

Report for Periodic Monitoring of Emissions of Total Particulate Matter and Hydrogen Sulphide to Atmosphere

Part 1: **Executive Summary**

Permit Number: **PPC/093, variation 002**

Operator: **Coventry Castings Ltd**

Installation: **Barlow Road, Coventry**

Emission Point: **Furnace Extraction Stack - H**

Monitoring Date(s): **5th September 2007**



1709



1709

Contract Reference: FTA 6517

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

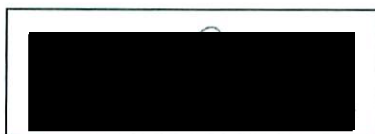
Report Date: 16th October 2007

Report Approved By: Matt Sumner

Position: Consultant

MCERTS Registration No.: MM05 622

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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Monitoring Objectives

At the request of Mr Ian Reid of Coventry Castings Ltd, RPS Health, Safety and Environment conducted air emission monitoring at the Coventry site in September 2007.

The monitoring programme at this installation was carried out to provide data on the emissions to atmosphere from the Furnace Extraction Stack - H

The parameters requested for monitoring and the actual monitoring conducted are detailed below.

Table 1

Parameters Requested to be Monitored	Emission Point
	Furnace Extraction Stack - H
Total Particulate Matter	✓
Hydrogen Sulphide	✓
Specific Requirements	See table 3

Notes:

✓ Represents the actual parameters monitored.

Monitoring Results

Table 2 – Monitoring Results from the Furnace Extraction Stack - H at Coventry Castings, Coventry in September 2007

Substance Monitored	Emission Limit Value Δ	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	17	mg/m ³	± 1.9	wet gas, without correction for oxygen	5-Sept-07	10:45 – 13:49	BS-EN 13284-1 2002	MCERTS	See table 3
Hydrogen Sulphide	5ppm (3.8mg/m ³)	<0.030	mg/m ³	± 0.004	wet gas, without correction for oxygen	5-Sept-07	10:45 – 13:50	USEPA Method 11	UKAS	See table 3

Notes:

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

Δ As stated in the Coventry City Council Permit PPC 093, variation notice 001

Operating Information

Table 3 – Operating Information Relating to the Monitoring of the Furnace Extraction at Coventry Castings Ltd, Coventry in September 2007

Parameter	Result
Sample Date	5 th September 2007
Process Type	Steel wheel hubs were melted in the electric induction furnace to >1420°C. After drossing, the melt was transferred to a 600kg ladle. This was covered with an exothermic flux. The remaining melt was transferred to a large sand cast.
Process Duration	First batch 10:45 - 12:30. Second batch 12:30 – 14:00
If 'Batch', was monitoring carried out over the whole batch?	Yes – covered melting (from cold), drossing and transfer stages
If 'No', give details	N/A
Abatement/Operational?	None
Fuel Type	N/A (electric coreless induction furnace)
Feedstock	Steel wheel hubs
Load	Approx. 1 tonne loads
Throughput	N/A
Continuous Rating	N/A

Monitoring Deviations

Table 4 – Monitoring Deviations During Monitoring of the Furnace Extraction Stack - H at Coventry Castings Ltd, Coventry in September 2007

Substance Deviations	Monitoring Deviations	Other Relevant Issues
<p>Furnace Extraction Stack - H: None</p>	<p>Furnace Extraction Stack - H: None</p>	<p>Furnace Extraction Stack - H: Please refer to the Site Specific Protocol</p>

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Part 2: **Supporting Information**

Permit Number: **PPC/093, variation 002**

Operator: **Coventry Castings Ltd**

Installation: **Barlow Road, Coventry**

Emission Point(s): **Furnace Extraction Stack - H**

Monitoring Date(s): **5th September 2007**



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Contract Reference: **FTA 6517**

Operator: **Coventry Castings Ltd**

Address: **Barlow Road
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CV2 2LD**

Monitoring Organisation: **RPS Health, Safety & Environment**

Address: **Steadings Barn, Pury Hill Business Park, Alderton Road,
Towcester, Northamptonshire, NN12 7LS**

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APPENDIX 1: General Information

Monitoring Organisation Staff Details

Table 5

Site Team	Position	MCERTS Level	Technical Endorsements	MCERTS Registration Number
Richard Harvey	Senior Consultant	2	1,2,3 & 4	MM02 020
Duncan Stewart	Consultant	2	1,2,3 & 4	MM03 174

Report Author	Position	MCERTS Level	Technical Endorsements	MCERTS Registration Number
Brett Durden	Technical Director	2	1,2,3 & 4	MM 03 167

Report Reviewer	Position	MCERTS Level	Technical Endorsements	MCERTS Registration Number
Matt Sumner	Consultant	2	1,2,3 & 4	MM 05 622

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
Hydrogen Sulphide	USEPA Method 11	RPSCE/1/17	UKAS	Colourimetry	BLM 256	Butterworth Laboratories Ltd	UKAS
Total Particulate Matter	BS EN 13284-1:2001	RPSCE/1/7c	MCERTS	Gravimetric	D9	RPS Laboratories, Manchester	UKAS

APPENDIX 2: Emission Point(s): Furnace Extraction Stack - H

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Stack Gas Measurements

Table 7 - Temperature and Velocity Profile

Results of Gas Flows and Gas Temperatures Measured from the Furnace Extraction Stack - H at Coventry Castings Ltd, Coventry on the 5th September 2007

Traverse Point (m)	Sample Line A				Sample Line 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	33	0.4	No	< 15	39	1.3	No	< 15
0.56	33	3.4	No	< 15	35	0.5	No	< 15

Barometric pressure (kPa)	101.7
Static Pressure (mm H ₂ O)	-ve 1.3
Stack Dimension Ø (m)	0.66

Table 8 - Gas Measurements (continued)

Results of Total Particulate Matter, Hydrogen Sulphide and General Emission Parameters Measured from the Furnace Extraction Stack - H at Coventry Castings Ltd, Coventry on 5th September 2006

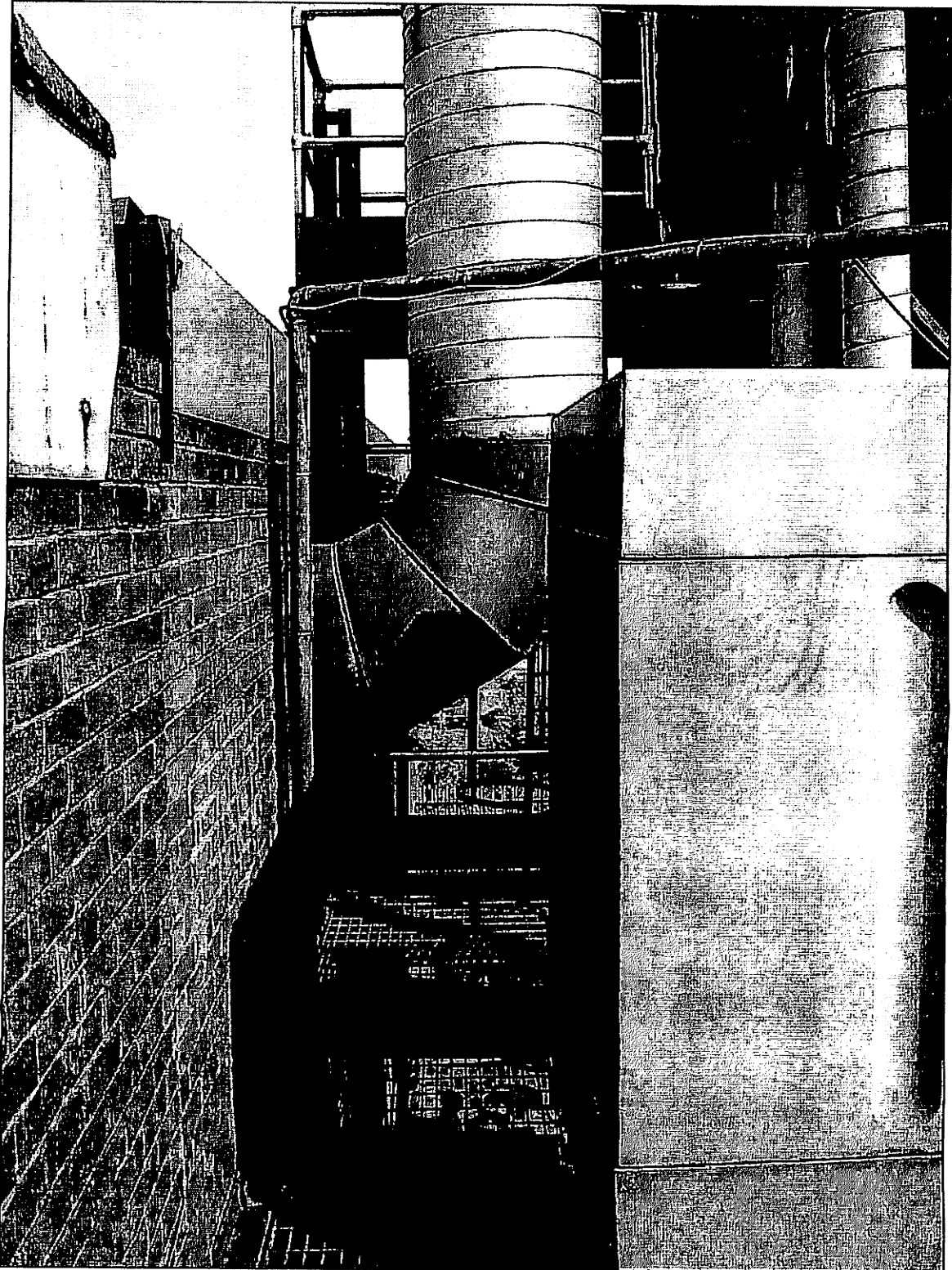
Emission Parameter	Units	Mean Result
Sample Date	-	05-09-07
Sample Period	-	10:45 – 13:49
Internal Area Of Duct	m ²	0.34
Stack Moisture Content	%	1.2
Stack Temperature	°C	35
Gas Velocity (as measured at sampling plane)	m/sec	3.8
Percent isokinetic	%	100.6
Volumetric Flowrate (as measured)	m ³ /sec	1.3
Volumetric Flowrate (at reference conditions)	m ³ /sec*	1.1
Total Particulate Matter Mass Emission	kg/hr	0.067
Total Particulate Matter Concentration	mg/m ³ *	17
Hydrogen Sulphide Mass Emission	kg/hr	<0.00012
Hydrogen Sulphide Concentration	mg/m ³ *	<0.030

Notes:

* Reference conditions expressed as 273 K, 101.3 kPa, wet gas, without correction for oxygen.

Photograph(s)

Photograph of Furnace Extraction Stack – H and Platform at Coventry Castings Ltd in Coventry



Reportable Blank Results

Table 9 - Results of the Reportable Blank Concentrations for Total Particulate Matter and Hydrogen Sulphide taken for the Furnace Extraction Stack - H at Coventry Castings Ltd, Coventry in September 2006

Emission Parameter	Sample Date	Units	Mean Blank Concentration
Total Particulate Matter	05-Sept-07	mg/m ³	0.11
Hydrogen Sulphide	05-Sept-07	mg/m ³	<0.019

Notes:

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

Certificate(s) of Analyses



Our Ref: BL 09/0140-07-01

17 September 2007

CERTIFICATE OF ANALYSIS

RPS Health, Safety and Environment
Steadings Barn
Pury Hill Business Park
Nr Alderton
Towcester
Northamptonshire NN12 7LS

For the attention of Carl Redgrave

Sample(s) of:	Impingers		
Date Received:	10 September 2007		
Date Analysed:	17 September 2007		
BLL Reference	Sample Reference	Sulphide expressed as H ₂ S	Volume in ml
BL 9/0140 (07)	T107325	<0.1	50
BL 9/0141 (07)	T107323	<0.1	31

Results in mg/l relate to sample(s) as received.

Analysed in accordance with Butterworth Laboratories Limited documented in-house method BLM 256 (issue 4).

MARTIN P BOYLE
Senior Analytical Chemist

DAVID A RICHES
Analytical Operations Manager
for Butterworth Laboratories Limited

Encl. Raw data pack

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Impingers

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Doris E Butterworth, CSci, CChem, FRSC, FInstD
John M Geary, FCA
Company registration No. 1185121



Test Certificate

Date 19/09/2007

Client	RPS Towcester Bloodings Barn Pury Hill Business Park Nr Alderton Towcester NN12 7LS	Order No.	FTA6517
		Certificate No.	WK07-8372
		Issue No.	1

Contact	Duncan Stewart	Date Received	10/09/2007
Description	2 washes and 2 filters for TPM	Technique	Gravimetric

Sample No.	468468	030493	Method
Total particulate matter	46.11 mg		D9(U)

Sample No.	468469	T107324	Method
Total particulate matter	3.57 mg		D9(U)

Sample No.	468470	030494	Method
Total particulate matter	0.07 mg		D9(U)

Sample No.	468471	T107322	Method
Total particulate matter	<0.5 mg		D9(U)