



## **Annual Compliance Report 2018**

Prepared by:

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# 1. Introduction

This report is an accurate account of compliance against the environmental outcomes for the operations, undertaken in accordance with the approved combined Mine Operations Plan and Program for Environment Protection and Rehabilitation (MOP/PEPR) at the Penrice quarry over the past 12 months; for the period from 1st January 2018 – 31st December 2018 inclusive.

It should be noted that pursuant to the Section 86 of the Mining Regulations 2011, compliance reports are required for;

- A mineral lease; or
- A miscellaneous purpose licence associated with a mineral lease.

There is no requirement for compliance reports for the activities on Private Mines. However, ABCL will continue with past practise and report on significant activities across the site.

Since acquiring the assets of Penrice Quarry on 30 July 2014, ABCL has completed redefined the size of the aggregate resource for the site. This process, which included resource drilling and geological logging, was used to revise the mine plans for the site and the economic extremity of the quarry. This information will be included in the preparation of a revised MOP/PEPR document.

DMITRE, now the Department for Energy and Mining (DEM) approved the current MOP/PEPR on the 28<sup>th</sup> October 2011 (2011/021). The MOP/PEPR is currently being reviewed and updated in accordance with sections 70C/73G of the Mining Act.

## 1.1 – Identification

<b>Mine Name</b>	Penrice Quarry & Mineral (PQM)			<b>Tenements</b>	
<b>Owner</b>	Adelaide Brighton Cement Ltd				
<b>Operator</b>	Adelaide Brighton Cement Ltd			PM 86	PM 120
<b>Site Contact</b>	Name	Michael Close		MPL 118	MPL 75
<b>Email</b>	<a href="mailto:mclose@southernquarries.com.au">mclose@southernquarries.com.au</a>	Ph	08 83344700	ML 6233	RL109
<b>Site Location Details:</b> PQM is located approximately 2.5 kilometres north of the township of Angaston					

## ***1.2 Compliance with Environmental Outcomes and Criteria***

The following environmental outcomes contained in the combined MOP/PEPR were approved in November 2011. The environmental outcomes were derived from the potential environmental impacts associated with the Penrice operation and categorised for risk. Control and management measures were identified and a final risk assessment undertaken to determine the residual risk.

Six monthly meetings continued to be held with the Penrice Community Consultative Group (PCCG). The function of the PCCG is a forum to present and exchange site compliance information with stakeholders and the community and obtain feedback on improvements and performance of the mine operations.

A summary of the Environmental Outcomes, Measurement Criteria and the current status is provided in the following table.

<b>Environmental Outcome</b>	<b>Criteria for Measurement</b>	<b>Status</b>	<b>Notes</b>
<b>1. Air Quality</b>			
No public health or nuisance impacts to local residents and adjacent land users from dust generated by mining operations	<p>Health Impacts:</p> <p><b>1.1</b> Site records for dust measured at the site boundary must show that: where the average PM10 dust entering the site is less than 50 ug/m<sup>3</sup> for any 24 hour period, the average PM 10 dust leaving the site (including both ambient and mine related dust) will not exceed an average of 50 ug/m<sup>3</sup> for that particular 24 hour period</p> <p><b>1.2</b> Where the average PM10 dust entering the site exceeds 50 ug/m<sup>3</sup> for any 24 hour period, the average PM10 dust leaving the site must not exceed the measured level entering the site</p> <p><b>1.3</b> Data will be acquired using a minimum of 3 fixed continuous monitors at the site boundaries linked to an onsite weather station. The monitors will be calibrated to measure onsite dust, and to determine reasonable error limits (with adjustment to the compliance limit if necessary) to DMITRE and EPA's satisfaction</p> <p><b>1.4</b> PQM will develop and implement a plan to characterise the site to determine the appropriate number and location of the monitors to EPA and DMITRE satisfaction by 31/12/2011</p> <p><b>1.5</b> PQM will provide a summary of the calendar day average data to DMITRE, PCCG and EPA every quarter</p>	<p>Non-compliant</p> <p>Non-compliant</p> <p>Compliant</p> <p>Compliant</p> <p>Compliant</p>	<p>See BAM Data (<b>Appendix B</b>) and section 2.1 for compliance discussion</p> <p>See BAM Data (<b>Appendix B</b>) and section 2.1 for compliance discussion</p> <p>Three approved BAM monitors installed on agreed sites to DMITRE (DEM) and EPA's satisfaction.</p> <p>Golder Associates have completed a formal Air Quality Study of the site <b>Report No.12613029-002-r-Rev1 August 2012</b> PQM have consulted both DSD and the EPA in relation to report and the finalisation of the location of the BAM dust monitors (<b>Appendix A</b>) See BAM Data (<b>Appendix B</b>)</p>

	<p><b>1.6</b> Any exceedance of the daily compliance limits above will be reported to EPA and DMITRE within 1 working day</p> <p><b>1.7</b> Compliance with EPA approved Dust Management Plan</p>	<p>Compliant</p> <p>Compliant</p>	<p>See Table (<b>Appendix F</b>)</p> <p>The current DMP was approved by the EPA in February 2017. Report No. 1664793-001-R-Rev2.</p>
<b>Environmental Outcome</b>	<b>Criteria for Measurement</b>	<b>Status</b>	<b>Notes</b>
<b>2. Drag Out</b>			
No drag out onto Penrice Road from the mine site	<p><b>2.1</b> No exceedance of compulsory intervention level as defined by the DTEI pavement sweeping maintenance standard</p> <p><b>2.2</b> Pavement markings should be visible</p> <p><b>2.3</b> No interference with natural drainage</p> <p><b>2.4</b> Drag out not to exceed 10m<sup>2</sup> in total on road curves, or &gt;20m length of edge line</p>	<p>Ongoing</p> <p>Compliant</p> <p>Compliant</p> <p>Compliant</p>	<p>Daily check of drag out in place. Street sweeper frequency increased to daily.</p> <p>Pavement markings and drains checked once a month</p> <p>No interference</p> <p>If the Truck wash is not working, photographic evidence will be taken to monitor drag out. Regular road sweeping maintenance in place.</p>

<b>Environmental Outcome</b>	<b>Criteria for Measurement</b>	<b>Status</b>	<b>Notes</b>
<b>3. Blasting</b>			
No impact on public safety, nuisance or damage to third party structures as a result of blasting activities	<b>3.1</b> All blasts to comply with Australian Standard AS 2187.2 (2006) limits for human comfort at any sensitive site external to the mine. The peak sound pressure limits are currently 115dB for 95% of blasts per year. 120 dBL maximum for any blast	Compliant	See Table 2. blast compliance ( <b>Appendix C</b> )
	<b>3.2</b> The ground vibration levels limits are 5 mm/s for 95% of blasts per year, with a maximum vibration of 10 mm/s for any blast.	Compliant	See Table 1. blast compliance ( <b>Appendix C</b> )
	<b>3.3</b> No blasting outside Monday to Friday 12:00pm to 1:30pm, unless required for safety reasons	Compliant	All blast times recorded
	<b>3.4.</b> No evidence of fly rock outside mine site due to blasting	Compliant	No evidence of fly rock
<b>Environmental Outcome</b>	<b>Criteria for Measurement</b>	<b>Status</b>	<b>Notes</b>
<b>4. Noise</b>			
No public nuisance impacts from noise emanating from the operating site	<b>4.1</b> The aggregate plant to operate from 6:00am to 12:00am, Monday to Friday, 6:00am to 4:00pm Saturdays, Sundays and Public Holidays	Compliant	All production times recorded
	<b>4.2</b> Load and haul operations to operate from 6:00am to 6:00pm Monday to Friday, 6:00am to 4:00pm Saturdays, Sundays and Public Holidays	Compliant	As above
	<b>4.3</b> Previously imposed limitations on MPL 75 and MPL 118 remain adhered to	Compliant	As above
	<b>4.4</b> Rock breaking operations to operate from 7:00am to 7:00pm Monday to Friday, 7:00am to 4:00pm Saturdays, Sundays and Public Holidays	Compliant	As above
	<b>4.5</b> Train loading operates between the hours of 7:30am and 6:00pm Monday to Saturday, 8:00am to 6:00pm on Sundays and Public Holidays. Future anticipated landfill projects would be supplied by rail and will likely require one additional train load per day	Compliant	Train movements are currently suspended.

	4.6 Demonstrate compliance with the noise source measurements in the AECOM report (Doc No 60099270-A9K01RP-4) dated 31/5/10 by an annual independent suitably qualified expert show noise source are equal or less than Appendix B (page B-1 of the AECOM report)	Compliant	In July 2017 AECOM undertook a noise survey Doc No. 60546438-A17G01RP demonstrating compliance with criteria.
<b>Environmental Outcome</b>	<b>Criteria for Measurement</b>	<b>Status</b>	<b>Notes</b>
<b>5. Storm Water and Erosion</b>			
No contamination of watercourses off site caused by mining related sediment	5.1 All storm water leaving silt retention dam on MPL (during rainfall events) will be tested for turbidity and comply with ANZECC standard of 50 NTU	Not Relevant	No storm water left the site during the reporting period.
<b>Environmental Outcome</b>	<b>Criteria for Measurement</b>	<b>Status</b>	<b>Notes</b>
<b>6. Native Revegetation and Habitat Clearance</b>			
Maintain existing PQM native revegetation plantings in MPL 75, MPL 118 and ML 6233. Clearance of any native vegetation complies with Native Vegetation Act 1991. Vegetation and sediment in Jaeckeli Creek maintained at 1/1/09 condition or better	<p>6.1 Annual native revegetation survey and photographic monitoring undertaken by independent expert approved by DMITRE demonstrates overall site vegetation health and surface area covered has not decreased from baseline which is to be acquired by 31/12/11 (unless removal is required for operational reasons and included in approved MOP/PEPR)</p> <p>6.2 Annual native re vegetation survey (baseline: Appendix 1 of Appendix 5) and creek profiling at specified locations (Appendix 7 of Appendix 5) undertaken by competent independent expert approved by PIRSA demonstrates vegetation health and creek profile has not deteriorated from baseline (as defined in March, 2009 Management Plan, Appendix 5)</p> <p>6.3 No clearance of native vegetation will occur.</p>	<p>Non-Compliant</p> <p>Non-Compliant</p> <p>Compliant</p>	<p>Native revegetation survey not completed by independent expert approved by DMITRE (DEM).</p> <p>Native revegetation survey not completed by independent expert approved by DMITRE (DEM).</p> <p>No clearance of trees throughout this reporting period</p>



<b>Environmental Outcome</b>	<b>Criteria for Measurement</b>	<b>Status</b>	<b>Notes</b>
<b>7 .Rehabilitation and Visual Amenity Impacts</b>			
Integrate and harmonise final landforms with the natural landform of the adjacent foothills. Visually soften contrasting and reflective landforms which are temporarily 'idle'. Integrate and harmonise revegetation with existing tree cover on adjacent hills. Screen visually prominent built structures (including active product stockpiles) with vegetation screens where practicable	<b>7.1</b> As per the 3 phases in the Strategic Visual Amenity Plan (SVAP) (Appendix 15) dated 18/10/11. Milestones for phases 1a, 1b, 1c, 2 and 3 and Mine closure	Non-Compliant	As per SVAP, still working through phase 1c which was due for completion in June 2014. SVAP to be updated in MOP/PEPR review currently underway.
	<b>7.2</b> The milestones for stages 2 and 3 are subject to timing reviews based on Mine development and include contingency rehabilitation plans if stages are delayed 6 monthly audits of SVAP progress to be undertaken by a competent independent expert approved by PIRSA	Non-compliant	Stages 2 and 3 delayed. 6 monthly SVAP audits not being undertaken by competent independent expert approved by PIRSA (DEM).
	<b>7.3</b> The audits will, as a minimum, report out on progress to the milestones detailed in Section 6 of the SVAP and will provide recommendations on contingency activities to improve the visual amenity of MPL118	Non-compliant	Annual Photographic evidence supporting "Integrate and harmonise revegetation"; completed. Updated mine plans and visual montage from Nuriootpa looking back to quarry presented to the PCCG. It showed the various mine development stages that will form part of the MOP/PEPR review currently underway. All revegetation is integrated with existing tree cover. Screening stockpiles and prominent structures is ongoing.

<b>Environmental Outcome</b>	<b>Criteria for Measurement</b>	<b>Status</b>	<b>Notes</b>
<b>8. Light Spill</b>			
Amenity of adjacent residents is not reduced by operational use of direct night time lighting	<b>8.1</b> Compliance with Australian Standard 4282-1997 "Control of the obtrusive effects of outdoor lighting". Light spillage not to exceed 2 lux	Compliant	Lighting survey Doc No. 60546438-E17G01RP by AECOM in July 2017 showed illuminance levels were less than 0.1 lux at all locations. Lighting configuration remains unchanged.
<b>Environmental Outcome</b>	<b>Criteria for Measurement</b>	<b>Status</b>	<b>Notes</b>
<b>9. Groundwater</b>			
No adverse impact to the quality or quantity of ground water to existing uses caused by mining operations.	<b>9.1</b> Compliance with WAP license allocation	Compliant	Annual water usage metered. Local Bore monitoring begin undertaken ( <b>Appendix E</b> ).
	<b>9.2</b> Hydrology modelling by an independent expert approved by DMITRE demonstrates no significant impact from mine operation. To be completed by end 31 <sup>st</sup> December 2012	Compliant	Aquaterra completed the modelling and the report was presented to the PCCG (13 <sup>th</sup> February 2013)
<b>Environmental Outcome</b>	<b>Criteria for Measurement</b>	<b>Status</b>	<b>Notes</b>
<b>10. Weeds and Pests</b>			
Ensure no introduction of new weeds or pests (including feral animals) nor increase in abundance or escape of existing weeds and pest species in the mine area	<b>10.1</b> Agree by 31 <sup>st</sup> December 2011 a pest control program with neighbours in the Rural and Rural Living zones within 500m of the site boundary and implement. In the event an agreement cannot be reached an independent expert will be appointed to review the suitability of the program	Compliant	Pest and weed program with neighbours implemented and ongoing.
	<b>10.2</b> Annual pest and weed survey undertaken by independent expert approved by DMITRE shows no increase above previous survey levels	Compliant	Pest and weed surveys completed 2018.

<b>Environmental Outcome</b>	<b>Criteria for Measurement</b>	<b>Status</b>	<b>Notes</b>
<b>11. Aboriginal Heritage</b>			
No disturbance to Aboriginal artefacts unless prior approval under the relevant legislation is obtained	<b>11.1</b> If any suspected artifacts are discovered as a result of mining, work will cease in the immediate vicinity of the artifact, until the find has been appropriately assessed, and if necessary, approval under the Aboriginal Heritage Act is obtained to disturb the artifact	Not Relevant	No disturbance.
<b>Environmental Outcome</b>	<b>Criteria for Measurement</b>	<b>Status</b>	<b>Notes</b>
<b>12. Domestic and Industrial Waste (excluding overburden)</b>			
All domestic and industrial waste disposed of offsite	<b>12.1</b> Waste tracking and disposal inventory (including type, volume, storage locations and disposal method) demonstrates all domestic and industrial waste disposed of at EPA licensed site (where applicable)	Compliant	Waste tracking certificates in place
<b>Environmental Outcome</b>	<b>Criteria for Measurement</b>	<b>Status</b>	<b>Notes</b>
<b>13. Geotechnical Stability</b>			
No landslide events that cause any injury to the public or damage offsite assets and/or public infrastructure	<b>13.1</b> No impacts to public safety or off-site assets and public infrastructure caused by unplanned slope failures  <b>13.2</b> Audit by an independent geotechnical engineer confirms that the final dump design (Appendix 8 and 15) is stable and dumps are built to design specifications at the end of each stage referred to in the SVAP	Compliant  Compliant	No events  Geotechnical audit and review completed Groundwork Plus; March 2018
<b>Environmental Outcome</b>	<b>Criteria for Measurement</b>	<b>Status</b>	<b>Notes</b>
<b>14. Topsoil Management</b>			
Ensure that existing topsoil quality and quantity is contained on site and is maintained	<b>14.1</b> Topsoil inventory demonstrates all available topsoil is conserved for reuse, and is used for rehabilitation on the mine site. Representative composite sampling of topsoil at point of removal and placement for pH, conductivity and nutrients (N, K, and P) demonstrates no decrease in nutrient levels at placement	Compliant	Baseline tests conducted. Audited by DSD. Further tests to be conducted at final stages

<b>Environmental Outcome</b>	<b>Criteria for Measurement</b>	<b>Status</b>	<b>Notes</b>
<b>15. Public Safety</b>			
No public injuries and/or deaths resulting from unauthorised entry to the site that could have been reasonably prevented	<b>15.1</b> Independent investigation of all recorded injuries from unauthorised access to the site demonstrates that the incident could not have not been reasonably prevented through implementation of precautionary measures	Not Relevant	No events
<b>Environmental Outcome</b>	<b>Criteria for Measurement</b>	<b>Status</b>	<b>Notes</b>
<b>16. Traffic</b>			
No dust nuisance or safety impacts caused by heavy vehicle traffic at point of entry or exit of the mine site that could have been reasonably prevented	<b>16.1</b> All products trucks leaving the site will have their load covered with compliance of not less than 96% from monthly surveys	Compliant/ongoing	Monthly tarp surveys ongoing and achieved 96%.
	<b>16.2</b> Independent investigation of all recorded accidents resulting from mine traffic entry or exit demonstrates that the mine operator could not have reasonably prevented the accident through implementation of precautionary measures	Not Relevant	No Event
<b>Environmental Outcome</b>	<b>Criteria for Measurement</b>	<b>Status</b>	<b>Notes</b>
<b>17. Emergency Response</b>			
Bring the mine back to compliance as soon as practicable and modify management procedures to prevent a recurrence	<b>17.1</b> An independent audit demonstrates that the breach was rectified as soon as practical and that suitable modifications have been made to the management system to prevent recurrence	Not Relevant	No event

### **1.3 - Operations Summary**

During this reporting period operations essentially remained unchanged, with increased tonnages of low grade material removed (sold) from site. The continual focus for the company is to use more of the lower grade material, in terms of chemical quality as quarry products. The site continues to supply high quality products for glass manufacture as well as high grade limestone for the manufacture of cement at the Angaston plant.

Expected deliveries to the Northern Connector Project (NCP) were not realised in 2018, due to distance to the project and the option for cheaper recycled material closer to the project. Despite these competitive options, Penrice still supplied a significant amount of material into the project during 2018.

Following approval by the Barossa Council of the design plans for the front entrance of the quarry in 2018, the company will realign a small portion of Penrice road and change the front entrance to the quarry. This will not only allow easier and safer access into the site, but most importantly improve the safety of traffic at this intersection. It is expected the work will commence during the 2nd quarter 2019, after the power line at the front entrance have been relocated.

During the reporting period there was no placement of overburden on MPL 118 for rehabilitation. Some product material (overburden) is stockpiled on the MPL as a temporary measure only, as per the lease condition. The cumulative total net overburden placed on MPL 118, also known as the Gerlach's area, essentially remained unchanged standing at 2,190,743 tonnes. This is 309,257 tonnes below the approved total of 2.5 million tonnes. Work on MPL 118 concentrated on rehabilitation work included spreading seed on bare areas, irrigating and maintaining the tube stock planted.

During the past 12-month reporting period, work areas in the quarry focused on the Southern, Northern and Western ends of the pit, as well as increasing activity on the Eastern benches (MPL75). It was anticipated that significant quantities of material for the Northern Connector project was to be moved off the Eastern mound, but this was not realised.

Staged Development Plans for the quarry showing the current short-term extraction and rehabilitation plans for the site are being reviewed. The company is uncertain about the amount of material that will be supplied off-site projects (including Northern Connector) in the short term. This means the previously predicted reductions in the height of the landform may not be reached. The final height of the landform is a significant part of the final rehabilitation for the site and will form part of the current MOP/PEPR review. This is to ensure that the final land forms conform with the wider landscape to improve visual amenity.

### 1.3.1 Mining Tonnage and Product

Mined this reporting period	Forecast Mining (total next Reporting Period)
1,373,500	1,200,000

### 1.3.2 Resource / Reserve Reporting

Ore Reserve		Mineral Resources		Est. Mine Life
Proved	34 MT	Measured	66.3 MT	Greater than 50 years
Probable	33 MT	Indicated	84.5 MT	
		Inferred	88.7 MT	

The total mineral reserve is approximately 66.37MT, this gives an estimated mine life of greater than 50 years, based on today's estimated demand for both the high and lower grade limestone. This has remained unchanged since last annual report. The quarry reserves and resources have been reviewed by consultants and will be updated accordingly in the MOP/PEPR review.

### 1.3.3 Native Vegetation Clearance

Maximum amount approved in PEPR to be cleared	Amount cleared this period	Total amount cleared to date	Forecast clearance for next reporting period
N/A	0	0	0

### 1.3.4 Disturbance and Rehabilitation

Domain	Last reporting period		Current reporting period		Proposed next 12 months	
	Disturbed	Rehabilitation	Disturbed	Rehabilitation	Disturbed	Rehabilitation
MPL 118	No overburden placed on MPL 118	Focus on spreading topsoil and seed on second tier level.	No overburden placed on MPL 118.	Remedial work completed on erosion area, and spreading top soil and seeds.	Very little overburden expected to be placed during 2018.	Some topsoil to be spread, Ongoing maintenance.
MPL 75	N/A	Weed and pest control on outer slopes.	Removal and processing of small amounts of overburden for off-site sale	Weed and pest control including Tree Tobacco.	Removal and processing of overburden for off-site sale	Ongoing weed and pest control including Tree Tobacco
ML 6233	N/A	N/A	N/A	N/A	N/A	
PM 86 / PM 120	Tonnes blasted 1,278,000	Western side of the eastern mound	Tonnes blasted 1,373,500	Ongoing weed and pest control.	Tonnes blasted 1,200,000	Ongoing weed and pest control.

## **2. Compliance discussion**

As a general comment the operations at the site are compliant when measured against all environmental outcomes using the approved measurement criteria, with Air Quality (Outcome 1) being the main concern of non-compliance. Air Quality actions as a result are discussed in section 2.1. Native Vegetation and Rehabilitation (Outcomes 6 and 7) were reported as non-compliant, as ongoing surveys are not being completed by an approved independent consultant. These non-compliances have been communicated to the PCCG through ongoing discussion around the SVAP.

Farmer John has continued to perform well and has overall coverage of environmental work to achieve environmental Outcome 6 (Native Revegetation and Habitat Clearance); Outcome 7 (Rehabilitation and Visual Amenity Impacts) and Outcome 10 (Weeds and Pests); this includes photographic monitoring, flora and fauna surveys and weed / pest control and ground maintenance. Management plans have been developed to control the observed weeds during 2018. No fox baiting was undertaken during the year; however the situation is continually being monitored

All blasts at the site were monitored and all complied with Australian Standard AS 2187.2 (2006) for human comfort. Both air blast overpressure and ground vibration levels for all blasts were within acceptable limits (see appendix C).

In 2017 AECOM undertook noise and light surveys of the site. The results demonstrated the site remains compliant with approved noise measurement criteria 4.6 as stated in the MOP and showed that measured illuminance levels were less than 0.1 Lux at all locations, indicating compliance with the most stringent recommended maximum illuminance criterion from AS 4282-1997. The equipment configuration and therefore noise emissions from the site remain unchanged.



## **2.1 Dust Monitoring**

Penrice Quarry and Mineral has three approved Dust monitoring units installed and located on PQM property (see Appendix A). These continuous monitors are online and accessible by operational staff to respond proactively and efficiently to weather conditions.

Penrice Quarry and Mineral management discuss operating conditions of the quarry to all employees at daily pre-start meetings. This includes an assessment of the forecasted meteorological conditions and the risks that they may present to the daily operations. From this daily assessment, a trigger level is determined from the DMP Trigger Action Response Planning (TARP) and applied.

The monitors record the levels of PM<sub>10</sub> to measure against the National Environment Protection Measurement Standard. All exceedances are reported to DEM and EPA. When an exceedance is likely or does occur, the site implements dust management strategies to minimise the impacts. Reported exceedances for the compliance period are listed in Appendix F.

A graph showing the Dust monitors daily mean data for both the 4<sup>th</sup> Quarter and full year 2018 is attached in Appendix B. The daily mean data will highlight a number of BAM unit outages. Once an outage on a BAM unit is identified, it is investigated immediately by site personnel. If site personnel are unable to rectify outage, then Lear Sigler is contacted to investigate and respond. Some repairs are unable to be completed on site and require the units to be sent to Melbourne.

Wind sensors on each BAM station were replaced during the 4th Quarter 2018. The new ultrasonic wind sensors are more durable, don't have moving parts and resistant to contamination and corrosion. They have been installed on 10m masts and should provide more reliable wind data.

BAM Data reliability during 2018 increased significantly compared on previous years, being close to our data quality target of 90% capture. Actual BAM availability for 2018 as follows:

- BAM 1 – 95.6%
- BAM 2 – 89.3%
- BAM 3 – 85.2%

A total of 17 exceedances were reported during 2018 from both internal and external sources, significantly up from previous years. It should also be noted that Nuriootpa recorded 291mm of rain in 2018, which is the lowest on record. Majority of the exceedances occurred at BAM 1 and BAM2, with a Northerly wind direction. In this situation, both of these monitors are downwind of the quarry and the exceedance can be attributed to internal sources within the quarry.

As a result of the increased number of exceedance, DEM issued a letter in October requesting further dust management controls be implemented on site. Penrice provided correspondence detailing planned actions to enclose fine material stockpile and transfer points as detailed below. It can be reported these actions are on track to be completed before the end of March 2019.

The following actions were implemented during 2018 in an effort to reduce dust generation from the site and the number of exceedances:

- Increased the frequency of the Street Sweeper from three times per week to daily.
- Ongoing hire of a second water truck throughout the duration of Spring-Summer-Autumn. Capital budgeted in 2019 to purchase a second water truck.
- Ongoing removed of the old 'Penrice Soda' plant, making room for new product bays away from BAM 1 zone, allowing the relocation fine products and replacing them with courser material stockpiles.
- Installed a new water pump and water lines to provide additional water to mobile crushing plant operating in the North-Western area of the Quarry.
- Spray seeding of an exposed soil area on the North-West section of the Quarry. The trial was reasonably successful and additional area's will be spray seeded in 2019, as opposed to hand seeding.
- Fogging Spray – investigation was undertaken into trailing a fogging spray to be positioned over the fines section of the Aggregate Plant. Investigation into power supply and water requirement deemed it to be unviable with the amount of water required and used.
- Change of spray nozzle types to 'misting' to effectively reduce the water droplet size in from the spray to assist with encapsulation of dust particles within a transfer point.
- Application of stockpile dust suppressant spray to form a crust on exposed stockpiles and reduce dust generation in windy conditions.

- Ongoing trials (into 2019) of haul road dust suppressant types to assist in haul road dust suppression and conservation of water.
- Finalising installation (January 2019) of a Dust hood on the fine screen section as a transfer point enclosure from the Aggregate plant radial stacker.
- Capital approval for the installation of storage sheds / bunkers around the fines section products. Expected completion by the end of March 2019.

## ***2.2 Rehabilitation and Environmental Management Activities***

Below is a summary of the rehabilitation and environmental management activities that were undertaken during the reporting period, including the Weed and Pest survey discussed earlier in this report.

### **Flora & Fauna:**

#### ***MPL 75***

- Fire prevention measures including general tree/shrub maintenance was ongoing during this period.
- Further grass seed spread on bare areas of MPL 75
- Weed and Pest control including being undertaken.
- Order placed for 5,000 tree to be planted on the Eastern side of MPL75 and Western side of MPL118 during 2019

#### ***MPL 118***

- Remedial work completed on a surface slip as well as surface drainage.
- General tree/shrub maintenance ongoing
- Fire prevention measures such as brush cutting and slashing
- Weed spraying of slopes and proximity area ongoing
- Further grass seed spread over areas of MPL 118.
- Irrigation equipment maintained to support the tube stock.
- Weed and Pest control including being undertaken.

### ***Jaeckeli Creek***

- Fire prevention measures such as general tree/shrub maintenance ongoing
- Weed and pest control during the period
- Weed and Pest survey undertaken

### ***PM 86 and PM 120***

- General site maintenance activities
- Fire prevention measures such as grass slashing around the boundary perimeter
- Weed and pest control during the period
- Perimeter fire tracks cleared of weeds and obstruction
- Spray seeding North-Western top soil mound

## ***3. Additional Information***

### ***3.1 Technical Reports***

Technical reports may be available on the DEM website. See link below:

[http://www.energymining.sa.gov.au/minerals/mining/mines\\_and\\_quarries/penrice\\_mine](http://www.energymining.sa.gov.au/minerals/mining/mines_and_quarries/penrice_mine)

### ***3.2 Adjacent Land Use***

As requested by the PCCG, an annual bore water monitoring summary of bores on adjacent land is included in this report (Appendix E). The purpose of monitoring bore holes is to establish on an annual basis, any meaningful trends which may become apparent over time.

No other changes to any land use adjacent to the mine have been reported in this current reporting period.

### ***3.3 Complaints Received***

Seventeen community complaints or feedback were received during this reporting period. Details of all community communications are listed in Appendix D. Majority of the complaints or feedback are related to dust.

### ***3.4 Management System Reviews***

Management systems reviews and external audits are ongoing as required by ABCL. No significant impact or change to the current operations resulted from these reviews.

As previously mentioned, a revised MOP/PEPR is being developed and will be tables at upcoming PCCG meetings.

#### **4. Other Information and Stakeholder Feedback.**

Renewal of Retention Lease 109 was granted on the 17th of August 2017 for 5 years. The lease is situated to the north of the quarry boundary, beyond Kalimna Road and located on Scott Tolhurst land. A PEPR for RL 109 was developed and approved. Consultants have analysed and reinterpreted the historic geological data and current drilling information to determine the economic resource for the tenement. Consultation with some landowners regarding this has taken place over the reporting period.

Consultation has also been undertaken with an adjacent landholder over signing a waiver for the bore that exempts land on MPL 118 from mining operations. The extra footprint on MPL 118 would allow for the overburden landform to be shaped to conform with the wider landscape, with gentler batter slopes to improve vegetation growth and reduce erosion.

The company is making good progress with the MOP/PEPR review, with the assistance of Groundwork Plus consultants. The review includes a complete revision of the current MOP/PEPR document to align with the recently released updated Extractive Mineral Lease Ministerial Determinations. The review will incorporate a detailed impact assessment and will result in some changes to existing objectives and criteria.

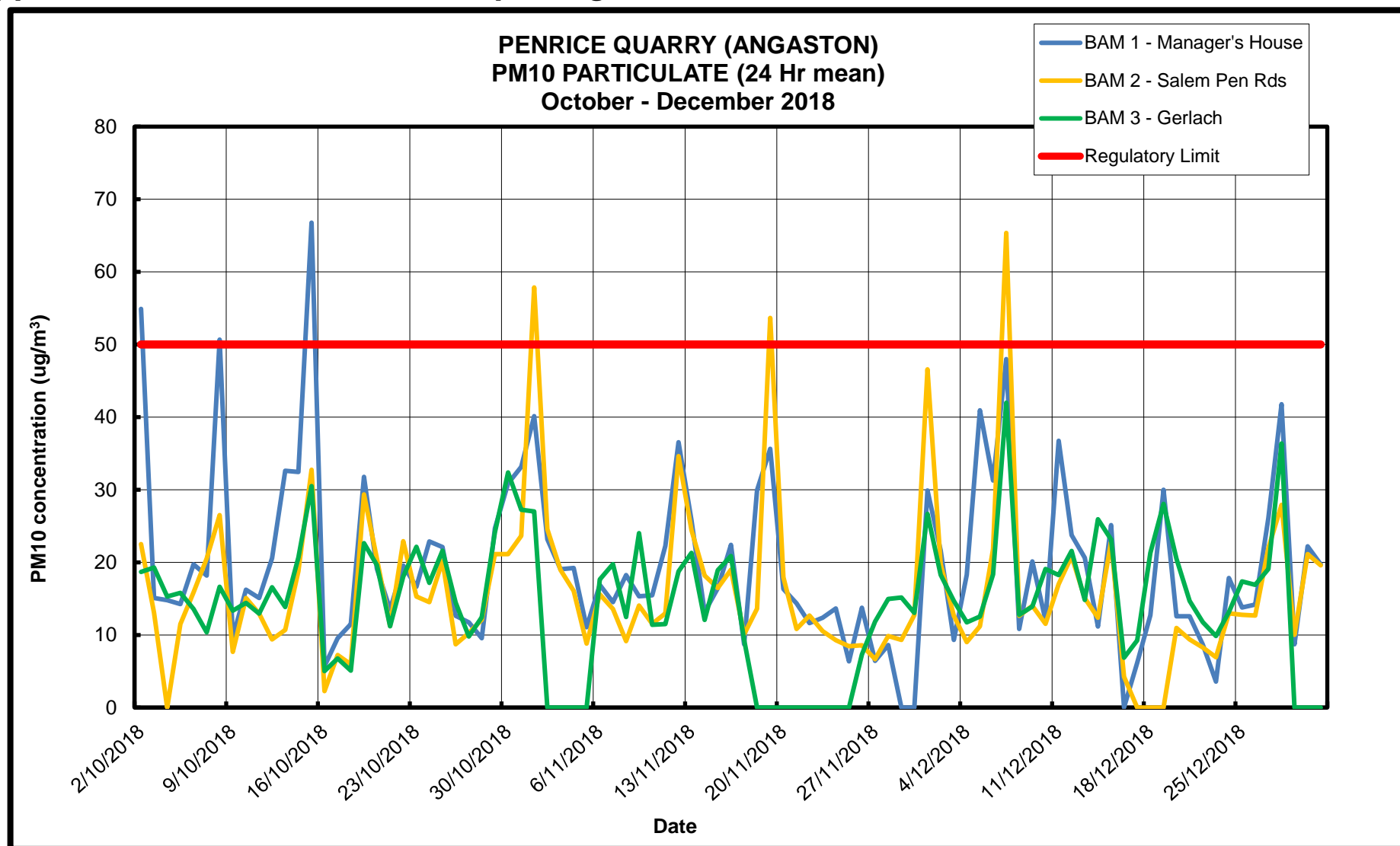
The company held a “drop in day” for the community at the local Institute Hall during October 2018. This information day, held over two sessions, allowed stakeholders to meet with the quarry management and to participate in the MOP/PEPR review process, discussing any proposed changes to the current mine operations plans, environment objectives and measurement criteria and any other concerns. It is intended that a summary document with the proposed changes will be tabled at the next PCCG in February 2019.



## Appendix A – Site Locations

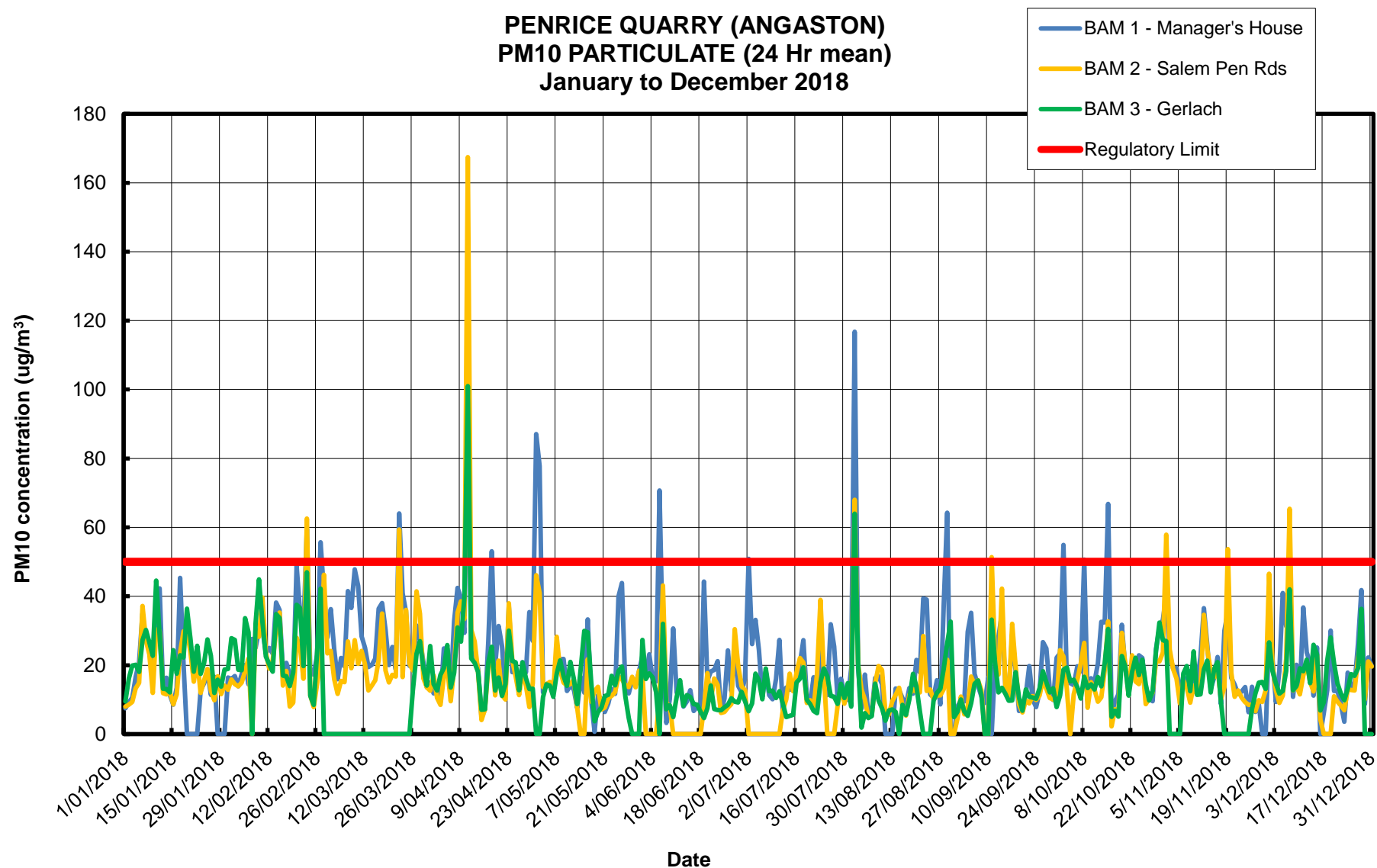


## Appendix B - BAM Data for the Reporting Period





**PENRICE QUARRY (ANGASTON)  
PM10 PARTICULATE (24 Hr mean)  
January to December 2018**



## ***Appendix C - Air Blast and Ground Vibration Table***

**Table 1. Ground Vibration; measured in mm/sec**

	<b>365 days</b>	<b>180 days</b>	<b>90 days</b>	<b>30 days</b>
Total Number of Shots	77	38	18	4
% Shots >5mm/sec	0	0	0	0
No. Shots > 10mm/sec	0	0	0	0

Maximum result measured for 2018: 4.82 mm/s

Mean results for 2018: 1.60 mm/s

**Table 2. Air Blast Overpressure; measured in dB.**

	<b>365 days</b>	<b>180 days</b>	<b>90 days</b>	<b>30 days</b>
Total Number of Shots	77	38	18	4
%Shots >115 (dB)	0	0	0	0
No. Shots >120 (dB)	0	0	0	0

Maximum result measured for 2018: 115.0 dbI

Mean results for 2018: 105.7 dbI

## Appendix D - External Complaints

2018 COMMUNITY COMPLAINTS							
Date	Type	Name	Description	Investigation	Corrective actions	Responsible	Completed
4/01/2018	Envirnmental Complaint 20:40pm	1	Dust	Complainant rang 20:40pm to complain re dust being emitted from north end of pit, also this was particular concern due to harvesting and drying fruit.	Rang site 20:55 and stopped crushing immediately. Visited complainant next morning 5/01/2018 to discuss issue and solution of relocating a large water tank/ pump, along with adding sprays to crushing circuit. They were happy with the solution, I also gave an agreement that I would inform them once the system was in place. I also gave an agreement to monitor wind direction over the next few weeks of the harvesting season so as to control any dust emission that may affect this.	L.Collins	5/01/2018
9/01/2018	Community Feedback	2	Dust	Complainant rang the weghbridge at 1710 pm just to let us know that he could see some dust from the plant area	Tried to speak to complainant over several consecutive days. Contacted brother of complainant and obtained actual address, visited complainant and they conveyed what they had noticed and to give us feedback from a community point of view. I discussed with complainant what was happening and the reason why he saw dust at that time of day (Plant Shutting Down). He was happy with what we discussed and we agreed to keep in touch and I also encouraged him to contact me if has any further concerns or feedback he wishes to convey.	L.Collins	16/01/2018
23/01/2018	Transport Complaint	3	Safety	Complainant contacted Adelaide Brighton Cement (Jason Van Der Klaauw) To inform them that a truck was on a incorrect frieght route and speeding	Jason said that they should be informing the police and show them the photo's she had taken of the truck as this was a SAPOL issue and not a quarry issue. They advised Jason that this is the action she was going to take but still believed that the quarry was at fault.	Jason Van Der Klaauw Lane Collins	23/01/2018
10/04/2018	Envirnmental Complaint	4	Drag Out	Contacted by email Chris Kruger Barossa council (9/04/2018 @9:02am) re person sliding on Drag out silty water whilst riding his pushbike early AM 6/04/2018	Contacted AH sweepers and changed sweeper times to every morning instaed of afternoons. Emailed Chris Kruger with change of sweeper times. Emailed Barossa council with solution, to date have had no reply, council satsfied with reolution.	Lane Collins	10/04/2018

2018 COMMUNITY COMPLAINTS							
Date	Type	Name	Description	Investigation	Corrective actions	Responsible	Completed
24/05/2018	Transport Complaint	5	Environmental	Contacted by phone stating that trucks parking between Stockwell and Penrice in the mornings, that were waiting for the Quarry to open were leaving litter on the roadside.	Attended site to review issue also contacted Transport supervisor to notify all drivers to cease littering. Placed rubbish bins in Quarry at key locations along with signage. Arranged daily clean up of area until further notice ( not all rubbish belonged to trucks for Quarry, other rubbish from other transport companies identified, container tags (Booths & Houghtons). David happy with outcome and response.	Lane Collins, Joe Cummings	25/05/2018
4/06/2018	Transport Complaint	6	Noise	Complainant rang and spoke to Sales Manager re trucks delivering materials to a local job (new sub division) regarding noise early in the morning (6.30am) and how much longer would this continue for.	Sales Manager contacted contractor and also transport company delivering re time left to finish fill (5 days). Sales Manager re contacted Complainant and conveyed this information at which he was satisfied and had no further issues.	Andrew Greatz Lane Collins	4/06/2018
22/08/2018	Community Feedback	7	Dust	Complainant rang (1:10pm) the Quarry Manager direct to inform he could see dust from the plant area.	Quarry Manager visited Complainant to discuss re visual dust. Discussed potential measures we are looking at to reduce future visual issue re dust. Complainant appeared satisfied with discussion and had no further issues. Complainant advised to ring again if they have any issues re quarry.	Lane Collins	22/08/2018
14/09/2018	Environmental Complaint	8	Noise	Letter received from nearby resident providing feedback of recent perceived increase in noise levels (trucks and drilling) over several evenings. Same letter received by EPA.	Investigation completed into site activities on afternoon shift that may have contributed to excess noise. Nothing out of the ordinary over the period of concern, plant shut down early one evening due to high winds. Letter written back (20/09) to complainant offering to meet and discuss concerns. Several attempts to meet with both parties being unavailable at times. Complainants last communication was they were only really concerned on the noise that was heard on just 2 occasions at night and it didn't become a regular thing So need to do anything else to monitor/ follow up.	Lane Collins	15/11/2018
11/10/2018	Community Feedback	7	Dust	Complainant rang 10.59am and left a message informing me they could see dust from the site whilst driving back from Nurioopta.	Quarry Manager was unavailable as on leave and contacted Quarry supervisors to follow up and discuss with Complainant. After discussed Complainant was satisfied with the response.	Geoff Hunter	11/10/2018
18/10/2018	Environmental Complaint	2	Dust	Complainant rang Quarry Manager to advise there was dust coming of Stockwell rd as the trucks were travelling along it. They also commented on a tanker dropping material from the underside whilst travelling up Stockwell road.	Quarry Manager travelled the mentioned route straight away to view the issue, little drag out was observed. Observed the street sweeper was not completing the required sweep further away from the quarry. Advised the contractor and as a result the driver removed for under performance and replaced (20/10/2018)	Lane Collins	20/10/2018

2018 COMMUNITY COMPLAINTS							
Date	Type	Name	Description	Investigation	Corrective actions	Responsible	Completed
15/11/2018	Enviromental Complaint	2	Dust	Complainant rang the Quarry Manager (2pm) to let them know that they could see dust coming from the site at lunch time and earlier (which stopped)	QM explained that the earlier dust would have been from a late start (8am) up of the plant and the 12:45 dust was from the blast which disapated quickly. Complainant was happy with the response.	Lane Collins	15/11/2018
15/11/2018	Enviromental Complaint	7	Dust	Complainant rang the Quarry Manager (15:50pm) to let them know that they could see dust coming from the site at lunch time and at the present time	QM explained that the earlier dust (12:45pm) would have been from the blast which disapated quickly. QM drove around to the Complainant house to check and as a result could see some dust. QM requested operational personel to stop the fines section of the aggregate plant. QM then rang complainant back and thanked for ringing and advised him that the dust had ceased.	Lane Collins	15/11/2018
No date	Community Feedback	9	Environmental	Received a community feedback form from the drop in day wanting to meet to discuss SE Gully wind dust.	QM made an appontment time and met with the Complainant at his house. Complainant advised dust does settle over his property. T here main concern was during fruit drying times. QM advised if they could let him know when drying starts he would employ the same conditions (modify operations )as agreed with other local residents when time is to dry fruit.	Lane Collin & Geoff Hunter	21/11/2018
10/12/2018	Enviromental Complaint	2	Dust	Complainant rang the QM (8:06am) to let him know that they could see dust coming from the site.	Advised Complainant I would have a look from Stockwell road and see where the dust was potentially coming from. Dust noticed from the plant area and had the fines section shut down. This resolved the issue of which the Complainant was informed.	Lane Collins	10/12/2018
10/12/2018	Enviromental Complaint	7	Dust	Complainant rang the QM (9:30am) to let me know that he could see dust coming from the site earlier when coming back from Nurioopta.	Complainant advised the fines section shut down which resolved the dust issue. This action was a result of previous complaint on the same day	Lane Collins	10/12/2018
10/12/2018	Enviromental Complaint	2	Dust	Complainant rang QM (1:pm) to let him know that he could see dust coming from the site.	QM explained to Complainant that what they saw was the dust from the blast and not the Aggregate plant. The dust appears as a cloud but disapates quickly. The Complainant has happy with the response.	Lane Collins	10/12/2018
18/12/2018	Enviromental Complaint	7	Dust	Complainant rang the QM (6:55am) to let him know that he could see dust coming from the site.	QM advised he would come down and have a look from Stockwell road as could not see anything from the quarry side. QM visited Complainant's house and noticed a general haze which was made worse as the sun was behind it. Complainant went onto explain it is the gully winds that carry the dust his way.	Lane Collins	18/12/2018

## Appendix E- Bore Hole Monitoring Summary

BORES TEST SUMMARY																						
ID	1			2			3			4			5			6			7		8	
Location	Penrice Rd			Stockwell Rd			172 Moculta Rd			190 Moculta Rd			555 Kalimna Rd			393 Kalimna Rd			PQM Pit		PQM Bore	
Well ID	6729-1691			6729-678			6729-1433			6729-898			6729-885			6729-592			6729-1677			
Coordinates	Sth:34,28,57	Ea:139,2,21		Sth:34,47,69	Ea:139,3,45		Sth:34,29,10	Ea:139,3,28		Sth:34,28,54	Ea:139,3,34		Sth:34,28,24	Ea:139,3,13		Sth:34,28,13	Ea:139,2,60					
Tests	Depth		Conductivity	Depth		Conductivity	Depth		Conductivity	Depth		Conductivity	Depth		Conductivity	Depth		Conductivity		Conductivity		Conductivity
Date	(m)	pH	(uS)	(m)	pH	(uS)	(m)	pH	(uS)	(m)	pH	(uS)	(m)	pH	(uS)	(m)	pH	(uS)	pH	(uS)	pH	(uS)
Aug-15	-	-	-	-	-	-	12.40	7.03	865	25.14	7.57	1658	17.60	7.36	1750	20.64	7.26	1017				
Nov-15	62.00	8.00	1049	-	-	-	12.60	7.46	936	24.75	7.41	1997	18.40	-	-	20.70	7.18	1313				
Feb-16	63.60	8.27	890	28.97	9.10	2620	14.00	7.41	928	26.80	7.44	2133	17.70	7.57	561	21.10	7.29	1272				
May-16	65.70	7.00	989	29.15	9.20	2700	15.60	7.10	866	26.10	6.90	1903	17.70	7.20	822	19.25	7.00	1162	8.00	1775		
Aug-16	64.70	7.73	973	29.00	9.50	2870	8.10	7.31	1142	25.40	7.44	1813	16.50	7.56	1632	21.10	7.22	1150	8.00	1560		
Nov-16	62.50	7.38	888	28.00	7.81	3160	4.00	7.28	1400		7.62	2187	21.00	8.56	1636	23.50	6.89	2030	7.96	1646	7.86	1911
Feb-17	62.50	7.19	1040	28.30	9.27	3100	7.20	7.67	1551	25.50	7.35	2134	13.00	7.28	1846	21.00	6.70	1313	7.87	1623	7.57	1651
May-17	63.00	8.15	986	28.00	8.31	2837	9.90	7.71	966	24.10	7.31	1112	14.20	7.27	1765	21.00	6.56	1320	7.68	1719	7.82	1678
Aug-17	62.20	7.47	1130	28.00	7.65	3100	9.80	7.69	1137	24.30	7.60	1904	14.50	7.60	1775	20.50	6.23	1270	7.75	1539	7.85	1423
Nov-17	61.30	8.20	1011	28.00	7.90	3170	9.80	7.73	1069	24.30	7.47	2086	14.90	7.65	1606	19.80	6.64	1359	7.61	1660	7.30	1380
Feb-18	61.50	7.52	1038	28.50	9.52	3270	11.80	7.10	1034	26.30	6.96	2182	19.00	7.19	1734	21.00	6.01	1388	7.80	1732	7.89	1405
May-18	66.50	7.76	1031	29.00	8.59	3090	14.90	7.63	967	26.50	7.25	2135	15.40	8.00	1607	21.00	7.22	1747	7.51	1792	7.32	1510
Aug-18	64.50	7.81	1057	29.00	9.26	3180	14.00	7.42	786	25.40	7.25	1831	16.40	8.20	1450	21.00	6.90	1655	7.93	1810	8.40	1477
Nov-18	64.00	7.49	913	29.00	8.94	3110	13.60	7.11	1008	23.50	7.00	2087	17.20	7.12	1585	20.70	6.35	1405	7.78	1916	7.90	1426
Feb-19	66.00	7.85	904	30.00	7.19	2532	14.50	7.95	922	31.30	8.07	1773	17.00	8.13	1625	20.90	6.86	1445	7.70	1651	7.74	1385

## Appendix F – Elevated PM<sub>10</sub> Readings

Elevated PM <sub>10</sub> Readings– <u>Report Period: 1<sup>st</sup> January 2018 to 30<sup>th</sup> December 2018</u>									
Date	Type	Incident Description	Investigation/ Cause/ Possible cause	Dust Management/Corrective Actions	Responsible	Due by	Completed	Addressed & Signed Off	Notification given to:
11/01/2018	High PM <sub>10</sub> reading  24hr rolling average only	High reading BAM1 Monitor	<u>Internal Source</u> – Increased readings from BAM 1 between 5-9pm on 10/01 and again between 8am-1pm on 11/01 resulting in the 24hr exceeding 50ug/m <sup>3</sup> 11am on 11/04. NE winds during the period. TARP actions completed on the 11/04: water truck started 5:30am, stockpile sprays on from 6am, Load &Haul south end only, fines section on Agg plant remained off with full plant stopped at 7:40am, Load & Haul ceased 8:40am and general sales and maintenance only for the remainder of the day. Exceedance a result of quarry operations from the Aggregate plant from the 10/04 and quarry operations on the 11/04.	<u>Reported to DSD &amp; EPA</u>  DMP implemented as required  Extending hours on water trucks, including afternoon shift  Installed additional water line for mobile crushing plants  Dust hood installed on Finlay Screen	LC	11/04/2018	13/01/18	Yes	DEM, EPA
23/02/2018	High PM <sub>10</sub> reading  24hr rolling average and midnight to midnight	High reading BAM1 and 2 Monitors	<u>External and Internal Sources</u> – Increase readings across all 3 BAM monitors with NW winds, with peak concentrations at 3pm and BAM1 and 2 exceeding 50ug/m <sup>3</sup> between 4-5pm. Photo taken of dust visible in the region from external sources as contributing factors. TARP actions taken on day; all sprays on stock piles, both water trucks operating, main plant and mobile plant shut down by 9am, Load & haul ceased 10am with sales only remaining for the day.	<u>Reported to DSD &amp; EPA</u>  DMP implemented as required  DEM request to undertake review of dust sources at the site, and potential additional controls to reduce dust emissions submission by 30 <sup>th</sup> April 2018	LC	23/05/2018	16/05/18	Yes	DEM, EPA
22/03/2018	High PM <sub>10</sub> reading  24hr rolling average and midnight to midnight	High reading BAM1 and 2 Monitors	<u>External and Internal Sources</u> – N winds resulting in both BAM 1 & 2 exceeding 50ug/m <sup>3</sup> between 4-5pm on 23/03/18. TARP actions implemented at 10:30 am as readings increased. Actions taken include; Agg plant shut down, mobile plant relocated, all water systems (water trucks, sprays) actively working and load and haul reduced and using north haul road only and ceased operation at 15:30pm. Photos taken of extensive dust haze over valley and quarry area as a contributing factor along with quarry operations	<u>Reported to DSD &amp; EPA</u>  DMP implemented as required	LC	22/06/2018	26/03/18	Yes	DEM, EPA

## Elevated PM<sub>10</sub> Readings– Report Period: 1<sup>st</sup> January 2018 to 30<sup>th</sup> December 2018

Date	Type	Incident Description	Investigation/ Cause/ Possible cause	Dust Management/Corrective Actions	Responsible	Due by	Completed	Addressed & Signed Off	Notification given to:
11/04/2018	High PM10 reading  24hr rolling average and midnight to midnight	High reading on all 3 BAM Monitors	External and Internal Sources – Extreme weather conditions causing high reading across all 3 BAM units. PM10 reading increasing from 11am on the 11/04, peaking between 4-5pm. 24hr rolling average exceeding 50ug/m3 between 1-2pm on all 3 monitors. Peak concentrations recorded above 250ug/m3. 24hr concentration lowering below 50ug/m3 at 9pm on the 12/04. Quarry operations stopped at 9:30am on the 11/04 and remained off for the day. Photo taken of external dust sources in the area.	<b><u>Reported to DSD &amp; EPA</u></b>  DMP implemented as required  Increased sweeper frequency	LC	11/07/2018	16/04/18	Yes	DEM, EPA
18/04/2018	High PM10 reading  24hr rolling average and midnight to midnight	High reading BAM1 Monitor	Internal Source – Increased readings from BAM 1 with fresh NE winds resulting in the 24hr exceeding 50ug/m3 during the day. Readings increasing from 8:30am. Calculation errors on the rolling 24hr average lowered the actual 24hr readings and as a result, TARP actions were not intensified as would normally occur eg stopping production. Exceedance a result of quarry operations from the Aggregate plant.	<b><u>Reported to DSD &amp; EPA on the 31/07/18</u></b>	LC	18/07/2018	31/07/18	Yes	DEM, EPA
01/05/2018	High PM10 reading  24hr rolling average and midnight to midnight	High reading BAM1 Monitor	External Source – High readings recorded at BAM1 and 2 on 01/05. BAM1 exceeding 50ug/m3 at 9:40pm on 01/05. Light North breeze with no visible dust emanating from surfaces around Quarry site during the day. Smoke haze visible with photos taken in the area. TARP actions taken as a result of the high readings; load and haul north end of pit, water trucks going all day, ll stockpile sprays on, Aggregate plant stopped. Data shows peaks occurring at night after 6:30pm with no quarry operations occurring. Investigation found residents combustion heater working in close vicinity of BAM1 contributing to high readings.	<b><u>Reported to DSD &amp; EPA</u></b>  DMP implemented as required  Spray seeding of exposed areas	LC	01/08/2018	15/05/18	Yes	DEM, EPA
06/06/2018	High PM10 reading  24hr rolling average and midnight to midnight	High reading BAM1 Monitor	Internal Source – Increased readings from BAM 1 in fresh NE winds resulting in the 24hr exceeding 50ug/m3 during the day. Readings increasing from 9:30am. Calculation errors on the rolling 24hr average lowered the actual 24hr readings and as a result, TARP actions were not intensified as would normally occur eg stopping production. Exceedance a result of quarry operations from the Aggregate plant.	<b><u>Reported to DSD &amp; EPA on the 31/07/18</u></b>	LC	06/09/2018	31/07/18	Yes	DEM, EPA



## Elevated PM<sub>10</sub> Readings– Report Period: 1<sup>st</sup> January 2018 to 30<sup>th</sup> December 2018

Date	Type	Incident Description	Investigation/ Cause/ Possible cause	Dust Management/Corrective Actions	Responsible	Due by	Completed	Addressed & Signed Off	Notification given to:
02/07/2018	High PM10 reading  24hr rolling average and midnight to midnight	High reading BAM1 Monitor	<u>Internal Source</u> – Increased readings from BAM 1 with NE winds resulting in the 24hr exceeding 50ug/m3 at midnight. Readings increasing from 6:30pm. Calculation errors on the rolling 24hr average lowered the actual 24hr readings and as a result, TARP actions were not intensified as would normally occur eg stopping production. Exceedance a result of quarry operations from the Aggregate plant.	<u>Reported to DSD &amp; EPA on the 31/07/18</u>  Investigate and correct calculation error with LSA					
02/08/2018	High PM10 reading  24hr rolling average and midnight to midnight	High reading on all 3 BAM Monitors	<u>External Sources</u> – Extreme weather conditions causing high reading across all 3 BAM units. 24hr rolling average exceeding 50ug/m3 between on all 3 monitors at 2pm. Plant off 9:00am. Both water trucks running. L&H ceased operations 10:00am. All sprays left on. Sales and maintenance only.	<u>Reported to DSD &amp; EPA</u>  DMP implemented as required  Planning of fine stockpile relocation within the quarry	LC	02/11/2018	05/08/18	Yes	DEM, EPA
29/08/2018	High PM10 reading  24hr rolling average and midnight to midnight	High reading BAM1 Monitor	<u>Internal Sources</u> - Strong N winds resulting in BAM1 exceeding 50ug/m3 at 3:30pm on 29/08/18. High readings continued overnight and remained throughout the 30 <sup>th</sup> . Some data missing from the 30 <sup>th</sup> due to a power outage. Crushing plant did not start on the 29th due to high readings and remained off all of the 30th as well. Sales only for 29th and 30th. Load and Haul started on the 29 <sup>th</sup> but stopped and was left off 30th. Water truck and all sprays on and running.	<u>Reported to DSD &amp; EPA</u>  DMP implemented as required  Start investigations into storage sheds for fine sections of Aggregate plant	LC	29/11/2018	31/08/18	Yes	DEM, EPA
11/09/2018	High PM10 reading  24hr rolling average and midnight to midnight	High reading BAM2 Monitor	<u>Internal Sources</u> – Strong NW winds resulting in BAM2 exceeding 50ug/m3 at 5pm on 11/09/18. TARP actions implemented at 8:30am as readings increased. Plant turned off as winds increased. Plant remained off afternoon shift. All L&H north pit only, L&H ceased 11:45am. All other traffic in out of pit to only travel north end of pit. Water truck concentrated south end of site. All sprays remained on. Sales only.	<u>Reported to DSD &amp; EPA</u>  DMP implemented as required	LC	11/12/2018	12/09/18	Yes	DEM, EPA

## Elevated PM<sub>10</sub> Readings— Report Period: 1<sup>st</sup> January 2018 to 30<sup>th</sup> December 2018

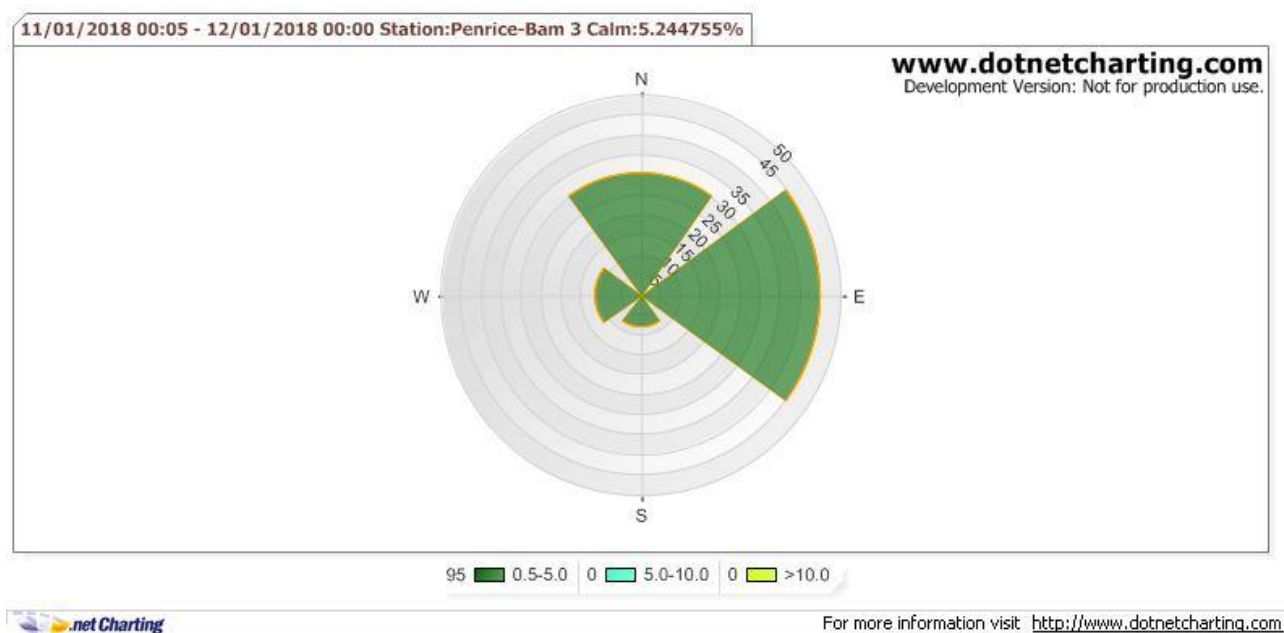
Date	Type	Incident Description	Investigation/ Cause/ Possible cause	Dust Management/Corrective Actions	Responsible	Due by	Completed	Addressed & Signed Off	Notification given to:
02/10/2018	High PM10 reading  24hr rolling average and midnight to midnight	High reading BAM1 Monitor	<u>Internal Sources</u> –N-NW winds resulting in BAM1 exceeding the rolling 24hr of 50ug/m3 at 9:40pm on 02/10/18. TARP actions implemented: Crushing plant had been off since 9am and still remains off as BAM 24hr is still over, Sales only, L&H remained North end pit, all sprays on and water truck constantly cycling even on afternoon shift.	<u>Reported to DSD &amp; EPA</u>  DMP implemented as required  Purchased dust suppressant sealer for site stockpiles as a trial	LC	02/01/2019	05/10/18	Yes	DEM, EPA
08/10/2018	High PM10 reading  24hr rolling average and midnight to midnight	High reading BAM1 Monitor	<u>Internal Sources</u> –NE-NW winds resulting in BAM1 exceeding the rolling 24hr of 50ug/m3 at 8:40pm on 08/10/18. TARP actions implemented: plants shut down at 8:30am and did not restart until 9am the following day, L&H restricted to north, sales only, all water on and water truck concentrating south end of site.	<u>Reported to DSD &amp; EPA</u>  DMP implemented as required	LC	08/01/2019	09/10/18	Yes	DEM, EPA
15/10/2018	High PM10 reading  24hr rolling average and midnight to midnight	High reading BAM1 Monitor	<u>Internal/External Sources</u> –strong NE-NW winds resulting in BAM1 exceeding the rolling 24hr of 50ug/m3 at 1:30pm on 15/10/18. TARP actions implemented: Plant was off initially due to lightening in the area and remained off due to increasing strong winds, L&H remained in the Nth pit moving stock, Water truck and sprays remained on all day (water truck did not start until about 8:30am due to heavy early showers) and Sales only.	<u>Reported to DSD &amp; EPA</u>  DMP implemented as required  Quotes received for Fine products bunker storage and enclose Agg Plant / Screen transfer point. Included in 2019 Capital budget.	LC	15/01/2019	16/10/18	Yes	DEM, EPA
19/11/2018	High PM10 reading  24hr rolling average only	High reading BAM2 Monitor	<u>Internal Sources</u> –NW winds resulting in BAM2 exceeding the rolling 24hr of 50ug/m3 at 9:45pm on 19/10/18. TARP was implemented earlier in the day due to the weather conditions, with site shut down except for sales from 13:00hrs. Plant remained off for afternoon shift and only restarted the following day.	<u>Reported to DSD &amp; EPA</u>  DMP implemented as required  Trailing dust suppressant for the haul roads  Organised a second water truck for the site	LC	19/02/2019	21/10/18	Yes	DEM, EPA

### Elevated PM<sub>10</sub> Readings– Report Period: 1<sup>st</sup> January 2018 to 30<sup>th</sup> December 2018

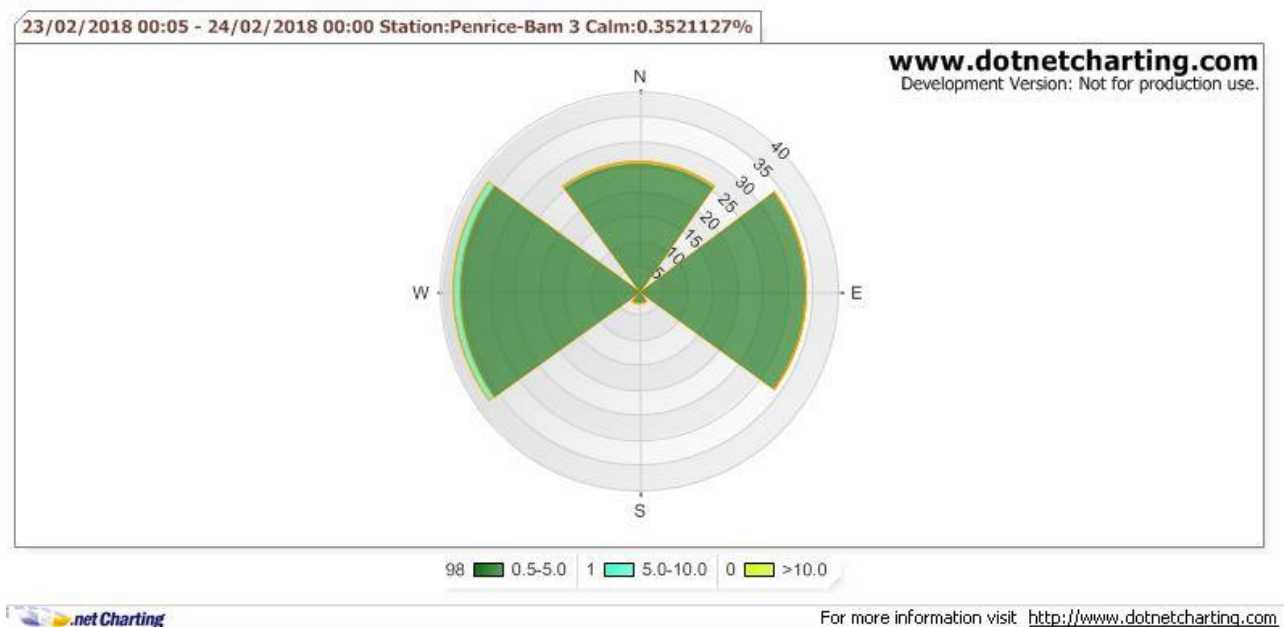
Date	Type	Incident Description	Investigation/ Cause/ Possible cause	Dust Management/Corrective Actions	Responsible	Due by	Completed	Addressed & Signed Off	Notification given to:
19/11/2018	High PM10 reading  24hr rolling average only	High reading BAM2 Monitor	Internal Sources –NW winds resulting in BAM2 exceeding the rolling 24hr of 50ug/m3 at 9:45pm on 19/10/18. TARP was implemented earlier in the day due to the weather conditions, with site shut down except for sales from 13:00hrs. Plant remained off for afternoon shift and only restarted the following day.	<u>Reported to DSD &amp; EPA</u>  DMP implemented as required  Trailing dust suppressant for the haul roads  Organised a second water truck for the site	LC	19/02/2019	21/10/18	Yes	DEM, EPA
06/12/2018	High PM10 reading  24hr rolling average only	High reading BAM1 Monitor	Internal Sources –N winds resulting in BAM1 exceeding the rolling 24hr of 50ug/m3 at 10:20am on 06/12/18. The whole site was shut down by 8am, sales only continued. Two water trucks continued to operate throughout the day.	<u>Reported to DSD &amp; EPA</u>  DMP implemented as required	LC	06/03/2019	07/12/18	Yes	DEM, EPA
07/12/2018	High PM10 reading  24hr rolling average only	High reading BAM2 Monitor	Internal / External Sources –NW winds resulting in BAM2 exceeding the rolling 24hr of 50ug/m3 at 2:0pm on 07/12/18 and remaining over until 11:00am on 08/12/18. TARP was implemented and All plant was off by 8am on the 7th and remained off due to weather conditions, restarting again on the 9th.Sales only.	<u>Reported to DSD &amp; EPA</u>  DMP implemented as required	LC	19/02/2019	21/10/18	Yes	DEM, EPA

## Appendix G- Wind Roses relating to Elevated PM<sub>10</sub> Readings

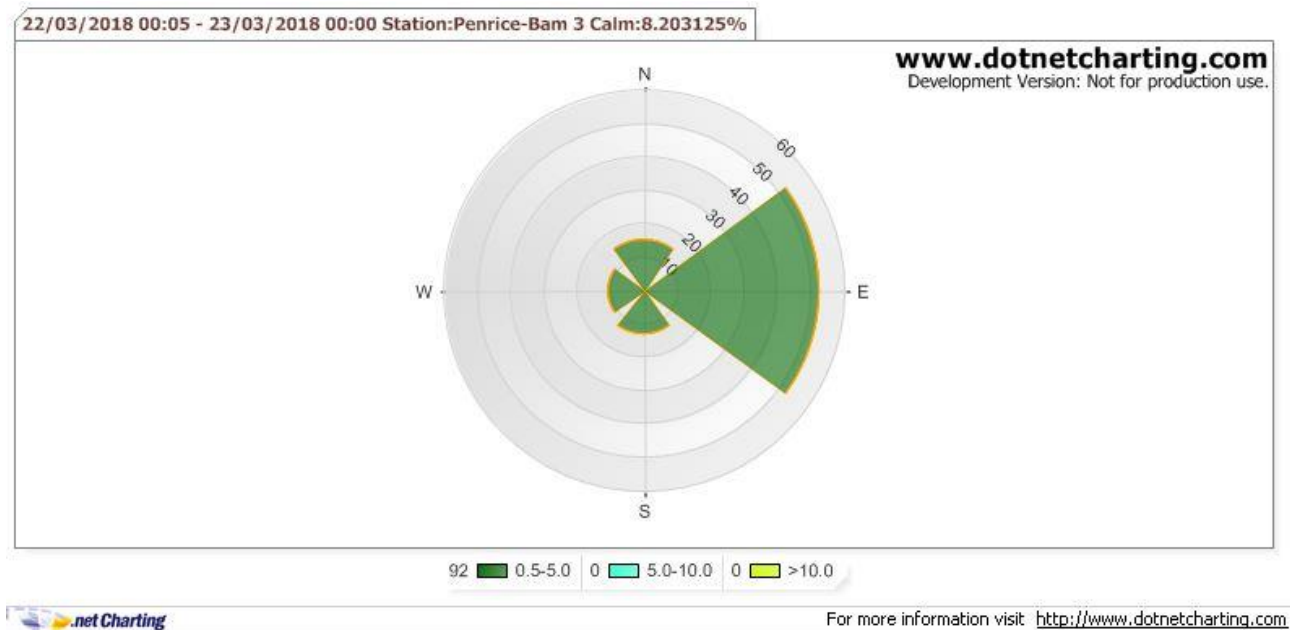
Note: All Wind Rose Graphs from BAM3 station



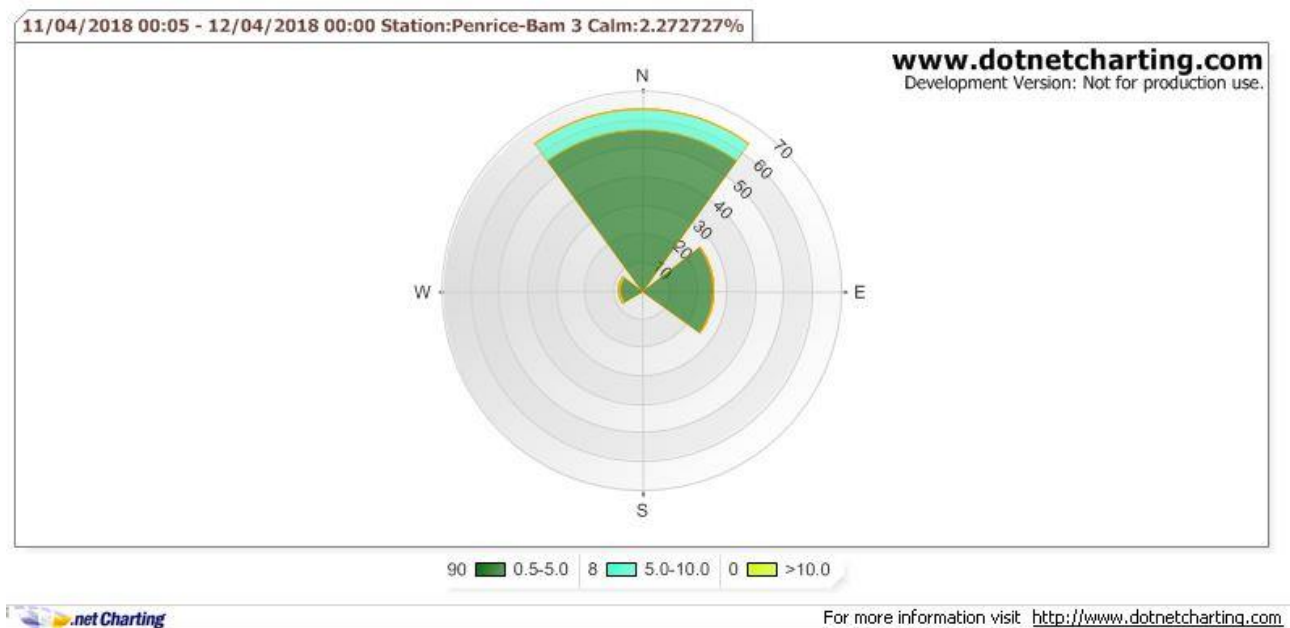
No. 1 - Wind Rose relating to exceedance on 11<sup>th</sup> January 2018



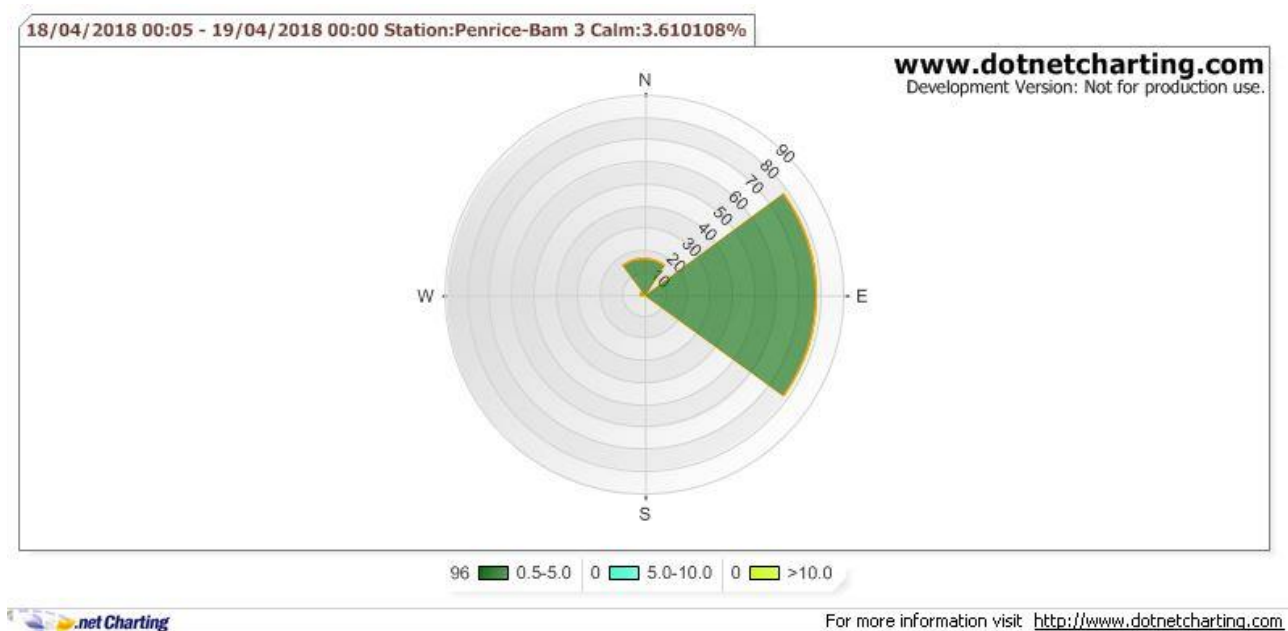
No. 2 - Wind Rose relating to exceedance on 23<sup>rd</sup> February 2018



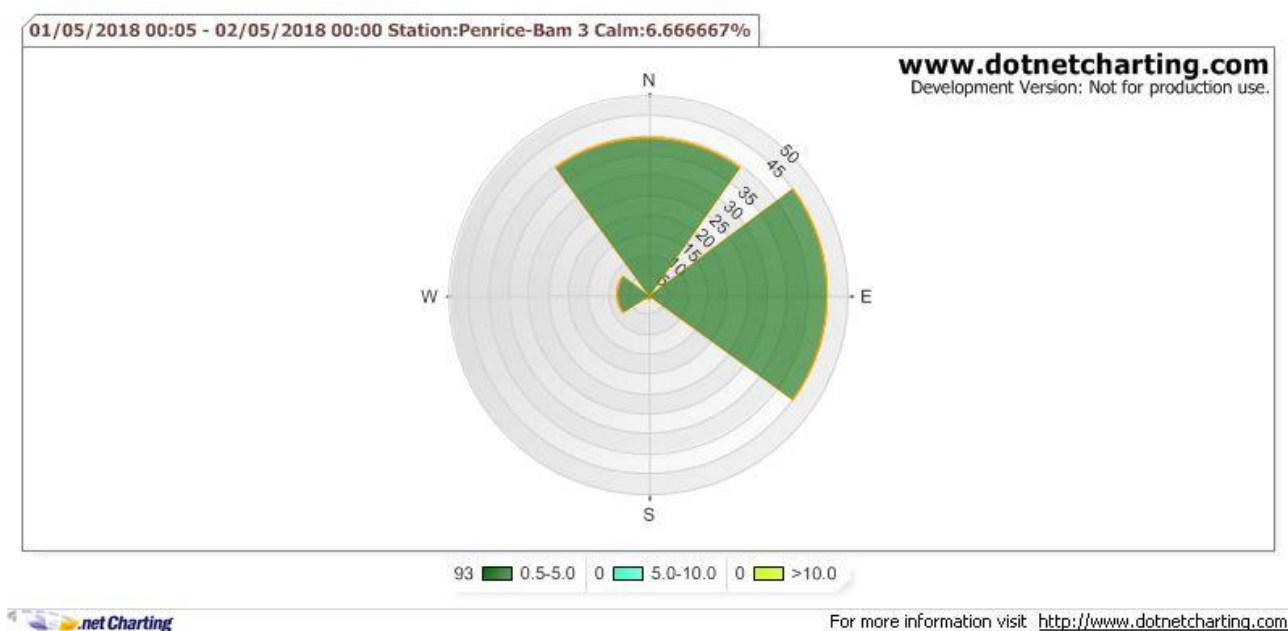
**No. 3 - Wind Rose relating to exceedance on 22<sup>nd</sup> March 2018**



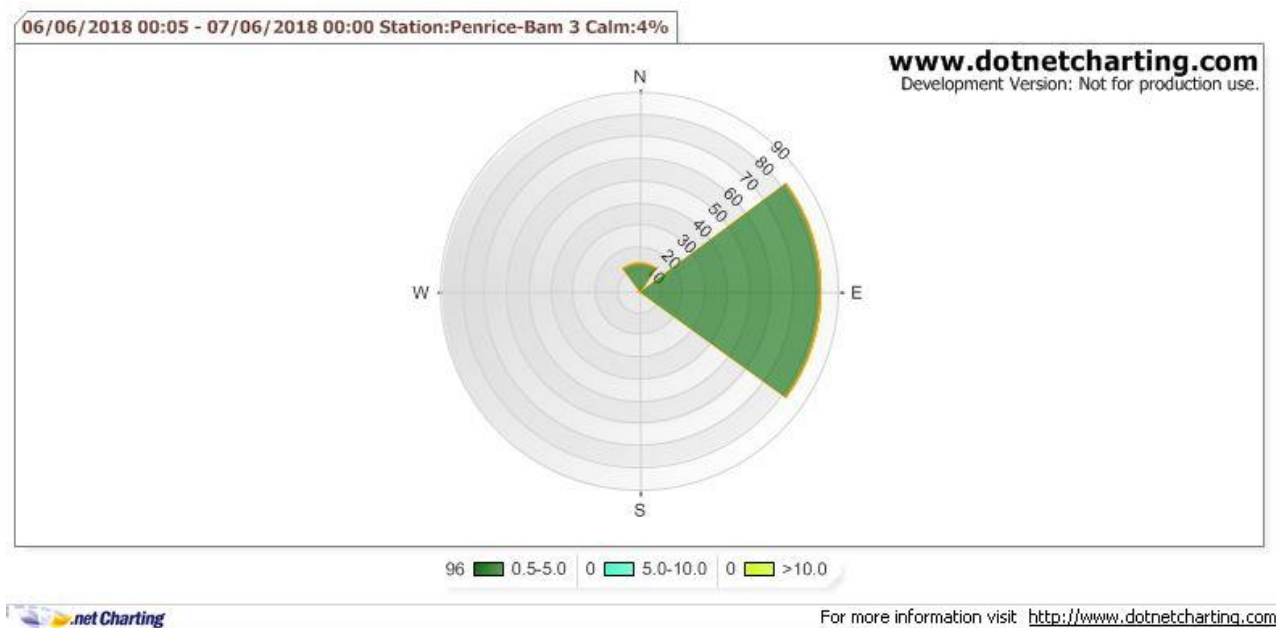
**No. 4 - Wind Rose relating to exceedance on 11<sup>th</sup> April 2018**



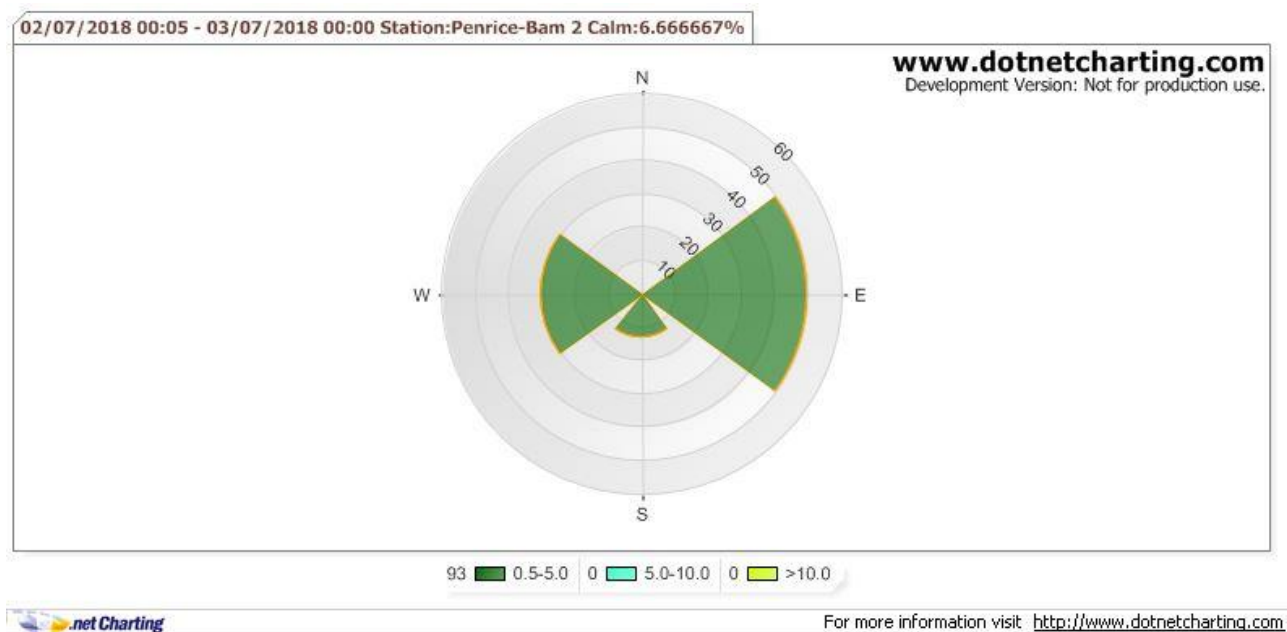
**No. 5 - Wind Rose relating to exceedance on 18<sup>th</sup> April 2018**



**No. 6 - Wind Rose relating to exceedance on 1<sup>st</sup> May 2018**

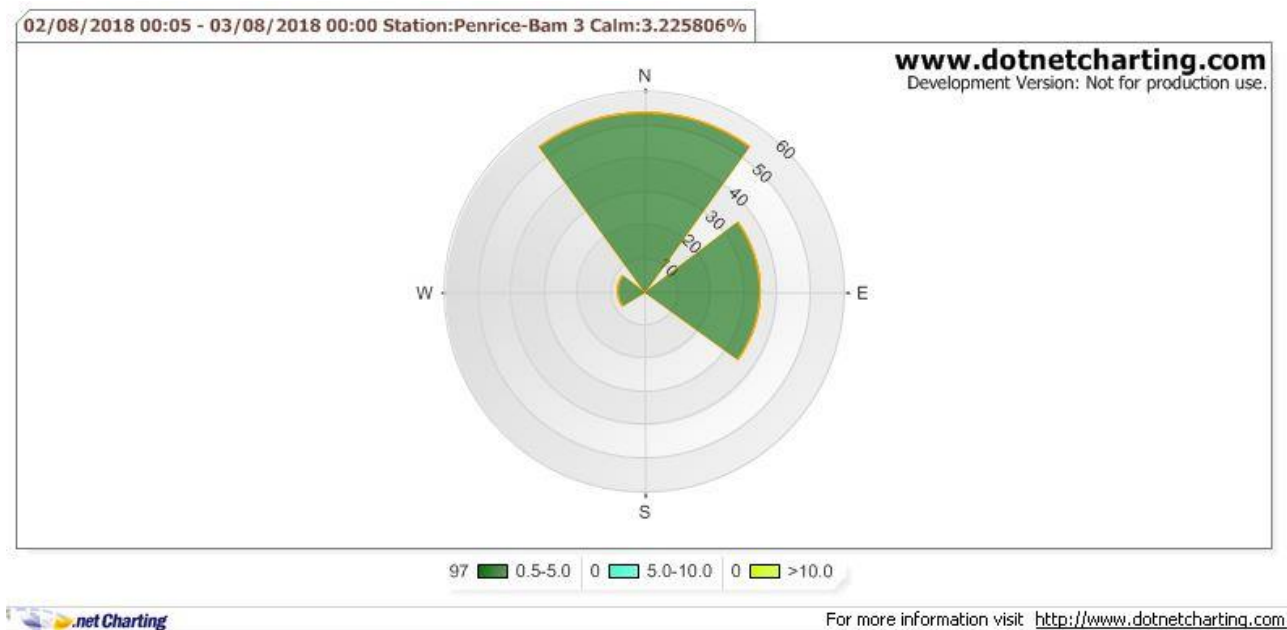


**No. 7 - Wind Rose relating to exceedance on 6<sup>th</sup> June 2018**

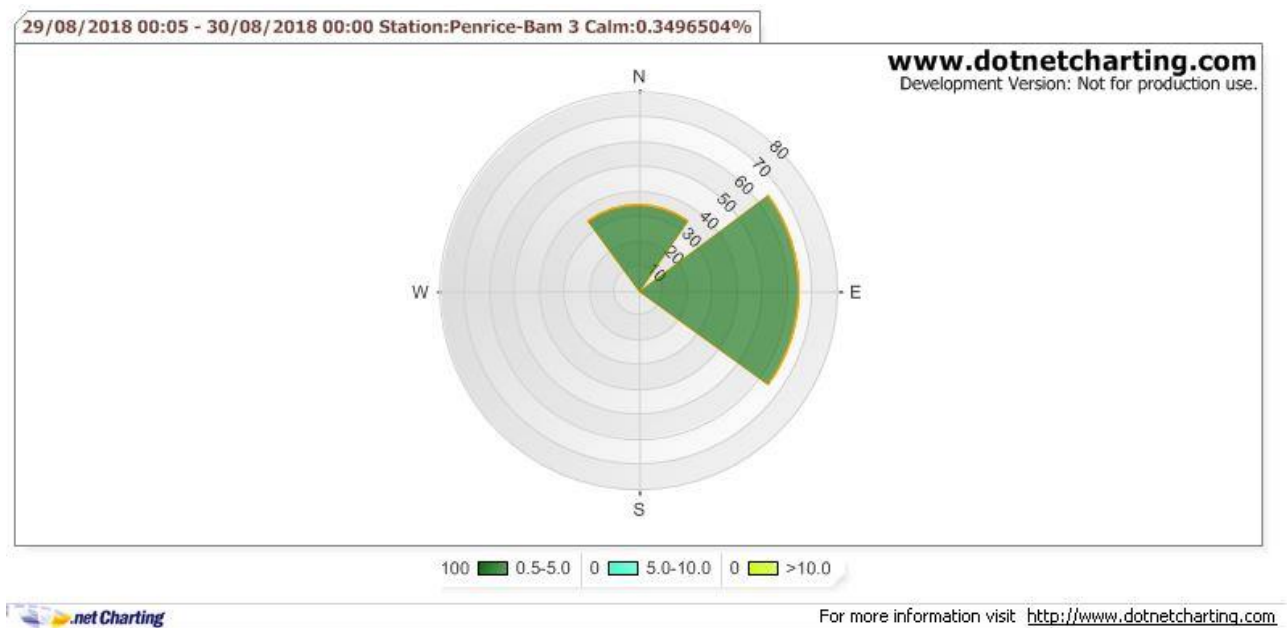


**No. 8 - Wind Rose relating to exceedance on 2<sup>nd</sup> July 2018**



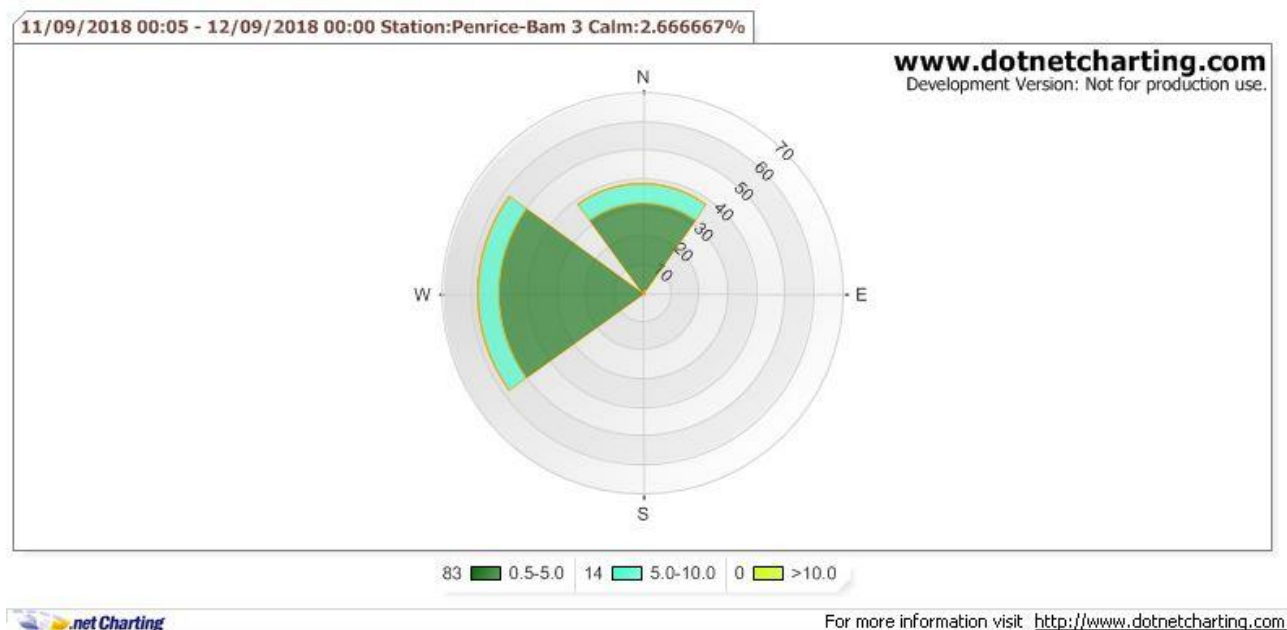


**No. 9 - Wind Rose relating to exceedance on 2<sup>nd</sup> August 2018**

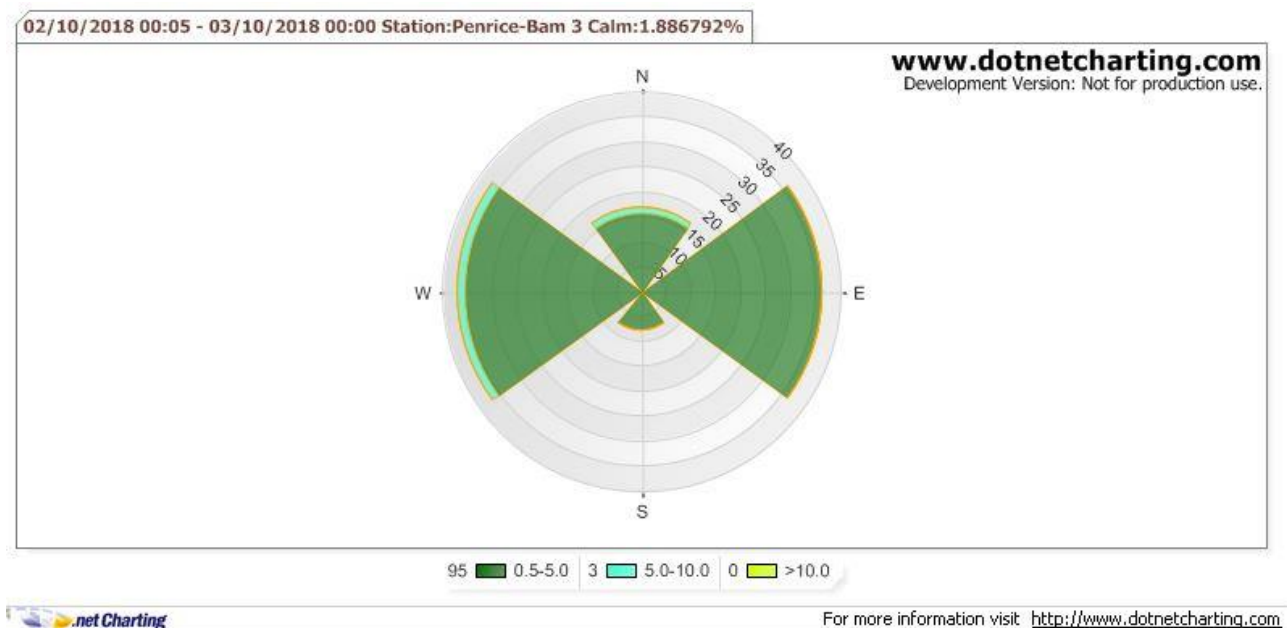


**No. 10 - Wind Rose relating to exceedance on 29<sup>th</sup> August 2018**

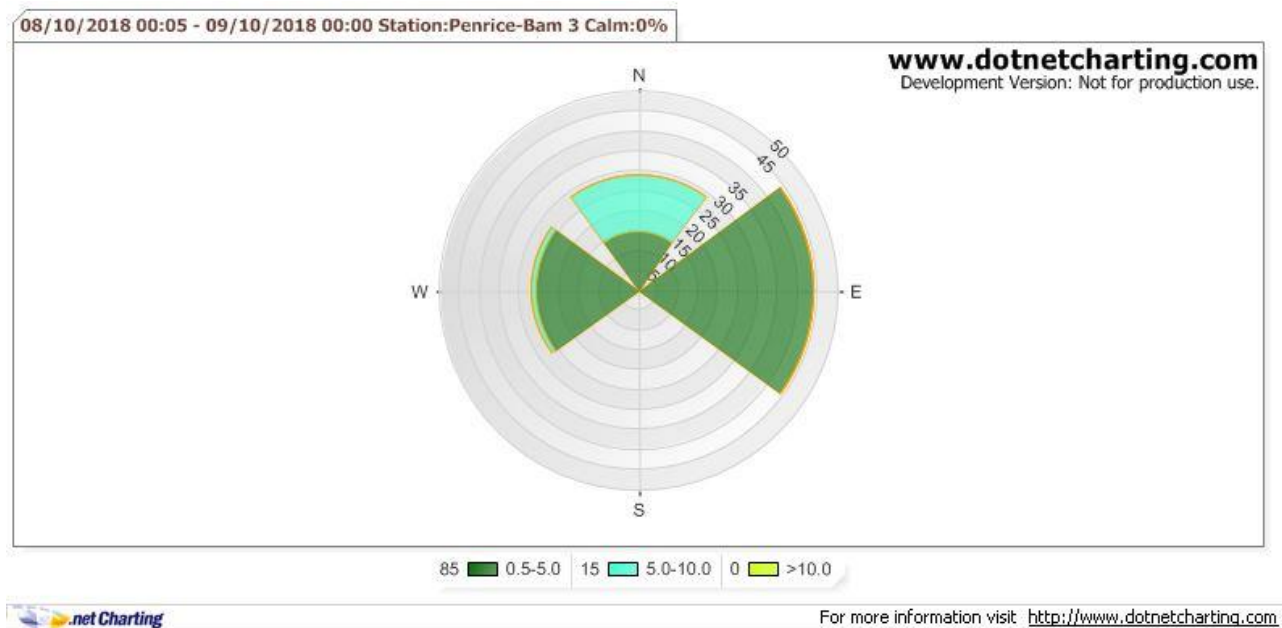




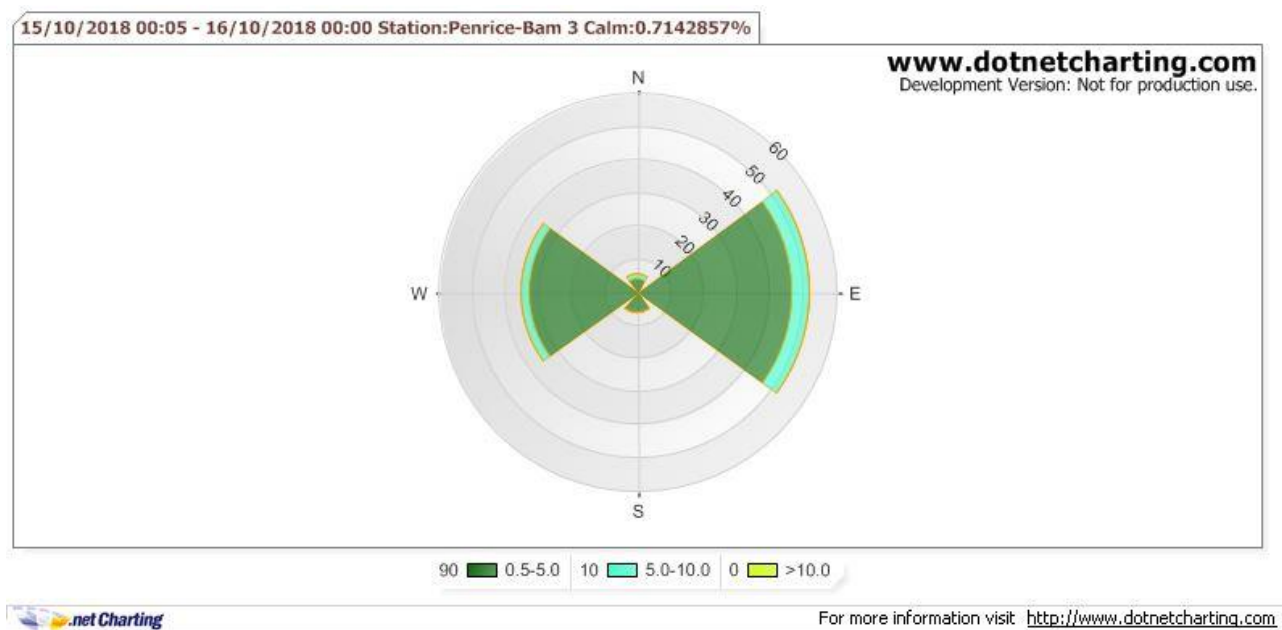
**No. 11 - Wind Rose relating to exceedance on 11<sup>th</sup> September 2018**



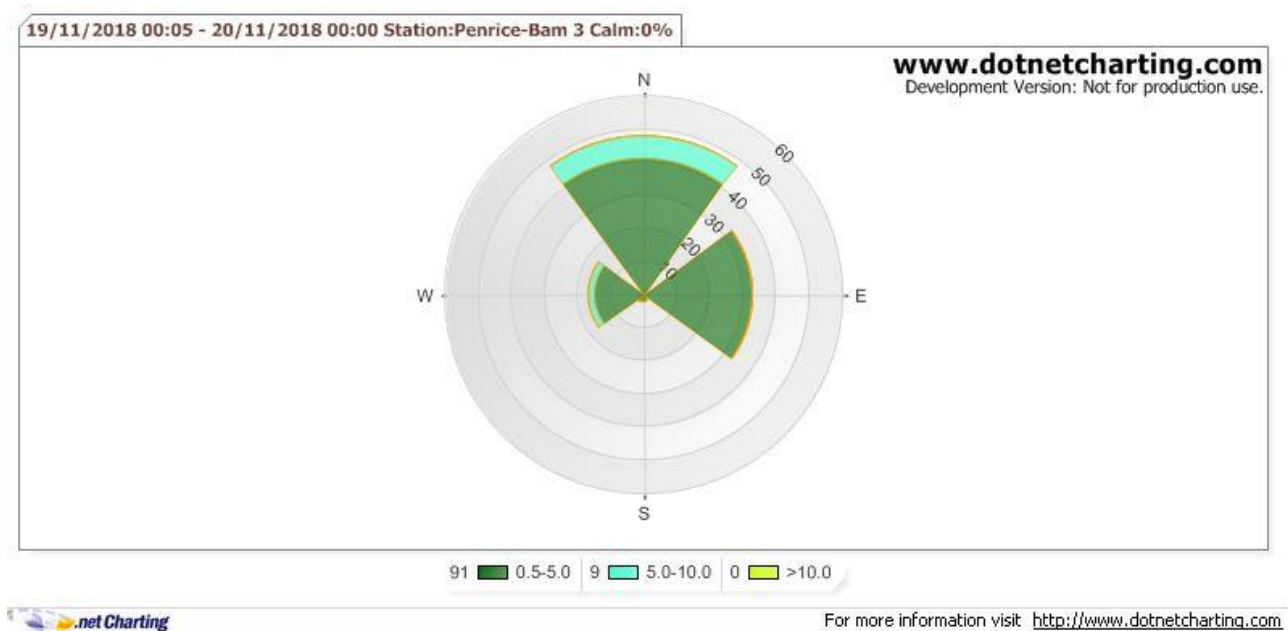
**No. 12 - Wind Rose relating to exceedance on 2<sup>nd</sup> October 2018**



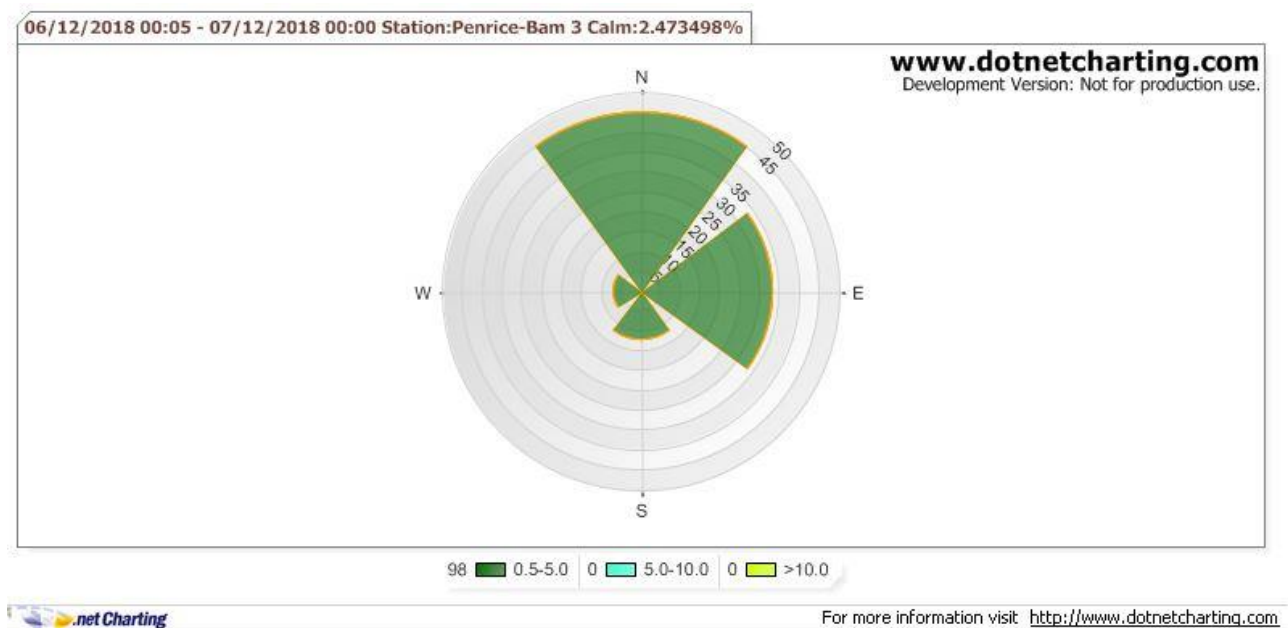
**No. 13 - Wind Rose relating to exceedance on 8<sup>th</sup> October 2018**



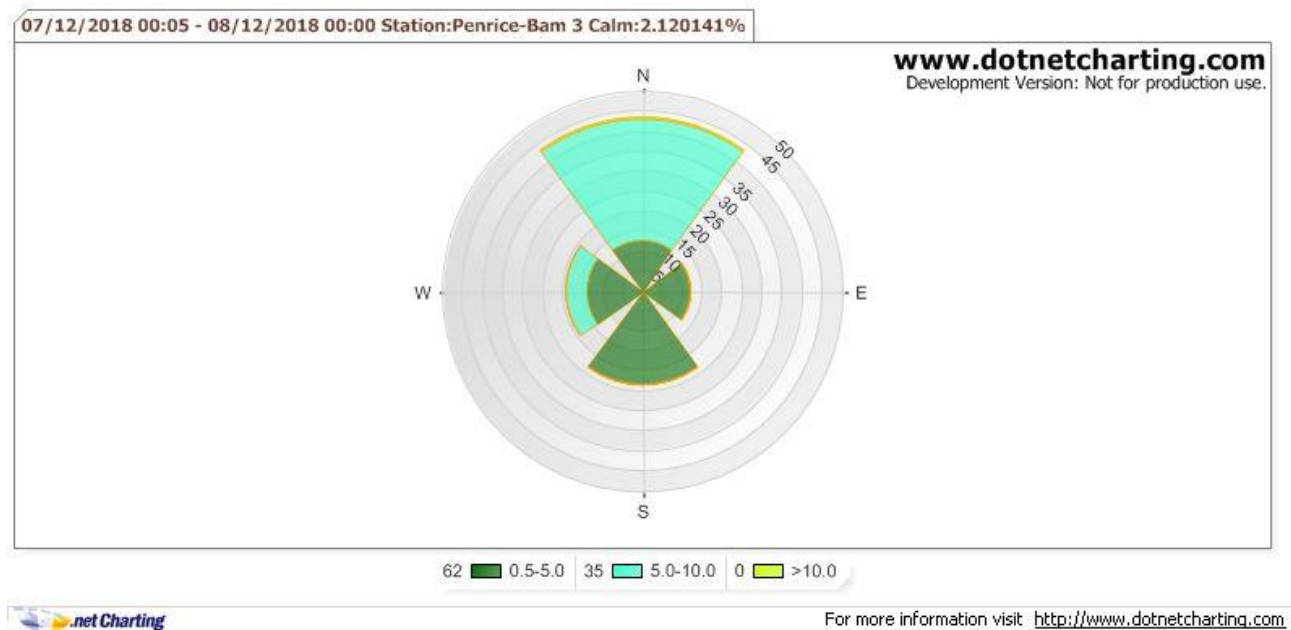
**No. 14 - Wind Rose relating to exceedance on 15<sup>th</sup> October 2018**



**No. 15 - Wind Rose relating to exceedance on 19<sup>th</sup> November 2018**



**No. 16 - Wind Rose relating to exceedance on 6<sup>th</sup> December 2018**



**No. 17 - Wind Rose relating to exceedance on 7<sup>th</sup> December 2018**