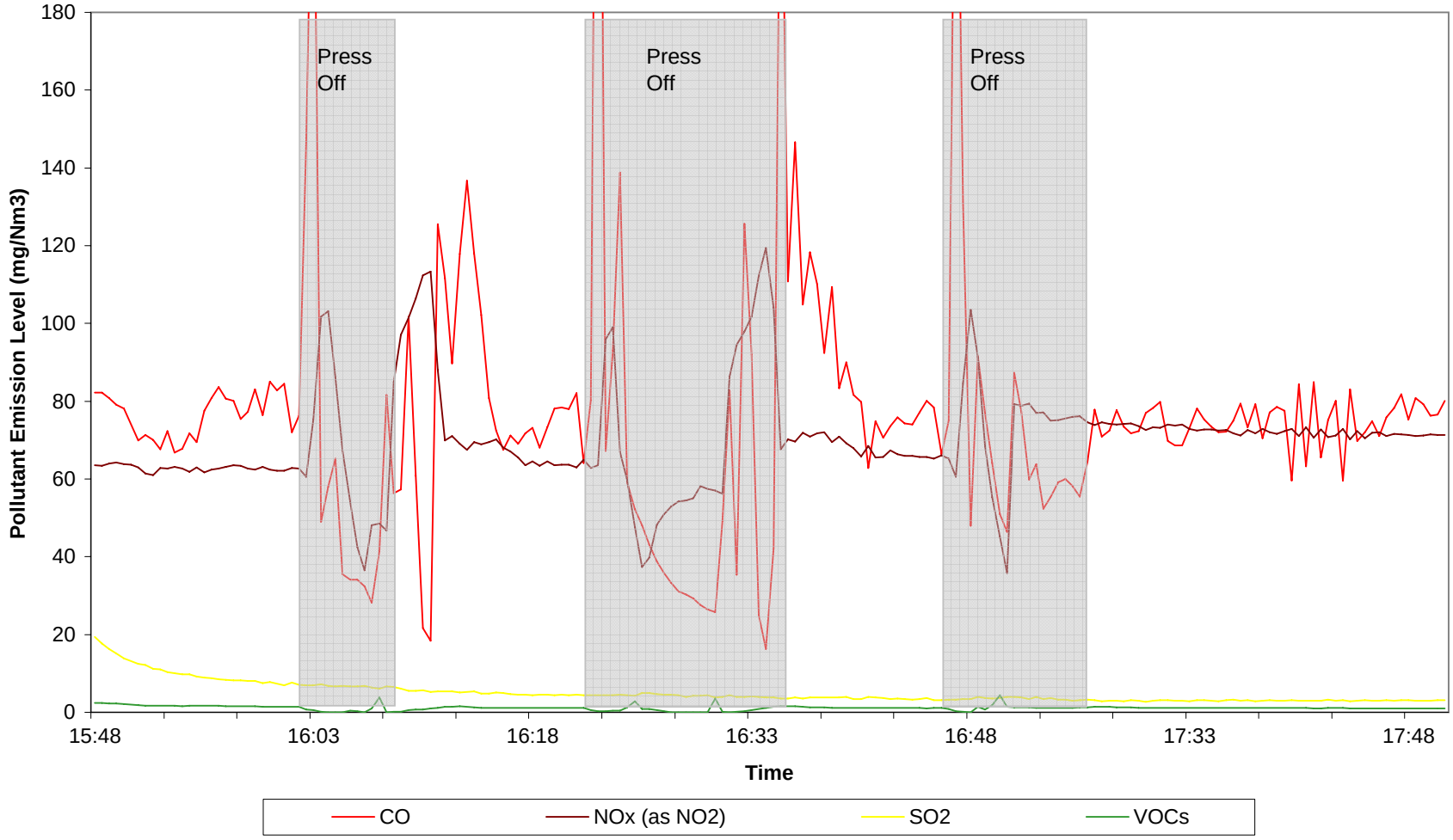
Figure 5
Combustion Gas and VOC Emissions from Lithoman 1
Wyndeham Heron, Maldon (01/09/2009)



Tel: 01274 738668 E-mail: technical@envirocare.org Fax: 01274 738758

TABLE 5a

Gaseous Analysis using Horiba (Model PG 250) Analyser

Client Name: Wyndeham Heron, Maldon

Combustion Gas and VOC Emissions from Lithoman 1 (01/09/09)

Job no: 4029

Data entered by: DF

	Carbon Monoxide CO (ppm)	Oxides of Nitrogen NOx (ppm)	Sulphur Dioxide SO2 (ppm)	VOCs (ppm)	Conversion from ppm to mg/Nm³			
					CO (mg/Nm³)	NOx (as NO_2) (mg/Nm³)	SO2 (mg/Nm³)	VOCs (mg/Nm³)
Average	**62.8**	**34.0**	**1.8**	**0.8**	**78.5**	**69.9**	**5.2**	**1.3**
Maximum	**117.3**	**55.2**	**6.8**	**1.5**	**146.6**	**113.3**	**19.4**	**2.4**
Minimum	**14.7**	**29.7**	**0.9**	**0.1**	**18.4**	**60.9**	**2.7**	**0.2**

TABLE 5b
ANALYSER CALIBRATIONS

Client Name: Wyndeham Heron, Maldon

Combustion Gas and VOC Emissions from Lithoman 1 (01/09/09)

Job no: 4029 **Data entered by:** DF

Analyser: 2

Type of Gas	**CO**		**NO**		**SO2**		**VOCs**	
Certified Calibration Values	79.7	ppm +/-2%	50.3	ppm +/-2%	206.0	ppm +/-2%	7.97	ppm +/-2%
Period								
Span PreCal direct to analyser	79.8	ppm	50.5	ppm	206.1	ppm	8.0	ppm
Zero PreCal through sample line	0.1	ppm	0.1	ppm	0.7	ppm	0.0	ppm
Span PreCal through sample line	79.2	ppm	50.3	ppm	196.0	ppm	8.0	ppm
Zero PostCal through sample line	0.7	ppm	0.3	ppm	-0.1	ppm	0.1	ppm
Span PostCal through sample line	79.0	ppm	50.1	ppm	195.9	ppm	7.7	ppm
Span Drift	0.2	%	0.4	%	0.1	%		
Zero Drift	-0.7	%	-0.4	%	0.4	%		
Is data valid without adjustment	YES		YES		YES			
Does data require adjustment	NO		NO		NO			
Is data invalid	NO		NO		NO			

Table 5c

Combustion Gas Emissions from Lithoman 1 (01/09/09)

UNCERTAINTY OF CARBON MONOXIDE BY HORIBA 1

Reading =	62.8	ppm
Span Gas Certified Value =	79.7	ppm +/-2%

Parameter	**Uncertainty criteria**	U	U^2
Repeatability	1% of value	0.6280	0.3944
Zero Drift/Lower limit of detection	0.1ppm	0.1000	0.0100
Span Drift	2% of value	1.2560	1.5775
Linearity	1.2% of value	1.2000	1.4400
Setting Gas Divider	0.25% of value	0.1570	0.0246
Interference	2.9% of value	1.8212	3.3168
Span Gas	1% of span gas certified value	0.7970	0.6352

Sum U^2	7.40	
Total U	2.72	ppm
95% confidence	5.44	ppm
or	**6.80**	**mg/Nm³**

UNCERTAINTY OF OXIDES OF NITROGEN BY HORIBA 1

Reading =	34	ppm
Span Gas Certified Value =	50.3	ppm

Parameter	**Uncertainty criteria**	U	U^2
Repeatability	1% of value	0.3400	0.1156
Zero Drift/Lower limit of detection	0.4ppm	0.4000	0.1600
Span Drift	1.9% of value	0.6460	0.4173
Linearity	0.63% of value	0.6300	0.3969
Setting Gas Divider	0.25% of value	0.0850	0.0072
Interference	1.2% of value	0.4080	0.1665
Span Gas	1% of span gas certified value	0.5030	0.2530

Sum U^2	1.52	
Total U	1.23	ppm
95% confidence	2.46	ppm
or	**5.06**	**mg/Nm³**

UNCERTAINTY OF SULPHUR DIOXIDE BY HORIBA 1

Reading =	1.8	ppm
Span Gas Certified Value =	206	ppm

Parameter	**Uncertainty criteria**	U	U^2
Repeatability	1% of value	0.0180	0.0003
Zero Drift/Lower limit of detection	1.2ppm	1.6000	2.5600
Span Drift	1.9% of value	0.0342	0.0012
Linearity	1.44% of value	2.2800	5.1984
Setting Gas Divider	0.25% of value	0.0045	0.0000
Interference	1.2% of value	0.0216	0.0005
Span Gas	1% of span gas certified value	2.0600	4.2436

Sum U^2	12.00	
Total U	3.46	ppm
95% confidence	6.93	ppm
or	**19.79**	**mg/Nm³**

TABLE 5d

UNCERTAINTY OF VOC BY SIGNAL3

Client Name: Wyndeham Heron, Maldon
Job No: 4029

Reading = 0.8 ppm as C3H8
Span Gas= 7.97 ppm+/-2%

Parameter	Uncertainty criteria	U	U^2
Repeatability	1% of value	0.008	0.000
Detection threshold	0.2ppm	0.2	0.040
Noise	0.1 ppm	0.1	0.010
Linearity	0.06% of valu	0.0048	0.000
Setting Gas Divider	0.25% of valu	0.002	0.000
Temperature Drift	1% of value	0.008	0.000
Span Gas	1% of Value	0.0797	0.006

Sum U^2	0.06	
Total U	0.24	ppm
95% confidence	0.48	ppm as C3H8

or 0.76 mg/Nm³ as carbon