



Boral Marulan Works POELA Act 2011 Monitoring Data March 2020 calendar year

Boral Cement Marulan, NSW

Environmental Protection Licence No. 944

Explanation of units of measure:

mg/m³ = milligrams per cubic metre

g/m²/month = grams per square metre per month

µg/m³ = 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 09/04/2020

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

1. Annual Stack Monitoring

Test date 25th September 2018 for EPA 11- Kiln Stack and 23rd of October 2018 for EPA 12 – Lime Hydration Scrubber Stack.

| Assessable Parameter (mg/m ³) | Licence Limit | 2015-16 | 2016 -17 | 2017-18 | 2018-19 |
|--|---------------|---------|----------|---------|---------|
| Emission Source: Kiln Stack (EPA identification Number: 11) | | | | | |
| Solid Particulates | 100 | 45 | 0.017 | 30 | 50 |
| Nitrogen Oxides | 2,000 | 270 | 0.25 | 330 | 260 |
| Emission Source: Hydrator Stack (EPA identification Number: 12) | | | | | |
| Solid Particles Particulates | 100 | 7.4 | 0.0028 | 3.5 | <2.00 |

Compliance summary: Marulan plant is compliant with the Licence stack emission limits. The testing was done during Annual Stack Monitoring in October 2018.

2. Ambient air monitoring

2.1 Dust Deposition Gauges: Total Insoluble Matter (g/m²-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/m²/month (presented as 12-month rolling average) was adopted as an internal indicator of site performance.

Date published: N/A

| Report received on | Month | Report Published | Dust Deposition Gauges (g/m ² /month 12-month rolling average) | |
|--------------------|----------|------------------|--|--|
| | | | EPA ID No. 1 (Nearest Residence) | EPA ID No. 16 (Stores Paddock Hill) |
| N/A | Jan 2015 | N/A | 1.72 | 3.72 |
| N/A | Feb 2015 | N/A | 1.61 | 3.38 |
| N/A | Mar 2015 | N/A | 1.81 | 3.33 |
| N/A | Apr 2015 | N/A | 1.83 | 3.40 |
| N/A | May 2015 | N/A | 1.96 | 3.44 |
| 17/07/15 | Jun 2015 | 10/08/15 | 2.16 | 3.59 |
| 21/08/15 | Jul 2015 | 07/09/15 | 2.20 | 3.56 |
| 22/09/15 | Aug 2015 | 06/10/15 | 2.15 | 3.34 |
| 23/10/15 | Sep 2015 | 09/11/15 | 2.11 | 3.32 |
| 20/11/15 | Oct 2015 | 10/12/15 | 2.30 | 3.33 |
| 21/12/15 | Nov 2015 | 11/01/16 | 2.15 | 3.38 |
| 21/01/16 | Dec 2015 | 08/02/16 | 2.53 | 3.95 |
| 19/02/16 | Jan 2016 | 02/03/16 | 2.53 | 3.7 |
| 18/03/16 | Feb 2016 | 29/03/16 | 2.50 | 2.88 |
| 22/04/16 | Mar 2016 | 22/04/16 | 2.51 | 3.82 |
| 20/05/16 | Apr 2016 | 20/05/16 | 2.43 | 3.7 |
| 24/06/16 | May 2016 | 24/06/16 | 2.25 | 3.9 |
| 27/07/16 | Jun 2016 | 27/07/16 | 2.07 | 3.8 |
| 23/08/16 | Jul 2016 | 23/08/16 | 2.12 | 3.8 |
| 02/09/16 | Aug 2016 | 02/09/16 | 2.23 | 4.14 |
| 28/10/16 | Sep 2016 | 28/10/16 | 2.33 | 4.3 |
| 23/11/16 | Oct 2016 | 23/11/16 | 2.21 | 4.2 |
| 21/12/16 | Nov 2016 | 21/12/16 | 2.4 | 4.5 |
| 25/01/17 | Dec 2016 | 25/01/17 | 2.5 | 7.50 |
| 21/02/17 | Jan 2017 | 21/02/17 | 2.77 | 7.52 |



| Report received on | Month | Report Published | Dust Deposition Gauges (g/m2/month 12-month rolling average) | |
|--------------------|-----------|------------------|---|--|
| | | | EPA ID No. 1 (Nearest Residence) | EPA ID No. 16 (Stores Paddock Hill) |
| 24/03/17 | Feb 2017 | 24/03/17 | 2.88 | 7.70 |
| 20/04/17 | Mar 2017 | 20/04/17 | 2.86 | 7.64 |
| 17/05/17 | Apr 2017 | 17/05/17 | 2.94 | 7.85 |
| 20/06/17 | May 2017 | 20/06/17 | 3.10 | 7.63 |
| 19/07/17 | Jun 2017 | 19/07/17 | 3.26 | 8.15 |
| 22/08/17 | Jul 2017 | 22/08/17 | 3.24 | 8.68 |
| 20/09/17 | Aug 2017 | 19/09/17 | 3.21 | 8.64 |
| 20/10/17 | Sep 2017 | 20/10/17 | 3.24 | 8.63 |
| 20/11/17 | Oct 2017 | 20/11/17 | 3.42 | 8.63 |
| 21/12/17 | Nov 2017 | 21/12/17 | 3.32 | 8.29 |
| 16/01/18 | Dec 2017 | 16/01/18 | 3.12 | 5.50 |
| 22/02/18 | Jan 2018 | 06/03/18 | 3.05 | 5.36 |
| 22/03/18 | Feb 2018 | 06/04/18 | 3.69 | 6.97 |
| 19/04/18 | Mar 2018 | 23/04/18 | 3.27 | 7.08 |
| 16/04/18 | Apr 2018 | 02/05/18 | 3.39 | 7.07 |
| 25/06/18 | May 2018 | 22/06/18 | 3.40 | 7.22 |
| 23/07/18 | Jun 2018 | 17/08/18 | 3.33 | 6.84 |
| 22/08/18 | Jul 2018 | | 5.13 | 6.86 |
| 25/09/18 | Aug 2018 | | 5.24 | 7.22 |
| 23/10/18 | Sep 2018 | | 5.23 | 9.88 |
| 13/11/18 | Oct 2018 | | 5.23 | 9.72 |
| 16/12/18 | Nov 2018 | | 5.51 | 12.26 |
| 25/01/19 | Dec 2018 | | 5.15 | 13.20 |
| 20/02/19 | Jan 2019 | | 5.45 | 13.81 |
| 18/03/19 | Feb 2019 | | 5.16 | 12.86 |
| 02/05/19 | Mar 2019 | | 4.94 | 13.37 |
| 29/05/19 | Apr 2019 | | 4.41 | 13.43 |
| 29/06/19 | May 2019 | | 4.38 | 14.40 |
| 26/7/19 | Jun 2019 | | 4.52 | 14.71 |
| | July 2019 | | 4.57 | 14.49 |
| 20/9/19 | Aug 2019 | 27.09.19 | 4.61 | 14.56 |
| 24/10/19 | Sep 2019 | 29/09/19 | 5.07 | 12.15 |
| 28/11/19 | Oct 2019 | 28/11/19 | 4.83 | 13.02 |
| 23/12/19 | Nov 2019 | 20/12/19 | 4.38 | 11.59 |
| 29/1/20 | Dec 2019 | 5/2/20 | 4.61 | 11.66 |
| 28/2/20 | Jan 2020 | 4/3/20 | 4.27 | 13.25 |
| 31/3/20 | Feb 2020 | 31/3/20 | 5.85 | 13.29 |
| | | | | |
| | | | | |

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 CaCO3.



Result for April 2018 was 5.15 at Store paddock dust gauge and chemistry indicates a high level of organic matter

High readings for store paddock are high due to high winds and drought conditions. Dust results may be elevated in the store paddock gauge due to the stockpile works being conducted and are expected to reduce when the rehabilitation of the area is completed, Also Peppertree Mine has built a waste dump very close to the dust gauge which is influencing the results. Further chemical testing indicated 19% of the material in the device was CaCO₃.

Dust Gauge EPA ID NO.1 at the nearest residence is slightly over for January & February 2019 due to high dust deposits throughout the state of NSW showing only 4.98% for January Calcium Carbonate as CaCO₃. Result for March and April 2019 "store paddock" is high likely due to the close by waste emplacement from Peppertree. May 2019 for Store Paddock chemistry analysis showed 10.98% CaCO₃ (limestone)

Nearest Residence monitoring station damaged in extreme weather on the 15/2/2020. No sample was taken for that month. Reading given in any month is an average of the prior 12 months where data available.

2.2 High Volume Air Sampling: PM₁₀ 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 tract) 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 PM₁₀ of 50 µg/m³, as per *National Environment Protection (Air Quality) Measure 2003*.

Date published: Not applicable

| | | | | | | | | |
|---------------|---------------------|---------------------|---------------------|---------------------|----------|---------|----------|-----------|
| 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 *2 | 14/9/17 *1 | 19/9/17 | 22/9/17 *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 (replace ment run for the 13/10) | 19/10/17 | 25/10/17 | 26/10/17 replace ment run for 25/10) | 31/10/17 | 3/11/17 (replace ment run for 31/10) | 6/11/17 |
| Report date | failure *3 | 13/11/17 | 13/11/17 | failure *3 | 13/11/17 | failure*3 | 13/11/17 | 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 (replace ment run for 6/11) | 12/11/17 | 18/11/17 | 24/11/17 | 30/11/17 | 6/12/17 | 7/12/17 replace ment run for 30/11) | 12/12/17 |
| Report date | 14/12/17 | 14/12/17 | failure *3 | failure*3 | 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 ^{*4} |
| 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 | 04/06/18 |
| Report date | 13/06/18 | | 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 | | 02/07/18 |
| PM10 (µg/m3) | 1.53 | | 17.18 | 19.87 | 49.09 | 11.70 | 1.58 | 11.70 |

| | | | | | | | | |
|---------------|----------|----------|----------|----------|----------|----------|----------|----------|
| Sampling date | 10/06/18 | 16/06/18 | 22/06/18 | 28/06/18 | 04/07/18 | 10/07/18 | 16/07/18 | 22/07/18 |
| Report date | 13/06/18 | 11/07/18 | 11/07/18 | 11/07/18 | 11/07/18 | 08/08/18 | 08/08/18 | 08/08/18 |
| Upload date | 02/07/18 | 17/08/18 | 17/08/18 | 17/08/18 | 17/08/18 | | | |
| PM10 (µg/m3) | 1.58 | 0.13 | 6.90 | 10.81 | 13.79 | 7.09 | 4.77 | |

| | | | | | | | | |
|---------------|----------|----------|----------|----------|----------|----------|----------|----------|
| Sampling date | 25/07/18 | 28/07/18 | 3/08/18 | 09/08/18 | 15/08/18 | 21/08/18 | 27/08/18 | 04/09/18 |
| Report date | 08/08/18 | 08/08/18 | 08/08/18 | 19/09/18 | 19/09/18 | 19/09/18 | 19/09/18 | 19/09/18 |
| PM10 (µg/m3) | 3.36 | 13.38 | 38.99 | 14.93 | 3.25 | 1.99 | 23.14 | 32.76 |

| | | | | | | | | |
|---------------|----------|----------|----------|----------|----------|----------|----------|----------|
| Sampling date | 08/09/18 | 15/09/18 | 20/09/18 | 26/09/18 | 02/10/18 | 08/10/18 | 14/10/18 | 20/10/18 |
| Report date | 19/09/18 | 17/10/18 | 17/10/18 | 17/10/18 | 17/10/18 | 17/10/18 | 9/11/18 | 9/11/18 |
| PM10 (µg/m3) | 7.00 | 18.30 | 27.02 | 9.35 | 50.98 | 13.00 | 5.39 | 17.74 |

| | | | | | | | | |
|---------------|----------|---------|----------|----------|----------|----------|----------|----------|
| Sampling date | 26/10/18 | 1/11/18 | 7/11/18 | 13/11/18 | 19/11/18 | 25/11/18 | 1/12/18 | 7/12/18 |
| Report date | 9/11/18 | 9/11/18 | 14/12/18 | 14/12/18 | 14/12/18 | 14/12/18 | 14/12/18 | 14/12/18 |
| PM10 (µg/m3) | 19.43 | 35.33 | 38.23 | 86.01 | 35.31 | 10.23 | 14.75 | 37.08 |

| | | | | | | | | |
|---------------|----------|----------|----------|----------|----------|----------|----------|----------|
| Sampling date | 13/12/18 | 19/12/18 | 25/12/18 | 31/12/18 | 12/01/19 | 15/01/19 | 30/01/19 | 5/02/19 |
| Report date | 14/01/18 | 14/01/18 | 14/01/18 | 14/01/18 | 12/02/19 | 12/02/19 | 12/02/19 | 12/02/19 |
| PM10 (µg/m3) | 15.32 | 22.41 | 19.62 | 46.78 | 18.21 | 40.30 | 39.31 | 27.77 |

| | | | | | | | | |
|---------------|----------|----------|----------|----------|----------|----------|----------|----------|
| Sampling date | 11/02/19 | 13/02/19 | 17/02/19 | 23/02/19 | 1/03/19 | 7/03/19 | 13/03/19 | 19/03/19 |
| Report date | 11/03/19 | 11/03/19 | 11/03/19 | 11/03/19 | 11/03/19 | 30/04/19 | 30/04/19 | 30/04/19 |
| PM10 (µg/m3) | 9.60 | 20.23 | 32.06 | 76.20 | 18.30 | 56.73 | 53.22 | 6.86 |

| | | | | | | | | |
|---------------|----------|----------|----------|----------|----------|----------|----------|----------|
| Sampling date | 25/03/19 | 31/03/19 | 06/04/19 | 12/04/19 | 18/04/19 | 24/04/19 | 30/04/19 | 06/05/19 |
| Report date | 30/04/19 | 30/04/19 | 30/04/19 | 20/05/19 | 20/05/19 | 20/05/19 | 20/05/19 | 20/05/19 |
| PM10 (µg/m3) | 4.58 | 0.34 | 12.81 | 33.58 | 21.05 | 24.74 | 49.05 | 6.74 |

| | | | | | | | | |
|---------------|----------|----------|----------|----------|----------|----------|----------|----------|
| Sampling date | 12/04/19 | 18/04/19 | 24/04/19 | 30/04/19 | 05/06/19 | 11/06/19 | 17/06/19 | 23/06/19 |
| Report date | 19/06/19 | 19/06/19 | 19/06/19 | 19/06/19 | 19/06/19 | 19/06/19 | 19/07/19 | 19/07/19 |
| PM10 (µg/m3) | 1.18 | 19.92 | 11.27 | 1.42 | 3.36 | 16.75 | 70.1 | 8.87 |

| | | | | | | | | |
|---------------|----------|----------|----------|----------|----------|----------|----------|----------|
| Sampling date | 29/06/19 | 05/07/19 | 11/07/19 | 17/07/19 | 23/07/19 | 29/07/19 | 04/08/19 | 10/08/19 |
|---------------|----------|----------|----------|----------|----------|----------|----------|----------|

| | | | | | | | | |
|---------------|----------|----------|----------|------------|----------|----------|------------|----------|
| Report date | 19/07/19 | 19/07/19 | 29/09/19 | 29/09/19 | 29/09/19 | 29/09/19 | 29/09/19 | 29/09/19 |
| PM10 (µg/m3) | 14.68 | 10.20 | 21.49 | 21.42 | 21.45 | 21.26 | 20.69 | 20.50 |
| Sampling date | 16/08/19 | 22/08/19 | 28/08/19 | 03/09/19 | 09/09/19 | 15/09/09 | 21/09/19 | 27/09/19 |
| Report date | 29/09/19 | 30/10/19 | 30/10/19 | 30/10/19 | 30/10/19 | 30/10/19 | 30/10/19 | 30/10/19 |
| PM10 (µg/m3) | 22.03 | 22.04 | 21.72 | 21.51 | 21.43 | 21.36 | 21.80 | 21.84 |
| Sampling date | 03/10/19 | 09/10/19 | 15/10/19 | 21/10/19 | 27/10/19 | 2/11/19 | 8/11/19 | 14/11/19 |
| Report date | 30/10/19 | 30/10/19 | 14/1/20 | 14/1/20 | 14/1/20 | 14/1/20 | 14/1/20 | 14/1/20 |
| PM10 (µg/m3) | 21.52 | 21.35 | 21.93 | 21.85 | 21.81 | 21.39 | 20.94 | 19.69 |
| Sampling date | 20/11/19 | 26/11/19 | 02/12/19 | 08/12/19 | 14/12/19 | 20/12/19 | 26/12/19 | 1/1/20 |
| Report date | 14/1/20 | 14/1/20 | 14/1/20 | 14/1/20 | 14/1/20 | 14/1/20 | 14/1/20 | 14/1/20 |
| PM10 (µg/m3) | 19.61 | 20.80 | 20.75 | 20.56 | 21.35 | 23.04 | 24.64 | 29.38 |
| Sampling date | 7/1/20 | 13/1/20 | 19/1/20 | 25/1/20 | 31/1/20 | 6/2/20 | 12/2/20 | 18/2/20 |
| Report date | 12/2/20 | 12/2/20 | 12/2/20 | 12/2/20 | 12/2/20 | 24/3/20 | 24/3/20 | 24/3/20 |
| PM10 (µg/m3) | 31.22 | 32.53 | 32.42 | 32.39 | 32.46 | 6.14 | Failure #4 | 21.29 |
| Sampling date | 24/2/20 | 1/3/20 | 7/3/20 | 13/3/20 | | | | |
| Report date | 24/3/20 | 24/3/20 | 24/3/20 | 24/3/20 | | | | |
| PM10 (µg/m3) | 19.74 | 10.61 | 4.38 | Failure #5 | | | | |

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 2016 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 5th 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 16th January, 15th February, 21st February and 11th March 2017. The weather conditions show that Marulan South is not likely to be the source. Further investigation is continuing.

Note *1 PM10 High Volume sampler failed to run on the 14, 20 and 26th 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 7th September 2017; however an area wide power outage was planned. Monitoring was therefore undertaken on the 6th 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.

October & November 2018 site has experienced high winds/ & dryer conditions.

February 17/02/19 till 23/02/19 a large dust storm coming from a south westerly direction during the sampling period.

March 2019 first half of the month was affected by dust storms and drier conditions.

Note October 2019 – significant dust storm from western NSW experienced during period of 24th Oct until 26th Oct 2019

February 12 Failure (#4) of machine to run for full period caused loss of representative sample

March 2020

March 2020 Failure(#5) machine did not run for the full period only running for 25 mins in the 24 hour period therefore the sample is nor representative and will be redone.

Intentionally Left Blank

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 |
| 25/07/17 | 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 |
| 03/12/18 | 17/12/18 | | <1 | 5 |
| 12/03/19 | 29/03/19 | | <1 | 4 |
| 23/10/19 | 12/11/19 | 04/11/19 | <5 | 54 |
| 17/12/19 | 7/2/20 | 14/1/20 | <5 | 28 |
| 24/3/20 | 7/4/20 | 7/4/20 | <5 | 5 |
| | | | | |

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

REPORT ENDS