

Orange City Council
 Orange Waste Project
 Euchareena Road, Molong NSW
 EPL 20104
 Ambient Air Quality Monitoring prior to and during the construction of the Orange Waste Project

The monitoring undertaken on a monthly basis is summarised in Table 1.

Table 1 Air Quality Monitoring

Parameter	Analysed for Each Gauge (4 in total)	NSW Approved Test Method No.	Method
Total Insoluble Matter	✓	AM-17	AS3580.10.1:2003
Ash Content	✓	AM-17	AS3580.10.1:2003

Table 2 NSW OEH Criteria for Allowable Dust Deposition

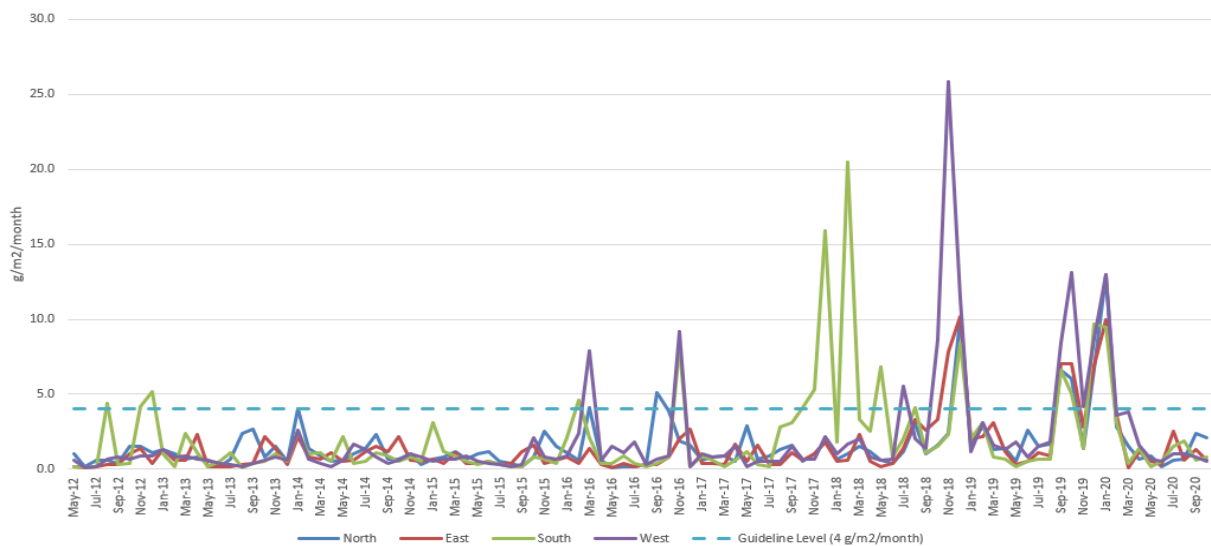
Averaging Period	Maximum Increase in Deposited Dust Level ¹	Maximum Total Deposited Dust Level ¹
Annual	2 g/m ² /month	4 g/m ² /month

NB: Dust is assessed as Total insoluble solids (matter) as defined by AS 3580.10.1:2003

Table 3 Deposited Dust Monitoring

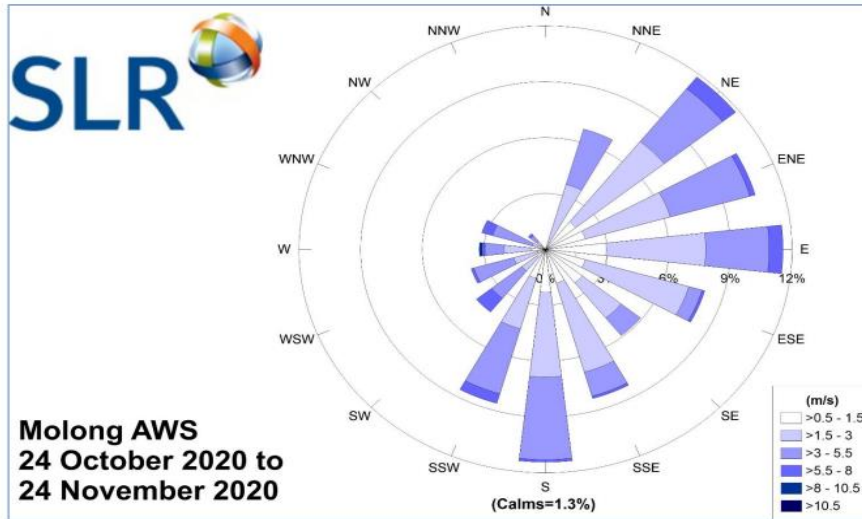
Date Sampled	Date Published	Insoluble Solids (g/m ² /month)			
		Dust Gauge North	Dust Gauge East	Dust Gauge South	Dust Gauge West
4 May 2012 - 4 June 2012	02-Aug-12	1.0	0.2	0.2	0.6
4 June 2012 - 3 July 2012	13-Aug-12	0.2	0.1	0.1	0.1
3 July 2012 - 2 August 2012	11-Sep-12	0.6	0.2	0.2	0.2
2 August 2012 - 3 Sept 2012	13-Nov-12	0.6	0.3	4.4	0.7
3 Sept 2012 - 4 Oct 2012	13-Nov-12	0.4	0.3	0.3	0.8
4 Oct 2012 - 5 Nov 2012	30-Jan-13	1.5	1.0	0.4	0.7
5 Nov 2012 - 6 Dec 2012	30-Jan-13	1.5	1.4	4.2	0.9
6 Dec 2012 - 4 Jan 2013	08-May-13	1.1	0.4	5.2	0.9
4 Jan 2013 - 5 Feb 2013	08-May-13	1.3	1.3	1.0	1.3
5 Feb 2013 - 6 Mar 2013	08-May-13	1.0	0.6	0.2	0.8
6 Mar 2013 - 4 Apr 2013	08-May-13	0.7	0.6	2.4	0.9
4 Apr 2013 - 6 May 2013	01-Jul-13	0.8	2.3	1.1	0.7
6 May 2013 - 5 June 2013	19-Jul-13	0.6	0.2	0.2	0.6
5 June 2013 - 4 July 2013	10-Oct-13	0.2	0.2	0.5	0.4
4 July 2013 - 6 August 2013	10-Oct-13	0.7	0.2	1.1	0.3
6 August 2013 - 6 September 2013	10-Oct-13	2.4	0.3	0.1	0.2
6 September 2013 - 4 October 2013	14-Nov-13	2.7	0.4	0.4	0.4
4 October 2013 - 5 November 2013	05-Dec-13	0.8	2.2	0.5	0.6
5 November 2013 - 5 December 2013	28-Jan-14	1.5	1.4	1.0	0.8
5 December 2013 - 6 January 2014	28-Jan-14	0.5	0.3	0.5	0.6
6 January 2014 - 6 February 2014	25-Mar-14	4.0	2.2	2.5	2.6
6 February 2014 - 6 March 2014	16-Apr-14	1.4	0.8	1.0	0.7
6 March 2014 - 7 April 2014	14-Jul-14	0.9	0.7	1.1	0.4
7 April 2014 - 6 May 2014	14-Jul-14	0.5	1.1	0.5	0.2
6 May 2014 - 6 June 2014	14-Jul-14	0.6	0.5	2.2	0.6
6 June 2014 - 7 July 2014	21-Aug-14	1	0.6	0.4	1.7
7 July 2014 - 6 August 2014	29-Oct-14	1.4	1.2	0.5	1.3
6 August 2014 - 5 September 2014	13-Nov-14	2.3	1.5	1.1	0.8
5 September 2014 - 3 October 2014	13-Nov-14	0.7	1.2	0.9	0.4
3 October 2014 - 4 November 2014	17-Dec-14	0.7	2.2	0.5	0.6
4 November 2014 - 5 December 2014	03-Feb-15	1	0.6	0.8	1
5 December 2014 - 5 January 2015		0.3	0.5	0.5	0.8
5 January 2015 - 6 February 2015		0.7	0.7	3.1	0.5
6 February 2015 - 6 March 2015		0.8	0.4	1.2	0.7
6 March 2015 - 7 April 2015	06-Jul-15	1.2	1.1	0.9	0.7
7 April 2015 - 8 May 2015	23-Jul-15	0.7	0.4	0.5	0.9
8 May 2015 - 9 June 2015		1	0.4	0.3	0.5
9 June 2015 - 8 July 2015		1.2	0.5	0.5	0.4
8 July 2015 - 7 August 2015	08-Sep-15	0.5	0.3	0.3	0.3
7 August 2015 - 7 September 2015	11-Nov-15	0.4	0.4	0.2	0.2
7 September 2015 - 8 October 2015	11-Nov-15	0.2	1.2	0.2	0.3
8 October 2015 - 9 November 2015		0.8	1.6	0.8	2.1
9 November 2016 - 11 December 2015		2.5	0.4	0.7	0.8
11 December 2015 - 11 January 2016		1.5	0.6	0.4	0.7
11 January 2016 - 10 February 2016		1.1	0.8	2.1	0.9
10 February 2016 - 10 March 2016	04-Apr-16	0.6	0.4	4.6	2.4
10 March 2016 - 10 April 2016	30-Jun-16	4.1	1.4	2.1	7.9
10 April 2016 - 12 May 2016	30-Jun-16	0.6	0.3	0.4	0.6
12 May 2016 - 13 June 2016	16-Sep-16	0.1	0.1	0.4	1.5
13 June 2016 - 12 July 2016	16-Sep-16	0.2	0.4	0.9	1.1
12 July 2016 - 10 August 2016	16-Sep-16	2.0	0.2	0.4	1.8
10 August 2016 - 7 September 2016	31-Oct-16	0.3	0.3	0.2	0.3

9 December 2016 - 9 January 2017	06-Mar-17	1.6	2.7	0.2	0.3
9 January 2017 - 9 February 2017	16-Mar-17	0.6	0.4	0.9	1.0
9 February 2017 - 13 March 2017		0.8	0.4	0.6	0.8
13 March 2017 - 11 April 2017	25-May-17	0.9	0.3	0.2	0.9
11 April 2017 - 12 May 2017	07-Jul-17	0.5	1.7	0.6	1.5
12 May 2017 - 13 June 2017	07-Aug-17	2.9	0.5	0.1	0.2
13 June 2017 - 14 July 2017	04-Sep-17	0.7	1.6	0.3	0.5
14 July 2017 - 14 August 2017	31-Oct-17	0.9	0.3	0.2	0.5
14 August 2017 - 12 September 2017	31-Oct-17	1.3	0.3	2.8	0.5
12 September 2017 - 12 October 2017	09-Jan-18	1.6	1.1	3.1	1.5
12 October 2017 - 10 November 2017	09-Jan-18	0.5	0.6	4.1	0.7
11 November 2017 - 11 December 2017	16-Mar-18	1.0	1.0	5.3	0.7
11 December 2017 - 12 January 2018	16-Mar-18	1.8	1.8	15.9	2.2
12 January 2018 - 12 February 2018	12-Apr-18	0.7	0.5	1.8	1.0
12 February 2018 - 12 March 2018	12-Apr-18	1.0	0.6	20.5	1.7
12 March 2018 to 13 April 2018	19-Jul-18	1.5	2.3	3.3	2.0
13 April 2018 to 15 May 2018	19-Jul-18	1.2	0.5	2.5	0.8
15 May 2018 to 14 June 2018	19-Jul-18	0.6	0.2	6.8	0.6
14 June 2018 to 13 July 2018	30-Aug-18	0.4	0.4	0.8	0.7
13 July 2018 to 15 August 2018	19-Nov-18	1.2	0.8	1.8	1.1
15 August 2018 to 15 September 2018	19-Nov-18	3.0	3.3	4.1	2.0
15 September 2018 to 15 October 2018	17-Jan-19	1.0	2.6	1.1	1.4
15 October 2018 to 13 November 2018	17-Jan-19	1.6	3.3	1.5	8.6
13 November 2018 to 15 December 2018	22-Mar-19	2.4	7.8	2.3	2.8
15 December 2018 - 17 January 2019	22-Mar-19	10.1	10.2	8.4	11.5
17 January 2019 - 18 February 2019	22-Mar-19	1.6	2.0	2.0	1.2
18 February 2019 - 22 March 2019	28-May-19	2.9	2.2	3.1	3.1
22 March 2019 - 23 April 2019	28-May-19	1.3	3.1	0.8	1.6
23 April 2019 - 25 May 2019	23-Aug-19	1.4	1.2	0.7	1.3
25 May 2019 - 25 June 2019	23-Aug-19	0.5	0.3	0.2	1.8
25 June 2019 - 24 July 2019	23-Aug-19	2.6	0.5	0.5	0.8
24 July 2019 - 22 August 2019	24-Oct-19	1.5	1.1	0.7	1.5
22 August 2019 - 20 September 2019	24-Oct-19	1.7	0.9	0.7	1.8
20 September 2019 - 21 October 2019	28-Apr-20	6.6	7.0	6.6	8.4
21 October 2019 - 21 November 2019	28-Apr-20	6.0	7.0	2.6	4.1
21 November 2019 - 23 December 2019	28-Apr-20	1.4	2.8	1.4	4.2
23 December 2019 - 22 January 2020	01-May-20	6.7	6.9	9.7	8.7
22 January 2020 - 21 February 2020	01-May-20	13.0	10.0	9.5	13.0
21 February 2020 - 23 March 2020	17-Jul-20	2.8	3.6	3.1	3.6
23 March 2020 - 24 April 2020	21-Jul-20	1.5	0.1	0.4	3.8
24 April 2020 - 25 May 2020	21-Jul-20	0.7	1.2	1.4	1.6
25 May 2020 - 23 June 2020		0.9	0.5	0.2	0.7
23 June 2020 - 23 July 2020	03-Nov-20	0.2	0.3	0.5	0.5
23 July 2020 - 24 August 2020	03-Nov-20	0.6	2.5	1.5	1.0
24 August 2020 - 23 September 2020	03-Nov-20	0.7	0.6	1.9	1.0
23 September 2020 - 24 October 2020	01-Feb-21	2.4	1.3	0.6	0.8
24 October 2020 - 24 November 2020	01-Feb-21	2.1	0.6	0.8	0.5



Monitoring results obtained during the period 24 October 2020 to 24 November 2020 indicated that dust deposition rates were below the project criterion of 4 g/m²/month at all four locations, with the maximum dust deposition rate measured at the north location, measuring 2.1 g/m²/month. Construction commenced on the Project site on 18 September 2012 and concluded before operations commenced on 5 August 2013. Standard landfill operations and tunnel composting activities are now occurring on site and will be for the remainder of the monitoring period. It is recommended that dust suppression methods such as water carts continue to be used particularly in dry and windy conditions.

Figure 4 Wind Rose for Molong AWS for the period 24 October 2020 to 24 November 2020



The highest wind speed recorded on site was approximately 8.5 m/s. Winds were predominantly from north east to the east and the south direction and corresponded to approximately 45% of winds during the monitoring period. Very few winds were experienced from the north north-east to the north quadrant. Calm winds (wind speeds of less than 0.5 m/s) were experienced for approximately 1.3% of the time during the monitoring period. Wind erosion of dust from exposed surfaces is usually initiated when actual wind speeds exceed the threshold friction velocity for a given surface or material, however a general rule of thumb is that wind erosion can be expected to occur above 5 m/s. The occurrence of wind speeds at the Project Site exceeding 5 m/s was approximately 10.2% during the monitoring period.