Appendix G

The QA/QC Procedures and Results

HIGH VOLUME AIR SAMPLER

SITE VISIT LOG SHEET

Site Name:	R·E	Site No.:	AM1
Date of visit:	7-12-2001	Hour of Visit:	1115
Staff name:	W.L, MAK	HVAS S/N:	2188
Used filter paper no.:	L012	New filter paper no.:	L014
Type of filter:	Glass-fibre		

I. Ambient Conditions

Temperature, T_a = 273 + 23.6 = 296.6 K Pressure, P_a = 1014 mb

II. Correction of manometer reading

Calibration orifice No.	Manometer reading (ΔH_{STD}) corresponds to Q_{STD} = 40 ft^3/min.	Manometer reading at site conditions
EV08B01	5.1 (4/01)	$\Delta H_a = 1.500(P_a/T_a)$ =
✓EV08B02	5.0 (3/01)	$\Delta H_a = 1.471(P_a/T_a)$ = 5.02

Manometer reading before calibration: 5.00

Adjustment of flow controller (Y/N): N

Manometer reading after calibration: 5.00

Note: Manometer reading corrected to ambient conditions: $\Delta H_a = \Delta H_{STD}(P_a/P_{STD})(T_{STD}/T_a)$

III. General Conditions of HVAS

IV. Remarks

HIGH VOLUME AIR SAMPLER

SITE VISIT LOG SHEET

Site Name:	EG	Site No.:	AM2
Date of visit:	1-12-2001	Hour of Visit:	11:35
Staff name:	W.L. MAK	HVAS S/N:	2125
Used filter paper no.:	L013	New filter paper no.:	L015
Type of filter:	Glass-fibre		

I. Ambient Conditions

Temperature, T_a = 273+23.1 = 296.1 K Pressure, P_a = 1019 mb

II. Correction of manometer reading

Calibration orifice No.	Manometer reading (ΔH_{STD}) corresponds to Q_{STD} = 40 ft^3/min.	Manometer reading at site conditions
EV08B01	5.1 (4/01)	$\Delta H_a = 1.500(P_a/T_a)$ =
√EV08B02	5.0 (3/01)	$\Delta H_a = 1.471(P_a/T_a)$ = 5.06

Manometer reading before calibration: 5.20

Adjustment of flow controller (Y/N): Y

Manometer reading after calibration: 5.10

Note: Manometer reading corrected to ambient conditions: $\Delta H_a = \Delta H_{STD}(P_a/P_{STD})(T_{STD}/T_a)$

III. General Conditions of HVAS

IV. Remarks

PARTISOL TSP SAMPLER
SITE VISIT LOG SHEET

Site Name ASH LAGOON Site Number AM3

Date of Visit 7-12-2001 Hour of Visit 13:45

Staff Name W.L MAK Partisol S/N: 2000B 2011 2000 1

Used Filter No.: PA45 New Filter No.: PA46

Ambient temperature: 23.7 Ambient pressure: 1016

I. General Services

1. Replace control unit Large In-line Filter x
2. Clean the sample inlet head ✓
3. Clean sample tube ✓
4. Clean / ~~Replace~~ pump head ✓
5. Clean / Replace piston x

II. Operational Audits (3 months interval as recommended by manufacturer)

1. Temperature Check (Ambient temperature ± 2°C)

_____ °C Calibration: Y / N _____ °C
Before After

2. Pressure Check (Ambient pressure ± 20 mbar)(factor = 0.000987)

_____ mbar Calibration: Y / N _____ mbar
Before After

3. Flow Check (16.7± 1.1 litre/min)

_____ cc/min Calibration: Y / N _____ cc/min
Before After

III. Remarks

_____

_____

_____

_____

MINI VOLUME AIR SAMPLER

SITE VISIT LOG SHEET

Site Name:	TYV	Site No.:	AM4
Date of visit:	7-12-2011	Hour of Visit:	11:12
Staff name:	H.K. Tsang	MINIVOL S/N:	2050
Used filter paper no.:	MF0P	New filter paper no.:	MF10

Type of filter: ~~Cellulose~~ / Glass-fibre
(Delete as appropriate)

I. Calibration is performed by using Drycal DC-2 Flow Calibrator

5 Sl/min set point is recommended

5.00 Before 5.00 After

II. General Service of Mini Vol Air Sampler

1. Clean Rotameter: ✓
2. Clean / ~~replace~~ Pump Valves: ✓
3. Clean / ~~replace~~ Pump Diaphragms: ✓
4. Clean Impaction Inlet: X
5. Replace Timer Battery Every 6 months: X
6. Replace Inlet Filter: ✓

III. Remarks

_____

_____

_____

THE HONGKONG ELECTRIC CO., LTD.
LAMMA POWER STATION EXTENSION
TEOM 1400A CONTINUOUS DUST MONITOR
DATA QUALITY ASSURANCE LOG SHEET

Month : DEC. Year : 2001

Reservoir (AM1)					
Date	Frequency (Hz) (260 – 280)	Noise (< 0.1)	Operation Mode (Mode 4)	Main Flow (l/min) (0.94 – 1.06)	Aux. Flow (l/min) (14.67 – 16.67)
6-12-01	269.11	0.059	4	1.00	15.65
12-12-01	268.53	0.021	4	1.00	15.65
18-12-01	272.94	0.029	4	1.00	15.65
24-12-01	272.57	0.016	4	1.00	15.65
30-12-01	272.08	0.043	4	1.00	15.65

East Gate (AM2)					
Date	Frequency (Hz) (230 – 250)	Noise (< 0.1)	Operation Mode (Mode 4)	Main Flow (l/min) (0.94 – 1.06)	Aux. Flow (l/min) (14.67 – 16.67)
6-12-01	248.42	0.036	4	1.00	15.66
12-12-01	245.16	0.028	4	1.00	15.65
18-12-01	246.07	0.030	4	1.00	15.64
24-12-01	245.77	0.028	4	1.00	15.64
30-12-01	245.36	0.052	4	1.00	15.64

Ash Lagoon (AM3)					
Date	Frequency (Hz) (230 – 250)	Noise (< 0.1)	Operation Mode (Mode 4)	Main Flow (l/min) (0.94 – 1.06)	Aux. Flow (l/min) (14.67 – 16.67)
6-12-01	246.64	0.022	4	0.99	15.64
12-12-01	246.43	0.033	4	1.00	15.64
18-12-01	246.12	0.027	4	1.00	15.64
24-12-01	245.83	0.026	4	0.99	15.64
30-12-01	247.36	0.027	4	1.00	15.65

Maintenance Record			
	Reservoir	East Gate	Ash Lagoon
TEOM Filter Exchange	✓	✓	✓
Clean TSP Inlet	✓	✓	✓
Replace flow in-line filter			
Pump Repair			
Leak Check			
Flow Audit			
Flow Controller Calibration			
A/C filter cleaning	✓	✓	✓

Remarks:

Prepared by : Alex.

Checked by : _____

THE HONGKONG ELECTRIC CO., LTD.
LAMMA POWER STATION EXTENSION
NOISE MONITORING STATION
SITE VISIT LOG SHEET

Location Ash Lagoon/~~Ching Lam*~~

Date 13-12-2001 Time 11:40

Equipment Rion NA-27 Sound Level Meter

Serial Number ~~00111465~~/00111466/~~00111467*~~

Staff Attended H.K. TSANG

1. Calibration

   Acoustic calibrator used Rion NC-74

   Calibration level before adjustment (dB(A)) 93.9

   Calibration level after adjustment (dB(A)) 94

2. Weather Conditions

   a. ~~Sunny/fine~~/cloudy/~~showery/heavy rain*~~

   b. ~~Strong wind~~/breeze/~~calm*~~

3. Remark/Observation

Note: * - Please delete where inappropriate

28/3/2001

THE HONGKONG ELECTRIC CO., LTD.
LAMMA POWER STATION EXTENSION
NOISE MONITORING STATION
SITE VISIT LOG SHEET

Location ~~Ash Lagoon~~/Ching Lam*

Date 14-12-2001 Time 1143

Equipment Rion NA-27 Sound Level Meter

Serial Number ~~00111465/00111466~~/00111467*

Staff Attended W L MAK, HK. TSANG

1. Calibration

Acoustic calibrator used Rion NC-74

Calibration level before adjustment (dB(A)) 93.9

Calibration level after adjustment (dB(A)) 94

2. Weather Conditions

a. ~~Sunny~~/fine/~~cloudy~~/~~showery~~/~~heavy rain~~*

b. ~~Strong wind~~/breeze/~~calm~~*

3. Remark/Observation

Note: * - Please delete where inappropriate

28/3/2001

Equipment Calibration Record

Equipment No.	CM-ESG-022	Equipment description	YSI 6820 Multi-parameter Water Quality Monitor
Calibration method reference	OD-ESG-075	Calibration equipment used (if any)	--

	pH	DO	Turbidity
Use of Reference material (if any)	pH 6.86 & 10.01 buffer RM ESG-006 RM ESG-007	--	0 NTU & 200 NTU RM-ESG-0002 RM-ESG-0003
Permissible tolerance of calibration	± 0.12 pH	±5%	±5%

Calibration Result

		pH		DO	Turbidity		
Date	Standard	6.86	10.01	100%	0	200	Calibrated by
3/12	Before	6.95	10.28	98.4	0.5	203.8	TMCha
	After	6.86	10.01	100.0	0.0	200.0	
5/12	Before	6.90	10.14	99.1	1.2	202.1	
	After	6.86	10.01	100.0	0.0	200.0	
7/12	Before	6.87	10.24	98.8	2.4	203.5	
	After	6.86	10.01	100.0	0.0	200.0	
10/12	Before	6.82	9.97	94.8	1.6	202.1	
	After	6.86	10.01	100.0	0.0	200.0	
12/12	Before	6.97	10.08	95.3	0.0	205.2	TMCha
	After	6.86	10.01	100.2	0.0	200.0	
14/12	Before	6.90	10.07	105.0	0.7	202.2	
	After	6.86	10.01	100.1	0.0	200.0	
18/12	Before	6.91	9.98	103.5	2.0	198.3	
	After	6.86	10.01	100.0	0.0	200.0	
20/12	Before	6.97	9.89	98.3	1.0	201.8	TMCha
	After	6.86	10.01	100.0	0.0	200.0	
22/12	Before	6.86	9.92	103.4	0.4	203.6	
	After	6.86	10.01	100.0	0.0	200.0	
24/12	Before	6.90	10.07	104.1	0.6	202.1	
	After	6.86	10.01	100.0	0.0	200.0	
26/12	Before	6.90	10.03	99.2	0.5	201.5	TMCha
	After	6.86	10.01	100.0	0.0	200.0	
28/12	Before	6.92	9.95	99.5	1.3	196.4	TMCha
	After	6.86	10.01	100.0	0.0	200.0	
31/12	Before	6.88	10.05	98.3	0.7	202.3	TMCha
	After	6.86	10.01	100.0	0.0	200.0	
	Before						
	After						

Approved by EMC: _____ Date: 2/1/2002

SUMMARY OF QUALITY CONTROL DATA - BLANK RESULTS

Parameter	Control Limit	Blank ID	Measured Value	Blank ID	Measured Value	Blank ID	Measured Value	Blank ID	Measured Value	Blank ID	Measured Value	Blank ID	Measured Value	
Suspended Solids mg/L	< 1	BK0113004	< 1	BK0112010	< 1	BK0112013	< 1	BK0112119	< 1	BK0112024	< 1	BK0112028	< 1	
		BK0112104	< 1	BK0112110	< 1	BK0112113	< 1	BK0112219	< 1	BK0112124	< 1	BK0112128	< 1	
		BK0112204	< 1	BK0112210	< 1	BK0112213	< 1	BK0112319	< 1	BK0112224	< 1	BK0112228	< 1	
		BK0112004	< 1	BK0112310	< 1	BK0112313	< 1	BK0112419	< 1	BK0112324	< 1	BK0112328	< 1	
		BK0112006	< 1	BK0112111	< 1	BK0112115	< 1	BK0112021	< 1	BK0112027	< 1	BK0112029	< 1	
		BK0112106	< 1	BK0112211	< 1	BK0112215	< 1	BK0112121	< 1	BK0112127	< 1	BK0112129	< 1	
		BK0112206	< 1	BK0112011	< 1	BK0112315	< 1	BK0112221	< 1	BK0112227	< 1	BK0112229	< 1	
		BK0112306	< 1	BK0111311	< 1	BK0112415	< 1	BK0112321	< 1	BK0112327	< 1			**Total: 47**
Unionized Ammonia (as Ammonia) mg/L	< 0.01	BK0112021	< 0.01											
		BK0112121	< 0.01											
		BK0112220	< 0.01											**Total: 3**
Total Inorganic Nitrogen (as Nitrite and Nitrate) mg/L	< 0.01	BK0112020	< 0.01											
		BK0112120	< 0.01											
		BK0112220	< 0.01											**Total: 3**

SUMMARY OF QUALITY CONTROL DATA - DUPLICATE RESULTS

Parameter	Control Limit	Sample ID	Measured Value	Sample ID	Measured Value	Sample ID	Measured Value	Sample ID	Measured Value	Sample ID	Measured Value	Sample ID	Measured Value		
Suspended Solids mg/L	exceed 20%		6.9		4.1		11.4		7.4		3.1		5.1		
		WC0118022	6.3	WC0118205	4.1	WC0118378	11.4	WC0118666	7.0	WC0119179	3.3	WC0119603	5.3		
			14.6		7.6		7.3		17.8		8.3		10.6		
		WC0118037	15.2	WC0118220	7.8	WC0118393	7.1	WC0118681	17.0	WC0119194	8.7	WC0119618	11.0		
			9.4		8.5		12.2		11.5		6.5		4.8		
		WC0118058	9.4	WC0118241	8.5	WC0118414	11.4	WC0118702	10.3	WC0119214	6.9	WC0119639	4.2		
			9.5		6.1		15.5		12.5		10.2		8.0		
		WC0118073	9.3	WC0118256	6.3	WC0118429	16.7	WC0118717	13.7	WC0119230	11.0	WC0119654	9.2		
			11.0		9.5		8.1		9.9		7.7		15.6		
		WC0118110	10.6	WC0118289	8.9	WC0118490	8.1	WC0118898	9.9	WC0119523	7.9	WC0119832	16.0		
			13.8		10.6		11.7		12.6		12.9		9.7		
		WC0118125	14.0	WC0118304	9.6	WC0118505	13.3	WC0118914	12.4	WC0119538	12.5	WC0119847	8.9		
			8.9		12.7		17.2		15.0		7.6		8.9		
		WC0118146	8.9	WC0118325	12.5	WC0118526	18.8	WC0118935	17.4	WC0119559	7.8	WC0119868	9.1		
			10.0		9.9		12.5		10.3		10.5				**Total: 47**
		WC0118161	10.2	WC0118340	9.1	WC0118541	11.9	WC0118950	10.3	WC0119574	10.7				
Unionised Ammonia (as Ammonia) mg/L	exceed 20%		0.001												
		WC0118022	0.001												
			0.003												
		WC0118037	0.003												
			0.001												**Total: 3**
		WC0118058	0.001												
Total Inorganic Nitrogen (as Nitrite + Nitrate) mg/L	exceed 20%		0.15												
		WC0118022	0.15												
			0.22												
		WC0118037	0.22												
			0.14												**Total: 3**
		WC0118058	0.14												

SUMMARY OF QUALITY CONTROL DATA - MATRIX SPIKE RESULTS

Parameter	Spiked ID	Recovery (%)	Spiked ID	Recovery (%)	Spiked ID	Recovery (%)	Spiked ID	Recovery (%)	Spiked ID	Recovery (%)	Spiked ID	Recovery (%)	
Unionized Ammonia	RT0102121	94											
(as Ammonia)	RT0102221	102											
mg/L	RT0102321	99											**Total: 3**
Total Inorganic Nitrogen	RT0112120	103											
(as Nitrite + Nitrate)	RT0112220	113											
mg/L	RT0112022	113											**Total: 3**

Acceptance Criteria: 75% to 125%

SUMMARY OF QUALITY CONTROL DATA - QC SAMPLES RESULTS

Parameter	Control Limit	QC ID	Measured Value	QC ID	Measured Value	QC ID	Measured Value	QC ID	Measured Value	QC ID	Measured Value	QC ID	Measured Value	
Suspended Solids	8.9 - 10.3	QC0113004	9.4	QC0112010	9.7	QC0112013	9.5	QC0112119	9.4	QC0112024	9.2	QC0112028	9.4	
mg/L		QC0112104	9.3	QC0112110	9.4	QC0112113	9.6	QC0112219	9.5	QC0112124	9.5	QC0112128	10.2	
		QC0112204	10.3	QC0112210	9.7	QC0112213	9.3	QC0112319	9.2	QC0112224	9.4	QC0112228	10.2	
		QC0112004	10.1	QC0112310	9.6	QC0112313	9.5	QC0112419	9.7	QC0112324	9.8	QC0112328	9.4	
		QC0112006	10.1	QC0112111	9.3	QC0112115	9.5	QC0112021	9.6	QC0112027	9.5	QC0112029	9.5	
		QC0112106	9.6	QC0112211	9.9	QC0112215	9.6	QC0112121	9.5	QC0112127	9.2	QC0112129	10.0	
		QC0112206	9.4	QC0112047	9.4	QC0112315	9.6	QC0112221	9.9	QC0112227	9.6	QC0112229	9.3	
		QC0112306	9.6	QC0111231	9.7	QC0112415	9.3	QC0112321	10.1	QC0112327	9.9			**Total: 47**
Unionized Ammonia	0.09 - 0.12	QC0112021	0.10											
(as Ammonia)		QC0112121	0.10											
mg/L		QC0112221	0.10											**Total: 3**
Total Inorganic Nitrogen	0.36 - 0.44	QC0112020	0.40											
(as Nitrite and Nitrate)		QC0112120	0.41											
mg/L		QC0112220	0.41											**Total: 3**

SUMMARY OF QUALITY CONTROL DATA - BLIND DUPLICATE RESULTS

Parameter	Control Limit	Sample ID	Measured Value	Sample ID	Measured Value	Sample ID	Measured Value	Sample ID	Measured Value	Sample ID	Measured Value	Sample ID	Measured Value	Sample ID	Measured Value	Sample ID	Measured Value	Sample ID	Measured Value	Sample ID	Measured Value	Sample ID	Measured Value	Sample ID	Measured Value	Sample ID	Measured Value	Sample ID	Measured Value	
Suspended Solids mg/L	exceed 20%		15.9		17.4		5.5		7.1		6.1		7.7		7.7		10.5		9.0		6.1		8.6		9.3					
		WC0118082	14.1	WC0118170	15.8	WC0120126	5.1	WC0118349	7.4	WC0118438	6.4	WC0118550	7.1	WC0118726	7.8	WC0118959	9.9	WC0119239	8.3	WC0119583	6.1	WC0119663	9.5	WC0119892	8.6					
			7.7		9.6		12.3		8.3		9.3		9.9		7.1		18.7		5.2		12.5		6.2		10.1					
		WC0118083	6.9	WC0118171	9.2	WC0118266	11.9	WC0118350	9.2	WC0118439	9.4	WC0118551	9.9	WC0118727	7.4	WC0118960	17.5	WC0119240	4.9	WC0119584	11.5	WC0119664	5.9	WC0119898	10.3					
			8.3		9.2		10.1		4.9		8.1		13.7		29.9		14.1		8.0		13.3		11.4		10.3					
		WC0120125	7.6	WC0118172	9.2	WC0118267	10.0	WC0118351	4.2	WC0118440	8.1	WC0118552	14.9	WC0118728	29.2	WC0118961	14.2	WC0119241	8.3	WC0119585	13.1	WC0119665	10.7	WC0119894	8.5					
			24.1		15.4		6.9		9.9		9.3		10.1		9.3		11.3		13.2		14.9		8.4		10.9					
		WC0118085	22.6	WC0118173	14.6	WC0118268	6.2	WC0118352	10.4	WC0118441	9.7	WC0118553	9.7	WC0118729	8.8	WC0118962	12.4	WC0119242	12.1	WC0119586	12.7	WC0119666	7.6	WC0119895	11.1					
			10.1		13.0		8.5		11.9		8.9		6.7		9.5		15.1		10.6		8.1		11.0		8.7					
		WC0118086	11.2	WC0118174	12.0	WC0118269	8.8	WC0120127	10.8	WC0118442	9.2	WC0118554	6.6	WC0120129	8.8	WC0118963	14.6	WC0119243	11.3	WC0119587	8.7	WC0119667	9.8	WC0119899	8.9					
			10.9		13.4		8.3		6.9		11.7		12.3		13.1		15.3		9.8		10.1		8.0		9.3					
		WC0118087	11.8	WC0118175	12.9	WC0118270	8.3	WC0120128	6.4	WC0118443	12.2	WC0118555	14.4	WC0118731	14.1	WC0118964	16.6	WC0119244	9.3	WC0119588	10.4	WC0119668	7.4	WC0119897	9.0					
			10.9		13.4		12.1		9.5		5.7		9.5		9.7		12.3		6.8		11.3		11.0							
		WC0118088	9.8	WC0118176	13.5	WC0118271	13.3	WC0118355	7.7	WC0118444	6.4	WC0118556	8.6	WC0118732	9.7	WC0118965	12.1	WC0119245	7.2	WC0119589	11.4	WC0119669	10.2							
			10.7		10.2		8.1		5.3		10.7		13.3		8.3		9.7		7.8		9.5		14.2							**Total: 94**
		WC0118089	11.1	WC0118177	9.0	WC0118272	8.9	WC0118356	5.1	WC0118445	10.5	WC0118557	13.7	WC0118733	7.9	WC0118966	8.1	WC0119246	8.2	WC0119590	10.6	WC0119670	15.2							
Unionised Ammonia mg/L	exceed 20%		0.001		0.001		0.002																					
		WC0118076	<0.001	WC0118041	0.001	WC0118068	0.002																					
			0.001		0.002																							
		WC0118023	0.001	WC0118050	0.002																							
			0.003		0.002																							**Total: 7**
		WC0118032	0.003	WC0118059	0.002																							
Total Inorganic Nitrogen (as Nitrite + Nitrate) mg/L	exceed 20%		0.36		0.14		0.25																					
		WC0118014	0.35	WC0118041	0.16	WC0118068	0.27																					
			0.20		0.27																							
		WC0118023	0.19	WC0118050	0.24																							
			0.37		0.16																							**Total: 7**
		WC0118032	0.37	WC0118059	0.16																							