



# Boral Marulan Works POELA Act 2011 Monitoring Data September 2018 calendar year

## Boral Cement Marulan, NSW

### Environmental Protection Licence No. 944

Explanation of units of measure:  
mg/m<sup>3</sup> = milligrams per cubic metre  
g/m<sup>2</sup>/month = grams per square metre per month  
µg/m<sup>3</sup> = micrograms per cubic metre  
mg/L = milligrams per litre

*Marulan South Lime Plant and Limestone Mine's webpage became live in July 2015. The monitoring data has been uploaded to the internet for public use first time in July 2015 (including historical data back to April 2012. Data is updated monthly.*

Record updated on 23<sup>th</sup> July 2018

**Compliance Summary:** The site is currently compliant with the Licence limits.

### 1. Annual Stack Monitoring

Test date 4<sup>th</sup> October 2017 for EPA 11- Kiln Stack

| Assessable Parameter (mg/m <sup>3</sup> )                              | Licence Limit | 2015-16 | 2016 -17 | 2017-18 |  |
|--|---------------|---------|----------|---------|--|
| <b>Emission Source: Kiln Stack (EPA identification Number: 11)</b>     |               |         |          |         |  |
| Solid Particulates   | <b>100</b>    | 45      | 0.017    | 30      |  |
| Nitrogen Oxides  | <b>2,000</b>  | 270     | 0.25     | 330     |  |
| <b>Emission Source: Hydrator Stack (EPA identification Number: 12)</b> |               |         |          |         |  |
| Solid Particles Particulates   | <b>100</b>    | 7.4     | 0.0028   | 3.5     |  |

**Compliance summary:** Marulan plant is compliant with the Licence stack emission limits. Test done on Annual Stack Monitoring in October 2018. Just waiting for the test results to come in should be reporting on it next month. November 2018.

## 2. Ambient air monitoring

### 2.1 Dust Deposition Gauges: Total Insoluble Matter (g/m<sup>2</sup>-month)

This test measures the levels of the coarse dust (generated mostly from unsealed roads, raw material handling, open stockpiles, etc.). It is a measure of dust *nuisance* (dust on cars, washing, window panes) in the immediate vicinity of the source, as the heavy dust settles quickly and doesn't travel far. It is not an indication of potential health problems as it doesn't penetrate into the respiratory system due to a large size of dust particles.

**Licence limit:** Not specified.

The NSW State guideline of 4 g/m<sup>2</sup>/month (presented as 12-month rolling average) was adopted as an internal indicator of site performance.

Date published: N/A

| Report received on | For the month of | Report published on | Dust Deposition Gauges<br>(g/m <sup>2</sup> /month as 12-month rolling average) |  |
|--------------------|------------------|---------------------|---|--|
|                    |                  |                     | EPA ID No. 1<br>(Nearest Residence)   | EPA ID No. 16<br>(Stores Paddock Hill) |
| N/A                | January 2015     | N/A                 | 1.72  | 3.72                                   |
| N/A                | February 2015    | N/A                 | 1.61  | 3.38                                   |
| N/A                | March 2015       | N/A                 | 1.81  | 3.33                                   |
| N/A                | April 2015       | N/A                 | 1.83  | 3.40                                   |
| N/A                | May 2015         | N/A                 | 1.96  | 3.44                                   |
| 17/7/15            | June 2015        | 10/08/15            | 2.16  | 3.59                                   |
| 21/8/15            | July 2015        | 07/09/15            | 2.20  | 3.56                                   |
| 22/9/15            | August 2015      | 06/10/15            | 2.15  | 3.34                                   |
| 23/10/15           | September 2015   | 09/11/15            | 2.11  | 3.32                                   |
| 20/11/15           | October 2015     | 10/12/15            | 2.30  | 3.33                                   |
| 21/12/15           | November 2015    | 11/01/16            | 2.15  | 3.38                                   |
| 21/1/16            | December 2015    | 08/02/16            | 2.53  | 3.95                                   |
| 19/2/16            | January 2016     | 2/3/16              | 2.53  | 3.7                                    |
| 18/3/16            | February 2016    | 29/3/16             | 2.50  | 2.88                                   |
| 22/4/16            | March 2016       | 22/4/16             | 2.51  | 3.82                                   |
| 20/5/16            | April 2016       | 20/5/16             | 2.43  | 3.7                                    |
| 24/6/2016          | May 2016         | 24/6/16             | 2.25  | 3.9                                    |
| 27/7/16            | June 2016        | 27/7/16             | 2.07  | 3.8                                    |
| 23/8/16            | July 2016        | 23/8/16             | 2.12  | 3.8                                    |
| 2/9/16             | August 2016      | 2/9/16              | 2.23  | 4.14                                   |
| 28/10/16           | September 2016   | 28/10/16            | 2.33  | 4.3                                    |
| 23/11/16           | October 2016     | 23/11/16            | 2.21  | 4.2                                    |

|            |                |          |      |      |
|------------|----------------|----------|------|------|
| 21/12/16   | November 2016  | 21/12/16 | 2.4  | 4.5  |
| 25/01/17   | December 2016  | 25/1/17  | 2.5  | 7.50 |
| 21/02/17   | January 2017   | 21/02/17 | 2.77 | 7.52 |
| 24/03/17   | February 2017  | 24/03/17 | 2.88 | 7.70 |
| 20/04/17   | March 2017     | 20/04/17 | 2.86 | 7.64 |
| 17/05/17   | April 2017     | 17/05/17 | 2.94 | 7.85 |
| 20/06/17   | May 2017       | 20/06/17 | 3.10 | 7.63 |
| 19/07/17   | June 2017      | 19/07/17 | 3.26 | 8.15 |
| 22/08/17   | July 2017      | 22/08/17 | 3.24 | 8.68 |
| 20/09/17   | August 2017    | 19/09/17 | 3.21 | 8.64 |
| 20/10/17   | September 2017 | 20/10/17 | 3.24 | 8.63 |
| 20/11/17   | October 2017   | 20/11/17 | 3.42 | 8.63 |
| 21/12/17   | November 2017  | 21/12/17 | 3.32 | 8.29 |
| 16/01/18   | December 2017  | 16/01/18 | 3.12 | 5.50 |
| 22/02/18   | January 2018   | 06/03/18 | 3.05 | 5.36 |
| 22/03/18   | February 2018  | 06/04/18 | 3.69 | 6.97 |
| 19/04/18   | March 2018     | 23/04/18 | 3.27 | 7.08 |
| 16/04/18   | April 2018     | 02/05/18 | 3.39 | 7.07 |
| 25/06/2018 | May 2018       | 22/06/18 | 3.40 | 7.22 |
| 23/07/2018 | June 2018      | 17/08/18 | 3.33 | 6.84 |
| 22/08/2018 | July 2018      |          | 3.38 | 6.86 |
| 25/09/2018 | August         |          | 2.62 | 9.62 |
| 23/10/2018 | September      |          | 3.02 | 9.88 |

**Compliance Summary:** The site is not currently compliant with the adopted State Guideline, at EPA ID no.16 dust gauge. This gauge is located on the limestone premises and is used as an indicator to manage dust from operations. Further analysis of the dust has revealed that the majority of material was organic and likely to have been from windblown paddock grasses and bird depositions. High result for the

month of February 2018, further chemical testing indicated 30% of the material in the device was CaCO<sub>3</sub>. Result for April 2018 was 5.15 at Store paddock dust gauge and we are waiting on chemistry assessment of the ash to determine possible sources.

May /June /July/August/September readings are high due to high winds and drought conditions. Also Peppertree Mine has built a waste dump very close to the dust gauge witch is influencing the results. The site is in talks with the regulator to position the dust gauge to another suitable location.

Dust Gauge EPA ID NO.1 at the nearest residence is compliant.

## 2.2 High Volume Air Sampling: PM<sub>10</sub> dust fraction

This test measures the levels of the fine dust suspended in the air (generated mostly from stack emissions). It is a measure of potential *health effects* (irritation of the respiratory track) as the small particles can penetrate into the airways and the lungs. Fine dust can persist in the atmosphere for days or even months before it settles and can travel some distance.

**Licence limits:** Not specified.

In absence of licence limits, the following guideline value was adopted:

- 24hr mean for PM<sub>10</sub> of 50 µg/m<sup>3</sup>, as per *National Environment Protection (Air Quality) Measure 2003*.

Date published: Not applicable (until end June 2015)

|               |                     |                     |                     |                     |          |         |          |          |
|---------------|---------------------|---------------------|---------------------|---------------------|----------|---------|----------|----------|
| Sampling date | 3/01/15             | 9/01/15             | 15/01/15            | 21/01/15            | 27/01/15 | 2/02/15 | 08/02/15 | 14/02/15 |
| PM10 (µg/m3)  | Motherboard failure | Motherboard failure | Motherboard failure | Motherboard failure | 10.62    | 27.6    | 6.92     | 5.88     |

|               |          |          |          |          |          |          |          |          |
|---------------|----------|----------|----------|----------|----------|----------|----------|----------|
| Sampling date | 20/02/15 | 26/02/15 | 04/03/15 | 10/03/15 | 16/03/15 | 22/03/15 | 28/03/15 | 03/04/15 |
| PM10 (µg/m3)  | 29.64    | 16.44    | 31.49    | 33.22    | 32.41    | 20.06    | 22.57    | 8.94     |

|               |          |          |          |          |          |          |          |          |
|---------------|----------|----------|----------|----------|----------|----------|----------|----------|
| Sampling date | 09/04/15 | 15/04/15 | 21/04/15 | 27/04/15 | 03/05/15 | 09/05/15 | 15/05/15 | 21/05/15 |
| PM10 (µg/m3)  | 12.84    | 17.38    | 2.34     | 3.18     | 2.54     | 4.5      | 10.05    | 2.7      |

|               |          |          |
|---------------|----------|----------|
| Sampling date | 27/05/15 | 02/06/15 |
| PM10 (µg/m3)  | 11.42    | 4.38     |

Data received from July 2015:

|               |         |         |         |         |         |          |          |          |
|---------------|---------|---------|---------|---------|---------|----------|----------|----------|
| Sampling date | 8/6/15  | 14/6/15 | 20/6/15 | 26/6/15 | 2/7/15  | 8/7/15   | 14/7/15  | 20/7/15  |
| Report date   | 10/7/15 | 10/7/15 | 10/7/15 | 10/7/15 | 10/7/15 | 11/8/15  | 11/8/15  | 11/8/15  |
| Upload date   | 10/8/15 | 10/8/15 | 10/8/15 | 10/8/15 | 10/8/15 | 07/09/15 | 07/09/15 | 07/09/15 |
| PM10 (µg/m3)  | 4.51    | 19.19   | 2.35    | 4.98    | 3.02    | 152.41   | 42.03    | 4.40     |

|               |          |          |          |          |          |          |          |          |
|---------------|----------|----------|----------|----------|----------|----------|----------|----------|
| Sampling date | 26/7/15  | 1/8/15   | 7/8/15   | 13/8/15  | 19/8/15  | 25/8/15  | 31/8/15  | 6/9/15   |
| Report date   | 11/8/15  | 11/8/15  | 11/9/15  | 11/9/15  | 11/9/15  | 11/9/15  | 11/9/15  | 20/10/15 |
| Upload date   | 07/09/15 | 07/09/15 | 06/10/15 | 06/10/15 | 06/10/15 | 06/10/15 | 06/10/15 | 07/09/15 |
| PM10 (µg/m3)  | 2.4      | 1.38     | 6.84     | 3.02     | 20.65    | 1.37     | 6.39     | 4.76     |

|               |          |          |          |          |          |          |          |          |
|---------------|----------|----------|----------|----------|----------|----------|----------|----------|
| Sampling date | 12/9/15  | 18/9/15  | 24/9/15  | 30/9/15  | 6/10/15  | 12/10/15 | 18/10/15 | 24/10/15 |
| Report date   | 20/10/15 | 20/10/15 | 20/10/15 | 20/10/15 | 20/10/15 | 20/10/15 | 9/11/15  | 9/11/15  |



|              |          |          |          |          |          |          |          |          |
|--------------|----------|----------|----------|----------|----------|----------|----------|----------|
| Upload date  | 07/09/15 | 09/11/15 | 09/11/15 | 09/11/15 | 09/11/15 | 09/11/15 | 10/12/15 | 10/12/15 |
| PM10 (µg/m3) | 10.08    | 8.89     | 10.68    | 20.47    | 22.53    | 8.98     | 21.32    | 23.79    |

|               |          |          |          |          |          |          |          |          |
|---------------|----------|----------|----------|----------|----------|----------|----------|----------|
| Sampling date | 30/10/15 | 5/11/15  | 11/11/15 | 17/11/15 | 23/11/15 | 29/11/15 | 5/12/15  | 11/12/15 |
| Report date   | 9/11/15  | 21/12/15 | 21/12/15 | 21/12/15 | 21/12/15 | 21/12/15 | 21/12/15 | 15/01/16 |
| Upload date   | 10/12/15 | 11/01/16 | 11/01/16 | 11/01/16 | 11/01/16 | 11/01/16 | 11/01/16 | 08/02/16 |
| PM10 (µg/m3)  | 49.62    | 12.33    | 35.78    | 20.00    | 101.65   | 20.35    | 158.27   | 76.01    |

|               |          |          |          |          |         |         |         |         |
|---------------|----------|----------|----------|----------|---------|---------|---------|---------|
| Sampling date | 17/12/15 | 23/12/15 | 29/12/15 | 4/1/16   | 10/1/16 | 16/1/16 | 22/1/16 | 28/1/16 |
| Report date   | 15/01/16 | 15/01/16 | 15/01/16 | 15/01/16 | 9/2/16  | 9/2/16  | 9/2/16  | 9/2/16  |
| Upload date   | 08/02/16 | 08/02/16 | 08/02/16 | 08/02/16 | 10/3/16 | 10/3/16 | 10/3/16 | 10/3/16 |
| PM10 (µg/m3)  | 63.88    | 44.76    | 44.31    | 33.85    | 36.94   | 6.13    | 19.44   | 19.94   |

|               |         |         |         |         |         |         |         |         |
|---------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Sampling date | 3/2/16  | 9/2/16  | 15/2/16 | 21/2/16 | 27/2/16 | 4/3/16  | 10/3/16 | 16/3/16 |
| Report date   | 9/2/16  | 14/3/16 | 14/3/16 | 14/3/16 | 14/3/16 | 19/4/16 | 19/4/16 | 19/4/16 |
| Upload date   | 10/4/16 | 10/4/16 | 10/4/16 | 10/4/16 | 10/4/16 | 10/5/16 | 10/5/16 | 10/5/16 |
| PM10 (µg/m3)  | 25.18   | 34.7    | 38.28   | 16.97   | 9.83    | 34.41   | 49.13   | 10.48   |

|               |         |         |         |         |         |         |         |         |
|---------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Sampling date | 22/3/16 | 28/3/16 | 3/4/16  | 9/4/16  | 15/4/16 | 21/4/16 | 29/4/16 | 3/5/16  |
| Report date   | 19/4/16 | 19/4/16 | 19/4/16 | 19/4/16 | 13/5/16 | 13/5/16 | 13/5/16 | 13/5/16 |
| Upload date   | 10/5/16 | 10/5/16 | 10/5/16 | 10/5/16 | 10/6/16 | 10/6/16 | 10/6/16 | 10/6/16 |
| PM10 (µg/m3)  | 3.92    | 16.95   | 21.54   | 29.43   | 28.66   | 16.16   | 23.33   | 6.69    |

|               |         |         |         |         |         |         |         |         |
|---------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Sampling date | 9/5/16  | 15/5/16 | 21/5/16 | 27/5/16 | 2/6/16  | 8/6/16  | 14/6/16 | 20/6/16 |
| Report date   | 22/6/16 | 22/6/16 | 22/6/16 | 22/6/16 | 22/6/16 | 22/6/16 | 19/7/16 | 19/7/16 |
| Upload date   | 13/7/16 | 13/7/16 | 13/7/16 | 13/7/16 | 13/7/16 | 13/7/16 | 10/8/16 | 10/8/16 |
| PM10 (µg/m3)  | 2.96    | 9.68    | 58.18   | 2.28    | 5.66    | 1.01    | 15.04   | 1.86    |

|               |         |         |         |         |         |         |         |          |
|---------------|---------|---------|---------|---------|---------|---------|---------|----------|
| Sampling date | 26/6/16 | 2/7/16  | 8/7/16  | 14/7/16 | 20/7/16 | 26/7/16 | 1/8/16  | 7/8/16   |
| Report date   | 19/7/16 | 19/7/16 | 19/7/16 | 12/8/16 | 12/8/16 | 12/8/16 | 12/8/16 | 13/9/16  |
| Upload date   | 10/8/16 | 10/8/16 | 10/8/16 | 10/9/16 | 10/9/16 | 10/9/16 | 10/9/16 | 10/10/16 |
| PM10 (µg/m3)  | 10.05   | 4.61    | 10.50   | 3.41    | 1.75    | 2.78    | 1.83    | 15.59    |

|               |          |          |          |          |          |          |          |          |
|---------------|----------|----------|----------|----------|----------|----------|----------|----------|
| Sampling date | 13/8/16  | 19/8/16  | 25/8/16  | 31/8/16  | 6/9/16   | 12/9/16  | 18/9/16  | 24/9/16  |
| Report date   | 13/9/16  | 13/9/16  | 13/9/16  | 13/9/16  | 13/9/16  | 28/10/16 | 28/10/16 | 28/10/16 |
| Upload date   | 10/10/16 | 10/10/16 | 10/10/16 | 10/10/16 | 10/10/16 | 10/11/16 | 10/11/16 | 10/11/16 |
| PM10 (µg/m3)  | 7.38     | 25.42    | 4.46     | 9.10     | 22.52    | 15.06    | 12.76    | 6.93     |

|               |          |          |          |          |          |          |          |          |
|---------------|----------|----------|----------|----------|----------|----------|----------|----------|
| Sampling date | 30/9/16  | 6/10/16  | 12/10/16 | 18/10/16 | 24/10/16 | 30/10/16 | 5/11/16  | 11/11/16 |
| Report date   | 28/10/16 | 28/10/16 | 28/10/16 | 28/10/16 | 18/11/16 | 18/11/16 | 18/11/16 | 18/12/16 |
| Upload date   | 10/11/16 | 10/11/16 | 10/11/16 | 10/11/16 | 20/12/16 | 20/12/16 | 20/12/16 | 20/12/16 |
| PM10 (µg/m3)  | 3.34     | 7.61     | 2.23     | 3.96     | 9.09     | 15.24    | 16.36    | 23.98    |

|               |          |          |          |          |          |          |          |          |
|---------------|----------|----------|----------|----------|----------|----------|----------|----------|
| Sampling date | 17/11/16 | 23/11/16 | 29/11/16 | 5/12/16  | 11/12/16 | 17/12/16 | 23/12/16 | 29/12/16 |
| Report date   | 18/12/16 | 18/12/16 | 18/12/16 | 18/12/16 | 20/1/17  | 20/1/17  | 20/1/17  | 20/1/17  |
| Upload date   | 20/12/16 | 20/12/16 | 20/12/16 | 20/12/16 | 10/2/17  | 10/2/17  | 10/2/17  | 10/2/17  |
| PM10 (µg/m3)  | 23.3     | 18.51    | 24.14    | 50.68    | 27.27    | 13.18    | 34.22    | 17.81    |



|               |         |         |         |         |         |         |         |         |
|---------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Sampling date | 4/1/17  | 10/1/17 | 16/1/17 | 22/1/17 | 28/1/17 | 3/2/17  | 9/2/17  | 15/2/17 |
| Report date   | 20/1/17 | 20/1/17 | 20/1/17 | 13/2/17 | 13/2/17 | 13/2/17 | 21/3/17 | 21/3/17 |
| Upload date   | 10/2/17 | 10/2/17 | 10/2/17 | 10/3/17 | 10/3/17 | 10/3/17 | 10/4/17 | 10/4/17 |
| PM10 (µg/m3)  | 12.44   | 20.87   | 51.24   | 27.25   | 32.54   | 33.17   | 43.81   | 64.66   |

|               |         |         |         |         |         |         |         |         |
|---------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Sampling date | 21/2/17 | 27/2/17 | 5/3/17  | 11/3/17 | 17/3/17 | 23/3/17 | 29/3/17 | 4/4/17  |
| Report date   | 21/3/17 | 21/3/17 | 21/3/17 | 21/3/17 | 11/4/17 | 11/4/17 | 11/4/17 | 11/4/17 |
| Upload date   | 10/4/17 | 10/4/17 | 10/4/17 | 10/4/17 | 10/5/17 | 10/5/17 | 10/5/17 | 10/5/17 |
| PM10 (µg/m3)  | 52.19   | 38.37   | 26.36   | 61.15   | 2.74    | 5.44    | 18.92   | 2.02    |

|               |         |         |         |         |         |         |         |         |
|---------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Sampling date | 10/4/17 | 16/4/17 | 22/4/17 | 28/4/17 | 4/5/17  | 10/5/17 | 16/5/17 | 22/5/17 |
| Report date   | 16/5/17 | 16/5/17 | 16/5/17 | 16/5/17 | 16/5/17 | 13/6/17 | 13/6/17 | 13/6/17 |
| Upload date   | 10/7/17 | 10/7/17 | 10/7/17 | 10/7/17 | 10/7/17 | 10/7/17 | 10/7/17 | 10/7/17 |
| PM10 (µg/m3)  | 4.77    | 12.83   | 20.70   | 5.22    | 20.45   | 47.86   | 8.90    | 7.26    |

|               |         |         |         |         |         |         |         |         |
|---------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Sampling date | 28/5/17 | 3/6/17  | 9/6/17  | 15/6/17 | 21/6/17 | 27/6/17 | 3/7/17  | 9/7/17  |
| Report date   | 13/6/17 | 13/6/17 | 12/7/17 | 12/7/17 | 12/7/17 | 12/7/17 | 12/7/17 | 14/8/17 |
| Upload date   | 10/7/17 | 10/7/17 | 10/8/17 | 10/8/17 | 10/8/17 | 10/8/17 | 10/8/17 | 10/9/17 |
| PM10 (µg/m3)  | 5.69    | 17.58   | 3.53    | 14.01   | 6.5     | 27.67   | 17.7    | 3.15    |

|               |         |         |         |         |         |         |         |         |
|---------------|---------|---------|---------|---------|---------|---------|---------|---------|
| Sampling date | 15/7/17 | 21/7/17 | 27/7/17 | 2/8/17  | 8/8/17  | 14/8/17 | 20/8/17 | 26/8/17 |
| Report date   | 14/8/17 | 14/8/17 | 14/8/17 | 14/8/17 | 14/8/17 | note *1 | note *1 | note *1 |
| Upload date   | 10/9/17 | 10/9/17 | 10/9/17 | 10/9/17 | 10/9/17 |         |         |         |
| PM10 (µg/m3)  | 6.73    | 15.97   | 26.88   | 8.04    | 3.87    |         |         |         |

|               |          |                |               |          |               |          |          |          |
|---------------|----------|----------------|---------------|----------|---------------|----------|----------|----------|
| Sampling date | 1/9/2017 | 6/9/2017<br>*2 | 14/9/17<br>*1 | 19/9/17  | 22/9/17<br>*1 | 25/9/17  | 3/10/17  | 7/10/17  |
| Report date   | 12/9/17  | 12/9/17        | 11/10/17      | 11/10/17 | 11/10/17      | 11/10/17 | 11/10/17 | 11/10/17 |
| Upload date   | 10/10/17 | 10/10/17       | 10/11/17      | 10/11/17 | 10/11/17      | 10/11/17 | 10/11/17 | 10/11/17 |
| PM10 (µg/m3)  | 8.66     | 1.67           | 5.83          | 8.92     | 44.27         | 6.12     | 13.15    | 11.18    |

|               |                       |   |          |                       |  |                      |  |                      |
|---------------|-----------------------|---|----------|-----------------------|--|----------------------|--|----------------------|
| Sampling date | 13/10/17              | 16/10/17<br>(replace<br>ment run<br>for the<br>13/10) | 19/10/17 | 25/10/17              | 26/10/17<br>replace<br>ment run<br>for<br>26/10) | 31/10/17             | 3/11/17<br>(replace<br>ment run<br>for<br>31/10) | 6/11/17              |
| Report date   | machine<br>failure *3 | 13/11/17  | 13/11/17 | machine<br>failure *3 | 13/11/17   | machine<br>failure*3 | 13/11/17   | machine<br>failure*3 |
| Upload date   |                       | 10/1/18   | 10/1/18  |                       | 10/1/18  |                      | 10/1/18  |                      |
| PM10 (µg/m3)  |                       | 25.40   | 17.20    |                       | 5.48   |                      | 7.12   |                      |

|               |  |          |                       |                      |                      |          |   |          |
|---------------|--|----------|-----------------------|----------------------|----------------------|----------|---|----------|
| Sampling date | 7/11/17<br>(replace<br>ment run<br>for 6/11) | 12/11/17 | 18/11/17              | 24/11/17             | 30/11/17             | 6/12/17  | 7/12/17<br>replace<br>ment run<br>for<br>30/11) | 12/12/17 |
| Report date   | 14/12/17                                     | 14/12/17 | machine<br>failure *3 | machine<br>failure*3 | machine<br>failure*3 | 14/12/17 | 14/12/17  |          |
| Upload date   | 10/1/18                                      | 10/1/18  |                       |                      |                      | 10/1/18  | 10/1/18   |          |
| PM10 (µg/m3)  | 10.62  | 17.47    |                       |                      |                      | 5.60     | 6.27  | 73.51    |

|               |          |          |          |         |          |          |          |          |
|---------------|----------|----------|----------|---------|----------|----------|----------|----------|
| Sampling date | 18/12/17 | 24/12/17 | 30/12/17 | 5/01/18 | 11/01/18 | 17/01/18 | 23/01/18 | 29/01/18 |
| Report date   |          |          |          |         |          |          |          |          |
| Upload date   | 6/03/18  | 6/03/18  | 6/03/18  | 6/03/18 | 6/03/18  | 6/03/18  | 6/03/18  | 6/03/18  |
| PM10 (µg/m3)  | 70.11    | 33.99    | 37.34    | 61.79   | 38.41    | 51.02    | 114.45   | 43.09    |

|               |         |          |          |          |          |          |          |                       |
|---------------|---------|----------|----------|----------|----------|----------|----------|-----------------------|
| Sampling date | 4/02/18 | 10/02/18 | 19/02/18 | 22/02/18 | 28/02/18 | 6/03/18  | 12/03/18 | 21/03/18 <sup>4</sup> |
| Report date   |         | 15/03/18 | 15/03/18 | 15/03/18 | 15/03/18 | 15/03/18 | 12/04/18 | 12/04/18              |
| Upload date   | 6/04/18 | 6/04/18  | 6/04/18  | 6/04/18  | 6/04/18  | 6/04/18  |          |                       |
| PM10 (µg/m3)  | 24.79   | 40.06    | 16.64    | 37.31    | 12.18    | 24.61    | 112.18   | 11.68                 |

|               |          |          |          |          |          |          |          |          |
|---------------|----------|----------|----------|----------|----------|----------|----------|----------|
| Sampling date | 24/03/18 | 30/03/18 | 5/04/18  | 11/04/18 | 17/04/18 | 23/04/18 | 30/04/18 | 5/05/18  |
| Report date   | 12/04/18 | 12/04/18 | 11/05/18 | 11/05/18 | 11/05/18 | 11/05/18 | 11/05/18 | 11/05/18 |
| Upload date   | 28/05/18 | 28/05/18 | 28/05/18 | 28/05/18 | 28/05/18 | 28/05/18 | 28/05/18 | 28/05/18 |
| PM10 (µg/m3)  | 61.09    | 50.30    | 126.5    | 79.1     | 144.84   | 121.08   | 24.89    | 5.22     |

|               |          |          |          |          |          |          |          |  |
|---------------|----------|----------|----------|----------|----------|----------|----------|--|
| Sampling date | 11/05/18 | 17/05/18 | 22/05/18 | 23/05/18 | 29/05/18 | 04/06/18 | 10/06/18 |  |
| Report date   | 13/06/18 |          | 13/06/18 | 13/06/18 | 13/06/18 | 13/06/18 | 13/06/18 |  |
| Upload date   | 02/07/18 | 02/07/18 | 02/07/18 | 02/07/18 | 02/07/18 | 02/07/18 |          |  |
| PM10 (µg/m3)  | 1.53     |          | 17.18    | 19.87    | 49.09    | 11.70    | 1.58     |  |

|               |          |          |          |          |          |          |  |  |
|---------------|----------|----------|----------|----------|----------|----------|--|--|
| Sampling date | 04/06/18 | 10/06/18 | 16/06/18 | 22/06/18 | 28/06/18 | 04/07/18 |  |  |
| Report date   | 13/06/18 | 13/06/18 | 11/07/18 | 11/07/18 | 11/07/18 | 11/07/18 |  |  |
| Upload date   | 02/07/18 | 02/07/18 | 17/08/18 | 17/08/18 | 17/08/18 | 17/08/18 |  |  |
| PM10 (µg/m3)  | 11.70    | 1.58     | 0.13     | 6.90     | 10.81    | 13.79    |  |  |

|               |          |          |          |          |          |          |  |  |
|---------------|----------|----------|----------|----------|----------|----------|--|--|
| Sampling date | 10/07/18 | 16/07/18 | 22/07/18 | 25/07/18 | 28/07/18 | 3/08/18  |  |  |
| Report date   | 08/08/18 | 08/08/18 | 08/08/18 | 08/08/18 | 08/08/18 | 08/08/18 |  |  |
| Upload date   |          |          |          |          |          |          |  |  |
| PM10 (µg/m3)  | 7.09     | 4.77     |          | 3.36     | 13.38    | 38.99    |  |  |

|               |          |          |          |          |          |          |  |  |
|---------------|----------|----------|----------|----------|----------|----------|--|--|
| Sampling date | 09/08/18 | 15/08/18 | 21/08/18 | 27/08/18 | 04/09/18 | 08/09/18 |  |  |
| Report date   | 19/09/18 | 19/09/18 | 19/09/18 | 19/09/18 | 19/09/18 | 19/09/18 |  |  |
| Upload date   |          |          |          |          |          |          |  |  |
| PM10 (µg/m3)  | 14.93    | 3.25     | 1.99     | 23.14    | 32.76    | 7.00     |  |  |

|               |          |          |          |          |          |  |  |  |
|---------------|----------|----------|----------|----------|----------|--|--|--|
| Sampling date | 15/09/18 | 20/09/18 | 26/09/18 | 02/10/18 | 08/10/18 |  |  |  |
| Report date   | 17/10/18 | 17/10/18 | 17/10/18 | 17/10/18 | 17/10/18 |  |  |  |
| Upload date   |          |          |          |          |          |  |  |  |
| PM10 (µg/m3)  | 18.30    | 27.02    | 9.35     | 50.98    | 13.00    |  |  |  |

**Compliance Summary:** The plant does not have a Licence limit for air-suspended particulate. It is however compliant with the adopted National guideline value, except on 4 occasions, in December 2015 and 3 in December 2017 and January 2018. The source of the higher results is not related to the Marulan South Limestone quarry operations and on further investigations appears to be associated with specific local truck movements.

Results for 201 are in compliance with the exception of 2 samples taken in March 2016 as well as a sample taken on the 21 May 2016 which exceeds the daily National Guideline value. A sample taken on the 5<sup>th</sup> December 2016 has also just exceeded the criteria. The weather conditions show that Marulan south is not likely to be the source.

Results for 2017 are in compliance with the exception of samples taken on the 16<sup>th</sup> January, 15<sup>th</sup> February, 21<sup>st</sup> February and 11<sup>th</sup> March 2017. The weather conditions show that Marulan South is not likely to be the source. Further investigation is continuing.

Results for 2018 that exceed the guideline are currently under investigation.

Note \*1 PM10 High Volume sampler failed to run on the 14, 20 and 26<sup>th</sup> August 2017. Technical assistance was sought and the mother board on the sampler changed. Additional samples have been taken during September.

Note \*2 sampling should have been conducted on the 7<sup>th</sup> September 2017; however an area wide power outage was planned. Monitoring was therefore undertaken on the 6<sup>th</sup> September 2017.

Note \*3 problems have continued with the running of the High Volume sampler. The battery pack has been replaced to determine whether this is the cause. Replacement samples have been undertaken where possible.

Note \*4. Replaces sample from 18.03.18 as no sample collected due to power outage and bushfire.

April 2018 elevated results are in caused by fire reduction exercises at Wingello and Tarago.

May 2018 Comments as in the Clients COC: Field Sample No 2- HVAS failed to run on the 17/05/18. Make up run on the 22/05/18

June / July Field sample No 3: Machine didn't run correctly on the due date (22/07/2018) full re-run on the 25/07/2018. Samples are compliant.

August results are compliant. September results are compliant. The site has experienced high winds/ & dryer conditions during the start of October resulting in a slightly higher result just above the recommended 24hr mean for PM<sub>10</sub> of 50 µg/m<sup>3</sup>.

### 3. Water monitoring: North Pit Bore

Current Licence requirements cover quarterly monitoring of groundwater quality in the North Pit Bore (EPA Identification No. 13).

**Licence limits:** Not specified.

The NSW State guidelines: Typical discharge limits are as follows:

Oil and Grease: 10 milligrams per litre

Total Suspended Solids: 30-50 milligrams per litre.

| Sampling date | Report received on | Report published on | Oil and Grease (mg/L) | Total Suspended Solids (mg/L) |
|---------------|--------------------|---------------------|-----------------------|-------------------------------|
| 24/03/15      | 01/04/15           | N/A                 | 6                     | 42                            |
| 23/06/15      | 08/07/15           | 08/07/15            | <5                    | <5                            |
| 02/09/15      | 28/09/15           | 06/10/15            | <5                    | <5                            |
| 01/12/15      | 22/12/15           | 11/01/16            | <5                    | 14                            |
| 31/03/16      | 14/04/16           | 10/05/16            | <5                    | <5                            |
| 30/06/16      | 12/07/16           | 10/08/16            | <5                    | <5                            |
| 09/09/16      | 28/09/16           | 28/09/16            | <5                    | <5                            |
| 13/12/16      | 16/01/17           | 10/02/17            | <5                    | 15                            |
| 31/03/17      | 21/04/17           | 10/05/17            | <1                    | 156                           |
| 26/06/17      | 13/07/17           | 10/08/17            | <1                    | 99                            |
| 07/17         | 18/10/17           | 20/11/17            | <1                    | 17                            |
| 15/01/18      | 05/02/18           | 06/03/18            | <5                    | 30                            |
| 20/03/18      | 11/04/18           | 11/04/18            | <5                    | 22                            |





|          |          |  |    |    |
|----------|----------|--|----|----|
| 05/06/18 | 26/06/18 |  | <1 | 30 |
| 05/09/18 | 18/09/18 |  | <1 | 9  |
|          |          |  |    |    |

**Compliance Summary:** The plant does not have Licence limits for water parameters. It is however compliant with the adopted NSW guideline values.

**REPORT ENDS**