

Annex K

## Odour Patrol Result

Annex K1

## Odour Patrol Result - July 2019



ALS Technichem (HK) Pty Ltd  
11/F, Chung Shun Knitting Centre  
1-3 Wing Yip Street  
Kwai Chung, N.T., Hong Kong  
T +852 2610 1044 E +852 2610 2021

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### CERTIFICATE OF ANALYSIS

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CLIENT:	Oscar Bioenergy Joint Venture	WORK ORDER:	HK1931109
CONTACT:	Mr Terence Chan	LABORATORY:	Hong Kong
ADDRESS:	No. 5, Sham Fung Road, Siu Ho Wan, North Lantau Island, NT, Hong Kong	SUB-BATCH:	0
		DATE OF PATROL:	19 & 23 July 2019
		DATE OF ISSUE:	30 July 2019
PROJECT:	Odour Patrol for the Organic Resources Recovery Centre Phase 1 in Siu Ho Wan		
SITE:	ORRC1, Siu Ho Wan		

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### COMMENTS

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Odour Patrol was conducted by ALS staff during 10:33 - 10:46 (19 Jul 2019) and 16:32 - 16:47 (23 Jul 2019).

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### NOTES

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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.

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Richard Fung  
Managing Director - Hong Kong

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



## 1. Summary of Work

The odour patrol was conducted during daytime and evening time.

## 2. Odour Patrol

Odour patrolling is a process to make use of the calibrated olfactory senses (ie the nasal sense) of the patrol members to evaluate the odour and its intensity during a patrol exercise at the site.

The patrol work was conducted by two odour patrol team members from ALS Technichem (HK) Pty Ltd during each time session. All members are free from any respiratory diseases during patrol day. None of the members has been working or living in the area of the vicinity of the inspection zone.

The patrol team was required to move slowly from one to the other monitoring locations and use their olfactory senses to detect odour at each location. The location of odour sources and the areas to be affected by the odour nuisance were identified as much as possible.

During the patrolling, the meteorological and surrounding information were recorded:

- the prevailing weather condition;
- the wind direction;
- the wind speed;
- location where odour is spotted;
- possible source of odour;
- perceived intensity of the odour;
- duration of odour; and
- characteristics of the odour detected

The perceived intensity is to be divided into 5 levels which are ranked in an ascending order as follows:

0	Not detected	No odour perceives or an odour so weak that it cannot be easily characterised or described
1	Slight	Identifiable odour, slight
2	Moderate	Identifiable odour, moderate
3	Strong	Identifiable odour, strong
4	Extreme	Severe odour

The odour patrol location was shown in Appendix 1.



3. Odour Patrol Result:  
3.1. Daytime: 19 July 2019

Location	Panellist	Weather	Time	T (°C)	RH (%)	WS (m/s)	WD (Degree)	Odour Intensity	Duration of Odour	Direction from Source	On-Site Observation	
											Odour Characteristics	Potential Odour Source
1	1	Sunny	10:33	32.0	77.4	0.0	-	0	NA	NA	NA	NA
	1							Continuous	NA	Grassy	Nearby vegetation	
2	1	Sunny	10:35	32.7	75.5	0.0	-	1	Continuous	NA	Biogas	Biogas Holder Tank Relief Valve
	1											
3	1	Sunny	10:36	32.8	76.2	0.0	-	0	NA	NA	NA	NA
	0											
4	1	Sunny	10:38	32.6	79.8	0.0	-	0	NA	NA	NA	NA
	0											
5	1	Sunny	10:39	32.3	81.2	0.0	-	1	Continuous	NA	Grassy	Nearby vegetation
	1											



Location	Panellist	Weather	Time	T (°C)	RH (%)	WS (m/s)	WD (Degree)	Odour Intensity	Duration of Odour	Direction from Source	On-Site Observation	
											Odour Characteristics	Potential Odour Source
6	1	Sunny	10:41	32.8	78.2	1.0	306	0	NA	NA	NA	NA
	2							0				
7	1	Sunny	10:44	34.3	77.3	0.4	300	1	Continuous	Downwind	Garbage	Waste Truck
	2							1				
8	1	Sunny	10:46	33.1	76.2	1.1	310	0	NA	NA	NA	NA
	2							0				

Remark:

T: Air Temperature;  
 RH: Relative Humidity;  
 WD: Wind Direction;  
 WS: Wind Speed.



3.2. Evening / Night time: 23 July 2019

Location	Panellist	Weather	Time	T (°C)	RH (%)	WS (m/s)	WD (Degree)	Odour Intensity	Duration of Odour	Direction from Source	On-Site Observation	
											Odour Characteristics	Potential Odour Source
1	1	Sunny	16:32	33.1	70.4	0.9	335	1	Intermittent	Downwind	Biogas	Biogas Holder Tank Relief Valve
	2							1				
2	1	Sunny	16:34	32.2	69.3	0.7	322	1	Intermittent	Upwind	Biogas	Biogas Holder Tank Relief Valve
	2							1				
3	1	Sunny	16:36	31.4	73.6	0.4	325	1	Continuous	Downwind	Biogas	Biogas Holder Tank Relief Valve
	2							1				
4	1	Sunny	16:39	31.7	74.4	0.6	281	0	NA	NA	NA	NA
	2							0				
5	1	Sunny	16:41	32.0	73.1	0.0	-	1	Continuous	NA	Grassy	Nearby Vegetation
	2							1				



Location	Panellist	Weather	Time	T (°C)	RH (%)	WS (m/s)	WD (Degree)	Odour Intensity	Duration of Odour	Direction from Source	On-Site Observation	
											Odour Characteristics	Potential Odour Source
6	1	Sunny	16:43	32.7	70.3	0.0	-	1	Continuous	NA	Garbage	Process Hall
	2							1				
7	1	Sunny	16:45	32.0	72.3	0.8	300	1	Continuous	Side wind	Biogas	Biogas Holder Tank Relief Valve
	2							1				
8	1	Sunny	16:47	32.9	70.6	1.0	302	1	Intermittent	Upwind	Biogas	Biogas Holder Tank Relief Valve
	2							1				

Remark:

T: Air Temperature;  
 RH: Relative Humidity;  
 WD: Wind Direction;  
 WS: Wind Speed.



### APPENDIX 1 Odour Patrol Route



→ Proposed Patrol Route

8 Possible Odour Sources (No.) / Checkpoint

1 Assumed Odour Potential (normal operation)  
From 1 (min.) to 3 (max.)

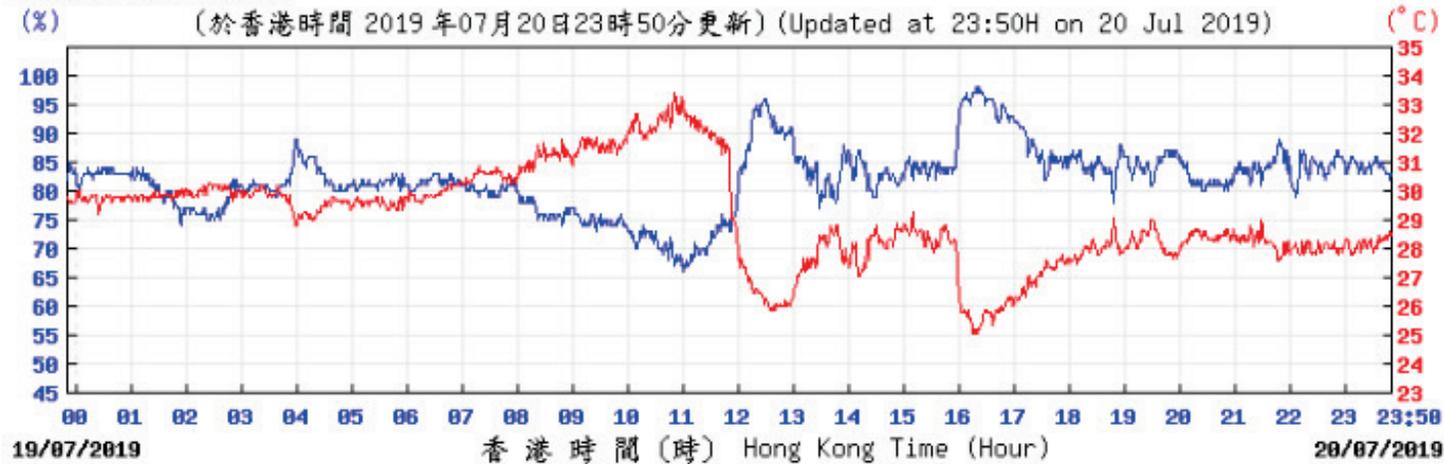


## APPENDIX 2

### Extract Of Meteorological Observations from Hong Kong Airport Observatory Station

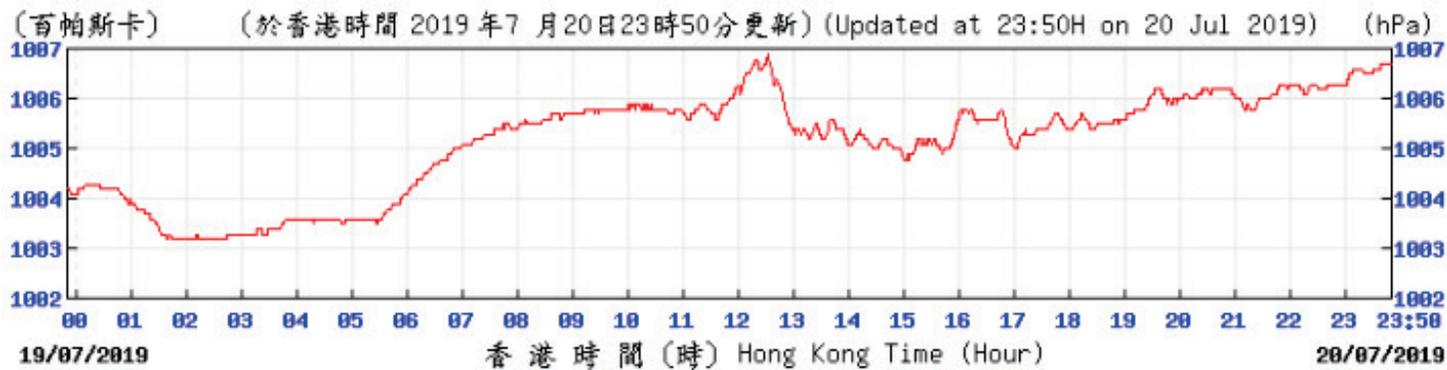
19 July 2019

Temperature/Humidity:



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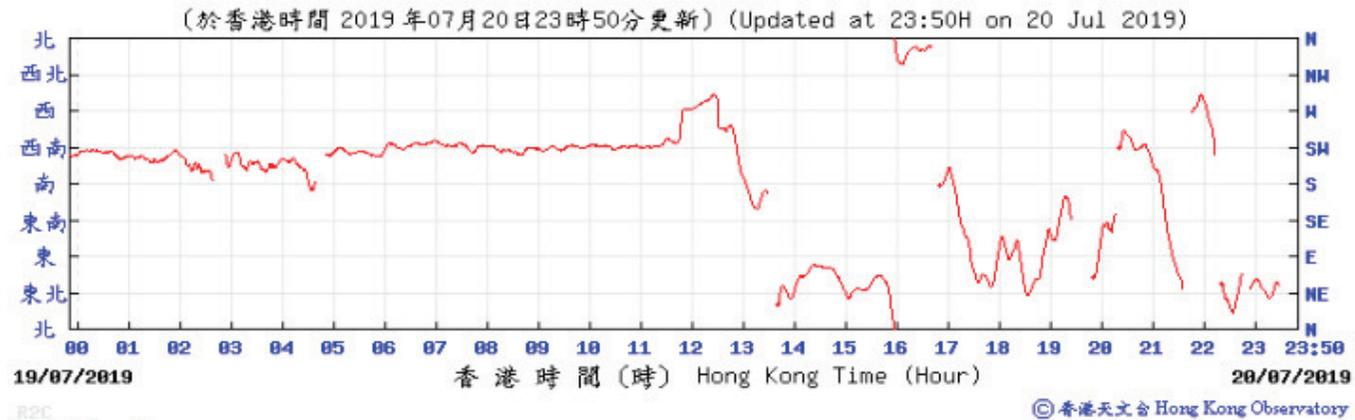
Pressure:



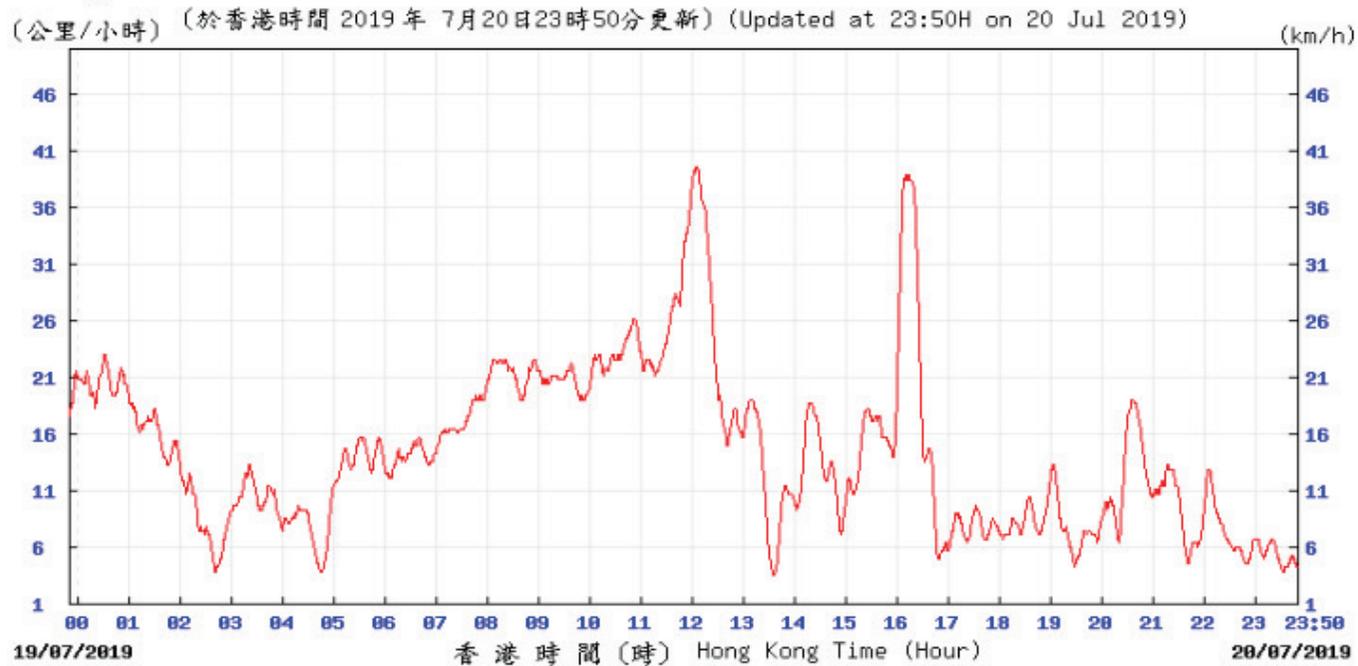
© 香港天文台 Hong Kong Observatory



Wind Direction:



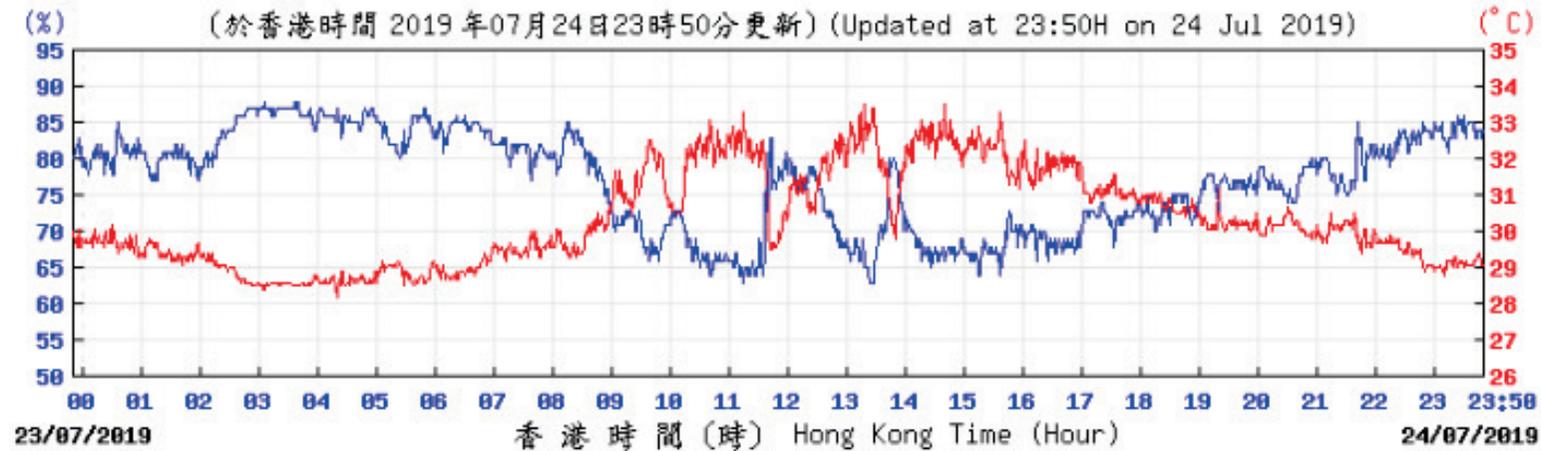
Wind Speed:





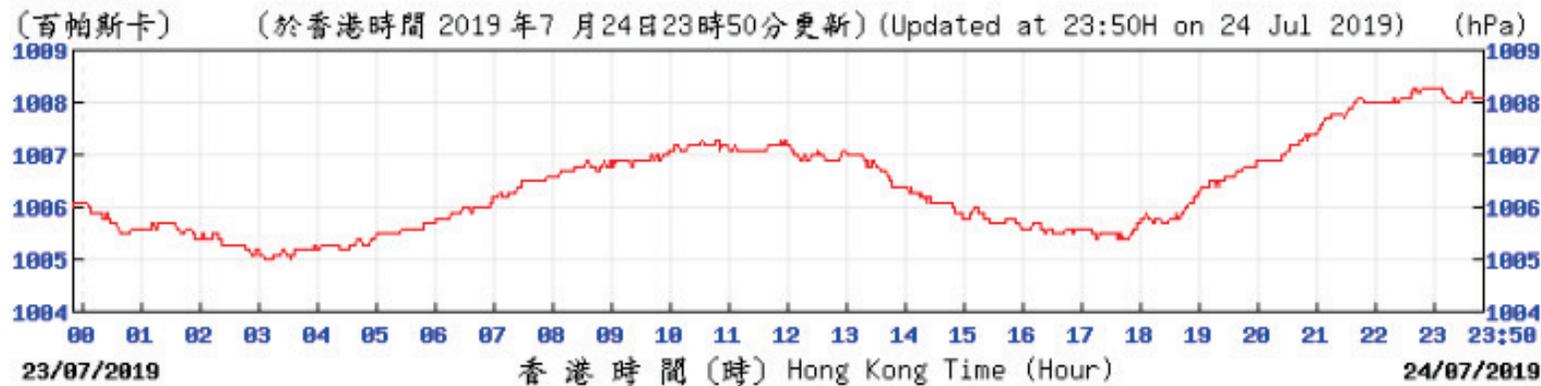
### 23 July 2019

#### Temperature/Humidity:



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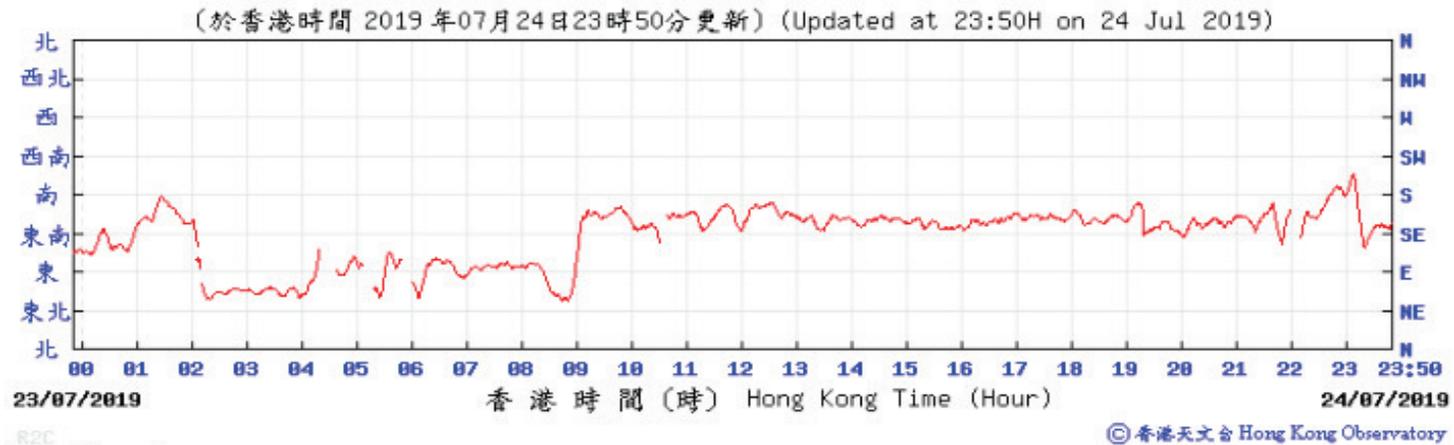
#### Pressure:



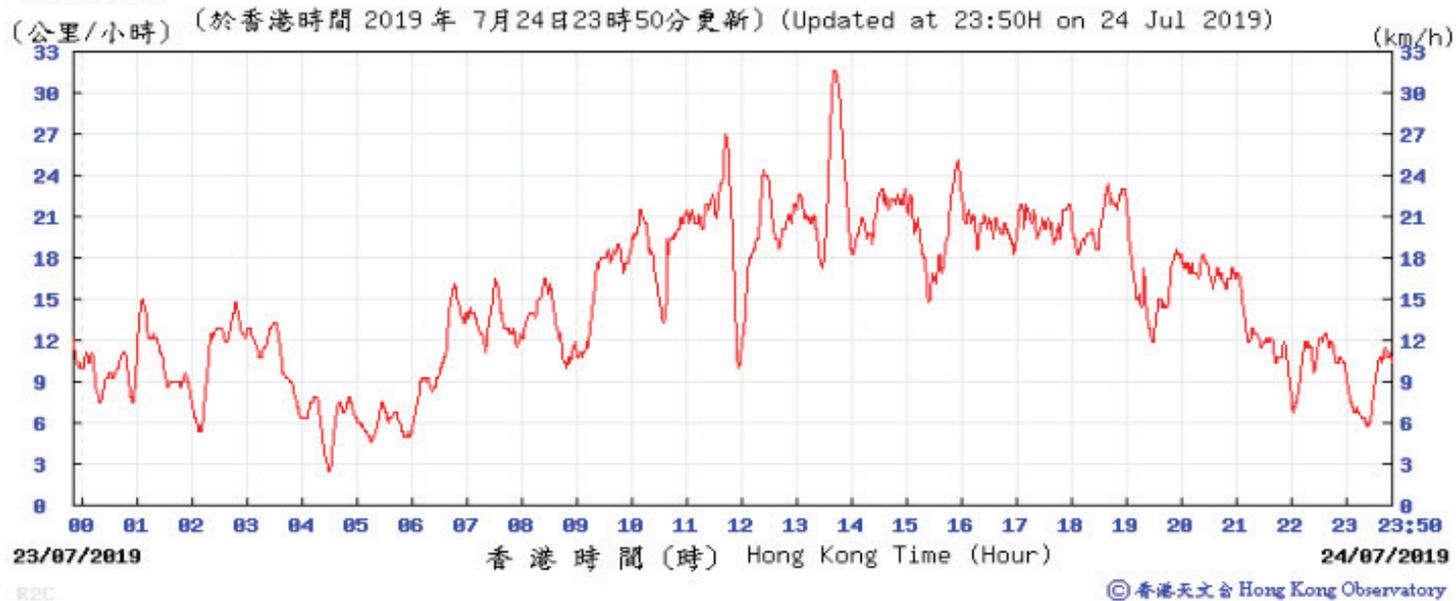
© 香港天文台 Hong Kong Observatory



Wind Direction:



Wind Speed:





**APPENDIX 3**

**A3.1. Odour Patrol at Different Locations – Daytime (19 Jul 2019)**



**Location: 1**



**Location: 2**



**Location: 3**



**Location: 4**



**Location: 5**



**Location: 6**



**Location: 7**



**Location: 8**



**A3.2. Odour Patrol at Different Locations – Evening / Night time (23 Jul 2019)**



**Location: 1**



**Location: 2**



**Location: 3**



**Location: 4**



**Location: 5**



**Location: 6**



**Location: 7**



**Location: 8**

Annex K2

## Odour Patrol Result - August 2019



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### CERTIFICATE OF ANALYSIS

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CLIENT:	Oscar Bioenergy Joint Venture	WORK ORDER:	HK1933589
CONTACT:	Mr Terence Chan	LABORATORY:	Hong Kong
ADDRESS:	No. 5, Sham Fung Road, Siu Ho Wan, North Lantau Island, NT, Hong Kong	SUB-BATCH:	0
		DATE OF PATROL:	6 August 2019
		DATE OF ISSUE:	13 August 2019
PROJECT:	Odour Patrol for the Organic Resources Recovery Centre Phase 1 in Siu Ho Wan		
SITE:	Organic Resources Recovery Centre Phase 1 (ORRC1)		

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### COMMENTS

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Date of Odour Patrol: 6<sup>th</sup> August 2019.

Odour Patrol was conducted by ALS Technichem (HK) Pty Ltd staff during 10:43 – 11:07 and 16:29 – 16:48.

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

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### NOTES

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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

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During the patrolling, the meteorological and surrounding information were recorded:

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- the wind direction;
- the wind speed;
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- possible source of odour;
- perceived intensity of the odour;
- duration of odour; and
- characteristics of the odour detected

The perceived intensity is to be divided into 5 levels which are ranked in an ascending order as follows:

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2	Moderate	Identifiable odour, moderate
3	Strong	Identifiable odour, strong
4	Extreme	Severe odour

The odour patrol location was shown in Appendix 1.



**3. Odour Patrol Result:**

**3.1. Daytime:**

Location	Panellist	Weather	Time	T (°C)	RH (%)	WS (m/s)	WD (Degree)	Odour Intensity	Duration of Odour	Direction from Source	On-Site Observation	
											Odour Characteristics	Potential Odour Source
1	1	Cloudy	10:43	29.3	87.0	1.2	343	0	NA	NA	NA	NA
	1							Intermittent	Grassy smell		Nearby vegetation	
2	1	Cloudy	10:45	29.4	83.6	0.6	336	1	Continuous	Upwind	Biogas	Biogas Holder Tank Relief Valve
	1											
3	1	Cloudy	10:47	29.4	86.5	0.0	-	0	NA	NA	NA	NA
	0											
4	1	Cloudy	10:49	30.3	89.0	0.0	-	0	NA	NA	NA	NA
	0											
5	1	Cloudy	10:51	29.1	90.8	0.0	-	0	NA	NA	NA	NA
	1							Intermittent	NA	Grassy smell	Nearby vegetation	
6	1	Cloudy	10:53	29.8	82.1	0.5	317	1	Intermittent	Downwind	Sweet smell	Liquid sugar tank
	1											
7	1	Cloudy	10:58	29.9	84.8	1.0	318	0	NA	NA	NA	NA
	0											



Location	Panellist	Weather	Time	T (°C)	RH (%)	WS (m/s)	WD (Degree)	Odour Intensity	Duration of Odour	Direction from Source	On-Site Observation	
											Odour Characteristics	Potential Odour Source
8	1	Cloudy	10:59	29.8	86.6	0.5	334	0	NA	NA	NA	NA
	2							0				
9	1	Cloudy	10:36	25.5	67.3	-	-	1	Continuous	NA	Decoration smell	Paint
	2							1				
10	1	Cloudy	11:07	29.3	70.9	-	-	1	Continuous	NA	Bleaching smell	Corridor floor surface
	2							1	Intermittent			

Remark:

T: Air Temperature;  
 RH: Relative Humidity;  
 WD: Wind Direction;  
 WS: Wind Speed.

Location 9 (Multi-Purpose Room) and Location 10 (Corridor outside Multi-Purpose Room) were the Ad Hoc odour patrol points requested by the client



**3.2. Evening time:**

Location	Panellist	Weather	Time	T (°C)	RH (%)	WS (m/s)	WD (Degree)	Odour Intensity	Duration of Odour	Direction from Source	On-Site Observation	
											Odour Characteristics	Potential Odour Source
1	1	Sunny	16:29	31.2	68.4	1.0	212	0	NA	NA	NA	NA
	2							0				
2	1	Sunny	16:31	31.8	68.4	0.0	-	1	Continuous	NA	Biogas	Biogas Holder Tank Relief Valve
	2							1				
3	1	Sunny	16:32	31.6	68.3	0.0	-	0	NA	NA	NA	NA
	2							0				
4	1	Sunny	16:35	32.5	70.5	0.0	-	0	NA	NA	NA	NA
	2							0				
5	1	Sunny	16:36	32.3	71.1	0.5	118	0	NA	NA	NA	NA
	2							1				
6	1	Sunny	16:39	32.3	65.1	2.7	100	0	NA	NA	NA	NA
	2							0				
7	1	Sunny	16:42	32.7	66.2	1.2	276	1	Intermittent	Upwind	Biogas	Biogas Holder Tank Relief Valve
	2							1				



Location	Panellist	Weather	Time	T (°C)	RH (%)	WS (m/s)	WD (Degree)	Odour Intensity	Duration of Odour	Direction from Source	On-Site Observation	
											Odour Characteristics	Potential Odour Source
8	1	Sunny	16:43	33.0	67.3	1.1	122	0	NA	NA	NA	NA
	2							0				
9	1	Sunny	16:48	27.8	62.1	-	-	1	Continuous	NA	Decoration smell	Paint
	2							1				
10	1	Sunny	16:47	28.9	63.8	-	-	0	NA	NA	NA	NA
	2							0				

Remark:

T: Air Temperature;  
 RH: Relative Humidity;  
 WD: Wind Direction;  
 WS: Wind Speed.

Location 9 (Multi-Purpose Room) and Location 10 (Corridor outside Multi-Purpose Room) were the Ad Hoc odour patrol points requested by the client

## APPENDIX 1

### Odour Patrol Route



→ Proposed Patrol Route

8 Possible Odour Sources (No.) / Checkpoint

1 Assumed Odour Potential (normal operation)  
From 1 (min.) to 3 (max.)

9 Multi-Purpose Room

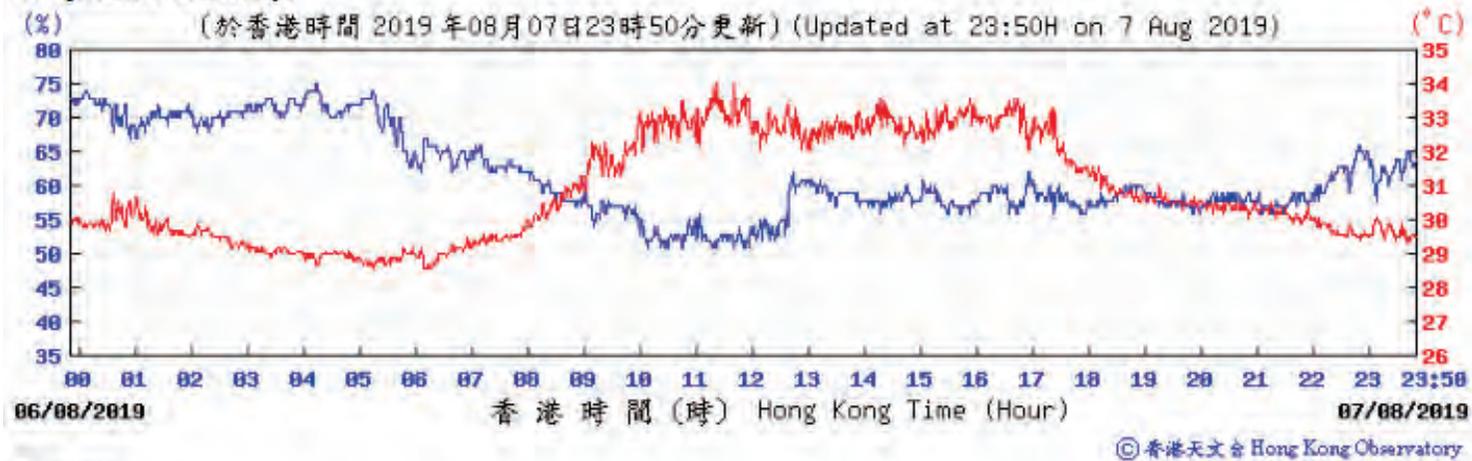
10 Corridor outside Multi-Purpose Room



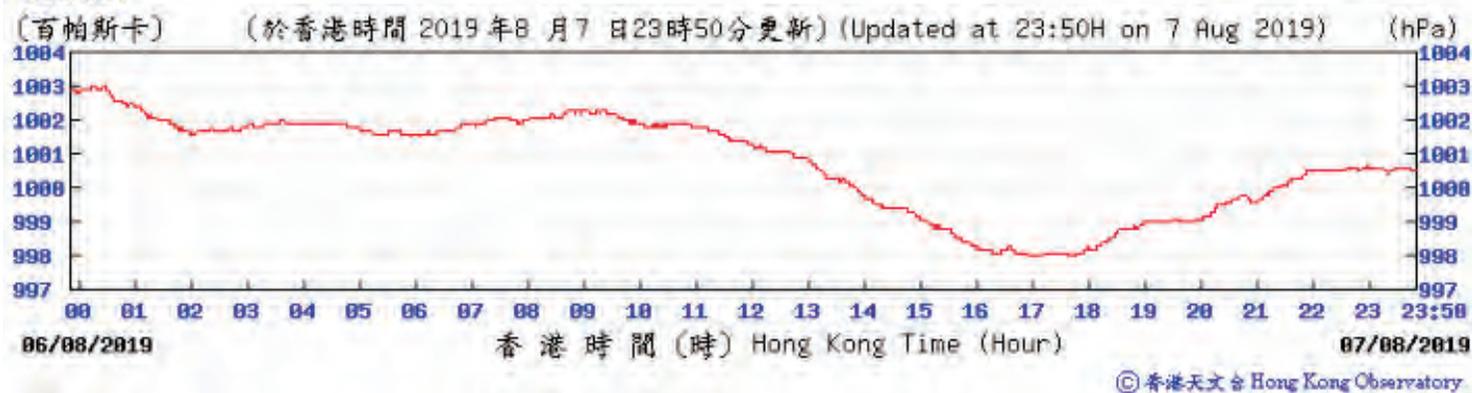
## APPENDIX 2

### Extract Of Meteorological Observations from Hong Kong Airport Observatory Station

Temperature/Humidity:

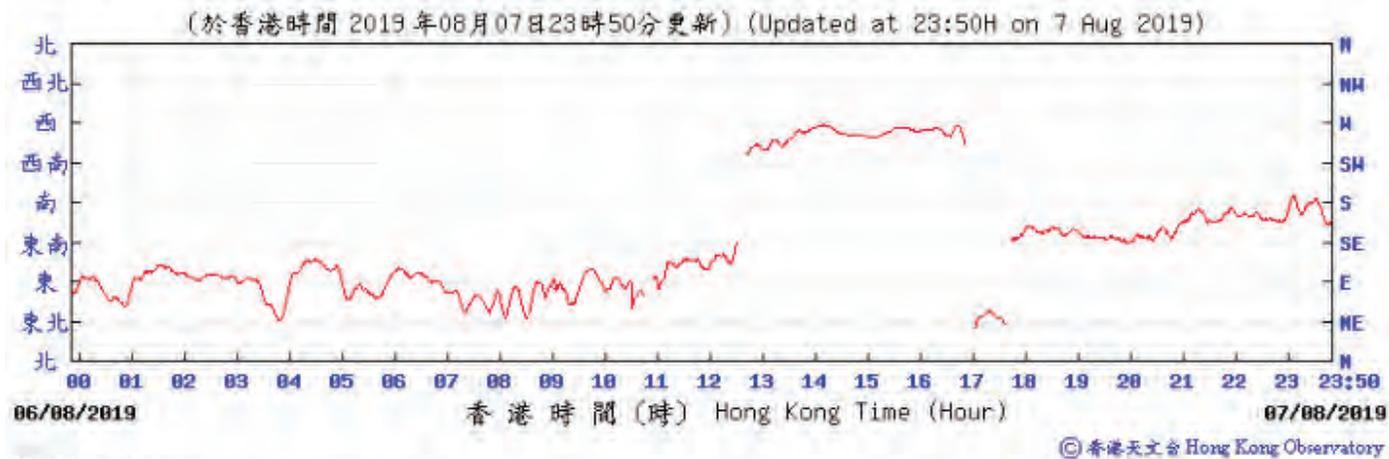


Pressure:

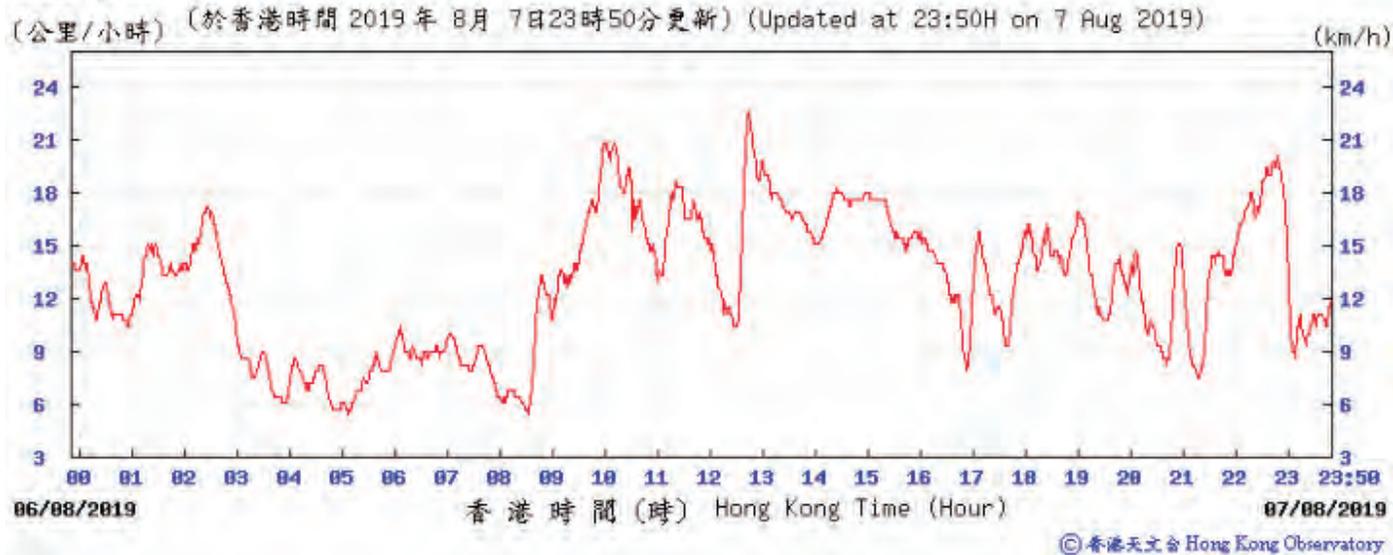




Wind Direction:



Wind Speed:





### APPENDIX 3

#### A3.1. Odour Patrol at Different Locations – Daytime



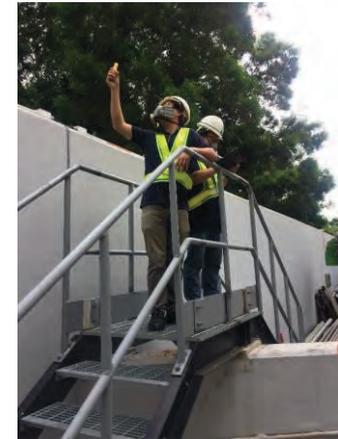
Location: 1



Location: 2



Location: 3



Location: 4



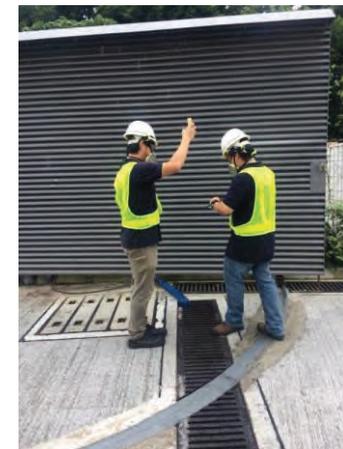
Location: 5



Location: 6



Location: 7



Location: 8



Work Order: HK1933589



**Location: 9**



**Location: 10**



**A3.2. Odour Patrol at Different Locations – Evening time**



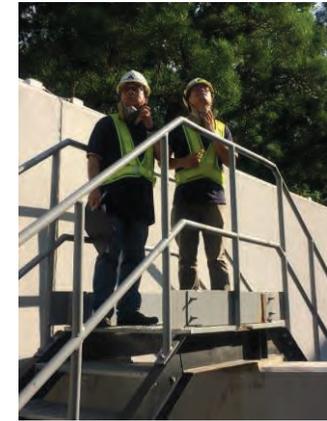
**Location: 1**



**Location: 2**



**Location: 3**



**Location: 4**



**Location: 5**



**Location: 6**



**Location: 7**



**Location: 8**



**Location: 9**



**Location: 10**