
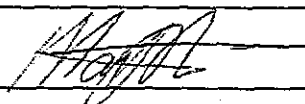


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Report Date: 22nd April 2003
Report Ref: TA 3110

GLYNWED PIPE SYSTEMS

Report on Air Emission Monitoring at
Glynwed Pipe Systems
Huntingdon, Cambridgeshire
March 2003

Prepared by:	Carl Redgrove
Signed:	
Position	Environmental Consultant
Reviewed by:	Martin Johnson
Signed:	
Position:	Manager - Air Emissions

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Our Ref: TA 3110 / CR

22nd April 2003

Mr E. Cross
Glynwed Pipe Systems
Huntingdon
Cambridgeshire

Dear Mr Cross

Re: Air Emission Monitoring Programme

Please find enclosed the report on the air emission monitoring works that were undertaken at the Huntingdon site in March 2003.

If you should have any queries regarding this report, please do not hesitate to contact me.

Yours sincerely
For RPS Consultants Ltd



Carl Redgrove
Environmental Consultant

enclosure

GLYNWED PIPE SYSTEMS

Report on Air Emission Monitoring at
Glynwed Pipe Systems
Huntingdon, Cambridgeshire
March 2003

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1.0 INTRODUCTION

At the request of Mr E Cross of Glynwed Pipe Systems, RPS Consultants Ltd conducted air emission monitoring at the Huntingdon site on the 25th March 2003.

The purpose of the monitoring programme was to provide data on emissions to atmosphere for comparison with the limits specified in the air emission criteria for this site.

1.1 Emission Criteria

Information provided by Glynwed Pipe Systems personnel regarding the air emission limits for this site has been included in Appendix A, Table 1 for reference purposes. It is understood that the air emission concentration limits are specified in the *Huntingdonshire District Council Authorisation: 22/93 Variation 25/99*, which is based on the *Secretary of State's Guidance-Metal Decontamination Processes PG2/9(96)*.

All results have been referenced to conditions of 273K, 101.3kPa without correction for water vapour content.

1.2 Emission Points

During the works undertaken on the 25th March 2003 the following release point was included in the monitoring programme:

- Fluidised Bed Exhaust

2.0 MONITORING PROCEDURES

2.1 Emission Parameters

The following emission parameters were monitored during the programme of works: -

- gas flows;
- gas temperatures;
- total particulate matter;
- volatile organic compounds (as total carbon excluding particulate matter).

2.2 Monitoring Procedures

The monitoring was carried out using the following United Kingdom Accreditation Service (UKAS) approved procedures unless otherwise stated: -

- **gas flows** were measured using a pitot tube and manometer based on the requirements of BS 3405:1983 *Measurement of particulate emission including grit and dust (simplified method)*. (RPSCE/1/2)
- **gas temperatures** were measured using a "k" type thermocouple and temperature sensor based on the requirements of BS 3405:1983 *Measurement of particulate emission including grit and dust (simplified method)*. (RPSCE/1/2)
- **total particulate matter** was measured using a **Method 5** (US CFR- Protection of the Environment, 40, Part 60 Appendix A *Determination of particulate emissions from stationary sources*) sampling train operated in accordance with the requirements of BS 6069: Section 4.3:1992 *Method for the manual gravimetric determination of concentration and mass flow rate of particulate material in gas carrying ducts*. The samples were analysed by gravimetric techniques. (RPSCE/1/7)
- **volatile organic compounds (as total carbon excluding particulate matter)** were measured using a Flame Ionisation Detector (FID) based on the requirements of **Method 25a** (US CFR- Protection of the Environment, 40, Part 60 Appendix A *Determination of total gaseous organic concentration using a flame ionisation analyser*). (RPSCE/1/4)

Sampling was undertaken during what was reported by Glynwed Pipe Systems personnel to be normal operating conditions.

Exhaust gases were conditioned as required prior to their introduction into direct reading analysers and extractive gas sampling trains.

All analyses were undertaken by RPS Laboratories, Manchester, which is a UKAS accredited laboratory.

3.0 RESULTS

A summary table of results is displayed in Appendix A, Table 1.

Full tabulated data from the monitoring period is displayed in Appendix B, Tables 2 and 3.

A graphical profile of the results of volatile organic compounds (as total carbon excluding particulate matter) can be viewed in Appendix C, Figure 1.

It is RPS Consultants Ltd procedure to include half of any 'less than' figure when determining a mean result.

4.0 OBSERVATIONS AND CONCLUSIONS

4.1 Fluidised Bed Exhaust

The mean concentration of all parameters measured from the Fluidised Bed Exhaust on 25th March 2003 were *below* their respective emission concentration limits as specified in the *Huntingdonshire District Council Authorisation: 22/93 Variation 22/99* when referenced to 273K, 101.3 kPa, without correction for water vapour content.

Table 1

Summary Table of Emissions to Atmosphere from the Fluidised Bed Exhaust at Glynwed Pipe Systems, Huntingdon in March 2003

Emission Parameter	Units	Mean Result	Concentration Limit ψ
Total Particulate Matter	mg/m ³	8.7	50
Volatile Organic Compounds (as total carbon excluding particulate matter)	mg/m ³	10	20

Notes:

Reference conditions expressed as 273 K, 101.3 kPa, without correction for water vapour conten.

ψ As expressed in the Huntingdonshire District Council Authorisation: 22/93 Variation 25/99

Table 2

Results of Total Particulate Matter and General Emission Parameters Measured from the Fluidised Bed Exhaust at Glynwed Pipe Systems, Huntingdon on the 25th March 2003

Emission Parameter	Units	Run 1	Run 2	Mean of Results
Sample Period	-	13:10 – 13:40	13:49 – 14:19	-
Temperature	°C	133	132	133
Gas Velocity (as measured at sampling plane)	m/sec	20	20	20
Volumetric Flowrate (as measured)	m ³ /sec	6.5	6.5	6.5
Volumetric Flowrate (at reference conditions)	m ³ /sec*	4.4	4.4	4.4
Total Particulate Matter Mass Emission	kg/hr	0.24	0.035	0.14
Total Particulate Emission Concentration	mg/m ³ *	15	2.2	8.6

Notes:

* Reference conditions expressed as 273 K, 101.3 kPa, without correction for water vapour content

Table 3

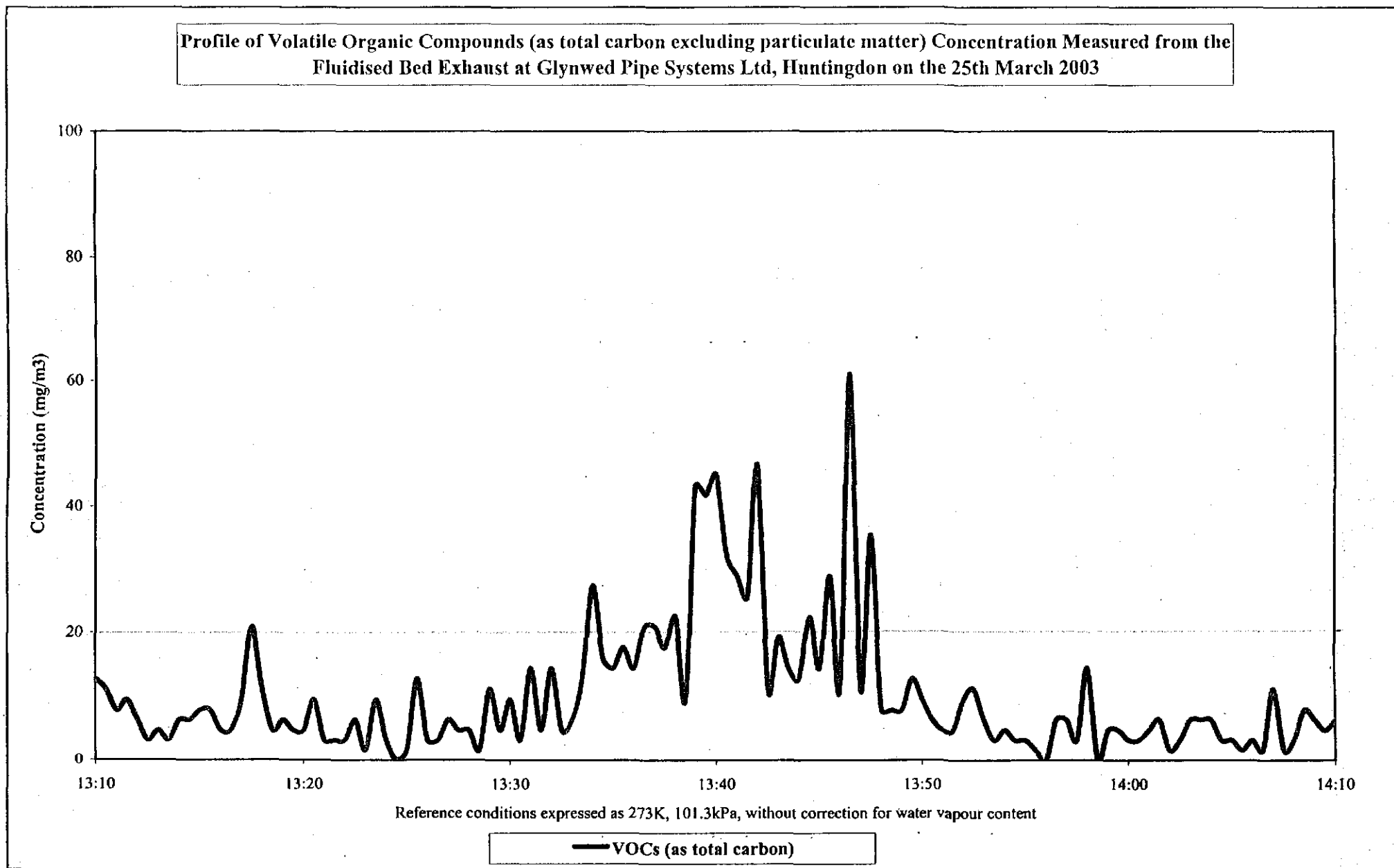
Results of Volatile Organic Compounds (expressed as total carbon excluding particulate matter) Concentration measured from the Fluidised Bed Exhaust at Glynwed Pipe Systems, Huntingdon on the 25th March 2003

Emission Reference	Sample Period	Units	VOC Concentration (as total carbon)
Fluidised Bed Exhaust	13:10 ~ 14:10	mg/m ³	Maximum
			Mean
			61
			10

Notes:

Reference conditions expressed as 273 K, 101.3 kPa, without correction for water vapour content

Figure 1


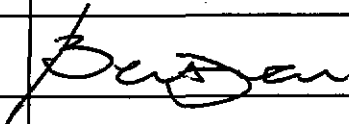


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Report Date: 23rd October 2002
Report Ref: TA 2709

GLYNWED PIPE SYSTEMS

Report on Air Emission Monitoring at
Glynwed Pipe Systems
Huntingdon, Cambridgeshire
September 2002

Prepared by:	Sion Hughes
Signed:	
Position	Environmental Consultant
Reviewed by:	Brett Durden
Signed:	
Position:	Consultancy Manager

RPS Consultants Ltd 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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4.0 OBSERVATIONS AND CONCLUSIONS

4.1 Fluidised Bed Exhaust

The mean concentration of all parameters measured from the Fluidised Bed Exhaust on 25th September 2002 were *below* their respective emission concentration limits as specified in the *Huntingdonshire District Council Authorisation: 22/93 Variation 22/99* when referenced to 273K, 101.3 kPa, without correction for water vapour content.

Table 1

Summary Table of Emissions to Atmosphere from the Fluidised Bed Exhaust at Glynwed Pipe Systems, Huntingdon in September 2002

Emission Parameter	Units	Mean Result	Concentration Limit ψ
Total Particulate Matter	mg/m ³	11	50
Volatile Organic Compounds (as total carbon excluding particulate matter)	mg/m ³	7.9	20

Notes:

Reference conditions expressed as 273 K, 101.3 kPa, without correction for water vapour content

ψ As expressed in the Huntingdonshire District Council Authorisation: 22/93 Variation 25/99

Table 2

Results of Total Particulate Matter and General Emission Parameters Measured from the Fluidised Bed Exhaust at Glynwed Pipe Systems, Huntingdon on the 25th September 2002

Internal area of duct: 0.36 m²
Barometric pressure: 103.9 kPa

Emission Parameter	Units	Run 1	Run 2	Mean of Results
Sample Period	-	12:36 – 13:06	13:13 – 13:43	-
Temperature	°C	135	135	135
Gas Velocity (as measured at sampling plane)	m/sec	16	16	16
Volumetric Flowrate (as measured)	m ³ /sec	5.9	5.9	5.9
Volumetric Flowrate (at reference conditions)	m ³ /sec*	4.0	4.0	4.0
Total Particulate Matter Mass Emission	kg/hr	0.23	0.096	0.16
Total Particulate Emission Concentration	mg/m ³ *	16	6.6	11

Notes:

* Reference conditions expressed as 273 K, 101.3 kPa, without correction for water vapour content

Table 3

Results of Volatile Organic Compounds (expressed as total carbon excluding particulate matter) Concentration taken from the Fluidised Bed Exhaust at Glynwed Pipe Systems, Huntingdon on the 25th September 2002

Emission Reference	Sample Period	Units	VOC Concentration (as total carbon)	
Fluidised Bed Exhaust	12:44 – 14:05	mg/m ³	Maximum	25
			Mean	7.5

Notes:

Reference conditions expressed as 273 K, 101.3 kPa, without correction for water vapour content

Figure 1

Profile of Volatile Organic Compounds (as total carbon excluding particulate matter) Concentration Measured from the Fluidised Bed Exhaust at Glynwed Pipe Systems Ltd, Huntingdon on the 25th September 2002

