

Report for the Monitoring of Emissions to Air from the External Test Stack and Wet Test Stack Located at Linx Printing Technologies, Linx House, St Ives.

Part 1: Executive Summary

Permit Number: B18/14

Operator: Linx Printing Technologies Ltd

Installation: Linx House (External Test Stack and Wet Test Stack)



Monitoring dates: 4th & 5th February 2020
Job Number: **R20134**
Version: 1
Address: **Linx Printing Technologies Ltd**
Linx House
8 Stocks Bridge Way
St Ives
Cambridgeshire, PE27 5JL

Monitoring Organisation: **EnviroDat Ltd**
Address: Cutbush Commercial
Cutbush Lane East
Reading, RG2 9AF

Date of Report: 5th March 2020
Report Approved By: Yu Shen
MCERTS Registration Number: MM 06 727 (Level II, TE1, 2, 3 & 4)
Function: Senior Project Manager (Team Leader)

Signed:



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Notes to Report.

- a). EnviroDat Ltd, Report Template V11.
- b). This report should not be reproduced except in full, without written approval of Envirodat Ltd.
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PART 1: EXECUTIVE SUMMARY

1.1 Monitoring Objectives

EnviroDat Ltd. was commissioned by Mr. Darren Page-Mitchell, on behalf of Linx Printing Technologies Ltd to monitor the stacks located at Linx House for a suite of pollutants - as prescribed in the operational permit B18/14 - in order to establish the environmental compliance. The monitoring campaign covered emissions from External Test Stack and Wet Test Stack.

MEK, Acetone and Ethanol were used to clean the parts of printing machine manually. The pollutants were extracted by the External Test Stack (Lab) and Wet Test Stack (Factory) to the atmosphere directly.

The pollutants monitored are summarised below:

Substances to be monitored	Emission Point Identification	
	External Test Stack	Wet Test Stack
Total Volatile Organic Compounds (VOCs)	✓	✓
Velocity	✓	✓
Special requirements	None requested	

1.2 Monitoring Results

Emission Point Reference	Substance to be Monitored	Emission Limit Value	Periodic Monitoring Result	Estimate of Uncertainty (2σ at 95% confidence)	Units	Reference Conditions	Date of Sampling	Start and End Times	Monitoring Method Reference	Accreditation for use of Method (see note below)	Operating Status
External Test Stack	Volatile Organic Compounds (VOCs as carbon)	75	6.40	±0.94	mg(N)m ⁻³	101.3kPa, 273K, Wet gas, Stack Oxygen	04/02/2020	12:38-13:38	BS EN 12619	A	At 100% MCR
			39.6	±5.8				13:38-14:38			
			1.05	±0.15				14:38-15:38			
			15.7	±2.3				12:38-15:38			

NOTE:

- A. EnviroDat Ltd MCerts/UKAS Accredited for sampling and analysis.
- B. EnviroDat Ltd MCerts/UKAS Accredited for sampling only, UKAS Accredited analysis conducted by sub-contract laboratory.
- C. EnviroDat Ltd UKAS Accredited for sampling only (further clarification is given in section 1.4). Analysis of this component is not UKAS Accredited.
- D. The method for sampling and analysis is not UKAS or MCerts Accredited, method follows documented in-house procedure (further clarification is given in section 1.4).
- E. The method for sampling is not UKAS or MCerts Accredited, UKAS Accredited analysis conducted by sub-contract laboratory.

Emission Point Reference	Substance to be Monitored	Emission Limit Value	Periodic Monitoring Result	Estimate of Uncertainty (2σ at 95% confidence)	Units	Reference Conditions	Date of Sampling	Start and End Times	Monitoring Method Reference	Accreditation for use of Method (see note below)	Operating Status
Wet Test Stack	Volatile Organic Compounds (VOCs as carbon)	75	63.4	±3.6	mg(N)m ⁻³	101.3kPa, 273K, Wet gas, Stack Oxygen	05/02/2020	11:26-12:26	BS EN 12619	A	At 100% MCR
			46.7	±2.6				12:26-13:26			
			65.5	±3.7				13:26-14:26			
			58.5	±3.3				11:26-14:26			

NOTE:

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1.3 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
External Test Stack	04/02/2020	Extraction	Continuous	N/A	MEK, Acetone and Ethanol	N/A	Normal	N/A	N/A	N/A	N/A
Wet Test Stack	05/02/2020	Extraction	Continuous	N/A	MEK, Acetone and Ethanol	N/A	Normal	N/A	N/A	N/A	N/A

1.4 Monitoring Deviations

Emission Point Reference	Substance Deviations	Monitoring Deviations	Other Relevant Issues
External Test Stack	None	None	None
Wet Test Stack	None	None	None

PART 2: SUPPORTING INFORMATION

2.1 Appendix I: General Information

2.1.1 Monitoring organisation staff details

Monitoring at Linx Printing Technologies Ltd, Linx House was conducted by the following EnviroDat Engineers:

Team Leader, Yu Shen – MCERTs Level II (TE1, 2, 3 & 4)	MM06 727
Technician, Niall Kester – MCERTs Trainee	MM19 1573

2.1.2 Monitoring method details

MONITORING SCHEDULE			
Parameter	Standard Reference Method/Alternative	EnviroDat Procedure	MCerts Accreditation
VOCs	BS EN 12619	SP12619	MCerts
Velocity	BS ISO 16911-1	SP16911	MCerts

2.1.3 Monitoring organisation equipment and gas check list references

EQUIPMENT – LR68HDA			
Item	Reference	Calibration Due	PAT Due
Flame Ionisation Detector Analyser	FID#01	12-May-20	Oct-20
Flame Ionisation Detector Analyser	FID#06	21-May-20	Oct-20
Data Logger	DL#03	08-Oct-20	-
Data Logger	DL#01	05-Jan-21	-
Digital Barometer	DB#27	05-Jan-21	-
Heated Filter Head	HFH#02	02-Feb-21	Oct-20

Heated Filter Head	HFH#01	05-Jan-21	Oct-20
Heated Line	HL#13	08-Oct-20	-
Heated Line Controller	HLC#13	08-Oct-20	Oct-20
Heated Line	HL#12	02-May-20	-
Thermocouple (Stack Temperature)	TC#25	28-Aug-20	-
Timepiece	TP#24	05-Sep-20	-
Digital Manometer	DM#09	14-Jan-21	
Thermocouple Reader	TCR#05	05-Sep-20	
S-Type Pitot Tube	NPL#1	17-Feb-20	
Tape Measure	TM#05	02-Oct-20	-
GAS CYLINDERS – LR68HDA			
	Certificate No.	Level (ppm)	Validity
VOC Span Gas	VC37840	98.2	02-Feb-21

2.2 Appendix II: Emission Point Reference Data & Results

2.2.1 Photograph of Sampling Location on External Test Stack



Sampling was taken from 10mm Hole on vertical section of stack with the 0.2m diameter. Accessed via the stairs to the top of building.

2.2.2 Photograph of Sampling Location on Wet Test Stack



Sampling was taken from 10mm Hole on vertical section of stack with the 0.9x0.7m diameter. Accessed via the step ladder

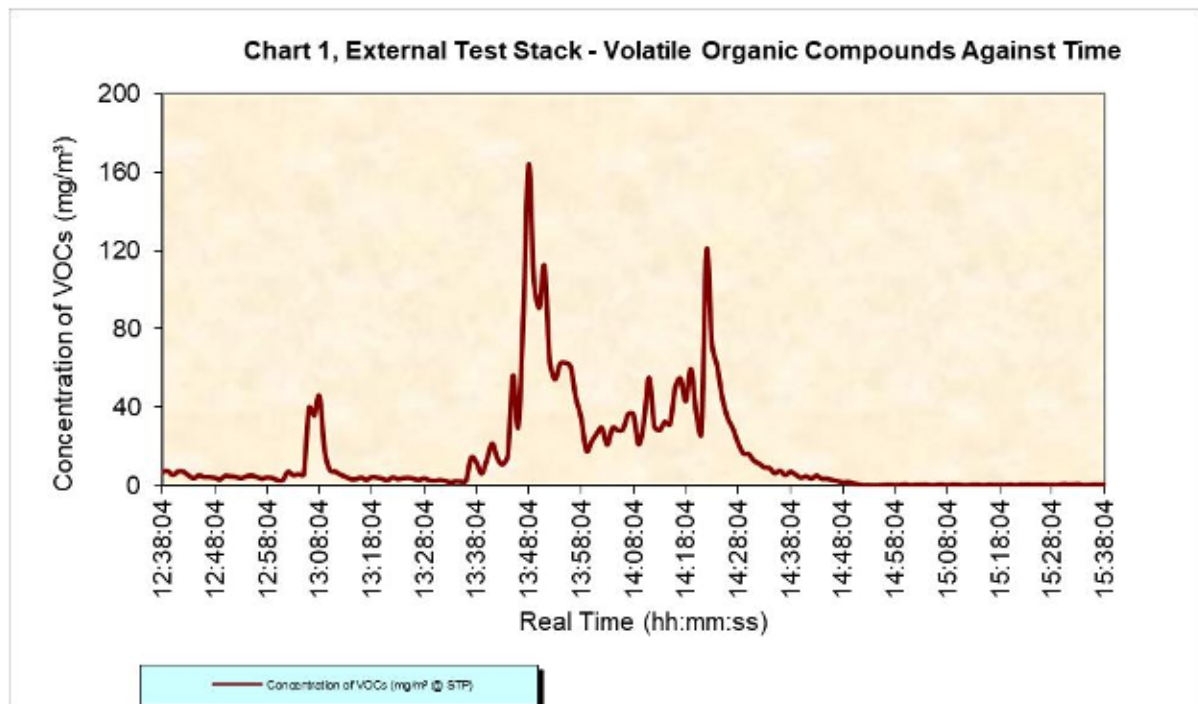
2.2.3 Homogeneity testing

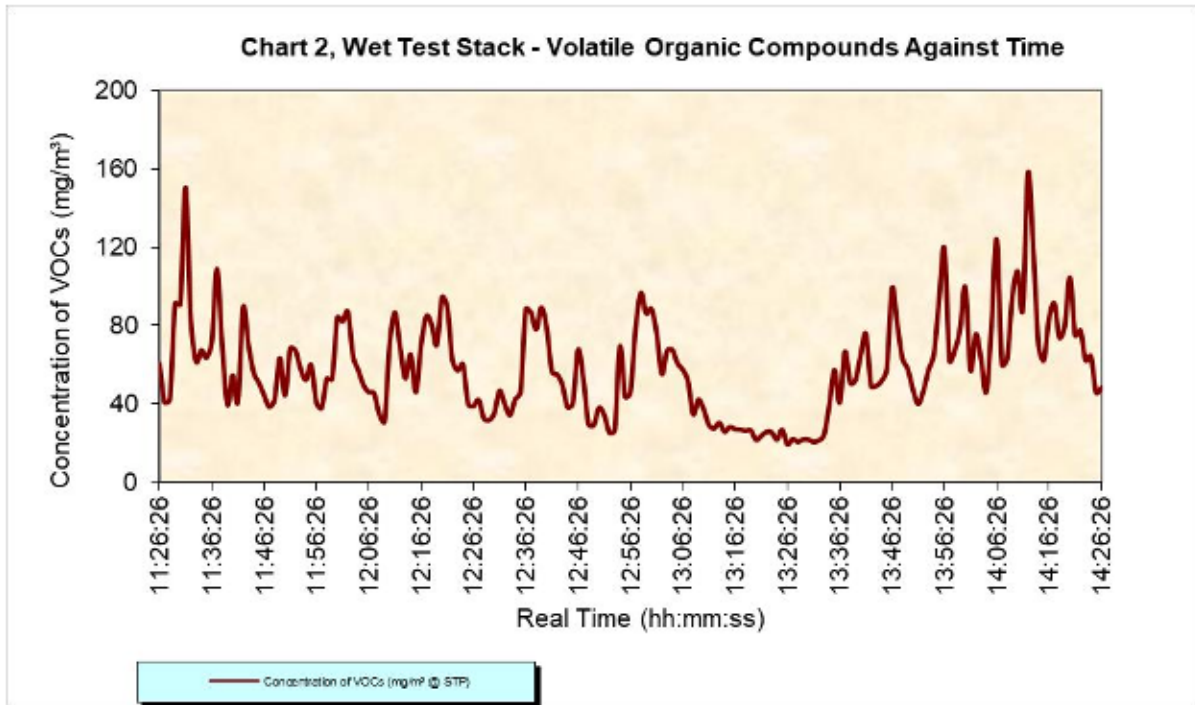
BS EN 15259 stipulates that the exhaust gases emitted from combustion processes are tested to ensure homogeneity and that a representative sample is obtained during the monitoring, subject to a number of caveats as elucidated in Environment Agency guidance MID15259. The details of the testing at each emission point are summarised below:

Stack	Result of Homogeneity Testing
Exhaust Stacks	N/A –homogeneity testing only required on stacks exceeding 1.13 m diameter, as specified in MID 15259. Homogeneity assumed and single point sampling acceptable.

2.2.4 Gas analyser site measurements and calibrations

The data in the following Charts 1 - 2 and Tables 1 - 2 are expressed in mgm^{-3} @ STP and is uncorrected for O_2 . In Addition, VOC results are expressed as carbon equivalent. Calibration data is shown in Tables 3 - 4.



**Table 1 – External Test Stack, Raw Data**

Time	VOC (mgC/m³)	Comment
12:38:04	6.9	
12:39:04	7.3	
12:40:04	5.4	
12:41:04	7.1	
12:42:04	7.0	
12:43:04	5.1	
12:44:04	3.7	
12:45:04	5.1	
12:46:04	4.3	
12:47:04	4.3	
12:48:04	3.9	
12:49:04	3.1	
12:50:04	4.9	
12:51:04	4.6	
12:52:04	4.4	
12:53:04	3.6	
12:54:04	4.6	
12:55:04	5.1	
12:56:04	4.4	
12:57:04	3.4	
12:58:04	4.1	
12:59:04	3.8	
13:00:04	2.7	
13:01:04	2.8	

Time	VOC (mgC/m ³)	Comment
13:02:04	6.9	
13:03:04	5.2	
13:04:04	5.9	
13:05:04	5.7	
13:06:04	39.5	
13:07:04	35.8	
13:08:04	45.5	
13:09:04	17.6	
13:10:04	7.9	
13:11:04	7.1	
13:12:04	5.5	
13:13:04	4.5	
13:14:04	3.2	
13:15:04	3.2	
13:16:04	4.0	
13:17:04	2.8	
13:18:04	4.3	
13:19:04	4.1	
13:20:04	3.5	
13:21:04	2.7	
13:22:04	4.2	
13:23:04	3.3	
13:24:04	3.6	
13:25:04	3.9	
13:26:04	3.4	
13:27:04	2.8	
13:28:04	3.6	
13:29:04	2.7	
13:30:04	2.4	
13:31:04	2.8	
13:32:04	2.4	
13:33:04	1.5	
13:34:04	2.1	
13:35:04	2.0	
13:36:04	2.4	
13:37:04	14.2	
13:38:04	11.7	
13:39:04	6.2	
13:40:04	13.1	
13:41:04	21.4	
13:42:04	14.0	
13:43:04	10.7	
13:44:04	15.3	
13:45:04	56.1	
13:46:04	30.0	
13:47:04	89.1	
13:48:04	164.0	

Time	VOC (mgC/m ³)	Comment
13:49:04	104.3	
13:50:04	90.7	
13:51:04	112.1	
13:52:04	63.7	
13:53:04	54.2	
13:54:04	62.1	
13:55:04	62.6	
13:56:04	60.7	
13:57:04	44.9	
13:58:04	34.6	
13:59:04	17.9	
14:00:04	22.3	
14:01:04	26.6	
14:02:04	29.3	
14:03:04	20.8	
14:04:04	29.3	
14:05:04	28.2	
14:06:04	28.7	
14:07:04	36.4	
14:08:04	36.3	
14:09:04	21.0	
14:10:04	32.4	
14:11:04	55.1	
14:12:04	30.2	
14:13:04	28.2	
14:14:04	32.5	
14:15:04	31.4	
14:16:04	50.1	
14:17:04	54.7	
14:18:04	43.2	
14:19:04	59.4	
14:20:04	37.2	
14:21:04	26.7	
14:22:04	120.2	
14:23:04	72.7	
14:24:04	61.1	
14:25:04	44.7	
14:26:04	34.6	
14:27:04	29.1	
14:28:04	21.8	
14:29:04	16.5	
14:30:04	16.1	
14:31:04	12.8	
14:32:04	11.3	
14:33:04	9.3	
14:34:04	8.9	
14:35:04	6.3	

Time	VOC (mgC/m ³)	Comment
14:36:04	7.5	
14:37:04	5.3	
14:38:04	6.9	
14:39:04	5.6	
14:40:04	3.9	
14:41:04	4.7	
14:42:04	3.5	
14:43:04	5.0	
14:44:04	3.4	
14:45:04	3.4	
14:46:04	2.8	
14:47:04	2.2	
14:48:04	1.4	
14:49:04	1.8	
14:50:04	1.1	
14:51:04	0.7	
14:52:04	0.0	
14:53:04	0.1	
14:54:04	0.0	
14:55:04	0.0	
14:56:04	0.4	
14:57:04	0.5	
14:58:04	0.1	
14:59:04	0.4	
15:00:04	0.7	
15:01:04	0.0	
15:02:04	0.5	
15:03:04	0.5	
15:04:04	0.5	
15:05:04	0.0	
15:06:04	0.4	
15:07:04	0.6	
15:08:04	0.2	
15:09:04	0.6	
15:10:04	0.6	
15:11:04	0.2	
15:12:04	0.0	
15:13:04	0.5	
15:14:04	0.4	
15:15:04	0.0	
15:16:04	0.5	
15:17:04	0.3	
15:18:04	0.5	
15:19:04	0.2	
15:20:04	0.5	
15:21:04	0.0	
15:22:04	0.5	

Time	VOC (mgC/m ³)	Comment
15:23:04	0.7	
15:24:04	0.5	
15:25:04	0.4	
15:26:04	0.6	
15:27:04	0.3	
15:28:04	0.4	
15:29:04	0.2	
15:30:04	0.7	
15:31:04	0.6	
15:32:04	0.5	
15:33:04	0.8	
15:34:04	0.1	
15:35:04	0.2	
15:36:04	0.5	
15:37:04	0.5	
15:38:04	0.5	

Table 2 – Wet Test Stack, Raw Data

Time	VOC (mgC/m ³)	Comment
11:26:26	60.4	
11:27:26	40.7	
11:28:26	42.4	
11:29:26	91.3	
11:30:26	90.9	
11:31:26	150.4	
11:32:26	82.7	
11:33:26	61.6	
11:34:26	67.4	
11:35:26	63.6	
11:36:26	71.3	
11:37:26	108.8	
11:38:26	69.5	
11:39:26	39.5	
11:40:26	54.6	
11:41:26	41.2	
11:42:26	89.1	
11:43:26	70.2	
11:44:26	56.1	
11:45:26	50.8	
11:46:26	44.3	
11:47:26	38.4	
11:48:26	41.9	

Time	VOC (mgC/m ³)	Comment
11:49:26	63.3	
11:50:26	44.3	
11:51:26	68.3	
11:52:26	67.2	
11:53:26	57.8	
11:54:26	52.2	
11:55:26	59.8	
11:56:26	40.7	
11:57:26	37.9	
11:58:26	53.0	
11:59:26	52.7	
12:00:26	84.1	
12:01:26	82.0	
12:02:26	86.9	
12:03:26	64.4	
12:04:26	57.2	
12:05:26	49.6	
12:06:26	46.0	
12:07:26	45.5	
12:08:26	34.9	
12:09:26	31.0	
12:10:26	70.8	
12:11:26	86.5	
12:12:26	68.5	
12:13:26	53.1	
12:14:26	65.3	
12:15:26	46.0	
12:16:26	70.0	
12:17:26	84.7	
12:18:26	80.6	
12:19:26	70.1	
12:20:26	94.4	
12:21:26	89.5	
12:22:26	62.1	
12:23:26	57.0	
12:24:26	60.0	
12:25:26	39.9	
12:26:26	38.7	
12:27:26	41.9	
12:28:26	32.5	

Time	VOC (mgC/m ³)	Comment
12:29:26	31.7	
12:30:26	35.2	
12:31:26	46.6	
12:32:26	39.7	
12:33:26	34.2	
12:34:26	42.4	
12:35:26	46.1	
12:36:26	88.3	
12:37:26	86.6	
12:38:26	78.0	
12:39:26	89.2	
12:40:26	78.9	
12:41:26	56.5	
12:42:26	54.9	
12:43:26	49.8	
12:44:26	38.2	
12:45:26	40.3	
12:46:26	67.5	
12:47:26	52.9	
12:48:26	29.6	
12:49:26	29.1	
12:50:26	37.9	
12:51:26	34.3	
12:52:26	25.2	
12:53:26	26.4	
12:54:26	69.2	
12:55:26	43.6	
12:56:26	45.8	
12:57:26	78.6	
12:58:26	96.6	
12:59:26	86.3	
13:00:26	88.5	
13:01:26	76.3	
13:02:26	55.4	
13:03:26	67.1	
13:04:26	67.5	
13:05:26	60.7	
13:06:26	57.5	
13:07:26	51.6	
13:08:26	34.7	

Time	VOC (mgC/m ³)	Comment
13:09:26	42.2	
13:10:26	37.2	
13:11:26	29.2	
13:12:26	27.5	
13:13:26	30.3	
13:14:26	25.8	
13:15:26	28.2	
13:16:26	27.1	
13:17:26	26.9	
13:18:26	26.2	
13:19:26	26.5	
13:20:26	21.6	
13:21:26	23.6	
13:22:26	25.6	
13:23:26	25.4	
13:24:26	21.8	
13:25:26	26.7	
13:26:26	19.3	
13:27:26	22.0	
13:28:26	20.6	
13:29:26	21.8	
13:30:26	21.8	
13:31:26	20.6	
13:32:26	21.3	
13:33:26	24.0	
13:34:26	39.2	
13:35:26	57.2	
13:36:26	40.5	
13:37:26	66.6	
13:38:26	50.8	
13:39:26	52.1	
13:40:26	64.8	
13:41:26	75.7	
13:42:26	49.1	
13:43:26	49.2	
13:44:26	51.7	
13:45:26	57.7	
13:46:26	99.1	
13:47:26	80.7	
13:48:26	63.1	

Time	VOC (mgC/m ³)	Comment
13:49:26	57.9	
13:50:26	47.3	
13:51:26	39.9	
13:52:26	46.6	
13:53:26	57.6	
13:54:26	65.3	
13:55:26	93.3	
13:56:26	119.5	
13:57:26	62.1	
13:58:26	67.3	
13:59:26	78.4	
14:00:26	99.7	
14:01:26	57.3	
14:02:26	75.7	
14:03:26	63.1	
14:04:26	46.0	
14:05:26	79.5	
14:06:26	124.0	
14:07:26	60.1	
14:08:26	62.8	
14:09:26	94.8	
14:10:26	107.7	
14:11:26	88.4	
14:12:26	158.0	
14:13:26	118.9	
14:14:26	69.6	
14:15:26	62.1	
14:16:26	83.6	
14:17:26	91.4	
14:18:26	73.8	
14:19:26	79.7	
14:20:26	104.5	
14:21:26	75.1	
14:22:26	77.5	
14:23:26	62.2	
14:24:26	64.4	
14:25:26	45.8	
14:26:26	48.2	

Table 3 – External Test Stack, Analyser Calibration Data

ANALYSER CALIBRATION DATA					
Pre Sampling Check					
		NO (ppm)	CO (ppm)	O ₂ (%)	VOC's (ppm)
Range					100
Zero Gas	Cylinder No.				AIR
Span Gas	Cylinder No.				VC37840
	Certified Value				98.2
Zero Check	Value				0.2
<2 x repeatability (Yes/No)					YES
Down Line Zero & Span Check					
Zero Gas	Value				0.2
	<2% of span				YES
Span Gas	Value				98.1
	Within 2% of span				YES
Post Sampling Drift Check					
Zero Gas	Value				0.4
	Drift (%)				0.2
	Validation				No Correction Required
Span Gas	Value				98.3
	Drift (%)				0.0
	Validation				No Correction Required

Table 4 – Wet Test Stack, Analyser Calibration Data

ANALYSER CALIBRATION DATA					
Pre Sampling Check					
		NO (ppm)	CO (ppm)	O ₂ (%)	VOC's (ppm)
Range					100
Zero Gas	Cylinder No.				AIR
Span Gas	Cylinder No.				VC37840
	Certified Value				98.2
Zero Check	Value				0.2
<2 x repeatability (Yes/No)					YES
Down Line Zero & Span Check					
Zero Gas	Value				0.2
	<2% of span				YES
Span Gas	Value				98
	Within 2% of span				YES
Post Sampling Drift Check					
Zero Gas	Value				0.3
	Drift (%)				0.1
	Validation				No Correction Required
Span Gas	Value				98.1
	Drift (%)				0.0
	Validation				No Correction Required

2.3 Appendix III: Uncertainty Calculation

2.3.1 External Test Stack, Uncertainty Calculations

VOC - Measurement performance related to stationary conditions		
Performance characteristic	Uncertainty	Value of uncertainty quantity
Standard deviation of repeatability at zero	U_{r0}	0.80
Standard deviation of repeatability at span level	U_{rs}	0.10
Lack of fit	U_{rlf}	0.37
Drift	U_{dr}	1.03
volume or pressure flow dependence	U_{qpres}	0.00
atmospheric pressure dependence	U_{apres}	0.00
ambient temperature dependence	U_{temp}	0.00
NH ₃ (20 mg/m ³)	U_{interf}	0.00
CO ₂ (15%)	-	0.00
H ₂ O (30%)	-	0.00
Error on Logger voltage	-	0.10
Dependence on voltage	U_{vdt}	0.03
losses in the line (leak)	U_{leak}	0.18
Uncertainty of calibration gas	U_{calib}	0.18

VOC Measurement uncertainty	Result	15.69	mg/m ³
Combined uncertainty		1.13	mg/m ³
Expanded uncertainty	k = 2	2.26	mg/m ³
Uncertainty corrected to std conds		2.26	mg.m-3 (corrected)
Expanded uncertainty	expressed with a level of confidence of 95%	3.02 % ELV	
Expanded uncertainty	expressed with a level of confidence of 95%	2.26 mg.m⁻³ of result	

2.3.2 Wet Test Stack, Uncertainty Calculations

VOC - Measurement performance related to stationary conditions		
Performance characteristic	Uncertainty	Value of uncertainty quantity
Standard deviation of repeatability at zero	U_{r0}	0.80
Standard deviation of repeatability at span level	U_{rs}	0.10
Lack of fit	U_{rlf}	0.37
Drift	U_{dr}	1.27
volume or pressure flow dependence	U_{qpres}	0.00
atmospheric pressure dependence	U_{apres}	0.07
ambient temperature dependence	U_{temp}	0.00
NH ₃ (20 mg/m ³)	U_{interf}	0.00
CO ₂ (15%)	-	0.00
H ₂ O (30%)	-	0.00
Error on Logger voltage	-	0.10
Dependence on voltage	U_{vdt}	0.03
losses in the line (leak)	U_{leak}	0.68
Uncertainty of calibration gas	U_{calib}	0.68

VOC Measurement uncertainty	Result	58.55	mg/m ³
Combined uncertainty		1.64	mg/m ³
Expanded uncertainty	k = 2	3.29	mg/m ³
Uncertainty corrected to std conds		3.29	mg.m-3 (corrected)
Expanded uncertainty	expressed with a level of confidence of 95%	4.38 % ELV	
Expanded uncertainty	expressed with a level of confidence of 95%	3.29 mg.m⁻³ of result	

2.4 Appendix IV: Velocity Profile Data

2.4.1 External Test Stack, Velocity Profile Data

PRELIMINARY VELOCITY, TEMPERATURE AND ANGLE MEASUREMENTS										
Only enter data into GREEN COLOUR squares - Amend plain squares if needed										
Stack ID	External Test Stack									
Stack Dimensions (m)	0.20		Rectangular				Job Number:		R20134	
Stack Dimensions (m)	0.20		Circular				Date:		04/02/2020	
	Pitot Cal=Cp	1.0000		AREA (m ²)		Standard:		16911		
	Sampling Line A					0.031		Sampling Line B		
Sample Point No.	Distance along line (m)	Pitot Static Reading (mmH ₂ O)	Del.P @0°	Swirl Angle Deg.	Gas Temp. (°C)	Distance along line (m)	Pitot Static Reading (mmH ₂ O)	Del.P @0°	Swirl Angle Deg.	Gas Temp. (°C)
1	0.10	8.7	2.10	3	24	0.10				
2										
3										
4										
5										
6										
7										
8										
9										
10										
	Mean (1)	8.70			24.20	Mean (2)				
	Swirl Noted? (Y/N)		N			Swirl Noted? (Y/N)				
Static Pressure (mmH ₂ O)	8.3		Barometric Pressure (Inch Hg)		30.2		Average Velocity		11.95 m/s	
CONFORMITY TO THE REQUIREMENTS OF THE APPLIED STANDARD										
Mean Flue Gas Temp. Tm (K) = 0.5(Mean (1) + Mean (2)) + 273 =						297.2k		Okay		
Permitted Range of Gas Temp.						Permitted %k		5%		9.3 to 39.1
Highest Pitot-Static Reading (in sample line A or B) =						8.7				(mmH ₂ O)
Lowest Pitot-Static Reading (in sample line A or B) =						8.7				(mmH ₂ O)
Ratio: Highest/Lowest (maximum 9:1)						9.0:1		Okay		1.0:1 Min>0.5 Okay
Required Number of Sample Lines						1		Total Points to meet Standard		Yes
Required Points Per Line						1		Sample plane meet Standard?		Yes
Total Points Available						1		Flow Parameters Meet Standard?		Yes

PRESSURE TRAVERSE DATA

2.4.2 Wet Test Stack, Velocity Profile Data

PRELIMINARY VELOCITY, TEMPERATURE AND ANGLE MEASUREMENTS										
Only enter data into GREEN COLOUR squares - Amend plain squares if needed										
Stack ID	West Test Stack									
Stack Dimensions (m)	0.90	x 0.70	Rectangular			Job Number:		R20134		
Stack Dimensions (m)			Circular			Date:		04/02/2020		
	Pitot Cal.=Cp	1.0000			AREA (m ²)	Standard:		16911		
Sampling Line A					0.630	Sampling Line B				
Sample Point No.	Distance along line (m)	Pitot Static Reading (mmH ₂ O)	Del.P @0° Deg.	Swirl Angle Deg.	Gas Temp. (°C)	Distance along line (m)	Pitot Static Reading (mmH ₂ O)	Del.P @0° Deg.	Swirl Angle Deg.	Gas Temp. (°C)
1	0.18	1.3	1.00	2	19	0.18				
2	0.53	0.5	0.20	1	19	0.53				
3										
4										
5										
6										
7										
8										
9										
10										
Mean (1)		0.90			18.80	Mean (2)				
Swirl Noted? (Y/N)			N			Swirl Noted? (Y/N)				
Static Pressure (mmH ₂ O)		1	Barometric Pressure (Inch Hg)		30.14	Average Velocity		3.81	m/s	
CONFORMITY TO THE REQUIREMENTS OF THE APPLIED STANDARD										
Mean Flue Gas Temp. Tm (K) = 0.5(Mean (1) + Mean (2)) + 273 =						291.8k		Okay		
Permitted Range of Gas Temp.						Permitted %k		5%		
Highest Pitot-Static Reading (in sample line A or B) =						1.3		(mmH ₂ O)		
Lowest Pitot-Static Reading (in sample line A or B) =						0.5		(mmH ₂ O)		
Ratio: Highest/Lowest (maximum 9:1)						9.0:1		Okay		2.4:1
Required Number of Sample Lines						2		Total Points to meet Standard		Yes
Required Points Per Line						2		Sample plane meet Standard?		No
Total Points Available						2		Flow Parameters Meet Standard?		Yes

