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# Boral Cement Berrima - POELA Act 2011 Monitoring Data

New Berrima, NSW - Environmental Protection Licence No. 1698

Record updated on: 08 March 2019

## 1. Stack emission monitoring (Standard Fuels)

### 1.1 Continuous Monitoring

#### Solid Particles Concentration (milligrams per cubic metre)

Licence limit: 50 milligrams per cubic metre; based on 24 hours averaging period

Date published	08/02/18	08/03/18	08/04/18	08/05/18	08/06/18	08/07/18
Date	Jan-18	Feb-18	Mar-18	Apr-18	May-18	June-18
1	28.6	0.0	0.0	15.9	26.0	10.2
2	30.2	0.0	0.0	15.9	17.2	11.3
3	35.2	0.0	16.5	13.6	13.1	13.2
4	40.8	0.3	27.2	17.9	12.5	16.6
5	40.4	1.9	26.2	18.4	12.0	15.1
6	39.4	21.2	18.0	20.4	11.4	13.7
7	41.5	18.8	12.7	27.1	11.6	11.1
8	38.5	17.8	9.2	37.0	13.3	12.7
9	36.5	18.3	10.0	29.7	20.8	13.9
10	43.2	20.9	11.2	11.4	15.2	13.1
11	32.9	19.1	12.9	11.0	16.5	13.3
12	0.0	15.2	15.4	10.7	14.7	15.3
13	0.0	16.3	16.7	10.5	13.4	15.0
14	0.0	18.3	16.4	10.2	13.0	15.9
15	0.0	18.3	15.7	12.7	12.2	14.9
16	0.0	14.9	12.9	14.8	13.3	14.5
17	0.0	15.5	16.0	14.4	18.0	15.2
18	0.0	15.0	17.6	11.8	18.9	14.9
19	0.0	14.7	16.8	16.4	18.4	15.0
20	0.0	15.9	14.7	16.3	16.3	21.3
21	0.0	16.7	15.2	17.1	16.6	27.7
22	0.0	17.2	15.7	17.8	16.6	22.7
23	0.0	17.2	15.4	21.1	16.3	35.2
24	0.0	16.2	14.8	20.0	15.3	29.8
25	0.0	0.0	15.0	18.9	13.7	20.2
26	0.0	0.0	15.0	20.4	13.1	39.2
27	0.0	0.0	17.3	20.8	14.1	29.8
28	0.0	0.0	27.7	22.1	13.7	20.5
29	0.0	x	15.4	23.7	13.5	18.4
30	0.0	x	15.7	24.8	12.9	21.1
31	0	x	16	x	10.9	x



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Date published	08/08/18	08/09/18	08/10/18	08/11/18	08/12/18	08/01/19	08/02/19	08/03/19
Date	July-18	Aug-18	Sep-18	Oct-18	Nov-18	Dec-18	Jan-19	Feb-19
1	19.4	21.9	18.3	20.7	13.1	0.0	23.6	0.0
2	17.2	24.5	21.3	16.3	11.4	0.0	9.6	0.0
3	17.3	17.3	18.9	14.2	11.2	8.9	9.2	0.0
4	0.0	19.3	21.2	13.8	12.8	8.0	10.5	0.0
5	0.0	21.8	18.6	13.0	10.8	6.4	10.6	13.0
6	0.0	23.2	11.5	9.7	13.3	8.9	7.7	5.0
7	16.5	23.6	0.0	10.3	12.5	11.2	12.2	8.1
8	17.5	17.3	0.0	10.4	14.7	9.4	11.5	7.3
9	15.6	23.0	0.0	10.7	13.2	12.2	8.9	16.1
10	16.1	21.8	18.9	15.3	9.1	25.7	7.2	10.6
11	15.8	23.2	19.5	15.8	8.3	45.7	7.5	13.2
12	17.5	26.5	19.5	19.3	11.2	39.7	0.0	15.6
13	17.5	26.6	19.5	15.3	0.0	22.5	0.0	10.8
14	12.9	23.3	19.5	14.6	12.3	27.1	0.0	11.7
15	10.6	27.4	0.0	12.1	13.2	21.4	0.0	8.5
16	11.1	29.4	0.0	11.4	12.5	24.1	0.0	8.7
17	15.4	25.5	9.3	10.1	14.6	0.0	0.0	11.8
18	17.4	19.0	16.7	20.5	18.1	0.0	0.0	11.2
19	15.3	18.7	18.4	18.9	31.5	0.0	0.0	10.5
20	15.2	17.5	22.9	0.0	18.7	23.3	0.0	8.7
21	16.1	20.4	26.9	0.0	10.7	18.7	0.0	9.9
22	15.7	23.0	14.1	12.1	9.6	25.3	0.0	12.4
23	19.0	22.0	11.8	14.3	12.4	29.3	0.0	15.5
24	14.0	20.2	11.4	8.8	10.1	42.6	0.0	12.0
25	14.0	20.9	13.6	21.9	9.2	40.3	0.0	11.3
26	15.9	19.9	17.0	13.1	8.3	45.0	0.0	13.6
27	18.0	20.3	15.4	9.1	10.3	31.2	0.0	13.6
28	18.3	24.4	21.5	9.2	5.9	0.0	0.0	13.1
29	21.3	15.1	17.7	10.7	5.7	21.1	0.0	x
30	20.7	14.0	19.8	9.9	8.0	21.1	0.0	x
31	20	12	x	11	x	21	0.0	x

**Compliance Summary:** The cement plant is compliant with the Licence limits

**Note:** “0” emissions means that the kiln is not operating.



## 1.2 Annual Stack Monitoring

2018-19: Date of stack testing: 18/07 to 23/07/2018; Report received: 29/08/2018;  
Date published: 08/09/2018

Assessable Parameter (milligrams per cubic metre)	Licence Limit	2018-19
<b>Emission Source: Cement Mill No 6 Stack (EPA Identification No. 4)</b>		
Solid Particles 'Duct A'	100	1.9
Solid Particles 'Duct B'	100	7.1
<b>Emission Source: Kiln No 6 Cooler Stack (EPA Identification No. 5)</b>		
Solid Particles	100	<2
<b>Emission Source: Cement Mill No 7 Stack (EPA Identification No. 10)</b>		
Solid Particles	20	16

### Emission Source: Kiln No 6 Stack (EPA Identification No. 2)

Test No			1	2	3	4	5	6	7	8	9	10	11
Date tested			24-27/08/18	30-31/08/18	20-21/9/18	27-28/9/18	12-15/10/18	26/10-5/11/18	7-14-22/11/18	4-5/12/18	7-10/12/18	12/12/18 - 7/1/19	08/1/19-10/1/19
Report no			R006422	R006460	R06490A	R006547	R006620	R006674	R006721	R006822	R006909	R006928	R006936
Date final report received			12/11/2018	12/11/2018	12/11/2018	21/12/2018	21/12/2018	21/12/2018	21/01/2019	7/02/2019	7/02/2019	27/02/2019	
AF			WW	RDF	RDF	WW	RDF	MIX	WW	MIX	RDF	MIX	WW
Parameter	Unit	Limits											
Mercury	mg/m3	0.05	0.0041	0.0085	0.0064	0.0096	0.012	0.0027	0.0065	0.014	0.015	0.011	0.03
Type 1 and type 2 substances	mg/m3	0.5	0.024	0.027	0.39	0.032	0.03	≤0.022	≤0.024	≤0.037	≤0.048	≤0.034	≤0.07
Solid particles	mg/m3	50	38	21	670	13	16	15	16	7.1	67	35	10
Nitrogen oxides	mg/m3	1250	940	900	830	930	620	940	790	850	840	830	1100
Cadmium and Thallium	mg/m3	0.05	0.0018	0.0012	0.21	0.0017	0.0016	≤0.0018	≤0.0013	≤0.0014	≤0.016	≤0.0015	≤0.0087
Chlorine	mg/m3	50	0.014	0.09	0.009	0.017	0.01	0.012	<0.008	<0.009	0.053	0.043	0.017
Dioxind and Furans (I-TEQ middle bound)	ng/m3	0.1	0.00044	0.0003	0.032	0.015	0.006	0.0076	0.0016	0.00093	0.00064	0.0034	0.00082
Hydrogen chloride	mg/m3	10	0.035	0.056	1.1	6.6	1.1	0.12	0.043	0.054	<0.02	0.049	0.54
Hydrogen fluoride	mg/m3	1	0.027	0.02	0.03	0.02	0.056	≤0.22	<0.02	≤0.11	<0.02	<0.02	<0.03
Sulfur dioxide	mg/m3	50	0.02	0.033	0.08	0.01	0.01	0.11	0.29	≤0.056	<0.01	≤0.062	≤0.085
Sulfuric acid mist and sulfur trioxide	mg/m3	50	0.035	0.04	0.07	1.7	0.64	0.49	≤0.061	≤0.038	0.85	<0.02	<0.02
Volatiles organic compounds	mg/m3	40	3.3	3.8	7	3.7	1.7	2.1	2.3	1.7	2.3	1.5	1.7

**Compliance summary:** The cement plant is compliant with the Licence limits.

## 2. Ambient air/dust monitoring

### 2.1 Dust Deposition Gauges: Total Insoluble Matter (grams per square metre per 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.



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**Licence limit:** Not specified.

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

**Note:** Dust Gauges 4 and 6 were removed, and Dust Gauges 5 and 7 relocated closer to the boundary in December 2012.

	<b>Dust Deposition Gauges</b> (grams per square metre per month as 12-month rolling average)						
	<b>1</b>	<b>2</b>	<b>3</b>	<b>5</b>	<b>7</b>	<b>8</b>	<b>9</b>
<b>January 2017</b> Report received: 18/01/17 Date published: 08/02/17	0.7	0.3	2.4	1.0	0.7	1.1	1.3
<b>February 2017</b> Report received: 20/02/17 Date published: 08/03/17	0.6	0.4	2.3	1.0	0.8	1.0	1.2
<b>March 2017</b> Report received: 20/03/17 Date published: 08/04/17	0.7	0.5	2.5	1.1	0.8	0.8	1.4
<b>April 2017</b> Report received: 20/04/17 Date published: 08/05/17	0.6	0.5	2.5	1.0	0.7	0.8	1.3
<b>May 2017</b> Report received: 01/06/17 Date published: 08/06/17	0.5	0.5	2.5	1.0	0.6	0.8	1.3
<b>June 2017</b> Report received: 19/06/17 Date published: 08/07/17	0.6	0.5	2.3	0.9	0.6	1.2	1.4
<b>July 2017</b> Report received: 14/07/17 Date published: 08/08/17	0.6	0.6	2.3	0.9	0.6	1.2	1.4
<b>August 2017</b> Report received: 23/08/17 Date published: 08/09/17	0.6	0.6	2.2	0.9	0.6	1.1	1.4
<b>September 2017</b> Report received: 20/09/17 Date published: 08/10/17	0.6	0.6	2.1	0.9	0.6	1.1	1.4
<b>October 2017</b> Report received: 16/10/17 Date published: 08/11/17	0.6	0.6	2.3	0.9	0.6	1.1	1.3
<b>November 2017</b> Report received: 16/11/17 Date published: 08/12/17	0.6	0.7	2.3	1.1	0.6	1.7	1.6
<b>December 2017</b> Report received: 18/12/17 Date published: 08/01/18	0.7	0.7	2.3	1.2	0.7	1.5	1.5
<b>January 2018</b> Report received: 18/01/18 Date published: 08/02/18	0.7	0.7	2.4	1.3	0.7	1.7	1.5
<b>February 2018</b> Report received: 16/02/18 Date published: 08/03/18	0.7	0.7	2.5	1.3	0.6	1.7	1.6
<b>March 2018</b>	0.7	0.7	2.4	1.3	0.5	1.7	1.3



	Dust Deposition Gauges (grams per square metre per month as 12-month rolling average)						
	1	2	3	5	7	8	9
Report received: 16/03/18 Date published: 08/04/18							
<b>April 2018</b> Report received: 18/04/18 Date published: 08/05/18	0.7	0.7	2.4	1.2	0.5	1.7	1.4
<b>May 2018</b> Report received: 15/05/18 Date published: 08/06/18	0.7	0.8	2.5	1.2	0.5	1.7	1.5
<b>June 2018</b> Report received: 15/06/18 Date published: 08/07/18	0.7	0.7	2.4	1.4	0.4	1.3	1.5
<b>July 2018</b> Report received: 17/07/18 Date published: 08/08/18	0.7	0.6	2.5	1.4	0.4	1.3	1.5
<b>August 2018</b> Report received: 20/08/18 Date published: 08/09/18	0.7	0.6	2.8	1.3	0.4	1.3	1.5
<b>September 2018</b> Report received: 10/09/18 Date published: 08/10/18	0.7	0.6	3.2	1.5	0.4	1.3	1.6
<b>October 2018</b> Report received: 23/10/18 Date published: 08/11/18	0.7	0.7	3.1	1.6	0.6	1.3	1.7
<b>November 2018</b> Report received: 21/11/18 Date published: 08/12/18	0.7	0.6	3.2	1.5	0.4	0.8	1.6
<b>December 2018</b> Report received: 20/12/18 Date published: 08/01/19	0.8	0.6	3.3	1.6	0.4	0.8	1.7
<b>January 2019</b> Report received: 20/01/18 Date published: 08/02/19	0.9	0.9	3.8	1.7	0.6	0.7	1.9
<b>February 2019</b> Report received: 19/02/18 Date published: 08/03/19	1.0	0.9	3.9	1.6	0.7	0.7	1.9

**Compliance Summary:** The cement plant is compliant with the adopted State guideline value.

## 2.2 High Volume Air Sampling: Total Suspended Particulates (TSP) and PM<sub>10</sub>

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.

The following guideline values were adopted:

- TSP: 90 micrograms per cubic metre (annual rolling average) - NSW State guideline



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- PM<sub>10</sub>: 60 micrograms per cubic metre (daily average) with 7 exceedances allowed per annum - Southern Highlands regional guideline

Sampling Date	Report received	Date published	Parameter (micrograms per cubic metre)	
			TSP (annual rolling average)	PM <sub>10</sub> (24-hr average)
1/12/16	20/01/17	08/02/17	52.2	39.2
7/12/16			52.2	12.4
13/12/16			53.0	45.3
19/12/16			52.7	13.1
25/12/16			52.8	10.2
31/12/16			53.3	16.0
06/01/17	10/02/17	08/03/17	53.1	1.6
12/01/17			52.5	10.3
18/01/17			54.4	60.2
24/01/17			56.0	47.7
30/01/17			57.7	46.9
05/02/17	17/03/17	08/04/17	59.6	53.3
11/02/17			61.2	54.3
17/02/17			61.7	25.8
23/02/17			62.0	28.1
1/03/17	26/04/17	08/05/17	61.9	8.2
7/03/17			62.0	8.0
13/03/17			61.9	19.9
19/03/17			62.1	4.3
25/03/17			60.9	8.9
31/03/17			60.3	4.5
06/04/17	18/05/17	08/06/17	60.0	7.9
12/04/17			59.5	2.0
18/04/17			59.5	9.4
24/04/17			59.8	9.8
30/04/17			59.2	5.8
6/5/17	19/6/17	08/07/17	58.7	51.8
12/5/17			57.5	17.6
18/5/17			55.0	4.5
24/5/17			53.7	22.2
30/5/17			53.5	23.8
5/06/17	28/7/17	08/08/17	54.2	11.8
11/06/17			53.0	1.6
17/06/17			52.6	1.5
23/06/17			50.7	55.2
29/06/17			50.6	10.3
05/07/17	15/8/17	08/09/17	52.7	49.8
11/07/17			53.6	21
17/07/17			52.8	6.4
23/07/17			55.2	45.5
29/07/17			53.5	9.2
04/08/17	11/9/17	08/10/17	55.8	36.5
10/08/17			56.9	18.7
16/08/17			59.4	44.6
22/08/17			58.4	20.2
28/08/17			57.3	3.8
03/09/17	16/10/17	08/11/17	58.4	33.2
09/09/17			59.5	9.8



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Sampling Date	Report received	Date published	Parameter (micrograms per cubic metre)	
			TSP (annual rolling average)	PM <sub>10</sub> (24-hr average)
15/09/17			63.2	58.3
21/09/17			63.6	21.4
27/09/17			63.9	19.1
03/10/17			64.4	25
09/10/17			65.4	28
15/10/17	14/11/17	08/12/17	65.2	9
21/10/17			65.1	11
27/10/17			63.9	4.2
02/11/17			63.6	8.9
08/11/17			62.5	6.3
14/11/17	11/12/17	08/01/18	61.0	5
20/11/17			60.5	4.9
26/11/17			55.9	6
02/12/17			59.1	18.2
08/12/17			59.8	19.6
14/12/17			60.3	49.8
20/12/17	17/01/18	08/02/18	63.1	79.2
26/12/17			63.1	9.1
01/01/18			62.9	12.7
07/01/18			65.1	58.8
13/01/18			66.3	23
19/01/18	16/02/18	08/03/18	68.6	70.9
25/01/18			68.6	19.6
31/01/18			66.5	10.4
06/02/18			64.6	5.1
18/02/18	27/03/18	08/04/18	63.1	31.9
24/02/18			62.6	5.1
02/03/18			62.3	12.5
08/03/18			62.4	6.5
14/03/18	24/04/18	08/05/18	62.6	9.1
20/03/18			62.9	18.8
26/03/18			63.4	14.1
01/04/18			64.4	29.8
07/04/18			65.1	23.3
13/04/18	10/05/18	08/06/17	68.0	62.4
19/04/18			68.5	24.6
25/04/18			69.1	31.4
01/05/18			69.0	6.6
07/05/18			70.0	20.4
13/05/18			70.4	4.2
19/05/18	15/06/18	08/07/18	70.2	5.5
25/05/18			70.2	7.3
31/05/18			68.9	16.4
18/06/18			67.6	3.2
24/06/18	24/07/18	08/08/18	67.2	8.4
30/06/18			67.3	4.0
06/07/18			68.9	40.8
12/07/18			69.2	8.1
18/07/18	13/08/18	08/09/18	69.7	34.7
24/07/18			68.6	34.6
30/07/18			67.9	7.3



Sampling Date	Report received	Date published	Parameter (micrograms per cubic metre)	
			TSP (annual rolling average)	PM <sub>10</sub> (24-hr average)
05/08/18	13/09/18	08/10/18	68.0	8
11/08/18			66.9	45.8
17/08/18			66.8	7.9
23/08/18			65.2	15.3
29/08/18			64.0	7.5
04/10/18	24/10/18	08/11/18	60.9	2.2
10/10/18			60.3	6.4
16/10/18			60.4	7.4
22/10/18			60.0	17.2
28/10/18			60.5	40.6
4/10/18	15/11/18	08/12/18	56.6	3.7
10/10/18			55.8	5.0
22/10/18			54.9	11.8
28/10/18			53.7	9.2
3/11/18	20/12/18	08/01/19	53.5	30.1
9/11/18			53.4	11.5
15/11/18			53.4	7.2
27/11/18			53.5	13.6
03/12/18	21/01/19	08/02/19	54.1	26.5
09/12/18			55.0	31.8
15/12/18			56.3	57.3
21/12/18			56.5	7.4
27/12/18			57.7	42.8
02/01/19	13/02/19	08/03/19	57.3	18.9
08/01/19			56.6	9.8
14/01/19			55.0	15.2
20/01/19			52.1	7.4
26/01/19			52.9	32.6

**Compliance Summary:** The plant is compliant with the adopted guideline values. Council started excavation for new bridge over the railway line in December 2017. The construction site is located just few meters away from the HVAS hence impacting the reading from December and January. HVAS was relocated on 18<sup>th</sup> February 2018.

### 3. Water monitoring

Runoff water from the cement works and surrounding agricultural land is captured in various storage dams on site and used as process water. In heavy rain, excess stormwater from the dam called “Lake Quality” is allowed to overflow into the Wingecarribee River. The quality of that water is required by the licence to be monitored once per overflow event. The licence specifies the parameters to be monitored, but does not specify any limits for these parameters.

**Licence limits:** Not specified.

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

Biological Oxygen Demand: 20 milligrams per litre

pH: 6.5-8.5





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Oil and Grease: 10 milligrams per litre

Total Suspended Solids: 30-50 milligrams per litre

Sampling Date	Report received	Date published	Biological Oxygen Demand (milligrams per litre)	pH	Oil and Grease (milligrams per litre)	Total Suspended Solids (milligrams per litre)
04/02/16	11/02/16	08/03/16	<2	8.4	<5	38
06/06/16	14/06/16	08/07/16	<2	9.8	<5	85
07/07/16	17/07/16	08/08/16	<2	8.5	<5	32
26/08/16	02/09/16	08/09/16	<2	8.5	<5	14
05/09/16	13/09/16	08/10/16	2	8.9	<5	33
12/09/16	19/09/16	08/10/16	<2	8.5	<5	11
24/10/16	31/10/16	08/11/16	3	7.3	<5	7
07/02/17	16/02/17	08/03/17	3	8.7	<5	50
17/03/17	24/03/17	08/04/17	<2	8.5	<5	34
27/02/18	06/03/18	08/03/18	<2	8.6	<5	26
15/12/18	31/12/18	08/01/19	<2	8.8	<5	24

**Compliance summary:** Lake Quality's overflow generally meets the typical NSW discharge criteria. Occasionally, an exceedance of pH may occur in the overflow due to alkaline nature of raw materials and products handled on site.

#### **4. Noise monitoring**

The Annual Noise Monitoring Reports by Hatch Consultants are being uploaded to the Berrima webpage in their entirety. In the Summary and Conclusions of each Annual Report, Hatch confirms that Berrima Cement Works "is in compliance with its licence conditions for noise".

**REPORT ENDS**