



EPL Monitoring

Licence Holder:

Metal Manufactures Limited

Gloucester Boulevard, Port Kembla NSW 2505

EPL Number:

6158

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Stormwater Monitoring Results

Sample Date	Results Obtained	Published	pH					Total Suspended Solids (mg/L)					Oil and Grease (mg/L)				
			1A	1B	2	3	4	1A	1B	2	3	4	1A	1B	2	3	4
20/01/2016	28/01/2016	28/01/2016	7.1	7.8	8.1	8.2	8.2	<5	<5	<5	<5	6.0	<5	<5	<5	<5	<5
28/01/2016	5/02/2016	5/02/2016	7.5	7.9	8.1	8.0	8.4	<10	<10	<10	<10	<10	<5	<5	<5	<5	<5
10/02/2016	17/02/2016	18/02/2016	7.8	8.1	8.4	8.3	7.9	<10	10.0	6.0	<10	12.0	<5	<5	<5	<5	<5
29/02/2016	7/03/2016	8/03/2016	7.8	8.2	8.1	8.3	8.2	<10	<10	<10	<10	<10	<5	<5	<5	<5	6.0
8/03/2016	16/03/2016	17/03/2016	7.8	8.1	8.0	8.3	7.9	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
31/03/2016	8/04/2016	8/04/2016	7.7	7.9	8.3	8.2	8.3	<10	<10	<10	<10	<10	<5	<5	<5	<5	<5
18/04/2016	26/04/2016	26/04/2016	6.9	7.1	7.1	6.9	7.0	<10	<10	<10	<10	<10	<5	<5	<5	<5	<5
28/04/2016	6/05/2016	6/05/2016	8.0	8.2	8.3	8.4	8.5	<10	<10	5.0	<5	12.0	5.0	7.0	6.0	7.0	<5
18/05/2016	26/05/2016	27/05/2016	7.7	8.2	8.2	8.4	8.3	<10	<10	<10	<10	<10	<5	<5	<5	<5	<5
31/05/2016	10/06/2016	10/06/2016	7.4	7.4	7.5	7.2	7.4	45.0	34.0	50.0	28.0	24.0	<5	<5	<5	<5	<5
20/06/2016	29/06/2016	29/06/2016	7.3	7.8	8.1	8.0	8.2	<10	<10	<10	<10	<10	<5	<5	<5	<5	<5
30/06/2016	11/07/2016	11/07/2016	7.4	8.1	8.1	8.2	8.4	<10	<10	<10	<10	<10	<5	<5	<5	<5	<5
20/07/2016	25/07/2016	1/08/2016	7.1	7.9	8.0	8.1	8.3	<10	<10	<10	<10	<10	<5	<5	<5	<5	<5
27/07/2016	1/08/2016	2/08/2016	7.2	7.9	8.0	8.2	8.3	<10	<10	<10	<10	<10	<5	<5	<5	<5	<5
10/08/2016	19/08/2016	23/08/2016	8.2*	7.6*	7.9	8.2	8.4	<10*	<10*	<10	20.0	<10	<5	<5	<5	<5	<5
29/08/2016	7/09/2016	9/09/2016	7.5	8.0	8.0	8.1	8.3	<10	<10	<10	<10	<10	<5	<5	<5	<5	<5
21/09/2016	30/09/2016	4/10/2016	7.6	8.1	8.1	8.3	8.4	<10	<10	<10	<10	<10	<5	<5	<5	<5	7.0
28/09/2016	7/10/2016	11/10/2016	7.8	8.1	8.2	8.3	8.4	14.0	<10	<10	<10	<10	<5	5.0	<5	<5	<5
20/10/2016	27/10/2016	31/10/2016	7.9	8.3	8.3	8.5	8.6	11.0	<5	<5	<5	<5	<5	<5	<5	<5	<5
26/10/2016	3/11/2016	10/11/2016	7.6	8.1	8.1	8.3	8.2	<10	<10	<10	<10	<10	<5	<5	<5	<5	<5
9/11/2016	15/11/2016	21/11/2016	7.4	7.6	7.7	7.5	8.3	<10	<10	<10	<10	250 ³	<5	<5	<5	<5	<5
23/11/2016	1/12/2016	1/12/2016	7.6	8.1	8.3	8.3	8.4	<10	<10	<10	<10	<10	<5	<5	<5	<5	<5
5/12/2016	9/12/2016	9/12/2016	7.3	7.8	7.5	7.5	8.4	<10	<10	<10	<10	<10	<5	<5	<5	<5	<5
14/12/2016	22/12/2016	5/01/2017	7.7	8.1	8.2	8.0	8.4	<10	<10	<10	160.0	<10	<5	<5	<5	<5	<5

³ High TSS Levels suspected to have resulted from sediment caught in sampler from the base of the pit, and not representative of actual discharge to stormwater

⁴ Elevated oil and grease levels in all drains are suspected to be from a missample of one drain, and contamination of further samples



Stormwater Monitoring Results - Continued

Sample Date	Results Obtained	Published	pH					Total Suspended Solids (mg/L)					Oil and Grease (mg/L)				
			1A	1B	2	3	4	1A	1B	2	3	4	1A	1B	2	3	4
14/02/2018	22/02/2018	27/02/2018	7.3	8.1	8.1	8.2	8.5	<5	<5	<5	22.0	8.0	<5	<5	<5	<5	<5
2/03/2018	9/03/2018	23/03/2018	8.0	8.7	8.4	8.3	8.5	<5	<5	<5	9.0	6.0	<5	<5	<5	<5	<5
4/04/2018	12/04/2018	18/04/2018	7.8	8.2	8.3	8.2	8.5	7.0	<5	<5	<5	5.0	<5	<5	<5	<5	<5
16/04/2018	20/04/2018	3/05/2018	7.7	8.3	7.7	8.2	8.5	<5	<5	<5	30.0	48.0	<5	<5	<5	5.0	<5
9/05/2018	17/05/2018	18/05/2018	7.8	8.3	8.5	8.5	8.5	<5	<5	<5	<5	9.0	<5	<5	<5	<5	<5
28/05/2018	4/06/2018	5/06/2018	7.6	8.1	8.2	8.3	8.5	<5	<5	<5	26.0	45.0	<5	<5	<5	<5	<5
29/06/2018	26/06/2018	29/06/2018	7.6	7.5	7.7	7.5	7.3	9.0	14.0	<5	95.0	56.0	<5	<5	<5	6.0	<5
25/06/2018	3/07/2018	5/07/2018	7.4	7.7	7.8	7.7	8.2	8.0	<5	<5	54.0	150.0	<5	<5	<5	<5	<5
12/07/2018	19/07/2018	2/08/2018	7.5	8.1	8.0	8.2	8.4	<5	<5	<5	<5	80.0	<5	<5	<5	<5	<5
26/07/2018	31/07/2018	2/08/2018	7.5	8.1	8.1	8.3	8.4	6.0	<5	8.0	12.0	37.0	<5	<5	<5	<5	<5
9/08/2018	16/08/2018	17/08/2018	7.5	8.0	7.8	8.0	8.4	8.0	<5	8.0	19.0	72.0	<5	<5	<5	<5	<5
30/08/2018	6/09/2018	7/09/2018	8.0	8.2	8.3	8.4	8.6	<5	<5	<5	34.0	66.0	<5	<5	<5	<5	<5
11/09/2018	19/09/2018	28/09/2018	7.5	7.8	8.1	8.0	8.4	<5	<5	<5	8.0	86.0	<5	<5	<5	<5	<5
27/09/2018	8/10/2018	12/10/2018	7.7	7.4	8.0	7.6	8.3	<5	<5	<5	38.0	290.0	<5	<5	<5	6.0	<5
11/10/2018	19/10/2018	25/10/2018	7.2	7.7	7.6	7.7	8.2	16.0	6.0	6.0	67.0	7.0	<5	<5	<5	<5	<5
31/10/2018	8/11/2018	16/11/2018	7.0		8.2	8.1	8.4	10.0		<5	<5	28.0	<5		<5	<5	<5
15/11/2018	22/11/2018	17/11/2018	7.0	7.6	8.1	8.0	8.3	<5	<5	<5	10.0	100.0	<5	<5	<5	<5	20.0
27/11/2018	5/12/2018	14/12/2018	7.4	8.0	8.1	8.3	8.0	15.0	<5	<5	<5	16.0	<5	<5	<5	<5	6.0
11/12/2018	18/12/2018	21/12/2018	7.3	8.0	8.3	8.1	8.1	<5	<5	6.0	5.0	22.0	<5	<5	<5	<5	<5
18/12/2018	3/01/2019	7/01/2019	7.2	7.8	8.2	8.1	8.2	<5	<5	<5	15.0	170.0	<5	<5	<5	<5	<5
31/01/2019	8/02/2019	18/02/2019	8.0	8.4	8.4	8.4	8.5	<5	<5	<5	<5	38.0	<5	<5	<5	<5	<5
13/02/2019	14/02/2019	25/02/2019	7.6	8.2	8.5	8.5	8.5	<5	<5	<5	5.0	8.0	<5	<5	<5	<5	7.0
27/02/2019	7/03/2019	11/03/2019	7.6	8.1	8.3	8.1	8.4	<5	<5	<5	5.0	32.0	<5	<5	<5	<5	<5
18/03/2019	26/03/2019	8/04/2019	7.6	7.6	8.1	7.9	8.1	<5	<5	<5	15.0	28.0	<5	<5	<5	<5	<5

Drain 1B was not sampled on 31/10/18 as it was not discharging to stormwater at the time of sampling.

Correction Log : Transcription errors indicated a figure of <1 for Total Suspended Solids and Oil and Grease for May 28 2018. These were corrected to <5 on November 27 2018



Stormwater Monitoring Results - Continued

Sample Date	Results Obtained	Published	pH					Total Suspended Solids (mg/L)					Oil and Grease (mg/L)				
			1A	1B	2	3	4	1A	1B	2	3	4	1A	1B	2	3	4
25/03/2019	2/04/2019	8/04/2019	7.4	7.9	8.2	8.1	8.4	<5	<5	<5	6.0	6.0	<5	<5	<5	<5	<5
9/04/2019	16/04/2019	18/04/2019	7.6	8.1	8.4	8.3	8.5	<5	<5	<5	8.0	<5	<5	<5	<5	<5	9.0
30/04/2019	9/05/2019	13/05/2019	7.4	8.0	8.3	8.1	8.4	<5	<5	<5	9.0	9.0	<5	<5	<5	<5	6.0
14/05/2019	14/05/2019	24/05/2019	7.5	8.2	8.3	8.2	8.5	<5	<5	5.0	16.0	<5	<5	<5	<5	<5	<5
29/05/2019	5/06/2019	21/06/2019	7.7	8.2	8.2	8.2	8.6	<5	8.0	<5	<5	6.0	<5	<5	<5	<5	<5
13/06/2019	21/06/2019	21/06/2019	7.4	7.9	8.1	8.1	8.3	6.0	<5	<5	<5	<5	<5	<5	<5	<5	10.0
28/06/2019	5/07/2019	12/07/2019	7.5	7.9	8.0	8.0	8.3	5.0	<5	<5	7.0	12.0	<5	<5	<5	<5	<5
11/07/2019	18/07/2019	1/08/2019	7.5	8.1	8.1	8.2	8.4	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
31/07/2019	9/08/2019	22/08/2019	7.6	8.2	7.9	8.2	8.6	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
13/08/2019	22/08/2019	22/08/2019	7.8	7.9	7.9	8.3	8.5	9.0	<5	<5	<5	6.0	<5	<5	<5	<5	6.0
28/08/2019	4/09/2019	9/09/2019	7.4	8.1	7.9	7.9	8.4	6.0	<5	<5	<5	<5	<5	<5	<5	<5	<5
12/09/2019	20/09/2019	27/09/2019	7.4	8.0	8.0	7.9	8.3	<5	<5	5.0	<5	<5	<5	<5	<5	<5	<5
26/09/2019	4/10/2019	10/10/2019	7.5	8.1	8.3	8.3	8.5	<5	10.0	<5	83.0	<5	<5	<5	<5	<5	<5
15/10/2019	24/10/2019	4/11/2019	7.4	7.9	8.1	8.1	8.3	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
29/10/2019	6/11/2019	11/11/2019	7.8	8.3	8.2	8.1	8.5	<5	<5	6.0	<5	5.0	<5	<5	<5	<5	<5
14/11/2019	21/11/2019	22/11/2019	7.6	8.3	8.3	8.2	8.5	<5	<5	<5	24.0	<5	<5	<5	<5	<5	<5
28/11/2019	6/12/2019	6/12/2019	7.5	8.1	7.9	8.1	8.4	<5	<5	<5	<5	<5	<5	<5	<5	6.0	<5
16/12/2019	2/01/2019	6/01/2020	7.6	8.1	8.0	8.3	8.5	<5	<5	6.0	8.0	<5	<5	<5	<5	<5	<5
9/01/2020	15/01/2020	23/01/2020	7.5	8.1	7.5	8.0	8.5	6.0	<5	6.0	<5	8.0	<5	<5	<5	<5	<5
30/01/2020	6/02/2020	6/02/2020	7.6	8.0	8.4	8.2	8.2	6.0	<5	5.0	8.0	9.0	6.0	<5	<5	<5	<5
11/02/2020	20/02/2020	20/02/2020	7.6	7.7	8.1	8.0	8.1	<5	<5	<5	16.0	48.0	<5	<5	<5	<5	<5
26/02/2020	6/03/2020	9/03/2020	7.4	8.1	8.3	8.2	8.3	<5	<5	<5	6.0	10.0	<5	<5	<5	<5	<5
19/03/2020	27/03/2020	31/03/2020	7.5	7.9	8.1	8.2	8.3	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
27/03/2020	3/04/2020	3/04/2020	7.6	7.9	8.2	8.0	8.5	<5	<5	<5	27.0	8.0	<5	<5	<5	<5	<5
8/04/2020	17/04/2020	17/04/2020	7.7	8.1	8.2	8.4	8.4	<5	<5	<5	<5	61.0	<5	<5	<5	<5	6.0
14/04/2020	20/04/2020	27/04/2020	7.8	8.2	8.3	8.4	8.5	5.0	<5	<5	5.0	8.0	<5	<5	<5	<5	5.0



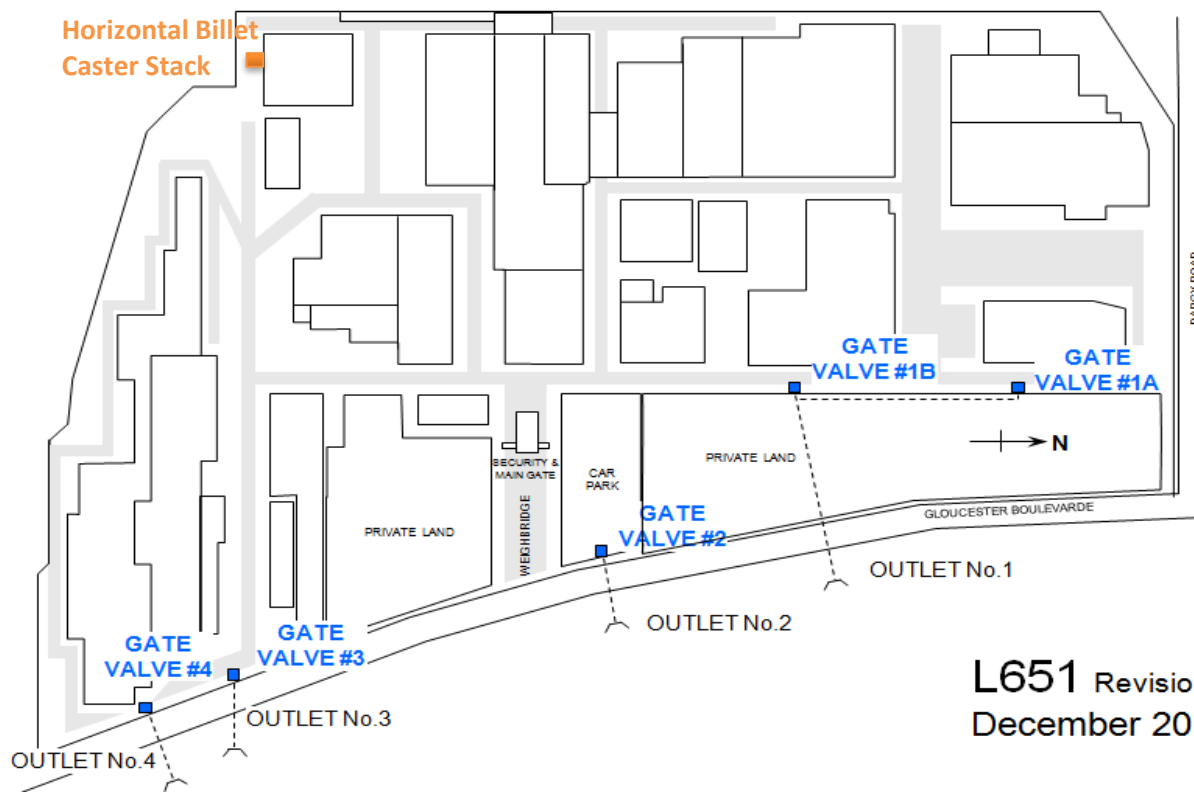
Stormwater Monitoring Results - Continued

Sample Date	Results Obtained	Published	pH					Total Suspended Solids (mg/L)					Oil and Grease (mg/L)				
			1A	1B	2	3	4	1A	1B	2	3	4	1A	1B	2	3	4
15/07/2021	23/07/2021	5/08/2021	7.7	8.1	8.2	8.3	8.4	<5	<5	<5	<5	<5	<5	<5	<5	<5	<5
28/07/2021	5/08/2021	5/08/2021	7.5	8.1	8.0	8.4	8.4	5.0	<5	<5	5.0	10.0	<5	<5	<5	<5	<5
16/08/2021	23/08/2021	7/09/2021	7.4	7.9	7.9	8.2	8.2	5.0	<5	<5	<5	<5	<5	<5	<5	<5	<5
30/08/2021	3/09/2021	17/09/2021	7.6	8.1	8.1	8.3	8.3	<5	<5	<5	6.0	<5	<5	<5	<5	<5	<5
22/09/2021	30/09/2021	30/09/2021	7.5	8.1	8.0	8.3	8.3	9.0	7.0	<5	<5	35.0	<5	<5	<5	<5	<5
30/09/2021	8/10/2021	20/10/2021	7.7	8.2	8.1	8.4	8.4	<5	8.0	<5	<5	6.0	<5	<5	<5	<5	<5
20/10/2021	28/10/2021	1/11/2021	7.8	8.4	8.2	8.1	8.5	6.0	<5	<5	<5	100.0	<5	<5	<5	<5	<5

Locality map



Location of sampling points



L651 Revision 0
December 2010

Air Emission Monitoring: Horizontal Billet Caster Stack

Pollutant	100 percentile concentration limit	Units of Measure	Testing Frequency	Sample Date 13th August 2015	Sample Date 6th April 2016	Sample Date 29th March 2017	Sample Date 8th March 2018
Stack Temperature	-	°C	Yearly	40	63	54	59
Stack Velocity	-	m/s	-	10	11	11	11
Stack Volumetric Flow	-	m ³ /s	Yearly	3.4	3.6	3.8	3.7
Moisture	-	%	Yearly	0.8	1.2	0.89	0.63
Oxygen	-	%	Yearly	20.7	20.9	20.8	20.9
Dioxins & Furans (TEQ)	0.1	ng/m ³	Yearly	0.003	0.024	0.018	0.067
Cadmium	0.2	mg/m ³	Yearly	0.000017	<0.0001	<0.0001	<0.0002
Mercury	0.2	mg/m ³	Yearly	0.015	0.024	0.0014	0.004
Type 1 Substances	-	mg/m ³	-	0.015	≤ 0.027	≤0.0034	≤0.006
Total Type 1 + 2 Substances	1	mg/m ³	Yearly	0.015	≤ 0.031	≤0.0066	≤0.01
Nitrogen Oxides	350	mg/m ³	Yearly	8.2	8.2	27	3.9
Total Solid Particles	50	mg/m ³	Yearly	<0.25	2.3	1.1	1.2
VOCs as n-propane	40	mg/m ³	Yearly	0.28	0.37	0.12	0.06
Results Obtained (date)	-	-	-	4-Sep-15	29-Apr-16	8-May-17	11-Apr-18
Results Published (date)	-	-	-	14-Sep-15	2-May-16	8-May-17	11-Apr-18

Notes: Air Emission

Special Frequency 3 means "during each stack emission test"

Milligrams per cubic metre is abbreviated as mg/m³. Nanograms per cubic metre is abbreviated as ng/m³.

Metres per second is abbreviated as m/s. Cubic metres per second is abbreviated as m³/s.

Air Emission Monitoring: Horizontal Billet Caster Stack

Pollutant	100 percentile concentration limit	Units of Measure	Testing Frequency	Sample Date 20th March 2019	Sample Date 8th July 2020	Sample Date 23/06/2021	
Stack Temperature	-	°C	Yearly	52	49	49	
Stack Velocity	-	m/s	-	11	9.6	11	
Stack Volumetric Flow	-	m ³ /s	Yearly	3.6	3.2	3.7	
Moisture	-	%	Yearly	1.2	<0.4	0.72	
Oxygen	-	%	Yearly	20.7	20.9	20.9	
Dioxins & Furans (TEQ)	0.1	ng/m ³	Yearly	0.035	0.045	0.019	
Cadmium	0.2	mg/m ³	Yearly	<0.0004	<0.0005	<0.0005	
Mercury	0.2	mg/m ³	Yearly	0.00049	0.0011	0.00081	
Type 1 Substances	-	mg/m ³	-	≤0.0072	≤0.0097	≤0.01	
Total Type 1 + 2 Substances	1	mg/m ³	Yearly	≤0.017	≤0.022	<0.023	
Nitrogen Oxides	350	mg/m ³	Yearly	<3	4.4	5	
Total Solid Particles	50	mg/m ³	Yearly	<1	2.2	<5	
VOCs as n-propane	40	mg/m ³	Yearly	0.15	0.18	0.77	
Results Obtained (date)	-	-	-	2-Jul-19	19-Aug-20	31-Aug-21	
Results Published (date)	-	-	-	12-Jul-19	21-Aug-20	7-Sep-21	

Notes: Air Emission

Special Frequency 3 means "during each stack emission test"

Milligrams per cubic metre is abbreviated as mg/m³. Nanograms per cubic metre is abbreviated as ng/m³.

Metres per second is abbreviated as m/s. Cubic metres per second is abbreviated as m³/s.