

EMISSIONS MONITORING SURVEY

Prepared for:

**London Taxis International
Holyhead Road
Coventry
Warwickshire
CV5 8JJ**

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Job Number	: B158
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1.0 EXECUTIVE SUMMARY

The monitoring at this installation was carried out in accordance with our quotation reference PC/B158/Q001, for compliance check monitoring of emissions to air. The substances requested for monitoring at each emissions point are listed below:

Substances to be monitored	Emission Point Identification			
	Tack Booth	Water Booth 1	Water Booth 2	Lacquer Booth 3
Particulates	• U	• U	• U	• U
Substances to be monitored	Emission Point Identification			
	Lacquer Booth 4	Main Combi Booth	PDI Combi Booth	
Particulates	• U	• U	• U	

- Denotes the substances to be monitored.
- U Denotes UKAS accreditation is held for monitoring that substance.

Special Requirements: *"Test While Processes are Running."*

1.1 Monitoring Results

Emission Point Reference	Substance to be Monitored	Emission Limit Value	Periodic Monitoring Result	Units	Uncertainty %	Reference Conditions 273 K, 101.3 kPa	Date of Sampling	Start and End Times	Monitoring Method Reference	Accreditation for use of Method	Operating Status
Tack Booth	Particulates	10	2.7	mg.m ⁻³	30%	& Wet Gas	13/05/08	13:42 – 14:12	BS EN 13284-1	NU	Normal. 14 taxis per day. Were producing 18 taxis per day on previous visit.
	Particulates	10	0.3	mg.m ⁻³	> 100 %	& Wet Gas	13/05/08	14:20 – 14:50	BS EN 13284-1	NU	
Water Based Booth 1	Particulates	10	2.5	mg.m ⁻³	30%	& Wet Gas	13/05/08	09:45 – 10:15	BS EN 13284-1	NU	
	Particulates	10	1.5	Mg.m ⁻³	50%	& Wet Gas	13/05/08	10:25 – 10:55	BS EN 13284-1	NU	
Water Based Booth 2	Particulates	10	9.6	mg.m ⁻³	10%	& Wet Gas	13/05/08	09:45 – 10:15	BS EN 13284-1	NU	
	Particulates	10	4.5	mg.m ⁻³	20%	& Wet Gas	13/05/08	10:25 – 10:55	BS EN 13284-1	NU	
Lacquer Booth 3	Particulates	10	8.9	mg.m ⁻³	10%	& Wet Gas	13/05/08	13:22 - 13:54	BS EN 13284-1	NU	
	Particulates	10	9.5	mg.m ⁻³	10%	& Wet Gas	13/05/08	14:00 – 14:40	BS EN 13284-1	NU	
Lacquer Booth 4	Particulates	10	3.5	mg.m ⁻³	30%	& Wet Gas	13/05/08	12:00 – 12:32	BS EN 13284-1	NU	
	Particulates	10	4.1	mg.m ⁻³	30%	& Wet Gas	13/05/08	12:35 – 13:05	BS EN 13284-1	NU	
Main Combi (Spray)	Particulates	10	2.4	mg.m ⁻³	30%	& Wet Gas	14/05/08	08:45 – 09:15	BS EN 13284-1	NU	
Main Combi (Bake)	Particulates	10	0.7	mg.m ⁻³	> 100 %	& Wet Gas	14/05/08	09:20 – 09:50	BS EN 13284-1	NU	
PDI Combi (Spray)	Particulates	10	5.6	mg.m ⁻³	20%	& Wet Gas	14/05/08	10:28 – 11:00	BS EN 13284-1	NU	
PDI Combi (Bake)	Particulates	10	0.3	mg.m ⁻³	> 100 %	& Wet Gas	14/05/08	11:05 – 11:37	BS EN 13284-1	NU	

Notes

Emission Limit Value
Periodic Monitoring Result
Uncertainty
Reference Conditions
Monitoring Method Reference
Accreditation for use of Method
Operating Status
NU
NA

The emission limit value is that stated in the permit and will be expressed as a concentration or a mass emission.
The result given is expressed in the same terms and units as the emission limit value.
The uncertainty associated with the quoted result is at the 95% confidence interval.
All results are expressed at 273 K and 101.3kPa. The oxygen and moisture corrections are stated.
The method stated is in accordance with the Environment Agency Technical Guidance Note M2, or other method approved by the Environment Agency.
The details indicate the accreditation for the use of the complete monitoring method, e.g. MCERTS, UKAS. If use of the method is not accredited " NA " is stated.
The details indicate the feedstock and the loading rate of the plant during monitoring.
Chemical Analysis on sample reagents was performed by an External Laboratory as detailed in Section 3.0
UKAS Accreditation Held but UKAS Accreditation cannot be claimed for the test as sampling did not comply with the Standard Reference Method (SRM), see section 3.0 & 4.0
Method is NOT UKAS Accredited.

1.2 Operating Information

Emission Point Reference	Date	Process Type	Process Duration	Fuel	Feedstock	Abatement	Load	Comparison of Operator CEMS and Periodic Monitoring Results			
								Substance	CEMS Results	Periodic Monitoring Results	Units
Tack Booth	13/05/08	Batch	Various	n/a	n/a	None	Normal	-	-	-	-
Water Based	13/05/08	Batch	Various	n/a	n/a	Wet	Normal	-	-	-	-
Lacquer	13/05/08	Batch	Various	n/a	n/a	Wet	Normal	-	-	-	-
Combi Booths	14/05/08	Batch	Various	n/a	n/a	Dry	Normal	-	-	-	-

Notes:

- Process Type
 - Process Duration
 - Fuel
 - Feedstock
 - Abatement
 - Load
- State whether the process is a continuous or batch process.
 If a batch process, state the duration, frequency and details of the portion of the batch sampled. If continuous state "NA"
 If applicable, state the fuel type if not applicable state "NA"
 State the feedstock type
 State the type and whether operational during monitoring. If not applicable state "NA"
 State the normal load, throughput or rating of the plant

2.0 INTRODUCTION

Environmental Compliance Ltd (ECL) was commissioned by **London Taxis International Limited** to undertake an emission monitoring survey at their site in **Coventry**. This report presents the findings of the study.

The emissions monitoring survey was carried out by the site sampling team detailed in the table below at the request of **Mr Carl Richardson** in accordance with quotation reference **PC/B158/Q001**.

Site Sampling Team

Names of Site Team	Dates on Site	MCERTS No.	LEVEL	Technical Endorsements
John Litterick	13 & 14/05/08	MM 03 236	2	TE1, TE3, TE4
Andrew Osbourne	13 & 14/05/08	MM 07 842	Trainee	n/a

Report Reviewer

Name	MCERTS No.	LEVEL	Technical Endorsements
Andy Barnes	MM 03 235	2	TE1, TE2, TE3, TE4

Technical Endorsement Key:-

TE1 – Isokinetic Particulates, Temperature & Velocity Profiles

TE2 – Isokinetic Extractive Pollutants:- Metals, Dioxin & Furans, PAHs, PCBs, HCL, HF

TE3 – Non-Isokinetic Extractive Pollutants:- Speciated VOCs, HF, HCL, Cyanide.

TE4 – Continuous Analysers (Combustion Gases):- VOCs, CO, NOx, SO2, O2

2.1 Objectives

The objective of the survey was to measure the concentrations of pollutants from the processes / locations as detailed in the Executive Summary. This survey meets the requirements of the site's **PPC Permit Number: PPC 037** where UKAS and MCERTS accreditation has and could be claimed for the testing in the monitoring results table.

2.2 Scope of Work

There were no deviations from the original and agreed emissions monitoring schedule, as detailed in the Executive Summary.

3.0 SAMPLING PROTOCOLS / METHODOLOGIES

3.1 Particulates

Testing was carried out using a Manual Stack Sampling system, using instack filtration where possible, and an unheated sampling train in accordance with or based on BS EN 13284-1 & MID and In-house technical procedure ECL/TPD/027.

Isokinetic particulate sampling is achieved when the velocity of gas entering the sampling nozzle is exactly equal to the velocity of the approaching gas stream within the stack. A measured volume of sample gas is withdrawn from the stack isokinetically through a sampling nozzle and heated sampling probe (where out-stack filtration was necessary), and then through a pre-weighed filter positioned in a housing, where the particles are collected on the filter. Following testing the front half of the filter housing, (probe, where used outstack) and the sample nozzle are rinsed to remove any particulate matter which, may have impacted on the surfaces during testing.

The filters and rinses are subsequently analysed to determine the amount of particulate matter captured. Analysis of filters & probe washes are performed by ECL who are UKAS accredited.

In addition to the survey samples, a daily field blank is submitted as part of the technical procedure.

4.0 SAMPLE POINT DESCRIPTIONS

The sample locations that were monitored are detailed below:-

5.1 Tack Booth

Sampling takes place in a straight section of horizontal ductwork with 50cm diameter. The sample plane is after the fan, 1.0m after a bend and 1.5m before a bend. As such the sampling plane does not meet the positional *recommendations* of BSEN 13284.

Furthermore the sampling plane does not meet the flow *requirements* of the standard, as there are a number of positions on the sampling plane where the angle of gas flow is greater than 15 degrees from the duct axis. There were no alternative positions safely accessible on the test dates.

As sampling could not be carried out in accordance with the Standard Reference Method (SRM) UKAS accreditation cannot be claimed for the test results for Particulates even though UKAS accreditation is held for monitoring.

5.2 Water Based Booths 1 & 2

Sampling takes place in straight sections of vertical ductwork with 120cm diameter. The sample planes are 1.0m above the fan, only one sampling line is available. As such the sampling planes do not meet the positional *recommendations* of BSEN 13284.

Furthermore the sampling planes do not meet the flow *requirements* of the standard, as there are a number of positions on the sampling planes where the angle of gas flow is greater than 15 degrees from the duct axis. There were no alternative positions safely accessible on the test dates.

As sampling could not be carried out in accordance with the Standard Reference Method (SRMs) UKAS accreditation cannot be claimed for the test results for Particulates even though UKAS accreditation is held for monitoring.

5.3 Lacquer Booths 3 & 4

Sampling takes place in straight sections of vertical ductwork with dimensions of 120 x 120 cm. The sample planes are 150cm above the fan, two sampling lines are available. As such the sampling planes do not meet the positional *recommendations* of BSEN 13284.

Furthermore the sampling planes do not meet the flow *requirements* of the standard, as there are a number of positions on the sampling planes where the angle of gas flow is greater than 15 degrees from the duct axis. There were no alternative positions safely accessible on the test dates.

As sampling could not be carried out in accordance with the Standard Reference Method (SRMs) UKAS accreditation cannot be claimed for the test results for Particulates even though UKAS accreditation is held for monitoring.

5.4 Main Combi Booth 1

Sampling takes place in a straight section of horizontal ductwork with 80cm diameter. The sample plane is after the fan, 2.0m after a bend and 0.3 m before a bend. As such the sampling plane does not meet the positional *recommendations* of BSEN 13284.

Furthermore the sampling plane does not meet the flow *requirements* of the standard, as there are a number of positions on the sampling plane where the angle of gas flow is greater than 15 degrees from the duct axis. There were no alternative positions safely accessible on the test dates.

As sampling could not be carried out in accordance with the Standard Reference Method (SRMs) UKAS accreditation cannot be claimed for the test results for Particulates even though UKAS accreditation is held for monitoring.

5.5 PDI Combi Booth 2

Sampling takes place in a straight section of horizontal ductwork with 80cm diameter. The sample plane is after the fan, 2.5m above the fan and at least 4m before the exit. As such the sampling plane does meet the positional *recommendations* of BSEN 13284.

However the sampling plane does not meet the flow *requirements* of the standard, as there are a number of positions on the sampling plane where the angle of gas flow is greater than 15 degrees from the duct axis. There were no alternative positions safely accessible on the test dates.

As sampling could not be carried out in accordance with the Standard Reference Method (SRMs) UKAS accreditation cannot be claimed for the test results for Particulates even though UKAS accreditation is held for monitoring.

5.0 RESULTS

The results of the survey are presented in the Tables Section, and are also presented graphically in the Figures Section.

5.1 Emissions Limit Comparisons

All pollutants measured were below their respective authorised emission limit values.

TABLES

Detailed Particulate Results

Plant Type	Water Based 2	Stack Area (m ²)	1.130
Job Number	B158	Meter Temp (C)	30 30
Client Name	London Taxis	Stack Diameter (cm)	120
Date	13/05/2008	Pitot Factor (squared)	1.00
		Pitot Factor Cp	1.00
		Stack Pressure (Pa)	550
		Ambient Pressure (kPa)	100.9
MeterYd	0.931	Nozzle Size (mm)	5

PITOT SURVEY

Traverse Point	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10
Distance From Near Wall (D)	0.071	0.113	0.250	0.350	0.450	0.550	0.650	0.750	0.887	0.929
Pitot Reading (Pa)	40	45	50	50	60	60	50	40	40	45
Temperature (°C)	22	22	22	22	22	22	22	22	22	22
Duct Velocity (m/s)	8.2	8.7	9.1	9.1	10.0	10.0	9.1	8.2	8.2	8.7

Absolute Mean Duct Velocity (m/s) 8.8
 Absolute Flow Rate (m³/hr) 36008
 Normalised Flow Rate (Nm³/hr) 33372

Sampling Run 1										
Time:	09:45 to 10:15									
Sampling Point	A1	A3	A8	A10						
Sampling Rate (l/min)	11.3	12.6	11.3	12.0						
Sampling Duration (mins)	7.5	7.5	7.5	7.5						
Filter No	A4191									
Volume Sampled (m ³)	Meter	0.342	Expected	0.314						

Initial Meter Reading (l) 262600
 Final Meter Reading (l) 262980
 Volume Sampled (l) 380 Corrected Volume = 0.32 Nm³ (at NTP)
 Isokineticity Error (%) 9.1
 (Maximum Allowed Error = -5 to +15%)

Sampling Run 2										
Time:	10:25 to 10:55									
Sampling Point	A1	A3	A8	A10						
Sampling Rate (l/min)	11.3	12.6	11.3	12.0						
Sampling Duration (mins)	7.5	7.5	7.5	7.5						
Filter No	A3985									
Volume Sampled (m ³)	Meter	0.322	Expected	0.314						

Initial Meter Reading (l) 262994
 Final Meter Reading (l) 263351
 Volume Sampled (l) 357 Corrected Volume = 0.30 Nm³ (at NTP)
 Isokineticity Error (%) 2.5
 (Maximum Allowed Error = -5 to +15%)

FILTER WEIGHTS												
Test Number	Filter No	Pre-Weight (mg)		Post-Weight (mg)		Gain (mg)						
		Pre-Weight (mg)	Post-Weight (mg)	Pre-Weight (mg)	Post-Weight (mg)							
1	A4191	89.91	90.45	142739.10	142741.60	3.04						
2	A3985	89.82	90.46	139704.10	139704.80	1.34						
Blank Filter	=	0.01	mg	Blank Rinse	=	0.10	mg	Cont fit	0.00	Cont Bas	0.00	mg

TEST RESULTS				
Blank Concentration	0.35 mg/Nm ³	Test 1	Test 2	Mean
Particulate Concentration(mg/Nm ³)		9.6	4.5	7.0
Mass Emission (g/hr)		319.5	149.9	234.7

Plant Type	Lacquer Booth 3	Stack Area (m ²)	1.440
Job Number	B158	Meter Temp (C)	38 39
Client Name	London Taxis	Stack Diameter (cm)	120 120
Date	13/05/2008	Pitot Factor (squared)	1.00
		Pitot Factor Cp	1.00
		Stack Pressure (Pa)	200
		Ambient Pressure (kPa)	100.9
Meter Yd	0.931	Nozzle Size (mm)	4

PITOT SURVEY

Traverse Point	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10
Distance From Near Wall (D)	0.071	0.125	0.250	0.350	0.450	0.550	0.650	0.750	0.875	0.929
Pitot Reading (Pa)	300	200	100	150	100	125	80	40	30	40
Temperature (°C)	20	20	20	20	20	20	20	20	20	20
Duct Velocity (m/s)	22.3	18.2	12.9	15.8	12.9	14.4	11.5	8.2	7.1	8.2
Traverse Point	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10
Distance From Near Wall (D)	0.071	0.125	0.250	0.350	0.450	0.550	0.650	0.750	0.875	0.929
Pitot Reading (Pa)	300	200	100	150	100	125	80	40	30	40
Temperature (°C)	20	20	20	20	20	20	20	20	20	20
Duct Velocity (m/s)	22.3	18.2	12.9	15.8	12.9	14.4	11.5	8.2	7.1	8.2

Absolute Mean Duct Velocity (m/s) 13.1
 Absolute Flow Rate (m³/hr) 68128
 Normalised Flow Rate (Nm³/hr) 63353

Sampling Run 1		Time: 13:22 to 13:54										
Sampling Point	A1	A3	A8	A10	B1	B3	B8	B10				
Sampling Rate (l/min)	19.2	11.1	7.0	7.0	19.2	11.1	7.0	7.0				
Sampling Duration (mins)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0				
Filter No	A4186											
Volume Sampled (m ³)	Meter	0.347	Expectec	0.314								

Initial Meter Reading (l) 264200
 Final Meter Reading (l) 264595
 Volume Sampled (l) 395 Corrected Volume = 0.32 Nm³ (at NTP)
 Isokineticity Error (%) 10.4
 (Maximum Allowed Error = -5 to +15%)

Sampling Run 2		Time: 14:00 to 14:40										
Sampling Point	A1	A3	A8	A10	B1	B3	B8	B10				
Sampling Rate (l/min)	19.2	11.1	7.0	7.0	19.2	11.1	7.0	7.0				
Sampling Duration (mins)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0				
Filter No	A3336											
Volume Sampled (m ³)	Meter	0.392	Expectec	0.393								

Initial Meter Reading (l) 264603
 Final Meter Reading (l) 265051
 Volume Sampled (l) 448 Corrected Volume = 0.36 Nm³ (at NTP)
 Isokineticity Error (%) -0.1
 (Maximum Allowed Error = -5 to +15%)

FILTER WEIGHTS

Test Number	Filter No	Rinsings				Gain (mg)	
		Pre-Weight (mg)	Post-Weight (mg)	Pre-Weight (mg)	Post-Weight (mg)		
1	A4186	91.06	91.42	135059.50	135062.00	2.66	
2	A3336	86.40	89.57	124066.70	124067.00	3.47	
Blank Filter	= 0.01 mg	Blank Rinse	= 0.10 mg	Cont filt	0.00	Cont Bas	0.00 mg

TEST RESULTS

Blank Concentration	0.34 mg/Nm ³	Test 1	Test 2	Mean
Particulate Concentration(mg/Nm ³)		8.9	9.5	9.2
Mass Emission (g/hr)		563.3	604.3	583.8

Plant Type	Lacquer Booth 4	Stack Area (m ²)	1.440	
Job Number	B158	Meter Temp (C)	33	36
Client Name	London Taxis	Stack Diameter (cm)	120	120
Date	13/05/2008	Pitot Factor (squared)	1.00	
		Pitot Factor Cp	1.00	
		Stack Pressure (Pa)	100	
		Ambient Pressure (kPa)	100.9	
Meter Yd	0.931	Nozzle Size (mm)	4	

PITOT SURVEY

Traverse Point	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10
Distance From Near Wall (D)	0.071	0.125	0.250	0.350	0.450	0.550	0.650	0.750	0.875	0.929
Pitot Reading (Pa)	300	250	200	200	180	150	100	75	60	50
Temperature (°C)	20	20	20	20	20	20	20	20	20	20
Duct Velocity (m/s)	22.3	20.4	18.2	18.2	17.3	15.8	12.9	11.2	10.0	9.1

Traverse Point	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10
Distance From Near Wall (D)	0.071	0.125	0.250	0.350	0.450	0.550	0.650	0.750	0.875	0.929
Pitot Reading (Pa)	321	260	200	190	180	170	100	75	60	50
Temperature (°C)	20	20	20	20	20	20	20	20	20	20
Duct Velocity (m/s)	23.1	20.8	18.2	17.8	17.3	16.8	12.9	11.2	10.0	9.1

Absolute Mean Duct Velocity (m/s) 15.6
 Absolute Flow Rate (m³/hr) 81002
 Normalised Flow Rate (Nm³/hr) 75250

Sampling Run 1		Time:		12:00 to		12:32					
Sampling Point	A1	A3	A8	A10	B1	B3	B8	B10			
Sampling Rate (l/min)	19.1	15.6	9.6	7.8	19.7	11.6	9.6	7.8			
Sampling Duration (mins)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Filter No	A4187										
Volume Sampled (m ³)	Meter	0.352	Expectec	0.357							

Initial Meter Reading (l) 263370
 Final Meter Reading (l) 263765
 Volume Sampled (l) 395 Corrected Volume = 0.33 Nm³ (at NTP)
 Isokineticity Error (%) -1.4
 (Maximum Allowed Error = -5 to +15%)

Sampling Run 2		Time:		12:35 to		13:05					
Sampling Point	A1	A3	A8	A10	B1	B3	B8	B10			
Sampling Rate (l/min)	19.1	15.6	9.6	7.8	19.7	11.6	9.6	7.8			
Sampling Duration (mins)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
Filter No	A4188										
Volume Sampled (m ³)	Meter	0.340	Expectec	0.357							

Initial Meter Reading (l) 263799
 Final Meter Reading (l) 264184
 Volume Sampled (l) 385 Corrected Volume = 0.32 Nm³ (at NTP)
 Isokineticity Error (%) -4.7
 (Maximum Allowed Error = -5 to +15%)

FILTER WEIGHTS

Test Number	Filter No	Pre-Weight (mg)		Post-Weight (mg)		Gain (mg)
		Pre-Weight (mg)	Post-Weight (mg)	Pre-Weight (mg)	Post-Weight (mg)	
1	A4187	89.00	90.03	137383.60	137383.70	1.13
2	A4188	87.15	87.13	135279.10	135280.40	1.28

Blank Filter = 0.01 mg Blank Rinse = 0.10 mg Cont filt 0.00 Cont Bas 0.00 mg

TEST RESULTS

Blank Concentration	0.34 mg/Nm ³	Test 1	Test 2	Mean
Particulate Concentration(mg/Nm ³)		3.5	4.1	3.8
Mass Emission (g/hr)		260.2	305.1	282.7

Plant Type	Tack Booth	Stack Area (m ²)	0.196	
Job Number	B158	Meter Temp (C)	37	37
Client Name	London Taxis	Stack Diameter (cm)	50	
Date	13/05/2008	Pitot Factor (squared)	1.00	
		Pitot Factor Cp	1.00	
		Stack Pressure (Pa)	50	
		Ambient Pressure (kPa)	100.9	
MeterYd	0.968	Nozzle Size (mm)	6	

PITOT SURVEY

Traverse Point	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10
Distance From Near Wall (D)	0.071	0.113	0.250	0.350	0.450	0.550	0.650	0.750	0.887	0.929
Pitot Reading (Pa)	60	50	40	40	48	45	50	45	50	50
Temperature (°C)	20	20	20	20	20	20	20	20	20	20
Duct Velocity (m/s)	10.0	9.1	8.2	8.2	8.9	8.6	9.1	8.6	9.1	9.1
Traverse Point	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10
Distance From Near Wall (D)	0.071	0.113	0.250	0.350	0.450	0.550	0.650	0.750	0.887	0.929
Pitot Reading (Pa)	60	55	50	55	60	45	40	35	35	30
Temperature (°C)	20	20	20	20	20	20	20	20	20	20
Duct Velocity (m/s)	10.0	9.6	9.1	9.6	10.0	8.6	8.2	7.6	7.6	7.1

Absolute Mean Duct Velocity (m/s) 8.8
 Absolute Flow Rate (m³/hr) 6227
 Normalised Flow Rate (Nm³/hr) 5782

Sampling Run 1		Time: 13:42 to 14:12								
Sampling Point	A2	A9	B2	B9						
Sampling Rate (l/min)	16.7	16.7	17.5	14.0						
Sampling Duration (mins)	7.5	7.5	7.5	7.5						
Filter No	A3987									
Volume Sampled (m ³)	Meter 0.445	Expectec 0.431								

Initial Meter Reading (l) 292490
 Final Meter Reading (l) 292995
 Volume Sampled (l) 505 Corrected Volume = 0.43 Nm³ (at NTP)
 Isokineticity Error (%) 3.2
 (Maximum Allowed Error = -5 to +15%)

Sampling Run 2		Time: 14:20 to 14:50								
Sampling Point	A2	A9	B2	B9						
Sampling Rate (l/min)	16.7	16.7	17.5	14.0						
Sampling Duration (mins)	7.5	7.5	7.5	7.5						
Filter No	A4189									
Volume Sampled (m ³)	Meter 0.439	Expectec 0.431								

Initial Meter Reading (l) 293003
 Final Meter Reading (l) 293501
 Volume Sampled (l) 498 Corrected Volume = 0.42 Nm³ (at NTP)
 Isokineticity Error (%) 1.7
 (Maximum Allowed Error = -5 to +15%)

FILTER WEIGHTS

Test Number	Filter No	Pre-Weight (mg)		Post-Weight (mg)		Gain (mg)
		Pre-Weight (mg)	Post-Weight (mg)	Pre-Weight (mg)	Post-Weight (mg)	
1	A3987	88.91	88.87	143206.80	143208.00	1.16
2	A4189	88.10	88.12	114908.50	114908.60	0.12

Blank Filter = 0.01 mg Blank Rinse = 0.10 mg Cont filt 0.00 Cont Bas 0.00 mg

TEST RESULTS

Blank Concentration	0.26 mg/Nm ³	Test 1	Test 2	Mean
Particulate Concentration(mg/Nm ³)		2.7	0.3	1.5
Mass Emission (g/hr)		15.6	1.6	8.6

Plant Type	Main Combi	Stack Area (m ²)	0.502
Job Number	B158	Meter Temp (C)	33 33
Client Name	London Taxis	Stack Diameter (cm)	80
Date	14/05/2008	Pitot Factor (squared)	1.00
		Pitot Factor Cp	1.00
No Flow During Bake - Grab Sample		Stack Pressure (Pa)	10
		Ambient Pressure (kPa)	100.6
Meter Yd	0.968	Nozzle Size (mm)	6.13

PITOT SURVEY

Traverse Point	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10
Distance From Near Wall (D)	0.071	0.113	0.250	0.350	0.450	0.550	0.650	0.750	0.887	0.929
Pitot Reading (Pa)	60	50	20	10	20	30	40	50	70	100
Temperature (°C)	28	28	28	28	28	28	28	28	28	28
Duct Velocity (m/s)	10.1	9.2	5.8	4.1	5.8	7.2	8.3	9.2	10.9	13.1
Traverse Point	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10
Distance From Near Wall (D)	0.071	0.113	0.250	0.350	0.450	0.550	0.650	0.750	0.887	0.929
Pitot Reading (Pa)	100	30	20	40	30	20	15	10	30	60
Temperature (°C)	22	22	22	22	22	22	22	22	22	22
Duct Velocity (m/s)	12.9	7.1	5.8	8.2	7.1	5.8	5.0	4.1	7.1	10.0

Absolute Mean Duct Velocity (m/s) 7.8
 Absolute Flow Rate (m³/hr) 14186
 Normalised Flow Rate (Nm³/hr) 12908

Sampling Run 1 - Spray Time: 08:45 to 09:15

Sampling Point	A2	A9	B2	B9						
Sampling Rate (l/min)	17.2	20.4	13.3	13.3						
Sampling Duration (mins)	7.5	7.5	7.5	7.5						
Filter No	A3231									
Volume Sampled (m ³)	Meter 0.443		Expectec 0.427							

Initial Meter Reading (l) 293732
 Final Meter Reading (l) 294229
 Volume Sampled (l) 497 Corrected Volume = 0.43 Nm³ (at NTP)
 Isokineticity Error (%) 3.8
 (Maximum Allowed Error = -5 to +15%)

Sampling Run 2 - Bake Time: 09:20 to 09:50

Sampling Point	A2	A9	B2	B9						
Sampling Rate (l/min)	17.2	20.4	13.3	13.3						
Sampling Duration (mins)	7.5	7.5	7.5	7.5						
Filter No	A4192									
Volume Sampled (m ³)	Meter 0.451		Expectec 0.427							

Initial Meter Reading (l) 294329
 Final Meter Reading (l) 294835
 Volume Sampled (l) 506 Corrected Volume = 0.43 Nm³ (at NTP)

FILTER WEIGHTS

Test Number	Filter No	Pre-Weights (mg)		Post-Weights (mg)		Gain (mg)
		Pre-Weight (mg)	Post-Weight (mg)	Pre-Weight (mg)	Post-Weight (mg)	
1	A3231	87.65	88.08	136861.40	136862.00	1.03
2	A4192	89.69	89.58	108680.50	108680.90	0.29
Blank Filter	0.01	mg	Blank Rinse	0.10	mg	Cont filt 0.00 Cont Bas 0.00 mg

TEST RESULTS

Blank Concentration	0.26 mg/Nm ³	Test 1	Test 2	Mean
Particulate Concentration(mg/Nm ³)		2.4	0.7	1.5
Mass Emission (g/hr)		31.2	8.6	19.9

Plant Type	PDI Combi	Stack Area (m ²)	0.502
Job Number	B158	Meter Temp (C)	37 37
Client Name	London Taxis	Stack Diameter (cm)	80
Date	14/05/2008	Pitot Factor (squared)	1.00
		Pitot Factor Cp	1.00
No Flow During Bake - Grab Sample		Stack Pressure (Pa)	50
		Ambient Pressure (kPa)	100.6
Meter Yd	0.968	Nozzle Size (mm)	5

PITOT SURVEY

Traverse Point	A1	A2	A3	A4	A5	A6	A7	A8	A9	A10
Distance From Near Wal (D)	0.071	0.113	0.250	0.350	0.450	0.550	0.650	0.750	0.887	0.929
Pitot Reading (Pa)	60	70	50	40	50	55	52	54	80	90
Temperature (°C)	18	18	18	18	18	18	18	18	18	18
Duct Velocity (m/s)	9.9	10.7	9.1	8.1	9.1	9.5	9.3	9.4	11.5	12.2
Traverse Point	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10
Distance From Near Wal (D)	0.071	0.113	0.250	0.350	0.450	0.550	0.650	0.750	0.887	0.929
Pitot Reading (Pa)	60	60	65	70	70	80	90	100	110	100
Temperature (°C)	18	18	18	18	18	18	18	18	18	18
Duct Velocity (m/s)	9.9	9.9	10.4	10.7	10.7	11.5	12.2	12.8	13.5	12.8

Absolute Mean Duct Velocity (m/s) 10.7
 Absolute Flow Rate (m³/hr) 19305
 Normalised Flow Rate (Nm³/hr) 17995

Sampling Run 1 - Spray		Time:		10:28		to		11:00	
Sampling Point	A1	A3	A8	A10	B1	B3	B8	B10	
Sampling Rate (l/min)	12.5	11.5	11.9	15.4	12.5	13.1	16.2	16.2	
Sampling Duration (mins)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Filter No	A3702								
Volume Sampled (m ³)	Meter	0.394	Expectec	0.388					

Initial Meter Reading (l) 294905
 Final Meter Reading (l) 295352
 Volume Sampled (l) 447 Corrected Volume = 0.38 Nm³ (at NTP)
 Isokineticity Error (%) 1.7
 (Maximum Allowed Error = -5 to +15%)

Sampling Run 2 - Bake		Time:		11:05		to		11:37	
Sampling Point	A1	A3	A8	A10	B1	B3	B8	B10	
Sampling Rate (l/min)	12.5	11.5	11.9	15.4	12.5	13.1	16.2	16.2	
Sampling Duration (mins)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	
Filter No	A3984								
Volume Sampled (m ³)	Meter	0.400	Expectec	0.388					

Initial Meter Reading (l) 295375
 Final Meter Reading (l) 295829
 Volume Sampled (l) 454 Corrected Volume = 0.38 Nm³ (at NTP)

FILTER WEIGHTS Rinsings

Test Number	Filter No	Pre-Weight (mg)	Post-Weight (mg)	Pre-Weight (mg)	Post-Weight (mg)	Gain (mg)
1	A3702	97.30	97.62	131266.40	131268.00	2.12
2	A3984	90.95	90.96	125934.70	125934.80	0.11

Blank Filter = 0.01 mg Blank Rinse = 0.10 mg Cont fit 0.00 Cont Bas 0.00 mg

TEST RESULTS

Blank Concentration	0.29 mg/Nm ³	Test 1	Test 2	Mean
Particulate Concentration(mg/Nm ³)		5.6	0.3	2.9
Mass Emission (g/hr)		100.7	5.1	52.9