

**APPENDIX T –**

**PROPOSED MATIMBA B POWER STATION – POTENTIAL FOR COMPLIANCE WITH AIR  
QUALITY LIMITS, HEALTH RISKS, VEGETATION INJURY AND CORROSION**

**SCENARIO A.1 - Potential for non-compliance, health effects, vegetation damage and corrosion occurring due to sulphur dioxide concentrations**

Receptor Category	Receptor Name	Predicted SO <sub>2</sub> Concentration (µg/m <sup>3</sup> )			Corrosion Potential		Potential for Vegetation Injury and Ecosystem Damage			Potential for Health Effects		Compliance Potential			
		Highest Hourly (99 <sup>TH</sup> Percentile)	Highest Daily	Annual Average	Annual Average as Fraction of Threshold for "Medium" Corrosivity (20 µg/m <sup>3</sup> )	Potential for Corrosion	Highest Hourly as Fraction of Hourly Threshold of 1300 µg/m <sup>3</sup>	Annual Average as Fraction of EC Annual Limit for Protection of Ecosystems (20 µg/m <sup>3</sup> )	Potential for Vegetation Damage	Health Risk Categorisation based on Highest Hourly Average	Freq Exc California EPA Acute REL of 660 µg/m <sup>3</sup> - indicative of mild respiratory effects (hours/year)	Freq Exc SA 10-minute Limit of 500 µg/m <sup>3</sup> (no permissible frequencies) / Freq Exc EC Hourly Limit of 350 µg/m <sup>3</sup> (EC permits 4, UK 24)	Freq Exc SA Daily Limit of 125 µg/m <sup>3</sup> (EC & UK permit 3)	Compliance with SA Standards	Compliance with UK Standards
Maximum	GLC Maximum	1735	177	26.8	1.3	medium	1.3	1.3	moderate	low(a)	18	157	10	FALSE	FALSE
Residential areas	Marapong	1072	111	5.1	0.3	low	0.8	0.3	low	high	7	27	2	FALSE	FALSE
	Onverwacht (maximum)	776	62	5.4	0.3	low	0.6	0.3	low	moderate	3	8	0	FALSE	TRUE
	Onverwacht (central)	531	41	3.9	0.2	low	0.4	0.2	low	low	0	2	0	FALSE	TRUE
Farms (centre point)	Eendracht	474	49	5.4	0.3	low	0.4	0.3	low	low(a)	0	7	0	FALSE	TRUE
	Altoostyd	738	54	7.1	0.4	low	0.6	0.4	low	low(a)	2	14	0	FALSE	TRUE
	Worcester	554	67	8.2	0.4	low	0.4	0.4	low	low(a)	1	9	0	FALSE	TRUE
	Paarl	410	47	5.2	0.3	low	0.3	0.3	low	low(a)	0	2	0	FALSE	TRUE
	Turfvlakte	628	167	15.4	0.8	low	0.5	0.8	low	low(a)	7	65	5	FALSE	FALSE
	Hieromtrent	422	123	15.4	0.8	low	0.3	0.8	low	low(a)	0	28	1	FALSE	FALSE
	Leeuwdrift	362	74	8.8	0.4	low	0.3	0.4	low	low(a)	0	9	0	FALSE	TRUE
	Hanglip	1080	93	15.6	0.8	low	0.8	0.8	low	low(a)	7	76	1	FALSE	FALSE
	Wellington	791	70	10.5	0.5	low	0.6	0.5	low	low(a)	2	7	0	FALSE	TRUE
	Kromdraai	396	87	12.5	0.6	low	0.3	0.6	low	low(a)	0	21	0	FALSE	TRUE
	Kuipersbult	895	103	21.0	1.1	medium	0.7	1.1	moderate	low(a)	5	64	1	FALSE	FALSE
	Grootvallei	851	73	14.6	0.7	low	0.7	0.7	low	low(a)	3	19	0	FALSE	TRUE
	Nooitgedacht	663	92	14.5	0.7	low	0.5	0.7	low	low(a)	1	10	0	FALSE	TRUE
	Peerboom	457	68	4.7	0.2	low	0.4	0.2	low	low(a)	0	15	0	FALSE	TRUE
	Nelsonskop	408	58	4.7	0.2	low	0.3	0.2	low	low(a)	2	9	0	FALSE	TRUE
Appelvlakte	329	51	4.1	0.2	low	0.3	0.2	low	low(a)	0	5	0	FALSE	TRUE	

Zongezien	567	89	3.9	0.2	low	0.4	0.2	low	low(a)	2	16	1	FALSE	TRUE
Droogeheuvel	1014	82	3.3	0.2	low	0.8	0.2	low	low(a)	1	9	0	FALSE	TRUE
Vooruit	259	42	3.2	0.2	low	0.2	0.2	low	low(a)	0	1	0	FALSE	TRUE
Ganzezan	317	60	2.8	0.1	low	0.2	0.1	low	low(a)	0	5	0	FALSE	TRUE
Goedehoop (mine, dump)	489	53	5.4	0.3	low	0.4	0.3	low	low(a)	0	8	0	FALSE	TRUE
Enkelbult (mine, pit)	480	95	10.9	0.5	low	0.4	0.5	low	low(a)	0	37	1	FALSE	FALSE
Grootgeluk (mine, pit)	439	86	12.1	0.6	low	0.3	0.6	low	low(a)	2	17	1	FALSE	TRUE
Vaalpensloop	469	85	12.5	0.6	low	0.4	0.6	low	low(a)	0	14	1	FALSE	TRUE
McCabesvley	409	66	6.8	0.3	low	0.3	0.3	low	low(a)	0	10	0	FALSE	TRUE
Graaffwater	648	38	3.9	0.2	low	0.5	0.2	low	low(a)	1	4	0	FALSE	TRUE
Verguldehelm	637	124	16.3	0.8	low	0.5	0.8	low	low(a)	4	47	3	FALSE	FALSE
Daarby (mine, dump)	484	103	7.1	0.4	low	0.4	0.4	low	low(a)	2	15	1	FALSE	TRUE

Notes:

(a) In assessing potential reference is made to the frequencies of exceedance of the threshold for mild respiratory effects in addition to the likelihood of exposure – based on the number of persons residing in the area.

**SCENARIO B.1 - Potential for non-compliance, health effects, vegetation damage and corrosion occurring due to sulphur dioxide concentrations**

Receptor Category	Receptor Name	Predicted SO <sub>2</sub> Concentration (µg/m <sup>3</sup> )			Corrosion Potential		Potential for Vegetation Injury and Ecosystem Damage			Potential for Health Effects		Compliance Potential			
		Highest Hourly (99 <sup>TH</sup> Percentile)	Highest Daily	Annual Average	Annual Average as Fraction of Threshold for "Medium" Corrosivity (20 µg/m <sup>3</sup> )	Potential for Corrosion	Highest Hourly as Fraction of Hourly Threshold of 1300 µg/m <sup>3</sup>	Annual Average as Fraction of EC Annual Limit for Protection of Ecosystems (20 µg/m <sup>3</sup> )	Potential for Vegetation Damage	Health Risk Categorisation based on Highest Hourly Average	Freq Exc California EPA Acute REL of 660 µg/m <sup>3</sup> - indicative of mild respiratory effects (hours/year)	Freq Exc SA 10-minute Limit of 500 µg/m <sup>3</sup> (no permissible frequencies) / Freq Exc EC Hourly Limit of 350 µg/m <sup>3</sup> (EC permits 4, UK 24)	Freq Exc SA Daily Limit of 125 µg/m <sup>3</sup> (EC & UK permit 3)	Compliance with SA Standards	Compliance with UK Standards
Maximum	GLC Maximum	1735	172	25.3	1.3	medium	1.3	1.3	moderate	low(a)	18	139	7	FALSE	FALSE
Residential areas	Marapong	1072	115	4.9	0.2	low	0.8	0.2	low	high	8	27	2	FALSE	FALSE
	Onverwacht (maximum)	776	68	5.4	0.3	low	0.6	0.3	low	moderate	4	8	0	FALSE	TRUE
	Onverwacht (central)	531	41	3.9	0.2	low	0.4	0.2	low	low	0	3	0	FALSE	TRUE
Farms (centre point)	Eendracht	474	49	5.4	0.3	low	0.4	0.3	low	low(a)	0	7	0	FALSE	TRUE
	Altoostyd	738	55	6.9	0.3	low	0.6	0.3	low	low(a)	1	12	0	FALSE	TRUE
	Worcester	502	66	8.0	0.4	low	0.4	0.4	low	low(a)	1	9	0	FALSE	TRUE
	Paarl	419	53	5.0	0.3	low	0.3	0.3	low	low(a)	0	2	0	FALSE	TRUE
	Turfvlakte	628	167	15.2	0.8	low	0.5	0.8	low	low(a)	6	64	5	FALSE	FALSE
	Hieromtrent	1118	128	15.7	0.8	low	0.9	0.8	low	low(a)	3	31	3	FALSE	FALSE
	Leeuwdrift	362	75	8.7	0.4	low	0.3	0.4	low	low(a)	0	9	0	FALSE	TRUE
	Hanglip	1080	93	15.5	0.8	low	0.8	0.8	low	low(a)	7	75	1	FALSE	FALSE
	Wellington	791	70	10.3	0.5	low	0.6	0.5	low	low(a)	1	7	0	FALSE	TRUE
	Kromdraai	396	87	12.0	0.6	low	0.3	0.6	low	low(a)	0	19	0	FALSE	TRUE
	Kuipersbult	647	100	20.1	1.0	medium	0.5	1.0	moderate	low(a)	6	52	0	FALSE	FALSE
	Grootvallei	851	73	14.2	0.7	low	0.7	0.7	low	low(a)	4	19	0	FALSE	TRUE
	Nooitgedacht	663	91	13.8	0.7	low	0.5	0.7	low	low(a)	1	7	0	FALSE	TRUE
	Peerboom	457	62	4.6	0.2	low	0.4	0.2	low	low(a)	0	15	0	FALSE	TRUE
	Nelsonskop	408	58	4.5	0.2	low	0.3	0.2	low	low(a)	2	9	0	FALSE	TRUE
	Appelvlakte	329	51	3.9	0.2	low	0.3	0.2	low	low(a)	0	3	0	FALSE	TRUE
Zongezien	578	92	3.8	0.2	low	0.4	0.2	low	low(a)	3	15	1	FALSE	TRUE	

Droogeheuvel	1014	79	3.1	0.2	low	0.8	0.2	low	low(a)	1	10	0	FALSE	TRUE
Vooruit	259	42	3.1	0.2	low	0.2	0.2	low	low(a)	0	1	0	FALSE	TRUE
Ganzezan	321	60	2.7	0.1	low	0.2	0.1	low	low(a)	0	5	0	FALSE	TRUE
Goedehoop (mine, dump)	458	53	5.2	0.3	low	0.4	0.3	low	low(a)	0	7	0	FALSE	TRUE
Enkelbult (mine, pit)	480	95	10.8	0.5	low	0.4	0.5	low	low(a)	0	37	1	FALSE	FALSE
Grootgeluk (mine, pit)	439	86	11.8	0.6	low	0.3	0.6	low	low(a)	1	18	1	FALSE	TRUE
Vaalpensloop	618	142	12.4	0.6	low	0.5	0.6	low	low(a)	2	18	2	FALSE	TRUE
McCabesvley	419	65	6.7	0.3	low	0.3	0.3	low	low(a)	1	11	0	FALSE	TRUE
Graaffwater	648	34	3.7	0.2	low	0.5	0.2	low	low(a)	1	3	0	FALSE	TRUE
Verguldehelm	577	149	15.4	0.8	low	0.4	0.8	low	low(a)	2	52	3	FALSE	FALSE
Daarby (mine, dump)	484	98	7.0	0.3	low	0.4	0.3	low	low(a)	2	14	1	FALSE	TRUE

Notes:

(a) In assessing potential reference is made to the frequencies of exceedance of the threshold for mild respiratory effects in addition to the likelihood of exposure – based on the number of persons residing in the area.

**SCENARIO C.1 - Potential for non-compliance, health effects, vegetation damage and corrosion occurring due to sulphur dioxide concentrations**

Receptor Category	Receptor Name	Predicted SO <sub>2</sub> Concentration (µg/m <sup>3</sup> )			Corrosion Potential		Potential for Vegetation Injury and Ecosystem Damage			Potential for Health Effects		Compliance Potential			
		Highest Hourly (99 <sup>TH</sup> Percentile)	Highest Daily	Annual Average	Annual Average as Fraction of Threshold for "Medium" Corrosivity (20 µg/m <sup>3</sup> )	Potential for Corrosion	Highest Hourly as Fraction of Hourly Threshold of 1300 µg/m <sup>3</sup>	Annual Average as Fraction of EC Annual Limit for Protection of Ecosystems (20 µg/m <sup>3</sup> )	Potential for Vegetation Damage	Health Risk Categorisation based on Highest Hourly Average	Freq Exc California EPA Acute REL of 660 µg/m <sup>3</sup> - indicative of mild respiratory effects (hours/year)	Freq Exc SA 10-minute Limit of 500 µg/m <sup>3</sup> (no permissible frequencies) / Freq Exc EC Hourly Limit of 350 µg/m <sup>3</sup> (EC permits 4, UK 24)	Freq Exc SA Daily Limit of 125 µg/m <sup>3</sup> (EC & UK permit 3)	Compliance with SA Standards	Compliance with UK Standards
Maximum	GLC Maximum	3119	303	42.7	2.1	medium	2.4	2.1	high	low(a)	109	419	33	FALSE	FALSE
Residential areas	Marapong	1289	153	6.8	0.3	low	1.0	0.3	low	high	14	35	4	FALSE	FALSE
	Onverwacht (maximum)	940	76	6.9	0.3	low	0.7	0.3	low	high	6	11	0	FALSE	TRUE
	Onverwacht (central)	822	54	5.2	0.3	low	0.6	0.3	low	moderate	1	6	0	FALSE	TRUE
Farms (centre point)	Eendracht	778	55	6.9	0.3	low	0.6	0.3	low	low(a)	1	11	0	FALSE	TRUE
	Altoostyd	1442	76	8.7	0.4	low	1.1	0.4	moderate	low(a)	4	22	0	FALSE	TRUE
	Worcester	919	98	10.5	0.5	low	0.7	0.5	low	low(a)	4	16	0	FALSE	TRUE
	Paarl	485	64	6.8	0.3	low	0.4	0.3	low	low(a)	0	8	0	FALSE	TRUE
	Turfvlakte	1099	167	17.3	0.9	low	0.8	0.9	low	low(a)	13	79	6	FALSE	FALSE
	Hieromtrent	756	177	21.5	1.1	medium	0.6	1.1	moderate	low(a)	8	109	10	FALSE	FALSE
	Leeuwdrift	439	87	11.0	0.6	low	0.3	0.6	low	low(a)	0	13	0	FALSE	TRUE
	Hanglip	1080	93	17.8	0.9	low	0.8	0.9	low	low(a)	8	97	1	FALSE	FALSE
	Wellington	1118	98	14.1	0.7	low	0.9	0.7	low	low(a)	4	40	0	FALSE	FALSE
	Kromdraai	646	132	19.4	1.0	low	0.5	1.0	low	low(a)	5	143	5	FALSE	FALSE
	Kuipersbult	2178	198	31.4	1.6	medium	1.7	1.6	moderate	low(a)	48	207	13	FALSE	FALSE
	Grootvallei	852	108	21.1	1.1	medium	0.7	1.1	moderate	low(a)	7	100	2	FALSE	FALSE
	Nooitgedacht	1630	136	22.1	1.1	medium	1.3	1.1	moderate	low(a)	3	78	4	FALSE	FALSE
	Peerboom	569	103	6.2	0.3	low	0.4	0.3	low	low(a)	0	27	1	FALSE	FALSE
	Nelsonskop	663	73	6.2	0.3	low	0.5	0.3	low	low(a)	3	17	0	FALSE	TRUE
	Appelvlakte	876	83	5.5	0.3	low	0.7	0.3	low	low(a)	2	11	1	FALSE	TRUE
Zongezien	811	117	5.2	0.3	low	0.6	0.3	low	low(a)	4	20	1	FALSE	TRUE	

Droogeheuvel	1264	123	4.4	0.2	low	1.0	0.2	low	low(a)	3	17	3	FALSE	TRUE
Vooruit	548	66	4.3	0.2	low	0.4	0.2	low	low(a)	0	11	0	FALSE	TRUE
Ganzezan	496	85	4.0	0.2	low	0.4	0.2	low	low(a)	0	12	1	FALSE	TRUE
Goedehoop (mine, dump)	958	73	6.8	0.3	low	0.7	0.3	low	low(a)	3	9	0	FALSE	TRUE
Enkelbult (mine, pit)	719	95	12.6	0.6	low	0.6	0.6	low	low(a)	1	53	1	FALSE	FALSE
Grootgeluk (mine, pit)	1626	132	15.6	0.8	low	1.3	0.8	moderate	low(a)	3	45	4	FALSE	FALSE
Vaalpensloop	887	121	17.3	0.9	low	0.7	0.9	low	low(a)	4	36	3	FALSE	FALSE
McCabesvley	641	69	8.3	0.4	low	0.5	0.4	low	low(a)	1	13	0	FALSE	TRUE
Graaffwater	815	50	5.3	0.3	low	0.6	0.3	low	low(a)	2	8	0	FALSE	TRUE
Verguldehelm	1304	204	24.7	1.2	medium	1.0	1.2	moderate	low(a)	25	121	13	FALSE	FALSE
Daarby (mine, dump)	1024	107	8.5	0.4	low	0.8	0.4	low	low(a)	3	22	1	FALSE	TRUE

Notes:

(a) In assessing potential reference is made to the frequencies of exceedance of the threshold for mild respiratory effects in addition to the likelihood of exposure – based on the number of persons residing in the area.

**SCENARIO D.1 - Potential for non-compliance, health effects, vegetation damage and corrosion occurring due to sulphur dioxide concentrations**

Receptor Category	Receptor Name	Predicted SO <sub>2</sub> Concentration (µg/m <sup>3</sup> )			Corrosion Potential		Potential for Vegetation Injury and Ecosystem Damage			Potential for Health Effects		Compliance Potential			
		Highest Hourly (99 <sup>TH</sup> Percentile)	Highest Daily	Annual Average	Annual Average as Fraction of Threshold for "Medium" Corrosivity (20 µg/m <sup>3</sup> )	Potential for Corrosion	Highest Hourly as Fraction of Hourly Threshold of 1300 µg/m <sup>3</sup>	Annual Average as Fraction of EC Annual Limit for Protection of Ecosystems (20 µg/m <sup>3</sup> )	Potential for Vegetation Damage	Health Risk Categorisation based on Highest Hourly Average	Freq Exc California EPA Acute REL of 660 µg/m <sup>3</sup> - indicative of mild respiratory effects (hours/year)	Freq Exc SA 10-minute Limit of 500 µg/m <sup>3</sup> (no permissible frequencies) / Freq Exc EC Hourly Limit of 350 µg/m <sup>3</sup> (EC permits 4, UK 24)	Freq Exc SA Daily Limit of 125 µg/m <sup>3</sup> (EC & UK permit 3)	Compliance with SA Standards	Compliance with UK Standards
Maximum	GLC Maximum	2994	293	41.2	2.1	medium	2.3	2.1	high	low(a)	92	400	29	FALSE	FALSE
Residential areas	Marapong	1280	150	6.6	0.3	low	1.0	0.3	low	high	14	35	3	FALSE	FALSE
	Onverwacht (maximum)	933	80	6.8	0.3	low	0.7	0.3	low	high	6	11	0	FALSE	TRUE
	Onverwacht (central)	790	53	5.1	0.3	low	0.6	0.3	low	moderate	1	6	0	FALSE	TRUE
Farms (centre point)	Eendracht	748	53	6.8	0.3	low	0.6	0.3	low	low(a)	1	10	0	FALSE	TRUE
	Altoostyd	1385	72	8.6	0.4	low	1.1	0.4	moderate	low(a)	4	21	0	FALSE	TRUE
	Worcester	881	94	10.3	0.5	low	0.7	0.5	low	low(a)	4	14	0	FALSE	TRUE
	Paarl	486	64	6.7	0.3	low	0.4	0.3	low	low(a)	0	7	0	FALSE	TRUE
	Turfvlakte	1057	167	17.1	0.9	low	0.8	0.9	low	low(a)	13	78	6	FALSE	FALSE
	Hieromtrent	723	170	20.9	1.0	medium	0.6	1.0	moderate	low(a)	4	99	9	FALSE	FALSE
	Leeuwdrift	424	87	10.8	0.5	low	0.3	0.5	low	low(a)	0	13	0	FALSE	TRUE
	Hanglip	1080	93	17.6	0.9	low	0.8	0.9	low	low(a)	8	94	1	FALSE	FALSE
	Wellington	820	96	13.7	0.7	low	0.6	0.7	low	low(a)	4	33	0	FALSE	FALSE
	Kromdraai	703	128	18.8	0.9	low	0.5	0.9	low	low(a)	2	132	3	FALSE	FALSE
	Kuipersbult	2085	190	30.3	1.5	medium	1.6	1.5	moderate	low(a)	41	194	13	FALSE	FALSE
	Grootvallei	852	105	20.5	1.0	medium	0.7	1.0	moderate	low(a)	7	92	2	FALSE	FALSE
	Nooitgedacht	1589	132	21.3	1.1	medium	1.2	1.1	moderate	low(a)	3	67	3	FALSE	FALSE
	Peerboom	565	100	6.0	0.3	low	0.4	0.3	low	low(a)	0	25	1	FALSE	FALSE
	Nelsonskop	663	72	6.0	0.3	low	0.5	0.3	low	low(a)	3	16	0	FALSE	TRUE
	Appelvlakte	869	80	5.4	0.3	low	0.7	0.3	low	low(a)	1	10	1	FALSE	TRUE
Zongezien	799	115	5.1	0.3	low	0.6	0.3	low	low(a)	4	20	1	FALSE	TRUE	



Droogeheuvel	1249	117	4.3	0.2	low	1.0	0.2	low	low(a)	3	16	2	FALSE	TRUE
Vooruit	532	64	4.2	0.2	low	0.4	0.2	low	low(a)	0	9	0	FALSE	TRUE
Ganzezan	490	84	3.9	0.2	low	0.4	0.2	low	low(a)	0	12	1	FALSE	TRUE
Goedehoop (mine, dump)	890	71	6.7	0.3	low	0.7	0.3	low	low(a)	3	9	0	FALSE	TRUE
Enkelbult (mine, pit)	691	95	12.4	0.6	low	0.5	0.6	low	low(a)	1	52	1	FALSE	FALSE
Grootgeluk (mine, pit)	1570	127	15.3	0.8	low	1.2	0.8	moderate	low(a)	2	42	4	FALSE	FALSE
Vaalpensloop	851	117	16.8	0.8	low	0.7	0.8	low	low(a)	4	33	3	FALSE	FALSE
McCabesvley	619	68	8.2	0.4	low	0.5	0.4	low	low(a)	1	12	0	FALSE	TRUE
Graaffwater	783	50	5.2	0.3	low	0.6	0.3	low	low(a)	2	8	0	FALSE	TRUE
Verguldehelm	1254	197	23.9	1.2	medium	1.0	1.2	moderate	low(a)	22	110	13	FALSE	FALSE
Daarby (mine, dump)	1024	107	8.4	0.4	low	0.8	0.4	low	low(a)	3	20	1	FALSE	TRUE

Notes:

(a) In assessing potential reference is made to the frequencies of exceedance of the threshold for mild respiratory effects in addition to the likelihood of exposure – based on the number of persons residing in the area.

**SCENARIO E.1 - Potential for non-compliance, health effects, vegetation damage and corrosion occurring due to sulphur dioxide concentrations**

Receptor Category	Receptor Name	Predicted SO <sub>2</sub> Concentration (µg/m <sup>3</sup> )			Corrosion Potential		Potential for Vegetation Injury and Ecosystem Damage			Potential for Health Effects		Compliance Potential			
		Highest Hourly (99 <sup>TH</sup> Percentile)	Highest Daily	Annual Average	Annual Average as Fraction of Threshold for "Medium" Corrosivity (20 µg/m <sup>3</sup> )	Potential for Corrosion	Highest Hourly as Fraction of Hourly Threshold of 1300 µg/m <sup>3</sup>	Annual Average as Fraction of EC Annual Limit for Protection of Ecosystems (20 µg/m <sup>3</sup> )	Potential for Vegetation Damage	Health Risk Categorisation based on Highest Hourly Average	Freq Exc California EPA Acute REL of 660 µg/m <sup>3</sup> - indicative of mild respiratory effects (hours/year)	Freq Exc SA 10-minute Limit of 500 µg/m <sup>3</sup> (no permissible frequencies) / Freq Exc EC Hourly Limit of 350 µg/m <sup>3</sup> (EC permits 4, UK 24)	Freq Exc SA Daily Limit of 125 µg/m <sup>3</sup> (EC & UK permit 3)	Compliance with SA Standards	Compliance with UK Standards
Maximum	GLC Maximum	2356	276	36.5	1.8	medium	1.8	1.8	high	low(a)	67	330	20	FALSE	FALSE
Residential areas	Marapong	1186	155	6.1	0.3	low	0.9	0.3	low	high	14	34	3	FALSE	FALSE
	Onverwacht (maximum)	839	66	6.3	0.3	low	0.6	0.3	low	high	5	11	0	FALSE	TRUE
	Onverwacht (central)	547	40	4.6	0.2	low	0.4	0.2	low	low	0	7	0	FALSE	TRUE
Farms (centre point)	Eendracht	474	63	6.3	0.3	low	0.4	0.3	low	low(a)	0	10	0	FALSE	TRUE
	Altoostyd	738	60	7.8	0.4	low	0.6	0.4	low	low(a)	1	15	0	FALSE	TRUE
	Worcester	489	65	9.1	0.5	low	0.4	0.5	low	low(a)	2	12	0	FALSE	TRUE
	Paarl	413	52	5.9	0.3	low	0.3	0.3	low	low(a)	0	5	0	FALSE	TRUE
	Turfvlakte	722	167	16.3	0.8	low	0.6	0.8	low	low(a)	9	72	6	FALSE	FALSE
	Hieromtrent	1994	196	20.8	1.0	medium	1.5	1.0	moderate	low(a)	7	89	9	FALSE	FALSE
	Leeuwdrift	372	87	10.1	0.5	low	0.3	0.5	low	low(a)	0	12	0	FALSE	TRUE
	Hanglip	1080	95	16.9	0.8	low	0.8	0.8	low	low(a)	8	88	1	FALSE	FALSE
	Wellington	791	82	12.2	0.6	low	0.6	0.6	low	low(a)	2	24	0	FALSE	TRUE
	Kromdraai	463	123	16.7	0.8	low	0.4	0.8	low	low(a)	0	97	1	FALSE	FALSE
	Kuipersbult	1267	185	26.8	1.3	medium	1.0	1.3	moderate	low(a)	30	143	9	FALSE	FALSE
	Grootvallei	852	104	18.4	0.9	low	0.7	0.9	low	low(a)	7	67	2	FALSE	FALSE
	Nooitgedacht	1067	129	19.1	1.0	low	0.8	1.0	low	low(a)	2	48	3	FALSE	FALSE
	Peerboom	570	95	5.5	0.3	low	0.4	0.3	low	low(a)	1	24	1	FALSE	TRUE
	Nelsonskop	433	58	5.4	0.3	low	0.3	0.3	low	low(a)	2	14	0	FALSE	TRUE
Appelvlakte	498	47	4.8	0.2	low	0.4	0.2	low	low(a)	0	9	0	FALSE	TRUE	
Zongezien	665	118	4.6	0.2	low	0.5	0.2	low	low(a)	4	18	1	FALSE	TRUE	

Droogeheuvel	1014	76	3.7	0.2	low	0.8	0.2	low	low(a)	3	13	2	FALSE	TRUE
Vooruit	314	41	3.8	0.2	low	0.2	0.2	low	low(a)	0	5	0	FALSE	TRUE
Ganzezan	466	57	3.5	0.2	low	0.4	0.2	low	low(a)	0	10	1	FALSE	TRUE
Goedehoop (mine, dump)	409	70	6.0	0.3	low	0.3	0.3	low	low(a)	0	7	0	FALSE	TRUE
Enkelbult (mine, pit)	514	95	11.9	0.6	low	0.4	0.6	low	low(a)	1	47	1	FALSE	FALSE
Grootgeluk (mine, pit)	1010	125	14.3	0.7	low	0.8	0.7	low	low(a)	2	36	4	FALSE	FALSE
Vaalpensloop	1044	205	16.3	0.8	low	0.8	0.8	low	low(a)	7	35	5	FALSE	FALSE
McCabesvley	623	66	7.8	0.4	low	0.5	0.4	low	low(a)	2	11	0	FALSE	TRUE
Graaffwater	674	48	4.5	0.2	low	0.5	0.2	low	low(a)	1	4	0	FALSE	TRUE
Verguldehelm	893	241	21.6	1.1	medium	0.7	1.1	moderate	low(a)	19	98	12	FALSE	FALSE
Daarby (mine, dump)	484	98	7.9	0.4	low	0.4	0.4	low	low(a)	3	17	1	FALSE	TRUE

Notes:

(a) In assessing potential reference is made to the frequencies of exceedance of the threshold for mild respiratory effects in addition to the likelihood of exposure – based on the number of persons residing in the area.

**SCENARIO F.1 - Potential for non-compliance, health effects, vegetation damage and corrosion occurring due to sulphur dioxide concentrations**

Receptor Category	Receptor Name	Predicted SO <sub>2</sub> Concentration (µg/m <sup>3</sup> )			Corrosion Potential		Potential for Vegetation Injury and Ecosystem Damage			Potential for Health Effects		Compliance Potential			
		Highest Hourly (99 <sup>TH</sup> Percentile)	Highest Daily	Annual Average	Annual Average as Fraction of Threshold for "Medium" Corrosivity (20 µg/m <sup>3</sup> )	Potential for Corrosion	Highest Hourly as Fraction of Hourly Threshold of 1300 µg/m <sup>3</sup>	Annual Average as Fraction of EC Annual Limit for Protection of Ecosystems (20 µg/m <sup>3</sup> )	Potential for Vegetation Damage	Health Risk Categorisation based on Highest Hourly Average	Freq Exc California EPA Acute REL of 660 µg/m <sup>3</sup> - indicative of mild respiratory effects (hours/year)	Freq Exc SA 10-minute Limit of 500 µg/m <sup>3</sup> (no permissible frequencies) / Freq Exc EC Hourly Limit of 350 µg/m <sup>3</sup> (EC permits 4, UK 24)	Freq Exc SA Daily Limit of 125 µg/m <sup>3</sup> (EC & UK permit 3)	Compliance with SA Standards	Compliance with UK Standards
Maximum	GLC Maximum	2708	276	36.5	1.8	medium	2.1	1.8	high	low(a)	67	330	20	FALSE	FALSE
Residential areas	Marapong	1363	155	6.1	0.3	low	1.0	0.3	moderate	very high	14	34	3	FALSE	FALSE
	Onverwacht (maximum)	965	66	6.3	0.3	low	0.7	0.3	low	moderate(a)	5	11	0	FALSE	TRUE
	Onverwacht (central)	629	40	4.6	0.2	low	0.5	0.2	low	high	0	7	0	FALSE	TRUE
Farms (centre point)	Eendracht	545	63	6.3	0.3	low	0.4	0.3	low	low(a)	0	10	0	FALSE	TRUE
	Altoostyd	848	60	7.8	0.4	low	0.7	0.4	low	low(a)	1	15	0	FALSE	TRUE
	Worcester	562	65	9.1	0.5	low	0.4	0.5	low	low(a)	2	12	0	FALSE	TRUE
	Paarl	475	52	5.9	0.3	low	0.4	0.3	low	low(a)	0	5	0	FALSE	TRUE
	Turfvlakte	830	167	16.3	0.8	low	0.6	0.8	low	low(a)	9	72	6	FALSE	FALSE
	Hieromtrent	2292	196	20.8	1.0	medium	1.8	1.0	moderate	low(a)	7	89	9	FALSE	FALSE
	Leeuwdrift	428	87	10.1	0.5	low	0.3	0.5	low	low(a)	0	12	0	FALSE	TRUE
	Hanglip	1242	95	16.9	0.8	low	1.0	0.8	low	low(a)	8	88	1	FALSE	FALSE
	Wellington	909	82	12.2	0.6	low	0.7	0.6	low	low(a)	2	24	0	FALSE	TRUE
	Kromdraai	532	123	16.7	0.8	low	0.4	0.8	low	low(a)	0	97	1	FALSE	FALSE
	Kuipersbult	1457	185	26.8	1.3	medium	1.1	1.3	moderate	low(a)	30	143	9	FALSE	FALSE
	Grootvallei	979	104	18.4	0.9	low	0.8	0.9	moderate	low(a)	7	67	2	FALSE	FALSE
	Nooitgedacht	1226	129	19.1	1.0	low	0.9	1.0	low	low(a)	2	48	3	FALSE	FALSE
	Peerboom	655	95	5.5	0.3	low	0.5	0.3	low	low(a)	1	24	1	FALSE	TRUE
	Nelsonskop	498	58	5.4	0.3	low	0.4	0.3	low	low(a)	2	14	0	FALSE	TRUE
Appelvlakte	572	47	4.8	0.2	low	0.4	0.2	low	low(a)	0	9	0	FALSE	TRUE	
Zongezien	764	118	4.6	0.2	low	0.6	0.2	low	low(a)	4	18	1	FALSE	TRUE	

Droogeheuvel	1166	76	3.7	0.2	low	0.9	0.2	low	low(a)	3	13	2	FALSE	TRUE
Vooruit	360	41	3.8	0.2	low	0.3	0.2	low	low(a)	0	5	0	FALSE	TRUE
Ganzezan	536	57	3.5	0.2	low	0.4	0.2	low	low(a)	0	10	1	FALSE	TRUE
Goedehoop (mine, dump)	470	70	6.0	0.3	low	0.4	0.3	low	low(a)	0	7	0	FALSE	TRUE
Enkelbult (mine, pit)	591	95	11.9	0.6	low	0.5	0.6	low	low(a)	1	47	1	FALSE	FALSE
Grootgeluk (mine, pit)	1161	125	14.3	0.7	low	0.9	0.7	low	low(a)	2	36	4	FALSE	FALSE
Vaalpensloop	1200	205	16.3	0.8	low	0.9	0.8	low	low(a)	7	35	5	FALSE	FALSE
McCabesvley	717	66	7.8	0.4	low	0.6	0.4	low	low(a)	2	11	0	FALSE	TRUE
Graaffwater	775	48	4.5	0.2	low	0.6	0.2	low	low(a)	1	4	0	FALSE	TRUE
Verguldehelm	1026	241	21.6	1.1	medium	0.8	1.1	moderate	low(a)	19	98	12	FALSE	FALSE
Daarby (mine, dump)	556	98	7.9	0.4	low	0.4	0.4	low	low(a)	3	17	1	FALSE	TRUE

Notes:

(a) In assessing potential reference is made to the frequencies of exceedance of the threshold for mild respiratory effects in addition to the likelihood of exposure – based on the number of persons residing in the area.