

## Measured Flux Rates from Diffuse Sources using Flux Chamber

(for full details refer to GHD, 2005 and Air Assessments, 2005)

Source Type/Sample Point	Surface Area m2	BaP Equivalents	Acetone	Acetaldehyhde	Formaldehyde	2-Butanone	Benzene	Toluene	Xylenes	Odour OU (measured) OU/m2/sec
			All substances (except odour) micrograms/m2/minute							
Lower Dam 1 (near return water intake)	as on plan		8.53	1.51			0.92	0.23		0.94
Lower Dam 2 (near condensate discharge point)	as on plan		14.73	3.33	0.74					1.07
ROCP2-1	as on plan		6.20	7.75	0.78		0.34			0.31
ROCP2-2	as on plan		3.26				0.23			0.18
<b>Average ROCP</b>			<b>4.73</b>	<b>7.75</b>	<b>0.78</b>		<b>0.29</b>			<b>0.24</b>
RDA2-1	as on plan		42.64	8.91	1.78	5.43			0.48	1.11
RDA2-2	as on plan		18.60							2.15
Super Thickener		5.40E-03	0.00				1.34	4.30	1.28	5.67
Super Thickener		4.30E-03	555.56	206.72	1.29	61.37	1.98	4.19	0.32	6.98
<b>Average Superthickener</b>	4418	<b>4.85E-03</b>	<b>555.56</b>	<b>206.72</b>	<b>1.29</b>	<b>61.37</b>	<b>1.66</b>	<b>4.25</b>	<b>0.80</b>	<b>6.32</b>
Cooling Pond 1	as on plan	2.38E-04	32.56	10.85	4.65	4.26	2.83	0.54		0.78
Cooling Pond 1	as on plan	5.61E-04					7.70	1.07		
<b>Average Cooling Pond 1</b>		<b>3.99E-04</b>	<b>32.56</b>	<b>10.85</b>	<b>4.65</b>	<b>4.26</b>	<b>5.26</b>	<b>0.81</b>		<b>0.78</b>
Cooling Pond 2	as on plan	5.94E-04	54.26	37.60	1.71	6.20	2.40	0.33		1.76
Oxalate 1	as on plan		5.21	1.96			2.14	0.80		0.17
Oxalate 2	as on plan		12.42	3.44		1.60	1.68	0.80		0.12
<b>Average Oxalate Pond</b>			<b>8.81</b>	<b>2.70</b>		<b>1.60</b>	<b>1.91</b>	<b>0.80</b>		<b>0.15</b>
ROWS 1	as on plan		3.02	2.05	1.01					0.13
ROWS 2	as on plan		2.02		0.85		3.10	1.22		0.07
<b>Average ROWS</b>			<b>2.52</b>	<b>2.05</b>	<b>0.93</b>		<b>3.10</b>	<b>1.22</b>		<b>0.10</b>
Dry Mud	as on plan		9.10	0.95			0.78	2.06		0.05
Nearly Dry Mud (derived)	as on plan		16.54	3.62	2.09	1.15	0.78	2.06		0.36
Partially Dry Mud (derived)	as on plan		24.21	6.37	4.24	2.33	0.30			0.69
Wet Mud	as on plan		31.65	9.04	6.33	3.48	0.30			1.00
Average (Based on 90:10)			11.35	1.76	0.63	0.35	0.73	1.85		0.15
Wet Sand	as on plan	1.05E-04	1.32	0.87	4.55		1.09			1.00

## Mass Emission Rates from Diffuse Sources – Current RDA Configuration

Source Type	Surface Area m2	BaP Equivalents	All substances except odour grams/s							Odour OU (measured)	
			Acetone	Acetaldehyd	Formaldehyd	2-Butanone	Benzene	Toluene	Xylenes	OU/sec	
	residue mud										
RDA1	105300	0.00E+00	1.99E-02	3.09E-03	1.11E-03	6.11E-04	1.29E-03	3.25E-03	0.00E+00	1.56E+04	
RDA3	654900	0.00E+00	1.24E-01	1.92E-02	6.91E-03	3.80E-03	8.01E-03	2.02E-02	0.00E+00	9.71E+04	
RDA4	407000	0.00E+00	7.70E-02	1.19E-02	4.29E-03	2.36E-03	4.98E-03	1.26E-02	0.00E+00	6.03E+04	
RDA5	190000	0.00E+00	3.59E-02	5.57E-03	2.00E-03	1.10E-03	2.33E-03	5.87E-03	0.00E+00	2.82E+04	
RDA6	253000	0.00E+00	4.79E-02	7.42E-03	2.67E-03	1.47E-03	3.10E-03	7.82E-03	0.00E+00	3.75E+04	
RDA7	255000	0.00E+00	4.82E-02	7.48E-03	2.69E-03	1.48E-03	3.12E-03	7.88E-03	0.00E+00	3.78E+04	
RDA8											
RDA9											
RDA10											
RDA11											
Drying Beds Total		0.00E+00	3.53E-01	5.47E-02	1.97E-02	1.08E-02	2.28E-02	5.77E-02	0.00E+00	2.76E+05	
Lower Dam 1 (near return water intake)	176988.2	0.00E+00	2.52E-02	4.46E-03	0.00E+00	0.00E+00	2.72E-03	6.86E-04	0.00E+00	1.66E+05	
Lower Dam 2 (near condensate discharge point)	11.78097	0.00E+00	2.89E-06	6.54E-07	1.45E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.26E+01	
Lower Dam combined		0.00E+00	2.52E-02	4.46E-03	1.45E-07	0.00E+00	2.72E-03	6.86E-04	0.00E+00	1.66E+05	
ROCP2-1	109560	0.00E+00	8.63E-03	1.42E-02	1.42E-03	0.00E+00	5.24E-04	0.00E+00	0.00E+00	2.66E+04	
ROCP2-2	45800	0.00E+00	3.61E-03	5.92E-03	5.92E-04	0.00E+00	2.19E-04	0.00E+00	0.00E+00	1.11E+04	
RDA2-1 Liquor Southern	141550	0.00E+00	1.01E-01	2.10E-02	4.21E-03	1.28E-02	0.00E+00	0.00E+00	1.12E-03	1.57E+05	
RDA2-2 Mud - Northern (use wet mud)	73600	0.00E+00	3.88E-02	1.11E-02	7.77E-03	4.27E-03	3.62E-04	0.00E+00	0.00E+00	7.33E+04	
Super Thickener	4610	3.72E-07	4.27E-02	1.59E-02	9.93E-05	4.72E-03	1.27E-04	3.26E-04	6.14E-05	2.92E+04	
Cooling Pond 1	120280	8.01E-07	6.53E-02	2.18E-02	9.32E-03	8.55E-03	1.06E-02	1.62E-03	0.00E+00	9.33E+04	
Cooling Pond 2 inlet 22.5%	34920	3.46E-07	3.16E-02	2.19E-02	9.93E-04	3.61E-03	1.40E-03	1.89E-04	0.00E+00	6.16E+04	
Cooling Pond Total		1.15E-06	9.68E-02	4.36E-02	1.03E-02	1.22E-02	1.20E-02	1.81E-03	0.00E+00	1.55E+05	
Oxalate Ponds	18880	0.00E+00	2.77E-03	8.51E-04	0.00E+00	5.04E-04	6.01E-04	2.51E-04	0.00E+00	2.78E+03	
ROWS	332800	0.00E+00	1.40E-02	1.14E-02	5.16E-03	0.00E+00	1.72E-02	6.76E-03	0.00E+00	3.35E+04	
Wet Sand (sand cannon)	5000	8.74E-09	1.10E-04	7.24E-05	3.79E-04	0.00E+00	9.09E-05	0.00E+00	0.00E+00	4.98E+03	
Wet Sand (sand Lake)	5000	8.74E-09	1.10E-04	7.24E-05	3.79E-04	0.00E+00	9.09E-05	0.00E+00	0.00E+00	4.98E+03	
Sand Lake liquor (ass as RDA2-1)	38400	0.00E+00	2.73E-02	5.71E-03	1.14E-03	3.47E-03	0.00E+00	0.00E+00	3.05E-04	4.27E+04	
Sand Lake total		8.74E-09	2.74E-02	5.78E-03	1.52E-03	3.47E-03	9.09E-05	0.00E+00	3.05E-04	4.76E+04	
<b>Total</b>	<b>2972600</b>	<b>1.54E-06</b>	<b>7.13E-01</b>	<b>1.89E-01</b>	<b>5.11E-02</b>	<b>4.87E-02</b>	<b>5.67E-02</b>	<b>6.75E-02</b>	<b>1.49E-03</b>	<b>9.83E+05</b>	

## Mass Emission Rates from Diffuse Sources – 2008 RDA Configuration Assuming Expansion

Source Type	Surface Area m2	BaP Equivalents	All substances except odour grams/s							Odour OU (measured) OU/sec
			Acetone	Acetaldehyd	Formaldehyd	2-Butanone	Benzene	Toluene	Xylenes	
RDA1	92300	0.00E+00	1.75E-02	2.71E-03	9.74E-04	5.36E-04	1.13E-03	2.85E-03	0.00E+00	1.37E+04
RDA3	571600	0.00E+00	1.08E-01	1.68E-02	6.03E-03	3.32E-03	7.00E-03	1.77E-02	0.00E+00	8.47E+04
RDA4	322000	0.00E+00	6.09E-02	9.45E-03	3.40E-03	1.87E-03	3.94E-03	9.95E-03	0.00E+00	4.77E+04
RDA5	134800	0.00E+00	2.55E-02	3.95E-03	1.42E-03	7.82E-04	1.65E-03	4.17E-03	0.00E+00	2.00E+04
RDA6	227500	0.00E+00	4.30E-02	6.67E-03	2.40E-03	1.32E-03	2.78E-03	7.03E-03	0.00E+00	3.37E+04
RDA7	246400	0.00E+00	4.66E-02	7.23E-03	2.60E-03	1.43E-03	3.02E-03	7.62E-03	0.00E+00	3.65E+04
RDA8	391000	0.00E+00	7.40E-02	1.15E-02	4.13E-03	2.27E-03	4.79E-03	1.21E-02	0.00E+00	5.79E+04
RDA9	438400	0.00E+00	8.29E-02	1.29E-02	4.63E-03	2.54E-03	5.37E-03	1.36E-02	0.00E+00	6.50E+04
RDA10	391100	0.00E+00	7.40E-02	1.15E-02	4.13E-03	2.27E-03	4.79E-03	1.21E-02	0.00E+00	5.80E+04
RDA11	507300	0.00E+00	9.60E-02	1.49E-02	5.35E-03	2.94E-03	6.21E-03	1.57E-02	0.00E+00	7.52E+04
Total dry RDAs	3322400									
Lower Dam 1 (near return water intake)	176988.2	0.00E+00	2.52E-02	4.46E-03	0.00E+00	0.00E+00	2.72E-03	6.86E-04	0.00E+00	1.66E+05
Lower Dam 2 (near condensate discharge point)	11.78097	0.00E+00	2.89E-06	6.54E-07	1.45E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.26E+01
Lower Dam combined		0.00E+00	2.52E-02	4.46E-03	1.45E-07	0.00E+00	2.72E-03	6.86E-04	0.00E+00	1.66E+05
ROCP2-1	109560	0.00E+00	8.63E-03	1.42E-02	1.42E-03	0.00E+00	5.24E-04	0.00E+00	0.00E+00	2.66E+04
ROCP2-2	45800	0.00E+00	3.61E-03	5.92E-03	5.92E-04	0.00E+00	2.19E-04	0.00E+00	0.00E+00	1.85E-04
RDA2-1 Liquor Southern	141550	0.00E+00	1.01E-01	2.10E-02	4.21E-03	1.28E-02	0.00E+00	0.00E+00	1.12E-03	1.57E+05
RDA2-2 Mud - Northern (use wet mud)	45500	0.00E+00	3.88E-02	1.11E-02	7.77E-03	4.27E-03	3.62E-04	0.00E+00	0.00E+00	4.53E+04
Super Thickener	5317	4.29E-07	4.92E-02	1.83E-02	1.14E-04	5.44E-03	1.47E-04	3.76E-04	7.08E-05	3.36E+04
Cooling Pond 1	120280	1.20E-06	9.79E-02	3.26E-02	1.40E-02	1.28E-02	1.58E-02	2.42E-03	0.00E+00	1.40E+05
Cooling Pond 2 inlet 22.5%	34920	5.19E-07	4.74E-02	3.28E-02	1.49E-03	5.41E-03	2.10E-03	2.84E-04	0.00E+00	9.23E+04
Oxalate Ponds	28880	0.00E+00	4.24E-03	1.30E-03	0.00E+00	7.71E-04	9.19E-04	3.84E-04	0.00E+00	4.25E+03
ROWS	332800	0.00E+00	2.79E-02	2.28E-02	1.03E-02	0.00E+00	3.44E-02	1.35E-02	0.00E+00	6.70E+04
Wet Sand (sand cannon)	5000	8.74E-09	1.10E-04	7.24E-05	3.79E-04	0.00E+00	9.09E-05	0.00E+00	0.00E+00	4.98E+03
Wet Sand (sand Lake)	7500	8.74E-09	1.10E-04	7.24E-05	3.79E-04	0.00E+00	9.09E-05	0.00E+00	0.00E+00	4.98E+03
Sand Lake liquor (ass as RDA2-1)	38400	0.00E+00	2.73E-02	5.71E-03	1.14E-03	3.47E-03	0.00E+00	0.00E+00	3.05E-04	4.27E+04
Sand Lake total		8.74E-09	2.74E-02	5.78E-03	1.52E-03	3.47E-03	9.09E-05	0.00E+00	3.05E-04	4.76E+04
<b>Total</b>	<b>7737307</b>	<b>2.17E-06</b>	<b>1.06E+00</b>	<b>2.68E-01</b>	<b>7.68E-02</b>	<b>6.43E-02</b>	<b>9.81E-02</b>	<b>1.20E-01</b>	<b>1.50E-03</b>	<b>1.28E+06</b>