Annex G

Laboratory Results for NMVOCs

ALS Technichem (HK) Pty Ltd
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CERTIFICATE OF ANALYSIS

CLIENT:	Oscar Bioenergy Joint Venture	WORK ORDER:	HK1923574
CONTACT:	Mr Edwin wong		
ADDRESS:	No. 5, Sham Fung Road, Siu Ho Wan, Lantau Island, NT, Hong Kong	LABORATORY:	Hong Kong
		SUB-BATCH:	0
		DATE RECEIVED:	4 June, 2019
		DATE OF ISSUE:	17 June, 2019
PROJECT:	Stack Gas Sampling	SAMPLE TYPE:	Air
SITE:	ORRC1, Siu Ho Wan, Lantau Island	NO OF SAMPLES:	1
PO:	---		

COMMENTS

One (1) stack gas sample for CHP-2 was collected by ALS Technichem (HK) staff on 4th June, 2019 at the Organic Resources Recovery Centre (Phase 1) in Lantau Island.

The sample(s) was analysed and reported on an as received basis.

NOTES

This is the Final Report and supersedes any preliminary report with this batch number.

Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

PP

Richard Fung
Managing Director - Hong Kong

1. Summary of Work

The document is the final report for the stack gas sampling and testing event for Oscar Bioenergy Joint Venture at Siu Ho Wan, North Lantau Island.

Sampling Period: 4th June, 2019
Location of Stack: ORRC1, Siu Ho Wan
No. of Stack: 1
Name of Stack: CHP-2

Methods for Stack Sampling and Analysis:

Parameter	Method Reference	Sampling Time (minutes)
Volatile Organic Compounds (VOCs) [1]	US EPA Method 18	60
Non-Methane Volatile Organic Compounds (NMCOCs)) [1]	US EPA Method 18	60

Note:
[1]: Results expressed as carbon

2. Sampling Summary

Volatile Organic Compounds (VOCs)
Sample gas was collected by using a stainless steel sampling probe, from the centroid of the stack, into the Tedlar bag by passive sampling technique.
The measurement of total volatile organic compounds (VOCs) content in the sample was conducted in references to BS EN 12619. VOCs content was determined by measuring the methane and non-methane volatile organic compounds of the sample by Gas Chromatograph-Flame Ionisation Detector (GC-FID).

VOCs was reported as the sum of methane and non-methane organics content in the sample.

3. Sampling Period

Test Parameters	Sampling Period
Volatile Organic Compounds (VOCs)	4 June 2019 10:17 – 11:17

4. Result

Parameter	Unit	Reporting Limit	Result [1]
Gaseous & vaporous organic substances (VOCs) [2]	mg/m^3	0.7	971
Methane (CH_4) [2]	mg/m^3	0.5	966
Non-Methane Organic Carbon (NMOC) [2]	mg/m^3	0.2	5.7

Note:
[1] Results expressed as dry, at 0 degree Celsius temperature, 101.325 kilopascal pressure and 6% O_2 content conditions.
[2] Results expressed as carbon.
[3] The average Oxygen content in the flue gas was **9.4%** during the sampling period.

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STACK GAS SAMPLING AND LABORATORY TESTING REPORT

Location: Organic Resources Recovery Centre Phase 1 (ORRC1)

Sampling Period: 18th June, 2019

Stack ID: CHP-2

ALS Work Order No: HK1926111B

Report Issue Date: 27th June, 2019

CLIENT:
Oscar Bioenergy Joint Venture
No. 5, Sham Fung Road,
Siu Ho Wan, Lantau Island, NT,
Hong Kong

PREPARED BY:

Mr Poon Kwong Lun, Allen
Manager

Mr Fung Lim Chee, Richard
Managing Director - Hong Kong

This is the Final Report and supersedes any preliminary report with this batch number.

Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

1. Summary of Work

The document is the final report for the stack gas sampling and testing event for Oscar Bioenergy Joint Venture at Siu Ho Wan, North Lantau Island.

Sampling Period: 18th June, 2019
Location of Stack: ORRC1, Siu Ho Wan
No. of Stack: 1
Name of Stack: CHP-2

Methods for Stack Sampling and Analysis:

Parameter	Method Reference	Sampling Time (minutes)
Volatile Organic Compounds (VOCs) [1]	US EPA Method 18	60

Note:
[1]: Results expressed as carbon.

2. Sampling Summary

Volatile Organic Compounds (VOCs)

Sample gas was collected by using a stainless steel sampling probe, from the centroid of the stack, into the Tedlar bag by passive sampling technique.
The measurement of total volatile organic compounds (VOCs) content in the sample was conducted in references to BS EN 12619. VOCs content was determined by measuring the methane and non-methane volatile organic compounds of the sample by Gas Chromatograph-Flame Ionisation Detector (GC-FID).
VOCs was reported as the sum of methane and non-methane organics content in the sample.

3. Sampling Period

Test Parameters	Sampling Period
Volatile Organic Compounds (VOCs)	18 June, 2019 13:38 – 14.38

4. Stack Parameter

Test Parameter	Sampling Volume (m^3) [1]	Carbon Dioxide Content (%) [1]	Oxygen Content (%) [1]	Moisture Content (%)
VOCs	-	10.3	8.6	14.8

Note:
[1] Expressed as at dry, 0 deg. C, 101.325 kilopascal pressure conditions.

5. Result

Parameter	Unit	Reporting Limit	Result
Gaseous & vaporous organic substances (VOCs) [3]	mg/m^3 [1]	0.7	1110
	kg/hr	0.003	4.116
Methane (CH_4) [3]	mg/m^3 [1]	0.5	1105
	kg/hr	0.002	4.097
Non-Methane Organic Carbon (NMOC) [3]	mg/m^3 [1]	0.2	5.3
	kg/hr	0.001	0.020

Note:
[1] Results expressed as dry, at 0 degree Celsius temperature, 101.325 kilopascal pressure and 6% O_2 content conditions.
[2] Results expressed as carbon.

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STACK GAS SAMPLING AND LABORATORY TESTING REPORT

Location: Organic Resources Recovery Centre Phase 1 (ORRC1)

Sampling Period: 27th June, 2019

Stack ID: CHP-2

ALS Work Order No: HK1927355B

Report Issue Date: 10th July, 2019

CLIENT:
Oscar Bioenergy Joint Venture
No. 5, Sham Fung Road,
Siu Ho Wan, Lantau Island, NT,
Hong Kong

PREPARED BY:

Mr Poon Kwong Lun, Allen
Manager

Mr Fung Lim Chee, Richard
Managing Director - Hong Kong

This is the Final Report and supersedes any preliminary report with this batch number.

Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

1. Summary of Work

The document is the final report for the stack gas sampling and testing event for Oscar Bioenergy Joint Venture at Siu Ho Wan, North Lantau Island.

Sampling Period: 27th June, 2019
Location of Stack: ORRC1, Siu Ho Wan
No. of Stack: 1
Name of Stack: CHP-2

Methods for Stack Sampling and Analysis:

Parameter	Method Reference	Sampling Time (minutes)
Volatile Organic Compounds (VOCs) [1]	US EPA Method 18	60

Note:
[1]: Results expressed as carbon.

2. Sampling Summary

Volatile Organic Compounds (VOCs)

Sample gas was collected by using a stainless steel sampling probe, from the centroid of the stack, into the Tedlar bag by passive sampling technique.
The measurement of total volatile organic compounds (VOCs) content in the sample was conducted in references to BS EN 12619. VOCs content was determined by measuring the methane and non-methane volatile organic compounds of the sample by Gas Chromatograph-Flame Ionisation Detector (GC-FID).
VOCs was reported as the sum of methane and non-methane organics content in the sample.

3. Sampling Period

Test Parameters	Sampling Period
Volatile Organic Compounds (VOCs)	27 June, 2019 13:38 – 14.38

4. Stack Parameter

Test Parameter	Carbon Dioxide Content (%) [1]	Oxygen Content (%) [1]	Moisture Content (%)
VOCs	11.3	7.8	15.0

Note:
[1] Expressed as at dry, 0 deg. C, 101.325 kilopascal pressure conditions.

5. Result

Parameter	Unit	Reporting Limit	Result
Gaseous & vaporous organic substances (VOCs) [3]	mg/m^3 [1]	0.7	872
	kg/hr	0.003	2.751
Methane (CH_4) [3]	mg/m^3 [1]	0.5	869
	kg/hr	0.002	2.742
Non-Methane Organic Carbon (NMOC) [3]	mg/m^3 [1]	0.2	2.9
	kg/hr	0.001	0.009

Note:
[1] Results expressed as dry, at 0 degree Celsius temperature, 101.325 kilopascal pressure and 6% O_2 content conditions.
[2] Results expressed as carbon.

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CERTIFICATE OF ANALYSIS

CLIENT:	Oscar Bioenergy Joint Venture	WORK ORDER:	HK1929939
CONTACT:	Mr Edwin wong		
ADDRESS:	No. 5, Sham Fung Road, Siu Ho Wan, Lantau Island, NT, Hong Kong	LABORATORY:	Hong Kong
		SUB-BATCH:	0
		DATE RECEIVED:	10 July, 2019
		DATE OF ISSUE:	5 Aug, 2019
PROJECT:	Stack Gas Sampling	SAMPLE TYPE:	Air
SITE:	ORRC1, Siu Ho Wan, Lantau Island	NO OF SAMPLES:	1
PO:	---		

COMMENTS

One (1) stack gas sample for CHP-2 was collected by ALS Technichem (HK) staff on 10th July, 2019 at the Organic Resources Recovery Centre (Phase 1) in Lantau Island.

Sampling information (Project name, Sample ID) is provided by client.

The sample(s) was analysed and reported on an as received basis.

NOTES

This is the Final Report and supersedes any preliminary report with this batch number.

Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

Richard Fung
Managing Director - Hong Kong

1. Summary of Work

The document is the final report for the stack gas sampling and testing event for Oscar Bioenergy Joint Venture at Siu Ho Wan, North Lantau Island.

Sampling Period: 10th July, 2019
Location of Stack: ORRC1, Siu Ho Wan
No. of Stack: 1
Name of Stack: CHP-2

Methods for Stack Sampling and Analysis:

Parameter	Method Reference	Sampling Time (minutes)
Volatile Organic Compounds (VOCs) [1]	US EPA Method 18	60
Non-Methane Volatile Organic Compounds (NMCOCs)) [1]	US EPA Method 18	60

Note:
[1]: Results expressed as carbon

2. Sampling Summary

Volatile Organic Compounds (VOCs)
Sample gas was collected by using a stainless steel sampling probe, from the centroid of the stack, into the Tedlar bag by passive sampling technique.
The measurement of total volatile organic compounds (VOCs) content in the sample was conducted in references to BS EN 12619. VOCs content was determined by measuring the methane and non-methane volatile organic compounds of the sample by Gas Chromatograph-Flame Ionisation Detector (GC-FID).

VOCs was reported as the sum of methane and non-methane organics content in the sample.

3. Sampling Period

Test Parameters	Sampling Period
Volatile Organic Compounds (VOCs)	10 July 2019 14:55 – 15:55

4. Result

Parameter	Unit	Reporting Limit	Result [1]
Gaseous & vaporous organic substances (VOCs) [2]	mg/m^3	0.7	981
Methane (CH_4) [2]	mg/m^3	0.5	975
Non-Methane Organic Carbon (NMOC) [2]	mg/m^3	0.2	5.2

Note:
[1] Results expressed as dry, at 0 degree Celsius temperature, 101.325 kilopascal pressure and 6% O_2 content conditions.
[2] Results expressed as carbon.
[3] The average Oxygen content in the flue gas was **9.2%** during the sampling period.

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STACK GAS SAMPLING AND LABORATORY TESTING REPORT

Location: Organic Resources Recovery Centre Phase 1 (ORRC1)

Sampling Period: 23rd July, 2019

Stack ID: CHP-3

ALS Work Order No: HK1931406B

Report Issue Date: 2nd August, 2019

CLIENT:
Oscar Bioenergy Joint Venture
No. 5, Sham Fung Road,
Siu Ho Wan, Lantau Island, NT,
Hong Kong

PREPARED BY:

Mr Poon Kwong Lun, Allen
Manager

Mr Fung Lim Chee, Richard
Managing Director - Hong Kong

This is the Final Report and supersedes any preliminary report with this batch number.

Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

Sampling information (Project name, Sample ID) is provided by client.

1. Summary of Work

The document is the final report for the stack gas sampling and testing event for Oscar Bioenergy Joint Venture at Siu Ho Wan, North Lantau Island.

Sampling Period: 23rd July, 2019
Location of Stack: ORRC1, Siu Ho Wan
No. of Stack: 1
Name of Stack: CHP-3

Methods for Stack Sampling and Analysis:

Parameter	Method Reference	Sampling Time (minutes)
Volatile Organic Compounds (VOCs) [1]	US EPA Method 18	60

Note:
[1]: Results expressed as carbon.

2. Sampling Summary

Volatile Organic Compounds (VOCs)
Sample gas was collected by using a stainless steel sampling probe, from the centroid of the stack, into the Tedlar bag by passive sampling technique.
The measurement of total volatile organic compounds (VOCs) content in the sample was conducted in references to BS EN 12619. VOCs content was determined by measuring the methane and non-methane volatile organic compounds of the sample by Gas Chromatograph-Flame Ionisation Detector (GC-FID).
VOCs was reported as the sum of methane and non-methane organics content in the sample.

3. Sampling Period

Test Parameters	Sampling Period
Volatile Organic Compounds (VOCs)	23 Jul 2019 14:35 - 15.35

4. Stack Parameter

Test Parameter	Sampling Volume (m^3) [1]	Carbon Dioxide Content (%) [1]	Oxygen Content (%) [1]	Moisture Content (%)
VOCs	-	11.3	7.8	14.9

Note:
[1] Expressed as at dry, 0 deg. C, 101.325 kilopascal pressure conditions.

5. Result

Parameter	Unit	Reporting Limit	Result
Gaseous & vaporous organic substances (VOCs) [2]	mg/m^3 [1]	0.7	835
	kg/hr	0.002	2.387
Methane (CH_4) [2]	mg/m^3 [1]	0.5	828
	kg/hr	0.002	2.367
Non-Methane Organic Carbon (NMOC) [2]	mg/m^3 [1]	0.2	6.8
	kg/hr	0.001	0.020

Note:
[1] Results expressed as dry, at 0 degree Celsius temperature, 101.325 kilopascal pressure and 6% O_2 content conditions.
[2] Results expressed as carbon.

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CERTIFICATE OF ANALYSIS

CLIENT:	Oscar Bioenergy Joint Venture	WORK ORDER:	HK1933588
CONTACT:	Mr Edwin wong		
ADDRESS:	No. 5, Sham Fung Road, Siu Ho Wan, Lantau Island, NT, Hong Kong	LABORATORY:	Hong Kong
		SUB-BATCH:	0
		DATE RECEIVED:	6 August, 2019
		DATE OF ISSUE:	13 August, 2019
PROJECT:	Stack Gas Sampling	SAMPLE TYPE:	Air
SITE:	ORRC1, Siu Ho Wan, Lantau Island	NO OF SAMPLES:	1
PO:	---		

COMMENTS

One (1) stack gas sample for CHP-3 was collected by ALS Technichem (HK) staff on 6th Aug, 2019 at the Organic Resources Recovery Centre (Phase 1) in Lantau Island.

Sampling information (Project name, Sample ID) is provided by client.

The sample(s) was analysed and reported on an as received basis.

NOTES

This is the Final Report and supersedes any preliminary report with this batch number.

Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

Richard Fung
Managing Director - Hong Kong

1. Summary of Work

The document is the final report for the stack gas sampling and testing event for Oscar Bioenergy Joint Venture at Siu Ho Wan, North Lantau Island.

Sampling Period: 6th August, 2019
Location of Stack: ORRC1, Siu Ho Wan
No. of Stack: 1
Name of Stack: CHP-3

Methods for Stack Sampling and Analysis:

Parameter	Method Reference	Sampling Time (minutes)
Volatile Organic Compounds (VOCs) [1]	US EPA Method 18	60
Non-Methane Volatile Organic Compounds (NMCOCs)) [1]	US EPA Method 18	60

Note:
[1]: Results expressed as carbon

2. Sampling Summary

Volatile Organic Compounds (VOCs)
Sample gas was collected by using a stainless steel sampling probe, from the centroid of the stack, into the Tedlar bag by passive sampling technique.
The measurement of total volatile organic compounds (VOCs) content in the sample was conducted in references to BS EN 12619. VOCs content was determined by measuring the methane and non-methane volatile organic compounds of the sample by Gas Chromatograph-Flame Ionisation Detector (GC-FID).

VOCs was reported as the sum of methane and non-methane organics content in the sample.

3. Sampling Period

Test Parameters	Sampling Period
Volatile Organic Compounds (VOCs)	6 August 2019 11:35 – 12:35

4. Result

Parameter	Unit	Reporting Limit	Result [1]
Gaseous & vaporous organic substances (VOCs) [2]	mg/m^3	0.7	993
Methane (CH_4) [2]	mg/m^3	0.5	986
Non-Methane Organic Carbon (NMOC) [2]	mg/m^3	0.2	6.9

Note:
[1] Results expressed as dry, at 0 degree Celsius temperature, 101.325 kilopascal pressure and 6% O_2 content conditions.
[2] Results expressed as carbon.
[3] The average Oxygen content in the flue gas was **8.5%** during the sampling period.