of 2016, greening/earth-care work was completed at the southern end of Victoria Road, adjacent to the reclaimer shed. The works have included:</p> <ul style="list-style-type: none"> • Removal and mulching of approximately 15 large dead or diseased trees, including stumps; and • Planting/irrigating of approximately 450 trees and scrubs, including about 80 mature trees. <p>In quarter three of 2016, greening/earth-care work was implemented along the western boundary of the main limestone stockpile area, along Elder road.</p>

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	<ul style="list-style-type: none"> • <i>Schroder Park extension area (most southern end of plant);</i> • <i>Victoria Road, adjacent to the Limestone Reclaimer Shed; and</i> • <i>Along the western boundary of the main limestone stockpile at north end of site.</i> 	<p>The works included:</p> <ul style="list-style-type: none"> • Planting of approximately 50 mature trees and 100 large scrubs • The installation of approximately 150 metres of green shade cloth on the fencing – wind break/fugitive dust suppressant; and • Repair of fencing along Elder Road <p>In quarters two and three of 2017, greening/earth-care work was completed at Schroder park extension, inside plant adjacent Elder road and at the southern area adjacent to Cement Mill 1.</p> <p>The works have included:</p> <ul style="list-style-type: none"> • Planting and irrigation of 30 mature eucalyptus trees and 100 large scrubs • 150 metre stormwater catchment swale and settling pond at the southern grounds to capture run-off from bitumen sealing project (compliance action 10) • Approximately 200 metres of grassed/sealed earth mounds at the southern grounds. The mounds are 3 metres high and located either side of newly bituminised area. <p>Completed</p>
<p>18</p>	<p><i>By 28 February 2016, ABC will implement a particle deposition tray program in the adjacent community to analyse the nature and extent of the deposition of particulate material Potentially/that may originate originating from the plant.</i></p> <p><i>By 31 March 2017, ABC will provide a detailed report to the EPA outlining the findings of the deposition tray program.</i></p>	<p>A cross functional ABC team was assigned to the project. Commencing in February 2016, 14 deposition trays were placed in the following locations:</p> <ul style="list-style-type: none"> • 9 X trays in the adjacent community; • 3 X trays on-site along the ABC boundary on Victoria Road (EPA trial monitors); and • 2 X neutrals (Sellicks Hill and Largs North) <p>The positioning of the trays was based on community feedback, wind direction assessments and air modelling/assessments from our two community ambient air monitors.</p> <p>At the March 2016 Community Liaison Group Meeting, Tony Bazeley, a long term Community Liaison Group member, joined the program. With Tony’s assistance and contacts, the University of Adelaide Innovation Centre, CSIRO and Lindsay Hope (see below) were all commissioned to be part of the program.</p> <p>The University of Adelaide Innovation Centre and CSIRO were engaged to undertake advanced scanning electron microscopy, light diffraction and x-ray diffraction analysis of the deposition material.</p> <p>In May 2016, Lindsay Hope of SA Environment Pollution Monitoring Services was engaged to</p>

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		<p>independently manage, update and coordinate the entire program. Lindsay has over 40 years' experience in air pollution monitoring/quality with 30 of those years with the EPA. His management provided an independence to the program. Lindsay, in consultation with ABC and Tony Bazeley agreed on an enhanced program, which included:</p> <ul style="list-style-type: none"> • Retention of the original 9 based community locations and the Largs North neutral. • 9 X monthly fallout trays to measure fallout rate (mg/day) – customised tray with elevated sides and grids to ensure material is retained in trays. • 6 X day sampling events when wind is in direction of residential locations and when dry weather is forecast to ensure no hydration of any cementitious material (all 9 locations). • Customised larger trays for sampling to ensure enough material is captured for analysis. <p>Lindsay worked with CSIRO and University of Adelaide testing services to ensure that the optimum medium for particulate capturing and effective analysis (minimise interferences as much as possible) was achieved.</p> <p>On the 19 January 2017 a meeting was held at the Adelaide University Innovation Centre that included ABC personnel, Lindsay Hope and Tony Bazeley to discuss and review preliminary investigation analysis conducted on samples.</p> <p>A subsequent meeting was held on the 27 January with CSIRO personnel and included the above personnel and the Adelaide University Innovation Centre representative. The meeting focus was to obtain possible synergies between the testing parties, optimum testing methodologies and progress of the program.</p> <p>Four short term monitoring events were conducted with samples sent to both CSIRO and the Adelaide University Microscopy Department for evaluation. The monitoring was carried out on the following occasions, 03-04/11/16, 16-18//11/16, 21-22/12/16 and 27/2-3/3/17.</p> <p>Following discussions with CSIRO on the 27th of February about progress on the analysis of the samples, they expressed interest in obtaining larger sample masses of the deposited dust. Thus when the sampling was conducted during the period 27/2-3/3/17 some 1 metre squared trays were deployed in place of the smaller trays.</p> <p>On the 31st March 2017 independent consultant, Lindsay Hope, provided ABC an interim report of the</p>

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Compliance Action	Description	Actions and outcomes
		<p>program to date. This was forwarded onto the EPA.</p> <p>In line with the interim report, the program compliance report date of the 31st March 2017 was formally extended to the 30th April 2017, due to delays in receipt of results for the last two batches of samples from CSIRO and very limited results by the University of Adelaide.</p> <p>Lindsay’s interim report did highlight that the monthly collection of deposition matter using the trays to measure fallout rate (mg/day) had been discontinued. All the samples collected were affected by rain fall events that compromised the amount of material collected and results were deemed as not useful.</p> <p>Lindsay Hope’s final report was submitted to the EPA for assessment.</p> <p>Completed</p>