Quotation Reference: EMCo-Q1639-18 (Rev-1)

AN EMISSION SURVEY OF STEAM RAISING BOILER EXHAUST STACKS AND SCRUBBER AT

Prepared for: Daniel Westow
Of

Konings Juices & Drinks UK Ltd

Hill Farm,
Boxford,
Suffolk,
CO10 5NY

Prepared by: Dr A W Stanley
Principal Consultant

Signed:  20 December 2018

(*for and on behalf of* EMCo *Air Quality Consultants Limited)*

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1. Introduction

1.1 The objectives of the monitoring are to provide emission data for preperation fro an IPPC permit. Authorisation notices as specified in communiqués from Daniel Westow of Konings Juices & Drinks UK Ltd in line with the Authorisations of the contract holder's clients.

2. Scope of Work

2.1 Below are tabulated the monitoring required on behalf of the client. The work is to be conducted as part of the principal client's monitoring requirements; the site does not currently have a permit regulated by the Environment Agency/Local Authority.
The Testing Frequency is listed below by site:

Table 2.1 - Monitoring Schedule of Sites

Site	Frequency	Notes
Hill Farm	Initial assessemnt	Two dual fuel boiler stacks and Scrubber system

Full details of the monitoring standards and analytes are given in the Tables 2[a] to 2[c] overleaf.

2[a] Air Pollutants: Annual Emissions Requirement

Analyte	Emission Points	No. Tests	Methods	Blanks	Accreditation Offered	Notes
Carbon Monoxide, CO	**Two (2) Emission Points:** **Boiler 1 and Boiler 2** **Firing on LPG Fuel**	Continuous: (60-90 mins)	BS:EN 15058	*Not Required*	**MCERT**	Site Calibration
Nitrogen Oxides as NOx		Continuous: (60-90 mins)	BS:EN 14792	*Not Required*	**MCERT**	Site Calibration
O_2		Continuous: (60-90 mins)	BS EN 14789	*Not Required*	**MCERT**	Site Calibration
CO_2		Continuous: (60-90 mins)	BS ISO 10239	*Not Required*	**MCERT**	Site Calibration
Flow Parameters		Preliminary	BS EN 16911-1	*N/A*	**MCERT**	Evidence of monitoring point conformance and mass emission calculation.

2[b] Air Pollutants: Annual Emissions Requirement

Analyte	Emission Points	No. Tests	Methods	Blanks	Accreditation Offered	Notes
Carbon Monoxide, CO	**Two (2) Emission Points:** **Boiler 1 and Boiler 2** **Firing on Fuel Oil**	Continuous: (60-90 mins)	BS:EN 15058	*Not Required*	**MCERT**	Site Calibration
Nitrogen Oxides as NOx		Continuous: (60-90 mins)	BS:EN 14792	*Not Required*	**MCERT**	Site Calibration
O_2		Continuous: (60-90 mins)	BS EN 14789	*Not Required*	**MCERT**	Site Calibration
CO_2		Continuous: (60-90 mins)	BS ISO 10239	*Not Required*	**MCERT**	Site Calibration
Flow Parameters		Preliminary	BS EN 16911-1	*N/A*	**MCERT**	Evidence of monitoring point conformance and mass emission calculation.

Note: *Flow parameters can only be measured where appropriate sample pots are available and accessible.*

2[c] Air Pollutants: Scrubber Emissions Requirement

Analyte	Emission Points	No. Tests	Methods	Blanks	Accreditation Offered	Notes
Acetic Acid	Single Scrubber Emission Point	Single (60 mins)	BS EN 14349	Field Blank	MCERT	
Sodium Hydroxide		Single (60 mins)	BS EN 1911	Field Blank	Unaccredited	Modified analysis by titration to determine Hydroxide cation.
Sulphuric Acid		Single (60 mins)	BSEN 14791	Field Blank	MCERT	Isokinetic sample for sulphur compounds - attributing total sulphur to Sulphuric acid
Flow Parameters		Preliminary	BS EN 16911-1	*N/A*	MCERT	Evidence of monitoring point conformance and mass emission calculation.

Notes:

Particulate method, duration and sample numbers depends on expected level of particulate. Quotation based on 30-minute samples. Samples are based on 60-minute samples.

3. Quality Assurance

It is intended that the monitoring will be conducted under EMCo air Quality's quality management system. All site works will be conducted by MCERT/UKAS monitoring sub-contractor and engineers will have experience of similar sites and the monitoring requirements within the quality plan. All engineers are currently registered with the MCERT personnel accreditation programme.

This project will be conducted under the sub-contractors' UKAS accreditation BS ISO 17025 and EN 15259 using MCERT personnel.

If the project is also required to the full requirements of the Environment Agency MCERT scheme, then additional levels of QA will be implemented. Part of this will be a pre-monitoring site inspection and the preparation of a Site-Specific Protocol (SSP)[1] for review and approval prior to monitoring campaign.

Note 1: An additional one-off cost may be levied for the initial preparation of an SSP (Sect[n] 9)

4. Sampling Methodology

All methods used in the determination of analytes will meet the requirements of the hierarchy stipulated in m-Cert guidance document M2. Specified uncertainties will be calculated for the results obtained.

5. Analytical Factors

All analyses will be conducted by UKAS accredited laboratories with full chain of custody documentation, known limits of uncertainty and specified limits of detection.

6. Reporting

The emission monitoring will be to the requirements of the relevant authorisation with reported concentrations expressed as mgNm-3 at 273K and 101.3 kPa with correction to a reference oxygen concentration and moisture content as compliant with your permit.
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A results summary report shall be prepared to the EA Mcert format for presentation to your authorising body. This Part-1 report will also contain Site, Plant, Operational and Production details, monitoring deviations, measurement uncertainties and the current release limits for comparison.

The Part-2 REPORT will contain details of the sample personnel, sampling procedures, equipment used, calibration information, stack diagrams, and all sampling data summaries. In addition to pollutant concentrations, the stack gas temperatures, efflux velocity, mass emission rates and the on-site test data will be reported.

The reporting format will be that recommended by M-cert and agreed with the Agency and the customer to best present the key data need for presentation.

7. Project Staffing

The Project manager will be Dr A Stanley, who is the Principle Consultant for the Stationary Source Emissions Testing Section of EMCo Air Quality Consultants Limited. He will be responsible for the high level oversight of the project, providing top level report review and ensuring that the technical matters and QA procedures are fully addressed. The project manager will also be responsible for the on-site operations, liaison with the contractor and its Site Managers, and for the logistical, legislative and technical aspects of the operations.

All other Source Testing Engineers taking part in this project will be fully trained to that level expected by the Company Staffing Policy, and will be those with appropriate experience.

All project elements will include:

Team Leader– MCERT Level II with
Technical Endorsement TE1,TE2,TE3, and TE4.

Engineers- MCERT Level I or MCERT Trainee Technicians

8. Time Estimates

It is anticipated that a single emission stack monitoring visit site-works can reasonably be completed within 12-14 hours including set up and moving between sample points (See quotation note 1 Section 9).

Notes: 1. *Duration and sample numbers depends on the expected medium of Emission. Quotation based on 60-minute samples. The sampling period may need to be adjusted to meet the process characteristics and to meet the sample quality requirements of the applied standards.*

Notes: 2. *It may be that some sample positions are not suitable for the application of all SRMs and that the sample platform location and size do not meet the applied standards.*

9. Contract Costs and Conditions

Below are given the costs to undertake the Emission Test as specified in Section 2, Scope tables 2[a], 2[b] and 2[c]

Sampling Costs		£	3,305.56
Applied Discount	10%	£	331
TOTAL PROJECT COST:			**£2,975**

Quotation Notes:

1. *This quotation is prepared on the basis that plant and production will be operational during the sampling period. Any delays on site caused by circumstances beyond the control of EMCo Air Quality Consultants Ltd or testing cancellations with less than 24 hours notice will be charged at extra cost. It expected that this work could reasonably be completed within the time estimate (Section 8). If, due to awkward access and other factors that slow down the operations, which are no fault of EMCo Air Quality, the contract price may need to be revised.*

Additional Site Days if Required.	*£850*
Additional Hours if Required.	*£80*

2. *Re-testing on plants or Sites that do not meet the criteria of the Authorisation as part of this contract will be charged at a price additional to above the prices herein contained.*

3. *The quoted prices are inclusive of mileage, travel, analyses, equipment, accommodation, subsistence and reporting. Invoice to be presented on completion of site visit, Payment is strictly 30 days from date of site visit. Discount is dependent on the payment within the 30-day period. Late payment may result in an additional invoice for the discount value.*

4. *The customer is to provide a safe working environment and access to the sampling point. If any safety issue contravenes the health and safety policy of EMCo Air Quality Consultants Ltd (as assessed by senior site engineer) a refusal to work will be issued and extra cost incurred*

5. *Site specific protocol (SSP) Costs depend on For MCERT project a one off charge may be levied for preparation of the Site Specific Protocol required by the Environment Agency .*

If only a desk top review is required then	*£0*
If however a full site review including a senior engineer visit then may be	*£0*

6 *If the provisional investigation shows that the sampling position is or operating conditions are unsuitable for undertaking the full test (Outside the requirements of BS 9096) the contractor's site representative will be informed prior to the full test being completed.*

7 *EMCo reserve the right to modify all sampling procedures, analytical procedures and equipment without prior notice. All alternatives will meet perforce the principal provisions of this quotation.*

8 *Unless specified otherwise by EMCo Air Quality Consultants Ltd (as assessed by senior site engineer) the sampling ports and platform should be as specified in Environmental Agency Technical Guidance Note M1. Ports should be pre-loosened prior to sampling team's arrival. The client will provide all power requirements (110V or 240V) unless otherwise agreed.*

9 *This Quotation is valid for 30 days.*