### Annex K

# Odour Patrol Result

## Annex K1

# Odour Patrol Result - July 2019



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

**CERTIFICATE OF ANALYSIS** 

CLIENT:

Oscar Bioenergy Joint

WORK ORDER:

HK1931109

CONTACT:

Venture

Mr Terence Chan

ADDRESS:

No. 5, Sham Fung Road, Siu

Ho Wan, North Lantau

Island, NT, Hong Kong

LABORATORY: SUB-BATCH:

Hong Kong

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

SITF:

ORRC1, Siu Ho Wan

### COMMENTS

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

#### **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.

ctor - Hong Kong Managing Dir

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



1. Summary of Work

Work Order: HK1931109

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

tion	Panellist	ther	T:	T (26)	RH	WS	D ree)	Odour	Duration of	Direction from	On-Site	Observation	
Location	Pane	Weather	Time	(°C)	(%)	(m/s)	WD (Degree)	Intensity	Odour	Source	Odour Characteristics	Potential Odour Source	
1	1	Suppy	10:33	32.0	77.4	0.0		0	NA	NA	NA	NA	
'	2	Sunny	10.55	32.0	77.4	0.0	-	1	Continuous	NA	Grassy	Nearby vegetation	
2	1	S mm. r	10:35	32.7	75.5	0.0	-	1	Continuous	NA	Diagra	Biogas Holder Tank Relief	
2	2 Sunny	Sunny	10.33	32.7	75.5	0.0	-	1	Continuous	NA	Biogas	Valve	
3	1	Cummi	10.26	32.8	76.2	0.0		0	NA	NA	NIA	NA	
3	2	Sunny	10:36	32.0	70.2	0.0	-	0	INA	NA	NA	NA	
4	1	S mm. r	10.20	22.6	70.0	0.0		0	NA	NA	NIA	NA	
4	2	Sunny	10:38	32.6	79.8	0.0	-	0	NA	NA	NA	NA	
_	1	Cummi	10.20	22.2	01.2	0.0		1	Continuous	NA	Crossy	Negaleura	
)	5 2	Sunny	10:39	32.3	81.2	0.0	-	1	Continuous	NA	Grassy	Nearby vegetation	



tion	Panellist	ther	Time	T	RH	WS	WD (Degree)	Odour	Duration of	f Direction from Source	On-Site Observation	
Location	Pane	Weather	Time	(°C)	(%)	(m/s)	W W	Intensity	Odour		Odour Characteristics	Potential Odour Source
6	1	Sunny	10:41	32.8	78.2	1.0	306	0	. NA	NA	NA	NA
0	2 Suffriy	Sullily	10.41	32.0	76.2	1.0	300	0	NA	14/1	TV.	IVA
7	1	Sunny	10:44	34.3	77.3	0.4	300	1	Continuous	Downwind	Garbage	Waste Truck
'	2	Sullily	10.44	34.3	77.3	0.4	300	1	Continuous	Downwind	Garbage	waste Huck
8	1	Suppy	10:46	22.1	76.2	1.1	210	0	NIA	NIA	NIA	NA
8	2	Sunny 2	10:46	33.1	76.2	1.1	310	0	- NA	NA	NA	NA

### Remark:

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



# 3.2. Evening / Night time: 23 July 2019

tion	Panellist	Weather	Time	T (°C)	RH	WS (m/s)	WD (Degree)	Odour	Duration of Odour	Direction from	On-Site	Observation
Location	Pane	Wea	Time	(30)	(%)	(m/s)	W (Deg	Intensity	Odour	Source	Odour Characteristics	Potential Odour Source
1	1	Sunny	16:32	33.1	70.4	0.9	335	1	Intermittent	Downwind	Biogas	Biogas Holder Tank
	2	Summy	10.32	33.1	70.4	0.9	333	1	e	Downwind	ыодаз	Relief Valve
2	1	Sunny	16:34	32.2	69.3	0.7	322	1	Intermittent	Upwind	Biogas	Biogas Holder Tank
	2	Summy	10.51	32.2	03.3	0.7	322	1			ыодаз	Relief Valve
3	1	Sunny	16:36	31.4	73.6	0.4	325	1	Continuous	Downwind	Biogas	Biogas Holder Tank
	2	Julily	10.30	31.4	73.0	0.4	323	1	Continuous	Downwind	ыодаз	Relief Valve
4	1	Sunny	16:39	31.7	74.4	0.6	281	0	NA	NA	NA	NA
	2	Summy	10.39	31.7	74.4	0.0	201	0	NA	NA .	IVA	NA
_	1	Suppy	16:41	32.0	72 1	0.0		1	Continuous	NΑ	Crassy	Noarby Vogotation
J	5 2	Sunny	16:41 32	32.0	73.1	0.0	-	1	Continuous	NA	Grassy	Nearby Vegetation



Location	anellist	Weather	Time	T (°C)	RH	WS (m/s)	D (ree)	Odour	Duration of Odour	Direction from	On-Site Observation		
Loca	Pane	Wea	Time	(%)	(%)	(m/s)	WD (Degree)	Intensity	Odoui	Source	Odour Characteristics	Potential Odour Source	
6	1	Sunny	16:43	32.7	70.3	0.0	_	1	Continuous	NA	Garbage	Process Hall	
	2	Sullily	10.43	32.7	70.5	0.0	-	1	Continuous	IVA	Garbage	FIOCESS Hall	
7	1	Cummu	16.45	22.0	72.2	0.8	200	1	Cantinuous	Cidaind	Diagon	Biogas Holder Tank	
/	2	Sunny	16:45	32.0	72.3	0.8	300	1	Continuous	Side wind	Biogas	Relief Valve	
	1	Commen	16.47	22.0	70.6	1.0	202	1	lucture internet	ll montine d	Dia na a	Biogas Holder Tank	
8	2	Sunny	16:47	32.9	70.6	1.0	302	1	Intermittent	Upwind	Biogas	Relief Valve	

### Remark:

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



# APPENDIX 1 Odour Patrol Route



Proposed Patrol Route

Possible Odour Sources (No.) / Checkpoint

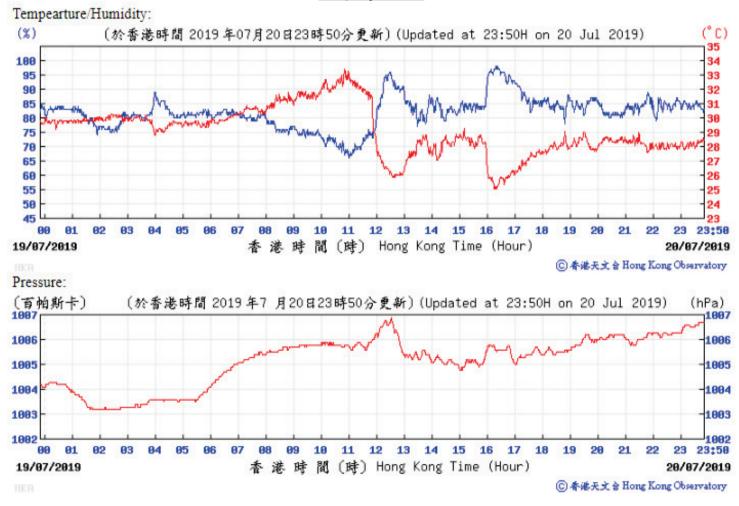
Assumed Odour
Potential (normal operation)
From 1 (min.) to 3 (max.)



### **APPENDIX 2**

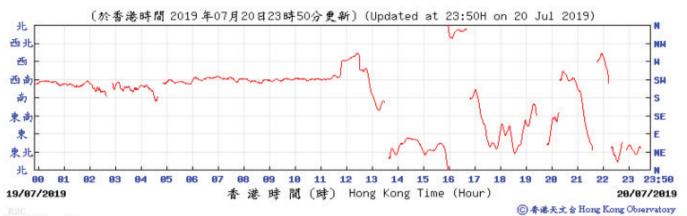
### **Extract Of Meteorological Observations from Hong Kong Airport Observatory Station**

### 19 July 2019

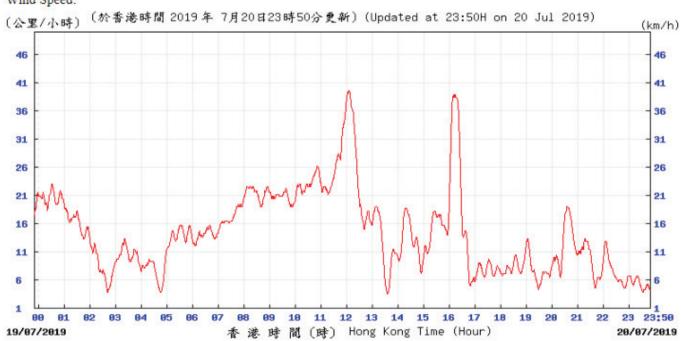


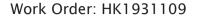


### Wind Direction:



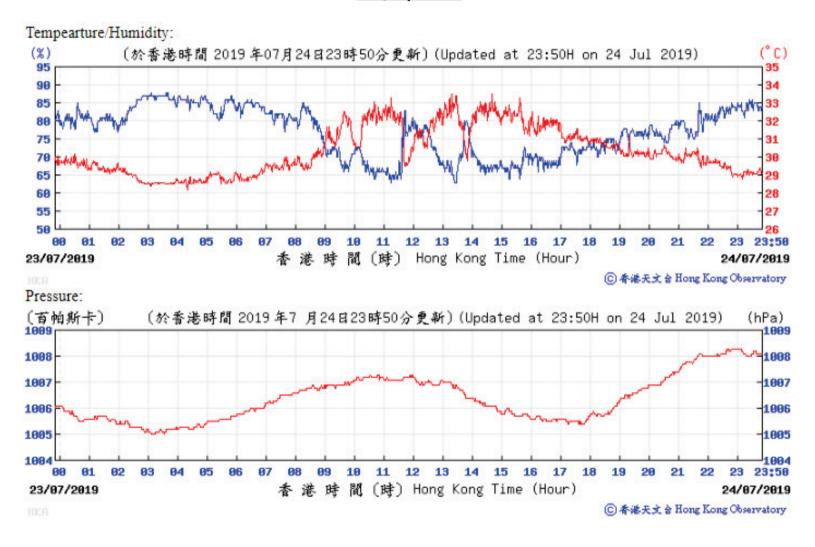
### Wind Speed:





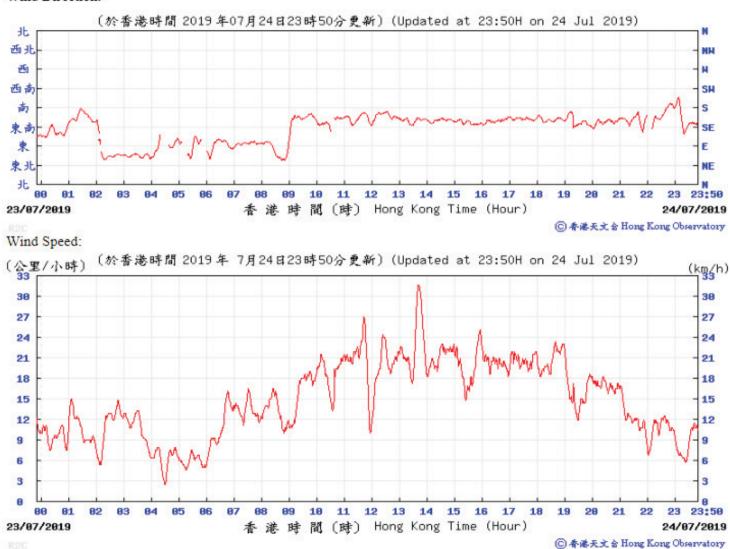


### 23 July 2019





### Wind Direction:





**APPENDIX 3** 

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



Location: 1



Location: 2





Location: 4



Location: 5



Location: 6



Location: 7



Location: 8







Location: 1



Location: 2



Location: 3



Location: 4



Location: 5



Location: 6



Location: 7



Location: 8

## Annex K2

# Odour Patrol Result - August 2019



ALS Technichem (HK) Ptv 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

CERTIFICATE OF ANALYSIS

CLIENT: Oscar Bioenergy Joint WORK ORDER:

HK1933589

Venture

CONTACT:

Mr Terence Chan

No. 5, Sham Fung Road, Siu

LABORATORY:

Hong Kong

ADDRESS:

SUB-BATCH:

Ho Wan, North Lantau

DATE OF PATROL:

0 6 August 2019

Island, NT, Hong Kong

DATE OF ISSUE:

13 August 2019

PROIECT:

Odour Patrol for the Organic

Resources Recovery Centre

Phase 1 in Siu Ho Wan

SITE:

Organic Resources Recovery

Centre Phase 1 (ORRC1)

### COMMENTS

Date of Odour Patrol: 6th 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.

### 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

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### 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:

Location	Panellist	Weather	Time	T (°C)	RH (%)	WS (m/s)	WD (Degree)	Odour Intensity	Duration of Odour	Direction from	On-Site	Observation
Loca	Pane	Wea	Tille	(%)	(70)	(111/3)	W (Deg	intensity	Ododi	Source	Odour Characteristics	Potential Odour Source
1	1	Cloudy	10:43	29.3	87.0	1.2	343	0	NA	NA	NA	NA
'	2	Cloudy	10.43	29.3	87.0	1.2	343	1	Intermittent	NA	Grassy smell	Nearby vegetation
2	1	Cloudy	10:45	29.4	83.6	0.6	336	1	Continuous	Upwind	Biogas	Biogas Holder Tank Relief
	2	Cloudy	10.45	29.4	05.0	0.0	330	1	Continuous	орина	ыодаз	Valve
3	1	Cloudy	10:47	29.4	86.5	0.0	_	0	NA	NA	NA	NA
	2		10.17	29.4	00.5	0.0		0		IVA	IVA	IVA
4	1	Cloudy	10:49	30.3	89.0	0.0	_	0	NA	NA	NA	NA
4	2	Cloudy	10.49	30.3	89.0	0.0	-	0	INA	IVA	IVA	IVA
5	1	Claudy	10:51	29.1	90.8	0.0	_	0	NA	NA	NA	NA
)	2	Cloudy	10.51	29.1	90.8	0.0	-	1	Intermittent	NA	Grassy smell	Nearby vegetation
6	1	Claudy	10:53	29.8	82.1	0.5	317	1	Intermittent	Downwind	Sweet smell	Liquid sugar tank
0	2	Cloudy	10:53	29.8	82.1	0.5	317	1	intermittent	Downwind	Sweet smell	Liquid sugar tank
	1							0				
7	2	Cloudy	10:58	29.9	84.8	1.0	318	0	NA	NA	NA	NA



Location	Panellist	ther	Time	T (°C)	RH (%)	WS (m/s)	WD egree)	Odour	Duration of Odour	Direction from	On-Site Observation		
Loca	Pane	Weathe	Time	()	(70)	(111/3)	M (Dec	Intensity	Odoui	Source	Odour Characteristics	Potential Odour Source	
	1	Claudy	10:59	29.8	86.6	0.5	334	0	NA	NA	NA	NA	
•	8 Cloudy	Cloudy	10.39	29.0	80.0	0.5	334	0	NA	INA	NA .	IVA	
	1	Claudi	10.20	25.5	67.3			1	Continuous	NIA	December and	Daire	
9	2	Cloudy	10:36	25.5	67.3	-	-	1	Continuous	NA	Decoration smell	Paint	
1.0	1	Claudi	11.07	20.2	70.0			1	Continuous	NIA	Dia a dain a canali	Couridou floor ourfoco	
10	10 2	Cloudy	11:07	29.3	70.9	-	-	1	Intermittent	- NA	Bleaching smell	Corridor floor surface	

### 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 (2C)	RH	WS (m/s)	WD (Degree)	Odour	Duration of Odour	Direction from	On-Site	Observation
Loca	Pane	Wea	Time	(°C)	(%)	(m/s)	W (Deg	Intensity	Odour	Source	Odour Characteristics	Potential Odour Source
1	1	Sunny	16:29	31.2	68.4	1.0	212	0	NA	NA	NA	NA
'	2	Sullily	10.29	31.2	00.4	1.0	212	0	NA	INA	IVA	IVA
2	1	Suppy	16:31	31.8	68.4	0.0	_	1	Continuous	NA	Diogras	Biogas Holder Tank Relief
2	2	Sunny	10.51	31.0	00.4	0.0	-	1	Continuous	INA	Biogas	Valve
3	1	Suppy	16:32	31.6	68.3	0.0	_	0	NA	NA	NA	NA
)	3 2 Su	Sunny	10.32	31.0	00.5	0.0		0	177	INA	NA	IVA
4	1	Sunny	16:35	32.5	70.5	0.0		0	NA	NA	NA	NA
4	2	Suffriy	10.55	32.3	70.5	0.0	-	0	NA	IVA	NA	IVA
5	1	C. mm. r	16:36	32.3	71.1	0.5	118	0	NA	NA	NA	NA
)	2	Sunny	10.30	32.3	71.1	0.5	118	1	Intermittent	Side wind	Grassy smell	Nearby vegetation
6	1	Suppy	16.20	22.2	65.1	2.7	100	0	NIA	NA	NA	NA
6	2	Sunny	16:39	32.3	65.1	2.7	100	0	NA	NA NA	NA	NA
7	7 2	Sunny 1	16:42	22.7	66.2	1.2	276	1	- Intermittent	l lourin d	Diagra	Biogas Holder Tank Relief
			16:42	32.7				1		t Upwind	Biogas	Valve



Location	anellist	Weather	Time	T (°C)	RH (%)	WS (m/s)	WD egree)	Odour Intensity	Duration of Odour	Direction from	On-Site Observation		
Loca	Pane	Wea	Tillle	(%)	(70)	(111/3)	(Dec	intensity	Odoui	Source	Odour Characteristics	Potential Odour Source	
8	1	Suppy	16:43	33.0	67.3	1.1	122	0	NA	NA	NA	NA	
0	2	Sunny	10.43	33.0	07.3	1.1	122	0	NA	IVA	IVA	IVA	
	1	S	16.40	27.0	62.1			1	Cantinuous	NIA	Decemption amount	Daint	
9	2	Sunny	16:48	27.8	62.1	-	-	1	Continuous	NA	Decoration smell	Paint	
1.0	1	C	16.47	20.0	62.0			0	NIA	NIA	NIA	NIA	
10	2	Sunny	16:47	28.9	63.8	-	-	0	- NA	NA	NA	NA	

#### Remark:

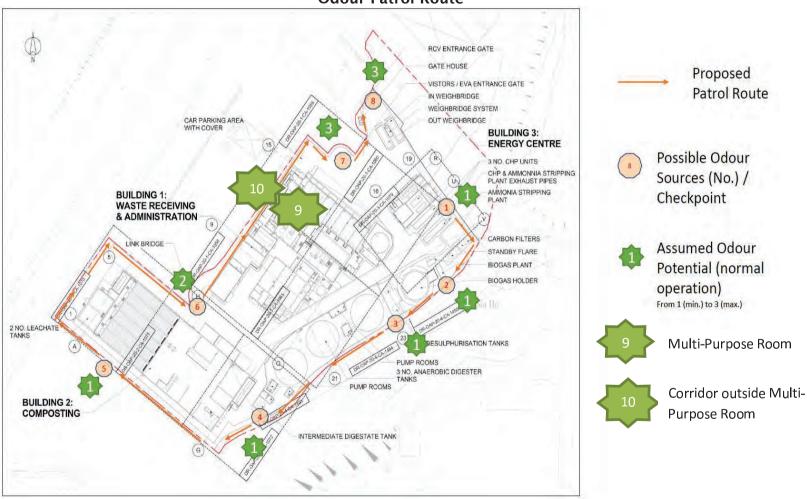
T: Air Temperature; RH: Relative Humidity; WD: Wind Direction; WS: Wind Speed.

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**

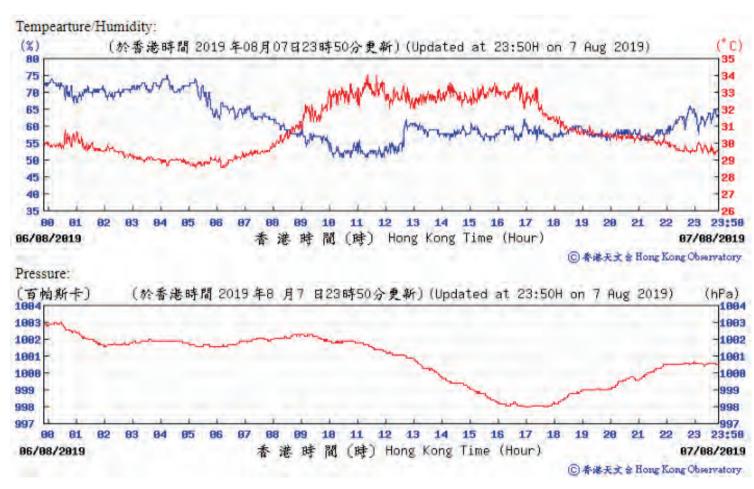




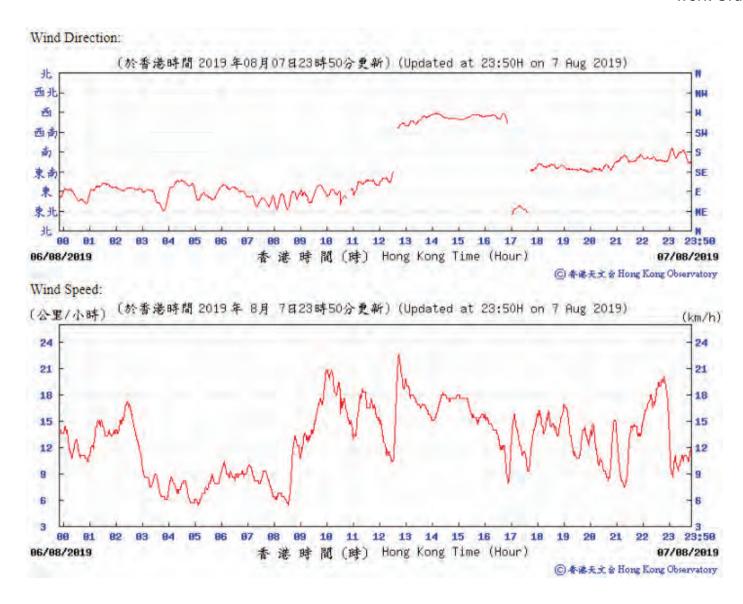


APPENDIX 2

Extract Of Meteorological Observations from Hong Kong Airport Observatory Station









### **APPENDIX 3**

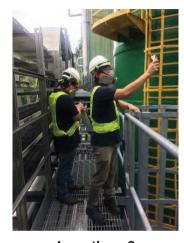
### A3.1. Odour Patrol at Different Locations – Daytime



Location: 1



Location: 2



Location: 3



Location: 4



Location: 5



Location: 6

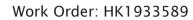


Location: 7



Location: 8

Page 10 of 13

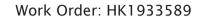








Location: 9 Location: 10





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



Location: 1



Location: 5



Location: 2



Location: 6



Location: 3



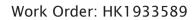
Location: 7



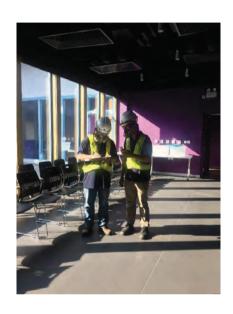
Location: 4



Location: 8







Location: 9



Location: 10