

S-SITE AIR MONITORING PERFORMANCE GRAPH - SCRUBBER #1

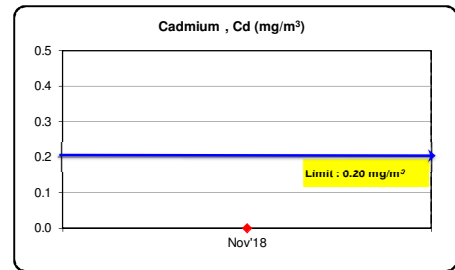
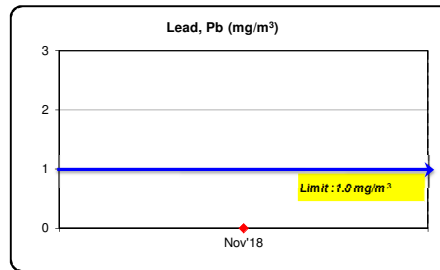
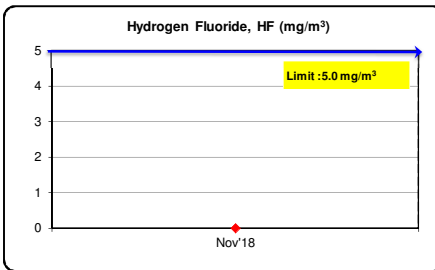
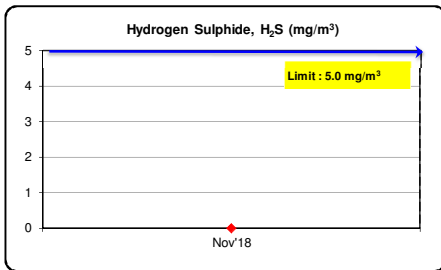
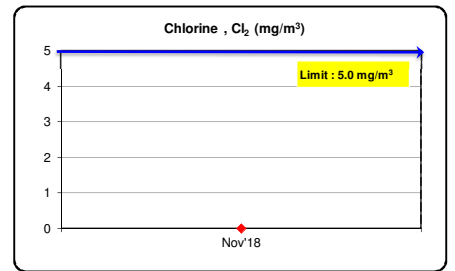
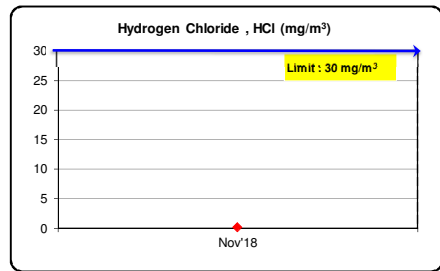
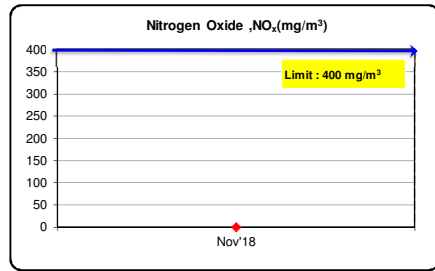
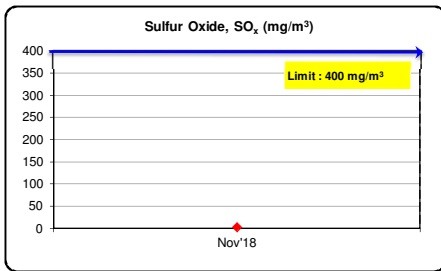
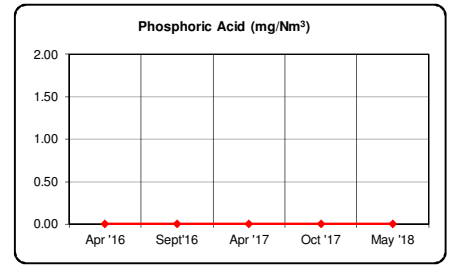
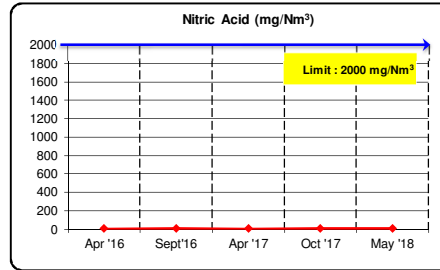
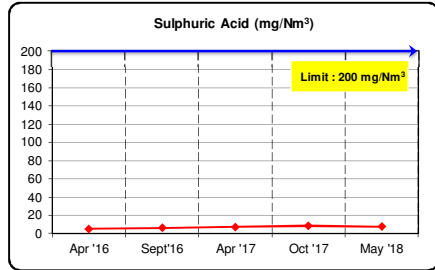
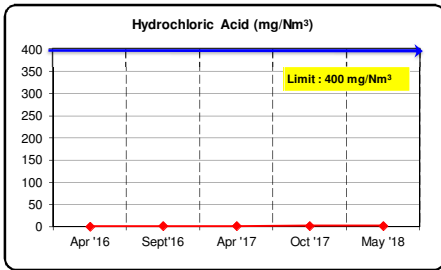
FREQUENCY OF MONITORING: HALF YEARLY

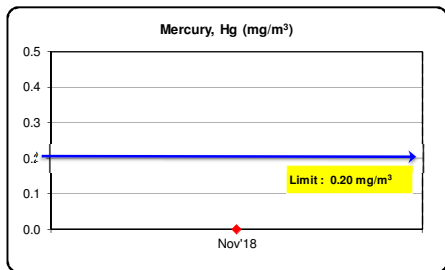
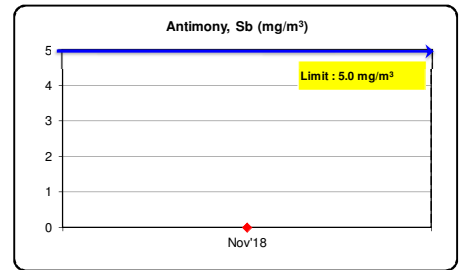
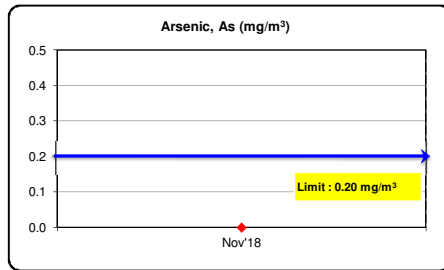
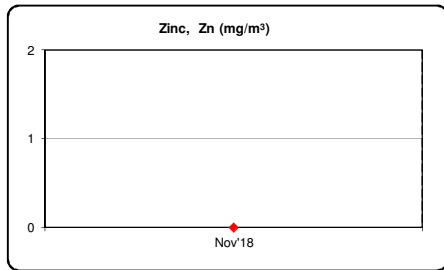
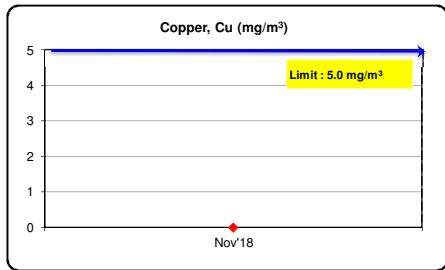
Environmental Quality (Clean Air)
Regulations 2014, Fifth Schedule,
Regulation 15

Parameter / Month	Apr '16	Sept'16	Apr '17	Oct '17	May '18	Nov'18	Limit
Hydrochloric Acid (mg/Nm ³)	1.3	1.5	1.8	2.3	2.6	N/A	400
Sulphuric Acid (mg/Nm ³)	5.2	6.2	7.1	8.5	7.7	N/A	200
Nitric Acid (mg/Nm ³)	5.8	5.5	6.7	8.1	5.5	N/A	2000
Phosphoric Acid (mg/Nm ³)	< 0.1	< 0.1	< 0.1	<0.1	<0.1	N/A	0
Sulfur Oxide, Sox (Sum of SO ² and SO ₃ expressed as SO ₂)mg/m ³						2.259	400
Nitrogen Oxide ,Nox (Sum of NO and NO ₂ as NO ₂)mg/m ³						<0.001	400
Hydrogen Chloride , HCl (mg/m ³)						0.168	30
Chlorine gas, Cl ₂ (mg/m ³)						<0.001	5.0
Hydrogen Sulphide, H ₂ S (mg/m ³)						<0.001	5.0
Hydrogen Fluoride , HF(mg/m ³)						<0.001	5.0
Lead as Pb (mg/m ³)						<0.001	1.0
Cadmium as Cd (mg/m ³)						<0.001	0.20
Copper as Cu (mg/m ³)						<0.001	5.0
Zinc as Zn (mg/m ³)						<0.001	N/A
Arsenic as As (mg/m ³)						<0.001	0.20
Antimony as Sb (mg/m ³)						<0.001	5.0
Mercury as Hg (mg/m ³)						<0.001	0.20
Date of report	25th Apr	14th Sep	19th Apr	19th Oct	22nd May	14th Nov	

Conclusion :

- 1) The emission levels of dust concentration for the Scrubber 1 monitored according to the Malaysian Standard MS 1596:2003 were within the Malaysia Environment Quality (Clean Air) Regulation 2014
- 2) The emission levels for Sulfur Oxide, SOx, Nitrogen Oxide, NoX, Hydrogen Chloride, Chlorine gas, Hydrogen Sulphide and Hydrogen Fluoride for the Scrubber 1 monitored were within the Malaysia Environment Quality (Clean Air) Regulation 2014
- 3) The emission levels for all the metals monitored for the Scrubber 1 also complied to the respective Malaysia Environment Quality (Clean Air) Regulation 2014





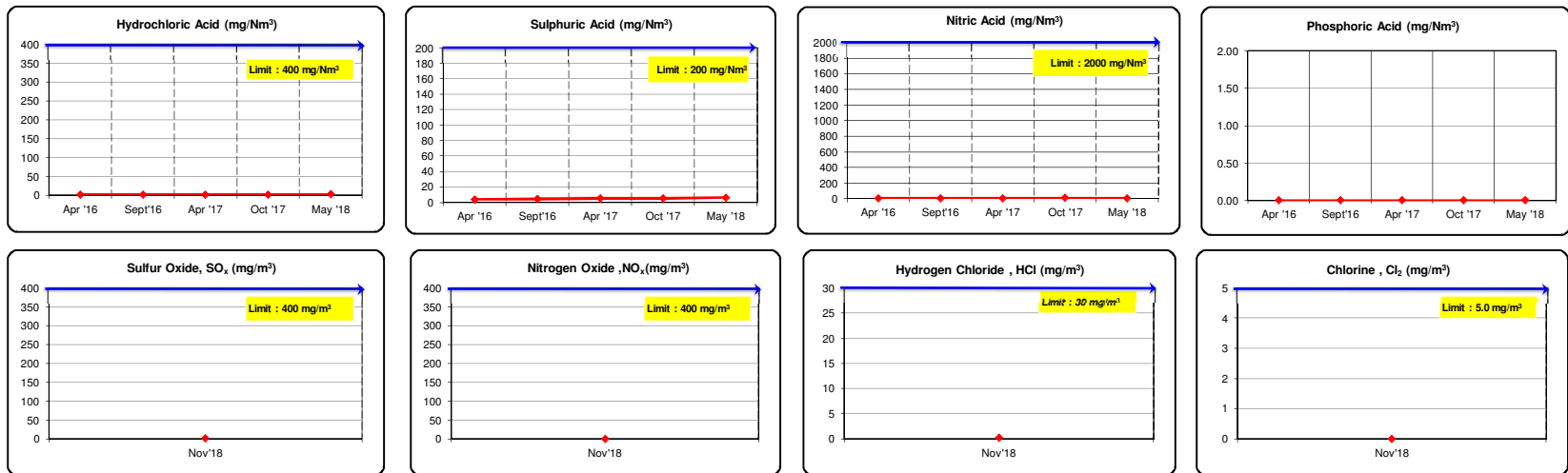
S-SITE AIR MONITORING PERFORMANCE GRAPH - SCRUBBER # 2
FREQUENCY OF MONITORING: HALF YEARLY

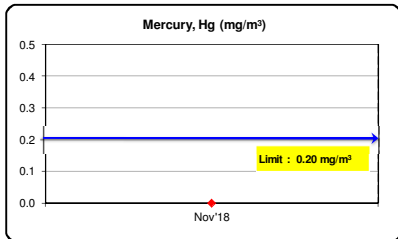
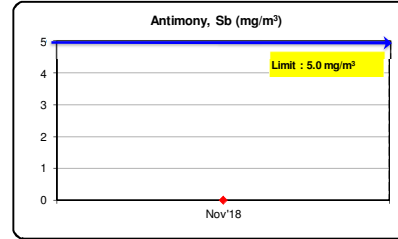
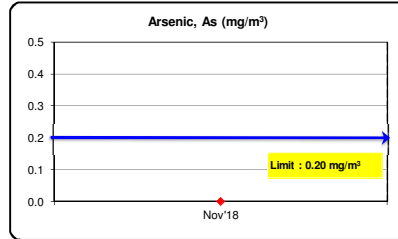
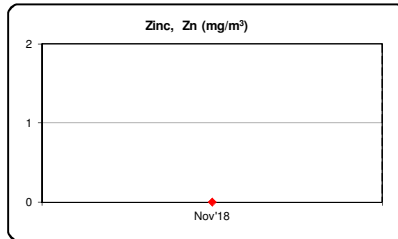
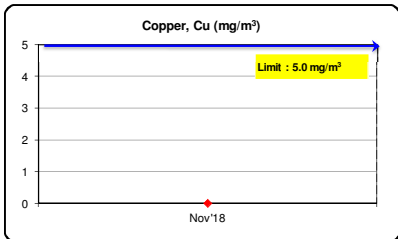
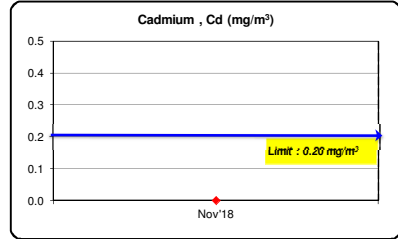
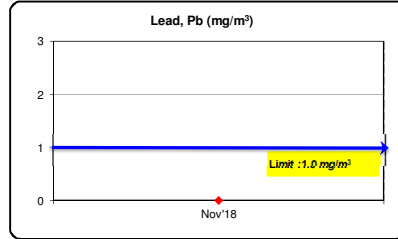
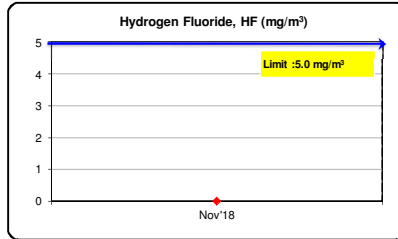
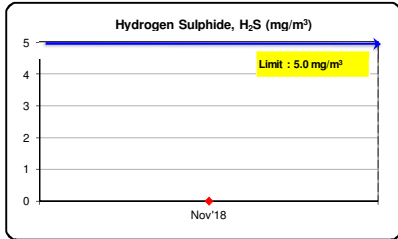
Environmental Quality (Clean Air) Regulations 2014, Fifth Schedule, Regulation 15

Parameter / Month	Apr '16	Sept'16	Apr '17	Oct '17	May '18	Nov'18	Limit
Hydrochloric Acid (mg/Nm ³)	1.1	1.2	1.5	1.7	2	N/A	400
Sulphuric Acid (mg/Nm ³)	4	4.1	4.9	5.6	6.4	N/A	200
Nitric Acid (mg/Nm ³)	4.8	5.8	7.2	8.8	4	N/A	2000
Phosphoric Acid (mg/Nm ³)	< 0.1	< 0.1	< 0.1	<0.1	<0.1	N/A	0
Sulfur Oxide, Sox (Sum of SO ² and SO ₃ expressed as SO ₂)mg/m ³						1.057	400
Nitrogen Oxide ,Nox (Sum of NO and NO ₂)mg/m ³						<0.001	400
Hydrogen Chloride , HCl (mg/m ³)						0.252	30
Chlorine gas, Cl ₂ (mg/m ³)						<0.001	5.0
Hydrogen Sulphide, H ₂ S (mg/m ³)						<0.001	5.0
Hydrogen Fluoride , HF(mg/m ³)						<0.001	5.0
Lead as Pb (mg/m ³)						<0.001	1.0
Cadmium as Cd (mg/m ³)						<0.001	0.20
Copper as Cu (mg/m ³)						<0.001	5.0
Zinc as Zn (mg/m ³)						<0.001	N/A
Arsenic as As (mg/m ³)						<0.001	0.20
Antimony as Sb (mg/m ³)						<0.001	5.0
Mercury as Hg (mg/m ³)						<0.001	0.20
Date of report	25th Apr	14th Sep	19th Apr	19th Oct	22nd May	14th Nov	

Conclusion :

- 1) The emission levels of dust concentration for the Scrubber 2 monitored according to the Malaysian Standard MS 1596:2003 were within the Malaysia Environment Quality (Clean Air) Regulation 2014
- 2) The emission levels for Sulfur Oxide, SOx, Nitrogen Oxide, NoX, Hydrogen Chloride, Chlorine gas, Hydrogen Sulphide and Hydrogen Fluoride for the Scrubber 2 monitored were within the Malaysia Environment Quality (Clean Air) Regulation 2014
- 3) The emission levels for all the metals monitored for the Scrubber 2 also complied to the respective Malaysia Environment Quality (Clean Air) Regulation 2014





S-SITE AIR MONITORING PERFORMANCE GRAPH - SCRUBBER #3

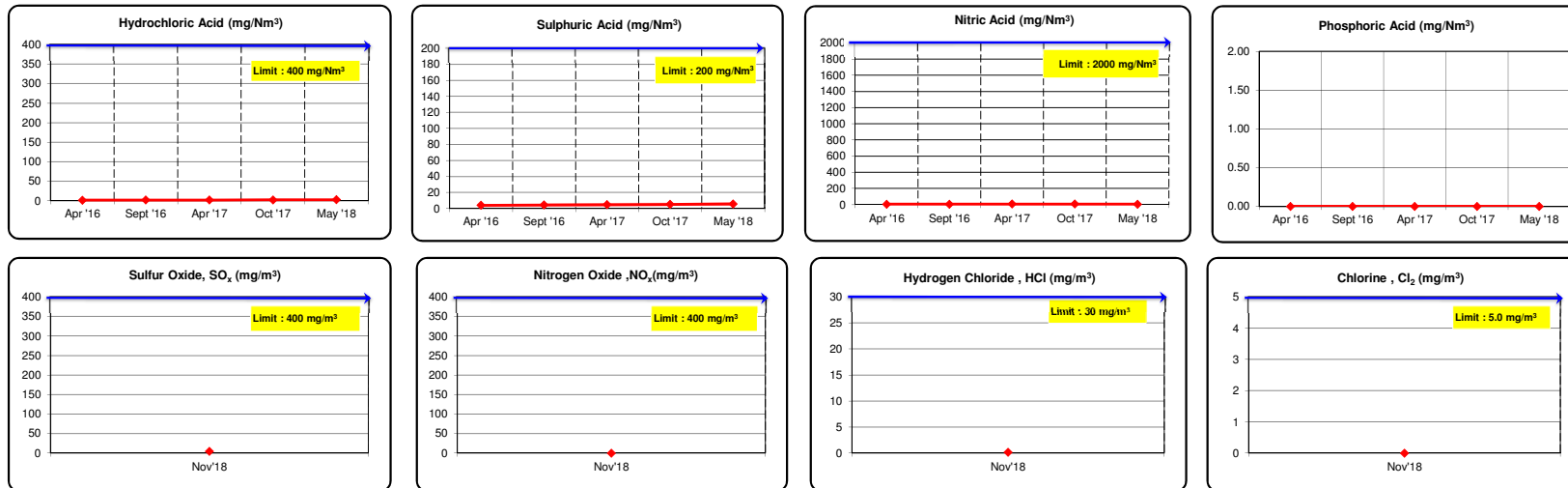
FREQUENCY OF MONITORING: HALF YEARLY

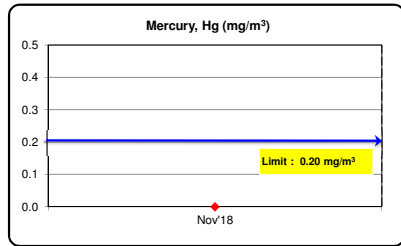
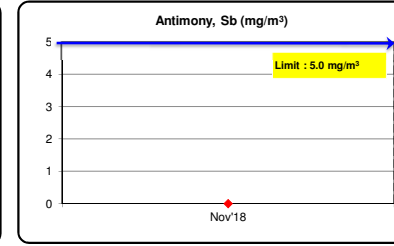
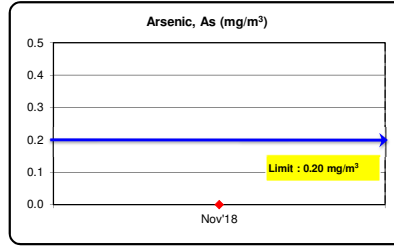
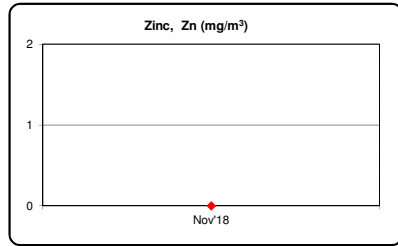
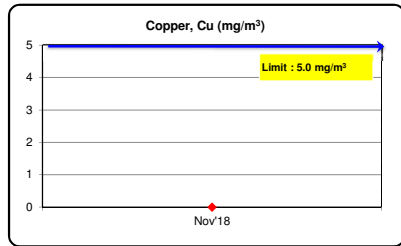
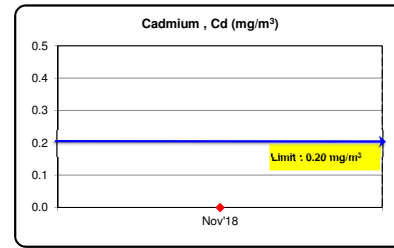
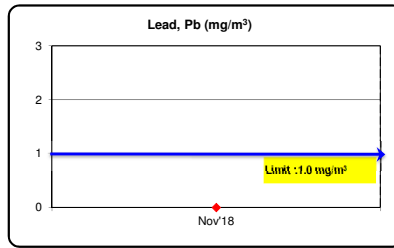
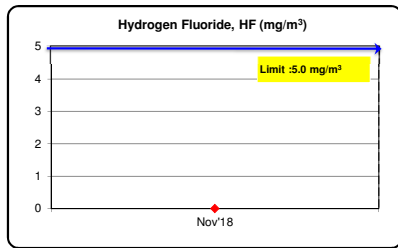
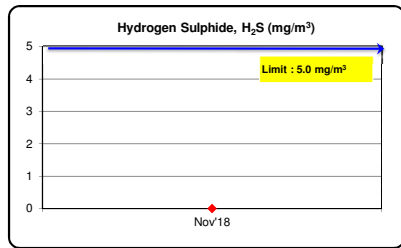
Environmental Quality (Clean Air)
Regulations 2014, Fifth Schedule,
Regulation 15

Parameter / Month	Apr '16	Sept '16	Apr '17	Oct '17	May '18	Nov '18	Limit
Hydrochloric Acid (mg/Nm ³)	1.5	1.8	2	2.4	2.7	N/A	400
Sulphuric Acid (mg/Nm ³)	4	4.4	4.8	5.2	5.7	N/A	200
Nitric Acid (mg/Nm ³)	5.5	6.2	6.9	7.7	5.1	N/A	2000
Phosphoric Acid (mg/Nm ³)	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	N/A	0
Sulfer Oxide, Sox (Sum of SO ² and SO ₃ expressed as SO ₂)mg/m ³						4.147	400
Nitrogen Oxide ,Nox (Sum of NO and NO ₂ as NO ₂)mg/m ³						<0.001	400
Hydrogen Chloride , HCl (mg/m ³)						0.168	30
Chlorine gas , Cl ₂ (mg/m ³)						<0.001	5.0
Hydrogen Sulphide, H ₂ S (mg/m ³)						<0.001	5.0
Hydrogen Fluoride , HF(mg/m ³)						<0.001	5.0
Lead as Pb (mg/m ³)						<0.001	1.0
Cadmium as Cd (mg/m ³)						<0.001	0.20
Copper as Cu (mg/m ³)						<0.001	5.0
Zinc as Zn (mg/m ³)						<0.001	N/A
Arsenic as As (mg/m ³)						<0.001	0.20
Antimony as Sb (mg/m ³)						<0.001	5.0
Mercury as Hg (mg/m ³)						<0.001	0.20
Date of report	25th Apr	14th Sep	19th Apr	19th Oct	22nd May	14th Nov	

Conclusion :

- 1) The emission levels of dust concentration for the Scrubber 3 monitored according to the Malaysian Standard MS 1596:2003 were within the Malaysia Environment Quality (Clean Air) Regulation 2014
- 2) The emission levels for Sulfur Oxide, SOx, Nitrogen Oxide, NoX, Hydrogen Chloride, Chlorine gas, Hydrogen Sulphide and Hydrogen Fluoride for the Scrubber 3 monitored were within the Malaysia Environment Quality (Clean Air) Regulation 2014
- 3) The emission levels for all the metals monitored for the Scrubber 3 also complied to the respective Malaysia Environment Quality (Clean Air) Regulation 2014





S-SITE AIR MONITORING PERFORMANCE GRAPH - SCRUBBER # 6

FREQUENCY OF MONITORING: QUARTERLY

Environmental Quality (Clean Air)
Regulations 2014, Fifth Schedule,
Regulation 15

Parameter / Month	Feb'16	May'16	Aug'16	Feb'17	May'17	Sep'17	Dec'17	Apr'18	Jun'18	Sept'18	Limit
Sulphur Oxides (SO ₂ /Nm ³)	0.005	0.005	0.005	0.005	0.005	0.005	0.005	N/A	N/A	N/A	200
Nitrogen Oxides (SO ₂ /Nm ³)	0.005	0.005	0.005	0.005	0.005	0.005	0.005	N/A	N/A	N/A	2000
Sulphuric Acid Mist (SO ₂ /Nm ³)	1.83	1.93	1.93	1.93	2.02	2.75	3.67	0.098	N/A	N/A	5
Hydrofluoric Acid (HF)/Nm ³	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.001	N/A	N/A	100
Sulfuric Acid Mist (+ SO ₂) mg/m ³								0.098	N/A	N/A	5
Hydrogen Sulphide (mg/m ³)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.001	<0.001	<0.001	5
Hydrogen Chloride (mg/m ³)	1.41	1.51	1.46	2.07	3.02	3.96	3.02	1.176	0.252	0.084	30
Chlorine Gas (mg/m ³)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	5
Sulfur Oxides, SO _x (Sum of SO ₂ and SO ₃ expressed as SO ₂) (mg/m ³)								10.302	3.706	4.925	400
Nitrogen Oxides, NO _x (Sum of NO and NO ₂ expressed as NO ₂) (mg/m ³)								<0.001	<0.001	<0.001	400
Hydrogen fluoride (mg/m ³)								<0.001	<0.001	<0.001	5
Lead (mg/m ³)	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.001	<0.001	<0.001	1
Cadmium (mg/m ³)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.001	<0.001	<0.001	0.2
Copper (mg/m ³)	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.100	<0.001	<0.001	<0.001	5
Zinc (mg/m ³)	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.001	<0.001	<0.001	N/A
Arsenic (mg/Nm ³)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	0.2
Antimony (mg/m ³)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.001	<0.001	<0.001	5
Mercury (mg/m ³)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.2
Date of report	2nd Mar	7th May	27th Aug	13th Feb	5th May	23th Sept	30th Dec	11th Apr	21st June	27th Sept	

Conclusion :

- 1) The emission levels of dust concentration for the Scrubber 3 monitored according to the Malaysian Standard MS 1596:2003 were within the Malaysia Environment Quality (Clean Air) Regulation 2014
- 2) The emission levels for Sulfur Oxide, SO_x, Nitrogen Oxide, NO_x, Hydrogen Chloride, Chlorine Gas, Hydrogen Sulphide and Hydrogen Fluoride for the Scrubber 6 monitored were within the Malaysia Environment Quality (Clean Air) Regulation 2014
- 3) The emission levels for all the metals monitored for the Scrubber 6 also complied to the respective Malaysia Environment Quality (Clean Air) Regulation 2014

