creating energy from waste

Australian Paper Energy from Waste Feasibility Study – Air Quality Modelling Results

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Air Quality Monitoring Results

This table details the results of the air quality impact assessment undertaken as part of the feasibility study into the adoption of Energy from Waste technology at Australian Paper's Maryvale Pulp and Paper Mill. A separate Air Quality fact sheet explaining key aspects of the assessment is also available.

Substance & assessment	AP Maryvale 2016	BoM LVA 2016	BoM LVA 2015	BoM LVA 2014	BoM LVA 2013	BoM LVA 2012
Carbon monoxide: SEPP(AQM) CO Design Criterion – 29,000 µg/m³						
Summary of CO results – all GLCs substantially less than the SEPP(AQM) design criterion						
CO, 99.9% 1h; 9th-highest from 'Top 100 Table'	2,527	2,559	2,036	6,343	ND	ND
CO, 99.9% 1h; grid maximum	1,607	1,616	1,490	3,432	ND	ND
CO, 90th percentile grid result	1,489	1,490	1,264	3,432	ND	ND
CO, 99.9% 1h; discrete receptor maximum	1,488	1,497	1,268	3,432	ND	ND
Nitrogen dioxide: SEPP(AQM) NO_2 Design Criterion – 190 µg/m³						
Summary of NO_2 results – all GLCs substantially less than the SEPP(AQM) design criterion						
NO_2, 99.9% 1h; 9th-highest from 'Top 100 Table'	95.6	79.3	93.4	84.1	84.3	69.1
NO_2, 99.9% 1h; grid maximum	66.2	64.4	71.9	67.85	70.1	62.8
NO_2, 90th percentile grid result	50.8	50.8	55.6	50.76	54.5	49.0
NO_2, 99.9% 1h; discrete receptor maximum	50.8	51.2	56.4	50.8	54.5	49.3
Sulfur dioxide: SEPP(AQM) SO_2 Design Criterion – 450 µg/m³						
Summary of SO_2 results – all GLCs substantially less than the SEPP(AQM) design criterion						
SO_2, 99.9% 1h; 9th-highest from 'Top 100 Table'	167.0	169.7	155.7	122.4	192.5	230.5
SO_2, 99.9% 1h; grid maximum	72.5	81.1	96.4	92.9	76.0	64.4
SO_2, 90th percentile grid result	70.6	70.9	85.2	89.1	70.6	60.9
SO_2, 99.9% 1h; discrete receptor maximum	70.6	72.9	87.2	90.9	70.6	62.8
Particulate matter 2.5 ($PM_{2.5}$), at emission rate of 30 mg/m³(IED limit): SEPP(AQM) $PM_{2.5}$ Design Criterion –50 µg/m³						
Summary of $PM_{2.5}$ results – 9th highest GLCs above SEPP (AQM) design criterion, due to high background $PM_{2.5}$ levels						
$PM_{2.5}$, 99.9% 1h; 9th-highest from 'Top 100 Table'	61.1	60.1	155.7	84.2	ND	ND
Background contribution	59.9	59.9	155.6	84.0	ND	ND
EfW contribution	1.2	0.2	0.3	1.6	ND	ND
$PM_{2.5}$, 99.9% 1h; grid maximum	49.2	47.7	38.4	42.9	ND	ND
$PM_{2.5}$, 90th percentile grid result	47.1	47.1	37.6	40.3	ND	ND
$PM_{2.5}$, 99.9% 1h; discrete receptor maximum	47.1	47.1	37.7	40.3	ND	ND

Substance & assessment	AP Maryvale 2016	BoM LVA 2016	BoM LVA 2015	BoM LVA 2014	BoM LVA 2013	BoM LVA 2012
Particulate matter 2.5 ($PM_{2.5}$), at emission rate of 0.02 mg/m³, as per the average maximum in the Ricardo-AEA Report: SEPP(AQM) $PM_{2.5}$ Design Criterion – 50 µg/m³						
Summary of $PM_{2.5}$ results – 9th highest GLCs above SEPP (AQM) design criterion, due to high background $PM_{2.5}$ levels						
$PM_{2.5}$, 99.9% 1h; 9th-highest from 'Top 100 Table'	61.1	60.1	155.7	84.1	ND	ND
$PM_{2.5}$, 99.9% 1h; grid maximum	49.2	47.7	38.4	42.9	ND	ND
$PM_{2.5}$, 90th percentile grid result	47.1	47.1	37.6	40.3	ND	ND
$PM_{2.5}$, 99.9% 1h; discrete receptor maximum	47.1	47.1	37.6	40.3	ND	ND
Particulate matter 2.5 ($PM_{2.5}$), for background PM2.5 (emission rate of zero mg/m3): SEPP(AQM) $PM_{2.5}$ Design Criterion – 50 µg/m³						
Summary of $PM_{2.5}$ results – 9th highest GLCs above SEPP (AQM) design criterion						
$PM_{2.5}$, 99.9% 1h; 9th-highest from 'Top 100 Table'	59.9	59.9	155.6	84.0	ND	ND
$PM_{2.5}$, 99.9% 1h; grid maximum	47.1	47.1	37.6	40.3	ND	ND
$PM_{2.5}$, 99.9% 1h; discrete receptor maximum	47.1	47.1	37.6	40.3	ND	ND
Ammonia: SEPP(AQM) NH_3 Design Criterion – 600 µg/m³						
Summary of NH_3 results – all GLCs substantially less than the SEPP(AQM) design criterion						
NH_3, 99.9% 1h; 9th-highest from 'Top 100 Table'	26.6	15.7	15.6	15.5	15.6	14.9
NH_3, 99.9% 1h; grid maximum	10.0	14.4	13.8	13.7	14.0	13.2
NH_3, 90th percentile grid result	4.2	4.2	4.4	4.9	4.4	4.3
NH_3, 99.9% 1h; discrete receptor maximum	4.6	5.1	5.1	5.6	5.2	4.8
Dioxins and Furans: SEPP(AQM) B(a)P Design Criterion – 3.7E-06 µg/m³						
Summary of DF results – all GLCs substantially less than the SEPP(AQM) design criterion						
DF, 99.9% 1h; 9th-highest from 'Top 100 Table'	8.9E-08	5.2E-08	5.2E-08	5.2E-08	5.2E-08	5.0E-08
DF, 99.9% 1h; grid maximum	3.3E-08	4.8E-08	4.6E-08	4.6E-08	4.7E-08	4.4E-08
DF, 90th percentile grid result	1.4E-08	1.4E-08	1.5E-08	1.6E-08	1.5E-08	1.4E-08
DF, 99.9% 1h; discrete receptor maximum	1.5E-08	1.7E-08	1.7E-08	1.9E-08	1.7E-08	1.6E-08
PAHs as B(a)P: SEPP(AQM) B(a)P Design Criterion – 0.73 µg/m³						
Summary of B(a)P results – all GLCs substantially less than the SEPP(AQM) design criterion						
B(a)P, 99.9% 1h; 9th-highest from 'Top 100 Table'	0.012	0.007	0.007	0.007	0.007	0.007
B(a)P, 99.9% 1h; grid maximum	0.004	0.006	0.006	0.006	0.006	0.006
B(a)P, 90th percentile grid result	0.002	0.002	0.002	0.002	0.002	0.002
B(a)P, 99.9% 1h; discrete receptor maximum	0.002	0.002	0.002	0.002	0.002	0.002
Hexavalent chromium (highest risk metal): SEPP(AQM) Cr(VI) Design Criterion – 0.17 µg/m³						
Summary of Cr(VI)results – all GLCs substantially less than the SEPP(AQM) design criterion						
Cr(VI), 99.9% 1h; 9th-highest from 'Top 100 Table'	0.136	0.080	0.080	0.079	0.080	0.076
Cr(VI), 99.9% 1h; grid maximum	0.051	0.073	0.070	0.070	0.071	0.067
Cr(VI), 90th percentile grid result	0.021	0.022	0.023	0.025	0.023	0.022
Cr(VI), 99.9% 1h; discrete receptor maximum	0.024	0.026	0.026	0.029	0.026	0.025
Cadmium (2nd-highest risk metal): SEPP(AQM) Cd Design Criterion – 0.033 µg/m³						
Summary of Cd results – all GLCs less than the SEPP(AQM) design criterion						
Cd, 99.9% 1h; 9th-highest from 'Top 100 Table'	0.027	0.016	0.016	0.015	0.016	0.015
Cd, 99.9% 1h; grid maximum	0.010	0.014	0.014	0.014	0.014	0.013
Cd, 90th percentile grid result	0.004	0.004	0.004	0.005	0.004	0.004
Cd, 99.9% 1h; discrete receptor maximum	0.005	0.005	0.005	0.006	0.005	0.005
Mercury: SEPP(AQM) Hg Design Criterion – 0.33 µg/m³						
Summary of Hg results – all GLCs substantially less than the SEPP(AQM) design criterion						
Hg, 99.9% 1h; 9th-highest from 'Top 100 Table'	0.044	0.026	0.026	0.026	0.026	0.025
Hg, 99.9% 1h; grid maximum	0.017	0.024	0.023	0.023	0.023	0.022
Hg, 90th percentile grid result	0.007	0.007	0.007	0.008	0.007	0.007
Hg, 99.9% 1h; discrete receptor maximum	0.008	0.009	0.008	0.009	0.009	0.008

- "SEPP (AQM): State Environment Protection Policy (Air Quality Management)"
- "ND: no data – no data available for this time period"
- "GLC: ground level concentration"
- "ug/m3: micrograms per cubic metre (1 microgram is one millionth of a gram)"

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