

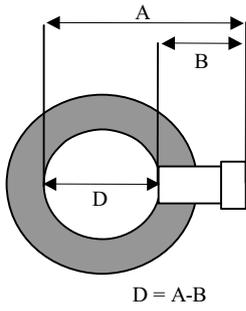
Coventry Castings Ltd

STACK IDENTIFICATION	Furnace Extraction	REGULATOR STACK REF.	H				
GIVE BRIEF DESCRIPTION	Hood extraction over a 1 tonne electric induction furnace						
PROCESS TYPE	CONTINUOUS			BATCH		Y	
	BATCH DURATION		BATCH START TIME		MONITOR OVER ENTIRE BATCH (Y/N)	Y	
IF NO WHAT PART OF BATCH TO MONITOR?	From a cold start the furnace takes some 2 ¼ hours to reach required temperature. This melting phase will be held until RPS personnel are ready to conduct sampling. Monitoring to incorporate melting, drossing and transfer stages.						
DAYS OF WEEK BATCH RUNS	Monday-Friday						
FUEL TYPE	N/A	FUEL RATE	N/A	BOILER RATING	N/A		
FEEDSTOCK TYPE	N/A		THROUGHPUT RATE	N/A			
ANY OTHER PROCESS INFORMATION TO BE COLLECTED OVER MONITORING PERIOD. (Include additional information client wants collecting)	Cast grade, times of each process phase						
ANY PROCESS FLUCTUATIONS THAT MAY OCCUR DURING MONITORING	Process has distinct phases. Monitoring to incorporate <u>all phases</u>						
EMISSION CONTROL / ABATEMENT DETAILS (e.g. Bag Filters, Cyclones, Wet/Dry Scrubbers, Carbon Beds, Thermal Oxidisers etc.)	None						
AMS MONITORING EQUIPMENT	TYPE	N/A	MAKE		SERIAL No.		
	TYPE		MAKE		SERIAL No.		
	TYPE		MAKE		SERIAL No.		
AMS DATA TO BE INCLUDED	N/A						
EXHAUST POSITION AND GEOMETRY	Outside		Vertical				
IF OTHER PLEASE SPECIFY							
MONITORING POSITION TYPE	Permanent platform						
DESCRIBE THE MONITORING POSITION (Include details on area (m ²), shape, handrails, orientation relative to ports, obstructions etc.)	The second platform is ~1.3m x 0.9m with an access hatch located at one corner. The hatch when lowered is part of the working platform area. Hatch is ~ 0.7m x 0.55m. To one side of the platform is the sand silo. Due to platform restrictions <u>in-stack sampling</u> will be undertaken. Probe support will overhang platform confines.						
PERSONNEL ACCESS TO MONITORING POSITION	Cat ladders						
IF OTHER OR COMPLICATED ACCESS, DESCRIBE HOW PERSONNEL CURRENTLY GET TO MONITORING POSITION	2 cat ladders. First cat ladder to a lower platform. ~15m walk to second cat ladder to monitoring platform. Monitoring control box to be located at first platform position						
PURPOSE-BUILT LIFTING POINT DETAILS	Equipment to be transferred to first platform by forklift						
IF NO PURPOSE-BUILT LIFTING POINT AVAILABLE, HOW IS EQUIPMENT CURRENTLY TRANSFERRED TO THE MONITORING POSITION?	N/A						
DUCT MATERIAL	Galvanised steel		MULTI-FLUE (Y/N)	N			
HYDRAULIC DIAMETER OF DUCT AT SAMPLE PLANE (m)	~0.6 (not measured)		No. OF DIGITAL PHOTOS	4			
MONITORING POSITION HEIGHT ABOVE GROUND (m)	~8						
PORT TYPE / NUMBER ON LINE A	4"BSP		FLANGE PLATE		HOLE	OTHER	Y
IF NOT 4"BSP GIVE DETAILS	5 inch BSP port. <u>RPS to take 5-4 inch adaptor</u>						
SAMPLE LINE HEIGHT ABOVE MONITORING POSITION (m)	~1.65	DISTANCE FROM PORT TO NEAREST OBSTRUCTION (cm)	>500 cm	DESCRIBE USABILITY (i.e. free, seized, obstruction, use by AMS Probe etc.)	To be loosened before monitoring		

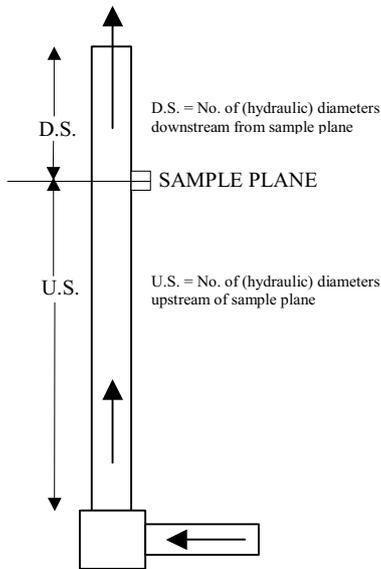
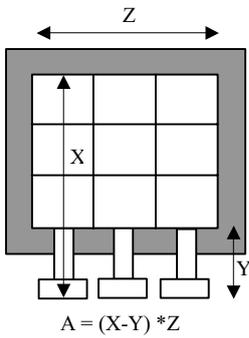
Coventry Castings Ltd

STACK IDENTIFICATION	Furnace Extraction			REGULATOR STACK REF.		H			
PORT TYPE / NUMBER ON LINE B	4" BSP		FLANGE PLATE		HOLE		OTHER	Y	
IF <u>NOT</u> 4" BSP GIVE DETAILS	5 inch BSP port								
SAMPLE PLANE(S) HEIGHT ABOVE MONITORING POSITION (m)	~1.65	DISTANCE FROM PORT TO NEAREST OBSTRUCTION (cm)		>500 cm	DESCRIBE USABILITY (i.e. free, seized, obstruction, use by AMS Probe etc.)		To be loosened before monitoring		
VOLTAGE / CURRENT SUPPLY		240			POWER SUPPLY DISTANCE (m)		<20		
STANDARD SOCKETS (Y/N) / NUMBER	Y				IF <u>NO</u> DESCRIBE				
VAN PARKING NEAR STACK (Y/N)	Y	DISTANCE FROM STACK (m)		<5	MOBILE LAB PARKING SPACE NEAR STACK (Y/N)		N/A	DISTANCE FROM STACK (m)	N/A
LIGHTING ADEQUATE (Y/N)	Y	WATER AVAILABLE (Y/N)			Y	WATER DISTANCE (m)			<50
DETAIL ANY ENVIRONMENTAL CONDITIONS LIKELY TO ADVERSELY AFFECT MONITORING OPERATIONS (i.e. weather, steam, temperature)	None expected								
DETAIL ANY PHYSICAL OR CHEMICAL RESTRICTIONS TO USING THE EQUIPMENT? (e.g. Intrinsically safe areas, obstructions, explosive and/or poisonous gases etc.)	None expected								
EXPECTED COMPOSITION OF FLUE GAS	Total particulate matter, metals (notably iron).								
EXPECTED VELOCITY FLOW RATE OF FLUE GAS (m/s)	Not known	EXPECTED H ₂ O CONTENT OF FLUE GAS (%)			Not known	EXPECTED TEMPERATURE OF FLUE GAS (°C)			~20
LATEST AVAILABLE PITOT TRAVERSE DATA	Traverse Point- % of diameter	Line A		Line B		Line C		Line D	
		Temp.	Vel.	Temp.	Vel.	Temp.	Vel.	Temp.	Vel.
		°C	m/s	°C	m/s	Unit	Unit	Unit	Unit
	No flow data available.								
OTHER INFORMATION NOT ALREADY COVERED	N/A								

Coventry Castings Ltd



SKETCH OF SAMPLING POINT LOCATIONS, STACK GEOMETRY, MONITORING PLATFORM & SURROUNDS



- A = ~0.7m
- B = ~0.10m
- D = ~0.6 (not measured)
- X = N/A
- Y = N/A
- Z = N/A
- D.S. = ~6/7m to exit
- U.S. = ~4/5m to bend

PARAMETER(S) TO BE MONITORED	Total Particulate Matter											
LIST METAL(S) TO BE MONITORED	NA											
ANCILLARY MEASUREMENT(S) TO BE TAKEN									Flue Gas Velocity Flow		Flue Gas Temperature	

Access cat ladder to first platform stage

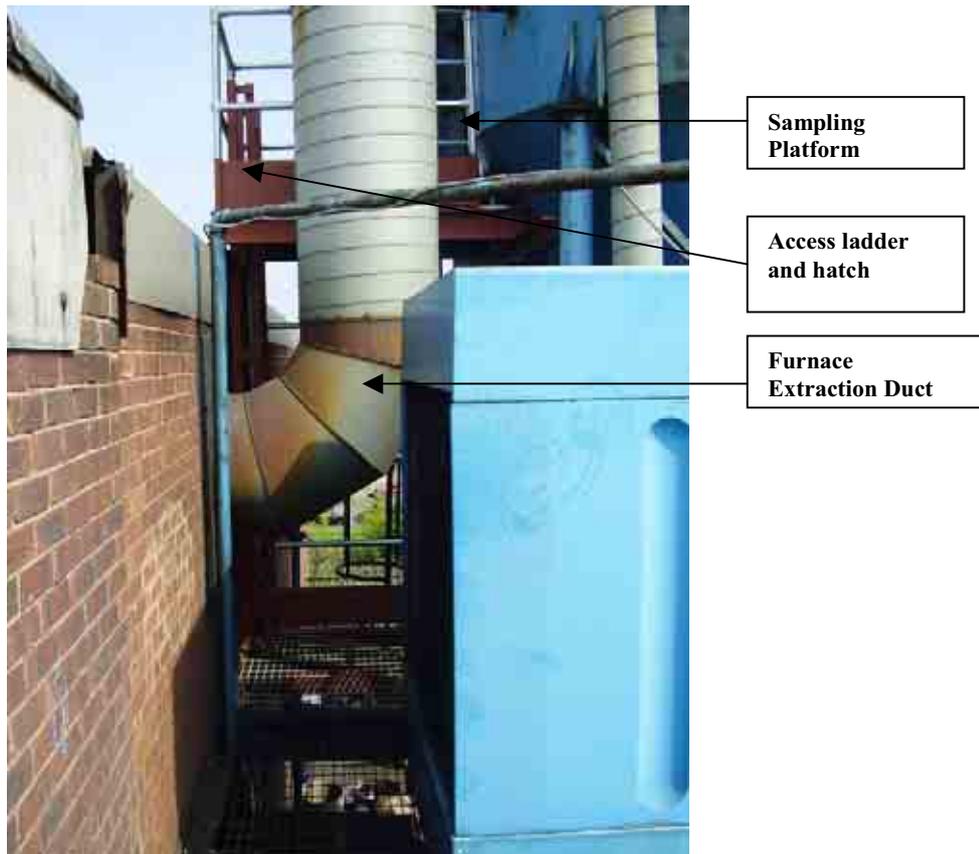


Equipment to be lifted by forklift to this position

Access to first platform



Access route to second platform, second platform and Furnace Extraction duct



Furnace Extraction 5 inch Sample Ports (RPS to supply 5" to 4" adaptor).



Coventry Castings Ltd

STACK IDENTIFICATION	Furnace Extraction	REGULATOR STACK REF.	H
<p>IF THERE IS NOT A MONITORING POSITION OR THE CURRENT MONITORING POSITION IS NOT SUITABLE, (Kit req. space etc.) WHAT NEEDS TO BE DONE?</p>	N/A		
<p>IF PERSONNEL ACCESS TO THE MONITORING POSITION IS DIFFICULT OR NOT POSSIBLE, WHAT NEEDS TO BE DONE?</p>	N/A		
<p>IF EQUIPMENT ACCESS TO THE MONITORING POSITION IS DIFFICULT OR NOT POSSIBLE, WHAT NEEDS TO BE DONE?</p>	Equipment to be transported to first platform level by forklift		
<p>IF THERE IS NOT A SAMPLE PLANE OR THE CURRENT SAMPLE PLANE IS NOT SUITABLE, WHAT NEEDS TO BE DONE?</p>	N/A		
<p>IF NO IS THE ANSWER TO ANY OF THE REQUIRED SERVICES (i.e. power, water, lighting etc.), WHAT OTHER ARRANGEMENTS NEED TO BE MADE ?</p>	No action required		
<p>IF ENVIRONMENTAL CONDITIONS ARE LIKELY TO ADVERSELY AFFECT MONITORING OPERATIONS, WHAT NEEDS TO BE DONE?</p>	No action required		
<p>IF THERE ARE ANY PHYSICAL OR CHEMICAL RESTRICTIONS TO USING THE MONITORING EQUIPMENT, WHAT NEEDS TO BE DONE?</p>	No action required		

Coventry Castings Ltd

STACK DESCRIPTION	Furnace Extraction		REPORTING CONDITIONS (273K, 101.3kPa...)		Without corr. for water vapour content		REGULATOR STACK REF.		H	
PARAMETER TO BE MONITORED			Flue Gas Velocity Flow.		Flue Gas Temperature.		Total Particulate Matter			
MONITORING FREQUENCY (per year) AND PERIOD(S)			Annual		Annual		Annual			
MEASUREMENT METHOD			BS EN 13284		BS EN 13284		BS EN 13284			
SAMPLE PROCEDURE (RPSCE/1/-)			RPSCE/1/7c		RPSCE/1/7c		RPSCE/1/7c			
No. OF SAMPLE POINTS PER SAMPLE LINE			4		4		4			
EMISSION LIMIT VALUE (units)			NA		NA		20 mg/m ³			
EXPECTED EMISSION (units)			NA		NA		Not Known			
No. OF SAMPLES/ No. OF BLANKS (i.e. per job or Emission Point)			N/A	NA	N/A	N/A	1	1		
PROPOSED SAMPLE FLOWRATE (l/min)			NA		NA		~15			
PROPOSED SAMPLE VOLUME (m ³)			NA		NA		~2.5			
PROPOSED SAMPLE DURATION (min)			NA		NA		Up to 180			
PROPOSED SAMPLE DATE/SAMPLE TIME			TBA	TBA	TBA	TBA	TBA	TBA		
SAMPLING ACCREDITATION STATUS			MCERTS		MCERTS		MCERTS			
ESTIMATED UNCERTAINTY OF PROCEDURE (%)			~10		~10		~10			
SAMPLING LIMIT OF DETECTION (units)			< 4Pa		< 0.1 ^o C		< 0.5 mg/m ³			
SUGGESTED EQUIPMENT			Pitot and manometer		K-Type Thermocouple and Thermosensor		Isokinetic Source Sampler. <u>In-stack filter system to be used</u>			
ANALYTICAL LABORATORY			NA		NA		RPS Laboratory			
ANALYTICAL METHOD			NA		NA		Gravimetric			
ANALYTICAL PROCEDURE			NA		NA		NA			
ANALYTICAL LIMIT OF DETECTION (units)			NA		NA		<0.6 mg			
ANALYTICAL ACCREDITATION STATUS			NA		NA		UKAS			
LABORATORY QUOTATION NUMBER			NA		NA		NA			
SPAN GAS TYPE			NA		NA		NA			
SPAN GAS CONCENTRATION (units)			NA		NA		NA			
MEASUREMENT CONCENTRATION RANGE (units)			NA		NA		NA			
INSTRUMENTAL DETECTION LIMIT (units)			NA		NA		NA			
LIST METALS TO BE MONITORED	NA									

Coventry Castings Ltd

STACK IDENTIFICATION		Furnace Extraction		REGULATOR STACK REF.	H	RESULTING CHANGE IN UNCERTAINTY OF MEASUREMENT
PARAMETER TO BE MONITORED	MEASUREMENT METHOD	SAMPLE PROCEDURE (RPSCE/1/-)	DESCRIBE DEVIATION FROM PROPOSED MEASUREMENT METHOD/SAMPLE PROCEDURE	REASONS AND JUSTIFICATIONS FOR THE DEVIATION		
			None expected			

Report for Periodic Monitoring of Emissions to Atmosphere

Part 1: **Executive Summary**
Permit Number: **PPC/093**
Operator: **Coventry Castings Ltd**
Installation: **Barlow Road, Coventry**
Emission Point: **Furnace Extraction**
Monitoring Date(s): **26th May 2006**



1709



1709

Contract Reference: FTA 5499
Operator: Coventry Castings Ltd
Address: Barlow Road
Aldermans Green Industrial Estate
Aldermans Green
Coventry
CV2 2LD
Monitoring Organisation: RPS Health, Safety & Environment
Address: Steadings Barn, Pury Hill Business Park, Alderton Road,
Towcester, Northamptonshire, NN12 7LS
Report Date: 21st June 2006
Report Approved By: Richard Harvey
Position: Team Manager
MCERTS Registration No.: MM 02 020

Signature:



RPS Health, Safety and Environment has produced this report within the term of the contract with the client and taking account of the resources devoted to it by agreement with the client.

We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above. This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.

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Part 1: Executive Summary

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Monitoring Objectives

At the request of Mr Ian Reid of Coventry Castings, RPS Health, Safety and Environment conducted air emission monitoring at the Coventry site in May 2006.

The monitoring programme at this installation was carried out to provide data on emissions to atmosphere for comparison with the limits specified in the air emission criteria for this site.

The parameters requested for monitoring at each emission point and the actual monitoring conducted are detailed below.

Table 1

Parameters Requested to be Monitored	Emission Point
	Furnace Extraction
Total Particulate Matter	✓
Specific Requirements	Normal Operating Conditions

Notes:

✓ Represents the actual parameters monitored

Monitoring Results

Table 2 – Monitoring Results from the Furnace Extraction at Coventry Castings, Coventry in May 2006

Substance Monitored	Emission Limit Value	Periodic Monitoring Result	Units	Uncertainty (mg/m ³) #	Reference Conditions 273K, 101.3kPa	Sampling Date	Sampling Times	Monitoring Reference Method	Accreditation Status	Operating Status
Total Particulate Matter	20	4.2	mg/m ³	± 0.46	without correction for moisture content	26-May-06	10:09 - 12:39	BS-EN 13284-1 2002	MCERTS	Normal

Notes:

The uncertainty associated with the quoted result is at the 95% confidence interval

Operating Information

Table 3 – Operating Information During Monitoring of the Furnace Extraction at Coventry Castings, Coventry in May 2006

Parameter	Result
Sample Date	26-May-06
Process Type	Batch
Process Duration	2¼ hours
If 'Batch', was monitoring carried out over the whole batch?	Yes
If 'No', give details	NA
Abatement/Operational?	None
Fuel Type	NA
Feedstock	Iron
Load	NA
Throughput	Approx. 1 tonne
Continuous Rating	NA

Monitoring Deviations

Table 4 – Monitoring Deviations During Monitoring of the Furnace Extraction at Coventry Castings, Coventry in May 2006

Substance Deviations	Monitoring Deviations	Other Relevant Issues
<u>Furnace Extraction</u> : NA	<u>Furnace Extraction</u> : NA	<u>Furnace Extraction</u> : NA

Report for Periodic Monitoring of Emissions to Atmosphere

Part 2: **Supporting Information**
Permit Number: **PPC/093**
Operator: **Coventry Castings Ltd**
Installation: **Barlow Road, Coventry**
Emission Point: **Furnace Extraction**
Monitoring Date(s): **26th May 2006**



1709



1709

Contract Reference: FTA 5499
Operator: Coventry Castings Ltd
Address: Barlow Road
Aldermans Green Industrial Estate
Aldermans Green
Coventry
CV2 2LD
Monitoring Organisation: RPS Health, Safety & Environment
Address: Steadings Barn, Pury Hill Business Park, Alderton Road,
Towcester, Northamptonshire, NN12 7LS
Report Date: 21st June 2006
Report Approved By: Richard Harvey
Position: Team Manager
MCERTS Registration No.: MM 02 020

Signature:



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APPENDIX 1: General Information

Monitoring Organisation Staff Details

Table 5

Site Team	Position	MCERTS Level	Technical Endorsements	MCERTS Registration Number
Brett Durden	Project Manager	2	1	MM 03 167
Chris Smith	Technician	1	-	MM 04 557

Report Author	Position	MCERTS Level	Technical Endorsements	MCERTS Registration Number
Brett Durden	Project Manager	2	1	MM 03 167

Report Reviewer	Position	MCERTS Level	Technical Endorsements	MCERTS Registration Number
Richard Harvey	Team Manager	2	1, 2, 3 & 4	MM 02 020

Monitoring Organisation Method Details

Table 6

Emission Parameter	Standard Method	Monitoring Procedure No.	Monitoring Accreditation Status	Analysis Technique	Analysis Procedure No.	Analytical Laboratory	Analysis Accreditation Status
Practical Considerations Prior to Monitoring	N/A	RPSCE/1/1	MCERTS	N/A	N/A	N/A	N/A
Gas Flows	BS-EN 13284-1:2001	RPSCE/1/2	MCERTS	N/A	N/A	N/A	N/A
Gas Temperatures	BS-EN 13284-1:2001	RPSCE/1/2	MCERTS	N/A	N/A	N/A	N/A
Total Particulate Matter	BS EN 13284-1:2001	RPSCE/1/7c	MCERTS	Gravimetric	D9	RPS Laboratories, Manchester	UKAS

APPENDIX 2: Emission Point - Furnace Extraction

Stack Gas Measurements

Table 7 - Temperature and Velocity Profile

Results of Gas Flows and Gas Temperatures Measured from the Furnace Extraction at Coventry Castings, Coventry on the 26th May 2006

Traverse Point (m)	Sample Plane A				Sample Plane B			
	T (°C)	ΔP (mm H ₂ O)	Neg. Flow?	Spin <15°	T (°C)	ΔP (mm H ₂ O)	Neg. Flow?	Spin <15°
0.10	18	1.0	No	< 15	19	3.6	No	< 15
0.56	18	4.0	No	< 15	19	0.8	No	< 15

Barometric pressure (kPa)	101.6
Static Pressure (mm H₂O)	-ve 1.4
Stack Dimension Ø (m)	0.66

Table 8 - Gas Measurements (continued)

Results of Total Particulate Matter and General Emission Parameters Measured from the Furnace Extraction at Coventry Castings, Coventry in May 2006

Emission Parameter	Units	Mean Result
Sample Date	-	26-May-06
Sample Period	-	10:09 – 12:39
Internal Area Of Duct	m ²	0.34
Stack Moisture Content	%	0.1
Stack Temperature	°C	27
Gas Velocity (as measured at sampling plane)	m/sec	4.5
Volumetric Flowrate (as measured)	m ³ /sec	1.6
Volumetric Flowrate (at reference conditions)	m ³ /sec*	1.4
Total Particulate Matter Mass Emission	kg/hr	0.021
Total Particulate Matter Concentration	mg/m ³ *	4.2

Notes:

* Reference conditions expressed as 273 K, 101.3 kPa, without correction for moisture content.

Photograph

Photograph of Furnace Extraction at Coventry Castings, Coventry



Reportable Blank Results

Table 9 - Results of the Reportable Blank Concentrations for Total Particulate Matter taken for the Furnace Extraction at Coventry Castings, Coventry in May 2006

Emission Parameter	Sample Date	Units	Mean Concentration #
Total Particulate Matter	26-May-06	mg/m ³	< 0.21

Notes:

Reference conditions expressed as 273 K, 101.3 kPa, without correction for moisture content.

Certificate(s) of Analyses



RPS Laboratories

RPS Laboratories - Unit 12, Waters Edge Business Park, Modwen Road, Salford, M5 3EZ
Tel: (0161) 872 2443, Fax: (0161) 877 3969

Test Certificate

RPS CONSULTANTS
STEADINGS BARN
PURY HILL BUSINESS PARK
NR ALDERTON
TOWCESTER
NN12 7LS

CRT No 051987 : Issue 1
Ord No FTA 5499

Date Tested 08/06/06
Date Reported 08/06/06

Attn: CHRIS SMITH

Item - 4 SAMPLES FOR TPM

Specification- Not Applicable

Total particulate		- In-House Method D9	
Sample	Description	Result	Comments
01:410684	014741	10.00 mg	N11
02:410685	T104698	1.43 mg	N11
03:410686	014740	<0.1 mg	N11
04:410687	T104691	<0.5 mg	N11

Certificate Comments

Date of sample receipt: 30/05/2006

If you have any queries regarding this analysis please do not hesitate to contact the Laboratory Manager, Joanne Dewhurst.

Analysis was carried out on the samples 'as received'.

Standard terms and conditions are applicable, a copy is available on request.

Tested by Catherine Weatherall

For and on authority of
RPS Laboratories

EA Technical Guidance Note M1 Sample Point Requirements	Requirement Met?
Duct gas Flow: angle with regard to duct access <15°?	Yes
Duct Gas Flow Negative Velocity: Not Permitted	Yes
Duct Gas Flow: Ratio of max to min velocity <3:1?	Yes
Working Area > 5m ² ?	No
Handrails with removable chains / self closing gates across the top of the ladder?	Yes
Handrails (approx 0,5 and 1,0 m high) and vertical baseboards (approx 0,25m high)?	Yes
Able to bear 400kg point load?	Yes
Handrails not restricting access to ports?	Yes
Room opposite sampling port equal or greater than the length of the sampling probe plus 1 metre?	Yes
Sufficient Power (Waterproof 110V BS4343 Standard) close or on the platform?	Yes

Result Calculation

Company Name: Coventry Castings Ltd

Site Name: Coventry

Date:26/05/2006

Job / Report Reference: FTA 5499

Sampling Point Ref: Stack H	Run:1
Meter Volume Sampled, acm	3.022
Sample Run Start Time	10:09
Sample Run End Time	12:39
Total Actual Sampling Time, min	150.0
Barometric Pressure, mm Hg	762.00
Stack Pressure, mm Hg	761.90
Average Stack Temp, °C	26.8
Meter Volume at STP, scm	2.812
Meter Volume at Wet STP, scm	2.815
Stack Moisture Content, %	0.1
Average Stack Velocity, m/sec	4.541
Stack Flow Rate, acms	1.554
Stack Flow Rate, scms dry,STP	1.419
Nozzle Diameter, mm	9.97
% Isokinetic Variation	99.2
Total Mass of Particulate, mg	12.2
Percentage of Total Particulate Collected on Filter	88.3
Stack Particulate Concentration, mg/m³	4.23
Particulate Mass rate, kg/hour	0.021
Emission Limit value	20 mg/m3

Sample Train Blank Results	
Sample Blank Particulate Concentration, mg/m ³	0.21
Total Weight Gain, mg (Sample Train Blank)	0.60
Blank Result Less than 10% of Limit Value	Yes