



**YOUR INDUSTRY EXPERTS**

# Site Specific Protocol

## Part 1

<b>Operator Name</b>	BioConstruct NewEnergy Limited
<b>Operators Address</b>	Hartlepool BioPower AD Plant Brenda Road, Hartlepool, Teesside TS25 2BW
<b>Permit Number</b>	EPR/CP3834YH
<b>Installation Name</b>	Hartlepool BioPower Anaerobic Digestion Plant
<b>Contact Name</b>	Danny Husband
<b>Contact Telephone Number</b>	07931404073
<b>Date &amp; Report Number of Previous Monitoring Campaign</b>	
<b>Previous SSP File Name</b>	
<b>Planned Date of Monitoring Campaign</b>	26 & 27 April 2018
<b>Monitoring Organisation Name</b>	Envirocare Technical Consultancy Ltd
<b>Address</b>	Bradford Chamber Business Park New Lane Bradford West Yorkshire BD4 8BX
<b>Work ID</b>	12135



Monitoring Personnel					
Name	Role During Campaign	MCERTS No.	Certification Level	Endorsements	Expiry Date
Andrew Davis	Team Leader / Technician	MM 02 089	Level 2	TE1	14/03/2023
				TE2	01/12/2021
				TE3	30/11/2019
				TE4	09/09/2018
Dagmara Kepczynska	Technician	MM 15 1358	Level 1	TE1	01/07/2021
				TE4	

## Part 2

(Monitoring objectives)

<b>Overall Aim of the Monitoring Campaign</b>	Compliance
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Emission Point	Pollutant	Frequency	Emission Limit Value	Reference Conditions	Standard Reference Method	Envirocare Technical Procedure Reference	Overall Uncertainty
A1 – A4	Oxides of Nitrogen	Annual	450mg/Nm <sup>3</sup>	273K; 101.3kPa; 5%O <sub>2</sub> ; dry gas	BS EN 14792	ETC – M – 25	Calculated upon completion of test
	Carbon Monoxide	Annual	1400mg/Nm <sup>3</sup>	273K; 101.3kPa; 5%O <sub>2</sub> ; dry gas	BS EN 15058	ETC – M – 25	Calculated upon completion of test
	Total VOCs	Annual	1000mg/Nm <sup>3</sup>	273K; 101.3kPa; 5%O <sub>2</sub> ; wet gas	BS EN 12619	ETC – M – 03	Calculated upon completion of test
	Sulphur Dioxide	Annual	10mg/Nm <sup>3</sup>	273K; 101.3kPa; 5%O <sub>2</sub> ; dry gas	BS EN 14791	ETC – M – 33	Calculated upon completion of test
	Volumetric Flow	Annual	N/A	273K; 101.3kPa; 5%O <sub>2</sub> ; dry gas	BS EN ISO 16911-1	ETC – M – 46	Calculated upon completion of test

Emission Point	Pollutant	Frequency	Emission Limit Value	Reference Conditions	Standard Reference Method	Envirocare Technical Procedure Reference	Overall Uncertainty
A5	Oxides of Nitrogen	Annual	150mg/Nm <sup>3</sup>	273K; 101.3kPa; 3%O <sub>2</sub> ; dry gas	BS EN 14792	ETC – M – 25	Calculated upon completion of test
	Carbon Monoxide	Annual	50mg/Nm <sup>3</sup>	273K; 101.3kPa; 3%O <sub>2</sub> ; dry gas	BS EN 15058	ETC – M – 25	Calculated upon completion of test
	Total VOCs	Annual	10mg/Nm <sup>3</sup>	273K; 101.3kPa; 3%O <sub>2</sub> ; wet gas	BS EN 12619	ETC – M – 03	Calculated upon completion of test

Emission Point	Pollutant	Frequency	Emission Limit Value	Reference Conditions	Standard Reference Method	Envirocare Technical Procedure Reference	Overall Uncertainty
Odour Abatement Plant (Input & Output)	Odour Threshold	One-Off	N/A	293K; 101.3kPa	BS EN 13725	ETC – M – 51	Calculated upon completion of test

## Part 2 continued

*(Operating information)*

<b>Emission Point</b>	A1 – A4
<b>Process Type</b>	Combustion ( Continuous)
<b>Process Description</b>	Combined Heat & Power Plant with engines running on biogas created from anaerobic digestion process
<b>If Batch Process, Sampling Details</b>	N/A
<b>Fuel Type</b>	Biogas
<b>Feed Stock</b>	Solid & Liquid waste creating digestate
<b>Normal Load, Throughput or Continuous Rating of the Plant</b>	12.5MW <sub>th</sub> & 5MW <sub>e</sub> (combined)
<b>Unusual Occurrences That Take Place During the Process</b>	None
<b>Comments</b>	N/A
<b>Abatement System</b>	Carbon Scrubber (de-sulphurisation) prior to combustion
<b>CEM System (and Data Information System)</b>	N/A
<b>Process Details Required</b>	Output of each engine

## Part 2 continued

(Sample location)

Emission Point	A1 - A4							
Stack Dimensions	Unknown		General Remarks					
Description of sampling plane with Dimensions  All scaffolding must have an in date (ie within 7 days) Scaffag.  All permanent platforms must be inspected and meet the requirements of the Workplace (Health, safety and welfare) Regulations 1992, (Regulation 13) for permanent platforms and the Health and Safety in Construction Regulations (HS(G)150) for temporary platforms.			<b>Type of Port</b>	2" BSP				
			<b>Number of Sample Lines</b>	2				
			<b>Arrangement of Sample Line(s)</b>	Orthogonal				
			<b>Orientation of Sample Line(s)</b>	Horizontal in vertical stack				
			<b>Number of Sampling Points Per Line</b>	1				
			<b>Results of Homogeneity Test (if applicable)</b>	N/A				
			<b>Compliance with BS EN 15259 &amp; EA TGN M1</b>	N/A				
Sketch of sampling plane with Dimensions			<b>Pitot Traverse Details - Not previously undertaken</b>					
			<b>Left Hand Port</b>		<b>Right Hand Port</b>			
			<b>Position</b>	<b>Velocity (m/s)</b>	<b>Temperature (°C)</b>	<b>Position</b>	<b>Velocity (m/s)</b>	<b>Temperature (°C)</b>
			0.05D			0.05D		
			0.15D			0.15D		
			0.25D			0.25D		
			0.35D			0.35D		
			0.45D			0.45D		
			0.55D			0.55D		
			0.65D			0.65D		
			0.75D			0.75D		
			0.85D			0.85D		
			0.95D			0.95D		

Part 2 continued  
(Details of monitoring)

Emission Point	A1 - A4					
Instrumental Techniques	VOC's	O <sub>2</sub>	CO	NO <sub>x</sub>		
Expected Emission Value	<1000mg/Nm <sup>3</sup>	~5%	<1400mg/Nm <sup>3</sup>	<500mg/Nm <sup>3</sup>		
Equipment	FID	Horiba Multi-component analyser	Horiba Multi-component analyser	Horiba Multi-component analyser		
Sampling Duration	1hr	1hr	1hr	1hr		
Span Gas Conc.	c.900ppm	c. 15%	c.1000ppm	c.150ppm		
Measurement Range	0-1000ppm	0-25%	0-2000ppm	0-500ppm		
Lower Detection Limit	M&A 2: 0.2ppm	HOR 2: 0.03 %	HOR 2: 0.6 ppm	HOR 2: 1.4 ppm		
Accreditation	MCERTS	MCERTS	MCERTS	MCERTS		
Manual Techniques	SO <sub>2</sub>					
Expected Emission Value	<10mg/Nm <sup>3</sup>					
Equipment	Method 5 console					
Sampling Duration / No. Samples Inc Blanks	1hr/5 samples					
Proposed Sample Flow Rate	20L/min					
Volume / Minimum Sampling Time	1hr/1200L					
Envirocare's Accreditation	MCERTS					
Analytical Method	IC					
Laboratory	CLS					
Laboratory Accreditation	ISO 17025					

## Part 2 continued

*(Details of monitoring)*

<b>Emission Point</b>	A1 - A4
<b>Any Modifications to the Technical Procedure</b>	None
<b>Justifications for the Modifications</b>	N/A
<b>Any Resulting Changes to the Uncertainties</b>	N/A
<b>If Any Substance(s) in the Monitoring Objectives Will Not Be Monitored, Explain</b>	N/A
<b>If Applicable why any Substance(s) Will Not Be Monitored in Accordance with the Monitoring Method</b>	N/A

## Part 2 continued


*(Operating information)*

<b>Emission Point</b>	A5
<b>Process Type</b>	Combustion (Batch)
<b>Process Description</b>	Emergency Flare combusting biogas created from anaerobic digestion process
<b>If Batch Process, Sampling Details</b>	N/A
<b>Fuel Type</b>	Biogas
<b>Feed Stock</b>	Solid & Liquid waste creating digestate
<b>Normal Load, Throughput or Continuous Rating of the Plant</b>	Unknown
<b>Unusual Occurrences That Take Place During the Process</b>	None
<b>Comments</b>	N/A
<b>Abatement System</b>	Carbon Scrubber (de-sulphurisation) prior to combustion
<b>CEM System (and Data Information System)</b>	N/A
<b>Process Details Required</b>	Gas flow rate & Flare temperature



## Part 2 continued

(Sample location)

Emission Point	A5					
Stack Dimensions	Unknown (TBC)		General Remarks			
<p>Description of sampling plane with Dimensions</p> <p>All scaffolding must have an in date (ie within 7 days) Scaffag.</p> <p>All permanent platforms must be inspected and meet the requirements of the Workplace (Health, safety and welfare) Regulations 1992, (Regulation 13) for permanent platforms and the Health and Safety in Construction Regulations (HS(G)150) for temporary platforms.</p>	<b>Type of Port</b>	4" Flange				
	<b>Number of Sample Lines</b>	1				
	<b>Arrangement of Sample Line(s)</b>	N/A				
	<b>Orientation of Sample Line(s)</b>	Horizontal in vertical stack				
	<b>Number of Sampling Points Per Line</b>	1				
	<b>Results of Homogeniety Test (if applicable)</b>	N/A				
	<b>Compliance with BS EN 15259 &amp; EA TGN M1</b>	N/A				
<p>Sketch of sampling plane with Dimensions</p> 	Pitot Traverse Details - N/A					
	Left Hand Port			Right Hand Port		
	Position	Velocity (m/s)	Temperature (°C)	Position	Velocity (m/s)	Temperature (°C)
	0.05D			0.05D		
	0.15D			0.15D		
	0.25D			0.25D		
	0.35D			0.35D		
	0.45D			0.45D		
	0.55D			0.55D		
	0.65D			0.65D		
	0.75D			0.75D		
	0.85D			0.85D		
0.95D			0.95D			

Part 2 continued  
(Details of monitoring)

<b>Emission Point</b>	A5
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Instrumental Techniques	VOC's	O <sub>2</sub>	CO	NO <sub>x</sub>		
Expected Emission Value	<10mg/Nm <sup>3</sup>	~11%	<50mg/Nm <sup>3</sup>	<150mg/Nm <sup>3</sup>		
Equipment	FID	Horiba Multi-component analyser	Horiba Multi-component analyser	Horiba Multi-component analyser		
Sampling Duration	1hr	1hr	1hr	1hr		
Span Gas Conc.	c.10	c. 15%	c.150ppm	c.60ppm		
Measurement Range	0-40ppm	0-25%	0-200ppm	0-250ppm		
Lower Detection Limit	M&A 2: 0.2ppm	HOR 2: 0.03 %	HOR 2: 0.6 ppm	HOR 2: 1.4 ppm		
Accreditation	MCERTS	MCERTS	MCERTS	MCERTS		
Manual Techniques						
Expected Emission Value						
Equipment						
Sampling Duration / No. Samples Inc Blanks						
Proposed Sample Flow Rate						
Volume / Minimum Sampling Time						
Envirocare's Accreditation						
Analytical Method						
Laboratory						
Laboratory Accreditation						

## Part 2 continued

*(Details of monitoring)*

<b>Emission Point</b>	A5
<b>Any Modifications to the Technical Procedure</b>	None
<b>Justifications for the Modifications</b>	N/A
<b>Any Resulting Changes to the Uncertainties</b>	N/A
<b>If Any Substance(s) in the Monitoring Objectives Will Not Be Monitored, Explain</b>	N/A
<b>If Applicable why any Substance(s) Will Not Be Monitored in Accordance with the Monitoring Method</b>	N/A

## Part 2 continued

*(Operating information)*

<b>Emission Point</b>	Odour Abatement Plant
<b>Process Type</b>	Continuous
<b>Process Description</b>	UV Reactor & carbon filter to remove odour from waste reception areas
<b>If Batch Process, Sampling Details</b>	N/A
<b>Fuel Type</b>	N/A
<b>Feed Stock</b>	Odorous air from waste reception buildings
<b>Normal Load, Throughput or Continuous Rating of the Plant</b>	Unknown
<b>Unusual Occurrences That Take Place During the Process</b>	None
<b>Comments</b>	N/A
<b>Abatement System</b>	UV Reactor & carbon filter
<b>CEM System (and Data Information System)</b>	N/A
<b>Process Details Required</b>	Exhaust flow rate

## Part 2 continued

(Sample location)

Emission Point	Odour Abatement Plant					
Stack Dimensions	Unknown (TBC)		General Remarks			
<p>Description of sampling plane with Dimensions</p> <p>All scaffolding must have an in date (ie within 7 days) Scaffag.</p> <p>All permanent platforms must be inspected and meet the requirements of the Workplace (Health, safety and welfare) Regulations 1992, (Regulation 13) for permanent platforms and the Health and Safety in Construction Regulations (HS(G)150) for temporary platforms.</p>	<b>Type of Port</b>		4" Flange			
	<b>Number of Sample Lines</b>		1			
	<b>Arrangement of Sample Line(s)</b>		N/A			
	<b>Orientation of Sample Line(s)</b>		Horizontal in vertical stack			
	<b>Number of Sampling Points Per Line</b>		1			
	<b>Results of Homogeneity Test (if applicable)</b>		N/A			
	<b>Compliance with BS EN 15259 &amp; EA TGN M1</b>		N/A			
<p>Sketch of sampling plane with Dimensions</p>	<b>Pitot Traverse Details - never previously undertaken</b>					
	<b>Left Hand Port</b>			<b>Right Hand Port</b>		
	<b>Position</b>	<b>Velocity (m/s)</b>	<b>Temperature (°C)</b>	<b>Position</b>	<b>Velocity (m/s)</b>	<b>Temperature (°C)</b>
	0.05D			0.05D		
	0.15D			0.15D		
	0.25D			0.25D		
	0.35D			0.35D		
	0.45D			0.45D		
	0.55D			0.55D		
	0.65D			0.65D		
	0.75D			0.75D		
	0.85D			0.85D		
	0.95D			0.95D		

Part 2 continued  
(Details of monitoring)

Emission Point	Odour Abatement Plant					
Instrumental Techniques						
Expected Emission Value						
Equipment						
Sampling Duration						
Span Gas Conc.						
Measurement Range						
Lower Detection Limit						
Accreditation						
Manual Techniques	Odour					
Expected Emission Value	Unknown					
Equipment	Dilution Probe					
Sampling Duration / No. Samples Inc Blanks	3 (per point)					
Proposed Sample Flow Rate	N/A					
Volume / Minimum Sampling Time	~20L					
Envirocare's Accreditation	MCERTS					
Analytical Method	Olfactometry					
Laboratory	CLS					
Laboratory Accreditation	ISO 17025					

## Part 2 continued

*(Details of monitoring)*

<b>Emission Point</b>	Odour Abatement Plant
<b>Any Modifications to the Technical Procedure</b>	None
<b>Justifications for the Modifications</b>	N/A
<b>Any Resulting Changes to the Uncertainties</b>	N/A
<b>If Any Substance(s) in the Monitoring Objectives Will Not Be Monitored, Explain</b>	N/A
<b>If Applicable why any Substance(s) Will Not Be Monitored in Accordance with the Monitoring Method</b>	N/A

## Part 2 continued

(Contract review)

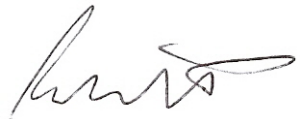
### Changes to original Scope of Work or Budget review

Review / Change Date	Details	Additional Costs Y / N	Confirmed in Writing (Date & Letter Reference)	Signed

## Declaration

Site Specific Protocol completed

	Part 1	Part 2 (Monitoring objectives)	Part 2 (Operating Information)	Part 2 (Sample Location)	Part 2 (Details of Monitoring)
Completed	✓	✓	✓	✓	✓

SSP Approved By Level 2	
Name	Andrew Davis
Position	Team Leader
MCERTS Level	2
MCERTS N°	MM02 089
Signed	

SSP Accepted By Client	
Client Name	
Client Signature	
Date	
<p>The SSP can be approved by either replying to the original email that contained this document or stating that all details are correct or by printing this last page, signing above and returning to the team leader.</p>	