




Environmental Team Services for Tuen Mun Area 54 Sewage Pumping Station

Operation Phase Third Odour Impact Monitoring
Report

June 2020

This Third Operation Phase Odour Impact Monitoring Report for Tuen Mun Area 54 Sewage Pumping Station has been reviewed, certified by the Environmental Team Leader (ETL) and verified by the Independent Environmental Checker (IEC).


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Date: 2 July 2020

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Environmental Team Services for Tuen Mun Area 54 Sewage Pumping Station

Operation Phase Third Odour Impact Monitoring
Report

June 2020

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Executive summary

In November 2018, Mott MacDonald Hong Kong Limited (MMHK) was commissioned by the Drainage Services Department (DSD) under Quotation Ref. DEMP/2018/04 to undertake the duties of Environmental Team (ET) as specified in the Environmental Monitoring and Audit (EM&A) Manual and the EP in relation to the odour impact monitoring for the 12-month operation Tuen Mun Area 54 Sewage Pumping Station (TM54SPS). The Further Environmental Permit (Further Environmental Permit (FEP) No. FEP-01/381/2009) was granted by the Environmental Protection Department (EPD) on 20 February 2018.

The Operation Phase Third Odour Impact Monitoring Report presents the results of the 3rd impact odour monitoring event for operation phase. With reference to Section 3.2.2 of the First Baseline Monitoring Report (i.e. reporting of the first impact odour monitoring event from 26 to 27 November 2019), Single-Tiered Conservative Approach is adopted for interpretation of the impact monitoring results. The 24-hour average H₂S concentration is 2.4 ppb at monitoring station A2, exceeding the Action Level which is 2.3 ppb but complying with the Limit Level which is 2.5 ppb. Exceedance of Action and Limit Level were observed at monitoring stations A1 and A5. Based on the monitoring data review and site observation during monitoring period, it is considered that the exceedances at A1, A2 and A5 are not project related.

1 Introduction

1.1 Background

In November 2018, Mott MacDonald Hong Kong Limited (MMHK) was commissioned by the Drainage Services Department (DSD) under Quotation Ref. DEMP/2018/04 to undertake the duties of Environmental Team (ET) as specified in the Environmental Monitoring and Audit (EM&A) Manual and the EP in relation to the odour impact monitoring for the 12-month operation Tuen Mun Area 54 Sewage Pumping Station (TM54SPS).

A layout plan of the Project is provided in **Figure 1.1**.

1.2 Project Organisation

The organisation chart and lines of communication with respect to the on-site environmental management structure together with the contact information of the key personnel are shown in **Appendix A**.

1.3 Purpose of the Report

The Third Odour Impact Monitoring Report (hereinafter as the “this Report”) presents the methodology and results of the operation phase 3rd impact odour monitoring. The measured impact odour levels are benchmarked with the Action and Limit Level for assessing the impact during operation of the Project.

1.4 Structure of the Report

The structure of this Report is as follows:

- Section 1: Introduction, background, purpose and the structure of the report
- Section 2: Impact odour monitoring requirements and methodology
- Section 3: Impact odour monitoring results and the event and action plan for operation phase
- Section 4: Summary of complaints
- Section 5: Conclusions and recommendations

2 Impact Odour Monitoring Requirements and Methodology

2.1 Introduction

H₂S is one of the main components of odour emissions, which can serve as a surrogate indicator for sewage odour. During operation of TM54SPS, measurements of H₂S concentrations at source and at the selected Air Sensitive Receivers (ASRs) are required. This is to indicate whether the odour concentration would be higher or lower than the baseline condition. The odour level at sources and meteorological data shall be obtained as reference information for the analysis of the exceedance event.

With reference to the EM&A Manual, an impact monitoring of H₂S measurements shall be conducted in the first year of operation upon commissioning of TM54SPS (i.e. construction of TM54SPS was substantially completed in March 2018). As discussed between DSD and EPD, a new arrangement for the odour monitoring locations and level of measurement for the impact odour monitoring had been established. As it was necessary to deal with some of the major technical issues (e.g. review of H₂S measurement method, monitoring locations and level of measurement, etc.) for the impact monitoring, the commencement of the monitoring exercise would be deferred from March 2018 to November 2019. The monitoring location, equipment, methodology and schedule will be discussed in the latter part of this report.

2.2 Monitoring Requirements

In accordance with the EM&A Manual, an operation phase impact odour monitoring programme including odour monitoring stations and methodology was established by ET and agreed with Independent Environmental Checker (IEC) and EPD before commencement of monitoring, which is included in the Method Statement of Odour Impact Monitoring submitted to EPD in November 2019, which is presented in **Appendix B**.

The Event and Action Plan for Air Quality Monitoring (odour) of operational phase stipulated in the EM&A Manual is extracted and presented in **Appendix C**.

2.3 Monitoring Locations

H₂S measurements were taken at the Source and outside the premises of the identified monitoring stations A1, A2 and A5 as shown in **Table 2.1** and **Figure 2.1**.

Table 2.1: Monitoring Locations

Monitoring Station	Monitoring Location	Description of Monitoring Station
A1	Planned Secondary School	ASR
A2	Planned Primary School	ASR
A5	Road Connecting to TMS54SPS*	ASR
SPS	Exhausted Vent Pipe of TMA54SPS	Source

*Alternative monitoring location agreed by DSD, IEC and EPD as presented in the Method Statement of Odour Impact Monitoring submitted to EPD in November 2019.

2.4 Monitoring Equipment

H₂S concentrations were measured using a Jerome 631-X type H₂S analyser. Grab air sample is drawn by built-in suction pump of the analyser and passed through a gold film sensor. The electrical resistance of the gold film changes according to the change in mass of hydrogen sulphide in the gas sample.

Table 2.2 summarizes the equipment used in the impact odour monitoring. Copies of the calibration certificates for the portable H₂S analyser are presented in the technical reports in **Appendix D**.

Table 2.2: Odour Monitoring Equipment

Equipment	Model
Portable H ₂ S analyser	Jerome X631 0003 (Serial no. 2966)

2.5 Monitoring Methodology

A 15-min H₂S concentration was measured every 3 hours for duration of 24 hours at each of the monitoring locations. According to Section 2.35 of the EM&A Manual, impact odour monitoring was taken at a height of predicted worst level of the receivers in the EIA (i.e. 10m above ground level).

During each odour monitoring event, meteorological data including temperature, relative humidity and wind speed was obtained from the nearest Hong Kong Observatory's Tuen Mun Weather Station.

2.6 Monitoring Schedule

As specified in Section 2.53 of the EM&A Manual, impact odour monitoring shall be conducted every three months of the first year of operation for TM54SPS. The first impact odour monitoring event was conducted from 26 to 27 November 2019, the second impact odour monitoring event was conducted from 18 to 19 February 2020 and the third impact odour monitoring event was conducted from 27 to 28 May 2020. The monitoring schedule of the impact monitoring events are presented in **Table 2.3**.

Table 2.3: Schedule of Impact Odour Monitoring Events

Event	Scheduled Date
1 st Impact Odour Monitoring Event	26 – 27 November 2019 (Completed)
2 nd Impact Odour Monitoring Event	18 – 19 February 2020 (Completed)
3 rd Impact Odour Monitoring Event	27 – 28 May 2020 (Completed)
4 th Impact Odour Monitoring Event	August 2020

3 Impact Monitoring Results and Analysis

3.1 Monitoring Results

The H₂S concentrations, as well as the meteorological data during the second impact monitoring event have been presented in the technical report given in **Appendix D**.

Detailed results for the odour monitoring event are presented in the technical reports in **Appendix D**.

3.2 Monitoring Results Analysis

With reference to Section 3.2.2 of the First Baseline Monitoring Report (Reporting of the first impact odour monitoring event from 26 to 27 November 2019), Single-Tiered Conservative Approach is adopted for interpretation of the impact monitoring results.

The impact monitoring results are presented in **Table 3.1**

Table 3.1: Summary of Impact Odour Monitoring Results and Comparison with Action/Limit Levels

Monitoring Station	Description	24-hour Average H ₂ S Concentration (ppb)			Exceedance	
		Impact Monitoring Level	Action Level	Limit Level	Action Level	Limit Level
A1	Planned Secondary School	2.7	2.5	2.5	Yes	Yes
A2	Planned Primary School	2.4	2.3	2.5	Yes	No
A5	Road connecting to TMA54SPS	2.9	2.5	2.5	Yes	Yes
SPS	Exhausted Vent Pipe of TMA54SPS	2.5	-	-	-	-

The 24-hour average H₂S concentration is 2.4 ppb at monitoring station A2, exceeding the Action Level which is 2.3 ppb but complying with the Limit Level which is 2.5 ppb. Exceedance of Action and Limit Level were observed at monitoring stations A1 and A5.

3.3 Exceedance Investigation

Regarding the exceedance of Action and Limit Level observed at monitoring stations A1 and A5 and the exceedance of Action Level at monitoring station A2, a review of monitoring data has been undertaken and our observations are as follows,

Monitoring Station A1

1. At A1, it is observed that 3 out of the 8 sampling events throughout the 24-hours monitoring period, the H₂S concentration at A1 is higher than at Source (SPS);
2. Also, at Sample 2, 3 and 5, the H₂S concentration at A1 is 23-45.8% higher than at Source (SPS);

3. Under the above observations, it is considered that the Source (SPS) is not the major contributor to H₂S concentration at A1 during Sample 2, 3 and 5, and thus the exceedance at A1 is not project related.
4. Refer to the site observation at A1 during the monitoring period, no significant H₂S source was identified.

Monitoring Station A2

1. At A2, it is observed that 3 out of the 8 sampling events throughout the 24-hours monitoring period, the H₂S concentration at A2 is higher than at Source (SPS);
2. Also, at Sample 2 and 3, the H₂S concentration at A2 is 19-20% higher than at Source (SPS);
3. Under the above observations, it is considered that the Source (SPS) is not the major contributor to H₂S concentration at A2 during Sample 2 and 3, and thus the exceedance at A2 is not project related.
4. Refer to the site observation at A2 during the monitoring period, no significant H₂S source was identified.

Monitoring Station A5

1. At A5, it is observed that half of the sampling events throughout the 24-hours monitoring period, the H₂S concentration at A5 is higher than at Source (SPS);
2. Also, at Sample 1, 2, 3 and 6, the H₂S concentration at A2 is 10-43% higher than at Source (SPS);
3. Under the above observations, it is considered that the Source (SPS) is not the major contributor to H₂S concentration at A5 during Sample 1, 2, 3 and 6, and thus the exceedance at A5 is not project related.
4. Refer to the site observation at A5 during the monitoring period, no significant H₂S source was identified.

In addition, a review of site observation throughout the whole monitoring period have been undertaken. As reported by the monitoring personnel, no significant odour was recorded at Source (SPS). Therefore, through the result of monitoring data review together with the site observation, it is considered that the exceedances at A1, A2 and A5 are not project related.

Since the exceedance at A1, A2 and A5 are not project related, therefore, no remedial actions have been recommended. Still, the Incident Report on Action Level or Limit Level Exceedance is prepared and provided in **Appendix E**.

3.3.1 Weather Condition during Impact Monitoring

The weather condition during the impact odour monitoring event was mainly cloudy and wind was mainly mild to moderate.

4 Summary of Complaints

4.1 Summary of Complaints

There was no complaint received by ET in relation to the environmental impact received from TMA54SPS operation commencement to end of the 3rd impact monitoring event.

5 Conclusions and Recommendations

5.1 Conclusion and Recommendations

The 3rd impact odour monitoring was carried out on 27 – 28 May 2020.

Odour monitoring was conducted at three monitoring stations and the Source. A 15-minute H₂S concentration was measured every 3 hours for a duration of 24 hours. All monitoring equipment used were properly calibrated and have valid calibration certificates.

With reference to Section 3.2.2 of the First Baseline Monitoring Report (Reporting of the first impact odour monitoring event from 26 to 27 November 2019), Single-Tiered Conservative Approach is adopted for interpretation of the impact monitoring results. The 24-hour average H₂S concentration is 2.4 ppb at monitoring station A2, exceeding the Action Level which is 2.3 ppb but complying with the Limit Level which is 2.5 ppb. Exceedance of Action and Limit Level were observed at monitoring stations A1 and A5. Based on the monitoring data review and site observation during monitoring period, it is considered that the exceedance at A1, A2 and A5 are not project related. The weather during the 3rd impact monitoring was generally cloudy and wind was mild to moderate.

No complaints were received by ET in relation to the environmental impact received from TMA54SPS operation commencement to end of the 3rd impact monitoring event.

The image features a solid teal background. On the left side, there is a white geometric shape that resembles a stylized letter 'L' or a corner cutout. The top part of this shape is a triangle pointing upwards, and the bottom part is a trapezoid extending downwards. The word "Figures" is written in a bold, black, sans-serif font, positioned to the right of the white shape's vertical section.

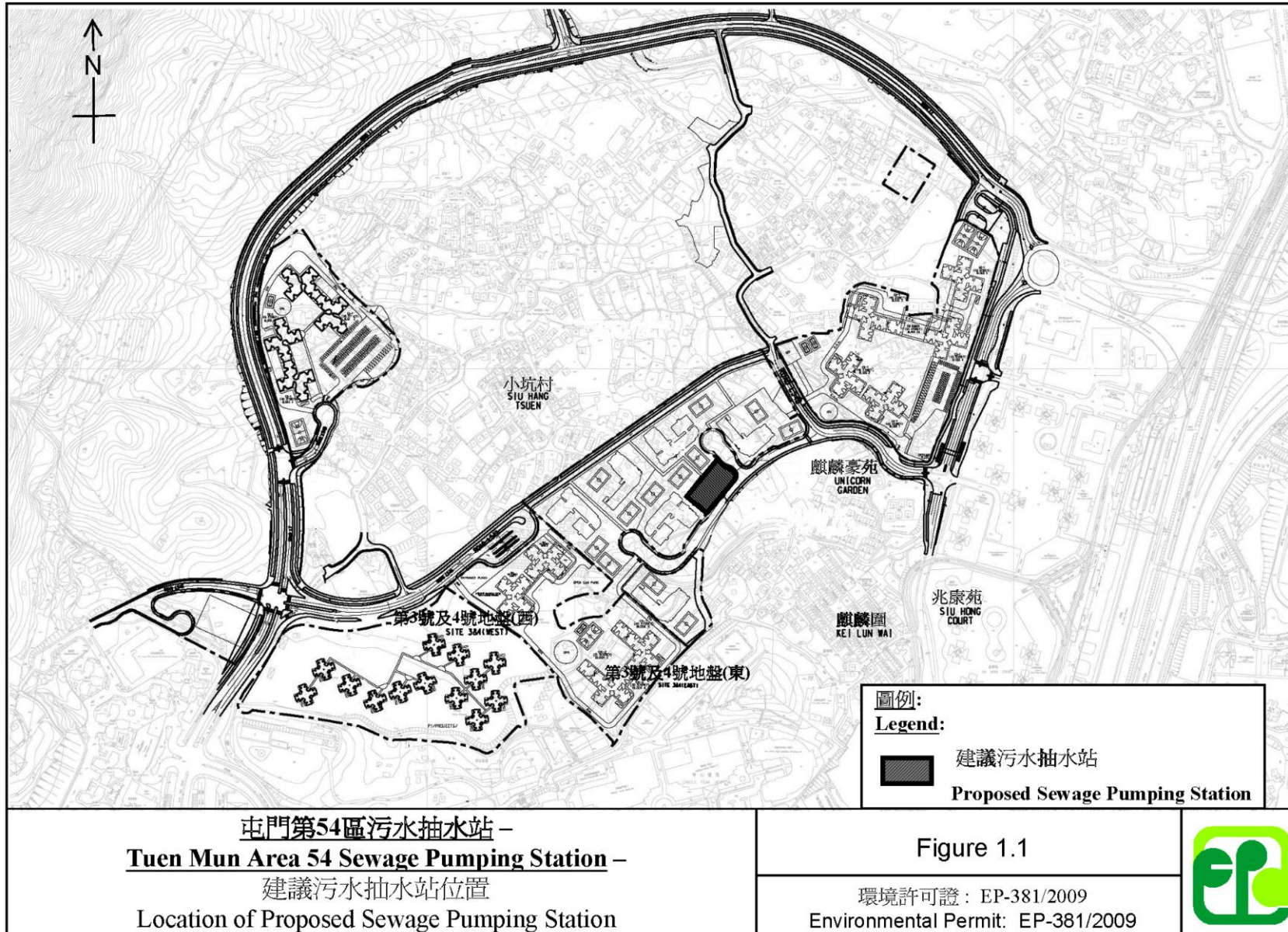
Figures

Figures

Figure 1.1: Layout Plan

Figure 2.1: Locations of Impact Odour Monitoring Stations

Figure 1.1: Layout Plan



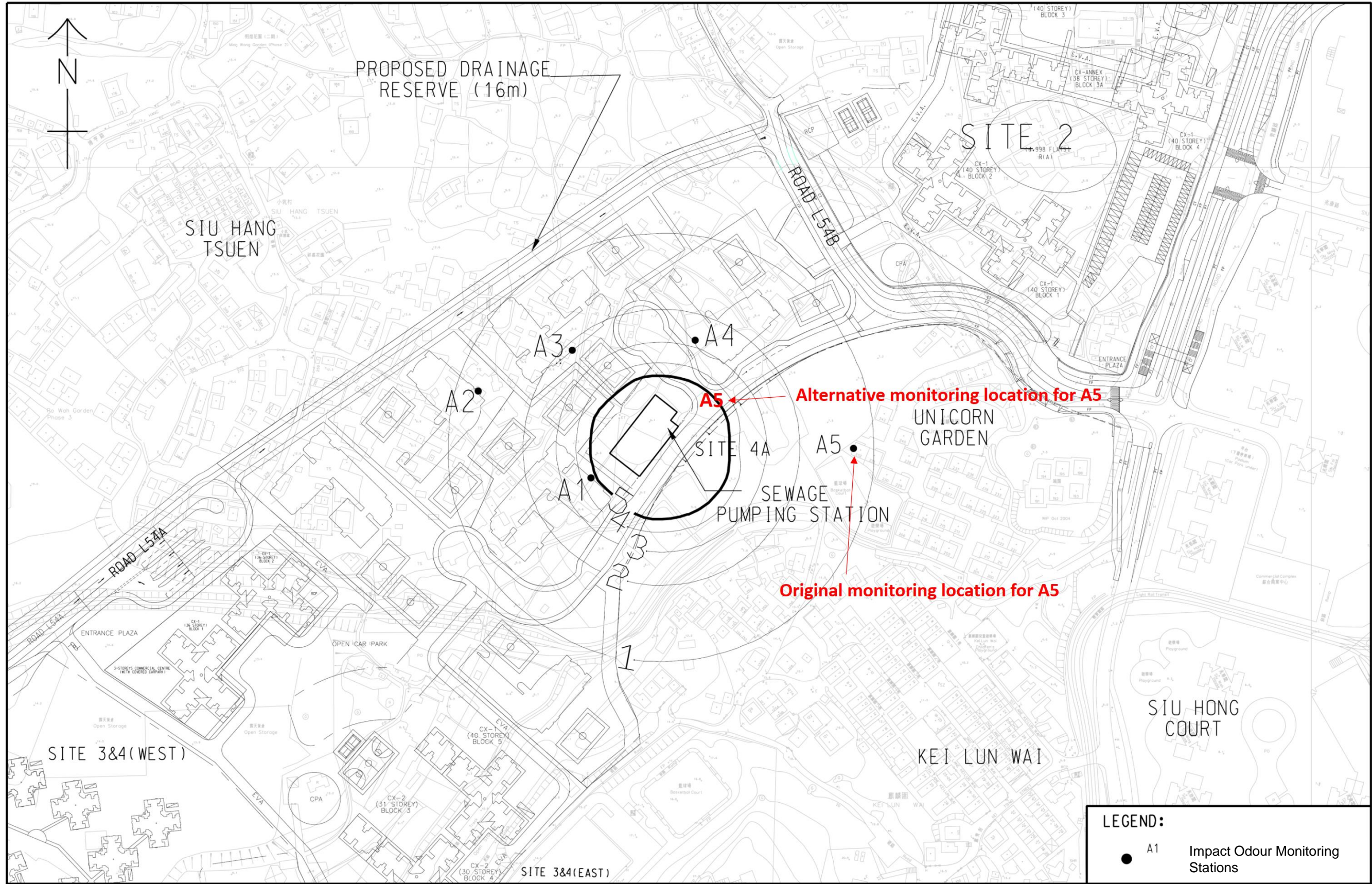


Figure 2.1 Locations of Impact Odour Monitoring Stations

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A. Project Organisation

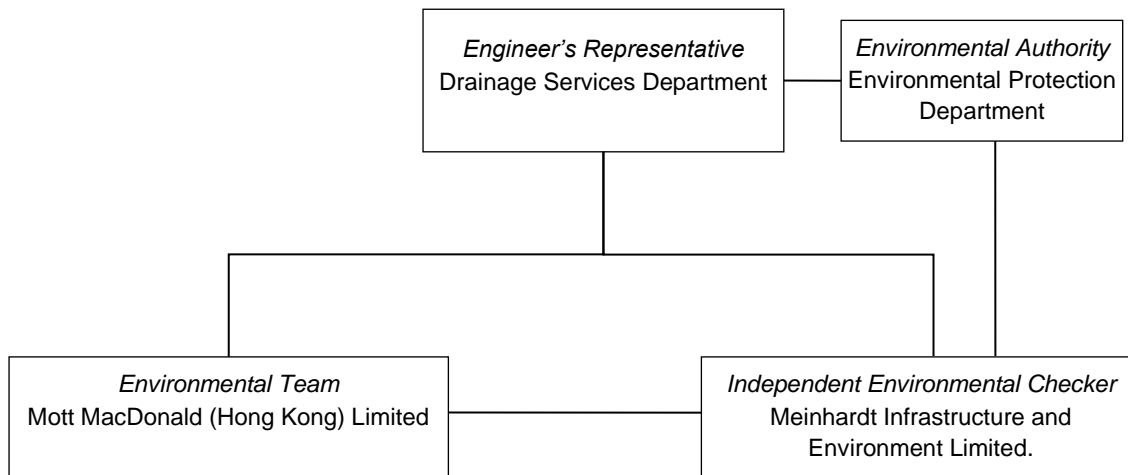


Table A.1: Contact Information

Company / Department	Position	Name	Telephone / Mobile
Drainage Services Department	Engineer's Representative	Mr. Lui Chun-lung, Sam	2594 7306
Meinhardt Infrastructure and Environment Limited	Independent Environmental Checker	Mr. Chiu Wai Kwan	2859 5881
Mott MacDonald (Hong Kong) Ltd.	Environmental Team Leader	Ir Thomas Chan	2828 5967

B. Method Statement of Odour Impact Monitoring



Provision of Environmental Team (ET) Services for Tuen Mun Area 54 Sewage Pumping Station

Method Statement of Odour Impact Monitoring

September 2019

This Method Statement of Odour Impact Monitoring for Tuen Mun Area 54 Sewage Pumping Station has been reviewed, certified by the Environmental Team Leader (ETL) and verified by the Independent Environmental Checker (IEC).

Certified by:



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Environmental Team Leader (ETL)
Mott MacDonald Hong Kong Limited

Date: 30 October 2019

Verified by:



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Provision of Environmental Team (ET) Services for Tuen Mun Area 54 Sewage Pumping Station

Method Statement of Odour Impact Monitoring

September 2019

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Appendix B – Sample of air quality (H2S) monitoring data record sheet

Appendix C – Plan showing the odour monitoring locations for the baseline odour monitoring

Appendix D – Advice on the programme of private land resumption from LandsD

Appendix E – Plan showing the proposed locations of odour monitoring stations for the impact odour monitoring

Appendix F – Monitoring location for exhaust vent pipe from the deodourizing unit

1 Introduction

1.1 Background

In November 2018, Mott MacDonald Hong Kong Limited (MMHK) was commissioned by the Drainage Services Department (DSD) under Quotation Ref. DEMP/2018/04 to undertake the duties of Environmental Team (ET) as specified in the Environmental Monitoring and Audit (EM&A) Manual and the EP in relation to the odour impact monitoring for the 12-month operation Tuen Mun Area 54 Sewage Pumping Station (TMA54SPS).

1.2 Purpose of the Method Statement

With reference to Section 2.53 of the EM&A Manual (AEIAR-122/2008), Hydrogen Sulphide (H₂S) monitoring programme shall be conducted in the first year upon commissioning of TMA54SPS. This method statement presents the methodology and monitoring requirements for the odour impact monitoring according to the EM&A Manual (AEIAR-122/2008).

1.3 Structure of the Method Statement

The structure of the method statement is as follows:

- Section 1 - Background, purpose and the structure of the proposal;
- Section 2 - Monitoring requirements of odour impact monitoring; and
- Section 3 - Conclusion.

1.4 Abbreviation

The following abbreviations are used in this method statement:

ASRs	Air Sensitive Receivers
DSD	Drainage Services Department
LandsD	Lands Department
ET	Environmental Team
IEC	Independent Environmental Checker
EM&A	Environmental Monitoring and Audit
H ₂ S	Hydrogen Sulphide
MMHK	Mott MacDonald Hong Kong Limited
TMA54SPS	Tuen Mun Area 54 Sewage Pumping Station

2 Monitoring Requirements

2.1 Background

H₂S is one of the main components of odour emissions, which can serve as a surrogate indicator for sewage odours. During commissioning of TMA54SPS, measurements of H₂S concentrations at source and at the selected ASRs are required. This is to indicate whether the odour concentration would be higher or lower than the baseline condition. The odour level at sources and meteorological data shall be obtained as reference information for the analysis of the exceedance event.

The site measurements of the baseline odour monitoring have been conducted in December 2016, March 2017, August 2017 and February 2018. Taking into account the locations of potential representative sensitive receivers in the vicinity of TMA54SPS during its first year of commissioning, the ET proposed and the IEC agreed to adopt alternative odour monitoring stations (A1 to A4) for the baseline odour monitoring, while the monitoring station of A5 remained unchanged. The measurements were taken from a height of 2m above ground level. The Baseline Odour Monitoring Report has been prepared to present the methodology and the measurement results of the baseline odour monitoring. It also established the Action Levels for the operational phase odour impact monitoring in accordance with Table 2.4 of the Final EM&A Manual of the approved EIA of "Tuen Mun Area 54 Sewage Pumping Station" (TMA54SPS) (hereafter known as EM&A Manual). The Report, with IEC's verification, was submitted to EPD for agreement on 9 April 2018. EPD expressed no objection to the Baseline Odour Monitoring Report on 16 May 2018.

With reference to the EM&A Manual, an impact monitoring of H₂S measurements shall be conducted in the first year of operation upon commissioning of TMA54SPS (i.e. construction of TMA54SPS was substantially completed in March 2018). The monitoring measurement shall be conducted by the ET at the same monitoring stations and levels as in the baseline period (as presented in Table 3-1 of the Baseline Odour Monitoring Report). Further to discussions between DSD and EPD in the past few months, a new arrangement for odour monitoring locations and level of measurement for the impact odour monitoring has been established. As it was necessary to deal with some of the major technical issues (e.g. review of H₂S measurement method, monitoring locations and level of measurement, etc) for the impact odour monitoring, the commencement of the monitoring exercise would be deferred from March 2018 to October 2019. The scheduling of the monitoring programme as well as the new locations of monitoring stations and level of measurement would be discussed in the latter part of this method statement.

2.2 Monitoring Equipment

2.2.1 Monitoring Equipment

Portable H₂S analyser, type Jerome 631-X H₂S, or equivalent will be used for H₂S sampling. The analyser fulfils the following requirements:

- able to measure H₂S concentration in the range of 1ppb to 50ppm, with resolution of 1ppb;
- operates within a temperature range of 0 to 40°C, at an air flow rate of 0.15 L/min; and
- with built-in suction pump to draw air sample and passed through a gold film sensor.

The H₂S concentration is measured by the analyser through drawing a grab air sample by built-in suction pump of a portable H₂S analyser and passed across a gold film sensor.

2.2.2 Conservative Approach on Reading Interpretation

According to the analyser technical specifications as attached in **Appendix A**, it is noticed that the equipment sensitivity is 0.003ppm H₂S, while the detection range is 3 ppb (0.003ppm) – 50 ppm in four graduated ranges. To cope with the uncertainty of reading below 3ppb, a conservative approach on reading interpretation will be adopted.

During the odour impact monitoring, for readings below 3ppb, it will be recorded as in **Table 2.1**.

Table 2.1: Conservative Approach on Reading Interpretation for Readings Below 3ppb

Reading Shown on Analyser	Reading to be Recorded
0 ppb	0.5 ppb
1 ppb	1.5 ppb
2 ppb	2.5 ppb

2.3 Monitoring Parameters, Frequency and Duration

A 15-min H₂S concentration will be measured every 3 hours for duration of 24 hours at the agreed monitoring locations and level of measurement, including at the exhausted vent pipe from deodorizing unit. Monitoring will not be conducted on rainy days.

Besides, hourly meteorological data including temperature, wind speed and direction during the sampling period will be obtained from the nearest Hong Kong Observatory's Tuen Mun Weather Station.

Appendix B shows a sample of Air Quality (H₂S) Monitoring Data Record Sheet.

2.4 Impact Odour Monitoring

In accordance with Section 2.34 of the EM&A Manual, H₂S measurements will be taken at source and outside the premises of the identified ASRs for the impact odour monitoring. As discussed between DSD and EPD, new arrangements for odour monitoring locations and level of measurement for the impact odour monitoring have been established.

Monitoring locations for ASRs and the source are presented in the following paragraphs.

2.4.1 Monitoring Locations for ASRs

For the baseline odour monitoring, it was conducted at the original monitoring location for A5 as given in the EM&A Manual, and the alternative monitoring locations for A1 to A4 which were agreed with the IEC and CEDD and approved by EPD. The measurements were taken from a height of 2m above ground level at the agreed monitoring locations. A plan showing the odour monitoring locations for the baseline odour monitoring is given in **Appendix C**.

However, EPD raised that the odour monitoring stations and level of measurement for the impact odour monitoring should be further reviewed based on the latest site development and locations of potential representative sensitive receivers in the vicinity of TMA54SPS. Having reviewed, the odour measurement for the impact odour monitoring would be taken at a height of 10m above ground level, which is the predicted worst level of the receivers as stated in the EM&A Manual. A truck mounted working platform would be employed for the odour measurement at a height of 10m above ground level. As regards the locations of odour monitoring stations, it is noticed that there are 3 odour monitoring stations selected in the EM&A Manual (i.e. A3-A5) are currently

located in private lots which are not accessible for the ET to conduct the impact odour monitoring at a height of 10m above ground level, while the remaining 2 stations (i.e. A1 and A2) fall within CEDD's construction sites (i.e. Government land). As advised by LandsD (attached in **Appendix D**), the private land resumption (for A3 and A4) are planned to be made in July 2020, while the private land (for A5) will not be resumed. As the monitoring station "A5" which falls within the boundary of private open car park, DSD approached the car park company staff in person in March 2019 to see whether they could give permission for the ET to conduct the odour monitoring at 10m high by using a truck-mounted lifting platform in their car park. However, they turned down our request with a verbal response that any activities other than car parking were not allowed in the car park. As such, the alternative location of odour monitoring station for A5 should be proposed. It is noted that the sites on both sides of the road connecting to TMA54SPS are all private land lots, except that TMA54SPS and the road itself are on government land. The odour monitoring station "A5" should be relocated to somewhere on the road connecting to TMA54SPS. In addition, according to the contours of odour concentrations at 10m above ground, the original location of A5 is within 1 OU zone which is the furthest measurement point from TMA54SPS. As a prudent approach in determine the alternative location of odour monitoring station for A5, we propose that a new A5 is situated on the road connecting to TMA54SPS at a location within 4 OU zone which is close to TMA54SPS. In view of the land resumption programme, the impact odour monitoring will be spilt into two phases. The 1st phase will include the odour monitoring at the locations A1, A2 and new A5, while A3 and A4 will be included in the 2nd phase after the completion of private land resumption in July 2020. A plan showing the proposed locations of odour monitoring stations for the impact odour monitoring is attached in **Appendix E**.

2.4.2 Monitoring at Source

H₂S measurements will be taken at the exhaust vent pipe from the deodourizing unit to obtain H₂S concentrations at source. The selected location is shown in **Appendix F**.

2.5 Monitoring Programme

As stipulated in Section 2.53 of the EM&A Manual, the H₂S monitoring will be conducted every three months for the first year of operation for TM54SPS. However, due to some major technical issues (e.g. review of H₂S measurement method, monitoring locations and level of measurement, etc), the commencement of the impact odour monitoring was deferred from March 2018 to October 2019. In addition, as discussed between DSD and EPD, measurement results from the impact odour monitoring will be directly compared with that obtained in the baseline odour monitoring without any adjustments/ air modelling applied. If all monitoring results are below the limit levels, the impact monitoring will be ceased. If the monitoring results of detected odour monitoring concentration at any ASR is higher than the limit levels due to operation of the TM54SPS, the odour monitoring will be extended until the odour concentration at the ASR in consecutive 2 times are below the limit levels (once for 3 months). Action and Limit Levels for Air Quality in operation phase are given in **Table 2.2**.

Regarding the above requirements, a tentative monitoring programme is shown in **Table 2.3**.

Table 2.2: Action and Limit Levels for Air Quality (Operation Phase)

Parameter	ASR	Action Level (ppb)	Limit Level (ppb)
H ₂ S	A1	2.5	2.5
	A2	2.3	2.5
	A3	2.5	2.5
	A4	2.5	2.5
	A5	2.5	2.5
Incidents of odour complaints	-	Any incidence of odour complaint received through the Odour Complaint Register	Two or more complaints through the Odour Complaint Register within three months

Note: (1) Odour complaints are to be handled in accordance with the complaint registration system as mentioned in Section 2.26-2.29 of the EM&A Manual

Table 2.3: Tentative Monitoring Programme

For 1st phase impact odour monitoring at A1, A2 and new A5:

	1 st Monitoring Event	2 nd Monitoring Event	3 rd Monitoring Event	4 th Monitoring Event
Monitoring Dates	November 2019	February 2020	May 2020	August 2020

For 2nd phase impact odour monitoring at A3 and A4:

	1 st Monitoring Event	2 nd Monitoring Event	3 rd Monitoring Event	4 th Monitoring Event
Monitoring Dates	August 2020	November 2020	February 2021	May 2021

3 Conclusion

Overall, the impact odour monitoring will be implemented in accordance with the recommendations of the approved EIA report (AEIAR-122/2008). The impact odour monitoring will be split into 2 phases. The first monitoring events under the 1st phase and 2nd phase are tentatively scheduled for November 2019 and August 2020, respectively. If all monitoring results are below the limit levels, the impact monitoring will be ceased. If the monitoring results of detected odour monitoring concentration at any ASR is higher than the limit levels due to operation of the TMA54SPS, the odour monitoring will be extended until the odour concentration at the ASR in consecutive 2 times are below the limit levels (once for 3 months).

Appendices

Appendix A Technical Specification of Jerome X631 0003 H₂S Analyzer

Jerome X631 0003 Gold Film Hydrogen Sulphide Analyzer
 Technical Specifications

Resolution:	0.001 ppm
Detection Range:	3 ppb (0.003 ppm) – 50 ppm in four graduated ranges
Sensitivity:	0.003ppm H ₂ S
Precision:	5% relative standard deviation
Accuracy:	Range 0: ± 0.003ppm at 0.050ppm H ₂ S Range 1: ± 0.03ppm at 0.50ppm H ₂ S Range 2: ± 0.3ppm at 5.0ppm H ₂ S Range 3: ± 2ppm at 25ppm H ₂ S
Operating Environment:	0 – 40°C Non-Condensing, Non-Explosive
Response Time-Sample Mode:	10 to 50 ppm (Range 3): 13 seconds 1.0 to 10.0 ppm (Range 2): 16 seconds 0.10 to 1.00 ppm (Range 1): 25 seconds 0.001 to 0.100 ppm (Range 0): 30 seconds
Response Time-Survey Mode:	10 to 50 ppm (Range 3): 3 seconds 1.0 to 9.9 ppm (Range 2): 6 seconds 0.10 to 0.99 ppm (Range 1): 15 seconds 0.001 to 0.099 ppm (Range 0): 20 seconds
Flow Rate:	150 ± 10 ml/min (0.15 ± litres/min)
Power Requirements:	100-120 V~, 50/60 Hz, 1 A or 220-240 V~, 50/60 Hz, 1 A
Fuse:	F1A 250V, 5mm X 20mm
Internal Battery Pack:	Rechargeable nickel cadmium
Case Construction:	Aluminium alloy
Dimensions:	33 cm L x 15 cm W x 10 cm H (13" L x 6" W x 4" H)
Weight:	3.18 kilos (7 pounds)
Digital Meter Display:	Liquid crystal display (LCD)
Data Output:	1. RS-232 Serial, Baud Rate 1200 for use with data logger, and/or Jerome® communication program. 2. RS-232 Serial data format with 0 & 20mA current logic levels; Baud Rate 1200 (special industrial applications) and Analog 20 mA output.

Appendix B Sample of Air Quality (H₂S) Monitoring Data Record Sheet

APPENDIX B Air Quality (H₂S) Monitoring Data Record Sheet

General Information					
Monitoring Location					
Date					
Weather					
Monitoring Results					
<i>Sample No.</i>	<i>Time</i>	<i>Wind Speed</i>	<i>Wind Direction</i>	<i>Temperature</i>	<i>Level (ppb)</i>
Sample 1	Start:				
	Stop:				
Sample 2	Start:				
	Stop:				
Sample 3	Start:				
	Stop:				
Sample 4	Start:				
	Stop:				
Sample 5	Start:				
	Stop:				
Sample 6	Start:				
	Stop:				
Sample 7	Start:				
	Stop:				
Sample 8	Start:				
	Stop:				
Other Observations					

Name & Designation

Signature

Date

Recorded by:

Checked by:

Appendix C Plan Showing the Odour Monitoring Locations for the Baseline Odour Monitoring


APPENDIX C: PLAN SHOWING THE ODOUR MONITORING LOCATIONS FOR THE BASELINE ODOUR MONITORING



Appendix D Advice on the Programme of Private Land Resumption from Lands Department

Urgent Return receipt Sign Encrypt Mark Subject Restricted Expand personal&public groups



Re: Enquiry on Land Use Status (Nearby Tuen Mun Area 54 Sewage Pumping Station) 

12/07/2019 10:17

From: TW CHOI/LAO/LANDSD/HKSARG@LANDSD
To: Chun Lung LUI/E&MP/DSD/HKSARG@DSD
Serial No.:

Dear Sam,

Please be advised that for Land Nos.1, 2 and 4 as shown at our LSP, the tentative land reversion date is 4/2020 and land clearance date (site handover to CEDD) is 7/2020.

Thank you.

Best Regards,
Jessica T.W. CHOI
LE/SD, DLO/TM
Tel: 2451 3310

Chun Lung LUI Dear Jessica, We spoke. Grateful for your a... 2019/07/12 上午 10:03:49

From: Chun Lung LUI/E&MP/DSD/HKSARG@DSD
To: TW CHOI/LAO/LANDSD/HKSARG@LANDSD,
Date: 2019/07/12 上午 10:03
Subject: Re: Enquiry on Land Use Status (Nearby Tuen Mun Area 54 Sewage Pumping Station)

Dear Jessica,

We spoke. Grateful for your advice on the tentative land resumption schedule for Land No. 1, No. 2 and No. 4 as indicated in the attached LSP. Many thanks.

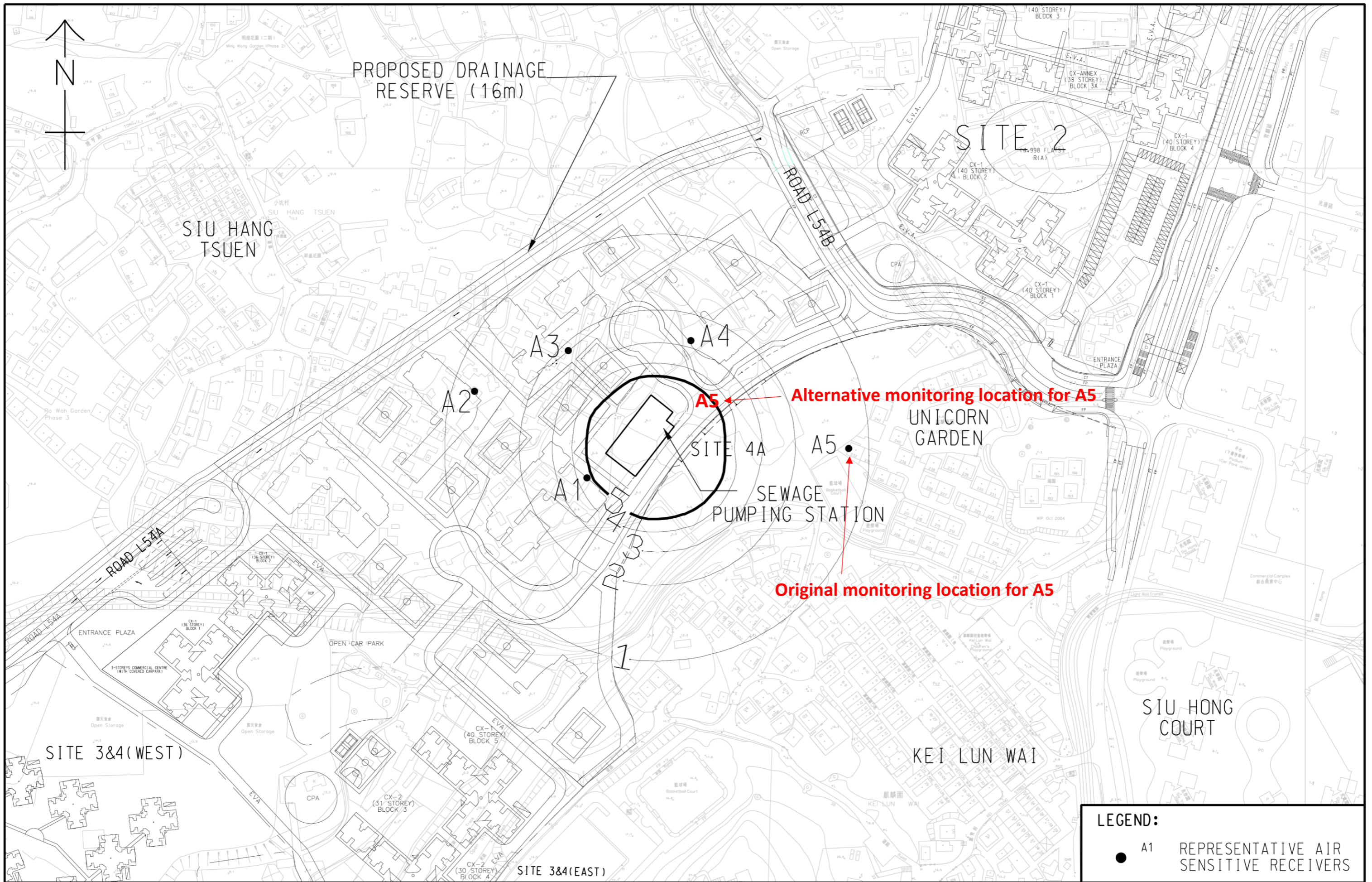
Best Regards,

LUI Chun-lung, Sam
EME/P1/2, E&MP, DSD
Office: 2594 7306
Mobile: 6070 0441



TW CHOI Dear Sam, Preceding email refers. 04/06/2019 15:38:51
Chun Lung LUI Dear Ms. CHOI, We spoke. Grateful for you c... 2019/06/04 上午 11:03:45

Appendix E Plan Showing the Proposed Locations of Odour Monitoring Stations for the Impact Odour Monitoring



LEGEND:

● A1	REPRESENTATIVE AIR SENSITIVE RECEIVERS
------	--

MAUNSELL | AECOM
Maunsell Consultants Asia Ltd

AGREEMENT No. CE 21/2005 (CE)
FORMATION, ROADS AND DRAINS IN AREA 54, TUEN MUN - PHASES 1 AND 2 -
ENVIRONMENTAL, TRAFFIC AND DRAINAGE IMPACT ASSESSMENT REVIEW - INVESTIGATION
ADDITIONAL SERVICE No.2 - ENVIRONMENTAL IMPACT ASSESSMENT FOR TUEN MUN AREA 54 SEWAGE PUMPING STATION

CONTOURS OF ODOUR CONCENTRATION (OU/5-sec avg) AT 10m ABOVE GROUND - MITIGATED SCENARIO

SCALE	1:2000	DATE	FEB 2008
CHECK		DRAWN	SWKY
JOB No.	60021938	DRAWING No.	3.3
		REV	-



Unicorn Garden

A1

A5

Tuen Mun Area 54 SPS

A2

A4

A3

Road L54B

Road L54A

Appendix F Monitoring Location for Exhaust Vent Pipe from the Deodourizing Unit



C. Event and Action Plan for Air Quality (Odour)

Table C.1: Event/Action Plan for Air Quality Monitoring (Operational Phase)

EVENT	ACTION		
	ET	IEC	ER (DSD)
Exceedance of Action level	<ol style="list-style-type: none"> 1. Identify source/ reason of exceedance; 2. Inform IEC and ER(DSD); 3. Carry out investigation to identify the source/reason of exceedance or complaints. Investigation shall be completed within 1 week and advise the findings to IEC and DSD; 4. Repeat measurement to confirm finding after rectification work. 	<ol style="list-style-type: none"> 1. Check with ET and ER(DSD) on the operating activities and implementation of odour mitigation measures; 2. Discuss with ER(DSD) on the possible remedial actions; 3. Advise the ER(DSD) on the effectiveness of the proposed remedial measures; 4. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Rectify any unacceptable practice; 3. Amend working methods as required; 4. Implement amended working methods.
Exceedance of Limit level	<ol style="list-style-type: none"> 1. Notify IEC, ER(DSD) and EPD; 2. Identify source of odour; 3. Increase monitoring frequency; 4. Carry out investigation to identify the source/reason of exceedance. Investigation shall be completed within 1 week and advise the findings to IEC and ER(DSD); 5. Arrange meeting with IEC and ER to discuss the remedial actions to be taken; 6. Assess effectiveness of the remedial actions and keep IEC, EPD and ER(DSD) informed of the results. 	<ol style="list-style-type: none"> 1. Check with ET and ER(DSD) on the operating activities and implementation of odour mitigation measures; 2. Review the proposed remedial actions whenever necessary to assure their effectiveness and advise the ER(DSD) accordingly; 3. Supervise implementation of remedial measures. 	<ol style="list-style-type: none"> 1. Confirm receipt of notification of exceedance in writing; 2. Rectify any unacceptable practice and amend working methods as required; 3. Formulate remedial actions and inform ET and IEC; 4. Ensure amended working methods and remedial actions properly implemented; 5. If exceedance continues, consider what portion of the work is responsible and stop that portion of work until the exceedance is abated.

D. Technical Reports for the 3rd Impact Odour Monitoring



Third Operation Phase Odour Impact Monitoring Report

Impact Odour Monitoring - Hydrogen Sulphide Measurement for Tuen Mun
Area 54 Sewage Pumping Station | Hong Kong

0118/19/ED/0392 01 | 10 June 2020

For review

Mott Macdonald Hong Kong Limited

Executive Summary

Fugro Technical Services Limited (FTS) has been appointed by Mott MacDonald Hong Kong Limited, the Project Environmental Team (ET) of Tuen Mun Area 54 Sewage Pumping Station (TMA54SPS) to undertake the operation phase impact odour monitoring for the project.

This is the third monitoring report for the Odour Impact Monitoring of TMA54SPS, prepared by Fugro Technical Services Limited for submission to Mott MacDonald Hong Kong Limited.

This report presents the results obtained from the third operation phase impact odour monitoring carried out from 27 May 2020 to 28 May 2020 during the operation of TMA54SPS.

Exceedance of Action and Limit level at A1 and A5 were recorded. Exceedance of Action level at A2 was recorded.

In this reporting period, there were no records of odour complaint received.

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1.3 Monitoring Arrangement	2
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Abbreviations

ASRs	Air Sensitive Receivers
DSD	Drainage Services Department
LandsD	Lands Department
ET	Environmental Team
EM&A	Environmental Monitoring and Audit
H ₂ S	Hydrogen Sulphide
MMHK	Mott MacDonald Hong Kong Limited
FTS	Fugro Technical Services Limited
TMA54SPS	Tuen Mun Area 54 Sewage Pumping Station
OU	Odour Unit

1. Introduction

1.1 Background

To cope with a shortfall in flat supply and a rise in housing demand, Tuen Mun Area 54 was identified by the Government as one of the areas having the potential for housing development. Thus, the New Territories West Development Office of Territory Development Department completed the "Planning and Development Study of Potential Housing Site in Area 54, Tuen Mun" in 1999. The Study put forward proposals on housing types, development parameters and planning layouts and assessed the development impacts on transport network, infrastructural capacities and environmental quality.

According to the Review of Tuen Mun and Tsing Yi Sewerage Master Plans, a new sewage pumping station is needed to convey sewage collected from Tuen Mun Area 54 to existing trunk sewers at Ming Kum Road. Other than Tuen Mun Area 54, TMA54SPS will also collect sewage from four recognized villages within Area 54 including Tsz Tin Tsuen, Po Tong Ha, Kei Lun Wai and Siu Hang Tsuen, and the proposed Tuen Mun North Sewage Pumping Station in Area 52. TMA54SPS has a capacity of about 90,000m³ per day; the design average dry weather flow is approximately 0.32m³/s.

TMA54SPS is located in the central part of Site 4A of Tuen Mun Area 54, north of Kei Lun Wai, south of Tsz Tin Tsuen and west of Site 2 of Tuen Mun Area 54. Site 4A is zoned "Government, Institution or Community" on the Tuen Mun Outline Zoning Plan No. S/TM/22 and is reserved for school development. **Appendix A** shows the location of TMA54SPS. Construction work for TMA54SPS is substantially completed and commissioning is anticipated in February 2018.

TMA54SPS is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 449). A study of Environmental Impact Assessment (EIA) has been carried out to evaluate the environmental impacts associated with the project. An EIA Report and an Environmental Monitoring and Audit (EM&A) Manual were approved by the Environmental Protection Department (EPD) on 12 November 2008. An Environmental Permit (EP) No. EP-381/2009 was issued on 4 January 2010 for TMA54SPS to the Civil Engineering and Development Department as the Permit Holder. The EP stipulates that an EM&A programme is required to ensure mitigation measures recommended in the EIA Report and the EM&A Manual are implemented during the construction and operation of TMA54SPS.

1.2 Project Description

FTS was commissioned to carry out operation phase odour impact monitoring for Mott MacDonald Hong Kong Limited for the project of TMA54SPS.

The EIA study of TMA54SPS has identified odour emissions from the sewage pumping station as the main potential air quality impact. To reduce odour emissions from the operation of TMA54SPS, it is recommended in the EIA Report that wet wells and screen chambers, the main

sources of odour, should be enclosed in a building structure. A deodorizing unit should also be installed; in order to treat vented air before it would be discharged into the atmosphere.

Furthermore, odour monitoring is required as per the EM&A Manual prior to and during the initial operation of TMA54SPS. The purpose of the odour impact monitoring is to indicate whether the odour concentration would be higher or lower than the baseline condition.

1.3 Monitoring Arrangement

According to the EM&A Manual, gaseous hydrogen sulphide (H₂S) is one of the main components of odour emissions. Ambient H₂S concentration can serve as a surrogate indicator for sewage odours as it can be readily monitored at the Air Sensitive Receivers (ASRs).

The odour impact monitoring shall be conducted in the first year upon commissioning of TMA54SPS. Odour Impact Monitoring would be conducted every three months for the first year of operation for TMA54SPS. However, due to some major technical issues (e.g. review of H₂S measurement method, monitoring locations and level of measurement, etc), the commencement of the impact odour monitoring was deferred from March 2018 to October 2019. In addition, as discussed between DSD and EPD, measurement results from the impact odour monitoring will be directly compared with that obtained in the baseline odour monitoring without any adjustments / air modelling applied. If all monitoring results are below the limit levels, the impact monitoring will be ceased. If the monitoring results of detected odour monitoring concentration at any ASR is higher than the limit levels due to operation of the TMA54SPS, the odour monitoring will be extended until the odour concentration at the ASR in consecutive 2 times are below the limit levels (once for 3 months). Action and Limit Levels for Air Quality in operation phase are given in **Table 1.1**.

As regards the locations of odour monitoring stations, it is noticed that there are 3 odour monitoring stations selected in the EM&A Manual (i.e. A3-A5) are currently located in private lots which are not accessible for the ET to conduct the impact odour monitoring at a height of 10m above ground level, while the remaining 2 stations (i.e. A1 and A2) fall within CEDD's construction sites (i.e. Government land). As the monitoring station "A5" which falls within the boundary of private open car park, alternative location of odour monitoring station for A5 was proposed. It is noted that the sites on both sides of the road connecting to TMA54SPS are all private land lots, except that TMA54SPS and the road itself are on government land. The odour monitoring station "A5" should be relocated to somewhere on the road connecting to TMA54SPS. In addition, according to the contours of odour concentrations at 10m above ground, the original location of A5 is within 1 OU zone which is the furthest measurement point from TMA54SPS. As a prudent approach in determine the alternative location of odour monitoring station for A5, the new A5 is situated on the road connecting to TMA54SPS at a location within 4 OU zone which is close to TMA54SPS. In view of the land resumption programme, the impact odour monitoring will be split into two phases. The 1st phase will include the odour monitoring at the locations A1, A2 and new A5.

Regarding the above requirements, a tentative monitoring programme is shown in **Table 1.2**.

Table 1.1 Action and Limit Levels for Air Quality (Operation Phase)

Parameter	ASR	Action Level (ppb)	Limit Level (ppb)
H ₂ S	A1	2.5	2.5
	A2	2.3	2.5
	A5	2.5	2.5
Incidents of odour complaints	-	Any incidence of odour complaint received through the Odour Complaint Register	Two or more complaints through the Odour Complaint Register within three months

Note: Odour complaints are to be handled in accordance with the complaint registration system as mentioned in Section 2.26-2.29 of the EM&A Manual

Table 1.2 Tentative Monitoring Programme

For 1st phase impact odour monitoring at A1, A2 and new A5:

	1 st Monitoring Event	2 nd Monitoring Event	3 rd Monitoring Event	4 th Monitoring Event
Monitoring Dates	November 2019	February 2020	May 2020	August 2020

2. Odour Impact Monitoring

2.1 Methodology

The H₂S analyzer, type Jerome 631-X, was used for the impact monitoring. Grab air sample was drawn by built-in suction pump of the analyzer and passed through a gold film sensor. The electrical resistance of the gold film changes according to the change in mass of hydrogen sulphide in the gas sample.

The details of the equipment used for odour impact monitoring is presented in **Table 2.1**

Table 2.1 Equipment for Baseline Odour Monitoring

Equipment	Manufacturer / Model	Serial Number	Sensor Number	Calibration Date	Next Calibration Date
Gold Film Hydrogen Sulphide Analyzer	JEROME X631 0003	2966	19-8-23-S4AS	17 October 2019	16 October 2020

2.2 Sampling Duration

A 15-min integrated gaseous H₂S sample was collected every 3 hours for a period of 24 hours at monitoring locations, in which five readings were recorded at every monitoring station during each 3-hour session. Maximum and minimum H₂S levels for each monitoring station were recorded.

2.3 Monitoring Locations

H₂S measurements was taken at the sources and outside the premises of the identified ASRs as shown in **Table 2.2** and **Appendix A** show the descriptions and locations of the H₂S monitoring stations.

Table 2.2 Monitoring Locations

Monitoring Station	Monitoring Location	Description
A1 ¹	Planned Secondary School	ASR
A2 ¹	Planned Primary School	ASR
A5 ¹	Road connecting to TMA54SPS	ASR
SPS ¹	Exhausted vent pipe of TMA54SP	Source

Note: ¹ 1st phase odour impact monitoring.

According to the EM&A Manual, the monitoring was taken at a height of predicted worst level of the receivers in the EIA (10 m ground level). Photos showing the monitoring setup are included in **Appendix B**.

2.4 Quality Assurance / Quality Control

In order to ensure the analyzer is functioning properly, manual sensor regeneration and zero adjustment were performed before each set of odour monitoring.

Calibration of the analyzer is conducted every year at the laboratory of the manufacturer. The calibration certificates for the analyzers are shown in **Appendix F**.

3. Monitoring Results

3.1 Weather Conditions and Other Factors

The third monitoring event for the odour impact monitoring for TMA54SPS was conducted from 27 May 2020 (approx. 11:00 am) to 28 May 2020 (approx. 10:59 am).

The weather was mainly fine and wind was mainly mild to moderate during the monitoring event. An anemometer was used for measuring wind speed and wind direction presented in the site record in **Appendix D**. Meteorological conditions of 27 May 2020 and 28 May 2020 obtained from the nearest Hong Kong Observatory's Tuen Mun Weather Station are shown in **Appendix G**. Meteorological data was obtained as reference information for the analysis of the exceedance event.

No significant odour sources from the project site were observed during the impact monitoring period.

3.2 Monitoring Results

The monitoring results are summarised in **Table 3.1**. Details of monitoring data are shown in **Appendix C** (24-hour average, maximum and minimum H₂S concentration), **Appendix D** (site record) and **Appendix E** (data logger record).

Table 3.1 Summary of Monitoring Results

Monitoring Station	Monitoring Location	24-hour Average H ₂ S Concentration (ppb)
A1 ¹	Planned Secondary School	2.7
A2 ¹	Planned Primary School	2.4
A5 ¹	Road connecting to TMA54SPS	2.9
SPS	Exhausted vent pipe of TMA54SP	2.5

Note: ¹ Air Sensitive Receiver.

4. Odour Complaint

There were no complaints received in relation to the environmental impact during the reporting period.

5. Conclusion and Recommendations

The third monitoring event for the odour impact monitoring was carried out from 27 May 2020 to 28 May 2020.

Odour impact monitoring of hydrogen sulphide (H₂S) was conducted at four monitoring stations including three Air Sensitive Receivers around TMA54SPS and at source. Exceedance of Action and Limit level at A1 and A5 were recorded. Exceedance of Action level at A2 was recorded.

At A1, it is observed that 3 out of the 8 sampling events throughout the 24-hours monitoring period, the H₂S concentration at A1 is higher than at source. Also, at Sample 2, 3 and 5, the H₂S

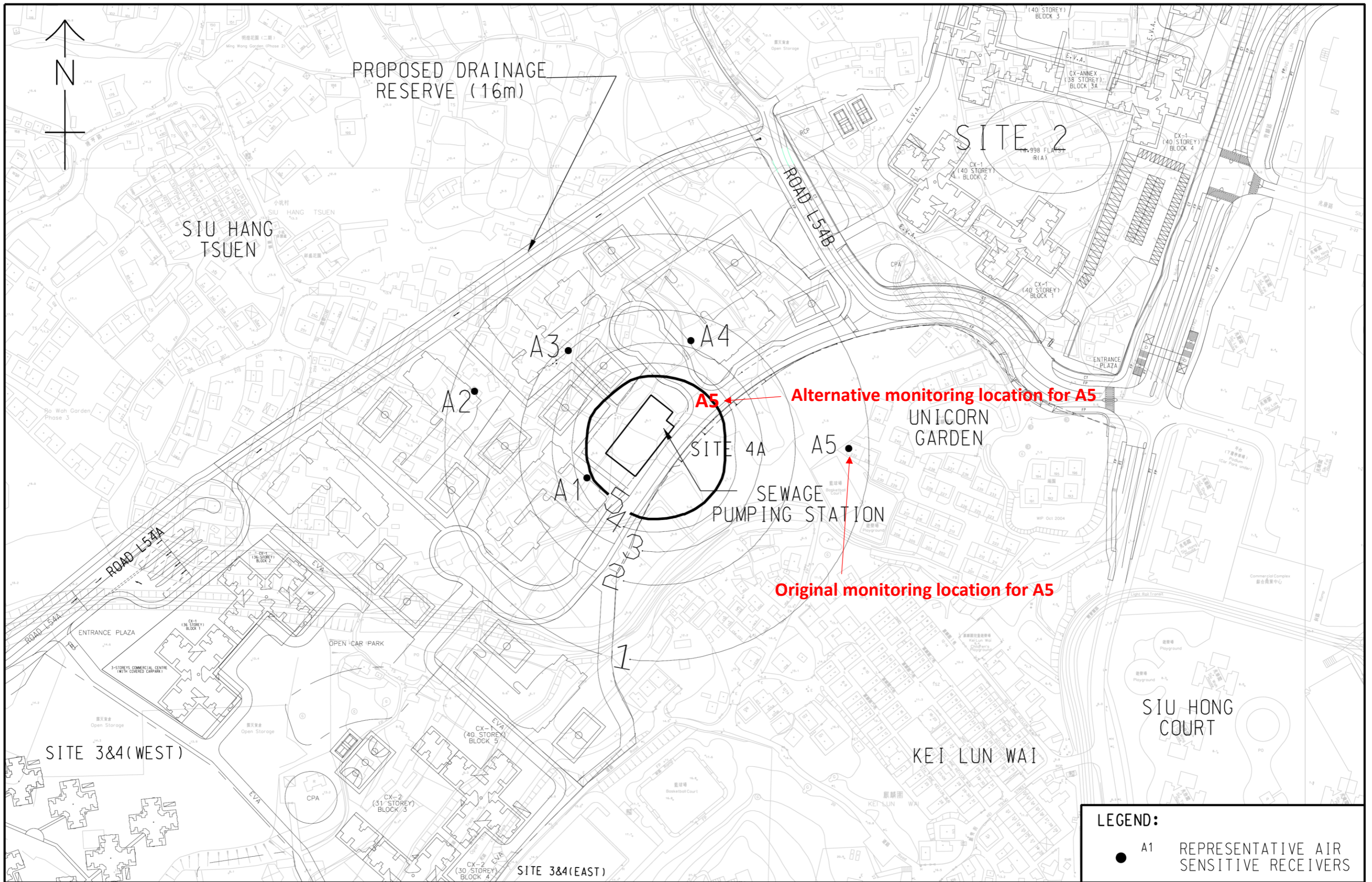
concentration at A1 is 23-45.8% higher than at source. Under the above observations, it is considered that the source is not the major contributor to H₂S concentration at A1 during sample 2, 3 and 5, and thus the exceedance at A1 is not project related.

At A2, it is observed that 3 out of the 8 sampling events throughout the 24-hours monitoring period, the H₂S concentration at A2 is higher than at source. Also, at Sample 2 and 3, the H₂S concentration at A2 is 19 - 20% higher than at source. Under the above observations, it is considered that the source is not the major contributor to H₂S concentration at A2 during sample 2 and 3, and thus the exceedance at A2 is not project related.

At A5, it is observed that over half of the sampling events throughout the 24-hours monitoring period, the H₂S concentration at A5 is higher than at source. Also, at Sample 1, 2, 3 and 6, the H₂S concentration at A2 is 10-43% higher than at source. Under the above observations, it is considered that the source is not the major contributor to H₂S concentration at A5 during Sample 1, 2, 3 and 6, and thus the exceedance at A5 is not project related.

Appendix A

Monitoring Station



LEGEND:

● A1	REPRESENTATIVE AIR SENSITIVE RECEIVERS
------	--

MAUNSELL | AECOM
Maunsell Consultants Asia Ltd

AGREEMENT No. CE 21/2005 (CE)
FORMATION, ROADS AND DRAINS IN AREA 54, TUEN MUN - PHASES 1 AND 2 -
ENVIRONMENTAL, TRAFFIC AND DRAINAGE IMPACT ASSESSMENT REVIEW - INVESTIGATION
ADDITIONAL SERVICE No.2 - ENVIRONMENTAL IMPACT ASSESSMENT FOR TUEN MUN AREA 54 SEWAGE PUMPING STATION

CONTOURS OF ODOUR CONCENTRATION (OU/5-sec avg) AT 10m ABOVE GROUND - MITIGATED SCENARIO

SCALE	1:2000	DATE	FEB 2008
CHECK		DRAWN	SWKY
JOB No.	60021938	DRAWING No.	3.3
		REV	-



Unicorn Garden

Source

A1

A5

Tuen Mun Area 54 SPS

A2

A4

A3

Road L54B

Road L54A

Appendix B

Photographs of Monitoring Stations



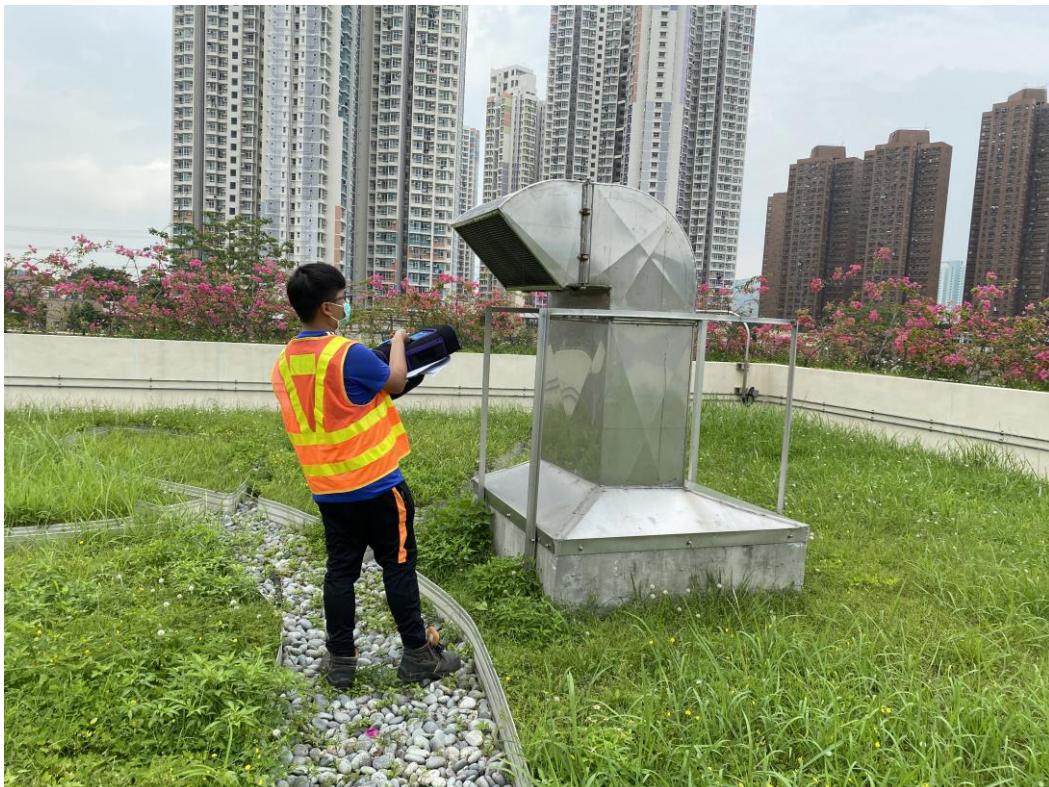
A1



A2



A5



Source

Appendix C

Monitoring Results

Monitoring Station	Time Interval	24-hour Average H ₂ S Concentration (ppb) 3 rd Event for Phase One Odour Impact Monitoring (27 – 28 May 2020)							
		15-minute integrated average	24-hour average	Maximum	Minimum	Action Level	Exceedance	Limit Level	Exceedance
A1	1100-1400	2.6	2.7	4.8	1.6	2.5	Y	2.5	Y
	1400-1700	4.0							
	1700-2000	4.8							
	2000-2300	2.2							
	2300-0200	2.6							
	0200-0500	2.0							
	0500-0800	1.6							
	0800-1100	2.0							
A2	1100-1400	3.2	2.4	3.2	1.6	2.3	Y	2.5	N
	1400-1700	3.0							
	1700-2000	3.2							
	2000-2300	2.2							
	2300-0200	2.2							
	0200-0500	1.6							
	0500-0800	2.2							
	0800-1100	1.6							
A5	1100-1400	4.0	2.9	4.2	1.8	2.5	Y	2.5	Y
	1400-1700	4.2							
	1700-2000	3.6							
	2000-2300	2.8							
	2300-0200	2.2							
	0200-0500	2.4							
	0500-0800	2.2							
	0800-1100	1.8							
SPS	1100-1400	3.6	2.5	3.6	2.0	N/A	N/A	N/A	N/A
	1400-1700	2.4							
	1700-2000	2.6							
	2000-2300	2.8							
	2300-0200	2.0							
	0200-0500	2.0							
	0500-0800	2.2							
	0800-1100	2.2							

Appendix D

Site Record

Air Quality (H₂S) Monitoring Data Record Sheet



General Information				
Monitoring Station	A1			
Date	27/5/2020			
Weather	Cloudy			
Monitoring Results				
Sample No	Time	Wind Speed	Wind Direction	Level(ppm)
Sample 1	Start: 1150	/	/	0.004, 0.003, 0.002 0.002, 0.002
	Stop: 1205			
Sample 2	Start: 1431	/	/	0.004, 0.004, 0.004 0.004, 0.004
	Stop: 1446			
Sample 3	Start: 1735	0.9 m/s	SE	0.004, 0.004, 0.005 0.005, 0.006
	Stop: 1750			
Sample 4	Start: 2035	/	/	0.002, 0.002, 0.002 0.002, 0.002
	Stop: 2050			
Sample 5	Start: 2330	/	/	0.002, 0.002, 0.003 0.003, 0.003
	Stop: 2345			
Sample 6	Start: 0231	/	/	0.001, 0.002, 0.002 0.003, 0.002
	Stop: 0246			
Sample 7	Start: 0535	/	/	0.001, 0.001, 0.002 0.002, 0.002
	Stop: 0550			
Sample 8	Start: 0825	/	/	0.002, 0.002, 0.002 0.002, 0.002
	Stop: 0840			
Other Observations				

Recorded by:	<u>Name & Designation</u> Ting Chan To	<u>Signature</u> 	<u>Date</u> 28/5/2020
Checked by:	Vincent Lu EC		28/5/2020



Air Quality (H₂S) Monitoring Data Record Sheet



General Information				
Monitoring Station	AZ			
Date	27/5 / 2020			
Weather	cloudy			
Monitoring Results				
Sample No	Time	Wind Speed	Wind Direction	Level(ppm)
Sample 1	Start: 11:20	0.2	E	0.004, 0.004, 0.003 0.002, 0.003
	Stop: 11:35			
Sample 2	Start: 14:00	—	—	0.004, 0.003, 0.003 0.002, 0.003
	Stop: 14:15			
Sample 3	Start: 17:00	0.4 m/s	S	0.005, 0.003, 0.003 0.003, 0.002
	Stop: 17:15			
Sample 4	Start: 20:00	—	—	0.002, 0.002, 0.002 0.002, 0.003
	Stop: 20:15			
Sample 5	Start: 23:00	0.3	NE	0.002, 0.002, 0.002 0.003, 0.002
	Stop: 23:15			
Sample 6	Start: 02:00	0.6	NE	0.001, 0.002, 0.001 0.002, 0.002
	Stop: 02:15			
Sample 7	Start: 05:00	/	/	0.002, 0.003, 0.002 0.002, 0.002
	Stop: 05:15			
Sample 8	Start: 08:00	/	/	0.002, 0.002 0.001, 0.001, 0.002
	Stop: 08:15			
Other Observations				

	Name & Designation	Signature	Date
Recorded by:	Ting Chan To		28/5/2020
Checked by:	Vincent Lu EC		28/5/2020



Air Quality (H₂S) Monitoring Data Record Sheet

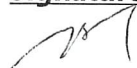

General Information				
Monitoring Station	S			
Date	27/5/2020			
Weather	Cloudy			
Monitoring Results				
Sample No	Time	Wind Speed	Wind Direction	Level(ppm)
Sample 1	Start: 1233	/	/	0.004, 0.004, 0.003 0.003, 0.004
	Stop: 1248			
Sample 2	Start: 1510	0.3 m/s	S	0.003, 0.003, 0.002 0.002, 0.002
	Stop: 1525			
Sample 3	Start: 1819	/	/	0.002, 0.002, 0.003 0.003, 0.003
	Stop: 1834			
Sample 4	Start: 2120	0	0	0.004, 0.003, 0.004 0.002, 0.002
	Stop: 2135			
Sample 5	Start: 0013	/	/	0.002, 0.002, 0.002 0.002, 0.002
	Stop: 0028			
Sample 6	Start: 0317	/	/	0.002, 0.002, 0.002 0.002, 0.002
	Stop: 0332			
Sample 7	Start: 0640	/	/	0.003, 0.002, 0.002 0.002, 0.002
	Stop: 0655			
Sample 8	Start: 0905	/	/	0.002, 0.003, 0.002 0.002, 0.002
	Stop: 0920			
Other Observations				

	<u>Name & Designation</u>	<u>Signature</u>	<u>Date</u>
Recorded by:	Ting An To		28/5/2020
Checked by:	Vincent Lu EC		28/5/2020



Air Quality (H₂S) Monitoring Data Record Sheet

General Information				
Monitoring Station	AS			
Date	27/5/2020			
Weather	Cloudy			
Monitoring Results				
Sample No	Time	Wind Speed	Wind Direction	Level(ppm)
Sample 1	Start: 12 15	0.3	SE	0.005, 0.004, 0.004 0.003, 0.004
	Stop: 12 30			
Sample 2	Start: 14 50	0.6 m/s	S	0.005, 0.005, 0.005 0.003, 0.003
	Stop: 15 05			
Sample 3	Start: 17 59	0.4 m/s	S	0.003, 0.003, 0.002 0.005, 0.005
	Stop: 18 14			
Sample 4	Start: 20 21 00	0	0	0.003, 0.003, 0.003 0.003, 0.002
	Stop: 21 15			
Sample 5	Start: 23 55	0	0	0.002, 0.003, 0.002 0.002, 0.002
	Stop: 00 10			
Sample 6	Start: 02 55	/	/	0.003, 0.003, 0.002 0.002, 0.002
	Stop: 03 10			
Sample 7	Start: 06 20	/	/	0.002, 0.001, 0.003 0.002, 0.003
	Stop: 06 35			
Sample 8	Start: 08 46	/	/	0.002, 0.002, 0.003 0.001, 0.001
	Stop: 09 01			
Other Observations				

Recorded by:	Name & Designation Ting Chan T.	Signature 	Date 28/5/2020
Checked by:	Vincent Lu EC		28/5/2020



Appendix E

Data Logger Record

Site Name: Tuen Mun Area 54 SPS
Address: Tuen Mun Area 54 SPS

Sample Location: Inlet
Technician:
Instrument: 631-1, 631-X, SN 2966
Comment:
Date/Time: 五月-28-2020 12:12am
Alarm Setpoint: 0 (ppm)

	DATE/TIME		RESULT (ppm)
1	五月-27-2020	11:20:46am	0.004
2	五月-27-2020	11:23:46am	0.004
3	五月-27-2020	11:26:46am	0.003
4	五月-27-2020	11:29:46am	0.002
5	五月-27-2020	11:32:46am	0.003
6	五月-27-2020	11:50:33am	/III
7	五月-27-2020	11:50:33am	0.004
8	五月-27-2020	11:53:33am	0.003
9	五月-27-2020	11:56:33am	0.002
10	五月-27-2020	11:59:33am	0.002
11	五月-27-2020	12:02:33pm	0.002
12	五月-27-2020	12:15:07pm	/III
13	五月-27-2020	12:18:07pm	0.005
14	五月-27-2020	12:21:07pm	0.004
15	五月-27-2020	12:24:07pm	0.004
16	五月-27-2020	12:27:07pm	0.003
17	五月-27-2020	12:30:07pm	0.004
18	五月-27-2020	12:33:31pm	/III
19	五月-27-2020	12:33:31pm	0.004
20	五月-27-2020	12:36:31pm	0.004
21	五月-27-2020	12:39:31pm	0.003
22	五月-27-2020	12:42:31pm	0.003
23	五月-27-2020	12:45:31pm	0.004
24	五月-27-2020	02:00:44pm	/III
25	五月-27-2020	02:00:44pm	0.004
24	五月-27-2020	02:03:44pm	0.003
25	五月-27-2020	02:06:44pm	0.003
28	五月-27-2020	02:09:44pm	0.002
29	五月-27-2020	02:12:44pm	0.003
30	五月-27-2020	02:31:13pm	/III
31	五月-27-2020	02:31:13pm	0.004
32	五月-27-2020	02:34:13pm	0.004
33	五月-27-2020	02:37:13pm	0.004
34	五月-27-2020	02:40:13pm	0.004
35	五月-27-2020	02:43:13pm	0.004
36	五月-27-2020	02:50:22pm	/III

Site Name: Tuen Mun Area 54 SPS
Address: Tuen Mun Area 54 SPS

Sample Location: Inlet
Technician:
Instrument: 631-1, 631-X, SN 2966
Comment:
Date/Time: 五月-28-2020 12:12am
Alarm Setpoint: 0 (ppm)

	DATE/TIME		RESULT (ppm)	
37	五月-27-2020	02:50:22pm	0.005	A5
38	五月-27-2020	02:53:22pm	0.005	
39	五月-27-2020	02:56:22pm	0.005	
40	五月-27-2020	02:59:22pm	0.003	
41	五月-27-2020	03:02:22pm	0.003	
42	五月-27-2020	03:10:39pm	/III	End Of Session
43	五月-27-2020	03:10:39pm	0.003	Source
44	五月-27-2020	03:13:39pm	0.003	
45	五月-27-2020	03:16:39pm	0.002	
46	五月-27-2020	03:19:39pm	0.002	
47	五月-27-2020	03:22:39pm	0.002	
48	五月-27-2020	05:00:28pm	/III	End Of Session
49	五月-27-2020	05:00:28pm	0.005	A2
50	五月-27-2020	05:03:28pm	0.003	
51	五月-27-2020	05:06:28pm	0.003	
52	五月-27-2020	05:09:28pm	0.003	
53	五月-27-2020	05:12:28pm	0.002	
54	五月-27-2020	05:35:44pm	/III	End Of Session
55	五月-27-2020	05:35:44pm	0.004	A1
56	五月-27-2020	05:38:44pm	0.004	
57	五月-27-2020	05:41:44pm	0.005	
58	五月-27-2020	05:44:44pm	0.005	
59	五月-27-2020	05:47:44pm	0.006	
60	五月-27-2020	05:59:24pm	/III	End Of Session
61	五月-27-2020	05:59:24pm	0.003	A5
62	五月-27-2020	06:02:24pm	0.003	
63	五月-27-2020	06:05:24pm	0.002	
64	五月-27-2020	06:08:24pm	0.005	
65	五月-27-2020	06:11:24pm	0.005	
66	五月-27-2020	06:19:06pm	/III	End Of Session
67	五月-27-2020	06:19:06pm	0.002	Source
68	五月-27-2020	06:22:06pm	0.002	
69	五月-27-2020	06:25:06pm	0.003	
70	五月-27-2020	06:28:06pm	0.003	
71	五月-27-2020	06:31:06pm	0.003	
72	五月-27-2020	08:00:29pm	/III	End Of Session

Site Name: Tuen Mun Area 54 SPS
Address: Tuen Mun Area 54 SPS

Sample Location: Inlet
Technician:
Instrument: 631-1, 631-X, SN 2966
Comment:
Date/Time: 五月-28-2020 12:12am
Alarm Setpoint: 0 (ppm)

	DATE/TIME			RESULT (ppm)
73	五月-27-2020	08:00:29pm	0.002	A2
74	五月-27-2020	08:03:29pm	0.002	
75	五月-27-2020	08:06:29pm	0.002	
76	五月-27-2020	08:09:29pm	0.002	
77	五月-27-2020	08:12:29pm	0.003	
78	五月-27-2020	08:35:41pm	/III	End Of Session
79	五月-27-2020	08:35:41pm	0.002	A1
80	五月-27-2020	08:38:41pm	0.002	
81	五月-27-2020	08:41:41pm	0.002	
82	五月-27-2020	08:44:41pm	0.002	
83	五月-27-2020	08:47:41pm	0.003	
84	五月-27-2020	09:00:24pm	/III	End Of Session
85	五月-27-2020	09:00:24pm	0.003	A5
86	五月-27-2020	09:03:24pm	0.003	
87	五月-27-2020	09:06:24pm	0.003	
88	五月-27-2020	09:09:24pm	0.003	
89	五月-27-2020	09:12:24pm	0.002	
90	五月-27-2020	09:20:07pm	/III	End Of Session
91	五月-27-2020	09:20:07pm	0.004	Source
92	五月-27-2020	09:23:07pm	0.003	
93	五月-27-2020	09:26:07pm	0.003	
94	五月-27-2020	09:29:07pm	0.002	
95	五月-27-2020	09:32:07pm	0.002	
96	五月-27-2020	11:00:09pm	/III	End Of Session
97	五月-27-2020	11:00:09pm	0.002	A2
98	五月-27-2020	11:03:09pm	0.002	
99	五月-27-2020	11:06:09pm	0.002	
100	五月-27-2020	11:09:09pm	0.003	
101	五月-27-2020	11:12:09pm	0.002	
102	五月-27-2020	11:30:57pm	/III	End Of Session
103	五月-27-2020	11:30:57pm	0.002	A1
104	五月-27-2020	11:33:57pm	0.002	
105	五月-27-2020	11:36:57pm	0.003	
106	五月-27-2020	11:39:57pm	0.003	
107	五月-27-2020	11:42:57pm	0.003	
108	五月-27-2020	11:55:04pm	/III	End Of Session

Site Name: Tuen Mun Area 54 SPS
Address: Tuen Mun Area 54 SPS

Sample Location: Inlet
Technician:
Instrument: 631-1, 631-X, SN 2966
Comment:
Date/Time: 五月-28-2020 12:12am
Alarm Setpoint: 0 (ppm)

	DATE/TIME		RESULT (ppm)	
109	五月-27-2020	11:55:04pm	0.002	A5
110	五月-27-2020	11:58:04pm	0.003	
111	五月-28-2020	00:01:04am	0.002	
112	五月-28-2020	00:04:04am	0.002	
113	五月-28-2020	00:07:04am	0.002	
114	五月-28-2020	00:13:42am	/III	End Of Session
115	五月-28-2020	00:13:42am	0.002	Source
116	五月-28-2020	00:16:42am	0.002	
117	五月-28-2020	00:19:42am	0.002	
118	五月-28-2020	00:22:42am	0.002	
119	五月-28-2020	00:25:42am	0.002	
120	五月-28-2020	02:00:05am	/III	End Of Session
121	五月-28-2020	02:00:05am	0.001	A2
122	五月-28-2020	02:03:05am	0.002	
123	五月-28-2020	02:06:05am	0.001	
124	五月-28-2020	02:09:05am	0.002	
125	五月-28-2020	02:12:05am	0.002	
126	五月-28-2020	02:31:31am	/III	End Of Session
127	五月-28-2020	02:31:31am	0.001	A1
128	五月-28-2020	02:34:31am	0.002	
129	五月-28-2020	02:37:31am	0.002	
130	五月-28-2020	02:40:31am	0.003	
131	五月-28-2020	02:43:31am	0.002	
132	五月-28-2020	02:55:53am	/III	End Of Session
133	五月-28-2020	02:55:53am	0.003	A5
134	五月-28-2020	02:58:53am	0.003	
135	五月-28-2020	03:01:53am	0.002	
136	五月-28-2020	03:04:53am	0.002	
137	五月-28-2020	03:07:53am	0.002	
138	五月-28-2020	03:17:38am	/III	End Of Session
139	五月-28-2020	03:17:38am	0.002	Source
140	五月-28-2020	03:20:38am	0.002	
141	五月-28-2020	03:23:38am	0.002	
142	五月-28-2020	03:26:38am	0.002	
143	五月-28-2020	03:29:38am	0.002	
144	五月-28-2020	05:00:21am	/III	End Of Session

Site Name: Tuen Mun Area 54 SPS
Address: Tuen Mun Area 54 SPS

Sample Location: Inlet
Technician:
Instrument: 631-1, 631-X, SN 2966
Comment:
Date/Time: 五月-28-2020 12:12am
Alarm Setpoint: 0 (ppm)

	DATE/TIME		RESULT (ppm)	
145	五月-28-2020	05:00:21am	0.002	A2
146	五月-28-2020	05:03:21am	0.003	
147	五月-28-2020	05:06:21am	0.002	
148	五月-28-2020	05:09:21am	0.002	
149	五月-28-2020	05:12:21am	0.002	
150	五月-28-2020	05:35:06am	/III	End Of Session
151	五月-28-2020	05:35:06am	0.001	A1
152	五月-28-2020	05:38:06am	0.001	
153	五月-28-2020	05:41:06am	0.002	
154	五月-28-2020	05:44:06am	0.002	
155	五月-28-2020	05:47:06am	0.002	
156	五月-28-2020	06:20:09am	/III	End Of Session
157	五月-28-2020	06:20:09am	0.002	A5
158	五月-28-2020	06:23:09am	0.001	
159	五月-28-2020	06:26:09am	0.003	
160	五月-28-2020	06:29:09am	0.002	
161	五月-28-2020	06:32:09am	0.003	
162	五月-28-2020	06:40:14am	/III	End Of Session
163	五月-28-2020	06:40:14am	0.003	Source
164	五月-28-2020	06:43:14am	0.002	
165	五月-28-2020	06:46:14am	0.002	
166	五月-28-2020	06:49:14am	0.002	
167	五月-28-2020	06:52:14am	0.002	
168	五月-28-2020	08:00:06am	/III	End Of Session
169	五月-28-2020	08:00:06am	0.002	A2
170	五月-28-2020	08:03:06am	0.002	
171	五月-28-2020	08:06:06am	0.001	
172	五月-28-2020	08:09:06am	0.001	
173	五月-28-2020	08:12:06am	0.002	
174	五月-28-2020	08:25:30am	/III	End Of Session
175	五月-28-2020	08:25:30am	0.002	A1
176	五月-28-2020	08:28:30am	0.002	
177	五月-28-2020	08:31:30am	0.002	
178	五月-28-2020	08:34:30am	0.002	
179	五月-28-2020	08:37:30am	0.002	
180	五月-28-2020	08:46:51am	/III	End Of Session

Site Name: Tuen Mun Area 54 SPS
Address: Tuen Mun Area 54 SPS

Sample Location: Inlet
Technician:
Instrument: 631-1, 631-X, SN 2966
Comment:
Date/Time: 五月-28-2020 12:12am
Alarm Setpoint: 0 (ppm)

		DATE/TIME		RESULT (ppm)
181	五月-28-2020	08:46:51am	0.002	A5
182	五月-28-2020	08:49:51am	0.002	
183	五月-28-2020	08:52:51am	0.003	
184	五月-28-2020	08:55:51am	0.001	
185	五月-28-2020	08:58:51am	0.001	
186	五月-28-2020	09:05:19am	/III	End Of Session
187	五月-28-2020	09:05:19am	0.002	Source
188	五月-28-2020	09:08:19am	0.003	
189	五月-28-2020	09:11:19am	0.002	
190	五月-28-2020	09:14:19am	0.002	
191	五月-28-2020	09:17:19am	0.002	

Readings: 160
Minimum: 0.001
Maximum: 0.006
Average: 0.00263
SD: 0.001

Appendix F

Calibration Certificates



3375 N. Delaware Street, Chandler, AZ 85225
800.528.7411 | (f) 602.281.1745 | azic.com

Certification of Instrument Calibration

Guyline (Asia) Ltd
Rm 1611, Eastern Harbour Centre
Quarry Bay,

RMA # 2694299

This is to certify that the Jerome X631 0003 Gold Film Hydrogen Sulfide Analyzer, Serial Number 2966, with Sensor Number 19-8-23-S4AS, was calibrated with standard units traceable to NIST.

Calibration Status as Received: **Out of Calibration**

		Actual	Calibration Gas	Allowable Range
Incoming:	Range 1	0.094 ppm H2S	0.500 ppm H2S	+/- 6%
	RSD %	11.33		<5%
Outgoing:	Range 1	0.518 ppm H2S	0.500 ppm H2S	+/- 6%
	RSD %	2.11		<5%

Calibration Status as Left: **In Calibration**

Estimated Uncertainty of Calibration System: 2.8%

Calibration Date: 17-Oct-2019 Recalibration Date: 16-Oct-2020

Temperature °F: 70.60 % Relative Humidity: 32.90

Approved By: Jackie Kreitlow
Title: Jackie Kreitlow - Quality Control

Date Approved: 18-Oct-2019

Equipment Used:

- H2S Calibration Standard:** CC-75664 NIST#: 1467976
Calibration Date: 25-Sep-2018 **Calibration Date Due:** 25-Sep-2021
- Mass Flow Controller B:** 124604 NIST#: 215457
Calibration Date: 13-Dec-2018 **Calibration Date Due:** 13-Dec-2019
- Mass Flow Controller D:** 124602 NIST#: 215454
Calibration Date: 13-Dec-2018 **Calibration Date Due:** 13-Dec-2019
- Digital Multimeter:** 74620505 NIST#: 7003079
Calibration Date: 05-Apr-2019 **Calibration Date Due:** 05-Apr-2020
- Flowmeter:** US04126032 NIST#: 1813; 1817; 1796
Calibration Date: 12-Aug-2019 **Calibration Date Due:** 12-Aug-2020

Calibration Procedure Used: 730-0032

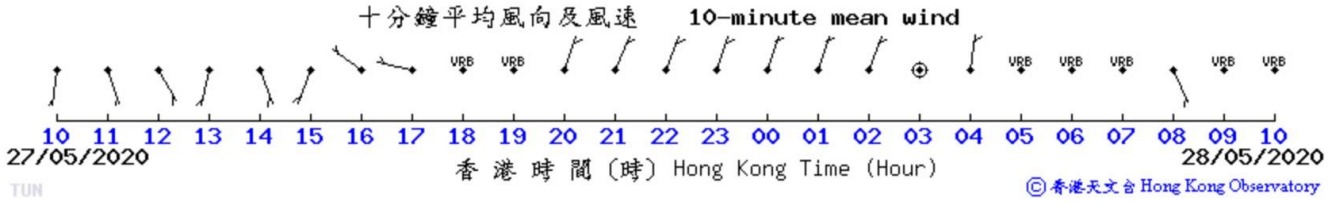
AMETEK Brookfield certifies that the above listed instrument meets or exceeds all published specifications and has been calibrated using standards whose accuracy are traceable to the NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY within the limitations of the Institute's calibration services, or have been derived from accepted values of natural physical constants, or have been derived by the ratio type of self-calibration techniques.
Disclaimer: Any unauthorized adjustments, removal or breaking of QC seals, or other customer modifications on your Jerome Analyzer WILL VOID this factory calibration. Because any of the above acts could affect the calibration and readings of the instrument, their certification will no longer be valid and, further, AMETEK Brookfield WILL NOT be responsible for any liabilities created as a result of using the instrument after such adjustments, seal removal, or modifications.
As long as a functional test is within range, according to the procedure outlined in the Operator's Manual, the instrument is performing correctly.

This document shall not be reproduced, except in full, without the written approval of AMETEK Brookfield.

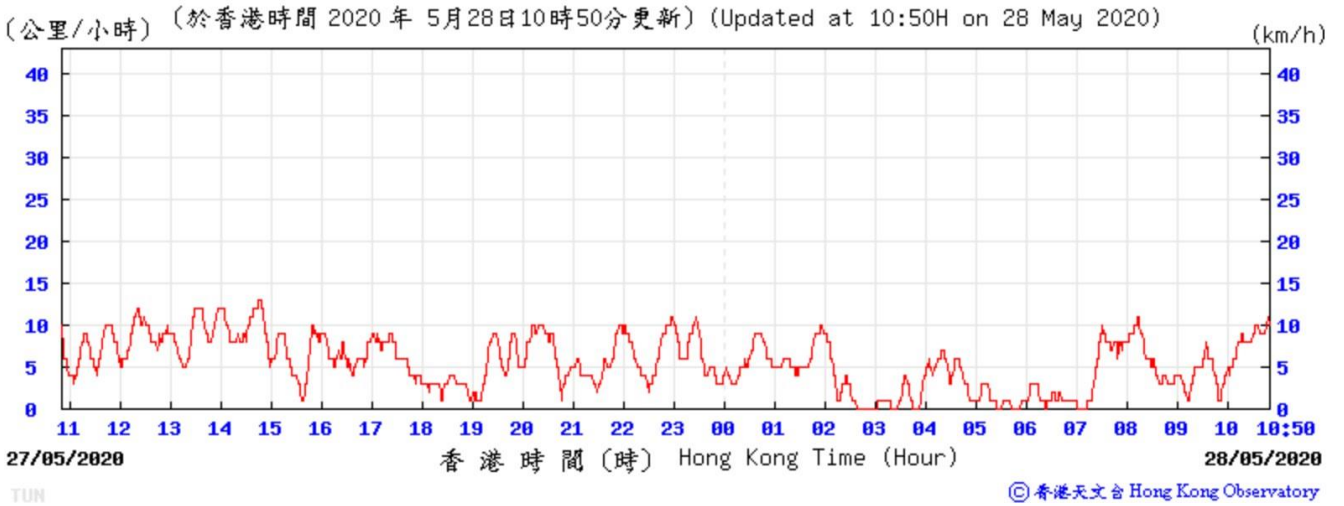
Appendix G

Meteorological Conditions

10-Minute Mean Wind Direction at the nearest Hong Kong Observatory's Tuen Mun Weather Station:



10-Minute Mean Wind Speed at the nearest Hong Kong Observatory's Tuen Mun Weather Station:



Meteorological conditions during the third operation phase odour impact monitoring

Date	Time	Weather Parameters		
		Temperature	Wind Direction	Wind Speed (km/hour)
27 May 2020	1100	29	SE	4.0
	1200	29	SE	5.0
	1300	30	SW	9.0
	1400	30	SE	12.0
	1500	29	SW	5.0
	1600	30	NW	9.0
	1700	29	NW	9.0
	1800	29	--	3.0
	1900	28	--	1.0
	2000	27	NE	5.0
	2100	27	NE	5.0
	2200	27	NE	10.0
	2300	26	NE	10.0
	2400	26	NE	4.0
28 May 2020	0100	26	NE	5.0
	0200	26	NE	9.0
	0300	25	--	1.0
	0400	26	NE	5.0
	0500	26	--	1.0
	0600	26	--	1.0
	0700	26	--	0.0
	0800	27	SE	8.0
	0900	28	--	4.0
	1000	28	--	5.0

PRESS WEATHER NO. 075 - HOURLY READINGS

HOURLY READINGS

AT 11 A.M. AT THE HONG KONG OBSERVATORY THE AIR TEMPERATURE WAS 30 DEGREES CELSIUS AND THE RELATIVE HUMIDITY 78 PER CENT. DURING THE PAST HOUR THE MEAN UV INDEX RECORDED AT KING'S PARK WAS 4. THE INTENSITY OF UV RADIATION WAS MODERATE.

PLEASE BE REMINDED THAT:

THE THUNDERSTORM WARNING WAS ISSUED AT 11:05 A.M. IT WILL REMAIN EFFECTIVE UNTIL 1:00 P.M. TODAY. ISOLATED THUNDERSTORMS ARE EXPECTED TO OCCUR OVER NEW TERRITORIES.

THE AIR TEMPERATURES AT OTHER PLACES WERE:

KING'S PARK	29 DEGREES;
WONG CHUK HANG	29 DEGREES;
TA KWU LING	31 DEGREES;
LAU FAU SHAN	29 DEGREES;
TAI PO	28 DEGREES;
SHA TIN	30 DEGREES;
TUEN MUN	29 DEGREES;
TSEUNG KWAN O	30 DEGREES;
SAI KUNG	31 DEGREES;
CHEUNG CHAU	27 DEGREES;
CHEK LAP KOK	29 DEGREES;
TSING YI	29 DEGREES;
SHEK KONG	29 DEGREES;
TSUEN WAN HO KOON	27 DEGREES;
TSUEN WAN SHING MUN VALLEY	29 DEGREES;
HONG KONG PARK	29 DEGREES;
SHAU KEI WAN	29 DEGREES;
KOWLOON CITY	31 DEGREES;
HAPPY VALLEY	30 DEGREES;
WONG TAI SIN	31 DEGREES;
STANLEY	28 DEGREES;
KWUN TONG	30 DEGREES;
SHAM SHUI PO	28 DEGREES;
KAI TAK RUNWAY PARK	28 DEGREES;
YUEN LONG PARK	30 DEGREES;
TAI MEI TUK	31 DEGREES.

BETWEEN 9:45 AND 10:45 A.M. , THE RAINFALL RECORDED IN VARIOUS REGIONS WERE:

TAI PO	0 TO 6 MM;
TSUEN WAN	0 TO 2 MM;
YUEN LONG	0 TO 2 MM.

DISPATCHED BY HONG KONG OBSERVATORY AT 11:06 HKT ON 27.05.2020

PRESS WEATHER NO. 081 - HOURLY READINGS

HOURLY READINGS

AT NOON AT THE HONG KONG OBSERVATORY THE AIR TEMPERATURE WAS 29 DEGREES CELSIUS AND THE RELATIVE HUMIDITY 83 PER CENT. DURING THE PAST HOUR THE MEAN UV INDEX RECORDED AT KING'S PARK WAS 2. THE INTENSITY OF UV RADIATION WAS LOW.

PLEASE BE REMINDED THAT:

THE THUNDERSTORM WARNING HAS BEEN ISSUED. IT WILL REMAIN EFFECTIVE UNTIL 1:00 P.M. TODAY. ISOLATED THUNDERSTORMS ARE EXPECTED TO OCCUR OVER NEW TERRITORIES.

THE AIR TEMPERATURES AT OTHER PLACES WERE:

KING'S PARK	29 DEGREES;
WONG CHUK HANG	29 DEGREES;
TA KWU LING	30 DEGREES;
LAU FAU SHAN	29 DEGREES;
TAI PO	28 DEGREES;
SHA TIN	29 DEGREES;
TUEN MUN	29 DEGREES;
TSEUNG KWAN O	29 DEGREES;
SAI KUNG	29 DEGREES;
CHEUNG CHAU	28 DEGREES;
CHEK LAP KOK	28 DEGREES;
TSING YI	27 DEGREES;
SHEK KONG	31 DEGREES;
TSUEN WAN HO KOON	27 DEGREES;
TSUEN WAN SHING MUN VALLEY	28 DEGREES;
HONG KONG PARK	29 DEGREES;
SHAU KEI WAN	28 DEGREES;
KOWLOON CITY	29 DEGREES;
HAPPY VALLEY	29 DEGREES;
WONG TAI SIN	29 DEGREES;
STANLEY	28 DEGREES;
KWUN TONG	29 DEGREES;
SHAM SHUI PO	27 DEGREES;
KAI TAK RUNWAY PARK	28 DEGREES;
YUEN LONG PARK	31 DEGREES;
TAI MEI TUK	29 DEGREES.

BETWEEN 10:45 AND 11:45 A.M., THE RAINFALL RECORDED IN VARIOUS REGIONS WERE:

NORTH DISTRICT	0 TO 12 MM;
TAI PO	0 TO 9 MM;
YUEN LONG	0 TO 7 MM;
SAI KUNG	0 TO 3 MM;
SHA TIN	0 TO 1 MM.

0.1 MILLIMETRE OF RAINFALL WAS RECORDED AT THE HONG KONG OBSERVATORY BETWEEN MIDNIGHT LAST NIGHT AND MIDDAY TODAY. DISPATCHED BY HONG KONG OBSERVATORY AT 12:02 HKT ON 27.05.2020

PRESS WEATHER NO. 093 - HOURLY READINGS

HOURLY READINGS

AT 1 P.M. AT THE HONG KONG OBSERVATORY THE AIR TEMPERATURE WAS 29 DEGREES CELSIUS AND THE RELATIVE HUMIDITY 80 PER CENT. DURING THE PAST HOUR THE MEAN UV INDEX RECORDED AT KING'S PARK WAS 4. THE INTENSITY OF UV RADIATION WAS MODERATE.

PLEASE BE REMINDED THAT:

THE THUNDERSTORM WARNING HAS BEEN ISSUED. IT WILL REMAIN EFFECTIVE UNTIL 3:00 P.M. TODAY. ISOLATED THUNDERSTORMS ARE EXPECTED TO OCCUR OVER NEW TERRITORIES.

THE AIR TEMPERATURES AT OTHER PLACES WERE:

KING'S PARK	29 DEGREES;
WONG CHUK HANG	29 DEGREES;
TA KWU LING	30 DEGREES;
LAU FAU SHAN	30 DEGREES;
TAI PO	28 DEGREES;
SHA TIN	30 DEGREES;
TUEN MUN	30 DEGREES;
TSEUNG KWAN O	30 DEGREES;
SAI KUNG	29 DEGREES;
CHEUNG CHAU	28 DEGREES;
CHEK LAP KOK	30 DEGREES;
TSING YI	29 DEGREES;
SHEK KONG	31 DEGREES;
TSUEN WAN HO KOON	27 DEGREES;
TSUEN WAN SHING MUN VALLEY	29 DEGREES;
HONG KONG PARK	29 DEGREES;
SHAU KEI WAN	29 DEGREES;
KOWLOON CITY	30 DEGREES;
HAPPY VALLEY	30 DEGREES;
WONG TAI SIN	30 DEGREES;
STANLEY	29 DEGREES;
KWUN TONG	30 DEGREES;
SHAM SHUI PO	29 DEGREES;
KAI TAK RUNWAY PARK	29 DEGREES;
YUEN LONG PARK	31 DEGREES;
TAI MEI TUK	29 DEGREES.

BETWEEN 11:45 A.M. AND 12:45 P.M., THE RAINFALL RECORDED IN VARIOUS REGIONS WERE:

TAI PO	0 TO 5 MM;
NORTH DISTRICT	0 TO 4 MM;
SAI KUNG	0 TO 1 MM.

DISPATCHED BY HONG KONG OBSERVATORY AT 13:02 HKT ON 27.05.2020

PRESS WEATHER NO. 109 - HOURLY READINGS

HOURLY READINGS

AT 3 P.M. AT THE HONG KONG OBSERVATORY THE AIR TEMPERATURE WAS 29 DEGREES CELSIUS AND THE RELATIVE HUMIDITY 79 PER CENT. DURING THE PAST HOUR THE MEAN UV INDEX RECORDED AT KING'S PARK WAS 3. THE INTENSITY OF UV RADIATION WAS MODERATE.

PLEASE BE REMINDED THAT:

THE THUNDERSTORM WARNING HAS BEEN ISSUED. IT WILL REMAIN EFFECTIVE UNTIL 4:30 P.M. TODAY. ISOLATED THUNDERSTORMS ARE EXPECTED TO OCCUR OVER HONG KONG.

THE AIR TEMPERATURES AT OTHER PLACES WERE:

KING'S PARK	29 DEGREES;
WONG CHUK HANG	29 DEGREES;
TA KWU LING	30 DEGREES;
LAU FAU SHAN	30 DEGREES;
TAI PO	28 DEGREES;
SHA TIN	31 DEGREES;
TUEN MUN	29 DEGREES;
TSEUNG KWAN O	31 DEGREES;
SAI KUNG	29 DEGREES;
CHEUNG CHAU	31 DEGREES;
CHEK LAP KOK	30 DEGREES;
TSING YI	30 DEGREES;
SHEK KONG	31 DEGREES;
TSUEN WAN HO KOON	29 DEGREES;
TSUEN WAN SHING MUN VALLEY	30 DEGREES;
HONG KONG PARK	29 DEGREES;
SHAU KEI WAN	30 DEGREES;
KOWLOON CITY	29 DEGREES;
HAPPY VALLEY	31 DEGREES;
WONG TAI SIN	30 DEGREES;
STANLEY	30 DEGREES;
KWUN TONG	30 DEGREES;
SHAM SHUI PO	29 DEGREES;
KAI TAK RUNWAY PARK	30 DEGREES;
YUEN LONG PARK	31 DEGREES;
TAI MEI TUK	28 DEGREES.

BETWEEN 1:45 AND 2:45 P.M., THE RAINFALL RECORDED IN VARIOUS REGIONS WERE:

TAI PO	0 TO 10 MM;
ISLANDS DISTRICT	0 TO 9 MM;
NORTH DISTRICT	0 TO 6 MM;
YUEN LONG	0 TO 1 MM.

DISPATCHED BY HONG KONG OBSERVATORY AT 15:02 HKT ON 27.05.2020

PRESS WEATHER NO. 117 - HOURLY READINGS

HOURLY READINGS

AT 4 P.M. AT THE HONG KONG OBSERVATORY THE AIR TEMPERATURE WAS 30 DEGREES CELSIUS AND THE RELATIVE HUMIDITY 74 PER CENT. DURING THE PAST HOUR THE MEAN UV INDEX RECORDED AT KING'S PARK WAS 4. THE INTENSITY OF UV RADIATION WAS MODERATE.

PLEASE BE REMINDED THAT:

THE THUNDERSTORM WARNING HAS BEEN ISSUED. IT WILL REMAIN EFFECTIVE UNTIL 5:30 P.M. TODAY. ISOLATED THUNDERSTORMS ARE EXPECTED TO OCCUR OVER NEW TERRITORIES EAST.

THE AIR TEMPERATURES AT OTHER PLACES WERE:

KING'S PARK	29 DEGREES;
WONG CHUK HANG	30 DEGREES;
TA KWU LING	30 DEGREES;
LAU FAU SHAN	30 DEGREES;
TAI PO	29 DEGREES;
SHA TIN	31 DEGREES;
TUEN MUN	30 DEGREES;
TSEUNG KWAN O	31 DEGREES;
SAI KUNG	29 DEGREES;
CHEUNG CHAU	31 DEGREES;
CHEK LAP KOK	30 DEGREES;
TSING YI	29 DEGREES;
SHEK KONG	30 DEGREES;
TSUEN WAN HO KOON	29 DEGREES;
TSUEN WAN SHING MUN VALLEY	31 DEGREES;
HONG KONG PARK	29 DEGREES;
SHAU KEI WAN	31 DEGREES;
KOWLOON CITY	31 DEGREES;
HAPPY VALLEY	31 DEGREES;
WONG TAI SIN	31 DEGREES;
STANLEY	29 DEGREES;
KWUN TONG	32 DEGREES;
SHAM SHUI PO	30 DEGREES;
KAI TAK RUNWAY PARK	32 DEGREES;
YUEN LONG PARK	31 DEGREES;
TAI MEI TUK	28 DEGREES.

BETWEEN 2:45 AND 3:45 P.M., LIGHTNING WAS DETECTED WITHIN NEW TERRITORIES EAST. THE RAINFALL RECORDED IN VARIOUS REGIONS WERE:

NORTH DISTRICT	0 TO 6 MM;
TAI PO	0 TO 2 MM.

DISPATCHED BY HONG KONG OBSERVATORY AT 16:02 HKT ON 27.05.2020

PRESS WEATHER NO. 129 - HOURLY READINGS

HOURLY READINGS

AT 5 P.M. AT THE HONG KONG OBSERVATORY THE AIR TEMPERATURE WAS 29 DEGREES CELSIUS AND THE RELATIVE HUMIDITY 75 PER CENT. DURING THE PAST HOUR THE MEAN UV INDEX RECORDED AT KING'S PARK WAS 2. THE INTENSITY OF UV RADIATION WAS LOW.

PLEASE BE REMINDED THAT:

THE THUNDERSTORM WARNING HAS BEEN ISSUED. IT WILL REMAIN EFFECTIVE UNTIL 5:30 P.M. TODAY. ISOLATED THUNDERSTORMS ARE EXPECTED TO OCCUR OVER NEW TERRITORIES EAST.

THE AIR TEMPERATURES AT OTHER PLACES WERE:

KING'S PARK	29 DEGREES;
WONG CHUK HANG	29 DEGREES;
TA KWU LING	27 DEGREES;
LAU FAU SHAN	29 DEGREES;
TAI PO	28 DEGREES;
SHA TIN	28 DEGREES;
TUEN MUN	29 DEGREES;
TSEUNG KWAN O	29 DEGREES;
SAI KUNG	29 DEGREES;
CHEUNG CHAU	30 DEGREES;
CHEK LAP KOK	29 DEGREES;
TSING YI	29 DEGREES;
SHEK KONG	30 DEGREES;
TSUEN WAN HO KOON	28 DEGREES;
TSUEN WAN SHING MUN VALLEY	30 DEGREES;
HONG KONG PARK	29 DEGREES;
SHAU KEI WAN	29 DEGREES;
KOWLOON CITY	30 DEGREES;
HAPPY VALLEY	31 DEGREES;
WONG TAI SIN	31 DEGREES;
STANLEY	29 DEGREES;
KWUN TONG	31 DEGREES;
SHAM SHUI PO	29 DEGREES;
KAI TAK RUNWAY PARK	31 DEGREES;
YUEN LONG PARK	31 DEGREES;
TAI MEI TUK	27 DEGREES.

BETWEEN 3:45 AND 4:45 P.M. , LIGHTNING WAS DETECTED WITHIN NEW TERRITORIES EAST. THE RAINFALL RECORDED IN VARIOUS REGIONS WERE:

NORTH DISTRICT	0 TO 3 MM;
TSUEN WAN	0 TO 3 MM.

DISPATCHED BY HONG KONG OBSERVATORY AT 17:02 HKT ON 27.05.2020

PRESS WEATHER NO. 137 - HOURLY READINGS

HOURLY READINGS

AT 6 P.M. AT THE HONG KONG OBSERVATORY THE AIR TEMPERATURE WAS 29 DEGREES CELSIUS AND THE RELATIVE HUMIDITY 76 PER CENT.

DURING THE PAST HOUR THE MEAN UV INDEX RECORDED AT KING'S PARK WAS 0.4. THE INTENSITY OF UV RADIATION WAS LOW.

THE AIR TEMPERATURES AT OTHER PLACES WERE:

KING'S PARK	29 DEGREES;
WONG CHUK HANG	29 DEGREES;
TA KWU LING	27 DEGREES;
LAU FAU SHAN	29 DEGREES;
TAI PO	// DEGREES;
SHA TIN	27 DEGREES;
TUEN MUN	29 DEGREES;
TSEUNG KWAN O	// DEGREES;
SAI KUNG	28 DEGREES;
CHEUNG CHAU	29 DEGREES;
CHEK LAP KOK	29 DEGREES;
TSING YI	29 DEGREES;
SHEK KONG	29 DEGREES;
TSUEN WAN HO KOON	// DEGREES;
TSUEN WAN SHING MUN VALLEY	29 DEGREES;
HONG KONG PARK	29 DEGREES;
SHAU KEI WAN	// DEGREES;
KOWLOON CITY	29 DEGREES;
HAPPY VALLEY	30 DEGREES;
WONG TAI SIN	30 DEGREES;
STANLEY	28 DEGREES;
KWUN TONG	29 DEGREES;
SHAM SHUI PO	29 DEGREES;
KAI TAK RUNWAY PARK	29 DEGREES;
YUEN LONG PARK	30 DEGREES;
TAI MEI TUK	27 DEGREES.

BETWEEN 4:45 AND 5:45 P.M., THE RAINFALL RECORDED IN VARIOUS REGIONS WERE:

NORTH DISTRICT	0 TO 4 MM;
SHA TIN	0 TO 1 MM;
YUEN LONG	0 TO 1 MM.

DISPATCHED BY HONG KONG OBSERVATORY AT 18:02 HKT ON 27.05.2020

PRESS WEATHER NO. 145 - HOURLY READINGS

HOURLY READINGS

AT 7 P.M. AT THE HONG KONG OBSERVATORY THE AIR TEMPERATURE WAS 28 DEGREES CELSIUS AND THE RELATIVE HUMIDITY 83 PER CENT.

THE AIR TEMPERATURES AT OTHER PLACES WERE:

KING'S PARK	28 DEGREES;
WONG CHUK HANG	28 DEGREES;
TA KWU LING	27 DEGREES;
LAU FAU SHAN	28 DEGREES;
TAI PO	27 DEGREES;
SHA TIN	27 DEGREES;
TUEN MUN	28 DEGREES;
TSEUNG KWAN O	27 DEGREES;
SAI KUNG	28 DEGREES;
CHEUNG CHAU	27 DEGREES;
CHEK LAP KOK	29 DEGREES;
TSING YI	28 DEGREES;
SHEK KONG	28 DEGREES;
TSUEN WAN HO KOON	27 DEGREES;
TSUEN WAN SHING MUN VALLEY	28 DEGREES;
HONG KONG PARK	29 DEGREES;
SHAU KEI WAN	27 DEGREES;
KOWLOON CITY	28 DEGREES;
HAPPY VALLEY	29 DEGREES;
WONG TAI SIN	29 DEGREES;
STANLEY	28 DEGREES;
KWUN TONG	28 DEGREES;
SHAM SHUI PO	28 DEGREES;
KAI TAK RUNWAY PARK	29 DEGREES;
YUEN LONG PARK	29 DEGREES;
TAI MEI TUK	26 DEGREES.

DISPATCHED BY HONG KONG OBSERVATORY AT 19:02 HKT ON 27.05.2020

PRESS WEATHER NO. 151 - HOURLY READINGS

HOURLY READINGS

AT 8 P.M. AT THE HONG KONG OBSERVATORY THE AIR TEMPERATURE WAS 29 DEGREES CELSIUS AND THE RELATIVE HUMIDITY 83 PER CENT.

THE AIR TEMPERATURES AT OTHER PLACES WERE:

KING'S PARK	28 DEGREES;
WONG CHUK HANG	28 DEGREES;
TA KWU LING	26 DEGREES;
LAU FAU SHAN	27 DEGREES;
TAI PO	27 DEGREES;
SHA TIN	28 DEGREES;
TUEN MUN	27 DEGREES;
TSEUNG KWAN O	27 DEGREES;
SAI KUNG	28 DEGREES;
CHEUNG CHAU	27 DEGREES;
CHEK LAP KOK	29 DEGREES;
TSING YI	28 DEGREES;
SHEK KONG	28 DEGREES;
TSUEN WAN HO KOON	26 DEGREES;
TSUEN WAN SHING MUN VALLEY	27 DEGREES;
HONG KONG PARK	28 DEGREES;
SHAU KEI WAN	27 DEGREES;
KOWLOON CITY	27 DEGREES;
HAPPY VALLEY	29 DEGREES;
WONG TAI SIN	28 DEGREES;
STANLEY	27 DEGREES;
KWUN TONG	27 DEGREES;
SHAM SHUI PO	27 DEGREES;
KAI TAK RUNWAY PARK	28 DEGREES;
YUEN LONG PARK	27 DEGREES;
TAI MEI TUK	26 DEGREES.

BETWEEN 6:45 AND 7:45 P.M., THE RAINFALL RECORDED IN VARIOUS REGIONS WERE:

YUEN LONG	0 TO 9 MM;
SHA TIN	0 TO 4 MM;
KWAI TSING	0 TO 1 MM.

DISPATCHED BY HONG KONG OBSERVATORY AT 20:02 HKT ON 27.05.2020

PRESS WEATHER NO. 159 - HOURLY READINGS

HOURLY READINGS

AT 9 P.M. AT THE HONG KONG OBSERVATORY THE AIR TEMPERATURE WAS 28 DEGREES CELSIUS AND THE RELATIVE HUMIDITY 85 PER CENT.

THE AIR TEMPERATURES AT OTHER PLACES WERE:

KING'S PARK	28 DEGREES;
WONG CHUK HANG	28 DEGREES;
TA KWU LING	26 DEGREES;
LAU FAU SHAN	26 DEGREES;
TAI PO	27 DEGREES;
SHA TIN	27 DEGREES;
TUEN MUN	27 DEGREES;
TSEUNG KWAN O	27 DEGREES;
SAI KUNG	27 DEGREES;
CHEUNG CHAU	26 DEGREES;
CHEK LAP KOK	28 DEGREES;
TSING YI	28 DEGREES;
SHEK KONG	28 DEGREES;
TSUEN WAN HO KOON	25 DEGREES;
TSUEN WAN SHING MUN VALLEY	27 DEGREES;
HONG KONG PARK	28 DEGREES;
SHAU KEI WAN	27 DEGREES;
KOWLOON CITY	27 DEGREES;
HAPPY VALLEY	28 DEGREES;
WONG TAI SIN	28 DEGREES;
STANLEY	27 DEGREES;
KWUN TONG	27 DEGREES;
SHAM SHUI PO	27 DEGREES;
KAI TAK RUNWAY PARK	28 DEGREES;
YUEN LONG PARK	27 DEGREES;
TAI MEI TUK	26 DEGREES.

DISPATCHED BY HONG KONG OBSERVATORY AT 21:02 HKT ON 27.05.2020

PRESS WEATHER NO. 165 - HOURLY READINGS

HOURLY READINGS

AT 10 P.M. AT THE HONG KONG OBSERVATORY THE AIR TEMPERATURE WAS 28 DEGREES CELSIUS AND THE RELATIVE HUMIDITY 85 PER CENT.

THE AIR TEMPERATURES AT OTHER PLACES WERE:

KING'S PARK	27 DEGREES;
WONG CHUK HANG	28 DEGREES;
TA KWU LING	26 DEGREES;
LAU FAU SHAN	26 DEGREES;
TAI PO	27 DEGREES;
SHA TIN	27 DEGREES;
TUEN MUN	27 DEGREES;
TSEUNG KWAN O	26 DEGREES;
SAI KUNG	27 DEGREES;
CHEUNG CHAU	26 DEGREES;
CHEK LAP KOK	28 DEGREES;
TSING YI	28 DEGREES;
SHEK KONG	27 DEGREES;
TSUEN WAN HO KOON	25 DEGREES;
TSUEN WAN SHING MUN VALLEY	27 DEGREES;
HONG KONG PARK	27 DEGREES;
SHAU KEI WAN	26 DEGREES;
KOWLOON CITY	27 DEGREES;
HAPPY VALLEY	28 DEGREES;
WONG TAI SIN	27 DEGREES;
STANLEY	27 DEGREES;
KWUN TONG	27 DEGREES;
SHAM SHUI PO	27 DEGREES;
KAI TAK RUNWAY PARK	27 DEGREES;
YUEN LONG PARK	27 DEGREES;
TAI MEI TUK	26 DEGREES.

DISPATCHED BY HONG KONG OBSERVATORY AT 22:02 HKT ON 27.05.2020

PRESS WEATHER NO. 169 - HOURLY READINGS

HOURLY READINGS

AT 11 P.M. AT THE HONG KONG OBSERVATORY THE AIR TEMPERATURE WAS 28 DEGREES CELSIUS AND THE RELATIVE HUMIDITY 86 PER CENT.

THE AIR TEMPERATURES AT OTHER PLACES WERE:

KING'S PARK	27 DEGREES;
WONG CHUK HANG	28 DEGREES;
TA KWU LING	26 DEGREES;
LAU FAU SHAN	26 DEGREES;
TAI PO	27 DEGREES;
SHA TIN	27 DEGREES;
TUEN MUN	26 DEGREES;
TSEUNG KWAN O	26 DEGREES;
SAI KUNG	27 DEGREES;
CHEUNG CHAU	26 DEGREES;
CHEK LAP KOK	28 DEGREES;
TSING YI	28 DEGREES;
SHEK KONG	27 DEGREES;
TSUEN WAN HO KOON	25 DEGREES;
TSUEN WAN SHING MUN VALLEY	26 DEGREES;
HONG KONG PARK	27 DEGREES;
SHAU KEI WAN	27 DEGREES;
KOWLOON CITY	27 DEGREES;
HAPPY VALLEY	28 DEGREES;
WONG TAI SIN	27 DEGREES;
STANLEY	27 DEGREES;
KWUN TONG	27 DEGREES;
SHAM SHUI PO	27 DEGREES;
KAI TAK RUNWAY PARK	28 DEGREES;
YUEN LONG PARK	26 DEGREES;
TAI MEI TUK	26 DEGREES.

DISPATCHED BY HONG KONG OBSERVATORY AT 23:02 HKT ON 27.05.2020

PRESS WEATHER NO. 004 - HOURLY READINGS

HOURLY READINGS

AT MIDNIGHT AT THE HONG KONG OBSERVATORY THE AIR TEMPERATURE WAS 28 DEGREES CELSIUS AND THE RELATIVE HUMIDITY 86 PER CENT.

THE AIR TEMPERATURES AT OTHER PLACES WERE:

KING'S PARK	27 DEGREES;
WONG CHUK HANG	27 DEGREES;
TA KWU LING	25 DEGREES;
LAU FAU SHAN	27 DEGREES;
TAI PO	26 DEGREES;
SHA TIN	27 DEGREES;
TUEN MUN	26 DEGREES;
TSEUNG KWAN O	26 DEGREES;
SAI KUNG	27 DEGREES;
CHEUNG CHAU	26 DEGREES;
CHEK LAP KOK	28 DEGREES;
TSING YI	28 DEGREES;
SHEK KONG	26 DEGREES;
TSUEN WAN HO KOON	25 DEGREES;
TSUEN WAN SHING MUN VALLEY	26 DEGREES;
HONG KONG PARK	27 DEGREES;
SHAU KEI WAN	27 DEGREES;
KOWLOON CITY	27 DEGREES;
HAPPY VALLEY	28 DEGREES;
WONG TAI SIN	27 DEGREES;
STANLEY	27 DEGREES;
KWUN TONG	27 DEGREES;
SHAM SHUI PO	27 DEGREES;
KAI TAK RUNWAY PARK	27 DEGREES;
YUEN LONG PARK	26 DEGREES;
TAI MEI TUK	26 DEGREES.

DISPATCHED BY HONG KONG OBSERVATORY AT 00:02 HKT ON 28.05.2020

PRESS WEATHER NO. 010 - HOURLY READINGS

HOURLY READINGS

AT 1 A.M. AT THE HONG KONG OBSERVATORY THE AIR TEMPERATURE WAS 28 DEGREES CELSIUS AND THE RELATIVE HUMIDITY 86 PER CENT.

THE AIR TEMPERATURES AT OTHER PLACES WERE:

KING'S PARK	27 DEGREES;
WONG CHUK HANG	27 DEGREES;
TA KWU LING	25 DEGREES;
LAU FAU SHAN	26 DEGREES;
TAI PO	26 DEGREES;
SHA TIN	27 DEGREES;
TUEN MUN	26 DEGREES;
TSEUNG KWAN O	26 DEGREES;
SAI KUNG	27 DEGREES;
CHEUNG CHAU	26 DEGREES;
CHEK LAP KOK	28 DEGREES;
TSING YI	27 DEGREES;
SHEK KONG	27 DEGREES;
TSUEN WAN HO KOON	25 DEGREES;
TSUEN WAN SHING MUN VALLEY	26 DEGREES;
HONG KONG PARK	27 DEGREES;
SHAU KEI WAN	27 DEGREES;
KOWLOON CITY	27 DEGREES;
HAPPY VALLEY	28 DEGREES;
WONG TAI SIN	27 DEGREES;
STANLEY	27 DEGREES;
KWUN TONG	27 DEGREES;
SHAM SHUI PO	27 DEGREES;
KAI TAK RUNWAY PARK	27 DEGREES;
YUEN LONG PARK	26 DEGREES;
TAI MEI TUK	26 DEGREES.

DISPATCHED BY HONG KONG OBSERVATORY AT 01:02 HKT ON 28.05.2020

PRESS WEATHER NO. 014 - HOURLY READINGS

HOURLY READINGS

AT 2 A.M. AT THE HONG KONG OBSERVATORY THE AIR TEMPERATURE WAS 27 DEGREES CELSIUS AND THE RELATIVE HUMIDITY 85 PER CENT.

THE AIR TEMPERATURES AT OTHER PLACES WERE:

KING'S PARK	27 DEGREES;
WONG CHUK HANG	27 DEGREES;
TA KWU LING	25 DEGREES;
LAU FAU SHAN	25 DEGREES;
TAI PO	25 DEGREES;
SHA TIN	26 DEGREES;
TUEN MUN	26 DEGREES;
TSEUNG KWAN O	25 DEGREES;
SAI KUNG	27 DEGREES;
CHEUNG CHAU	25 DEGREES;
CHEK LAP KOK	27 DEGREES;
TSING YI	27 DEGREES;
SHEK KONG	26 DEGREES;
TSUEN WAN HO KOON	25 DEGREES;
TSUEN WAN SHING MUN VALLEY	26 DEGREES;
HONG KONG PARK	27 DEGREES;
SHAU KEI WAN	26 DEGREES;
KOWLOON CITY	27 DEGREES;
HAPPY VALLEY	27 DEGREES;
WONG TAI SIN	27 DEGREES;
STANLEY	27 DEGREES;
KWUN TONG	27 DEGREES;
SHAM SHUI PO	27 DEGREES;
KAI TAK RUNWAY PARK	27 DEGREES;
YUEN LONG PARK	26 DEGREES;
TAI MEI TUK	25 DEGREES.

BETWEEN 0:45 AND 1:45 A.M., THE RAINFALL RECORDED IN VARIOUS REGIONS WERE:

TAI PO	0 TO 1 MM;
TSUEN WAN	0 TO 1 MM;
YUEN LONG	0 TO 1 MM.

DISPATCHED BY HONG KONG OBSERVATORY AT 02:02 HKT ON 28.05.2020

PRESS WEATHER NO. 018 - HOURLY READINGS

HOURLY READINGS

AT 3 A.M. AT THE HONG KONG OBSERVATORY THE AIR TEMPERATURE WAS 27 DEGREES CELSIUS AND THE RELATIVE HUMIDITY 84 PER CENT.

THE AIR TEMPERATURES AT OTHER PLACES WERE:

KING'S PARK	27 DEGREES;
WONG CHUK HANG	26 DEGREES;
TA KWU LING	25 DEGREES;
LAU FAU SHAN	25 DEGREES;
TAI PO	25 DEGREES;
SHA TIN	25 DEGREES;
TUEN MUN	25 DEGREES;
TSEUNG KWAN O	25 DEGREES;
SAI KUNG	26 DEGREES;
CHEUNG CHAU	25 DEGREES;
CHEK LAP KOK	27 DEGREES;
TSING YI	27 DEGREES;
SHEK KONG	25 DEGREES;
TSUEN WAN HO KOON	24 DEGREES;
TSUEN WAN SHING MUN VALLEY	25 DEGREES;
HONG KONG PARK	27 DEGREES;
SHAU KEI WAN	26 DEGREES;
KOWLOON CITY	26 DEGREES;
HAPPY VALLEY	26 DEGREES;
WONG TAI SIN	26 DEGREES;
STANLEY	27 DEGREES;
KWUN TONG	26 DEGREES;
SHAM SHUI PO	26 DEGREES;
KAI TAK RUNWAY PARK	27 DEGREES;
YUEN LONG PARK	25 DEGREES;
TAI MEI TUK	25 DEGREES.

DISPATCHED BY HONG KONG OBSERVATORY AT 03:02 HKT ON 28.05.2020

PRESS WEATHER NO. 024 - HOURLY READINGS

HOURLY READINGS

AT 4 A.M. AT THE HONG KONG OBSERVATORY THE AIR TEMPERATURE WAS 27 DEGREES CELSIUS AND THE RELATIVE HUMIDITY 84 PER CENT.

THE AIR TEMPERATURES AT OTHER PLACES WERE:

KING'S PARK	27 DEGREES;
WONG CHUK HANG	27 DEGREES;
TA KWU LING	25 DEGREES;
LAU FAU SHAN	25 DEGREES;
TAI PO	25 DEGREES;
SHA TIN	26 DEGREES;
TUEN MUN	26 DEGREES;
TSEUNG KWAN O	25 DEGREES;
SAI KUNG	27 DEGREES;
CHEUNG CHAU	25 DEGREES;
CHEK LAP KOK	27 DEGREES;
TSING YI	27 DEGREES;
SHEK KONG	25 DEGREES;
TSUEN WAN HO KOON	24 DEGREES;
TSUEN WAN SHING MUN VALLEY	25 DEGREES;
HONG KONG PARK	27 DEGREES;
SHAU KEI WAN	26 DEGREES;
KOWLOON CITY	26 DEGREES;
HAPPY VALLEY	27 DEGREES;
WONG TAI SIN	27 DEGREES;
STANLEY	26 DEGREES;
KWUN TONG	26 DEGREES;
SHAM SHUI PO	26 DEGREES;
KAI TAK RUNWAY PARK	27 DEGREES;
YUEN LONG PARK	25 DEGREES;
TAI MEI TUK	25 DEGREES.

DISPATCHED BY HONG KONG OBSERVATORY AT 04:02 HKT ON 28.05.2020

PRESS WEATHER NO. 028 - HOURLY READINGS

HOURLY READINGS

AT 5 A.M. AT THE HONG KONG OBSERVATORY THE AIR TEMPERATURE WAS 27 DEGREES CELSIUS AND THE RELATIVE HUMIDITY 87 PER CENT.

THE AIR TEMPERATURES AT OTHER PLACES WERE:

KING'S PARK	26 DEGREES;
WONG CHUK HANG	27 DEGREES;
TA KWU LING	25 DEGREES;
LAU FAU SHAN	25 DEGREES;
TAI PO	25 DEGREES;
SHA TIN	27 DEGREES;
TUEN MUN	26 DEGREES;
TSEUNG KWAN O	26 DEGREES;
SAI KUNG	27 DEGREES;
CHEUNG CHAU	25 DEGREES;
CHEK LAP KOK	27 DEGREES;
TSING YI	27 DEGREES;
SHEK KONG	25 DEGREES;
TSUEN WAN HO KOON	25 DEGREES;
TSUEN WAN SHING MUN VALLEY	26 DEGREES;
HONG KONG PARK	27 DEGREES;
SHAU KEI WAN	26 DEGREES;
KOWLOON CITY	26 DEGREES;
HAPPY VALLEY	27 DEGREES;
WONG TAI SIN	26 DEGREES;
STANLEY	26 DEGREES;
KWUN TONG	26 DEGREES;
SHAM SHUI PO	26 DEGREES;
KAI TAK RUNWAY PARK	27 DEGREES;
YUEN LONG PARK	25 DEGREES;
TAI MEI TUK	26 DEGREES.

DISPATCHED BY HONG KONG OBSERVATORY AT 05:02 HKT ON 28.05.2020

PRESS WEATHER NO. 044 - HOURLY READINGS

HOURLY READINGS

AT 7 A.M. AT THE HONG KONG OBSERVATORY THE AIR TEMPERATURE WAS 27 DEGREES CELSIUS AND THE RELATIVE HUMIDITY 93 PER CENT.

THE AIR TEMPERATURES AT OTHER PLACES WERE:

KING'S PARK	26 DEGREES;
WONG CHUK HANG	27 DEGREES;
TA KWU LING	26 DEGREES;
LAU FAU SHAN	26 DEGREES;
TAI PO	26 DEGREES;
SHA TIN	27 DEGREES;
TUEN MUN	26 DEGREES;
TSEUNG KWAN O	26 DEGREES;
SAI KUNG	26 DEGREES;
CHEUNG CHAU	26 DEGREES;
CHEK LAP KOK	27 DEGREES;
TSING YI	27 DEGREES;
SHEK KONG	26 DEGREES;
TSUEN WAN HO KOON	25 DEGREES;
TSUEN WAN SHING MUN VALLEY	27 DEGREES;
HONG KONG PARK	27 DEGREES;
SHAU KEI WAN	26 DEGREES;
KOWLOON CITY	26 DEGREES;
HAPPY VALLEY	27 DEGREES;
WONG TAI SIN	26 DEGREES;
STANLEY	26 DEGREES;
KWUN TONG	26 DEGREES;
SHAM SHUI PO	27 DEGREES;
KAI TAK RUNWAY PARK	27 DEGREES;
YUEN LONG PARK	26 DEGREES;
TAI MEI TUK	26 DEGREES.

BETWEEN 5:45 AND 6:45 A.M., THE RAINFALL RECORDED IN VARIOUS REGIONS WERE:

EASTERN DISTRICT	0 TO 1 MM;
SAI KUNG	0 TO 1 MM;
KWUN TONG	0 TO 1 MM.

DISPATCHED BY HONG KONG OBSERVATORY AT 07:02 HKT ON 28.05.2020

PRESS WEATHER NO. 050 - HOURLY READINGS

HOURLY READINGS

AT 8 A.M. AT THE HONG KONG OBSERVATORY THE AIR TEMPERATURE WAS 27 DEGREES CELSIUS AND THE RELATIVE HUMIDITY 90 PER CENT.

DURING THE PAST HOUR THE MEAN UV INDEX RECORDED AT KING'S PARK WAS 0.3. THE INTENSITY OF UV RADIATION WAS LOW.

THE AIR TEMPERATURES AT OTHER PLACES WERE:

KING'S PARK	26 DEGREES;
WONG CHUK HANG	27 DEGREES;
TA KWU LING	27 DEGREES;
LAU FAU SHAN	27 DEGREES;
TAI PO	26 DEGREES;
SHA TIN	27 DEGREES;
TUEN MUN	27 DEGREES;
TSEUNG KWAN O	26 DEGREES;
SAI KUNG	27 DEGREES;
CHEUNG CHAU	27 DEGREES;
CHEK LAP KOK	28 DEGREES;
TSING YI	28 DEGREES;
SHEK KONG	27 DEGREES;
TSUEN WAN HO KOON	26 DEGREES;
TSUEN WAN SHING MUN VALLEY	27 DEGREES;
HONG KONG PARK	27 DEGREES;
SHAU KEI WAN	26 DEGREES;
KOWLOON CITY	27 DEGREES;
HAPPY VALLEY	27 DEGREES;
WONG TAI SIN	26 DEGREES;
STANLEY	27 DEGREES;
KWUN TONG	26 DEGREES;
SHAM SHUI PO	27 DEGREES;
KAI TAK RUNWAY PARK	27 DEGREES;
YUEN LONG PARK	27 DEGREES;
TAI MEI TUK	26 DEGREES.

BETWEEN 6:45 AND 7:45 A.M., THE RAINFALL RECORDED IN VARIOUS REGIONS WERE:

WONG TAI SIN	0 TO 2 MM;
SAI KUNG	0 TO 1 MM.

DISPATCHED BY HONG KONG OBSERVATORY AT 08:02 HKT ON 28.05.2020

PRESS WEATHER NO. 058 - HOURLY READINGS

HOURLY READINGS

AT 9 A.M. AT THE HONG KONG OBSERVATORY THE AIR TEMPERATURE WAS 28 DEGREES CELSIUS AND THE RELATIVE HUMIDITY 86 PER CENT.

DURING THE PAST HOUR THE MEAN UV INDEX RECORDED AT KING'S PARK WAS 2. THE INTENSITY OF UV RADIATION WAS LOW.

THE AIR TEMPERATURES AT OTHER PLACES WERE:

KING'S PARK	28 DEGREES;
WONG CHUK HANG	29 DEGREES;
TA KWU LING	27 DEGREES;
LAU FAU SHAN	27 DEGREES;
TAI PO	26 DEGREES;
SHA TIN	27 DEGREES;
TUEN MUN	28 DEGREES;
TSEUNG KWAN O	26 DEGREES;
SAI KUNG	27 DEGREES;
CHEUNG CHAU	28 DEGREES;
CHEK LAP KOK	29 DEGREES;
TSING YI	28 DEGREES;
SHEK KONG	29 DEGREES;
TSUEN WAN HO KOON	27 DEGREES;
TSUEN WAN SHING MUN VALLEY	28 DEGREES;
HONG KONG PARK	27 DEGREES;
SHAU KEI WAN	26 DEGREES;
KOWLOON CITY	27 DEGREES;
HAPPY VALLEY	29 DEGREES;
WONG TAI SIN	27 DEGREES;
STANLEY	27 DEGREES;
KWUN TONG	26 DEGREES;
SHAM SHUI PO	28 DEGREES;
KAI TAK RUNWAY PARK	27 DEGREES;
YUEN LONG PARK	28 DEGREES;
TAI MEI TUK	27 DEGREES.

BETWEEN MIDNIGHT AND 9 A.M. THE MINIMUM TEMPERATURE WAS 26.7 DEGREES CELSIUS AT THE HONG KONG OBSERVATORY.

DISPATCHED BY HONG KONG OBSERVATORY AT 09:02 HKT ON 28.05.2020

PRESS WEATHER NO. 066 - HOURLY READINGS

HOURLY READINGS

AT 10 A.M. AT THE HONG KONG OBSERVATORY THE AIR TEMPERATURE WAS 28 DEGREES CELSIUS AND THE RELATIVE HUMIDITY 85 PER CENT.

DURING THE PAST HOUR THE MEAN UV INDEX RECORDED AT KING'S PARK WAS 3. THE INTENSITY OF UV RADIATION WAS MODERATE.

THE AIR TEMPERATURES AT OTHER PLACES WERE:

KING'S PARK	28 DEGREES;
WONG CHUK HANG	29 DEGREES;
TA KWU LING	28 DEGREES;
LAU FAU SHAN	29 DEGREES;
TAI PO	26 DEGREES;
SHA TIN	27 DEGREES;
TUEN MUN	28 DEGREES;
TSEUNG KWAN O	26 DEGREES;
SAI KUNG	27 DEGREES;
CHEUNG CHAU	28 DEGREES;
CHEK LAP KOK	28 DEGREES;
TSING YI	28 DEGREES;
SHEK KONG	29 DEGREES;
TSUEN WAN HO KOON	26 DEGREES;
TSUEN WAN SHING MUN VALLEY	27 DEGREES;
HONG KONG PARK	27 DEGREES;
SHAU KEI WAN	27 DEGREES;
KOWLOON CITY	27 DEGREES;
HAPPY VALLEY	28 DEGREES;
WONG TAI SIN	27 DEGREES;
STANLEY	27 DEGREES;
KWUN TONG	27 DEGREES;
SHAM SHUI PO	28 DEGREES;
KAI TAK RUNWAY PARK	27 DEGREES;
YUEN LONG PARK	29 DEGREES;
TAI MEI TUK	26 DEGREES.

DISPATCHED BY HONG KONG OBSERVATORY AT 10:02 HKT ON 28.05.2020


E. Incident Report on Action Level or Limit Level Exceedance

Incident Report on Action Level or Limit Level Exceedance

Project	Tuen Mun Area 54 Sewage Pumping Station
Date	From 27 May 2020 (11am) to 28 May 2020 (10:59am), Total 24hrs
Time	From 27 May 2020 (11am) to 28 May 2020 (10:59am), Total 24hrs
Monitoring Location	A1 (Planned Primary School)
Parameter	Odour (H ₂ S concentration)
Action & Limit Levels	Action Level: 2.5 ppb Limit Level: 2.5 ppb
Measured Level	24-hr average H ₂ S conc.: 2.7 ppb
Possible reason for Action or Limit Level Non-compliance	<ol style="list-style-type: none">1. At A1, it is observed that 3 of the 8 sampling events throughout the 24-hrs monitoring period, the H₂S conc. at A1 is higher than at source.2. Also, at Sample 2, 3 & 5, the H₂S conc. at A1 is 23-45.8% higher than at source.3. Under the above observations, it is considered that the source is not the major contributor to H₂S conc. at A1 during sample 2, 3 & 5, and thus the exceedance at A1 is not project related.
Actions taken / to be taken	Since the exceedance at A1 is not project related, therefore, no remedial actions is recommended.
Remarks / Other Observations	<ol style="list-style-type: none">1. Refer to the site observation at A1 during the monitoring period, no significant H₂S source was identified.2. Detailed monitoring data will be presented in the Third Operation Phase Odour Impact Monitoring Report and to be deposit to EPD for record.

Prepared by: Thomas CHAN

Designation: Environmental Team Leader (ETL)

Signature: 


Date: 4 June 2020

Incident Report on Action Level or Limit Level Exceedance

Project	Tuen Mun Area 54 Sewage Pumping Station
Date	From 27 May 2020 (11am) to 28 May 2020 (10:59am), Total 24hrs
Time	From 27 May 2020 (11am) to 28 May 2020 (10:59am), Total 24hrs
Monitoring Location	A2 (Planned Primary School)
Parameter	Odour (H ₂ S concentration)
Action & Limit Levels	Action Level: 2.3 ppb Limit Level: 2.5 ppb
Measured Level	24-hr average H ₂ S conc.: 2.4 ppb
Possible reason for Action or Limit Level Non-compliance	1. At A2, it is observed that 3 out of the 8 sampling events throughout the 24-hrs monitoring period, the H ₂ S conc. at A2 is higher than at source. 2. Also, at Sample 2 & 3, the H ₂ S conc. at A2 is 19 - 20% higher than at source. 3. Under the above observations, it is considered that the source is not the major contributor to H ₂ S conc. at A2 during sample 2 & 3, and thus the exceedance at A2 is not project related.
Actions taken / to be taken	Since the exceedance at A2 is not project related, therefore, no remedial actions is recommended.
Remarks / Other Observations	1. Refer to the site observation at A2 during the monitoring period, no significant H ₂ S source was identified. 2. Detailed monitoring data will be presented in the Third Operation Phase Odour Impact Monitoring Report and to be deposit to EPD for record.

Prepared by: Thomas CHAN

Designation: Environmental Team Leader (ETL)

Signature: 

Date: 4 June 2020

Incident Report on Action Level or Limit Level Exceedance

Project	Tuen Mun Area 54 Sewage Pumping Station
Date	From 27 May 2020 (11am) to 28 May 2020 (10:59am), Total 24hrs
Time	From 27 May 2020 (11am) to 28 May 2020 (10:59am), Total 24hrs
Monitoring Location	A5 (Road connecting to TMA54SPS)
Parameter	Odour (H ₂ S concentration)
Action & Limit Levels	Action Level: 2.5 ppb Limit Level: 2.5 ppb
Measured Level	24-hr average H ₂ S conc.: 2.9 ppb
Possible reason for Action or Limit Level Non-compliance	<p>1. At A5, it is observed that over half of the sampling events throughout the 24-hrs monitoring period, the H₂S conc. at A5 is higher than at source.</p> <p>2. Also, at Sample 1, 2, 3 & 6, the H₂S conc. at A2 is 10 - 43% higher than at source.</p> <p>3. Under the above observations, it is considered that the source is not the major contributor to H₂S conc. at A5 during sample 1, 2, 3 & 6, and thus the exceedance at A5 is not project related.</p>
Actions taken / to be taken	Since the exceedance at A5 is not project related, therefore, no remedial actions is recommended.
Remarks / Other Observations	<p>1. Refer to the site observation at A5 during the monitoring period, no significant H₂S source was identified.</p> <p>2. Detailed monitoring data will be presented in the Third Operation Phase Odour Impact Monitoring Report and to be deposit to EPD for record.</p>

Prepared by: Thomas CHAN

Designation: Environmental Team Leader (ETL)

Signature: 

Date: 4 June 2020

