

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

15<sup>th</sup> August 2016

lan 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:	7 <sup>th</sup> June 2016
Report reviewed by:	Philip Butler - Director
Signature:	
Date:	9 <sup>th</sup> June 2016
Papert authorized by:	Philip Puttor
Report authorised by:	Philip Butler
Signatura	
Signature:	
Date:	9 <sup>th</sup> 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

7<sup>th</sup> June 2016





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# **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 4<sup>th</sup> to the 6<sup>th</sup> 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/m³)	* Highest 30 minute mean VOC at reference conditions (mg/m³)	Isocyanate Concentration at reference conditions (mg/m³)	Velocity corrected to reference conditions (m/s)	Volume flow corrected to reference conditions (m³/hr)
Primer Spray Booth	$2.00 \pm 0.36$	(g/iii /	(g/ /	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	$5.00 \pm 0.89$		<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

<sup>\*</sup> 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	Volatile Organic Compounds	Isocyanates
	BS EN 13284-1	BS EN 12619	USEPA CTM36
	Main Paint F	acility	
Primer spray booth - 1	✓	×	×
Primer spray booth – 2	✓	×	×
Primer Flash off	✓	×	×
Topcoat Spray booth -1	✓	×	✓
Topcoat spray booth – 2	✓	×	✓
Topcoat Flash off	✓	×	✓
Topcoat Curing Oven	✓	×	✓
Preparation Booth 1	✓	×	×
Preparation Booth 2	✓	×	×
Spray Bake Booth 1	×	×	✓
Spray Bake Booth 2	×	×	✓
Scissor 1 Booth 1	✓	✓	×
Scissor 1 Booth 2	✓	✓	×
Scissor 1 Oven	✓	×	×
Scissor 2 Booth 1	✓	✓	×
Scissor 2 Booth 2	✓	✓	×
Scissor 2 Oven	✓	×	×

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 <sup>3</sup>	150 mg/m <sup>3</sup>	0.1mg/m <sup>3</sup>

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



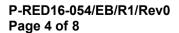
Terex Construction Redwing Environmental Ltd

# 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/m³	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/m³	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/m³	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/m³	273K, 101.3kPa	05/05/16 0921 – 1021		BS EN 13284-1	Normal	
	Isocyanates	0.1	<0.04	mg/m³				USEPA 36		
Top Coat Spray Booth 2	Total Particulate Matter	50	1.00 ± 0.13	mg/m³	273K,	05/05/16	1034 - 1134	BS EN 13284-1	Normal	
	Isocyanates	0.1	<0.04	mg/m³	101.3kPa			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/m³	273K, 101.3kPa	05/05/16	1147 - 1247	BS EN 13284-1	Normal
	Isocyanates	0.1	<0.04	mg/m³				USEPA 36	
Topcoat Curing Oven	Total Particulate Matter	50	1.90 ± 0.45	mg/m³	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/m³	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/m³	273K, 101.3kPa	06/05/16	0945 – 1045	BS EN 13284-1	Normal
Spray Bake Booth 1	Isocyanates	0.1	<0.02	mg/m³	273K, 101.3kPa	06/05/16	0825 – 0925	USEPA 36	Normal
Spray Bake Booth 2	Isocyanates	0.1	<0.02	mg/m³	273K, 101.3kPa	06/015/16	0933 – 1033	USEPA 36	Normal
Scissor 1 Booth 1	Total Particulate Matter	50	4.90 ± 0.92	mg/m³	273K, 101.3kPa	04/05/16	1045 – 1145	BS EN 13284-1	Normal
GGISSOI I BOOKII I	Volatile Organic Compounds	150	79.9 ± 4.1	mg/m³			1045 – 1145	BS EN 12619	
Scissor 1 Booth 2	Total Particulate Matter	50	26.4 ± 0.92	mg/m³	273K, 101.3kPa	04/05/16	1155 – 1255	BS EN 13284-1	Normal
	Volatile Organic Compounds	150	49.0 ± 2.6	mg/m³			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/m³	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/m³	273K, - 101.3kPa	04/05/16	1050 – 1150	BS EN 13284-1	Normal
	Volatile Organic Compounds	150	22.5 ± 1.2	mg/m³	101.5Kl a		1252 – 1352	BS EN 12619	Normal
Scissor 2 Booth 2	Total Particulate Matter	50	3.90 ± 0.29	mg/m³	273K,	04/05/16	1200 – 1300	BS EN 13284-1	Normal
	Volatile Organic Compounds	150	80.4 ± 4.1	mg/m³	101.3kPa		1353 – 1453	BS EN 12619	Normal
Scissor 2 Oven	Total Particulate Matter	50	0.43 ± 0.19	mg/m³	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: + 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									
ite Address	Coventry									
ob Number	P-RED16-054									
ate	4th May 2016									
perator(s)	E Berek & P Butler									
						ple Positions (%)	Sam	pling Plane Diagra	n	
Stack R	eference	S	cissor 1 Booth 1			ter to obtain sample pints				
					1	14.60		Ĭ		
lumber of Stacks				1	2	85.40	/		Samole	
Stack Configuration	n		Ro	und	3	N/A	/		Sample Line 8	
imensions (mtrs)			0.	70	4	NA	-	_	-	
Outlet Diameter (if	applicable) (metres	)			5	NA	\		/	
lumber of Sample	Ports			2	6	NA		Sample	/	
lumber of Sample	s per Axis / Port			2	7	N/A		Sample Line A		
lozzle Diameter (	mm)		8	.0	8	N/A		i		
łozzie Area (m²)			0.000	05024		to the state of	- Charles	Axis 1	Axis 2	
Stack Area (m²)			0.3	385	Average	Isokinetic Flow Rate	(itrs/min)	28.42	27.23	
Pitot Coefficient	0.89	Pitot 0	Calibration Due D	ate		December 2016		Atmos. Pres	sure (kPa)	
Position	Distance	Axis 1	Temperature	Swirl Test	Axis 2	Temperature	Swirl Test	100	).6	
No.	(cms)	(pa)	(C)	(f)	(pa)	(C)	r)	Static Pres	sure (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	2 Axis	
3	N/A							Velocity of	flow (m/s)	
4	NA							9.43	9.03	
5	NA							Volume Flow	Rate (m³/s)	
6	NA							3.63	3.48	
7	NA									
8	N/A							Reduce	id Exit	
verages		67	19.7		62	19.6		NO	A	
lean Flue Gas Te	mp (in K) Tp = ((Mea	in T1 + Mean T2)/2)	+273)) =				292.6	5		
Permitted Range of	of gas temperature n	eadings (C) = (0.957	p-273) to (1.05Tp	o-273) =		5.02	to		34.28	
lighest Velocity R	eading (m/s)						9.9			
owest Velocity R	eading (m/s)						8.8			
Ratio Highest/Low	est (Max permitted	3:1)						1.13 :	1	
				Onsi	ite Checklist					
				0.11						
nitial Leak Check	0	End of first run	0.2		Start of 2 <sup>nd</sup> run		End of 2 <sup>nd</sup> run			
	k Check < 2% Vol	0.57	,		-	Manometer Leak Che	rok	O	ς	
(I)	min)					Pitot Leak Check		O	ζ	
Range of	Gas Temps	OK			Overall Isokir	netic Ratio (%) (must	be 95 to 115%)	Run 1	Run 2	
Passed mini	mum Velocity require	ements (>5pa)	YES					99.5	N/A	
Negative Local	Flow Present, YES o	or NO (Yes = Fail)	NO			nt rails and kick boar			NO	
is the Platform ar	ea greater than 5m <sup>2</sup>	? (YES, NO or N/A)	NO		Is the area infro	ont of the sample line		obe + 1 metre?	YES	
Passed I	lighest to lowest Ve	locity (3:1)	YES			(YES	r NO)			
				Site Eq	uipment Used					
Pitot R	eference	RED 0	289			Manometer Referen	ce	RED	0404	
Thermometer Reference RED 0351-RED 0352					Thermocouple Reference			RED 0404		
	Reference	N/A				impling Pump Refere		RED 0292		
Tape Measu	re Reference	RED 0	121			Barometer Reference		RED	0403	
	ermocouple	RED 0	010		Impi	nger Outlet Thermoo	ouple	N	A	
Cal	ipers	RED 0	300		Co	ondenser Thermoco	uple	N/	A	



Stack Reference ID	Scissor 1 Booth 1							
		Te	rex Construct	tion				
	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 (m³/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 (m³)			1.443					
Blank Filter Run weight gain (mg)	0.0	30	Blank Concentra			0.021		
Blank Wash Run weight gain (mg)	0.0	40	(mg/m <sup>3</sup>			0.028		
Weighing uncertainty of balance (mg)	0.083	This must be	e <5% of ELV	ELV=	50	2.5		
Overall Blank value (mg/m³)	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/m³)			4.93					
Total Particulate Concentration, wet gas at STP (mg/m³)			4.88					
Total Particulate Concentration corrected for 11% Oxygen, dry gas (mg/m³)			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								
					Isokinetic Samp multiply by diamete	le Positions (%) er to obtain sample	Sam	pling Plane Diagra	m
Stack R	eference	5	cissor 1 Booth 2		poi 1	nts 14,60		1	
Number of Stacks				1	2	85.40			\
Stack Configuration	on		Ro	und	3	N/A	/		Sample Line 8
Dimensions (mtrs)	1		0.	70	4	N/A	-	_	
Outlet Diameter (if	f applicable) (metres	)			5	N/A	\		/
Number of Sample	Ports			2	6	N/A	/	Samole	/
Number of Sample	s per Axis / Port			2	7	N/A		Sample Line A	
Nozzle Diameter (	mm)		8	0	8	NA		<u> </u>	
Nozzle Area (m²)			0.000	05024		la elde ede Elemen	(New India)	Axis 1	Axis 2
Stack Area (m²)			0.3	185	Average	Isokinetic Flow Rate	(itrs/min)	28.18	29.32
Pitot Coefficient	0.89	Pitot 0	alibration Due D	ate		December 2016		Atmos. Pre	ssure (kPa)
Position	Distance	Axis 1	Temperature	Swirl Test	Axis 2	Temperature	Swirl Test	10	1.6
No.	(cms)	(pa)	(C)	(°)	(pa)	(C)	O	Static Pre	ssure (pa)
1	10.22	64	19.2	3.3	70	19.1	3.2	-21	7.0
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	v Rate (m³/s)
6	N/A							3.60	3.74
7	N/A							Reduc	ed Exit
8	N/A								
lverages		67	19.2		72	19.2		N	Ά
dean Flue Gas Te	mp (in K) Tp = ((Me	an T1 + Mean T2)/2)	273)) =				292.2	0	
Permitted Range of	of gas temperature r	eadings (C) = (0.95T	p-273) to (1.05Tp	-273) =		4.59	to		33.81
Highest Velocity R	leading (m/s)						10.1		
owest Velocity R		•					9.1		
Ratio Highest/Low	est (Max permitted	= 3:1)						1.11	1
				On s	ite Checklist				
Initial Leak Check	0	End of first run	0.2		Start of 2 <sup>nd</sup> run		End of 2 <sup>nd</sup> run		
	k Check < 2% Vol min)	0.56			M	lanometer Leak Che	ck	0	
		-				Pitot Leak Check		Dun 4	
	Gas Temps mum Velocity require	OK ements (>5pa)	YES		Overall Isokin	etic Ratio (%) (must	be 95 to 115%)	Run 1	Run 2
	Flow Present, YES		NO		Are there sufficient	t rails and kick board	1? (YES , NO or N/A)		NO
	rea greater than 5m <sup>2</sup>		NO			nt of the sample line			
	Highest to lowest Ve		YES			(YES o			YES
				Site Eq	ulpment Used				
Pitot R	eference	RED 0	289		1	Nanometer Reference		RED	0404
Thermomet	ter Reference	RED 0351-R	ED 0352		Th	ermocouple Referen	nce	RED	0292
Balance	Reference	N/A			San	mpling Pump Refere	nce	RED	0010
Tape Measu	re Reference	RED 0	121		- 1	Barometer Referenc	•	RED	0403
DGM The	ermocouple	RED 0	010		Impin	ger Outlet Thermoo	ouple	N	/A
Cal	lipers	RED 0	300		Co	ndenser Thermocou	ple	N	/A



Stack Reference ID	Scissor 1 Booth 2							
		Te	rex Construc	tion				
	RUN 1							
Filter Reference No		•	G47-270416-0	3				
Date			4th May 2016	;				
Sample Period	11:55		to			12:55		
Velocity (m/s)		·	9.54					
Volume flow rate of Stack gas (m³/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 (m³)			1.546					
Blank Filter Run weight gain (mg)	0.0	50	Blank Concentra			0.032		
Blank Wash Run weight gain (mg)	0.0	40	(mg/m <sup>3</sup>			0.026		
Weighing uncertainty of balance (mg)	0.233	This must be	e <5% of ELV	ELV =	50	2.5		
Overall Blank value (mg/m³)	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/m³)			26.93					
Total Particulate Concentration, wet gas at STP (mg/m³)			26.45					
Total Particulate Concentration corrected for 11% Oxygen, dry gas (mg/m³)			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								
						le Positions (%)	Sam	pling Plane Diagra	m
Stack R	eference		Scissor Oven 1		multiply by diamete poi				
					1	50.00			
lumber of Stacks				1	2	N/A			Sample
Stack Configuration	on		Ro	und	3	N/A	/		Line 8
Dimensions (mtrs)	1		0.	20	4	N/A	-	<del></del>	
Outlet Diameter (it	f applicable) (metres	)			5	N/A	\		/
lumber of Sample	Ports			1	6	N/A	\	famala	/
lumber of Sample				1	7	N/A		Sample Line A	
lozzle Diameter (			8	0	8	N/A			
lozzle Area (m²)				05024				Axis 1	Axis 2
Stack Area (m²)			0.0		Average	Isokinetic Flow Rat	e (Itrs/min)	20.01	N/A
Pitot Coefficient	0.89	Pitot C	Calibration Due D			December 2016	•		ssure (kPa)
Position	Distance	Axis 1	Temperature	Swirl Test	Axis 2	Temperature	Swirl Test	10	
No.	(cms)	(pa)	(C)	(*)	(pa)	(C)			ssure (pa)
1	10.00	27	86.7	4.7	(pe)	107	n	5.000 F16	
2	N/A	21	00.7	4.7	_			1 Axis	2 Axis
3		_			+				
	N/A				+			Velocity of	
4	N/A	_			_			6.64 Values Flor	N/A
5	N/A							Volume Flow	
6	N/A							0.21	NA
7	N/A							Reduc	ed Exit
8	N/A								
verages		27	86.7					N	A
lean Flue Gas Te	mp (in K) Tp = ((Mea	an T1 + Mean T2)/2)	+273)) =				359.7	0	
Permitted Range	of gas temperature r	eadings (C) = (0.95T	p-273) to (1.05Tp	o-273) =		68.72	to		104.69
lighest Velocity R	leading (m/s)						6.8		
owest Velocity R	eading (m/s)	•					6.6		
Ratio Highest/Low	est (Max permitted	= 3:1)						1.03	1
				Ons	ite Checklist				
labial Last Ob		End of Section	-0.0			NUC	E-4-4594		
Initial Leak Check		End of first run	<0.2		Start of 2 <sup>nd</sup> run	N/A	End of 2 <sup>nd</sup> run	N	
	k Check < 2% Vol min)	0.40	)		M	lanometer Leak Che	eck	0	
						Pitot Leak Check			
	Gas Temps	OK			Overall Isokin	etic Ratio (%) (must	t be 95 to 115%)	Run 1	Run 2
	mum Velocity require		YES					100.5	N/A
	Flow Present, YES o		NO				rd? (YES , NO or N/A)		NO
	rea greater than 5m <sup>2</sup>		NO		Is the area infror	nt of the sample line (YES)	e the length of the pro or NO)	obe + 1 metre?	YES
Passed I	Highest to lowest Ve	locity (3:1)	YES			(1231)			
				Site Eq	quipment Used				
Pitot R	eference	RED 0	289			Nanometer Referen	ce	RED	0404
Thermomet	ter Reference	RED 0351-R	RED 0352		Th	ermocouple Refere	ence	RED	0292
Balance	Reference	N/A			Sar	mpling Pump Refere	ence	RED	0010
	re Reference	RED 0	121			Barometer Referen	ce	RED	0403
Tape Measu									
	ermocouple	RED 0	010		Impin	ger Outlet Thermo	couple	N	/A



Stack Reference ID		S	cissor Oven	1			
		Te	rex Construc	tion			
			RUN 1				
Filter Reference No		(	G47-270416-0	9			
Date			4th May 2016	;			
Sample Period	13:15		to			14:15	
Velocity (m/s)		·	6.64				
Volume flow rate of Stack gas (m³/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 (m³)			1.024				
Blank Filter Run weight gain (mg)	0.0	30	Blank Concentra			0.029	
Blank Wash Run weight gain (mg)	0.0	60	(mg/m <sup>3</sup>			0.059	
Weighing uncertainty of balance (mg)	0.074	This must be	e <5% of ELV	ELV =	50	2.5	
Overall Blank value (mg/m³)	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/m³)			0.60				
Total Particulate Concentration, wet gas at STP (mg/m³)			0.58				
Total Particulate Concentration corrected for 11% Oxygen, dry gas (mg/m³)	% N/A						
Total Particulate Mass Emission (kg/hour)			0.596				



Client	Terex Construction								
Site Address	Coventry								
lob Number	P-RED16-054								
Date	4th May 2016								
Operator(s)	E Berek & P Butler								
						le Positions (%)	Sam	pling Plane Diagra	m
Stack R	deference	S	cissor 2 Booth 1		multiply by diamete poi				
					1	14.60		Ĭ	
lumber of Stacks				1	2	85.40	/		Sample
tack Configuration	on		Ro	und	3	N/A	/		Line8
imensions (mtrs)	)		0.	70	4	N/A	-	_	
utlet Diameter (it	f applicable) (metres	)			5	N/A	\		/
lumber of Sample	Ports			2	6	N/A	\	Samole	/
	es per Axis / Port			2	7	N/A		Sample Line A	
ozzle Diameter (			8	0	8	N/A		_ i _	
lozzle Area (m²)				05024				Axis 1	Axis 2
tack Area (m²)			0.3		Average	Isokinetic Flow Rate	e (Itrs/min)	26.58	26.01
itot Coefficient	0.89	Pitot 0	Calibration Due D			December 2016			ssure (kPa)
Position	Distance	Axis 1	Temperature	Swirl Test	Axis 2	Temperature	Swirl Test	10	
No.	(cms)	(pa)	(C)	(f)	(pa)	(C)	O		ssure (pa)
1	10.22	55	19.5	4.0	57	19.5	4.2	31	
2	59.78	62	19.5	4.4	56	19.5	4.4	1 Axis	2 Axis
3	N/A		10.0		-	10.0			flow (m/s)
4	N/A							8.82	8.63
5	N/A							Volume Flow	
6	N/A							3.39	3.32
7	N/A							3.39	3.32
8	N/A							Reduc	ed Exit
verages	nen.	59	19.5		56	19.5		N	Δ
						10.0			
	emp (in K) Tp = ((Mea						292.5	0	
	of gas temperature r	eadings (C) = (0.951	p-273) to (1.05 Tp	5-273) =		4.88	to		34.13
lighest Velocity R		•					9.3		
owest Velocity R							8.5		
atio Highest/Low	vest (Max permitted	- 3:1)						1.10	
				Ons	ite Checklist				
nitial Leak Check	k 0	End of first run	0.2		Start of 2 <sup>nd</sup> run	N/A	End of 2 <sup>nd</sup> run	N	/A
	sk Check < 2% Vol					lanometer Leak Che		0	
	min)	0.63	3			Pitot Leak Check	N. S.	0	
Dance of	Gas Temps	ОК						Run 1	Run 2
	mum Velocity require		YES		Overall Isokin	etic Ratio (%) (must	be 95 to 115%)	100.6	N/A
	Flow Present, YES		NO NO		Are there sufficien	t rails and kick hose	d? (YES , NO or N/A)		NO
	rea greater than 5m <sup>2</sup>		NO				the length of the pr		
	Highest to lowest Ve		YES		IS the area millor	(YES		223 · I meder	YES
Passed	riigilest to lowest ve	locity (3.1)	169						
				Site Eq	uipment Used				
Pitot R	teference	RED 0	289			Nanometer Referen	ce	RED	0404
Thermomet	ter Reference	RED 0351-R	RED 0352		Th	ermocouple Refere	nce	RED	0292
Balance	Reference	N/A			San	mpling Pump Refere	ence	RED	0258
Tape Measu	ure Reference	RED 0	121		- 1	Barometer Reference	e	RED	0403
		200.0	260		Imale	and Outlet Therma	la	N	/A
DGM The	ermocouple	RED 0	200		impin	ger Outlet Thermo	coupie		



Stack Reference ID		Sc	issor 2 Boot	h 1			
		Te	rex Construc	tion			
			RUN 1				
Filter Reference No		(	G47-270416-0	5			
Date			4th May 2016	;			
Sample Period	10:50		to			11:50	
Velocity (m/s)		·	8.72				
Volume flow rate of Stack gas (m³/hr)			12085				
Average Stack Temp (°C)	19.5 4.88 to 34.13						
Temp Range ± 5% (°C)							
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 (m³)			1.482				
Blank Filter Run weight gain (mg)	0.1	30	Blank Concentra			0.088	
Blank Wash Run weight gain (mg)	0.0	10	(mg/m <sup>3</sup>			0.007	
Weighing uncertainty of balance (mg)	0.143	This must be	e <5% of ELV	ELV =	50	2.5	
Overall Blank value (mg/m³)	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/m³)			15.06				
Total Particulate Concentration, wet gas at STP (mg/m³)			14.86				
Total Particulate Concentration corrected for 11% Oxygen, dry gas (mg/m³)			N/A				
Total Particulate Mass Emission (kg/hour)			0.182				



Client	Terex Construction								
ilte Address	Coventry								
ob Number	P-RED16-054								
late	4th May 2016								
Operator(s)	E Berek & P Butler								
						ple Positions (%)	Sam	pling Plane Diagra	m
Stack R	teference	S	cissor 2 Booth 2			er to obtain sample ints			
					1	14.60		Î	
umber of Stacks				1	2	85.40	/		
tack Configuration	on		Ro	und	3	N/A	/		Sample Line 8
imensions (mtrs)	)		0.	70	4	N/A	-		-
utlet Diameter (if	f applicable) (metres	)			5	N/A	\		/
umber of Sample	Ports			2	6	N/A		Samole	/
umber of Sample	es per Axis / Port			2	7	N/A		Sample Line A	
ozzle Diameter (			8	.0	8	N/A		<u> </u>	
ozzle Area (m²)			0.000	05024	· '			Axis 1	Axis 2
tack Area (m²)			0.3	385	Average	Isokinetic Flow Rate	(Itrs/min)	22.91	23.82
itot Coefficient	0.89	Pitot 0	Calibration Due D	ate		December 2016		Atmos. Pres	sure (kPa)
Position	Distance	Axis 1	Temperature	Swirl Test	Axis 2	Temperature	Swirl Test	100	0.6
No.	(cms)	(pa)	(C)	O	(pa)	(C)	O	Static Pres	sure (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 (m³/s)
6	N/A							2.93	3.04
7	N/A								
8	N/A							Reduce	ed Exit
verages		44	19.4		47	19.3		No	A
lean Flue Gas Te	emp (in K) Tp = ((Mea	in T1 + Mean T2)/2)	+273)) =				292.3	5	
	of gas temperature n			o-273) =		4.73	to		33.97
ighest Velocity R							8.2		
owest Velocity R	eading (m/s)						7.4		
atio Highest/Low	vest (Max permitted	3:1)						1.12 :	1
				Onsi	ite Checklist				
nitial Leak Check	k 0	End of first run	0.2		Start of 2 <sup>nd</sup> run		End of 2 <sup>nd</sup> run		
	ik Check < 2% Vol	0.46	,			Nanometer Leak Che	eck	OI	ĸ
(h	min)					Pitot Leak Check		OI	K
Range of	Gas Temps	OK			Overall Isokin	netic Ratio (%) (must	be 95 to 115%)	Run 1	Run 2
	mum Velocity require		YES					100.7	N/A
	Flow Present, YES		NO				d? (YES , NO or N/A)		NO
s the Platform ar	rea greater than 5m²	(YES, NO or N/A)	NO		Is the area infro	nt of the sample line (YES o	the length of the property NO	obe + 1 metre?	YES
Passed I	Highest to lowest Ve	locity (3:1)	YES			(162.0	n NO)		
				Site Eq	quipment Used				
Pitot R	teference	RED 0	289			Manometer Referen	ce	RED	0404
Thermomet	ter Reference	RED 0351-R			TI	nermocouple Refere	nce	RED	0292
Balance	Reference	N/A				mpling Pump Refere		RED	0258
Tape Measu	ure Reference	RED 0	121			Barometer Reference	e	RED	0403
DGM The	ermocouple	RED 0	258		Impir	nger Outlet Thermoo	couple	N/	A
Cal	lipers	RED 0	300		Co	ondenser Thermoco	uple	N/	A



Stack Reference ID		Sc	issor 2 Boot	h 2		
		Te	rex Construc	tion		
			RUN 1			
Filter Reference No		•	G47-270416-0	7		
Date			4th May 2016	;		
Sample Period	12:00		to			13:00
Velocity (m/s)		·	7.75			
Volume flow rate of Stack gas (m³/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 (m³)			1.316			
Blank Filter Run weight gain (mg)	0.0	50	Blank Concentra			0.038
Blank Wash Run weight gain (mg)	0.1	00	(mg/m <sup>3</sup>			0.076
Weighing uncertainty of balance (mg)	0.078	This must be	e <5% of ELV	ELV =	50	2.5
Overall Blank value (mg/m³)	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/m³)			3.99			
Total Particulate Concentration, wet gas at STP (mg/m³)			3.94			
Total Particulate Concentration corrected for 11% Oxygen, dry gas (mg/m³)			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								
						ple Positions (%)	Sam	pling Plane Diagra	m
Stack R	eference		Scissor 2 Oven			ter to obtain sample pints			
					1	50.00			
Number of Stacks				1	2	N/A			
Stack Configuration	on		Ro	und	3	N/A	/		Sample Line 8
Dimensions (mtrs)			0	20	4	N/A	-	$\longrightarrow$	
	fapplicable) (metres	)			5	N/A	(		/
Number of Sample				1	6	N/A	/	ft-	/
Number of Sample				1	7	N/A		Sample Line A	
Nozzle Diameter (				.0	8	N/A		_   _	
Nozzle Area (m²)				05024				Axis 1	Axis 2
Stack Area (m²)				031	Average	Isokinetic Flow Rate	(Itrs/min)	16.84	N/A
Pitot Coefficient	0.89	Pitos (	Calibration Due D			December 2016		Atmos. Pre	
Position	Distance	Axis 1	Temperature	Swirt Test	Axis 2	Temperature	Swirl Test	10	- ' '
No.	(cms)	(pa)	(C)		(pa)	(C)		Static Pre	
1	10.00	19	88.3	4.0	(pa)	(0)	n	8	
2		19	00.3	4.0	_			1 Axis	2 Axis
3	N/A								
	N/A							Velocity of	
4	N/A							5.59	N/A
5	N/A							Volume Flow	
6	N/A							0.18	NA
7 8	N/A							Reduc	ed Exit
Averages	N/A	19	88.3					N	Α
									^
	mp (in K) Tp = ((Mea						361.3		
	of gas temperature re		p-273) to (1.06 Tr	5-273) =		70.24	to		106.37
Highest Velocity R		•					5.7		
Lowest Velocity R							5.6		
Ratio Highest/Low	est (Max permitted •	- 3:1)						1.03	1
				Ons	ite Checklist				
Initial Leak Check	0	End of first run	0		Start of 2 <sup>nd</sup> run		End of 2 <sup>nd</sup> run		
	k Check < 2% Vol					Manometer Leak Che		0	к
	min)	0.34	•			Pitot Leak Check	- Ch	0	
Range of	Gas Temps	ОК					h. 05 m 45500	Run 1	Run 2
	mum Velocity require		YES		Overall Isokir	netic Ratio (%) (must	be 95 to 115%)	99.6	N/A
	Flow Present, YES o		NO		Are there sufficien	nt rails and kick boar	d? (YES . NO or N/A)		NO
	rea greater than 5m <sup>2</sup>		NO			ont of the sample line			
	Highest to lowest Ve		YES			(YES o			YES
				Site Eq	quipment Used				
Pitot R	eference	RED 0	289			Manometer Reference	e e	RED	0404
	ter Reference	RED 0351-R				hermocouple Refere			0292
	Reference	N/A				Impling Pump Refere		RED	
	re Reference	RED 0				Barometer Reference		RED	
	ermocouple	RED 0				nger Outlet Thermoo		N	
	lipers	RED 0				ondenser Thermocou			IA
Cal	ipers	MED 0	200			ondenser Inermocou	april 1	N	^



Stack Reference ID		S	cissor 2 Ove	en			
		Te	rex Construc	tion			
			RUN 1				
Filter Reference No		•	G47-270416-1	1			
Date			4th May 2016	;			
Sample Period	13:12		to			14:12	
Velocity (m/s)		·	5.59				
Volume flow rate of Stack gas (m³/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 (m³)			0.922				
Blank Filter Run weight gain (mg)	0.0	10	Blank Concentra			0.011	
Blank Wash Run weight gain (mg)	0.0	50	(mg/m <sup>3</sup>			0.054	
Weighing uncertainty of balance (mg)	0.074	This must be	e <5% of ELV	ELV =	50	2.5	
Overall Blank value (mg/m³)	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/m³)			0.43				
Total Particulate Concentration, wet gas at STP (mg/m³)			0.43				
Total Particulate Concentration corrected for 11% Oxygen, dry gas (mg/m³)			N/A				
Total Particulate Mass Emission (kg/hour)			0.0003				



Client	Terex Construction								
Site Address	Coventry								
lob Number	P-RED16-054								
ate	5th May 2016								
Operator(s)	E Berek & P Butler								
						mple Positions (%) diameter to obtain	Samp	pling Plane Diagran	1
Stack R	Reference		Primer Booth 1			ple points			
					1	6.70		Ī	
lumber of Stacks			1	1	2	25.00	/	Į.	Samole
tack Configuration	on		Ro	und	3	75.00	/		Sample Line B
imensions (mtrs	)		1.	60	4	93.30		_	
outlet Diameter (i	if applicable) (metres	1)			5	N/A	\		/
lumber of Sample	e Ports			1	6	N/A	\	, samula	/
lumber of Sample	es per Axis / Port			4	7	N/A		Line A	
lozzle Diameter (			8	.0	8	N/A		•	
lozzle Area (m²)			0.000	05024				Axis 1	Axis 2
itack Area (m²)			2.0	011	Avera	ge Isokinetic Flow Rat	te (Itrs/min)	24.14	25.35
itot Coefficient	0.89	Pitot	Calibration Due D	ate		December 2016		Atmos, Pres	
Position	Distance	Axis 1	Temperature	Swirl Test	Axis 2	Temperature	Swirl Test	100	
No.	(cms)	(pa)	(C)	Degree	(pa)	(C)	Degree	Static Pres	sure (pa)
1	10.72	60	19.4	4.0	56	18.0	3.5	-15	
2	40.00	45	19.5	3.0	53	18.0	42	1 Axis	2 Axis
3	120.00	39	19.4	3.0	48	18.0	4.6	Velocity of	flow (m/s)
4	149.28	51	19.4	4.0	58	18.0	4.1	8.01	8.41
5	N/A		10.1			10.0		Volume Flow	
6	N/A		+					16.10	16.91
7	N/A		+					10.10	10.51
8	N/A		+					Reduce	d Exit
	erages	49	19.4		54	18.0		N/	
						10.0			`
	emp (in K) Tp = ((Me						291.71		
	perature readings ±		2/3) to (1.05 (p-2/3	9=		4.13	to		33.30
lighest Velocity F		•					9.2		
owest Velocity R							7.2		
latio Highest/Lov	west (Max permitted	= 3:1)						1.28 :	
				On sit	e Checklist				
Dance of	Gas Temps		К			Manometer Leak Ch	ack	OH	
nitial Leak Check		Final leak check				Pitot Leak Check		OF	
	Check < 2% Vol (l/min		<0.2					Run 1	Run 2
_			YES		Overall Iso	kinetic Ratio (%) (mus	t be 95 to 115%)	101.8	N/A
	imum Velocity requir		NO NO		Are there as to	elant calls and blat to	and OVER NO N		YES
-	Flow Present, YES					cient rails and kick bo front of the sample lin			169
	rea greater than 5m <sup>2</sup>				is the area in		e the length of the po or NO)	oue + 1 metre?	YES
Passed	Highest to lowest Ve	locity (3:1)	YES			,,			
				Site Equ	ipment Used				
		050	0237			Manometer Referen	000	RED 0	400
Dites D	Reference						TV-W	RED (	400
	Reference ster Reference						ence	pen	344
Thermome	Reference ster Reference	RED	0354			Thermocouple Refero		RED 0	



Stack Reference ID		P	rimer Booth	1				
		Те	rex Construc	tion				
			RUN 1					
Filter Reference No			G47-270416-1	3				
Date			5th May 2016					
Sample Period	09:10		to			10:10		
Velocity (m/s)		·	8.21					
Volumetric flowrate of Stack gas (m³/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 (m³)			1.428					
Blank Filter Run weight gain (mg)	0.0	140	Blank Concentra			0.028		
Blank Wash Run weight gain (mg)	0.1	00	(mg/m <sup>3</sup>			0.070		
Weighing uncertainty of balance (mg)	0.076	This must b	e <5% of ELV	ELV =	50	2.5		
Overall Blank value (mg/m³)	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/m³)	2.00							
Total Particulate Concentration, *STP, wet gas (mg/m³)	1.95							
Total Particulate Concentration corrected for Oxygen, *STP, dry gas (mg/m³)			N/A					
Total Particulate Mass Emission (kg/hour)			0.113					



Client	Terex Construction								
Site Address	Coventry								
lob Number	P-RED16-054								
ate	5th May 2016								
Operator(s)	E Berek & P Butler								
						mple Positions (%) diameter to obtain	Samp	oling Plane Diagran	1
Stack R	teference		Primer Booth 1			ple points			
					1	6.70		Ī	
lumber of Stacks			1	1	2	25.00	/		Samole
tack Configuration	on		Ro	und	3	75.00	/	ľ	Sample Line B
imensions (mtrs	)		1.	60	4	93.30	•	• •	
outlet Diameter (i	f applicable) (metres	)			5	N/A	\	ļ	/
lumber of Sample	Ports			2	6	N/A	/	Sample	/
lumber of Sample	es per Axis / Port			4	7	N/A		Line A	
lozzle Diameter (	mm)		8	.0	8	N/A		<u> </u>	
lozzle Area (m²)			0.000	05024				Axis 1	Axis 2
Stack Area (m²)			2.0	011	Avera	ge Isokinetic Flow Rat	te (Itrs/min)	25.43	26.13
itot Coefficient	0.89	Pitot	Calibration Due D	ate		December 2016		Atmos. Pres	
Position	Distance	Axis 1	Temperature	Swirl Test	Axis 2	Temperature	Swirl Test	100	
No.	(cms)	(pa)	(C)	Degree	(pa)	(C)	Degree	Static Pres	sure (pa)
1	10.72	59	19.3	4.4	59	19.1	3.8	-18	
2	40.00	53	19.2	47	60	19.1	4.4	1 Axis	2 Axis
3	120.00	49	19.3	5.2	53	19.2	4.5	Velocity of	flow (m/s)
4	149.28	55	19.3	42	56	19.2	4.2	8.44	8.67
5	N/A	- "	10.0			10.2	1.5	Volume Flow	
6	N/A		+		1			16.96	17.43
7	N/A		_					10.00	17.45
8	N/A		+					Reduce	d Exit
	erages	54	19.3		57	19.2		N/	
					- 01	10.2	***		`
	emp (in K) Tp = ((Mea						292.21		
	perature readings ± 0		2/3) to (1.05 (p-2/3	9=		4.60	to		33.82
fighest Velocity F		· -					9.2		
owest Velocity R		_					8.0		
latio Highest/Lov	rest (Max permitted •	- 3:1)						1.14 :	
				On sit	e Checklist				
Pages of	Gas Temps		К			Manometer Leak Ch	eck	OH	
nitial Leak Check		Final leak check	<0.2			Pitot Leak Check		OF	
	heck < 2% Vol (l/min)							Run 1	Run 2
	mum Velocity require	-	YES		Overall Iso	kinetic Ratio (%) (mus	t be 95 to 115%)	100.0	N/A
	Flow Present, YES o		NO		Are there as 40	cient rails and kick bo	and OVER NO or NO		YES
-	rea greater than 5m <sup>2</sup>					front of the sample lin			
	_		YES		is the area in		or NO)	oue + i meder	YES
Passed	Highest to lowest Ve	iocity (a:1)	152						
				Site Equ	ipment Used				
Pitot D	eference	RED	0237			Manometer Referen	nce	RED 0	400
	ter Reference	RED				Thermocouple Refer		RED	
		, LEO							
	Reference	N	/A			Sampling Pump Refer	rence	RED 0	258



Stack Reference ID		P	rimer Booth	1			
		Те	rex Construc	tion			
			RUN 1				
Filter Reference No			G47-270416-1	5			
Date			5th May 2016				
Sample Period	10:22		to			11:22	
Velocity (m/s)			8.55				
Volumetric flowrate of Stack gas (m³/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 (m³)			1.384				
Blank Filter Run weight gain (mg)	0.0	20	Blank Concentra			0.014	
Blank Wash Run weight gain (mg)	0.0	080	(mg/m <sup>3</sup>			0.058	
Weighing uncertainty of balance (mg)	0.076	This must b	e <5% of ELV	ELV =	50	2.5	
Overall Blank value (mg/m³)	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/m³)			2.31				
Total Particulate Concentration, *STP, wet gas (mg/m³)			2.26				
Total Particulate Concentration corrected for Oxygen, *STP, dry gas (mg/m³)			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									
						mple Positions (%)	Sam	pling Plane Diagran	•	
Stack R	eference	Р	Primer Flash Off		multiply by diameter to obtain sample points					
					14.60		ľ			
lumber of Stacks			1			85.40	/			
tack Configuratio	en .		Ro	und	3	N/A	/		Sample Line B	
imensions (mtrs)			0.	80	4	N/A				
Outlet Diameter (if	applicable) (metres	)			5	N/A	/		/	
lumber of Sample	Ports			2	6	N/A		Samole	/	
lumber of Sample	s per Axis / Port			2	7	N/A		Line A		
lozzle Diameter (r	mm)		8	.0	8	N/A		<u> </u>		
lozzle Area (m²)			0.000	05024				Axis 1	Axis 2	
Stack Area (m²)			0.5	503	Avera	ge Isokinetic Flow Rat	te (Itrs/min)	29.22	26.69	
Pitot Coefficient	0.89	Pitot C	alibration Due D	ate		December 2016		Atmos. Pres	sure (kPa)	
Position	Distance	Axis 1	Temperature	Swirl Test	Axis 2	Temperature	Swirl Test	100	9	
No.	(cms)	(pa)	(C)	Degree	(pa)	(C)	Degree	Static Pres	sure (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	2 Axis	
3	N/A							Velocity of	flow (m/s)	
4	N/A							9.69	8.85	
5	N/A							Volume Flow	Rate (m³/s)	
6	N/A							4.87	4.45	
7	N/A									
8	N/A							Reduce	d Exit	
Ave	rages	70	25.6		58	25.4		N/	1	
fean Flue Gas Te	mp (in K) Tp = ((Me	an T1 + Mean T2)/2)	273)) =				298.4	8		
		5% (°C) = (0.95Tp-27		3) =		10.55	to		40.40	
lighest Velocity R							10.2			
owest Velocity Re										
Ratio Highest/Low	est (Max permitted	= 3:1)						1.20 :	1	
				On sit	e Checklist					
Range of 6	Gas Temps	ок				Manometer Leak Ch	eck	OH		
nitial Leak Check	<0.2	Final leak check	<0.2			Pitot Leak Check				
	heck < 2% Vol (l/min							Run 1	Run 2	
_	mum Velocity require	-	YES		Overall (so	kinetic Ratio (%) (mus	t pe 90 to 115%)	100.2	N/A	
	Flow Present, YES		NO		Are there sufficient rails and kick board? (YES , NO o				YES	
_	ea greater than 5m²		YES			ront of the sample lin	-		YES	
Passed h	fighest to lowest Ve	locity (3:1)	YES			(YES	or NO)		TES	
				Site Equ	ipment Used					
Pitot R	eference	RED 0	237		Manometer Reference			RED 0400		
Thermomet	er Reference	RED 0	354		Thermocouple Reference			RED 0344		
Balance	Reference	N/A			Sampling Pump Reference			RED (	258	
Tape Measu	re Reference	RED 0	123		Barometer Reference RED 0402					



Stack Reference ID	Primer Flash Off								
	Terex Construction								
		RUN 1							
Filter Reference No			G47-270416-1	7					
Date			5th May 2016	;					
Sample Period	11:40		to			12:40			
Velocity (m/s)		·	9.27						
Volumetric flowrate of Stack gas (m³/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 (m³)	1.510								
Blank Filter Run weight gain (mg)	0.0	40	Blank Concentra			0.026			
Blank Wash Run weight gain (mg)	0.0	60	(mg/m <sup>3</sup>		0.040				
Weighing uncertainty of balance (mg)	0.074	This must b	e <5% of ELV	ELV =	50	2.5			
Overall Blank value (mg/m³)	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/m³)	0.51								
Total Particulate Concentration, *STP, wet gas (mg/m³)	0.50								
Total Particulate Concentration corrected for Oxygen, *STP, dry gas (mg/m³)	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									
						mple Positions (%)	Sam	pling Plane Diagran		
Stack R	eference		Topcoat 1		multiply by diameter to obtain sample points					
				1	14.60		Ĭ			
lumber of Stacks				1	2	85.40	/		Samula	
stack Configuratio	n		Ro	und	3	N/A	/		Sample Line B	
Dimensions (mtrs)			1.	60	4	N/A	-	_		
Outlet Diameter (if	applicable) (metres	)			5	N/A	/		/	
lumber of Sample	Ports			1	6	N/A		Samole	/	
lumber of Sample	s per Axis / Port			4	7	N/A		Sample Line A		
lozzle Diameter (r	mm)		8	.0	8	N/A		<u> </u>		
lozzle Area (m²)			0.000	05024				Axis 1	Axis 2	
Stack Area (m²)			2.011		Avera	ge Isokinetic Flow Rat	e (Itrs/min)	21.98	20.14	
Pitot Coefficient	0.89	Pitot C	alibration Due D	ate		December 2016		Atmos, Pres	sure (kPa)	
Position	Distance	Axis 1	Temperature	Swirl Test	Axis 2	Temperature	Swirl Test	100	.9	
No.	(cms)	(pa)	(C)	Degree	(pa)	(C)	Degree	Static Pres	sure (pa)	
1	23.36	42	18.3	3.6	35	18.1	3.3	-11	0	
2	136.64	39	18.2	4.0	33	18.2	3.6	1 Axis	2 Axis	
3	N/A							Velocity of	flow (m/s)	
4	N/A							7.29	6.68	
5	N/A							Volume Flow	Rate (m³/s)	
6	N/A							14.66	13.44	
7	N/A									
8	N/A							Reduce	d Exit	
Ave	rages	41	18.3		34	18.2		N/	1	
lean Flue Gas Te	mp (in K) To # ((Ma)	an T1 + Mean T2)/2)*	2731) =				291.2	20		
		5% (°C) = (0.95Tp-27		8) =		3.64	to		32.76	
lighest Velocity R			-) to (1.05 t) 210	-,		0.04	7,7		02.10	
owest Velocity Re							6			
	est (Max permitted	= 3:1)						1.16 :	1	
				On sit	e Checklist					
Range of	Gas Temps	ОК				Manometer Leak Ch	eck	OH		
nitial Leak Check	<0.2	Final leak check	<0.2			Pitot Leak Check			ζ	
cceptable Leak C	heck < 2% Vol (limin	0.44			Our million			Run 1	Run 2	
-	mum Velocity requir		YES		Overani Iso	kinetic Ratio (%) (mus	t be 30 to 110%)	100.5	100.5	
	Flow Present, YES		NO		Are there suffi	cient rails and kick bo	ard? (YES , NO or N	I/A)	YES	
_	ea greater than 5m²	-	YES			ront of the sample lin			YES	
Passed h	fighest to lowest Ve	locity (3:1)	YES			(YES	or NO)		TES	
				Site Equ	ipment Used					
Pitot R	eference	RED 02	237		Manometer Reference			RED 0400		
Thermomet	er Reference	RED 03	354			Thermocouple Refere	ence	RED 0344		
Balance	Reference	N/A			Sampling Pump Reference				258	
Tape Measu	re Reference	RED 01	123			Barometer Referen	ce	RED (	1402	



Stack Reference ID	Topcoat 1							
	Terex Construction							
		RUN 2						
Filter Reference No	N	ICO Run			G47-	270416	i-19	
Date	5th May 2016 5th May 2016							
Sample Period	09:21	to 1	0:21	09:	:21	to	10:21	
Velocity (m/s)			6.	99				
Volumetric flowrate of Stack gas (m³/hr)			50	577				
Average Stack Temp (°C)			18	3.2				
Temperature Range - ± 5% (°C)	3.64		t	0			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				160	60		
Oxygen %	18.6				18.6			
Carbon Dioxide %	1.40 1.40							
Moisture (%)	2.92							
Litres sampled		1182				1182		
Corrected volume sampled - STP (m³)		1.095				1.095		
Blank Filter Run weight gain (mg)	0.0	070	Con	Blank	0.004			
Blank Wash Run weight gain (mg)	0.0	080		(mg/m³)	entration ng/m³) 0.073			
Weighing uncertainty of balance (mg)	0.252	This must	be <5% of	ELV	ELV =	50	2.5	
Overall Blank value (mg/m³)	0.137	This must t	e <10% o	fELV	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/m³)	0.05 39.07							
Total Particulate Concentration, *STP, wet gas (mg/m³)		0.04				37.93		
Total Particulate Concentration corrected for Oxygen, *STP, dry gas (mg/m³)	N/A N/A							
Total Particulate Mass Emission (kg/hour)		0.002				2.002		



Client	Terex Construction											
Site Address	Covertry											
lob Number	P-RED16-054											
Date	5th May 2016											
Operator(s)	E Berek & P Butler											
						mple Positions (%)	Samp	pling Plane Diagran	•			
Stack R	teference		Topcoat 2			diameter to obtain						
					sample points			ľ				
lumber of Stacks			T .	1	2	85.40	/					
Stack Configuration			Ros		3	N/A	/		Sample Line B			
imensions (mtrs			1.0		4	N/A	-		-			
	f applicable) (metres		-		5	N/A	\		)			
lumber of Sample		,	+		6	N/A	\		/			
					7			Sample Line A				
	es per Axis / Port				_	N/A						
lozzle Diameter (	mm)		8		8	N/A			Axis 2			
iozzie Area (m²)			0.000		Avera	ge Isokinetic Flow Rat	te (ltrs/min) Axis 1					
Stack Area (m²)			2.0		_			24.22	22.56			
Pitot Coefficient	0.89		t Calibration Due D			December 2016		Atmos. Pres				
Position	Distance	Axis 1	Temperature	Swirl Test	Axis 2	Temperature	Swirl Test	100				
No.	(cms)	(pa)	(C)	Degree	(pa)	(C)	Degree	Static Pres				
1	23.36	50	19.1	3.4	41	19.1	4.2	-14.				
2	136.64	48	19.2	3.7	44	19.1	3.8	1 Axis	2 Axis			
3	N/A							Velocity of	flow (m/s)			
4	N/A							8.03	7.48			
5	N/A							Volume Flow	Rate (m³/s)			
6	N/A							16.15	15.04			
7	N/A							Reduce	d Elvis			
8	N/A							Reduce	o exit			
Ave	erages	49	19.2		43	19.1		N/	1			
fean Flue Gas To	emp (in K) Tp = ((Mea	n T1 + Mean T21/	2)+273)) =				292.13	1				
	perature readings ± 0		-	0 =		4.52	te		33.73			
lighest Velocity F				,			8.4					
owest Velocity R							7.3					
	vest (Max permitted	3:1)						1,14 :	1			
	, permitte			On sit	e Checklist							
Range of	Gas Temps		ж			Manometer Leak Check OK						
nitial Leak Check		Final leak check	<0.2			Pitot Leak Check		OH				
	heck < 2% Vol (l/min		48					Run 1	Run 2			
_	mum Velocity require		YES		Overall Iso	kinetic Ratio (%) (mus	t be 95 to 115%)	100.3	100.3			
	Flow Present, YES o		NO		Are there sufficient rails and kick board? (YES , No				YES			
_	rea greater than 5m <sup>2</sup>					front of the sample lin						
	Highest to lowest Ve	•	YES				or NO)		YES			
Fassed	mysters to towest ve	restly (e. i)	160	Site Equ	ipment Used							
Pitot R	teference	RED	0237	,		Manometer Referen	nce	RED 0	400			
	ter Reference		0354			Thermocouple Refer		RED 0344				
Balance Reference N/A									RED 0258			
Balance												



Stack Reference ID	Topcoat 2							
	Terex Construction							
		RUN 2						
Filter Reference No	N	ICO Run			G47-	-270416	6-21	
Date	5th May 2016 5th May 2016							
Sample Period	10:34	to 1	1:34	10:	34	to	11:34	
Velocity (m/s)			7.	76				
Volumetric flowrate of Stack gas (m³/hr)			56	158				
Average Stack Temp (°C)			19	9.1				
Temperature Range - ± 5% (°C)	4.52		t	0			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 (m³)		1.228				1.228		
Blank Filter Run weight gain (mg)	0.0	040	Cor	Blank	tion		0.033	
Blank Wash Run weight gain (mg)	0.0	040		(mg/m³)	ntration 0.033			
Weighing uncertainty of balance (mg)	0.074	This must	be <5% of	ELV	ELV =	50	2.5	
Overall Blank value (mg/m³)	0.065	This must	be <10% o	fELV	ELV =	50	5.0	
Particulate weight collected on filter (mg)		0.05			1.07			
Particulate weight collected in Wash (mg)		0.00	00		0.21			
Total Particulate weight collected (mg)	0.05 1.28							
Total Particulate Concentration, *STP, dry gas (mg/m³)		0.04	0.04			1.04		
Total Particulate Concentration, *STP, wet gas (mg/m³)		0.04				1.01		
Total Particulate Concentration corrected for Oxygen, STP, dry gas (mg/m³)	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								
						emple Positions (%)	Samp	pling Plane Diagran	,
Stack R	teference	т	opcoat Curing Oven			diameter to obtain ple points			
					1	6.70		Ĭ	
lumber of Stacks	i		Τ ,		2	25.00	/		
Stack Configuration	on		Ros	und	3	75.00	/	i i	line B
Dimensions (mtrs	)		1.0	50	4	93.30	-	• •	
	f applicable) (metres	)			5	N/A	\		- /
lumber of Sample			1 2	,	6	N/A	/	1	/
	es per Axis / Port				7	N/A		Sample Line A	
lozzle Diameter (			6		-	N/A		_ • _	
lozzle Area (m²)			0.000		<u> </u>	N/A		Axis 1	Axis 2
Stack Area (m²)			2.0		Avera	ge Isokinetic Flow Rat	te (ltrs/min)	21.26	22.18
Pitot Coefficient	0.89	Disco	t Calibration Due D			December 2016		Atmos, Presi	
Position	Distance	Axis 1		Swirl Test	Auto 0		Swirl Test	100	
Position No.			Temperature		Axis 2	Temperature			
	(cms)	(pa)	(C)	Degree	(pa)	(C)	Degree	Static Pres	
1	10.72	101	61.2	3.3	123	61.1	3.5	26.0	
2	40.00	98	61.4	3.6	118	61.4	3.6	1 Axis	2 Axis
3	120.00	112	61.1	3.3	104	61.4	3.3	Velocity of f	
4	149.28	106	61.4	3.2	109	61.3	3.1	12.54	13.08
5	N/A							Volume Flow	Rate (m³/s)
6	N/A							25.21	26.30
7	N/A							Reduce	d Exit
8	N/A								
Ave	erages	104	61.3		114	61.3		N/A	l.
fean Flue Gas Te	emp (in K) Tp = ((Mea	ın T1 + Mean T2)/	2)+273)) =				334.25	)	
lange of gas tem	perature readings ± 0	5% (°C) = (0.95Tp-	273) to (1.05Tp-273	ŋ <b>=</b>		44.57	to		78.00
lighest Velocity F	Reading (m/s)						14.0		
owest Velocity R	eading (m/s)						12.1		
Ratio Highest/Lov	vest (Max permitted *	= 3:1)						1.16 :	
				On sit	e Checklist				
Range of	Gas Temps	C	ж			Manometer Leak Ch	eck	OK	
nitial Leak Check		Final leak check	<0.2			Pitot Leak Check		OK	
	heck < 2% Vol (l/min	0.	43		Our militar	kinetic Ratio (%) (mus		Run 1	Run 2
_	imum Velocity require	-	YES		Overall Iso	miletic reado (%) (mus	L De 90 to 110%)	100.3	100.3
	Flow Present, YES o		NO		Are there suffi	icient rails and kick bo	ard? (YES , NO or No	A)	YES
-	rea greater than 5m²					front of the sample lin			
	Highest to lowest Ve		YES				or NO)		YES
				Site Equ	ipment Used				
Pitot R	teference	RED	0237			Manometer Referen	nce	RED 0	400
	ter Reference		0354			Thermocouple Refer		RED 0	
	Reference	N	I/A			Sampling Pump Refer	rence	RED 0	258



Stack Reference ID		Тор	coat C	uring C	Oven				
		Te	rex Co	nstruct	ion				
		RUN 1				RUN 2			
Filter Reference No	N	ICO Run			G47-	-200416	6-23		
Date	5th	1 May 2016			5th	May 20	)16		
Sample Period	13:22	to 14	1:22	13:	22	to	14:22		
Velocity (m/s)			12	.81					
Volumetric flowrate of Stack gas (m³/hr)			92	711					
Average Stack Temp (°C)			61	1.3					
Temperature Range - ± 5% (°C)	44.57		t	to 78.00					
Lowest Velocity Reading (m/s)		·	12	12.15					
Highest Velocity Reading (m/s)			14	.04	04				
Ratio (less than 3:1)	1.16			:			1		
Pre-conditioning temperature of Filter (°C)		180				180			
nstack 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 (m³)		1.225				1.225			
Blank Filter Run weight gain (mg)	0.0	010	Cor	Blank ncentra	tion		0.008		
Blank Wash Run weight gain (mg)	0.0	010		(mg/m³)			0.008		
Weighing uncertainty of balance (mg)	0.075	This must b	e <5% of	ELV	ELV =	50	2.5		
Overall Blank value (mg/m³)	0.016	This must b	e <10% of	fELV	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/m³)	0.04 1.93								
Total Particulate Concentration, *STP, wet gas (mg/m³)		0.04				1.89			
Total Particulate Concentration corrected for Oxygen, *STP, dry gas (mg/m³)		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								
						mple Positions (%)	Sam	pling Plane Diagran	•
Stack R	eference	Т	opcoat Flashoff			fiameter to obtain ple points			
					1	14.60		Ĭ	
lumber of Stacks				1	2	85.40	/		Cammer
stack Configuratio	n		Ro	und	3	N/A	/		Sample Line B
Dimensions (mtrs)			1.	00	4	N/A		_	
Outlet Diameter (if	applicable) (metres	1)			5	N/A	/		/
lumber of Sample	Ports			1	6	N/A	/	Sample	/
lumber of Sample	s per Axis / Port			2	7	N/A		Line A	
lozzle Diameter (r	mm)		6	.0	8	N/A		<u> </u>	
lozzle Area (m²)			0.000	02826				Axis 1	Axis 2
Stack Area (m²)			0.7	185	Avera	ge Isokinetic Flow Rat	e (Itrs/min)	21.09	21.43
Pitot Coefficient	0.89	Pitot C	alibration Due D	ate		December 2016		Atmos. Pres	sure (kPa)
Position	Distance	Axis 1	Temperature	Swirl Test	Axis 2	Temperature	Swirl Test	100	9
No.	(cms)	(pa)	(C)	Degree	(pa)	(C)	Degree	Static Pres	sure (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	2 Axis
3	N/A							Velocity of	flow (m/s)
4	N/A							12.44	12.64
5	N/A							Volume Flow	Rate (m³/s)
6	N/A							9.77	9.93
7	N/A								
8	N/A							Reduce	d Exit
Ave	rages	105	53.6		109	53.7		N/	
lean Flue Gas Te	mp (in K) To = ((Me	an T1 + Mean T2)/2)+	2730 =				326.6	0	
		5% (°C) = (0.95Tp-27		n =		37.27	to		69.93
lighest Velocity R			-) to ()	9			13.3		*****
owest Velocity Re							12.0		
	est (Max permitted	= 3:1)						1.11 :	1
	and (man permitted	4.17		On sit	e Checklist				
		ок				Manometer Leak Ch		OH	
nitial Leak Check	Gas Temps <0.2	Final leak check	<0.2			Pitot Leak Check		OF OF	
	heck < 2% Vol (l/min							Run 1	Run 2
	mum Velocity requir		YES		Overall Iso	kinetic Ratio (%) (mus	t be 95 to 115%)	100.9	100.9
	Flow Present, YES		NO		Are there audi	cient rails and kick bo	and? (VES_NO co.)		YES
_	ea greater than 5m <sup>2</sup>		YES			front of the sample lin			
	fighest to lowest Ve		YES		- Jone and IIII		or NO)		YES
rasseu r	nginest to forest ve	restry (0.1)	123	Site Equ	ipment Used				
Pitot Pi	eference	RED 0	237			Manometer Referen	nce	RED	400
	er Reference	RED 0				Thermocouple Refer		RED	
	Reference	N/A			-	Sampling Pump Refer		RED	
	re Reference	RED 0				Barometer Referen		RED	
rape measu	ne reference	REDU	20			Darometer Referen	v v	RED	



Stack Reference ID			Topcoat	Flash	off				
	Terex Construction								
	RUN 1				RUN 2				
Filter Reference No	G47	7-270416-23			N	CO Ru	CO Run		
Date	5th	May 2016			5th	May 20	16		
Sample Period	11:47	to	12:47	11	:47	to	12:47		
Velocity (m/s)			12	.54					
Volumetric flowrate of Stack gas (m³/hr)			35	35452					
Average Stack Temp (°C)			53	3.6					
Temperature Range - ± 5% (°C)	37.27		t	0			69.93		
Lowest Velocity Reading (m/s)		·	12	.01	01				
Highest Velocity Reading (m/s)			13	.30	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					18.6			
Carbon Dioxide %	1.40 1.40								
Moisture (%)			2.	29					
Litres sampled		1231				1231			
Corrected volume sampled - STP (m³)		1.138				1.138			
Blank Filter Run weight gain (mg)	0.0	070	Con	Blank	tion		0.062		
Blank Wash Run weight gain (mg)	0.0	050		(mg/m³			0.044		
Weighing uncertainty of balance (mg)	0.081	This mus	t be <5% of	ELV	ELV =	50	2.5		
Overall Blank value (mg/m³)	0.105	This must	be <10% of	fELV	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/m³)		5.13				0.04			
Total Particulate Concentration, *STP, wet gas (mg/m³)		5.02				0.04			
Total Particulate Concentration corrected for Oxygen, *STP, dry gas (mg/m³)		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								
						ole Positions (%)	Sam	pling Plane Diagra	m
Stack Re	eference	Sp	ray Bake Booth 1		multiply by diamete	er to obtain sample			
					1	14.60		i	
Number of Stacks				1	2	85.40	/		
Stack Configuratio	n		Ro	und	3	N/A	/		Sample Line 8
Dimensions (mtrs)			0:	80	4	N/A	-		
	applicable) (metres)	)			5	N/A	(		/
lumber of Sample				2	6	N/A	/	t-	/
lumber of Sample				2	7	N/A		Sample Line A	
łozzie Diameter (r				0	8	N/A		_ † <i>_</i>	
Nozzle Area (m²)			0.000					Axis 1	Axis 2
Stack Area (m²)			0.5		Average	Isokinetic Flow Rate	(Itrs/min)	5.50	5.50
Pitot Coefficient	0.89	Pitot C	alibration Due D			December 2016		Atmos. Pre	
Position	Distance	Axis 1	Temperature	Swirl Test	Axis 2	Temperature	Swirl Test	10	- ' '
No.	(cms)	(pa)	(C)	(°)	(pa)	(C)	()	Static Pre	
1	11.68	117	27.6	4.0	126	27.7	3.7	30	
2	68.32	130	27.6	3.4	121	27.6	4.3	1 Axis	2 Axis
3	N/A	130	21.0	0.4	121	27.0	4.0	Velocity of	
4									12.97
5	N/A							12.97	
	N/A							Volume Flor	
- 6	N/A							6.52	6.52
7 8	N/A							Reduc	ed Exit
	N/A	101	07.0		404	02.2			
verages		124	27.6		124	27.7		N	A
	mp (in K) Tp = ((Mea						300.6		
	f gas temperature re	eadings (C) = (0.95T	p-273) to (1.05Tp	-273) =		12.57	to		42.63
lighest Velocity R		•					13.7		
owest Velocity Re		•					12.6		
Ratio Highest/Low	est (Max permitted =	3:1)						1.09	1
				Ons	ite Checklist				
nitial Leak Check	<0.2	End of first run	<0.2		Start of 2 <sup>nd</sup> run	<0.2	End of 2 <sup>nd</sup> run	<0	2
	k Check < 2% Vol	and or macron							
	nin)	0.11			M	lanometer Leak Che Pitot Leak Check	CK.	0	
Range of 6	Gas Temps	ОК						Run 1	Run 2
	num Velocity require		YES		Overall Isokin	etic Ratio (%) (must	be 95 to 115%)	100.0	N/A
	Flow Present, YES o		NO		Are there sufficien	t rails and kick hose	d? (YES , NO or N/A)		NO
	ea greater than 5m <sup>2</sup> ?	-	NO				the length of the pr		
	lighest to lowest Vel					(YES o			YES
Passed P	-y-rest to lowest Yel	verily (4.1)	YES	-					
				Site Eq	uipment Used				
Pitot Re	eference	RED 0:	290		l.	Manometer Referen	ce	RED	0404
Thermomet	er Reference	RED 0351-R	ED 0352		Th	ermocouple Refere	nce	RED	0362
Balance I	Reference	N/A			San	mpling Pump Refere	nce	RED	0258
Tape Measu	re Reference	RED 0	123		- 1	Barometer Reference	e	RED	0094
DGM The	rmocouple	RED 0	395		Impin	nger Outlet Thermoo	ouple	N	IA.



Stack Reference ID	Spray Bake Booth 1								
		Te	rex Construc	tion					
	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 (m³/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 (m³)			0.316						
Blank Filter Run weight gain (mg)	0.0	00	Blank Concentra			0.000			
Blank Wash Run weight gain (mg)	0.0	00	(mg/m <sup>3</sup>			0.000			
Weighing uncertainty of balance (mg)	0.074	This must be	e <5% of ELV	ELV =	0.1	0.01			
Overall Blank value (mg/m³)	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/m³)			0.16						
Total Isocyanate Concentration, wet gas at STP (mg/m³)	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								
						ole Positions (%) er to obtain sample	Sam	pling Plane Diagra	m
Stack R	eference	Sş	orayBake Booth 2			ints 14.60		•	
Number of Stacks				1	2	85.40			
Stack Configuration	n			und	3	N/A	/		Sample Line 8
Dimensions (mtrs)				80	4	N/A	-		
	applicable) (metres	)			5	N/A	(		/
Number of Sample				2	6	NA		famala	/
Number of Sample				2	7	NA		Sample Line A	
Nozzle Diameter (r	•			0	8	N/A		_ i _	
Nozzle Area (m²)	Ĺ			00707				Axis 1	Axis 2
Stack Area (m²)				03	Average	Isokinetic Flow Rate	(Itrs/min)	5.48	5.62
Pitot Coefficient	0.89	Pitot 0	Calibration Due D	ate		December 2016	•	Atmos. Pre	
Position	Distance	Axis 1	Temperature	Swirl Test	Axis 2	Temperature	Swirl Test	10	0.9
No.	(cms)	(pa)	(C)	O	(pa)	(C)	Ö	Static Pre	ssure (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	2 Axis
3	NA							Velocity of	flow (m/s)
4	NA							12.92	13.25
5	N/A							Volume Flow	Rate (m³/s)
6	NA							6.50	6.66
7	NA								
8	N/A							Reduc	ed Exit
verages		126	25.6		132	25.7		N	Α
Mean Flue Gas Te	mp (in K) Tp = ((Mea	an T1 + Mean T2)/2)	+273)) =				298.6	0	
Permitted Range o	of gas temperature r	eadings (C) = (0.95T	p-273) to (1.05Tp	-273) =		10.67	to		40.53
Highest Velocity R	eading (m/s)						13.8	1	
owest Velocity Re	rading (m/s)						12.7		
Ratio Highest/Low	est (Max permitted	= 3:1)						1.09	1
				Ons	ite Checklist				
Initial Leak Check	0.2	End of first run	0.2		Start of 2 <sup>nd</sup> run		End of 2 <sup>nd</sup> run		
	k Check < 2% Vol min)	0.11			W	lanometer Leak Che	ck	0	
						Pitot Leak Check		0	
	Gas Temps	OK			Overall Isokin	etic Ratio (%) (must	be 95 to 115%)	Run 1	Run 2
	mum Velocity require		YES					99.1	N/A
	Flow Present, YES o		NO			t rails and kick board			NO
	ea greater than 5m²	,	NO		Is the area infro	nt of the sample line (YES o		obe + 1 metre?	YES
Passed h	fighest to lowest Ve	locity (3:1)	YES	-		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			
				Site Eq	uipment Used				
	eference	RED 0				Manometer Reference		RED	
	er Reference	RED 0351-R				ermocouple Refere		RED	
	Reference	N/A			_	mpling Pump Refere		RED	
	re Reference	RED 0				Barometer Referenc		RED	
	rmocouple	RED 0				nger Outlet Thermoo	-	N	
Cal	ipers	RED 0	300		Co	ndenser Thermocou	iple	N	A



Stack Reference ID		S	prayBake Boo	oth 2					
		1	erex Construc	tion					
	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 (m³/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 (m³)			0.307						
Blank Filter Run weight gain (mg)	0.0	000	Blank Concentra			0.000			
Blank Wash Run weight gain (mg)	0.0	000	(mg/m <sup>3</sup>			0.000			
Weighing uncertainty of balance (mg)	0.074	This mus	t be <5% of ELV	ELV =	0.1	0.01			
Overall Blank value (mg/m³)	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/m³)			0.16						
Total Isocyanate Concentration, wet gas at STP (mg/m³)			0.16						
Total Isocyanate Mass Emission (kg/hour)			0.0038						



10 Static Pre	Axis 2 21.37 sssure (kPa) 1.0 2 Axis
Axis 1 21.55 Atmos. Pre- 10 Static Pre- 21 1 Axis	Axis 2 21.37 sssure (kPa) 1.0 2 Axis
Axis 1 21.55 Atmos. Pre- 10 Static Pre- 21 1 Axis	Axis 2 21.37 sssure (kPa) 1.0 2 Axis
Axis 1 21.55 Atmos. Pre- 10 Static Pre- 21 1 Axis	Axis 2 21.37 sssure (kPa) 1.0 2 Axis
Axis 1 21.55 Atmos. Pre- 10 Static Pre- 21 1 Axis	Axis 2 21.37 sssure (kPa) 1.0 2 Axis
Axis 1 21.55 Atmos. Pre- 10 Static Pre- 21 1 Axis	Axis 2 21.37 sssure (kPa) 1.0 2 Axis
Axis 1 21.55 Atmos. Pre- 10 Static Pre- 21 1 Axis	Axis 2 21.37 sssure (kPa) 1.0 2 Axis
Axis 1 21.55 Atmos. Pre- 10 Static Pre- 21 1 Axis	Axis 2 21.37 Assure (kPa) 00.9 Assure (pa) 1.0 2 Axis
Axis 1 21.55 Atmos. Pre- 10 Static Pre- 21 1 Axis	Axis 2 21.37 Assure (kPa) 00.9 Assure (pa) 1.0 2 Axis
Axis 1 21.55 Atmos. Pre- 10 Static Pre- 21 1 Axis	Axis 2 21.37 Assure (kPa) 00.9 Assure (pa) 1.0 2 Axis
Axis 1 21.55 Atmos. Pre- 10 Static Pre- 21 1 Axis	21.37 essure (kPa) 0.9 essure (pa) 1.0 2 Axis
Axis 1 21.55 Atmos. Pre- 10 Static Pre- 21 1 Axis	21.37 essure (kPa) 0.9 essure (pa) 1.0 2 Axis
Axis 1 21.55 Atmos. Pre- 10 Static Pre- 21 1 Axis	21.37 essure (kPa) 0.9 essure (pa) 1.0 2 Axis
Axis 1 21.55 Atmos. Pre- 10 Static Pre- 21 1 Axis	21.37 essure (kPa) 0.9 essure (pa) 1.0 2 Axis
21.55 Atmos. Pre- 10 Static Pre- 21 1 Axis	21.37 essure (kPa) 0.9 essure (pa) 1.0 2 Axis
21.55 Atmos. Pre- 10 Static Pre- 21 1 Axis	21.37 essure (kPa) 0.9 essure (pa) 1.0 2 Axis
21.55 Atmos. Pre- 10 Static Pre- 21 1 Axis	21.37 essure (kPa) 0.9 essure (pa) 1.0 2 Axis
Atmos. Pre- 10 Static Pre- 21 1 Axis	ossure (kPa) 0.9 essure (pa) 1.0 2 Axis
Static Pre 21 1 Axis	0.9 essure (pa) 1.0 2 Axis
Static Pre 21 1 Axis	1.0 2 Axis
1 Axis	1.0 2 Axis
1 Axis	2 Axis
Velocity of	
10.71	
12.71	12.60
4.89	4.85
Reduc	ed Exit
No.	iA .
	38.96
1.05	:1
	0.2
	Ж
	K Bun 9
	Run 2
101.4	N/A
	N/A
pe + 1 metre?	YES
RED	0404
	0292
	0010
	0403
	VA.
	VA.
be	1.05 C Run 1 101.4 e+1 metre? RED RED RED



Stack Reference ID		Prep	paration Boo	oth 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 (m³/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 (m³)			1.203					
Blank Filter Run weight gain (mg)	0.0	30	Blank Concentra			0.025		
Blank Wash Run weight gain (mg)	0.0	40	(mg/m <sup>3</sup>			0.033		
Weighing uncertainty of balance (mg)	0.074	This must be	e <5% of ELV	ELV =	50	2.5		
Overall Blank value (mg/m³)	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/m³)			0.19					
Total Particulate Concentration, wet gas at STP (mg/m³)	0.19							
Total Particulate Concentration corrected for 11% Oxygen, dry gas (mg/m³)			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								
						ple Positions (%)	Sam	pling Plane Diagra	m
Stack R	eference	Pr	eparation Booth 2			er to obtain sample ints			
			.,		1	14.60		î	
Number of Stacks				1	2	85.40			
Stack Configuratio	n		Ro	und	3	N/A	/		Sample Line 8
Dimensions (mtrs)			0	70	4	NA	-		
	applicable) (metres	)			5	N/A	(		/
lumber of Sample				2	6	N/A		famele	/
lumber of Sample				2	7	N/A		Sample Line A	
łozzie Diameter (r	•			0	8	NA		_ † <i>_</i>	
Nozzle Area (m²)				02826				Axis 1	Axis 2
Stack Area (m²)				185	Average	Isokinetic Flow Rate	(Itrs/min)	22.04	22.04
Pitot Coefficient	0.89	Pitot C	Calibration Due D			December 2016		Atmos. Pre	
Position	Distance	Axis 1	Temperature	Swirl Test	Axis 2	Temperature	Swirl Test	10	- ' '
No.	(cms)	(pa)	(C)	()	(pa)	(C)	(°)	Static Pre	
1	10.22	120	25.6	5.0	131	25.6	4.5	26	
2	59.78	130	25.7	4.6	119	25.7	4.9	1 Axis	2 Axis
3	N/A	100	20.7	4.0	110	20.7	4.0	Velocity of	
4	N/A							13.00	13.00
- 5	N/A							Volume Flow	
6	N/A				_			5.00	5.00
7					_			5.00	5.00
8	N/A N/A				_			Reduc	ed Exit
verages	Ten	125	25.7		125	25.7		N	Α
					120	20.1			^
	mp (in K) Tp = ((Mea						298.6		
	f gas temperature re		p-273) to (1.05Tp	o-273) =		10.72	to		40.58
lighest Velocity R		•					13.7		
owest Velocity Re		•					12.7		
Ratio Highest/Low	est (Max permitted =	3:1)						1.08	1
				On s	ite Checklist				
nitial Leak Check	0.2	End of first run	0.2		Start of 2 <sup>nd</sup> run		End of 2 <sup>nd</sup> run		
	k Check < 2% Vol					Manometer Leak Che		0	v
	min)	0.44	•		-	Pitot Leak Check		0	
Range of 6	Gas Temps	ОК						Run 1	Run 2
	num Velocity require		YES		Overall Isokin	netic Ratio (%) (must	be 95 to 115%)	100.3	N/A
	Flow Present, YES o		NO		Are there sufficien	nt rails and kick board	1? (YES , NO or N/A)		NO
	ea greater than 5m <sup>2</sup>		NO			nt of the sample line			
	lighest to lowest Vel		YES			(YES o			YES
, , , , , ,				Site Ec	julpment Used				
Pitot P	eference	RED 0	290			Manometer Referenc		RED	0393
	er Reference	RED 0351-R				hermocouple Referen			0362
	Reference	N/A				mpling Pump Refere		RED	
	re Reference	RED 0				Barometer Reference		RED	
		RED 0						NED N	
	rmocouple					nger Outlet Thermoo			
Cal	ipers	RED 0	300		Ce	ondenser Thermocou	pre	N	A



Stack Reference ID		Pre	paration Boo	oth 2				
		Tei	rex Construc	tion				
	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 (m³/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 (m³)			1.257					
Blank Filter Run weight gain (mg)	0.0	50	Blank Concentra			0.040		
Blank Wash Run weight gain (mg)	0.0	)40	(mg/m <sup>3</sup>			0.032		
Weighing uncertainty of balance (mg)	0.074	This must be	e <5% of ELV	ELV =	50	2.5		
Overall Blank value (mg/m³)	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/m³)			0.53					
Total Particulate Concentration, wet gas at STP (mg/m³)			0.52					
Total Particulate Concentration corrected for 11% Oxygen, dry gas (mg/m³)			N/A					
Total Particulate Mass Emission (kg/hour)			0.009					



## APPENDIX B

**VOC Raw Data** 



	Sc	issor 1 Booth 1	- VOC Monitor	ing	
Date	Time	VOC mg/m³	Date	Time	VOC mg/m³
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-Way-10	11.45.15	30.23
04-May-16	10:57:15	77.95			
04-May-16	10:50:15	74.73	Ava	rage	67.77
	11:00:15	73.13	Ave	age	01.11
04-May-16					
04-May-16	11:01:15	71.52			
04-May-16	11:02:15	69.11	The data repre	sented in this	table is expresse
04-May-16	11:03:15	65.89	at 1 minute in	ntervals but the	e data used in the
04-May-16	11:04:15	63.48	chart is prod	duced using 5	second intervals
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				
04-May-16		49.02			
or may to	11:16:15	49.02			
04-May-16	11:17:15	49.02 47.41			
04-May-16		49.02			
04-May-16 04-May-16	11:17:15	49.02 47.41			
04-May-16 04-May-16 04-May-16	11:17:15 11:18:15	49.02 47.41 45.00			
04-May-16 04-May-16 04-May-16 04-May-16 04-May-16	11:17:15 11:18:15 11:19:15	49.02 47.41 45.00 42.59			
04-May-16 04-May-16 04-May-16 04-May-16	11:17:15 11:18:15 11:19:15 11:20:15	49.02 47.41 45.00 42.59 43.39			
04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16	11:17:15 11:18:15 11:19:15 11:20:15 11:21:15	49.02 47.41 45.00 42.59 43.39 42.59			
04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16	11:17:15 11:18:15 11:19:15 11:20:15 11:21:15 11:22:15	49.02 47.41 45.00 42.59 43.39 42.59 40.98			
04-May-16 04-May-16 04-May-16 04-May-16 04-May-16	11:17:15 11:18:15 11:19:15 11:20:15 11:21:15 11:22:15 11:23:15	49.02 47.41 45.00 42.59 43.39 42.59 40.98 40.98			
04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16	11:17:15 11:18:15 11:19:15 11:20:15 11:21:15 11:22:15 11:23:15 11:24:15	49.02 47.41 45.00 42.59 43.39 42.59 40.98 40.98 78.75			
04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16	11:17:15 11:18:15 11:19:15 11:20:15 11:21:15 11:22:15 11:23:15 11:24:15 11:25:15	49.02 47.41 45.00 42.59 43.39 42.59 40.98 40.98 78.75 40.18			
04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16	11:17:15 11:18:15 11:19:15 11:20:15 11:21:15 11:22:15 11:23:15 11:24:15 11:25:15 11:25:15	49.02 47.41 45.00 42.59 43.39 42.59 40.98 40.98 78.75 40.18 49.82			
04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16	11:17:15 11:18:15 11:19:15 11:20:15 11:21:15 11:22:15 11:23:15 11:24:15 11:25:15 11:26:15 11:27:15	49.02 47.41 45.00 42.59 43.39 42.59 40.98 40.98 78.75 40.18 49.82 53.84 57.05			
04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16	11:17:15 11:18:15 11:19:15 11:20:15 11:21:15 11:22:15 11:23:15 11:24:15 11:25:15 11:26:15 11:27:15 11:28:15 11:29:15	49.02 47.41 45.00 42.59 43.39 42.59 40.98 78.75 40.18 49.82 53.84 57.05 53.04			
04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16	11:17:15 11:18:15 11:19:15 11:20:15 11:21:15 11:22:15 11:23:15 11:24:15 11:25:15 11:26:15 11:27:15 11:28:15 11:29:15 11:30:15	49.02 47.41 45.00 42.59 43.39 42.59 40.98 78.75 40.18 49.82 53.84 57.05 53.04 51.43			
04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16	11:17:15 11:18:15 11:19:15 11:20:15 11:21:15 11:22:15 11:23:15 11:24:15 11:25:15 11:26:15 11:27:15 11:28:15 11:29:15	49.02 47.41 45.00 42.59 43.39 42.59 40.98 78.75 40.18 49.82 53.84 57.05 53.04			



	Sc	issor 1 Booth 2	VOC Monitor	ing	
Date	Time	VOC mg/m³	Date	Time	VOC mg/m <sup>8</sup>
04-May-16	11:45:45	57.05	04-May-16	12:34:45	41.79
04-May-16	11:46:45	57.86	04-May-16	12:35:45	40.18
04-May-16	11:47:45	58.66	04-May-16	12:36:45	39.38
04-May-16	11:48:45	58.66	04-May-16	12:37:45	39.38
04-May-16	11:49:45	59.46	04-May-16	12:38:45	37.77
04-May-16	11:50:45	60.27	04-May-16	12:39:45	36.96
04-May-16	11:51:45	59.46	04-May-16	12:40:45	36.16
04-May-16	11:52:45	59.46	04-May-16	12:41:45	35.36
04-May-16	11:53:45	57.86	04-May-16	12:42:45	33.75
04-May-16	11:54:45	57.86	04-May-16	12:43:45	32.14
04-May-16	11:55:45	57.05	04-May-16	12:44:45	31.34
04-May-16	11:56:45	57.05	04-May-16	11:45:55	56.25
04-May-16	11:57:45	55.45	04-Way-10	11.45.55	30.23
04-May-16	11:58:45	55.45			
04-May-16	11:59:45	53.84	Λνο	rago	44.01
_	12:00:45	51.43	Ave	rage	44.01
04-May-16					
04-May-16	12:01:45	49.82			
04-May-16	12:02:45	47.41	The data repre	sented in this	table is express
04-May-16	12:03:45	45.80	at 1 minute in	ntervals but the	e data used in the
04-May-16	12:04:45	44.20	chart is pro	duced using 5	second intervals
04-May-16	12:05:45	42.59			
04-May-16	12:06:45	40.98			
04-May-16	12:07:45	40.18			
	40.00.45	22.22			
_	12:08:45	39.38			
04-May-16 04-May-16	12:09:45	39.38			
04-May-16 04-May-16	12:09:45 12:10:45	39.38 37.77			
04-May-16 04-May-16 04-May-16	12:09:45 12:10:45 12:11:45	39.38 37.77 36.96			
04-May-16 04-May-16 04-May-16 04-May-16	12:09:45 12:10:45 12:11:45 12:12:45	39.38 37.77 36.96 35.36			
04-May-16 04-May-16 04-May-16 04-May-16 04-May-16	12:09:45 12:10:45 12:11:45 12:12:45 12:13:45	39.38 37.77 36.96 35.36 34.55			
04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16	12:09:45 12:10:45 12:11:45 12:12:45 12:13:45 12:14:45	39.38 37.77 36.96 35.36 34.55 33.75			
04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16	12:09:45 12:10:45 12:11:45 12:12:45 12:13:45 12:14:45 12:15:45	39.38 37.77 36.96 35.36 34.55 33.75 32.14			
04-May-16 04-May-16 04-May-16 04-May-16	12:09:45 12:10:45 12:11:45 12:12:45 12:13:45 12:14:45 12:15:45 12:16:45	39.38 37.77 36.96 35.36 34.55 33.75 32.14 30.54			
04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16	12:09:45 12:10:45 12:11:45 12:12:45 12:13:45 12:14:45 12:15:45 12:16:45 12:17:45	39.38 37.77 36.96 35.36 34.55 33.75 32.14 30.54			
04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16	12:09:45 12:10:45 12:11:45 12:12:45 12:13:45 12:14:45 12:15:45 12:16:45	39.38 37.77 36.96 35.36 34.55 33.75 32.14 30.54			
04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16	12:09:45 12:10:45 12:11:45 12:12:45 12:13:45 12:14:45 12:15:45 12:16:45 12:17:45	39.38 37.77 36.96 35.36 34.55 33.75 32.14 30.54			
04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16	12:09:45 12:10:45 12:11:45 12:12:45 12:13:45 12:14:45 12:15:45 12:16:45 12:17:45 12:18:45	39.38 37.77 36.96 35.36 34.55 33.75 32.14 30.54 30.54 28.93			
04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16	12:09:45 12:10:45 12:11:45 12:12:45 12:13:45 12:14:45 12:15:45 12:16:45 12:17:45 12:18:45 12:19:45	39.38 37.77 36.96 35.36 34.55 33.75 32.14 30.54 30.54 28.93 28.13			
04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16	12:09:45 12:10:45 12:11:45 12:12:45 12:13:45 12:14:45 12:15:45 12:16:45 12:17:45 12:18:45 12:19:45 12:20:45	39.38 37.77 36.96 35.36 34.55 33.75 32.14 30.54 30.54 28.93 28.13			
04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16	12:09:45 12:10:45 12:11:45 12:12:45 12:13:45 12:14:45 12:15:45 12:16:45 12:17:45 12:18:45 12:19:45 12:20:45 12:21:45	39.38 37.77 36.96 35.36 34.55 33.75 32.14 30.54 30.54 28.93 28.13 28.13 27.32			
04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16	12:09:45 12:10:45 12:11:45 12:12:45 12:13:45 12:14:45 12:15:45 12:16:45 12:17:45 12:18:45 12:19:45 12:20:45 12:21:45 12:22:45	39.38 37.77 36.96 35.36 34.55 33.75 32.14 30.54 28.93 28.13 28.13 27.32 28.93			
04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16	12:09:45 12:10:45 12:11:45 12:12:45 12:13:45 12:14:45 12:15:45 12:16:45 12:17:45 12:18:45 12:19:45 12:20:45 12:21:45 12:22:45 12:23:45	39.38 37.77 36.96 35.36 34.55 33.75 32.14 30.54 28.93 28.13 27.32 28.93 39.21			
04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16	12:09:45 12:10:45 12:11:45 12:12:45 12:13:45 12:14:45 12:15:45 12:16:45 12:17:45 12:18:45 12:19:45 12:20:45 12:21:45 12:22:45 12:23:45 12:24:45	39.38 37.77 36.96 35.36 34.55 33.75 32.14 30.54 28.93 28.13 28.13 27.32 28.93 39.21 51.43			
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	Sc	issor 2 Booth 1	- VOC Monitor	ing	
D-4-	T'	NOC I-3	D-4-	T'	NOC   3
Date	Time	VOC mg/m³	Date	Time	VOC mg/m³
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	Ave	rage	20.25
04-May-16	13:08:25	19.29		- <b>3</b> -	
04-May-16	13:09:25	19.29			
04-May-16	13:10:25	20.09			
04-May-16	13:11:25	18.48			table is expresse
04-May-16	13:11:25	18.48			e data used in the
04-May-16	13:13:25	18.48	chart is pro	duced using 5	second intervals
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			



	Sc	issor 2 Booth 2 -	VOC Monitor	ing	
Date	Time	VOC mg/m <sup>8</sup>	Date	Time	VOC mg/m <sup>8</sup>
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-Way-10	14.55.55	00.50
04-May-16	14:06:35	72.32			
04-May-16	14:00:35	90.00	Λνο	rage	23.91
04-May-16	14:07:35	20.09	Ave	aye	23.31
_	14:00:35	20.89			
04-May-16					
04-May-16	14:10:35	20.09	The data repre	sented in this	table is express
04-May-16	14:11:35	20.09	at 1 minute in	ntervals but the	e data used in th
04-May-16	14:12:35	23.30	chart is pro	duced using 5	second intervals
04-May-16	14:13:35	24.11			
04-May-16	14:14:35	22.50			
04.84 40	44.45.05				
04-May-16	14:15:35	20.09			
04-May-16	14:16:35	20.09 19.29			
04-May-16 04-May-16	14:16:35 14:17:35	20.09 19.29 19.29			
04-May-16 04-May-16 04-May-16	14:16:35 14:17:35 14:18:35	20.09 19.29 19.29 18.48			
04-May-16 04-May-16 04-May-16 04-May-16	14:16:35 14:17:35 14:18:35 14:19:35	20.09 19.29 19.29 18.48 19.29			
04-May-16 04-May-16 04-May-16 04-May-16 04-May-16	14:16:35 14:17:35 14:18:35 14:19:35 14:20:35	20.09 19.29 19.29 18.48 19.29 18.48			
04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16	14:16:35 14:17:35 14:18:35 14:19:35 14:20:35 14:21:35	20.09 19.29 19.29 18.48 19.29 18.48 17.68			
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04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16 04-May-16	14:16:35 14:17:35 14:18:35 14:19:35 14:20:35 14:21:35 14:22:35	20.09 19.29 19.29 18.48 19.29 18.48 17.68			
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## **APPENDIX C**

**VOC Charts** 



