

Our Ref: P-RED16-054/EB/R1/Rev0
Client Ref:

15th August 2016

Ian Livingston
Terex Construction
Prologis Pk
Central Boulevard
Keresley End
Coventry CV6 4BX

Dear Ian

Re: Emissions Monitoring

Please find enclosed a copy of your report for the monitoring carried out during May 2016.

I trust the enclosed is satisfactory but if you have any questions please contact me on the numbers below or directly on 07971 628431.

Yours sincerely

Elena Berek BSc (Hons), MSc, CSci, CChem MRSC
Director



PROJECT TEAM

Project work carried out by:

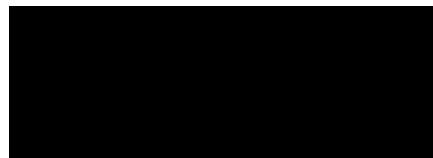
Elena Berek – Team Leader

Philip Butler – Env Consultant

Report prepared by:

Elena Berek - Director

Signature:



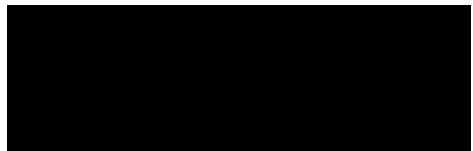
Date:

7th June 2016

Report reviewed by:

Philip Butler - Director

Signature:



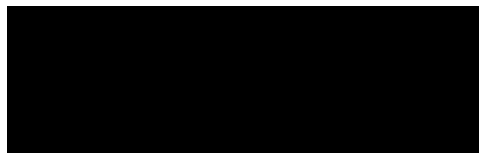
Date:

9th June 2016

Report authorised by:

Philip Butler

Signature:



Date:

9th June 2016



MAY 2016

**EMISSIONS MONITORING
REPORT**

**Ian Livingston
Terex Construction
Prologis Pk
Central Boulevard
Keresley End
Coventry CV6 4BX**

Tel: 02476 339634

Prepared By

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Report Number P-RED16-054/EB/R1/Rev0

7th June 2016



Contents

Contents

Executive Summary

1.0	Introduction	Page 1
1.0	Monitoring Programme	Pages 1 - 2
1.5	Monitoring Results, comparison to emission limits	Pages 3 – 5
2.0	Supporting Info	Page 6
2.1	General Info	Page 6
2.1.1	MCerts information	Page 6
2.2	Methods	Pages 6 – 7
3.0	Quality Assurance	Page 8
4.0	Disclaimer	Page 8
	<i>Appendix A – Particulate, Isocyanate & Velocity Results</i>	Appendix Pages 1 to 35
	<i>Appendix B – VOC Raw Data</i>	Appendix Pages 36 to 40
	<i>Appendix C – VOC Charts</i>	Appendix Pages 41 to 45
	<i>Calibration Certificates are available upon request</i>	



EXECUTIVE SUMMARY (Page 1 of 1)

The following document details the emissions to air monitoring survey undertaken by Elena Berek & Philip Butler of Redwing Environmental Ltd at Terex Construction on the 4th to the 6th May 2016.

All results pertain to the dates monitored only.

A summary of results is shown below:-

Emission point reference Stack N°	Total Particulate Matter at reference conditions (mg/m ³)	* Highest 30 minute mean VOC at reference conditions (mg/m ³)	Isocyanate Concentration at reference conditions (mg/m ³)	Velocity corrected to reference conditions (m/s)	Volume flow corrected to reference conditions (m ³ /hr)
Primer Spray Booth 1	2.00 ± 0.36	--	--	8.2	59,416
Primer Spray Booth 2	2.30 ± 0.41	--	--	8.6	61,896
Primer Flash-off	0.50 ± 0.15	--	--	9.3	16,781
Topcoat Spray Booth 1	37.9 ± 0.15	--	<0.04	7.0	50,577
Topcoat Spray Booth 2	1.00 ± 0.13	--	<0.04	7.8	56,158
Topcoat Flash-off	5.00 ± 0.89	--	<0.04	12.5	35,452
Topcoat Curing Oven	1.90 ± 0.45	--	<0.04	12.8	92,711
Preparation Booth 1	0.19 ± 0.13	--	--	12.6	17,531
Preparation Booth 2	0.52 ± 0.16	--	--	13.0	18,007
Spray Bake Booth 1	--	--	<0.02	13.0	23,463
Spray Bake Booth 2	--	--	<0.02	13.1	23,685
Scissor 1 Booth 1	4.90 ± 0.92	79.9 ± 4.1 (67.8)	--	9.2	12,790
Scissor 1 Booth 2	26.4 ± 0.92	49.0 ± 2.6 (44.0)	--	9.5	13,213
Scissor 1 Oven	0.58 ± 0.22	--	--	6.6	751
Scissor 2 Booth 1	14.9 ± 0.56	22.5 ± 1.2 (20.2)	--	8.7	12,085
Scissor 2 Booth 2	3.90 ± 0.29	80.4 ± 4.1 (23.9)	--	7.8	10,739
Scissor 2 Oven	0.43 ± 0.19	--	--	5.6	632

* Figure in brackets represent the average VOC for the duration of the monitoring

NOTE 1: Reference conditions are standard Temperature (273K) and standard pressure (101.3kPa), without correction for water vapour



1.0 INTRODUCTION

1.1 The exhausts listed below were monitored with respect to quotation **Q-RED16-054/EB/v0** for the compliance check monitoring of emissions to air. The substances requested for monitoring at each emission point are listed below:

Monitoring Programme

Stack reference/Proposed method	Total Particulate Matter BS EN 13284-1	Volatile Organic Compounds BS EN 12619	Isocyanates USEPA CTM36
Main Paint Facility			
Primer spray booth - 1	✓	x	x
Primer spray booth – 2	✓	x	x
Primer Flash off	✓	x	x
Topcoat Spray booth -1	✓	x	✓
Topcoat spray booth – 2	✓	x	✓
Topcoat Flash off	✓	x	✓
Topcoat Curing Oven	✓	x	✓
Preparation Booth 1	✓	x	x
Preparation Booth 2	✓	x	x
Spray Bake Booth 1	x	x	✓
Spray Bake Booth 2	x	x	✓
Scissor 1 Booth 1	✓	✓	x
Scissor 1 Booth 2	✓	✓	x
Scissor 1 Oven	✓	x	x
Scissor 2 Booth 1	✓	✓	x
Scissor 2 Booth 2	✓	✓	x
Scissor 2 Oven	✓	x	x

1.2 Terex United Kingdom Limited operate a metal and plastic coating process at their site in Coventry, the process is governed by the Secretary of States Process Guidance Note PG6/23 – Coating of Metal and Plastic.



1.3 The emission limits are listed below:

Process Guidance Note PG6/23: Coating of Metal and Plastic

EMISSION LIMITS

ANALYTE	TOTAL PARTICULATE	TOTAL VOC	TOTAL ISOCYANATES
Emission Limit	50 mg/m ³	150 mg/m ³	0.1mg/m ³

1.4 The velocity and temperature profile were within the required parameters of 3:1 metres/second and ± 1% for temperature profile. This information indicates that the sample ports are in ideal positions to collect the samples under representative conditions.



1.5 Monitoring Results

Emission Point Reference	Substance to be Monitored	Emission Limit Value	Periodic Monitoring Result	Units	Reference Conditions 273 K, 101.3 kPa	Date of Sampling	Start and End Times	Monitoring Method Reference	Operating Status
Primer Spray Booth 1	Total Particulate Matter	50	2.00 ± 0.36	mg/m ³	273K, 101.3kPa	05/05/16	0910 – 1010	BS EN 13284-1	Normal
Primer Spray Booth 2	Total Particulate Matter	50	2.30 ± 0.41	mg/m ³	273K, 101.3kPa	05/05/16	1022 – 1122	BS EN 13284-1	Normal
Primer Flash-off	Total Particulate Matter	50	0.50 ± 0.15	mg/m ³	273K, 101.3kPa	05/05/16	1140 - 1240	BS EN 13284-1	Normal
Top Coat Spray Booth 1	Total Particulate Matter	50	37.9 ± 0.15	mg/m ³	273K, 101.3kPa	05/05/16	0921 – 1021	BS EN 13284-1	Normal
	Isocyanates	0.1	<0.04	mg/m ³				USEPA 36	
Top Coat Spray Booth 2	Total Particulate Matter	50	1.00 ± 0.13	mg/m ³	273K, 101.3kPa	05/05/16	1034 - 1134	BS EN 13284-1	Normal
	Isocyanates	0.1	<0.04	mg/m ³				USEPA 36	



Emission Point Reference	Substance to be Monitored	Emission Limit Value	Periodic Monitoring Result	Units	Reference Conditions 273 K, 101.3 kPa	Date of Sampling	Start and End Times	Monitoring Method Reference	Operating Status
Topcoat Flash-off	Total Particulate Matter	50	5.00 ± 0.89	mg/m ³	273K, 101.3kPa	05/05/16	1147 - 1247	BS EN 13284-1	Normal
	Isocyanates	0.1	<0.04	mg/m ³				USEPA 36	
Topcoat Curing Oven	Total Particulate Matter	50	1.90 ± 0.45	mg/m ³	273K, 101.3kPa	05/05/16	1322 – 1422	BS EN 13284-1	Normal
Preparation Booth 1	Total Particulate Matter	50	0.19 ± 0.13	mg/m ³	273K, 101.3kPa	06/05/16	0840 – 0940	BS EN 13284-1	Normal
Preparation Booth 2	Total Particulate Matter	50	0.52 ± 0.16	mg/m ³	273K, 101.3kPa	06/05/16	0945 – 1045	BS EN 13284-1	Normal
Spray Bake Booth 1	Isocyanates	0.1	<0.02	mg/m ³	273K, 101.3kPa	06/05/16	0825 – 0925	USEPA 36	Normal
Spray Bake Booth 2	Isocyanates	0.1	<0.02	mg/m ³	273K, 101.3kPa	06/015/16	0933 – 1033	USEPA 36	Normal
Scissor 1 Booth 1	Total Particulate Matter	50	4.90 ± 0.92	mg/m ³	273K, 101.3kPa	04/05/16	1045 – 1145	BS EN 13284-1	Normal
	Volatile Organic Compounds	150	79.9 ± 4.1	mg/m ³			1045 – 1145	BS EN 12619	
Scissor 1 Booth 2	Total Particulate Matter	50	26.4 ± 0.92	mg/m ³	273K, 101.3kPa	04/05/16	1155 – 1255	BS EN 13284-1	Normal
	Volatile Organic Compounds	150	49.0 ± 2.6	mg/m ³			1145 - 1245	BS EN 12619	



Emission Point Reference	Substance to be Monitored	Emission Limit Value	Periodic Monitoring Result	Units	Reference Conditions 273 K, 101.3 kPa	Date of Sampling	Start and End Times	Monitoring Method Reference	Operating Status
Scissor 1 Oven	Total Particulate Matter	50	0.58 ± 0.22	mg/m ³	273K, 101.3kPa	04/05/16	1315 - 1415	BS EN 13284-1	Normal
Scissor 2 Booth 1	Total Particulate Matter	50	14.9 ± 0.56	mg/m ³	273K, 101.3kPa	04/05/16	1050 – 1150	BS EN 13284-1	Normal
	Volatile Organic Compounds	150	22.5 ± 1.2	mg/m ³			1252 – 1352	BS EN 12619	Normal
Scissor 2 Booth 2	Total Particulate Matter	50	3.90 ± 0.29	mg/m ³	273K, 101.3kPa	04/05/16	1200 – 1300	BS EN 13284-1	Normal
	Volatile Organic Compounds	150	80.4 ± 4.1	mg/m ³			1353 – 1453	BS EN 12619	Normal
Scissor 2 Oven	Total Particulate Matter	50	0.43 ± 0.19	mg/m ³	273K, 101.3kPa	04/05/16	1312 - 1412	BS EN 13284-1	Normal



2 Supporting Information (Held by Redwing Environmental Ltd)

2.1 General Information

2.1.1 Redwing Environmental Ltd staff details

Elena Berek and Philip Butler

2.2 Redwing Environmental Ltd method details

2.2.1 Volatile organic compounds (BS EN 12619: 2013)

2.2.2 Monitoring to determine VOC emission concentrations was in accordance with BS EN 12619: 2013.

2.2.3 Volatile organic compound concentrations were measured using a Signal portable heated VOC analyser. The analyser works by burning the gas sample in a hydrogen flame. This ionises any organic compounds present and the current produced across an electric field is proportional to the number of carbon atoms.

2.2.4 The analyser and heated line were zeroed and calibrated with a test gas (80 ppm and or 800ppm propane) prior to each sampling run. VOC sampling was undertaken over a period of at least 60 minutes to cover any process variation.

2.2.5 All data was logged onto a Grant Squirrel data logger set at 5 second logging.

2.2.6 A heated line from the sample point to analyser was used to ensure that condensation did not occur leading to the loss of sample concentration. Volatile organic compounds.

2.3 Stack Velocity, Pressure and Temperature Measurements

2.3.1 The stack velocity, pressure and temperature will be measured by full pitot traverses of the duct using the points provided. Measurements will be taken at the relevant positions based on the particulate standard followed.

2.4 Leak tests for extractive techniques

2.4.1 All extractive-sampling techniques were tested for leaks before sampling proceeded. Any leaks present were eliminated prior to sampling and will be reported.

2.4.2 Leak checks are carried out during the calibrating procedure, as the concentration of the calibration gas is known it is readily indentified if air is entering the sample line and diluting the gas.



2.5 Particulate matter BS EN 13284-1: 2002

- 2.5.1 Total particulate matter was sampled using a Zambelli isokinetic sampling system in accordance with BS EN 13284-1: 2002 – Determination of Low Range Mass Concentration of dust (< 50mg/m³).
- 2.5.2 The Zambelli sampling system monitors temperature, static pressure and velocities within the duct using an S-type pitot tube and K-type thermocouple. The sampling rate was continuously monitored and adjusted relative to the duct velocity to ensure isokinetic-sampling conditions were maintained throughout the monitoring period.
- 2.5.3 Exhaust gases were drawn under isokinetic conditions from the exhaust points using the Zambelli sampling probe, particulate matter was then collected on a pre-weighed glass fibre filter (or most suitable filter for process) contained within the filter cassette holder, and the total particulate matter determined gravimetrically.
- 2.5.4 It is also necessary to wash the probe and nozzle out with water and then acetone between sampling and the weight of the probe washing added to that collected on the sample filter. Analysis of an acetone/water blank will be carried out and the result corrected accordingly.
- 2.5.5 The sample positions were calculated with respect to BS EN 13284-1: 2002 – Stationary source emissions – Determination of Low Range Mass Concentration of dust.
- 2.5.6 Sampling may be carried out internally or externally, the method used will be reported and provided there are no deviations from the method the uncertainty for the monitoring procedure is reported to be within the requirements specified by the Hazardous Waste Directive (HWD) as stated in the Environment Agency Technical Document M2

Uncertainty: $\pm 30\%$

- 2.5.7 ISO 9096: 2003 and BS EN 13284-1: 2002 are very similar methods but BS EN 13284-1: 2002 recommends the use of an 8mm nozzle and nozzles less than 6mm should not be used.

2.6 Isocyanates (USEPA CTM 36a)

- 2.6.1 There are several Isocyanates; these include TDI, MDI, HDI and IPDI. The isocyanate to be monitored is HDI (1,6 – hexamethylene diisocyanate). All Isocyanates follow the same procedure for sampling and analysis.
- 2.6.2 Isocyanates can be sampled non-isokinetically following MDHS 25 or isokinetically following the USEPA CTM 36
- 2.6.3 The method used was isokinetic method. A sample probe was placed inside the stack; the sample probe was heated.
- 2.6.4 The samples are stored in brown glass bottles and submitted for analysis. The samples will be 'blown down' to dryness using air and made upto 1ml using the most suitable



matrix (usually acetonitrile). The sample will then be ready for analysis by HPLC (High Pressure Liquid Chromatography).

3.0 Quality Assurance

- 3.1 Redwing Environmental Ltd will always endeavour to follow the methods specified in the Environment Agency Technical Guidance M2. Redwing Environmental Ltd is a member of the Source Testing Association (STA) and therefore operates under the STA's code of practice.
- 3.2 Redwing Environmental Ltd is accredited to ISO 9001:2008, ISO 14001:2004 and ISO 17025:2005.

4.0 Disclaimer

- 4.1 Redwing Environmental Ltd confirms that in preparing this report all reasonable skill and care has been exercised.
 - 4.1.1 Unless specifically assigned or transferred within the terms of the agreement, Redwing Environmental Ltd asserts and retains all copyright, and other Intellectual Property Rights, in and over the report and its contents.



APPENDIX A

Particulate, Isocyanate & Velocity Results



Client	Terex Construction							
Site Address	Coventry							
Job Number	P-RED16-054							
Date	4th May 2016							
Operator(s)	E Berek & P Butler							
Stack Reference	Scissor 1 Booth 1				Isokinetic Sample Positions (%) multiply by diameter to obtain sample points			
				1	14.60			
Number of Stacks			1	2	85.40			
Stack Configuration			Round	3	N/A			
Dimensions (mtrs)			0.70	4	N/A			
Outlet Diameter (if applicable) (metres)				5	N/A			
Number of Sample Ports			2	6	N/A			
Number of Samples per Axis / Port			2	7	N/A			
Nozzle Diameter (mm)			8.0	8	N/A			
Nozzle Area (m ²)			0.00005024	Average Isokinetic Flow Rate (ltrs/min)			Axis 1	Axis 2
Stack Area (m ²)			0.385				28.42	27.23
Pitot Coefficient	0.89	Pitot Calibration Due Date			December 2016			Atmos. Pressure (kPa)
Position	Distance	Axis 1	Temperature	Swirl Test	Axis 2	Temperature	Swirl Test	100.6
No.	(cms)	(pa)	(C)	(°)	(pa)	(C)	(°)	Static Pressure (pa)
1	10.22	64	19.7	3.4	58	19.5	4.4	-32.0
2	59.78	70	19.6	4.1	65	19.6	5.2	1 Axis
3	N/A							2 Axis
4	N/A							Velocity of flow (m/s)
5	N/A							9.43
6	N/A							9.03
7	N/A							Volume Flow Rate (m ³ /s)
8	N/A							3.63
								3.48
								Reduced Exit
Averages		67	19.7		62	19.6		N/A
Mean Flue Gas Temp (in K) $T_p = ((\text{Mean } T_1 + \text{Mean } T_2)/2 + 273)) =$							292.65	
Permitted Range of gas temperature readings (C) = $(0.95T_p - 273)$ to $(1.05T_p - 273) =$							5.02	34.28
Highest Velocity Reading (m/s) =							9.9	
Lowest Velocity Reading (m/s) =							8.8	
Ratio Highest/Lowest (Max permitted = 3:1)							1.13 : 1	
On site Checklist								
Initial Leak Check	0	End of first run	0.2		Start of 2 nd run		End of 2 nd run	
Acceptable Leak Check < 2% Vol (l/min)	0.67				Manometer Leak Check			OK
					Pitot Leak Check			OK
Range of Gas Temps	OK				Overall Isokinetic Ratio (%) (must be 95 to 115%)			Run 1
Passed minimum Velocity requirements (>5pa)	YES							99.5
Negative Local Flow Present, YES or NO (Yes = Fail)	NO				Are there sufficient rails and kick board? (YES, NO or N/A)			NO
Is the Platform area greater than 5m ² ? (YES, NO or N/A)	NO				Is the area in front of the sample line the length of the probe + 1 metre? (YES or NO)			YES
Passed Highest to lowest Velocity (3:1)	YES							
Site Equipment Used								
Pitot Reference	RED 0289				Manometer Reference			RED 0404
Thermometer Reference	RED 0351-RED 0352				Thermocouple Reference			RED 0292
Balance Reference	N/A				Sampling Pump Reference			RED 0010
Tape Measure Reference	RED 0121				Barometer Reference			RED 0403
DGM Thermocouple	RED 0010				Impinger Outlet Thermocouple			N/A
Calipers	RED 0300				Condenser Thermocouple			N/A



Stack Reference ID		Scissor 1 Booth 1		
		Terex Construction		
		RUN 1		
Filter Reference No	G47-270416-01			
Date	4th May 2016			
Sample Period	10:45	to	11:45	
Velocity (m/s)	9.23			
Volume flow rate of Stack gas (m ³ /hr)	12790			
Average Stack Temp (°C)	19.7			
Temp Range ± 5% (°C)	5.02	to	34.28	
Lowest Velocity Reading (m/s)	8.76			
Highest Velocity Reading (m/s)	9.92			
Ratio (less than 3:1)	1.13	:	1	
Pre-conditioning temperature of Filter (°C)	180			
Instack sampling - Max Filter temperature (°C)	19.6			
Post-conditioning temperature Filter/Wash (°C)	160			
Oxygen %	18.8			
Carbon Dioxide %	0.90			
Moisture (%)	0.99			
Litres sampled	1552			
Corrected volume sampled - STP (m ³)	1.443			
Blank Filter Run weight gain (mg)	0.030	Blank Concentration (mg/m ³)	0.021	
Blank Wash Run weight gain (mg)	0.040		0.028	
Weighing uncertainty of balance (mg)	0.083	This must be <5% of ELV	ELV = 50	2.5
Overall Blank value (mg/m ³)	0.048	This must be <10% of ELV	ELV = 50	5.0
Particulate weight collected on filter (mg)	4.89			
Particulate weight collected in Wash (mg)	2.23			
Total Particulate weight collected (mg)	7.12			
Total Particulate Concentration, dry gas at STP (mg/m ³)	4.93			
Total Particulate Concentration, wet gas at STP (mg/m ³)	4.88			
Total Particulate Concentration corrected for 11% Oxygen, dry gas (mg/m ³)	N/A			
Total Particulate Mass Emission (kg/hour)	0.064			




Client	Terex Construction								
Site Address	Coventry								
Job Number	P-RED16-054								
Date	4th May 2016								
Operator(s)	E Berek & P Butler								
Stack Reference	Scissor 1 Booth 2				Isokinetic Sample Positions (%) multiply by diameter to obtain sample points				
Number of Stacks	1				1	14.60			
Stack Configuration	Round				2	85.40			
Dimensions (mtrs)	0.70				3	N/A			
Outlet Diameter (if applicable) (metres)					4	N/A			
Number of Sample Ports	2				5	N/A			
Number of Samples per Axis / Port	2				6	N/A			
Nozzle Diameter (mm)	8.0				7	N/A			
Nozzle Area (m ²)	0.00005024				8	N/A			
Stack Area (m ²)	0.385				Average Isokinetic Flow Rate (ltrs/min)			Axis 1	Axis 2
Pitot Coefficient	0.89				December 2016			28.18	29.32
Position	Distance	Axis 1	Temperature	Swirl Test	Axis 2	Temperature	Swirl Test	Atmos. Pressure (kPa)	
No.	(cms)	(pa)	(C)	(°)	(pa)	(C)	(°)	101.6	
1	10.22	64	19.2	3.3	70	19.1	3.2	Static Pressure (pa)	
2	59.78	69	19.2	3.0	74	19.2	3.7	1 Axis	2 Axis
3	N/A							Velocity of flow (m/s)	
4	N/A							9.35	9.73
5	N/A							Volume Flow Rate (m ³ /s)	
6	N/A							3.60	3.74
7	N/A							Reduced Exit	
8	N/A							N/A	
Averages		67	19.2		72	19.2		N/A	
Mean Flue Gas Temp (in K) $T_p = ((\text{Mean } T_1 + \text{Mean } T_2)/2 + 273) =$					292.20				
Permitted Range of gas temperature readings (C) = $(0.95T_p - 273)$ to $(1.05T_p - 273) =$					4.99 to 33.81				
Highest Velocity Reading (m/s) =					10.1				
Lowest Velocity Reading (m/s) =					9.1				
Ratio Highest/Lowest (Max permitted = 3:1)					1.11 : 1				
On site Checklist									
Initial Leak Check	0	End of first run	0.2		Start of 2 nd run		End of 2 nd run		
Acceptable Leak Check < 2% Vol (l/min)	0.66				Manometer Leak Check			OK	
Range of Gas Temps	OK				Pitot Leak Check			OK	
Passed minimum Velocity requirements (>5pa)	YES				Overall Isokinetic Ratio (%) (must be 95 to 115%)			Run 1	Run 2
Negative Local Flow Present, YES or NO (Yes = Fail)	NO				Are there sufficient rails and kick board? (YES, NO or N/A)			99.9	N/A
Is the Platform area greater than 5m ² ? (YES, NO or N/A)	NO				Is the area in front of the sample line the length of the probe + 1 metre? (YES or NO)			YES	
Passed Highest to lowest Velocity (3:1)	YES								
Site Equipment Used									
Pitot Reference	RED 0289				Manometer Reference				RED 0404
Thermometer Reference	RED 0351-RED 0352				Thermocouple Reference				RED 0292
Balance Reference	N/A				Sampling Pump Reference				RED 0010
Tape Measure Reference	RED 0121				Barometer Reference				RED 0403
DGM Thermocouple	RED 0010				Impinger Outlet Thermocouple				N/A
Calipers	RED 0300				Condenser Thermocouple				N/A



Stack Reference ID		Scissor 1 Booth 2		
		Terex Construction		
		RUN 1		
Filter Reference No	G47-270416-03			
Date	4th May 2016			
Sample Period	11:55	to	12:55	
Velocity (m/s)	9.54			
Volume flow rate of Stack gas (m ³ /hr)	13213			
Average Stack Temp (°C)	19.2			
Temp Range ± 5% (°C)	4.59	to	33.81	
Lowest Velocity Reading (m/s)	9.15			
Highest Velocity Reading (m/s)	10.14			
Ratio (less than 3:1)	1.11	:	1	
Pre-conditioning temperature of Filter (°C)	180			
Instack sampling - Max Filter temperature (°C)	19.2			
Post-conditioning temperature Filter/Wash (°C)	160			
Oxygen %	18.9			
Carbon Dioxide %	0.60			
Moisture (%)	1.78			
Litres sampled	1655			
Corrected volume sampled - STP (m ³)	1.546			
Blank Filter Run weight gain (mg)	0.050	Blank Concentration (mg/m ³)	0.032	
Blank Wash Run weight gain (mg)	0.040		0.026	
Weighing uncertainty of balance (mg)	0.233	This must be <5% of ELV	ELV = 50	2.5
Overall Blank value (mg/m ³)	0.058	This must be <10% of ELV	ELV = 50	5.0
Particulate weight collected on filter (mg)	38.25			
Particulate weight collected in Wash (mg)	3.37			
Total Particulate weight collected (mg)	41.62			
Total Particulate Concentration, dry gas at STP (mg/m ³)	26.93			
Total Particulate Concentration, wet gas at STP (mg/m ³)	26.45			
Total Particulate Concentration corrected for 11% Oxygen, dry gas (mg/m ³)	N/A			
Total Particulate Mass Emission (kg/hour)	26.926			



Client	Terex Construction							
Site Address	Coventry							
Job Number	P-RED16-054							
Date	4th May 2016							
Operator(s)	E Berek & P Butler							
Stack Reference	Scissor Oven 1				Isokinetic Sample Positions (%) multiply by diameter to obtain sample points			
					Sampling Plane Diagram			
								
Number of Stacks	1				2	N/A		
Stack Configuration	Round				3	N/A		
Dimensions (metres)	0.20				4	N/A		
Outlet Diameter (if applicable) (metres)					5	N/A		
Number of Sample Ports	1				6	N/A		
Number of Samples per Axis / Port	1				7	N/A		
Nozzle Diameter (mm)	8.0				8	N/A		
Nozzle Area (m ²)	0.0005024				Average Isokinetic Flow Rate (ltrs/min)			
Stack Area (m ²)	0.031				Axis 1		Axis 2	
Pitot Coefficient	0.89		Pitot Calibration Due Date		December 2016		Atmos. Pressure (kPa)	
Position	Distance	Axis 1	Temperature	Swirl Test	Axis 2	Temperature	Swirl Test	100.6
No.	(cms)	(pa)	(C)	(°)	(pa)	(C)	(°)	Static Pressure (pa)
1	10.00	27	86.7	4.7				5.5
2	N/A							1 Axis
3	N/A							2 Axis
4	N/A							Velocity of flow (m/s)
5	N/A							6.64
6	N/A							N/A
7	N/A							Volume Flow Rate (m ³ /s)
8	N/A							0.21
								N/A
								Reduced Exit
Averages		27	86.7					N/A
Mean Flue Gas Temp (in K) $T_p = ((\text{Mean } T_1 + \text{Mean } T_2)/2 + 273) =$					359.70			
Permitted Range of gas temperature readings (C) = $(0.95T_p - 273)$ to $(1.05T_p - 273) =$					68.72		to 104.69	
Highest Velocity Reading (m/s)	=				6.8			
Lowest Velocity Reading (m/s)	=				6.6			
Ratio Highest/Lowest (Max permitted = 3:1)					1.03 : 1			
On site Checklist								
Initial Leak Check	<0.2	End of first run	<0.2		Start of 2 nd run	N/A	End of 2 nd run	N/A
Acceptable Leak Check < 2% Vol (l/min)	0.40				Manometer Leak Check		OK	
					Pitot Leak Check		OK	
Range of Gas Temps	OK				Overall Isokinetic Ratio (%) (must be 95 to 115%)		Run 1	Run 2
Passed minimum Velocity requirements (>5pa)	YES						100.5	N/A
Negative Local Flow Present, YES or NO (Yes = Fail)	NO				Are there sufficient rails and kick board? (YES, NO or N/A)		NO	
Is the Platform area greater than 5m ² ? (YES, NO or N/A)	NO				Is the area in front of the sample line the length of the probe + 1 metre? (YES or NO)		YES	
Passed Highest to lowest Velocity (3:1)	YES							
Site Equipment Used								
Pitot Reference	RED 0289			Manometer Reference			RED 0404	
Thermometer Reference	RED 0351-RED 0352			Thermocouple Reference			RED 0292	
Balance Reference	N/A			Sampling Pump Reference			RED 0010	
Tape Measure Reference	RED 0121			Barometer Reference			RED 0403	
DGM Thermocouple	RED 0010			Impinger Outlet Thermocouple			N/A	
Calipers	RED 0300			Condenser Thermocouple			N/A	



Stack Reference ID		Scissor Oven 1		
		Terex Construction		
		RUN 1		
Filter Reference No	G47-270416-09			
Date	4th May 2016			
Sample Period	13:15	to	14:15	
Velocity (m/s)	6.64			
Volume flow rate of Stack gas (m ³ /hr)	751			
Average Stack Temp (°C)	86.7			
Temp Range ± 5% (°C)	68.72	to	104.69	
Lowest Velocity Reading (m/s)	6.62			
Highest Velocity Reading (m/s)	6.83			
Ratio (less than 3:1)	1.03	:	1	
Pre-conditioning temperature of Filter (°C)	180			
Instack sampling - Max Filter temperature (°C)	90.5			
Post-conditioning temperature Filter/Wash (°C)	160			
Oxygen %	19.5			
Carbon Dioxide %	0.60			
Moisture (%)	3.22			
Litres sampled	1111			
Corrected volume sampled - STP (m ³)	1.024			
Blank Filter Run weight gain (mg)	0.030	Blank Concentration (mg/m ³)	0.029	
Blank Wash Run weight gain (mg)	0.060		0.059	
Weighing uncertainty of balance (mg)	0.074	This must be <5% of ELV	ELV = 50	2.5
Overall Blank value (mg/m ³)	0.088	This must be <10% of ELV	ELV = 50	5.0
Particulate weight collected on filter (mg)	0.04			
Particulate weight collected in Wash (mg)	0.57			
Total Particulate weight collected (mg)	0.61			
Total Particulate Concentration, dry gas at STP (mg/m ³)	0.60			
Total Particulate Concentration, wet gas at STP (mg/m ³)	0.58			
Total Particulate Concentration corrected for 11% Oxygen, dry gas (mg/m ³)	N/A			
Total Particulate Mass Emission (kg/hour)	0.596			



Client	Terex Construction							
Site Address	Coventry							
Job Number	P-RED16-054							
Date	4th May 2016							
Operator(s)	E Berek & P Butler							
Stack Reference	Scissor 2 Booth 1				Isokinetic Sample Positions (%) multiply by diameter to obtain sample points			
				1	14.60			
Number of Stacks			1	2	85.40			
Stack Configuration			Round	3	N/A			
Dimensions (mtrs)			0.70	4	N/A			
Outlet Diameter (if applicable) (metres)				5	N/A			
Number of Sample Ports			2	6	N/A			
Number of Samples per Axis / Port			2	7	N/A			
Nozzle Diameter (mm)			8.0	8	N/A			
Nozzle Area (m ²)			0.00005024	Average Isokinetic Flow Rate (ltrs/min)			Axis 1	Axis 2
Stack Area (m ²)			0.385				26.58	26.01
Pitot Coefficient	0.89	Pitot Calibration Due Date			December 2016			Atmos. Pressure (kPa)
Position	Distance	Axis 1	Temperature	Swirl Test	Axis 2	Temperature	Swirl Test	100.6
No.	(cms)	(pa)	(C)	(°)	(pa)	(C)	(°)	Static Pressure (pa)
1	10.22	55	19.5	4.0	57	19.5	4.2	31.0
2	59.78	62	19.5	4.4	55	19.5	4.4	1 Axis
3	N/A							2 Axis
4	N/A							Velocity of flow (m/s)
5	N/A							8.82
6	N/A							8.63
7	N/A							Volume Flow Rate (m ³ /s)
8	N/A							3.39
								3.32
								Reduced Exit
Averages		59	19.5		56	19.5		N/A
Mean Flue Gas Temp (in K) $T_p = ((\text{Mean } T_1 + \text{Mean } T_2)/2 + 273)) =$							292.50	
Permitted Range of gas temperature readings (C) = $(0.95T_p - 273)$ to $(1.05T_p - 273) =$							4.88 to 34.13	
Highest Velocity Reading (m/s) =							9.3	
Lowest Velocity Reading (m/s) =							8.5	
Ratio Highest/Lowest (Max permitted = 3:1)							1.10 : 1	
On site Checklist								
Initial Leak Check	0	End of first run	0.2		Start of 2 nd run	N/A	End of 2 nd run	N/A
Acceptable Leak Check < 2% Vol (l/min)	0.53				Manometer Leak Check			OK
					Pitot Leak Check			OK
Range of Gas Temps	OK				Overall Isokinetic Ratio (%) (must be 95 to 115%)			Run 1
Passed minimum Velocity requirements (>5pa)	YES							Run 2
Negative Local Flow Present, YES or NO (Yes = Fail)	NO				Are there sufficient rails and kick board? (YES, NO or N/A)			NO
Is the Platform area greater than 5m ² ? (YES, NO or N/A)	NO				Is the area in front of the sample line the length of the probe + 1 metre? (YES or NO)			YES
Passed Highest to lowest Velocity (3:1)	YES							
Site Equipment Used								
Pitot Reference	RED 0289				Manometer Reference			RED 0404
Thermometer Reference	RED 0351-RED 0352				Thermocouple Reference			RED 0292
Balance Reference	N/A				Sampling Pump Reference			RED 0258
Tape Measure Reference	RED 0121				Barometer Reference			RED 0403
DGM Thermocouple	RED 0258				Impinger Outlet Thermocouple			N/A
Calipers	RED 0300				Condenser Thermocouple			N/A



Stack Reference ID		Scissor 2 Booth 1		
		Terex Construction		
		RUN 1		
Filter Reference No	G47-270416-05			
Date	4th May 2016			
Sample Period	10:50	to	11:50	
Velocity (m/s)	8.72			
Volume flow rate of Stack gas (m ³ /hr)	12085			
Average Stack Temp (°C)	19.5			
Temp Range ± 5% (°C)	4.88	to	34.13	
Lowest Velocity Reading (m/s)	8.53			
Highest Velocity Reading (m/s)	9.34			
Ratio (less than 3:1)	1.10	:	1	
Pre-conditioning temperature of Filter (°C)	180			
Instack sampling - Max Filter temperature (°C)	19.7			
Post-conditioning temperature Filter/Wash (°C)	160			
Oxygen %	19.2			
Carbon Dioxide %	0.40			
Moisture (%)	1.31			
Litres sampled	1598			
Corrected volume sampled - STP (m ³)	1.482			
Blank Filter Run weight gain (mg)	0.130	Blank Concentration (mg/m ³)	0.088	
Blank Wash Run weight gain (mg)	0.010		0.007	
Weighing uncertainty of balance (mg)	0.143	This must be <5% of ELV	ELV = 50	2.5
Overall Blank value (mg/m ³)	0.094	This must be <20% of ELV	ELV = 50	10.0
Particulate weight collected on filter (mg)	19.57			
Particulate weight collected in Wash (mg)	2.75			
Total Particulate weight collected (mg)	22.32			
Total Particulate Concentration, dry gas at STP (mg/m ³)	15.06			
Total Particulate Concentration, wet gas at STP (mg/m ³)	14.86			
Total Particulate Concentration corrected for 11% Oxygen, dry gas (mg/m ³)	N/A			
Total Particulate Mass Emission (kg/hour)	0.182			



Client	Terex Construction									
Site Address	Coventry									
Job Number	P-RED16-054									
Date	4th May 2016									
Operator(s)	E Berec & P Butler									
Stack Reference	Scissor 2 Booth 2				Isokinetic Sample Positions (%) multiply by diameter to obtain sample points					
				1	14.60					
Number of Stacks			1	2	85.40					
Stack Configuration			Round	3	N/A					
Dimensions (mtrs)			0.70	4	N/A					
Outlet Diameter (if applicable) (metres)				5	N/A					
Number of Sample Ports			2	6	N/A					
Number of Samples per Axis / Port			2	7	N/A					
Nozzle Diameter (mm)			8.0	8	N/A					
Nozzle Area (m ²)			0.00005024	Average Isokinetic Flow Rate (ltrs/min)				Axis 1	Axis 2	
Stack Area (m ²)			0.385					22.91	23.82	
Pitot Coefficient	0.89	Pitot Calibration Due Date			December 2016			Atmos. Pressure (kPa)		
Position	Distance	Axis 1	Temperature	Swirl Test	Axis 2	Temperature	Swirl Test	100.6		
No.	(cms)	(pa)	(C)	(°)	(pa)	(C)	(°)	Static Pressure (pa)		
1	10.22	46	19.3	4.5	48	19.3	4.4	26.0		
2	59.78	41	19.4	5.2	46	19.3	4.1	1 Axis	2 Axis	
3	N/A							Velocity of flow (m/s)		
4	N/A							7.60	7.90	
5	N/A							Volume Flow Rate (m ³ /s)		
6	N/A							2.93	3.04	
7	N/A							Reduced Exit		
8	N/A							N/A		
Averages		44	19.4		47	19.3				
Mean Flue Gas Temp (in K) $T_p = ((\text{Mean } T_1 + \text{Mean } T_2)/2 + 273)) =$								292.35		
Permitted Range of gas temperature readings (C) = $(0.95T_p - 273)$ to $(1.05T_p - 273) =$								4.73	to 33.97	
Highest Velocity Reading (m/s) =								8.2		
Lowest Velocity Reading (m/s) =								7.4		
Ratio Highest/Lowest (Max permitted = 3:1)								1.12 : 1		
On site Checklist										
Initial Leak Check	0	End of first run	0.2		Start of 2 nd run		End of 2 nd run			
Acceptable Leak Check < 2% Vol (l/min)	0.46				Manometer Leak Check			OK		
					Pitot Leak Check			OK		
Range of Gas Temps	OK				Overall Isokinetic Ratio (%) (must be 95 to 115%)			Run 1	Run 2	
Passed minimum Velocity requirements (>5pa)	YES							100.7	N/A	
Negative Local Flow Present, YES or NO (Yes = Fail)	NO				Are there sufficient rails and kick board? (YES, NO or N/A)			NO		
Is the Platform area greater than 5m ² ? (YES, NO or N/A)	NO				Is the area in front of the sample line the length of the probe + 1 metre? (YES or NO)			YES		
Passed Highest to lowest Velocity (3:1)	YES									
Site Equipment Used										
Pitot Reference	RED 0289				Manometer Reference			RED 0404		
Thermometer Reference	RED 0351-RED 0352				Thermocouple Reference			RED 0292		
Balance Reference	N/A				Sampling Pump Reference			RED 0258		
Tape Measure Reference	RED 0121				Barometer Reference			RED 0403		
DGM Thermocouple	RED 0258				Impinger Outlet Thermocouple			N/A		
Calipers	RED 0300				Condenser Thermocouple			N/A		



Stack Reference ID		Scissor 2 Booth 2		
		Terex Construction		
		RUN 1		
Filter Reference No	G47-270416-07			
Date	4th May 2016			
Sample Period	12:00	to	13:00	
Velocity (m/s)	7.75			
Volume flow rate of Stack gas (m ³ /hr)	10739			
Average Stack Temp (°C)	19.4			
Temp Range ± 5% (°C)	4.73	to	33.97	
Lowest Velocity Reading (m/s)	7.36			
Highest Velocity Reading (m/s)	8.21			
Ratio (less than 3:1)	1.12	:	1	
Pre-conditioning temperature of Filter (°C)	180			
Instack sampling - Max Filter temperature (°C)	19.3			
Post-conditioning temperature Filter/Wash (°C)	160			
Oxygen %	19.3			
Carbon Dioxide %	0.40			
Moisture (%)	1.15			
Litres sampled	1422			
Corrected volume sampled - STP (m ³)	1.316			
Blank Filter Run weight gain (mg)	0.050	Blank Concentration (mg/m ³)	0.038	
Blank Wash Run weight gain (mg)	0.100		0.076	
Weighing uncertainty of balance (mg)	0.078	This must be <5% of ELV	ELV = 50	2.5
Overall Blank value (mg/m ³)	0.114	This must be <10% of ELV	ELV = 50	5.0
Particulate weight collected on filter (mg)	2.38			
Particulate weight collected in Wash (mg)	2.87			
Total Particulate weight collected (mg)	5.25			
Total Particulate Concentration, dry gas at STP (mg/m ³)	3.99			
Total Particulate Concentration, wet gas at STP (mg/m ³)	3.94			
Total Particulate Concentration corrected for 11% Oxygen, dry gas (mg/m ³)	N/A			
Total Particulate Mass Emission (kg/hour)	0.042			



Client	Terex Construction								
Site Address	Coventry								
Job Number	P-RED16-054								
Date	4th May 2016								
Operator(s)	E Berek & P Butler								
Stack Reference	Scissor 2 Oven				Isokinetic Sample Positions (%) multiply by diameter to obtain sample points				
					Sampling Plane Diagram				
Number of Stacks	1				1	50.00			
Stack Configuration	Round				2	N/A			
Dimensions (metres)	0.20				3	N/A			
Outlet Diameter (if applicable) (metres)					4	N/A			
Number of Sample Ports	1				5	N/A			
Number of Samples per Axis / Port	1				6	N/A			
Nozzle Diameter (mm)	8.0				7	N/A			
Nozzle Area (m ²)	0.00005024				8	N/A			
Stack Area (m ²)	0.031				Average Isokinetic Flow Rate (ltrs/min)			Axis 1	
								Axis 2	
								16.84	
								N/A	
Pitot Coefficient	0.89		Pitot Calibration Due Date			December 2016			Atmos. Pressure (kPa)
									100.6
Position	Distance	Axis 1	Temperature	Swirl Test	Axis 2	Temperature	Swirl Test	Static Pressure (pa)	
No.	(cms)	(pa)	(C)	(°)	(pa)	(C)	(°)	8.0	
1	10.00	19	88.3	4.0				1 Axis	
2	N/A							2 Axis	
3	N/A							Velocity of flow (m/s)	
4	N/A							5.59	
5	N/A							N/A	
6	N/A							Volume Flow Rate (m ³ /s)	
7	N/A							0.18	
8	N/A							N/A	
	Reduced Exit								
Averages			19	88.3				N/A	
Mean Flue Gas Temp (in K) $T_p = ((\text{Mean } T_1 + \text{Mean } T_2)/2 + 273)) =$					361.30				
Permitted Range of gas temperature readings (C) = $(0.95T_p - 273)$ to $(1.05T_p - 273) =$					70.24	to 106.37			
Highest Velocity Reading (m/s) =					5.7				
Lowest Velocity Reading (m/s) =					5.6				
Ratio Highest/Lowest (Max permitted = 3:1)					1.03 : 1				
On site Checklist									
Initial Leak Check	0	End of first run	0		Start of 2 nd run		End of 2 nd run		
Acceptable Leak Check < 2% Vol (l/min)	0.34				Manometer Leak Check		OK		
					Pitot Leak Check		OK		
Range of Gas Temps	OK				Overall Isokinetic Ratio (%) (must be 95 to 115%)		Run 1	Run 2	
Passed minimum Velocity requirements (>5pa)	YES						99.6	N/A	
Negative Local Flow Present, YES or NO (Yes = Fail)	NO				Are there sufficient rails and kick board? (YES, NO or N/A)		NO		
Is the Platform area greater than 5m ² ? (YES, NO or N/A)	NO				Is the area in front of the sample line the length of the probe + 1 metre? (YES or NO)		YES		
Passed Highest to lowest Velocity (3:1)	YES								
Site Equipment Used									
Pitot Reference	RED 0289			Manometer Reference			RED 0404		
Thermometer Reference	RED 0351-RED 0352			Thermocouple Reference			RED 0292		
Balance Reference	N/A			Sampling Pump Reference			RED 0258		
Tape Measure Reference	RED 0121			Barometer Reference			RED 0403		
DGM Thermocouple	RED 0258			Impinger Outlet Thermocouple			N/A		
Calipers	RED 0300			Condenser Thermocouple			N/A		



Stack Reference ID		Scissor 2 Oven		
	Terex Construction			
	RUN 1			
Filter Reference No	G47-270416-11			
Date	4th May 2016			
Sample Period	13:12	to	14:12	
Velocity (m/s)	5.59			
Volume flow rate of Stack gas (m ³ /hr)	632			
Average Stack Temp (°C)	88.3			
Temp Range ± 5% (°C)	70.24	to	106.37	
Lowest Velocity Reading (m/s)	5.57			
Highest Velocity Reading (m/s)	5.74			
Ratio (less than 3:1)	1.03	:	1	
Pre-conditioning temperature of Filter (°C)	180			
Instack sampling - Max Filter temperature (°C)	88.7			
Post-conditioning temperature Filter/Wash (°C)	160			
Oxygen %	19.3			
Carbon Dioxide %	0.40			
Moisture (%)	1.79			
Litres sampled	998			
Corrected volume sampled - STP (m ³)	0.922			
Blank Filter Run weight gain (mg)	0.010	Blank Concentration (mg/m ³)	0.011	
Blank Wash Run weight gain (mg)	0.050		0.054	
Weighing uncertainty of balance (mg)	0.074	This must be <5% of ELV	ELV = 50	2.5
Overall Blank value (mg/m ³)	0.065	This must be <10% of ELV	ELV = 50	5.0
Particulate weight collected on filter (mg)	0.06			
Particulate weight collected in Wash (mg)	0.34			
Total Particulate weight collected (mg)	0.40			
Total Particulate Concentration, dry gas at STP (mg/m ³)	0.43			
Total Particulate Concentration, wet gas at STP (mg/m ³)	0.43			
Total Particulate Concentration corrected for 11% Oxygen, dry gas (mg/m ³)	N/A			
Total Particulate Mass Emission (kg/hour)	0.0003			



Client	Terex Construction							
Site Address	Coventry							
Job Number	P-RED16-054							
Date	5th May 2016							
Operator(s)	E Berek & P Butler							
Stack Reference	Primer Booth 1			Isokinetic Sample Positions (%) multiply by diameter to obtain sample points		Sampling Plane Diagram		
Number of Stacks	1			1	6.70			
Stack Configuration	Round			2	25.00			
Dimensions (mtrs)	1.60			3	75.00			
Outlet Diameter (if applicable) (metres)				4	93.30			
Number of Sample Ports	1			5	N/A			
Number of Samples per Axis / Port	4			6	N/A			
Nozzle Diameter (mm)	8.0			7	N/A			
Nozzle Area (m²)	0.00005024			8	N/A			
Stack Area (m²)	2.011			Average Isokinetic Flow Rate (ltrs/min)		Axis 1	Axis 2	
Pitot Coefficient	0.89			Pitot Calibration Due Date			December 2016	
Position	Distance	Axis 1	Temperature	Swirl Test	Axis 2	Temperature	Swirl Test	Atmos. Pressure (kPa)
No.	(cms)	(pa)	(C)	Degree	(pa)	(C)	Degree	100.9
1	10.72	60	19.4	4.0	56	18.0	3.5	Static Pressure (pa)
2	40.00	45	19.5	3.0	53	18.0	4.2	-15.0
3	120.00	39	19.4	3.0	48	18.0	4.6	1 Axis
4	149.28	51	19.4	4.0	58	18.0	4.1	2 Axis
5	N/A							Velocity of flow (m/s)
6	N/A							8.01
7	N/A							8.41
8	N/A							Volume Flow Rate (m³/s)
Averages		49	19.4		54	18.0		16.10
								16.91
								Reduced Exit
								NA
Mean Flue Gas Temp (in K) $T_p = ((\text{Mean } T_1 + \text{Mean } T_2)/2) + 273$								291.71
Range of gas temperature readings $\pm 5\%$ ($^{\circ}\text{C}$) = $(0.95T_p - 273)$ to $(1.05T_p - 273)$						4.13	to	33.30
Highest Velocity Reading (m/s)								9.2
Lowest Velocity Reading (m/s)								7.2
Ratio Highest/Lowest (Max permitted = 3:1)								1.28 : 1
On site Checklist								
Range of Gas Temps	OK			Manometer Leak Check	OK			
Initial Leak Check	<0.2	Final leak check	<0.2	Pitot Leak Check	OK			
Acceptable Leak Check < 2% Vol (l/min)	0.48			Overall Isokinetic Ratio (%) (must be 95 to 115%)	Run 1	Run 2		
Passed minimum Velocity requirements (>5pa)	YES				101.8	N/A		
Negative Local Flow Present. YES or NO (Yes = Fail)	NO			Are there sufficient rails and kick board? (YES . NO or N/A)	YES			
Is the Platform area greater than 5m²? (YES, NO or N/A)	YES			Is the area in front of the sample line the length of the probe + 1 metre? (YES or NO)	YES			
Passed Highest to lowest Velocity (3:1)	YES							
Site Equipment Used								
Pitot Reference	RED 0237			Manometer Reference	RED 0400			
Thermometer Reference	RED 0354			Thermocouple Reference	RED 0344			
Balance Reference	N/A			Sampling Pump Reference	RED 0258			
Tape Measure Reference	RED 0123			Barometer Reference	RED 0402			



Stack Reference ID		Primer Booth 1		
		Terex Construction		
		RUN 1		
Filter Reference No	G47-270416-13			
Date	5th May 2016			
Sample Period	09:10	to	10:10	
Velocity (m/s)	8.21			
Volumetric flowrate of Stack gas (m ³ /hr)	59416			
Average Stack Temp (°C)	18.7			
Temperature Range - ± 5% (°C)	4.13	to	33.30	
Lowest Velocity Reading (m/s)	7.16			
Highest Velocity Reading (m/s)	9.16			
Ratio (less than 3:1)	1.28	:	1	
Pre-conditioning temperature of Filter (°C)	180			
Instack sampling - Max Filter temperature (°C)	19.5			
Post-conditioning temperature Filter/Wash (°C)	160			
Oxygen %	18.6			
Carbon Dioxide %	1.40			
Moisture (%)	2.50			
Litres sampled	1533			
Corrected volume sampled - STP (m ³)	1.428			
Blank Filter Run weight gain (mg)	0.040	Blank Concentration (mg/m ³)	0.028	
Blank Wash Run weight gain (mg)	0.100		0.070	
Weighing uncertainty of balance (mg)	0.076	This must be <5% of ELV	ELV = 50	2.5
Overall Blank value (mg/m ³)	0.098	This must be <10% of ELV	ELV = 50	5.0
Particulate weight collected on filter (mg)	0.29			
Particulate weight collected in Wash (mg)	2.57			
Total Particulate weight collected (mg)	2.86			
Total Particulate Concentration, *STP, dry gas (mg/m ³)	2.00			
Total Particulate Concentration, *STP, wet gas (mg/m ³)	1.95			
Total Particulate Concentration corrected for Oxygen, *STP, dry gas (mg/m ³)	N/A			
Total Particulate Mass Emission (kg/hour)	0.113			



Client	Terex Construction							
Site Address	Coventry							
Job Number	P-RED16-054							
Date	5th May 2016							
Operator(s)	E Berek & P Butler							
Stack Reference	Primer Booth 1				Isokinetic Sample Positions (%) multiply by diameter to obtain sample points			
					Sampling Plane Diagram			
Number of Stacks	1				1	6.70		
Stack Configuration	Round				2	25.00		
Dimensions (mtrs)	1.60				3	75.00		
Outlet Diameter (if applicable) (metres)					4	93.30		
Number of Sample Ports	2				5	N/A		
Number of Samples per Axis / Port	4				6	N/A		
Nozzle Diameter (mm)	8.0				7	N/A		
Nozzle Area (m ²)	0.00005024				Average Isokinetic Flow Rate (ltrs/min)			
Stack Area (m ²)	2.011				Axis 1		Axis 2	
					25.43		26.13	
Pitot Coefficient	0.89				Pitot Calibration Due Date			
					December 2016			
Position	Distance	Axis 1	Temperature	Swirl Test	Axis 2	Temperature	Swirl Test	Atmos. Pressure (kPa)
No.	(cms)	(pa)	(C)	Degree	(pa)	(C)	Degree	100.9
1	10.72	59	19.3	4.4	59	19.1	3.8	Static Pressure (pa)
2	40.00	53	19.2	4.7	60	19.1	4.4	-18.0
3	120.00	49	19.3	5.2	53	19.2	4.5	1 Axis
4	149.28	55	19.3	4.2	56	19.2	4.2	2 Axis
5	N/A							Velocity of flow (m/s)
6	N/A							8.44
7	N/A							8.67
8	N/A							Volume Flow Rate (m ³ /s)
								16.96
								17.43
								Reduced Exit
Averages		54	19.3		57	19.2		NA
Mean Flue Gas Temp (in K) $T_p = ((\text{Mean } T_1 + \text{Mean } T_2)/2) + 273$					292.21			
Range of gas temperature readings $\pm 5\%$ ($^{\circ}\text{C}$) = $(0.95T_p - 273)$ to $(1.05T_p - 273)$					4.60		to 33.82	
Highest Velocity Reading (m/s)					9.2			
Lowest Velocity Reading (m/s)					8.0			
Ratio Highest/Lowest (Max permitted = 3:1)					1.14 : 1			
On site Checklist								
Range of Gas Temps	OK				Manometer Leak Check	OK		
Initial Leak Check	<0.2	Final leak check	<0.2		Pitot Leak Check	OK		
Acceptable Leak Check < 2% Vol (l/min)	0.51				Overall Isokinetic Ratio (%) (must be 95 to 115%)	Run 1	Run 2	
Passed minimum Velocity requirements (>5pa)	YES					100.0	N/A	
Negative Local Flow Present. YES or NO (Yes = Fail)	NO				Are there sufficient rails and kick board? (YES . NO or N/A)	YES		
Is the Platform area greater than 5m ² ? (YES, NO or N/A)	YES				Is the area in front of the sample line the length of the probe + 1 metre? (YES or NO)	YES		
Passed Highest to lowest Velocity (3:1)	YES							
Site Equipment Used								
Pitot Reference	RED 0237				Manometer Reference	RED 0400		
Thermometer Reference	RED 0354				Thermocouple Reference	RED 0344		
Balance Reference	N/A				Sampling Pump Reference	RED 0258		
Tape Measure Reference	RED 0123				Barometer Reference	RED 0402		



Stack Reference ID		Primer Booth 1		
	Terex Construction			
	RUN 1			
Filter Reference No	G47-270416-15			
Date	5th May 2016			
Sample Period	10:22	to	11:22	
Velocity (m/s)	8.55			
Volumetric flowrate of Stack gas (m ³ /hr)	61896			
Average Stack Temp (°C)	19.2			
Temperature Range - ± 5% (°C)	4.60	to	33.82	
Lowest Velocity Reading (m/s)	8.03			
Highest Velocity Reading (m/s)	9.17			
Ratio (less than 3:1)	1.14	:	1	
Pre-conditioning temperature of Filter (°C)	180			
Instack sampling - Max Filter temperature (°C)	19.2			
Post-conditioning temperature Filter/Wash (°C)	160			
Oxygen %	18.6			
Carbon Dioxide %	1.40			
Moisture (%)	2.18			
Litres sampled	1498			
Corrected volume sampled - STP (m ³)	1.384			
Blank Filter Run weight gain (mg)	0.020	Blank Concentration (mg/m ³)	0.014	
Blank Wash Run weight gain (mg)	0.080		0.058	
Weighing uncertainty of balance (mg)	0.076	This must be <5% of ELV	ELV = 50	2.5
Overall Blank value (mg/m ³)	0.072	This must be <10% of ELV	ELV = 50	5.0
Particulate weight collected on filter (mg)	2.02			
Particulate weight collected in Wash (mg)	1.18			
Total Particulate weight collected (mg)	3.20			
Total Particulate Concentration, *STP, dry gas (mg/m ³)	2.31			
Total Particulate Concentration, *STP, wet gas (mg/m ³)	2.26			
Total Particulate Concentration corrected for Oxygen, *STP, dry gas (mg/m ³)	N/A			
Total Particulate Mass Emission (kg/hour)	0.000			



Client	Terex Construction										
Site Address	Coventry										
Job Number	P-RED16-054										
Date	5th May 2016										
Operator(s)	E Berek & P Butler										
Stack Reference	Primer Flash Off	Isokinetic Sample Positions (%) multiply by diameter to obtain sample points				Sampling Plane Diagram					
		1	14.60	2	85.40						
Number of Stacks	1	3	N/A								
Stack Configuration	Round	4	N/A								
Dimensions (mtrs)	0.80	5	N/A								
Outlet Diameter (if applicable) (metres)		6	N/A								
Number of Sample Ports	2	7	N/A								
Number of Samples per Axis / Port	2	8	N/A								
Nozzle Diameter (mm)	8.0	Average Isokinetic Flow Rate (ltrs/min)		Axis 1	Axis 2						
Nozzle Area (m ²)	0.00005024	29.22	26.69								
Stack Area (m ²)	0.503										
Pitot Coefficient	0.89	Pitot Calibration Due Date			December 2016			Atmos. Pressure (kPa)			
Position	Distance	Axis 1	Temperature	Swirl Test	Axis 2	Temperature	Swirl Test	100.9			
No.	(cms)	(pa)	(C)	Degree	(pa)	(C)	Degree	Static Pressure (pa)			
1	11.68	73	25.5	5.0	54	25.4	4.6	-13.0			
2	68.32	66	25.6	4.5	62	25.4	4.2	1 Axis			
3	N/A							2 Axis			
4	N/A							Velocity of flow (m/s)			
5	N/A							9.69			
6	N/A							8.85			
7	N/A							Volume Flow Rate (m ³ /s)			
8	N/A							4.87			
								4.45			
								Reduced Exit			
Averages		70	25.6		58	25.4		N/A			
Mean Flue Gas Temp (in K) $T_p = ((\text{Mean } T_1 + \text{Mean } T_2)/2) + 273$							298.48				
Range of gas temperature readings $\pm 5\%$ ($^{\circ}\text{C}$) = $(0.95T_p - 273)$ to $(1.05T_p - 273)$							10.55	to 40.40			
Highest Velocity Reading (m/s)							10.2				
Lowest Velocity Reading (m/s)							8.5				
Ratio Highest/Lowest (Max permitted = 3:1)							1.20	1			
On site Checklist											
Range of Gas Temps	OK			Manometer Leak Check	OK						
Initial Leak Check	<0.2	Final leak check	<0.2	Pitot Leak Check	OK						
Acceptable Leak Check < 2% Vol (l/min)	0.58			Overall Isokinetic Ratio (%) (must be 95 to 115%)	Run 1	Run 2					
Passed minimum Velocity requirements (>5pa)	YES				100.2	N/A					
Negative Local Flow Present. YES or NO (Yes = Fail)	NO			Are there sufficient rails and kick board? (YES . NO or N/A)	YES						
Is the Platform area greater than 5m ² ? (YES, NO or N/A)	YES			Is the area in front of the sample line the length of the probe + 1 metre? (YES or NO)	YES						
Passed Highest to lowest Velocity (3:1)	YES										
Site Equipment Used											
Pitot Reference	RED 0237			Manometer Reference	RED 0400						
Thermometer Reference	RED 0354			Thermocouple Reference	RED 0344						
Balance Reference	N/A			Sampling Pump Reference	RED 0258						
Tape Measure Reference	RED 0123			Barometer Reference	RED 0402						



Stack Reference ID		Primer Flash Off		
		Terex Construction		
		RUN 1		
Filter Reference No	G47-270416-17			
Date	5th May 2016			
Sample Period	11:40	to	12:40	
Velocity (m/s)	9.27			
Volumetric flowrate of Stack gas (m ³ /hr)	16781			
Average Stack Temp (°C)	25.5			
Temperature Range - ± 5% (°C)	10.55	to	40.40	
Lowest Velocity Reading (m/s)	8.52			
Highest Velocity Reading (m/s)	10.22			
Ratio (less than 3:1)	1.20	:	1	
Pre-conditioning temperature of Filter (°C)	180			
Instack sampling - Max Filter temperature (°C)	25.7			
Post-conditioning temperature Filter/Wash (°C)	160			
Oxygen %	19.1			
Carbon Dioxide %	0.50			
Moisture (%)	2.92			
Litres sampled	1640			
Corrected volume sampled - STP (m ³)	1.510			
Blank Filter Run weight gain (mg)	0.040	Blank Concentration (mg/m ³)	0.026	
Blank Wash Run weight gain (mg)	0.060		0.040	
Weighing uncertainty of balance (mg)	0.074	This must be <5% of ELV	ELV = 50	2.5
Overall Blank value (mg/m ³)	0.066	This must be <10% of ELV	ELV = 50	5.0
Particulate weight collected on filter (mg)	0.40			
Particulate weight collected in Wash (mg)	0.37			
Total Particulate weight collected (mg)	0.77			
Total Particulate Concentration, *STP, dry gas (mg/m ³)	0.51			
Total Particulate Concentration, *STP, wet gas (mg/m ³)	0.50			
Total Particulate Concentration corrected for Oxygen, *STP, dry gas (mg/m ³)	N/A			
Total Particulate Mass Emission (kg/hour)	0.009			



Client	Terex Construction							
Site Address	Coventry							
Job Number	P-RED16-054							
Date	5th May 2016							
Operator(s)	E Berek & P Butler							
Stack Reference	Topcoat 1			Isokinetic Sample Positions (%) multiply by diameter to obtain sample points		Sampling Plane Diagram		
Number of Stacks	1			1	14.60			
Stack Configuration	Round			2	85.40			
Dimensions (mtrs)	1.60			3	N/A			
Outlet Diameter (if applicable) (metres)				4	N/A			
Number of Sample Ports	1			5	N/A			
Number of Samples per Axis / Port	4			6	N/A			
Nozzle Diameter (mm)	8.0			7	N/A			
Nozzle Area (m²)	0.00005024			8	N/A			
Stack Area (m²)	2.011			Average Isokinetic Flow Rate (ltrs/min)		Axis 1	Axis 2	
Pitot Coefficient	0.89			Pitot Calibration Due Date			December 2016	
Position	Distance	Axis 1	Temperature	Swirl Test	Axis 2	Temperature	Swirl Test	Atmos. Pressure (kPa)
No.	(cms)	(pa)	(C)	Degree	(pa)	(C)	Degree	100.9
1	23.96	42	18.3	3.6	35	18.1	3.3	Static Pressure (pa)
2	136.64	39	18.2	4.0	33	18.2	3.6	-11.0
3	N/A							1 Axis
4	N/A							2 Axis
5	N/A							Velocity of flow (m/s)
6	N/A							7.29
7	N/A							6.68
8	N/A							Volume Flow Rate (m³/s)
								14.66
								13.44
								Reduced Exit
Averages		41	18.3		34	18.2		NA
Mean Flue Gas Temp (in K) $T_p = ((\text{Mean } T_1 + \text{Mean } T_2)/2) + 273$							291.20	
Range of gas temperature readings $\pm 5\%$ ($^{\circ}\text{C}$) = $(0.95T_p - 273)$ to $(1.05T_p - 273)$							3.64	to 32.76
Highest Velocity Reading (m/s)							7.7	
Lowest Velocity Reading (m/s)							6.6	
Ratio Highest/Lowest (Max permitted = 3:1)							1.16 : 1	
On site Checklist								
Range of Gas Temps	OK			Manometer Leak Check			OK	
Initial Leak Check	<0.2	Final leak check	<0.2	Pitot Leak Check			OK	
Acceptable Leak Check < 2% Vol (l/min)	0.44			Overall Isokinetic Ratio (%) (must be 95 to 115%)			Run 1	Run 2
Passed minimum Velocity requirements (>5pa)	YES						100.5	100.5
Negative Local Flow Present. YES or NO (Yes = Fail)	NO			Are there sufficient rails and kick board? (YES, NO or N/A)			YES	
Is the Platform area greater than 5m²? (YES, NO or N/A)	YES			Is the area in front of the sample line the length of the probe + 1 metre? (YES or NO)			YES	
Passed Highest to lowest Velocity (3:1)	YES							
Site Equipment Used								
Pitot Reference	RED 0237			Manometer Reference			RED 0400	
Thermometer Reference	RED 0354			Thermocouple Reference			RED 0344	
Balance Reference	N/A			Sampling Pump Reference			RED 0258	
Tape Measure Reference	RED 0123			Barometer Reference			RED 0402	



Stack Reference ID	Topcoat 1					
	Terex Construction					
	RUN 1			RUN 2		
Filter Reference No	NCO Run			G47-270416-19		
Date	5th May 2016			5th May 2016		
Sample Period	09:21	to	10:21	09:21	to	10:21
Velocity (m/s)	6.99					
Volumetric flowrate of Stack gas (m ³ /hr)	50577					
Average Stack Temp (°C)	18.2					
Temperature Range - ± 5% (°C)	3.64		to			32.76
Lowest Velocity Reading (m/s)	6.58					
Highest Velocity Reading (m/s)	7.66					
Ratio (less than 3:1)	1.16		:			1
Pre-conditioning temperature of Filter (°C)	180			180		
Instack sampling - Max Filter temperature (°C)	18.2			18.2		
Post-conditioning temperature Filter/Wash (°C)	160			160		
Oxygen %	18.6			18.6		
Carbon Dioxide %	1.40			1.40		
Moisture (%)	2.92					
Litres sampled	1182			1182		
Corrected volume sampled - STP (m ³)	1.095			1.095		
Blank Filter Run weight gain (mg)	0.070			Blank Concentration (mg/m ³)	0.064	
Blank Wash Run weight gain (mg)	0.080				0.073	
Weighing uncertainty of balance (mg)	0.252	This must be <5% of ELV		ELV = 50	2.5	
Overall Blank value (mg/m ³)	0.137	This must be <10% of ELV		ELV = 50	5.0	
Particulate weight collected on filter (mg)	0.05			42.26		
Particulate weight collected in Wash (mg)	0.00			0.51		
Total Particulate weight collected (mg)	0.05			42.77		
Total Particulate Concentration, *STP, dry gas (mg/m ³)	0.05			39.07		
Total Particulate Concentration, *STP, wet gas (mg/m ³)	0.04			37.93		
Total Particulate Concentration corrected for Oxygen, *STP, dry gas (mg/m ³)	N/A			N/A		
Total Particulate Mass Emission (kg/hour)	0.002			2.002		



Client	Terex Construction							
Site Address	Coventry							
Job Number	P-RED16-054							
Date	5th May 2016							
Operator(s)	E Berek & P Butler							
Stack Reference	Topcoat 2			Isokinetic Sample Positions (%) multiply by diameter to obtain sample points		Sampling Plane Diagram		
Number of Stacks	1			1	14.60			
Stack Configuration	Round			2	85.40			
Dimensions (mtrs)	1.60			3	N/A			
Outlet Diameter (if applicable) (metres)				4	N/A			
Number of Sample Ports	1			5	N/A			
Number of Samples per Axis / Port	4			6	N/A			
Nozzle Diameter (mm)	8.0			7	N/A			
Nozzle Area (m²)	0.00005024			8	N/A			
Stack Area (m²)	2.011			Average Isokinetic Flow Rate (ltrs/min)		Axis 1	Axis 2	
Pitot Coefficient	0.89			Pitot Calibration Due Date			December 2016	Atmos. Pressure (kPa)
Position	Distance	Axis 1	Temperature	Swirl Test	Axis 2	Temperature	Swirl Test	100.9
No.	(cms)	(pa)	(C)	Degree	(pa)	(C)	Degree	Static Pressure (pa)
1	23.36	50	19.1	3.4	41	19.1	4.2	-14.0
2	136.64	48	19.2	3.7	44	19.1	3.8	1 Axis
3	N/A							2 Axis
4	N/A							Velocity of flow (m/s)
5	N/A							8.03
6	N/A							7.48
7	N/A							Volume Flow Rate (m³/s)
8	N/A							16.15
								15.04
								Reduced Exit
Averages		49	19.2		43	19.1		NA
Mean Flue Gas Temp (in K) $T_p = ((\text{Mean } T_1 + \text{Mean } T_2)/2) + 273$								292.13
Range of gas temperature readings $\pm 5\%$ ($^{\circ}\text{C}$) = $(0.95T_p - 273)$ to $(1.05T_p - 273)$								4.52 to 33.73
Highest Velocity Reading (m/s)								8.4
Lowest Velocity Reading (m/s)								7.3
Ratio Highest/Lowest (Max permitted = 3:1)								1.14 : 1
On site Checklist								
Range of Gas Temps	OK			Manometer Leak Check	OK			
Initial Leak Check	<0.2	Final leak check	<0.2	Pitot Leak Check	OK			
Acceptable Leak Check < 2% Vol (l/min)	0.48			Overall Isokinetic Ratio (%) (must be 95 to 115%)	Run 1	Run 2		
Passed minimum Velocity requirements (>5pa)	YES				100.3	100.3		
Negative Local Flow Present. YES or NO (Yes = Fail)	NO			Are there sufficient rails and kick board? (YES, NO or N/A)	YES			
Is the Platform area greater than 5m²? (YES, NO or N/A)	YES			Is the area in front of the sample line the length of the probe + 1 metre? (YES or NO)	YES			
Passed Highest to lowest Velocity (3:1)	YES							
Site Equipment Used								
Pitot Reference	RED 0237			Manometer Reference	RED 0400			
Thermometer Reference	RED 0354			Thermocouple Reference	RED 0344			
Balance Reference	N/A			Sampling Pump Reference	RED 0258			
Tape Measure Reference	RED 0123			Barometer Reference	RED 0402			



Stack Reference ID		Topcoat 2					
		Terex Construction					
		RUN 1			RUN 2		
Filter Reference No	NCO Run			G47-270416-21			
Date	5th May 2016			5th May 2016			
Sample Period	10:34	to	11:34	10:34	to	11:34	
Velocity (m/s)	7.76						
Volumetric flowrate of Stack gas (m ³ /hr)	56158						
Average Stack Temp (°C)	19.1						
Temperature Range - ± 5% (°C)	4.52	to		33.73			
Lowest Velocity Reading (m/s)	7.35						
Highest Velocity Reading (m/s)	8.37						
Ratio (less than 3:1)	1.14	:		1			
Pre-conditioning temperature of Filter (°C)	180			180			
Instack sampling - Max Filter temperature (°C)	19.1			19.1			
Post-conditioning temperature Filter/Wash (°C)	160			160			
Oxygen %	18.6			18.6			
Carbon Dioxide %	1.40			1.40			
Moisture (%)	2.92						
Litres sampled	1331			1331			
Corrected volume sampled - STP (m ³)	1.228			1.228			
Blank Filter Run weight gain (mg)	0.040	Blank Concentration (mg/m ³)		0.033			
Blank Wash Run weight gain (mg)	0.040						
Weighing uncertainty of balance (mg)	0.074	This must be <5% of ELV		ELV = 50	2.5		
Overall Blank value (mg/m ³)	0.065	This must be <10% of ELV		ELV = 50	5.0		
Particulate weight collected on filter (mg)	0.05			1.07			
Particulate weight collected in Wash (mg)	0.00			0.21			
Total Particulate weight collected (mg)	0.05			1.28			
Total Particulate Concentration, *STP, dry gas (mg/m ³)	0.04			1.04			
Total Particulate Concentration, *STP, wet gas (mg/m ³)	0.04			1.01			
Total Particulate Concentration corrected for Oxygen, *STP, dry gas (mg/m ³)	N/A			N/A			
Total Particulate Mass Emission (kg/hour)	0.002			0.059			



Client	Terex Construction							
Site Address	Coventry							
Job Number	P-RED16-054							
Date	5th May 2016							
Operator(s)	E Berek & P Butler							
Stack Reference	Topcoat Curing Oven				Isokinetic Sample Positions (%) multiply by diameter to obtain sample points			
Number of Stacks	1				1	6.70		
Stack Configuration	Round				2	25.00		
Dimensions (mtrs)	1.60				3	75.00		
Outlet Diameter (if applicable) (metres)					4	93.30		
Number of Sample Ports	2				5	N/A		
Number of Samples per Axis / Port	4				6	N/A		
Nozzle Diameter (mm)	6.0				7	N/A		
Nozzle Area (m ²)	0.00002826				Average Isokinetic Flow Rate (ltrs/min)			
Stack Area (m ²)	2.011				Axis 1		Axis 2	
Pitot Coefficient	0.89				Pitot Calibration Due Date		December 2016	
Position	Distance	Axis 1	Temperature	Swirl Test	Axis 2	Temperature	Swirl Test	Atmos. Pressure (kPa)
No.	(cms)	(pa)	(C)	Degree	(pa)	(C)	Degree	100.9
1	10.72	101	61.2	3.3	123	61.1	3.5	Static Pressure (pa)
2	40.00	98	61.4	3.6	118	61.4	3.6	26.0
3	120.00	112	61.1	3.3	104	61.4	3.3	1 Axis
4	149.28	106	61.4	3.2	109	61.3	3.1	2 Axis
5	N/A							Velocity of flow (m/s)
6	N/A							12.54
7	N/A							13.08
8	N/A							Volume Flow Rate (m ³ /s)
Averages		104	61.3		114	61.3		25.21
Mean Flue Gas Temp (ln K) $T_p = ((\text{Mean } T_1 + \text{Mean } T_2)/2) + 273$					334.29			
Range of gas temperature readings $\pm 5\%$ ($^{\circ}\text{C}$) = $(0.95T_p - 273)$ to $(1.05T_p - 273)$					44.57		to 78.00	
Highest Velocity Reading (m/s)					14.0			
Lowest Velocity Reading (m/s)					12.1			
Ratio Highest/Lowest (Max permitted = 3:1)					1.16 : 1			
On site Checklist								
Range of Gas Temps	OK				Manometer Leak Check	OK		
Initial Leak Check	<0.2	Final leak check	<0.2		Pitot Leak Check	OK		
Acceptable Leak Check < 2% Vol (l/min)	0.43				Overall Isokinetic Ratio (%) (must be 95 to 115%)	Run 1	Run 2	
Passed minimum Velocity requirements (>5pa)	YES					100.3	100.3	
Negative Local Flow Present. YES or NO (Yes = Fail)	NO				Are there sufficient rails and kick board? (YES, NO or N/A)	YES		
Is the Platform area greater than 5m ² ? (YES, NO or N/A)	YES				Is the area in front of the sample line the length of the probe + 1 metre? (YES or NO)	YES		
Passed Highest to lowest Velocity (3:1)	YES							
Site Equipment Used								
Pitot Reference	RED 0237				Manometer Reference	RED 0400		
Thermometer Reference	RED 0354				Thermocouple Reference	RED 0344		
Balance Reference	N/A				Sampling Pump Reference	RED 0258		
Tape Measure Reference	RED 0123				Barometer Reference	RED 0402		



Stack Reference ID	Topcoat Curing Oven					
	Terex Construction					
	RUN 1			RUN 2		
Filter Reference No	NCO Run			G47-200416-23		
Date	5th May 2016			5th May 2016		
Sample Period	13:22	to	14:22	13:22	to	14:22
Velocity (m/s)	12.81					
Volumetric flowrate of Stack gas (m ³ /hr)	92711					
Average Stack Temp (°C)	61.3					
Temperature Range - ± 5% (°C)	44.57	to		78.00		
Lowest Velocity Reading (m/s)	12.15					
Highest Velocity Reading (m/s)	14.04					
Ratio (less than 3:1)	1.16	:		1		
Pre-conditioning temperature of Filter (°C)	180			180		
Instack sampling - Max Filter temperature (°C)	61.3			61.3		
Post-conditioning temperature Filter/Wash (°C)	160			160		
Oxygen %	18.6			18.6		
Carbon Dioxide %	1.40			1.40		
Moisture (%)	2.39					
Litres sampled	1331			1331		
Corrected volume sampled - STP (m ³)	1.225			1.225		
Blank Filter Run weight gain (mg)	0.010		Blank Concentration (mg/m ³)	0.008		
Blank Wash Run weight gain (mg)	0.010			0.008		
Weighing uncertainty of balance (mg)	0.075	This must be <5% of ELV		ELV = 50	2.5	
Overall Blank value (mg/m ³)	0.016	This must be <10% of ELV		ELV = 50	5.0	
Particulate weight collected on filter (mg)	0.05			1.80		
Particulate weight collected in Wash (mg)	0.00			0.57		
Total Particulate weight collected (mg)	0.05			2.37		
Total Particulate Concentration, *STP, dry gas (mg/m ³)	0.04			1.93		
Total Particulate Concentration, *STP, wet gas (mg/m ³)	0.04			1.89		
Total Particulate Concentration corrected for Oxygen, *STP, dry gas (mg/m ³)	N/A			N/A		
Total Particulate Mass Emission (kg/hour)	0.004			0.171		



Client	Terex Construction							
Site Address	Coventry							
Job Number	P-RED16-054							
Date	5th May 2016							
Operator(s)	E Berek & P Butler							
Stack Reference	Topcoat Flashoff			Isokinetic Sample Positions (%) multiply by diameter to obtain sample points		Sampling Plane Diagram		
Number of Stacks	1			1	14.60			
Stack Configuration	Round			2	85.40			
Dimensions (mtrs)	1.00			3	N/A			
Outlet Diameter (if applicable) (metres)				4	N/A			
Number of Sample Ports	1			5	N/A			
Number of Samples per Axis / Port	2			6	N/A			
Nozzle Diameter (mm)	6.0			7	N/A			
Nozzle Area (m ²)	0.00002826			8	N/A			
Stack Area (m ²)	0.785			Average Isokinetic Flow Rate (ltrs/min)		Axis 1	Axis 2	
Pitot Coefficient	0.89			December 2016			21.09	21.43
Pitot Calibration Due Date		December 2016		December 2016		Atmos. Pressure (kPa)		
Position	Distance	Axis 1	Temperature	Swirl Test	Axis 2	Temperature	Swirl Test	100.9
No.	(cms)	(pa)	(C)	Degree	(pa)	(C)	Degree	Static Pressure (pa)
1	14.60	98	53.5	5.0	104	53.7	5.4	-67.0
2	85.40	112	53.6	4.6	113	53.6	3.8	1 Axis
3	N/A							2 Axis
4	N/A							Velocity of flow (m/s)
5	N/A							12.44
6	N/A							12.64
7	N/A							Volume Flow Rate (m ³ /s)
8	N/A							9.77
Averages		105	53.6		109	53.7		9.93
Mean Flue Gas Temp (ln K) $T_p = ((\text{Mean } T_1 + \text{Mean } T_2)/2) + 273$						326.60		
Range of gas temperature readings $\pm 5\%$ ($^{\circ}\text{C}$) = $(0.95T_p - 273)$ to $(1.05T_p - 273)$						37.27	to	69.93
Highest Velocity Reading (m/s)								13.3
Lowest Velocity Reading (m/s)								12.0
Ratio Highest/Lowest (Max permitted = 3:1)								1.11 : 1
On site Checklist								
Range of Gas Temps		OK		Manometer Leak Check		OK		
Initial Leak Check	<0.2	Final leak check	<0.2	Pitot Leak Check		OK		
Acceptable Leak Check < 2% Vol (l/min)		0.42		Overall Isokinetic Ratio (%) (must be 95 to 115%)		Run 1	Run 2	
Passed minimum Velocity requirements (>5pa)		YES				100.9	100.9	
Negative Local Flow Present. YES or NO (Yes = Fail)		NO		Are there sufficient rails and kick board? (YES, NO or N/A)				YES
Is the Platform area greater than 5m ² ? (YES, NO or N/A)		YES		Is the area in front of the sample line the length of the probe + 1 metre? (YES or NO)				YES
Passed Highest to lowest Velocity (3:1)		YES						
Site Equipment Used								
Pitot Reference	RED 0237			Manometer Reference	RED 0400			
Thermometer Reference	RED 0354			Thermocouple Reference	RED 0344			
Balance Reference	N/A			Sampling Pump Reference	RED 0258			
Tape Measure Reference	RED 0123			Barometer Reference	RED 0402			



Stack Reference ID	Topcoat Flashoff					
	Terex Construction					
	RUN 1			RUN 2		
Filter Reference No	G47-270416-23			NCO Run		
Date	5th May 2016			5th May 2016		
Sample Period	11:47	to	12:47	11:47	to	12:47
Velocity (m/s)	12.54					
Volumetric flowrate of Stack gas (m ³ /hr)	35452					
Average Stack Temp (°C)	53.6					
Temperature Range - ± 5% (°C)	37.27	to		69.93		
Lowest Velocity Reading (m/s)	12.01					
Highest Velocity Reading (m/s)	13.30					
Ratio (less than 3:1)	1.11	:		1		
Pre-conditioning temperature of Filter (°C)	180			180		
Instack sampling - Max Filter temperature (°C)	53.6			53.6		
Post-conditioning temperature Filter/Wash (°C)	160			160		
Oxygen %	18.6			18.6		
Carbon Dioxide %	1.40			1.40		
Moisture (%)	2.29					
Litres sampled	1231			1231		
Corrected volume sampled - STP (m ³)	1.138			1.138		
Blank Filter Run weight gain (mg)	0.070	Blank Concentration (mg/m ³)		0.062		
Blank Wash Run weight gain (mg)	0.050			0.044		
Weighing uncertainty of balance (mg)	0.081	This must be <5% of ELV		ELV = 50	2.5	
Overall Blank value (mg/m ³)	0.105	This must be <10% of ELV		ELV = 50	5.0	
Particulate weight collected on filter (mg)	4.82			0.05		
Particulate weight collected in Wash (mg)	1.02			0.00		
Total Particulate weight collected (mg)	5.84			0.05		
Total Particulate Concentration, *STP, dry gas (mg/m ³)	5.13			0.04		
Total Particulate Concentration, *STP, wet gas (mg/m ³)	5.02			0.04		
Total Particulate Concentration corrected for Oxygen, *STP, dry gas (mg/m ³)	N/A			N/A		
Total Particulate Mass Emission (kg/hour)	0.176			0.002		



Client	Terex Construction									
Site Address	Coventry									
Job Number	P-RED16-054									
Date	6th May 2016									
Operator(s)	E Berek & P Butler									
Stack Reference	Spray Bake Booth 1				Isokinetic Sample Positions (%) multiply by diameter to obtain sample points					
Number of Stacks	1				1	14.60				
Stack Configuration	Round				2	85.40				
Dimensions (mtrs)	0.80				3	N/A				
Outlet Diameter (if applicable) (metres)					4	N/A				
Number of Sample Ports	2				5	N/A				
Number of Samples per Axis / Port	2				6	N/A				
Nozzle Diameter (mm)	3.0				7	N/A				
Nozzle Area (m ²)	0.0000707				8	N/A				
Stack Area (m ²)	0.503				Average Isokinetic Flow Rate (ltrs/min)				Axis 1 5.50	Axis 2 5.50
Pitot Coefficient	0.89		Pitot Calibration Due Date			December 2016			Atmos. Pressure (kPa)	
Position No.	Distance (cms)	Axis 1 (pa)	Temperature (C)	Swirl Test (°)	Axis 2 (pa)	Temperature (C)	Swirl Test (°)	100.9		
1	11.68	117	27.6	4.0	126	27.7	3.7	Static Pressure (pa) 32.0		
2	68.32	130	27.6	3.4	121	27.6	4.3	1 Axis	2 Axis	
3	N/A							Velocity of flow (m/s)		
4	N/A							12.97		
5	N/A							Volume Flow Rate (m ³ /s)		
6	N/A							6.52		
7	N/A							6.52		
8	N/A							Reduced Exit		
Averages		124	27.6		124	27.7		N/A		
Mean Flue Gas Temp (in K) $T_p = ((\text{Mean } T_1 + \text{Mean } T_2)/2 + 273) =$					300.60					
Permitted Range of gas temperature readings (C) = $(0.95T_p - 273)$ to $(1.05T_p - 273) =$					12.57		to 42.63			
Highest Velocity Reading (m/s) =					13.7					
Lowest Velocity Reading (m/s) =					12.6					
Ratio Highest/Lowest (Max permitted = 3:1)					1.09 : 1					
On site Checklist										
Initial Leak Check	<0.2	End of first run	<0.2		Start of 2 nd run	<0.2	End of 2 nd run	<0.2		
Acceptable Leak Check < 2% Vol (l/min)	0.11				Manometer Leak Check			OK		
					Pitot Leak Check			OK		
Range of Gas Temps	OK				Overall Isokinetic Ratio (%) (must be 95 to 115%)			Run 1	Run 2	
Passed minimum Velocity requirements (>5pa)	YES							100.0	N/A	
Negative Local Flow Present, YES or NO (Yes = Fail)	NO				Are there sufficient rails and kick board? (YES, NO or N/A)			NO		
Is the Platform area greater than 5m ² ? (YES, NO or N/A)	NO				Is the area in front of the sample line the length of the probe + 1 metre? (YES or NO)			YES		
Passed Highest to lowest Velocity (3:1)	YES									
Site Equipment Used										
Pitot Reference	RED 0290				Manometer Reference				RED 0404	
Thermometer Reference	RED 0351-RED 0352				Thermocouple Reference				RED 0382	
Balance Reference	N/A				Sampling Pump Reference				RED 0258	
Tape Measure Reference	RED 0123				Barometer Reference				RED 0094	
DGM Thermocouple	RED 0395				Impinger Outlet Thermocouple				N/A	
Calipers	RED 0300				Condenser Thermocouple				N/A	



Stack Reference ID		Spray Bake Booth 1		
		Terex Construction		
		RUN 1		
Filter Reference No	ISOCYANATES NCO			
Date	6th May 2016			
Sample Period	08:25	to	09:25	
Velocity (m/s)	12.97			
Volume flow rate of Stack gas (m ³ /hr)	23463			
Average Stack Temp (°C)	27.6			
Temp Range ± 5% (°C)	12.57	to	42.63	
Lowest Velocity Reading (m/s)	12.59			
Highest Velocity Reading (m/s)	13.68			
Ratio (less than 3:1)	1.09	:	1	
Pre-conditioning temperature of Filter (°C)	180			
Instack sampling - Max Filter temperature (°C)	27.4			
Post-conditioning temperature Filter/Wash (°C)	160			
Oxygen %	18.8			
Carbon Dioxide %	0.60			
Moisture (%)	1.15			
Litres sampled	341			
Corrected volume sampled - STP (m ³)	0.316			
Blank Filter Run weight gain (mg)	0.000	Blank Concentration (mg/m ³)	0.000	
Blank Wash Run weight gain (mg)	0.000		0.000	
Weighing uncertainty of balance (mg)	0.074	This must be <5% of ELV	ELV = 0.1	0.01
Overall Blank value (mg/m ³)	0.000	This must be <10% of ELV	ELV = 0.1	0.01
Isocyanate weight collected on filter (mg)	0.05			
Total Isocyanate Concentration, dry gas at STP (mg/m ³)	0.16			
Total Isocyanate Concentration, wet gas at STP (mg/m ³)	0.16			
Total Isocyanate Mass Emission (kg/hour)	0.0037			



Client	Terex Construction							
Site Address	Coventry							
Job Number	P-RED16-054							
Date	6th May 2016							
Operator(s)	E Berek & P Butler							
Stack Reference	SprayBake Booth 2				Isokinetic Sample Positions (%) multiply by diameter to obtain sample points			
				1	14.60			
Number of Stacks			1	2	85.40			
Stack Configuration			Round	3	N/A			
Dimensions (metres)			0.80	4	N/A			
Outlet Diameter (if applicable) (metres)				5	N/A			
Number of Sample Ports			2	6	N/A			
Number of Samples per Axis / Port			2	7	N/A			
Nozzle Diameter (mm)			3.0	8	N/A			
Nozzle Area (m ²)			0.0000707	Average Isokinetic Flow Rate (ltrs/min)			Axis 1	Axis 2
Stack Area (m ²)			0.503				5.48	5.62
Pitot Coefficient	0.89	Pitot Calibration Due Date			December 2016			Atmos. Pressure (kPa)
Position	Distance	Axis 1	Temperature	Swirl Test	Axis 2	Temperature	Swirl Test	100.9
No.	(cms)	(pa)	(C)	(°)	(pa)	(C)	(°)	Static Pressure (pa)
1	11.68	120	25.6	4.7	134	25.6	4.2	21.0
2	68.32	131	25.6	4.4	130	25.7	4.6	1 Axis
3	N/A							2 Axis
4	N/A							Velocity of flow (m/s)
5	N/A							12.92
6	N/A							Volume Flow Rate (m ³ /s)
7	N/A							6.50
8	N/A							6.68
Averages		126	25.6		132	25.7		Reduced Exit
								N/A
Mean Flue Gas Temp (in K) $T_p = ((\text{Mean } T_1 + \text{Mean } T_2)/2 + 273)) =$							298.60	
Permitted Range of gas temperature readings (C) = $(0.95T_p - 273)$ to $(1.05T_p - 273) =$							10.67	to 40.63
Highest Velocity Reading (m/s) =							13.8	
Lowest Velocity Reading (m/s) =							12.7	
Ratio Highest/Lowest (Max permitted = 3:1)							1.09 : 1	
On site Checklist								
Initial Leak Check	0.2	End of first run	0.2		Start of 2 nd run		End of 2 nd run	
Acceptable Leak Check < 2% Vol (l/min)	0.11				Manometer Leak Check		OK	
					Pitot Leak Check		OK	
Range of Gas Temps	OK				Overall Isokinetic Ratio (%) (must be 95 to 115%)		Run 1	Run 2
Passed minimum Velocity requirements (>5pa)	YES						99.1	N/A
Negative Local Flow Present, YES or NO (Yes = Fail)	NO				Are there sufficient rails and kick board? (YES, NO or N/A)		NO	
Is the Platform area greater than 5m ² ? (YES, NO or N/A)	NO				Is the area in front of the sample line the length of the probe + 1 metre? (YES or NO)		YES	
Passed Highest to lowest Velocity (3:1)	YES							
Site Equipment Used								
Pitot Reference	RED 0290				Manometer Reference		RED 0393	
Thermometer Reference	RED 0351-RED 0352				Thermocouple Reference		RED 0382	
Balance Reference	N/A				Sampling Pump Reference		RED 0258	
Tape Measure Reference	RED 0123				Barometer Reference		RED 0094	
DGM Thermocouple	RED 0395				Impinger Outlet Thermocouple		N/A	
Calipers	RED 0300				Condenser Thermocouple		N/A	



Stack Reference ID		SprayBake Booth 2		
		Terex Construction		
		RUN 1		
Filter Reference No	ISOCYANATES NCO			
Date	6th May 2016			
Sample Period	09:33	to	10:33	
Velocity (m/s)	13.09			
Volume flow rate of Stack gas (m ³ /hr)	23685			
Average Stack Temp (°C)	25.6			
Temp Range ± 5% (°C)	10.67	to	40.53	
Lowest Velocity Reading (m/s)	12.70			
Highest Velocity Reading (m/s)	13.85			
Ratio (less than 3:1)	1.09	:	1	
Pre-conditioning temperature of Filter (°C)	180			
Instack sampling - Max Filter temperature (°C)	26.3			
Post-conditioning temperature Filter/Wash (°C)	160			
Oxygen %	10.4			
Carbon Dioxide %	5.60			
Moisture (%)	1.31			
Litres sampled	331			
Corrected volume sampled - STP (m ³)	0.307			
Blank Filter Run weight gain (mg)	0.000	Blank Concentration (mg/m ³)	0.000	
Blank Wash Run weight gain (mg)	0.000		0.000	
Weighing uncertainty of balance (mg)	0.074	This must be <5% of ELV	ELV = 0.1	0.01
Overall Blank value (mg/m ³)	0.000	This must be <10% of ELV	ELV = 0.1	0.01
Isocyanate weight collected on filter (mg)	0.05			
Total Isocyanate weight collected (mg)	0.05			
Total Isocyanate Concentration, dry gas at STP (mg/m ³)	0.16			
Total Isocyanate Concentration, wet gas at STP (mg/m ³)	0.16			
Total Isocyanate Mass Emission (kg/hour)	0.0038			



Client	Terex Construction								
Site Address	Coventry								
Job Number	P-RED16-054								
Date	6th May 2016								
Operator(s)	E Berek & P Butler								
Stack Reference	Preparation Booth 1			Isokinetic Sample Positions (%) multiply by diameter to obtain sample points				Sampling Plane Diagram	
				1	14.60	2	85.40		
Number of Stacks	1			3	N/A				
Stack Configuration	Round			4	N/A				
Dimensions (mtrs)	0.70			5	N/A				
Outlet Diameter (if applicable) (metres)				6	N/A				
Number of Sample Ports	2			7	N/A				
Number of Samples per Axis / Port	2			8	N/A				
Nozzle Diameter (mm)	6.0			Average Isokinetic Flow Rate (ltrs/min)		Axis 1	Axis 2		
Nozzle Area (m ²)	0.00002826					21.55	21.37		
Stack Area (m ²)	0.385								
Pitot Coefficient	0.89	Pitot Calibration Due Date			December 2016			Atmos. Pressure (kPa)	
Position	Distance	Axis 1	Temperature	Swirl Test	Axis 2	Temperature	Swirl Test	100.9	
No.	(cms)	(pa)	(C)	(°)	(pa)	(C)	(°)	Static Pressure (pa)	
1	10.22	121	24.1	4.0	117	24.3	4.3	21.0	
2	59.78	119	24.1	4.6	119	24.2	4.7	1 Axis	
3	N/A							2 Axis	
4	N/A							Velocity of flow (m/s)	
5	N/A							12.71	
6	N/A							12.60	
7	N/A							Volume Flow Rate (m ³ /s)	
8	N/A							4.89	
								4.85	
								Reduced Exit	
Averages		120	24.1		118	24.3		N/A	
Mean Flue Gas Temp (ln K) $T_p = ((\text{Mean } T_1 + \text{Mean } T_2)/2 + 273)) =$					297.10				
Permitted Range of gas temperature readings (C) = $(0.95T_p - 273)$ to $(1.05T_p - 273) =$					9.25		to 38.96		
Highest Velocity Reading (m/s) =					13.1				
Lowest Velocity Reading (m/s) =					12.5				
Ratio Highest/Lowest (Max permitted = 3:1)					1.05 : 1				
On site Checklist									
Initial Leak Check	<0.2	End of first run	<0.2		Start of 2 nd run	<0.2	End of 2 nd run	<0.2	
Acceptable Leak Check < 2% Vol (l/min)	0.43			Manometer Leak Check			OK		
				Pitot Leak Check			OK		
Range of Gas Temps	OK			Overall Isokinetic Ratio (%) (must be 95 to 115%)			Run 1	Run 2	
Passed minimum Velocity requirements (>5pa)	YES						101.4	N/A	
Negative Local Flow Present, YES or NO (Yes = Fail)	NO			Are there sufficient rails and kick board? (YES, NO or N/A)			N/A		
Is the Platform area greater than 5m ² ? (YES, NO or N/A)	N/A			Is the area in front of the sample line the length of the probe + 1 metre? (YES or NO)			YES		
Passed Highest to lowest Velocity (3:1)	YES								
Site Equipment Used									
Pitot Reference	RED 0289			Manometer Reference			RED 0404		
Thermometer Reference	RED 0351-RED 0352			Thermocouple Reference			RED 0292		
Balance Reference	N/A			Sampling Pump Reference			RED 0010		
Tape Measure Reference	RED 0121			Barometer Reference			RED 0403		
DGM Thermocouple	RED 0010			Impinger Outlet Thermocouple			N/A		
Calipers	RED 0300			Condenser Thermocouple			N/A		



Stack Reference ID		Preparation Booth 1		
	Terex Construction			
	RUN 1			
Filter Reference No	G47-200416-19			
Date	6th May 2016			
Sample Period	08:40	to	09:40	
Velocity (m/s)	12.65			
Volume flow rate of Stack gas (m ³ /hr)	17531			
Average Stack Temp (°C)	24.1			
Temp Range ± 5% (°C)	9.25	to	38.96	
Lowest Velocity Reading (m/s)	12.51			
Highest Velocity Reading (m/s)	13.13			
Ratio (less than 3:1)	1.05	:	1	
Pre-conditioning temperature of Filter (°C)	180			
Instack sampling - Max Filter temperature (°C)	24.8			
Post-conditioning temperature Filter/Wash (°C)	160			
Oxygen %	19.1			
Carbon Dioxide %	0.50			
Moisture (%)	1.63			
Litres sampled	1288			
Corrected volume sampled - STP (m ³)	1.203			
Blank Filter Run weight gain (mg)	0.030	Blank Concentration (mg/m ³)	0.025	
Blank Wash Run weight gain (mg)	0.040		0.033	
Weighing uncertainty of balance (mg)	0.074	This must be <5% of ELV	ELV = 50	2.5
Overall Blank value (mg/m ³)	0.058	This must be <10% of ELV	ELV = 50	5.0
Particulate weight collected on filter (mg)	0.06			
Particulate weight collected in Wash (mg)	0.17			
Total Particulate weight collected (mg)	0.23			
Total Particulate Concentration, dry gas at STP (mg/m ³)	0.19			
Total Particulate Concentration, wet gas at STP (mg/m ³)	0.19			
Total Particulate Concentration corrected for 11% Oxygen, dry gas (mg/m ³)	N/A			
Total Particulate Mass Emission (kg/hour)	0.003			



Client	Terex Construction							
Site Address	Coventry							
Job Number	P-RED16-054							
Date	6th May 2016							
Operator(s)	E Berek & P Butler							
Stack Reference	Preparation Booth 2				Isokinetic Sample Positions (%) multiply by diameter to obtain sample points			
				1	14.60			
Number of Stacks			1	2	85.40			
Stack Configuration			Round	3	N/A			
Dimensions (metres)			0.70	4	N/A			
Outlet Diameter (if applicable) (metres)				5	N/A			
Number of Sample Ports			2	6	N/A			
Number of Samples per Axis / Port			2	7	N/A			
Nozzle Diameter (mm)			6.0	8	N/A			
Nozzle Area (m ²)			0.00002826	Average Isokinetic Flow Rate (ltrs/min)			Axis 1	Axis 2
Stack Area (m ²)			0.385				22.04	22.04
Pitot Coefficient	0.89	Pitot Calibration Due Date			December 2016			Atmos. Pressure (kPa)
Position	Distance	Axis 1	Temperature	Swirl Test	Axis 2	Temperature	Swirl Test	100.9
No.	(cms)	(pa)	(C)	(°)	(pa)	(C)	(°)	Static Pressure (pa)
1	10.22	120	25.6	5.0	131	25.6	4.5	26.0
2	59.78	130	25.7	4.6	119	25.7	4.9	1 Axis
3	N/A							2 Axis
4	N/A							Velocity of flow (m/s)
5	N/A							13.00
6	N/A							Volume Flow Rate (m ³ /s)
7	N/A							5.00
8	N/A							Reduced Exit
Averages		125	25.7		125	25.7		N/A
Mean Flue Gas Temp (in K) $T_p = ((\text{Mean } T_1 + \text{Mean } T_2)/2 + 273)) =$								298.65
Permitted Range of gas temperature readings (C) = $(0.95T_p - 273)$ to $(1.05T_p - 273) =$						10.72		to 40.68
Highest Velocity Reading (m/s) =								13.7
Lowest Velocity Reading (m/s) =								12.7
Ratio Highest/Lowest (Max permitted = 3:1)								1.06 : 1
On site Checklist								
Initial Leak Check	0.2	End of first run	0.2		Start of 2 nd run		End of 2 nd run	
Acceptable Leak Check < 2% Vol (l/min)		0.44			Manometer Leak Check		OK	
					Pitot Leak Check		OK	
Range of Gas Temps		OK			Overall Isokinetic Ratio (%) (must be 95 to 115%)		Run 1	Run 2
Passed minimum Velocity requirements (>5pa)		YES					100.3	N/A
Negative Local Flow Present, YES or NO (Yes = Fail)		NO			Are there sufficient rails and kick board? (YES, NO or N/A)		NO	
Is the Platform area greater than 5m ² ? (YES, NO or N/A)		NO			Is the area in front of the sample line the length of the probe + 1 metre? (YES or NO)		YES	
Passed Highest to lowest Velocity (3:1)		YES						
Site Equipment Used								
Pitot Reference	RED 0290			Manometer Reference			RED 0393	
Thermometer Reference	RED 0351-RED 0352			Thermocouple Reference			RED 0382	
Balance Reference	N/A			Sampling Pump Reference			RED 0010	
Tape Measure Reference	RED 0123			Barometer Reference			RED 0094	
DGM Thermocouple	RED 0010			Impinger Outlet Thermocouple			N/A	
Calipers	RED 0300			Condenser Thermocouple			N/A	



Stack Reference ID		Preparation Booth 2		
		Terex Construction		
		RUN 1		
Filter Reference No	G47-200416-21			
Date	6th May 2016			
Sample Period	09:45	to	10:45	
Velocity (m/s)	13.00			
Volume flow rate of Stack gas (m ³ /hr)	18007			
Average Stack Temp (°C)	25.7			
Temp Range ± 5% (°C)	10.72	to	40.58	
Lowest Velocity Reading (m/s)	12.65			
Highest Velocity Reading (m/s)	13.69			
Ratio (less than 3:1)	1.08	:	1	
Pre-conditioning temperature of Filter (°C)	180			
Instack sampling - Max Filter temperature (°C)	26.3			
Post-conditioning temperature Filter/Wash (°C)	160			
Oxygen %	18.9			
Carbon Dioxide %	0.70			
Moisture (%)	1.63			
Litres sampled	1356			
Corrected volume sampled - STP (m ³)	1.257			
Blank Filter Run weight gain (mg)	0.050	Blank Concentration (mg/m ³)	0.040	
Blank Wash Run weight gain (mg)	0.040		0.032	
Weighing uncertainty of balance (mg)	0.074	This must be <5% of ELV	ELV = 50	2.5
Overall Blank value (mg/m ³)	0.072	This must be <10% of ELV	ELV = 50	5.0
Particulate weight collected on filter (mg)	0.07			
Particulate weight collected in Wash (mg)	0.59			
Total Particulate weight collected (mg)	0.66			
Total Particulate Concentration, dry gas at STP (mg/m ³)	0.53			
Total Particulate Concentration, wet gas at STP (mg/m ³)	0.52			
Total Particulate Concentration corrected for 11% Oxygen, dry gas (mg/m ³)	N/A			
Total Particulate Mass Emission (kg/hour)	0.009			



APPENDIX B

VOC Raw Data



Scissor 1 Booth 1 - VOC Monitoring					
Date	Time	VOC mg/m ³	Date	Time	VOC mg/m ³
04-May-16	10:45:15	148.66	04-May-16	11:34:15	69.11
04-May-16	10:46:15	92.41	04-May-16	11:35:15	57.86
04-May-16	10:47:15	53.04	04-May-16	11:36:15	52.23
04-May-16	10:48:15	85.66	04-May-16	11:37:15	49.02
04-May-16	10:49:15	151.07	04-May-16	11:38:15	47.41
04-May-16	10:50:15	147.86	04-May-16	11:39:15	45.80
04-May-16	10:51:15	131.79	04-May-16	11:40:15	45.80
04-May-16	10:52:15	119.73	04-May-16	11:41:15	48.21
04-May-16	10:53:15	110.09	04-May-16	11:42:15	49.82
04-May-16	10:54:15	100.45	04-May-16	11:43:15	53.04
04-May-16	10:55:15	94.02	04-May-16	11:44:15	54.64
04-May-16	10:56:15	85.98	04-May-16	11:45:15	56.25
04-May-16	10:57:15	81.16			
04-May-16	10:58:15	77.95			
04-May-16	10:59:15	74.73			
04-May-16	11:00:15	73.13			
04-May-16	11:01:15	71.52			
04-May-16	11:02:15	69.11			
04-May-16	11:03:15	65.89			
04-May-16	11:04:15	63.48			
04-May-16	11:05:15	60.27			
04-May-16	11:06:15	60.27			
04-May-16	11:07:15	57.86			
04-May-16	11:08:15	55.45			
04-May-16	11:09:15	55.45			
04-May-16	11:10:15	53.84			
04-May-16	11:11:15	52.23			
04-May-16	11:12:15	51.43			
04-May-16	11:13:15	49.82			
04-May-16	11:14:15	50.63			
04-May-16	11:15:15	49.02			
04-May-16	11:16:15	49.02			
04-May-16	11:17:15	47.41			
04-May-16	11:18:15	45.00			
04-May-16	11:19:15	42.59			
04-May-16	11:20:15	43.39			
04-May-16	11:21:15	42.59			
04-May-16	11:22:15	40.98			
04-May-16	11:23:15	40.98			
04-May-16	11:24:15	78.75			
04-May-16	11:25:15	40.18			
04-May-16	11:26:15	49.82			
04-May-16	11:27:15	53.84			
04-May-16	11:28:15	57.05			
04-May-16	11:29:15	53.04			
04-May-16	11:30:15	51.43			
04-May-16	11:31:15	45.80			
04-May-16	11:32:15	123.75			
04-May-16	11:33:15	94.02			
			Average		67.77
The data represented in this table is expressed at 1 minute intervals but the data used in the chart is produced using 5 second intervals					



Scissor 2 Booth 1 - VOC Monitoring					
Date	Time	VOC mg/m ³	Date	Time	VOC mg/m ³
04-May-16	12:53:25	19.29	04-May-16	13:42:25	19.29
04-May-16	12:54:25	32.95	04-May-16	13:43:25	20.09
04-May-16	12:55:25	22.50	04-May-16	13:44:25	20.09
04-May-16	12:56:25	20.89	04-May-16	13:45:25	26.84
04-May-16	12:57:25	20.89	04-May-16	13:46:25	20.89
04-May-16	12:58:25	20.89	04-May-16	13:47:25	20.09
04-May-16	12:59:25	20.09	04-May-16	13:48:25	20.09
04-May-16	13:00:25	20.09	04-May-16	13:49:25	20.89
04-May-16	13:01:25	18.48	04-May-16	13:50:25	20.89
04-May-16	13:02:25	18.48	04-May-16	13:51:25	22.50
04-May-16	13:03:25	18.48	04-May-16	13:52:25	22.50
04-May-16	13:04:25	19.29			
04-May-16	13:05:25	19.29			
04-May-16	13:06:25	18.48			
04-May-16	13:07:25	18.48			
04-May-16	13:08:25	19.29			
04-May-16	13:09:25	19.29			
04-May-16	13:10:25	20.09			
04-May-16	13:11:25	18.48			
04-May-16	13:12:25	18.48			
04-May-16	13:13:25	18.48			
04-May-16	13:14:25	18.48			
04-May-16	13:15:25	18.48			
04-May-16	13:16:25	18.48			
04-May-16	13:17:25	18.48			
04-May-16	13:18:25	17.68			
04-May-16	13:19:25	17.68			
04-May-16	13:20:25	46.77			
04-May-16	13:21:25	24.11			
04-May-16	13:22:25	16.88			
04-May-16	13:23:25	16.88			
04-May-16	13:24:25	16.88			
04-May-16	13:25:25	17.68			
04-May-16	13:26:25	17.68			
04-May-16	13:27:25	18.48			
04-May-16	13:28:25	18.48			
04-May-16	13:29:25	18.48			
04-May-16	13:30:25	18.48			
04-May-16	13:31:25	18.48			
04-May-16	13:32:25	19.29			
04-May-16	13:33:25	20.89			
04-May-16	13:34:25	20.09			
04-May-16	13:35:25	20.09			
04-May-16	13:36:25	20.09			
04-May-16	13:37:25	20.89			
04-May-16	13:38:25	20.09			
04-May-16	13:39:25	19.29			
04-May-16	13:40:25	18.48			
04-May-16	13:41:25	19.29			
			Average		20.25
The data represented in this table is expressed at 1 minute intervals but the data used in the chart is produced using 5 second intervals					



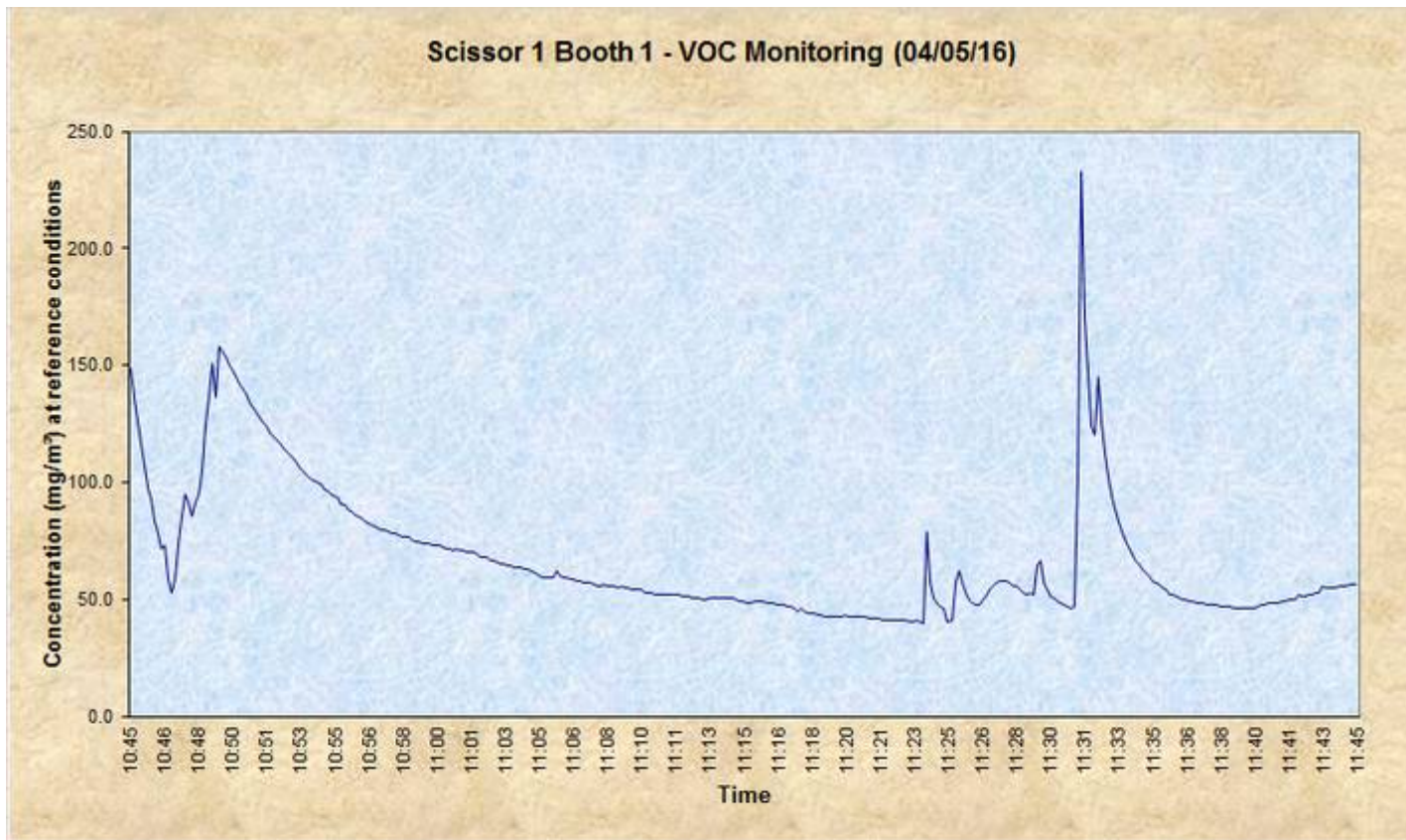
Scissor 2 Booth 2 - VOC Monitoring					
Date	Time	VOC mg/m ³	Date	Time	VOC mg/m ³
04-May-16	13:53:35	22.50	04-May-16	14:42:35	16.88
04-May-16	13:54:35	22.50	04-May-16	14:43:35	16.88
04-May-16	13:55:35	21.70	04-May-16	14:44:35	16.88
04-May-16	13:56:35	20.09	04-May-16	14:45:35	16.88
04-May-16	13:57:35	35.84	04-May-16	14:46:35	16.88
04-May-16	13:58:35	22.50	04-May-16	14:47:35	16.07
04-May-16	13:59:35	20.09	04-May-16	14:48:35	16.88
04-May-16	14:00:35	20.09	04-May-16	14:49:35	16.88
04-May-16	14:01:35	20.89	04-May-16	14:50:35	16.88
04-May-16	14:02:35	20.09	04-May-16	14:51:35	16.07
04-May-16	14:03:35	20.09	04-May-16	14:52:35	119.73
04-May-16	14:04:35	20.09	04-May-16	14:53:35	80.36
04-May-16	14:05:35	19.29			
04-May-16	14:06:35	72.32			
04-May-16	14:07:35	90.00			
04-May-16	14:08:35	20.09			
04-May-16	14:09:35	20.89			
04-May-16	14:10:35	20.09			
04-May-16	14:11:35	20.09			
04-May-16	14:12:35	23.30			
04-May-16	14:13:35	24.11			
04-May-16	14:14:35	22.50			
04-May-16	14:15:35	20.09			
04-May-16	14:16:35	19.29			
04-May-16	14:17:35	19.29			
04-May-16	14:18:35	18.48			
04-May-16	14:19:35	19.29			
04-May-16	14:20:35	18.48			
04-May-16	14:21:35	17.68			
04-May-16	14:22:35	16.88			
04-May-16	14:23:35	16.88			
04-May-16	14:24:35	16.88			
04-May-16	14:25:35	17.68			
04-May-16	14:26:35	17.68			
04-May-16	14:27:35	17.68			
04-May-16	14:28:35	16.88			
04-May-16	14:29:35	16.07			
04-May-16	14:30:35	20.09			
04-May-16	14:31:35	22.50			
04-May-16	14:32:35	22.50			
04-May-16	14:33:35	26.52			
04-May-16	14:34:35	26.52			
04-May-16	14:35:35	22.50			
04-May-16	14:36:35	22.50			
04-May-16	14:37:35	24.91			
04-May-16	14:38:35	23.30			
04-May-16	14:39:35	20.89			
04-May-16	14:40:35	19.29			
04-May-16	14:41:35	18.48			
			Average		23.91
The data represented in this table is expressed at 1 minute intervals but the data used in the chart is produced using 5 second intervals					



APPENDIX C

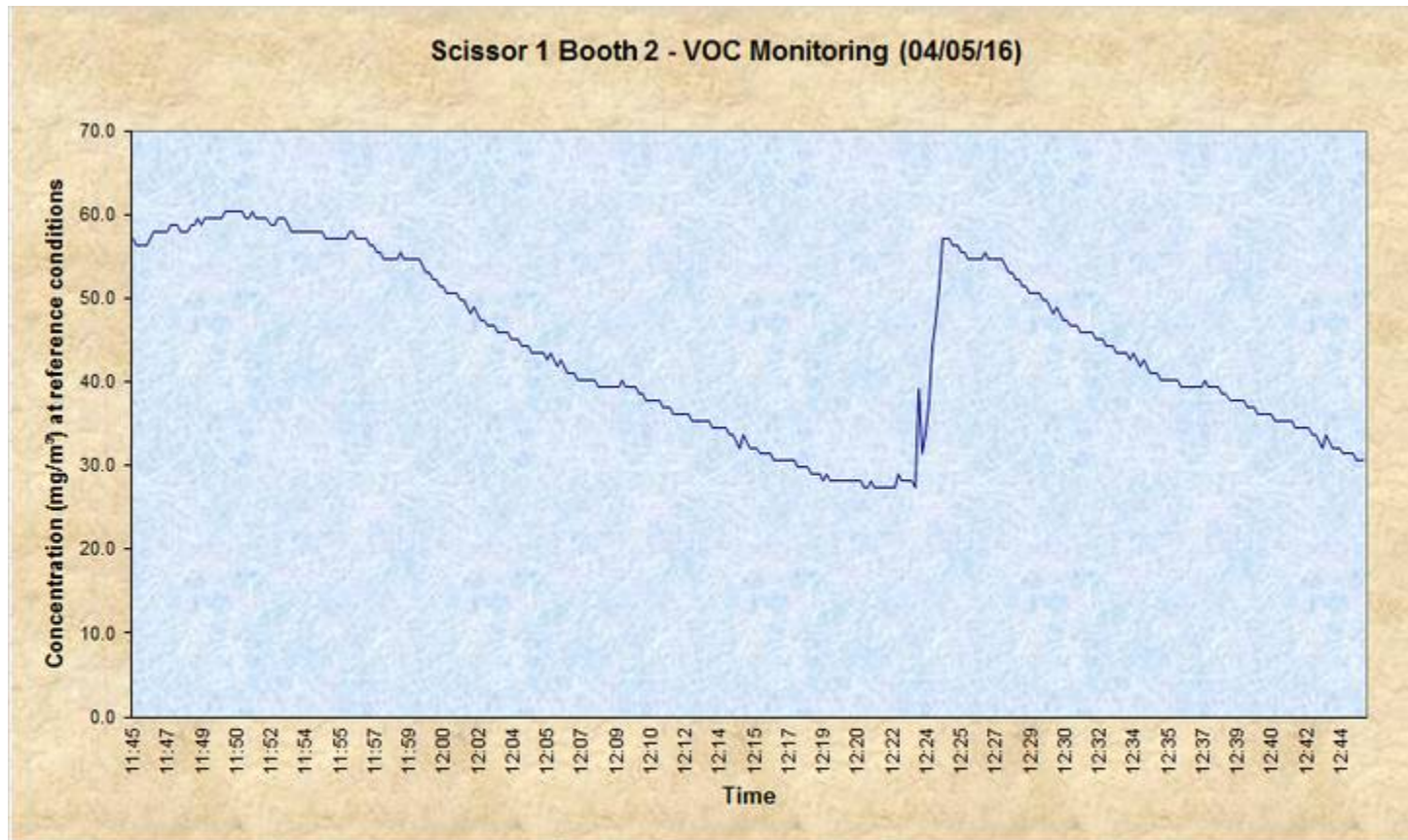
VOC Charts





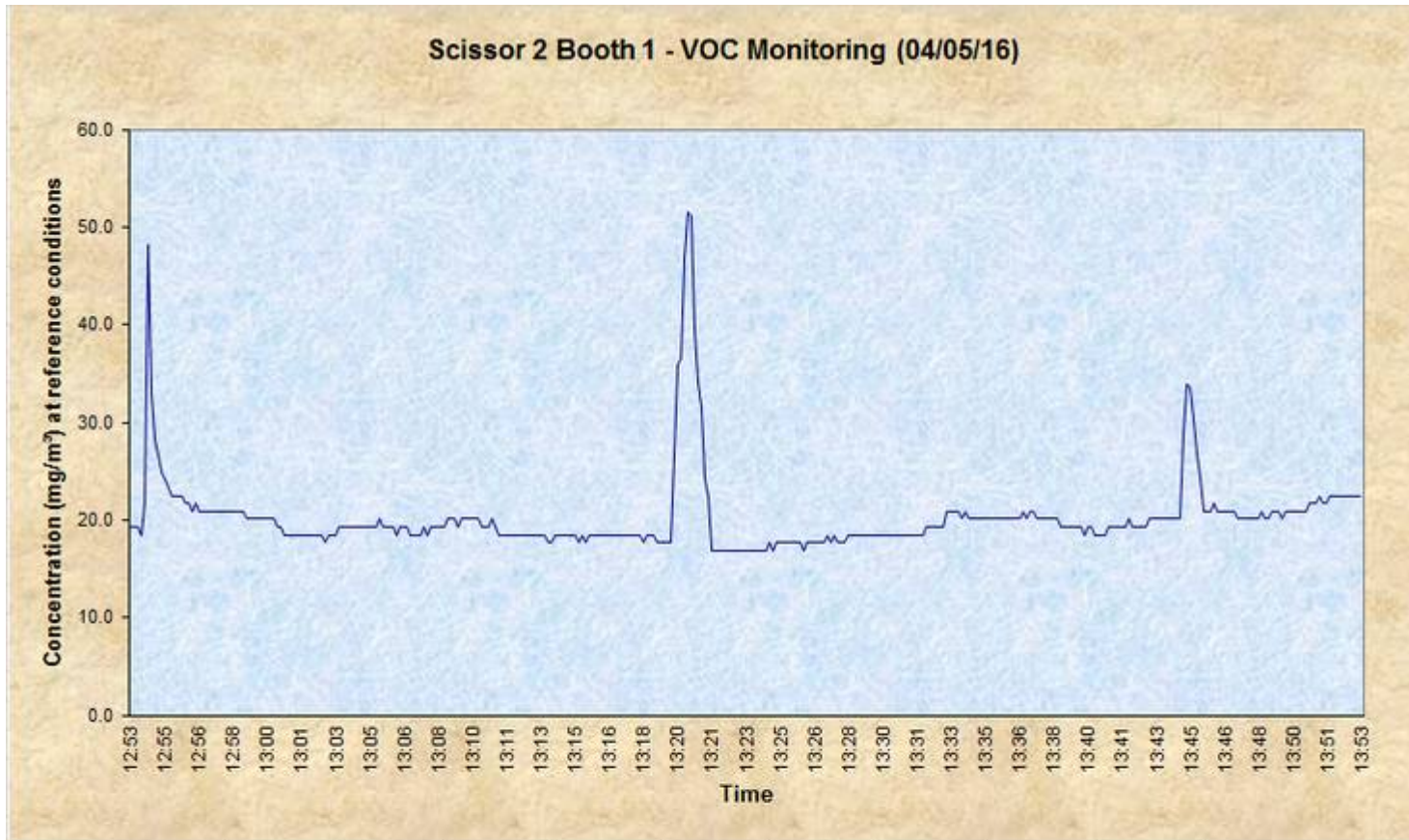
Average Run Time			Volatile Organic Compound (ppm)			Volatile Organic Compound (mg/m³)		
			Mean	Max	Min	Mean	Max	Min
10:45	to	11:15	49.74	98.50	30.50	79.94	158.30	49.02
11:15	to	11:45	34.54	145.00	24.50	55.51	233.04	39.38





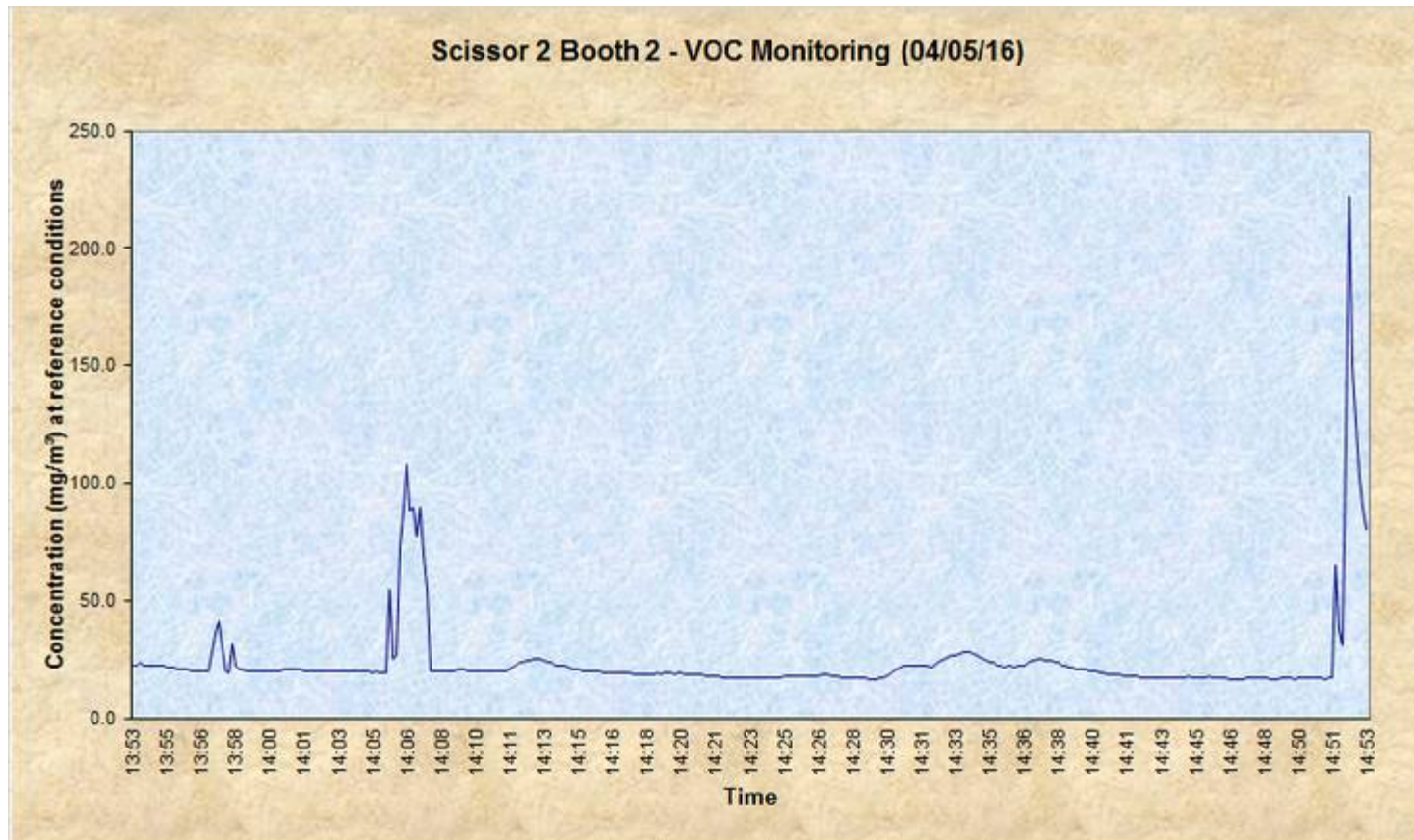
Average Run Time			Volatile Organic Compound (ppm)			Volatile Organic Compound (mg/m³)		
			Mean	Max	Min	Mean	Max	Min
11:45	to	12:15	30.50	37.50	20.00	49.01	60.27	32.14
12:15	to	12:45	24.23	35.50	17.00	38.94	57.05	27.32





Average Run Time			Volatile Organic Compound (ppm)			Volatile Organic Compound (mg/m³)		
			Mean	Max	Min	Mean	Max	Min
12:53	to	13:23	12.60	32.10	10.50	20.25	51.59	16.88
13:23	to	13:53	14.00	14.00	14.00	22.50	22.50	22.50





Average Run Time			Volatile Organic Compound (ppm)			Volatile Organic Compound (mg/m³)		
			Mean	Max	Min	Mean	Max	Min
13:53	to	14:23	14.88	138.00	10.00	23.91	221.79	16.07
14:23	to	14:53	50.00	50.00	50.00	80.36	80.36	80.36

