JOB NO.: TCS01196/22

**WSD CONTRACT NO.: 7/WSD/21 -
CONSTRUCTION OF SIU HO WAN WATER TREATMENT WORKS EXTENSION AND SIU HO WAN RAW WATER BOOSTER PUMPING STATION**

BASELINE MONITORING REPORT

**PREPARED FOR
CHINA ROAD AND BRIDGE CORPORATION (HONG KONG)**

Date	Reference No.	Prepared By Fai So	Certified By Tam Tak Wing
23 May 2022	TCS01196/22/600/R0014v4	 Assistant Environmental Consultant	 Environmental Team Leader

Version	Date	Description
1	28 April 2022	First Submission
2	3 May 2022	Amended against IEC's comment
3	6 May 2022	Amended against IEC's comment
4	23 May 2022	Amended As Per EPD's comment

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Water Supplies Department
New Works Branch
Consultants Management Division
Sha Tin Office - 6/F Sha Tin Government Offices, 1 Sheung Wo Che Road, Sha Tin, New Territories.

Attn: Ms. CHENG Kwan Yu (E/CM 14)

24 May 2022

By E-mail

Dear Madam,

RE: CONTRACT NO. 7/WSD/21
INDEPENDENT ENVIRONMENTAL CHECKER FOR ENVIRONMENTAL MONITORING AND AUDIT FOR SIU HO WAN WATER TREATMENT WORKS EXTENSION
BASELINE MONITORING REPORT

I refer to the Baseline and Impact Monitoring (Report No.: TCS01196/22/600/R0014v4) received on 23 May 2022 by the Environmental Team (ET), Action-United Environmental Services & Consulting (AUES) via email. In accordance with Condition 4.3 of Environmental Permit No.EP-207/2005/A, I hereby verify the captioned report.

Yours faithfully,

For and on behalf of
Allied Environmental Consultants Ltd.

Joanne NG
Independent Environmental Checker

JN/tw

c.c.	Action-United Environmental Services & Consulting (AUES)	Attn: Mr. Ben Tam	(By E-mail)
	Binnies Hong Kong Limited	Attn: Mr. Alex TUNG	(By E-mail)

EXECUTIVE SUMMARY

ES.01 Water Supplies Department (WSD) is the Proponent of the Works Contract 7/WSD/21 "*Construction of Siu Ho Wan Water Treatment Works Extension and Siu Ho Wan Raw Water Booster Pumping Station" (hereinafter named as the "Works Contract")*. Under this *Works Contracts*, the works mainly comprise of increasing the water treatment capacity of Siu Ho Wan water treatment works (SHW WTW) from 150,000m^3 per day to 300,000m^3 per day within the existing water treatment works compound, by constructing new water treatment facilities and a new laboratory building and modifying the existing associated facilities; and constructing a new raw water booster pumping station at Siu Ho Wan to increase the raw water transfer capacity from Tai Lam Chung Reservoir to SHW WTW. Layout plan of the Works Contract is shown in ***Appendix A***.

ES.02 According to the Environmental Impact Assessment Ordinance (EIAO), the proposed Siu Ho Wan Water Treatment Works Extension is a Designated Project under Schedule 2, which shall be implemented under the Environmental Permit EP-207/2005/A (*hereinafter called the "EP"*). Besides, the works for Siu Ho Wan Raw Water Booster Pumping Station is a non-designated project which mentioned in Section 1.10 of Environmental Monitoring and Audit (EM&A) Manual.

ES.03 On 20 March 2022, ***China Road and Bridge Corporation (Hong Kong)*** (hereinafter called the "Main Contractor") awarded the ***Works Contracts 7/WSD/21***. According to EM&A Manual, only air quality monitoring is required to be conducted which related to the works area under ***Contracts 7/WSD/21*** during construction phase of the SHW WTW Extension. Moreover, site inspection and audit is required under the EM&A program to ensure the recommended environmental mitigation measures are implemented properly and effective.

ES.04 The Main-Contractor appointed Action-United Environmental Services & Consulting (AUES) as the Environmental Team of the Project (hereinafter referred as the "ET") to implement air quality (baseline and impact) monitoring as well as associated duties in accordance with the EM&A Manual stipulation.

ES.05 Some design changes of the Project have been identified after the EIA stage for betterment in the design development. Some of these changes requires supplementary environmental review to address their likely environmental impacts and to identify any additional mitigation measures required for compliance with the EIAO. Supplementary environmental review has been performed for the changes and the review results are presented in the "Review Report on Environmental Impact Assessment (Review Report on EIA)" prepared under "Agreement No. CE 82/2017 (WS)". Having reviewed the Review Report on EIA, no changes to the environmental monitoring requirement in the EM&A Manual are proposed for the work of SHW WTW Extension.

ES.06 According to the approved EM&A Manual, only air quality is required to be monitored during the construction phase of the Project. As part of the EM&A program, baseline monitoring is required to determine the ambient environmental conditions. Pursuant to the EM&A Manual, baseline environmental monitoring is required to be conducted prior to commencement of the construction works under the Project. Baseline air quality monitoring was conducted from ***8 to 21 April 2022***. During the baseline monitoring period, no major construction activities under the Project was observed.

ES.07 This report summarizes the key findings and presents the process and rationale behind determining a set of Action and Limit Levels (A/L Levels) of air quality based on the baseline data. These A/L Levels will serve as the yardsticks for assessing the acceptability of the environmental impact during construction phase of the Project Works impact monitoring. They are statistical in nature and derived according to the criteria set out in Approved EM&A Manual.

ES.08 Results of the derived Action and Limit Levels for the air quality is given in ***Tables ES-1*** as follow.

Table ES-1 Action and Limit Levels of Air Quality Monitoring

Monitoring Station	Action Level (μg /m^3)		Limit Level (μg/m^3)	
	1-hour TSP	24-hour TSP	1-hour TSP	24-hour TSP
SHWAB	291	170	500	260

ES.09 In cases where exceedance of these criteria occurs, actions should be carried out in accordance with the Event Action Plan as showed in the Approved EM&A Manual.

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1.0 INTRODUCTION

BACKGROUND

1.01 Water Supplies Department (WSD) is the Proponent of the Works Contract 7/WSD/21 *"Construction of Siu Ho Wan Water Treatment Works Extension and Siu Ho Wan Raw Water Booster Pumping Station" (hereinafter named as the "Works Contract")*. Under this *Works Contracts*, the works mainly comprise of increasing the water treatment capacity of Siu Ho Wan water treatment works (SHW WTW) from 150,000m^3 per day to 300,000m^3 per day within the existing water treatment works compound, by constructing new water treatment facilities and a new laboratory building and modifying the existing associated facilities; and constructing a new raw water booster pumping station at Siu Ho Wan to increase the raw water transfer capacity from Tai Lam Chung Reservoir to SHW WTW. Layout plan of the Works Contract is shown in ***Appendix A***.

1.02 According to the Environmental Impact Assessment Ordinance (EIAO), the proposed Siu Ho Wan Water Treatment Works Extension is a Designated Project under Schedule 2, which shall be implemented under the Environmental Permit EP-207/2005/A (*hereinafter called the "EP"*). Besides, the works for Siu Ho Wan Raw Water Booster Pumping Station is a non-designated project which mentioned in Section 1.10 of Environmental Monitoring and Audit (EM&A) Manual.

1.03 On 20 March 2022, ***China Road and Bridge Corporation (Hong Kong)*** (hereinafter called the "Main Contractor") awarded the ***Works Contract 7/WSD/21***. According to EM&A Manual, only air quality monitoring is required to be conducted which related to the works area under ***Contract 7/WSD/21*** during construction phase of the SHW WTW Extension. Moreover, site inspection and audit is required under the EM&A program to ensure the recommended environmental mitigation measures are implemented properly and effective.

1.04 The Main-Contractor appointed Action-United Environmental Services & Consulting (AUES) as the Environmental Team of the Project (hereinafter referred as the "ET") to implement air quality (baseline and impact) monitoring as well as associated duties in accordance with the EM&A Manual stipulation.

1.05 Some design changes of the Project have been identified after the EIA stage for betterment in the design development. Some of these changes require supplementary environmental review to address their likely environmental impacts and to identify any additional mitigation measures required for compliance with the EIAO. Supplementary environmental review has been performed for the changes and the review results are presented in the "Review Report on Environmental Impact Assessment (Review Report on EIA)" prepared under "Agreement No. CE 82/2017 (WS)". Having reviewed the Review Report on EIA, no changes to the environmental monitoring requirement in the EM&A Manual are proposed for the work of SHW WTW Extension.

1.06 According to the Approved EM&A Manual, only air quality is required to be monitored during the construction phase of the Project. As part of the EM&A program, baseline monitoring is required to determine the ambient environmental conditions. Pursuant to the EM&A Manual, baseline environmental monitoring is required to be conducted prior to commencement of the construction works under the Project. Baseline air quality monitoring was conducted from ***8 to 21 April 2022***. During the baseline monitoring period, no major construction activities under the Project was observed.

1.07 Action-United Environmental Services & Consulting (hereinafter referred as "AUES") has been commissioned as an Environmental Team (hereinafter referred as "the ET") to implement the relevant EM&A program in accordance with the approved EM&A Manual, as well as the associated duties.

1.08 This Baseline Monitoring Report presents the details of the baseline study including project background, monitoring methodology, monitoring results, summary of findings, and Action/Limit (A/L) Levels established for subsequent use in the Project construction phase EM&A program.

REPORT STRUCTURE

1.09 This Baseline Monitoring Report summarizes the key findings and presents the process and rationale behind determining a set of Action and Limit Levels (A/L Levels) of air quality based on the baseline data. These A/L Levels will serve as the yardsticks for assessing the acceptability of the environmental impact during construction phase of the Project Works impact monitoring. The Baseline Monitoring Report is structured into the following sections:-

Section 1 Introduction

Section 2 Summaries of Baseline Monitoring Requirement.

Section 3 Baseline Monitoring Methodology

Section 4 Baseline Monitoring Results

Section 5 Conclusion and Recommendation

2.0 SUMMARY OF BASELINE MONITORING REQUIREMENT

GENERAL

2.01 Only air quality monitoring is required to carry out related to ***Works contracts 7/WSD/21*** during the construction phase to ensure the dust mitigation measures and performance properly implementation. Also, baseline monitoring is required to conduct before the construction of SHW WTW Extension commencement. The purpose of baseline monitoring is to collect the ambient environmental condition to establish the environmental quality performance criteria i.e. Action and Limit Levels, (hereinafter referred as "the A/L Levels") for subsequent impact monitoring under the SHW WTW Extension Works Contract.

2.02 The other environmental monitoring for Works Area of Pui O was related to other Works Contracts and will be implemented by other appointed ET.

2.03 According to the Review Report on EIA, no changes to the environmental monitoring requirement in the EM&A Manual are proposed for the work of SHW WTW Extension. Air quality monitoring work will be implemented according to the EM&A Manual.

2.04 This report presents the results obtained during the baseline monitoring program of air quality from ***8 to 21 April 2022***. A summary of the baseline EM&A requirements for air monitoring is presented in the sub-sections below.

MONITORING PARAMETERS

2.05 The baseline monitoring programme covers the following environmental aspects:

- Air Quality

2.06 A summary of baseline monitoring parameters is presented in ***Table 2-1***:

Table 2-1 Summary of Baseline Monitoring Parameters

Environmental Issue	Parameters
Air Quality	• 1-hour TSP by Real-Time Portable Dust Meter; and • 24-hour TSP by High Volume Air Sampler.

MONITORING LOCATIONS

Air Quality

2.07 According to the Review Report on EIA, air quality monitoring work should be implemented according to the EM&A Manual. As stated in ***Section 4*** of EM&A Manual, there was only one air quality monitoring station designated under SHW WTW Extension. The air quality monitoring locations is listed in ***Table 2-2.***

Table 2-2 Designated Air Quality Monitoring Station

Monitoring Station Identification No	Location
SHWAB	Siu Ho Wan WTW Administration Building

2.08 As shown in the monitoring location plan of EM&A Manual, the indicative location of air quality monitoring station SHWAB was located on an access road outside the Administration Building. Joint site visit among the representative of the Contractor, ET and the operator of SHW Water Treatment Plant was conducted on 28 March 2022, the operator of the WTP raised safety concern on setting up monitoring station on the access road. To minimise the disturbance to the access road user and occupants, it is proposed to shift the monitoring station SHWAB to an open area outside the Administration Building, which just few meters away from the indicative location. The proposed location was chosen based on the criteria as stipulated in S2.13 of the EM&A manual with rationales as followings:-

(a) The proposed location is still at the same sensitive receiver (i.e. the Administration Building), which just few meters away from the indicative location in the EM&A manual, it is close to

major site activates and likely to have air quality impacts;

(b) The proposed location is at the sensitive receiver and most suitable to set up air monitoring station;

(c) The proposed location causes fewer disturbances to the occupants during monitoring.

2.09 The location SHWAB for baseline monitoring agreed by IEC and EPD is illustrated in ***Appendix B***.

MONITORING FREQUENCY AND PERIOD

2.10 The baseline monitoring will be conducted immediately prior to commencement of the construction work under the Project. No construction activities are allowed to be undertaken during the baseline monitoring period.

Air Quality

Frequency:
- Daily for 24-hour TSP
- Three times a day for 1-hour TSP

Duration: 14 consecutive days

MONITORING EQUIPMENT

2.11 Air quality monitoring equipment to be used in the baseline air quality monitoring are listed in ***Table 2-3***, whereas calibration certificates of the monitoring equipment are shown in ***Appendix C***.

Table 2-3 Air Quality Monitoring Instruments

Equipment	Model
24- Hour TSP	
High Volume Air Sampler	TISCH High Volume Air Sampler, HVS Model TE-5170
Calibration Kit	TISCH Model TE-5025
1-Hour TSP	
Portable Dust Meter for 1-hour TSP	Sibata LD-3B Laser Dust Meter

DERIVATION OF ACTION/LIMIT (A/L) LEVELS

2.12 The baseline results form the basis for determining the environmental acceptance criteria for the impact monitoring. A summary of derivation of Action/Limit (A/L) Levels for air quality, construction noise and water quality are shown in ***Table 2-4*** and ***2-5*** respectively.

Table 2-4 Derivation of Action and Limit Levels for Air Quality

Parameter	Action Level	Limit Level
24-hour TSP	For baseline level ≤ 200 μg/m^3: Action level = (Baseline × 1.3 + Limit level)/2	260 μg/m^3
	For baseline level > 200 μg/m^3: Action level = Limit level	
1-hour TSP	For baseline level ≤ 384 μg/m^3: Action level = (Baseline × 1.3 + Limit level)/2	500 μg/m^3
	For baseline level > 384 μg/m^3: Action level = Limit level	

3.0 BASELINE MONITORING METHODOLOGY

GENERAL

3.01 The baseline monitoring of air quality was conducted from ***8 to 21 April 2022***. During the baseline monitoring period, no construction activities were carried out under the Project.

MONITORING LOCATION

The detailed information of monitoring station referred to ***Tables 2-2*** and illustrated in ***Appendix B***.

MONITORING PROCEDURE

3.02 The procedures to conduct air quality monitoring is summarized in following sub-sections.

Air Quality

1-hour TSP

3.03 Operation of the 1-hour TSP meter will follow manufacturer's Operation and Service Manual.

3.04 The 1-hour TSP monitor, brand named "Sibata LD-3B Laser Dust monitor Particle Mass Profiler & Counter" is a portable, battery-operated laser photometer. The 1-hour TSP meter provides a real time 1-hour TSP measurement based on 90^0 light scattering. The 1-hour TSP monitor consists of the following:

a. A pump to draw sample aerosol through the optic chamber where TSP is measured;
b. A sheath air system to isolate the aerosol in the chamber to keep the optics clean for maximum reliability; and
c. A built-in data logger compatible with Windows based program to facilitate data collection, analysis and reporting.

3.05 The 1-hour TSP meter to be used will be within the valid period, calibrated by the manufacturer prior to purchasing. Span check and BG of the instrument will be performed before each monitoring event. A valid calibration certificate is attached in ***Appendix C***.

24-hour TSP

3.06 The equipment used for 24-hour TSP measurement is the High Volume Sampler (hereinafter the "HVS") brand named TISCH, Model TE-5170 TSP High Volume Air Sampler, which complied with *EPA Code of Federal Regulation, Appendix B to Part 50*. The HVS consists of the following:

a. An anodized aluminum shelter;
b. A 8"x10" stainless steel filter holder;
c. A blower motor assembly;
d. A continuous flow/pressure recorder;
e. A motor speed-voltage control/elapsed time indicator;
f. A 7-day mechanical timer, and
g. A power supply of 220v/50 Hz

3.07 For HVS for 24-hour TSP monitoring, the HVS is mounted in a metallic cage with a top for protection and also it is sat on the existing ground or the roof of building. The flow rate of the HVS between $0.6m^3$/min and $1.7m^3$/min will be properly set in accordance with the manufacturer's instruction to within the range recommended in *EPA Code of Federal Regulation, Appendix B to Part 50*. Glass Fiber Filter 8" x 10" of TE-653 will be used for 24-Hour TSP monitoring and would be supplied by laboratory. The general procedures of sampling are described as below:-

- A horizontal platform with appropriate support to secure the samples against gusty wind should be provided;
- Installed with elapsed-time meter with ± 2 minutes accuracy for 24 hours operation;
- Equipped with a timing/control device with ± 5 minutes accuracy for 24 hours operation;
- With flow control accuracy for ± 2.5% deviation over 24-hour sampling period;

- No two samplers should be placed less than 2 meters apart;
- The distance between the sampler and an obstacle, such as building, must be at least twice the height that the obstacle protrudes above the sample;
- A minimum of 2 meters of separation from any supporting structure, measured horizontally is required;
- Before placing any filter media at the HVS, the power supply will be checked to ensure the sampler work properly;
- The filter paper will be set to align on the screen of HVS to ensure that the gasket formed an air tight seal on the outer edges of the filter. Then filter holder frame will be tightened to the filter hold with swing bolts. The holding pressure should be sufficient to avoid air leakage at the edge.
- The mechanical timer will be set for a sampling period of 24 hours (00:00 mid-night to 00:00 mid-night next day). Information will be recorded on the field data sheet, which would be included the sampling data, starting time, the weather condition at current and the filter paper ID with the initial weight;
- After sampling, the filter paper will be collected and transfer from the filter holder of the HVS to a sealed envelope and sent to a local HOKLAS accredited laboratory for quantifying.

3.08 All the sampled 24-hour TSP filters will be kept in normal air conditioned room conditions, i.e. 70% HR (Relative Humidity) and 25^{o}C, for six months prior to disposal.

3.09 The HVS used for 24-hour TSP monitoring will be calibrated before the commencement for sampling, and after in two months interval with the manufacturer's instruction using the NIST-certified standard calibrator (Tisch Calibration Kit Model TE-5025A) to establish a relationship between the follow recorder meter reading in cfm (cubic feet per minute) and the standard flow rate, Qstd, in m^3/min. Motor brushes of HVS will be regularly replaced of about five hundred hours per time. Valid certificates of the calibration kit and HVS are attached in ***Appendix C.***

Meteorological Information

3.10 The meteorological information including wind direction, wind speed, humidity, rainfall, air pressure and temperature etc. during baseline monitoring is extracted from the closest Hong Kong Observatory Station. Meteorological data are attached in ***Appendix F.***

DATA MANAGEMENT AND DATA QA/QC CONTROL

3.11 The baseline monitoring data were handled by the ET's in-house data recording and management system.

3.12 The monitoring data recorded in the equipment were downloaded directly from the equipment at each monitoring day or after completion of baseline measurement. The downloaded monitoring data were input into a computerized database properly maintained by the ET. The laboratory results were input directly into the computerized database and checked by personnel other than those who input the data.

3.13 For monitoring parameters that require laboratory analysis, the local laboratory shall follow the QA/QC requirements as set out under the HOKLAS scheme for the relevant laboratory tests.

4.0 BASELINE MONITORING RESULTS

GENERAL

4.01 The baseline monitoring schedules are presented in ***Appendix D*** and the monitoring results are detailed in the following sub-sections.

RESULTS OF AIR QUALITY MONITORING

4.02 Baseline 1-hour TSP and 24-hour TSP monitoring were carried out from ***8 to 21 April 2022***. The results for 1-hour and 24-hour TSP are summarized in ***Tables 4-1***. The 1-hour and 24-hour TSP data are shown in ***Appendix E***.

Table 4-1 Summary of 24-hour and 1-hour TSP Monitoring Results –SHWAB

24-hour TSP (μg/m^3)		1-hour TSP (μg/m^3)					
Date	**Meas. Result**	**Date**	**Start Time**	**End Time**	**1st Meas.**	**2nd Meas.**	**3rd Meas.**
08-Apr-22	66	08-Apr-22	13:07	16:07	88	83	74
09-Apr-22	100	09-Apr-22	16:00	19:00	96	107	87
10-Apr-22	54	10-Apr-22	12:27	15:27	54	48	46
11-Apr-22	34	11-Apr-22	15:43	18:43	42	48	74
12-Apr-22	35	12-Apr-22	15:50	18:50	57	48	39
13-Apr-22	44	13-Apr-22	15:55	18:55	66	54	49
14-Apr-22	95	14-Apr-22	15:05	18:05	88	79	73
15-Apr-22	91	15-Apr-22	15:59	18:59	94	86	58
16-Apr-22	66	16-Apr-22	15:04	18:04	71	78	71
17-Apr-22	61	17-Apr-22	15:05	18:05	59	48	43
18-Apr-22	46	18-Apr-22	15:55	18:55	54	39	41
19-Apr-22	53	19-Apr-22	15:06	18:06	66	53	50
20-Apr-22	63	20-Apr-22	15:56	18:56	60	54	44
21-Apr-22	42	21-Apr-22	15:32	18:32	84	54	49
Average (Range)	**61 (34 – 100)**	Average (Range)			**63 (39 – 107)**		

Action/Limit Levels

4.03 Following the criteria shown in ***Table 2-3*** of this report, the proposed Action and Limit Levels for 24-hour and 1-hour TSP are listed in ***Table 4-2***. Event Action Plan is attached in ***Appendix G.***

Table 4-2 Action and Limit Levels for Air Quality Monitoring

Monitoring Station	Action Level (μg /m^3)		Limit Level (μg/m^3)	
	1-hour TSP	24-hour TSP	1-hour TSP	24-hour TSP
SHWAB	291	170	500	260

Note: 1-hour & 24-hour TSP Action Level = (Average Baseline Result × 1.3 + Limit level)/2

5.0 CONCLUSIONS AND RECOMMENTATIONS

CONCLUSIONS

5.01 The baseline monitoring program was carried out during the period from ***8 to 21 April 2022*** at the designated monitoring location according to the Approved EM&A Manual. During the baseline monitoring, there were no construction activities undertaken under this Project.

5.02 Based on the baseline monitoring results, the recommended environmental performance criteria for air quality is summarized as follows:

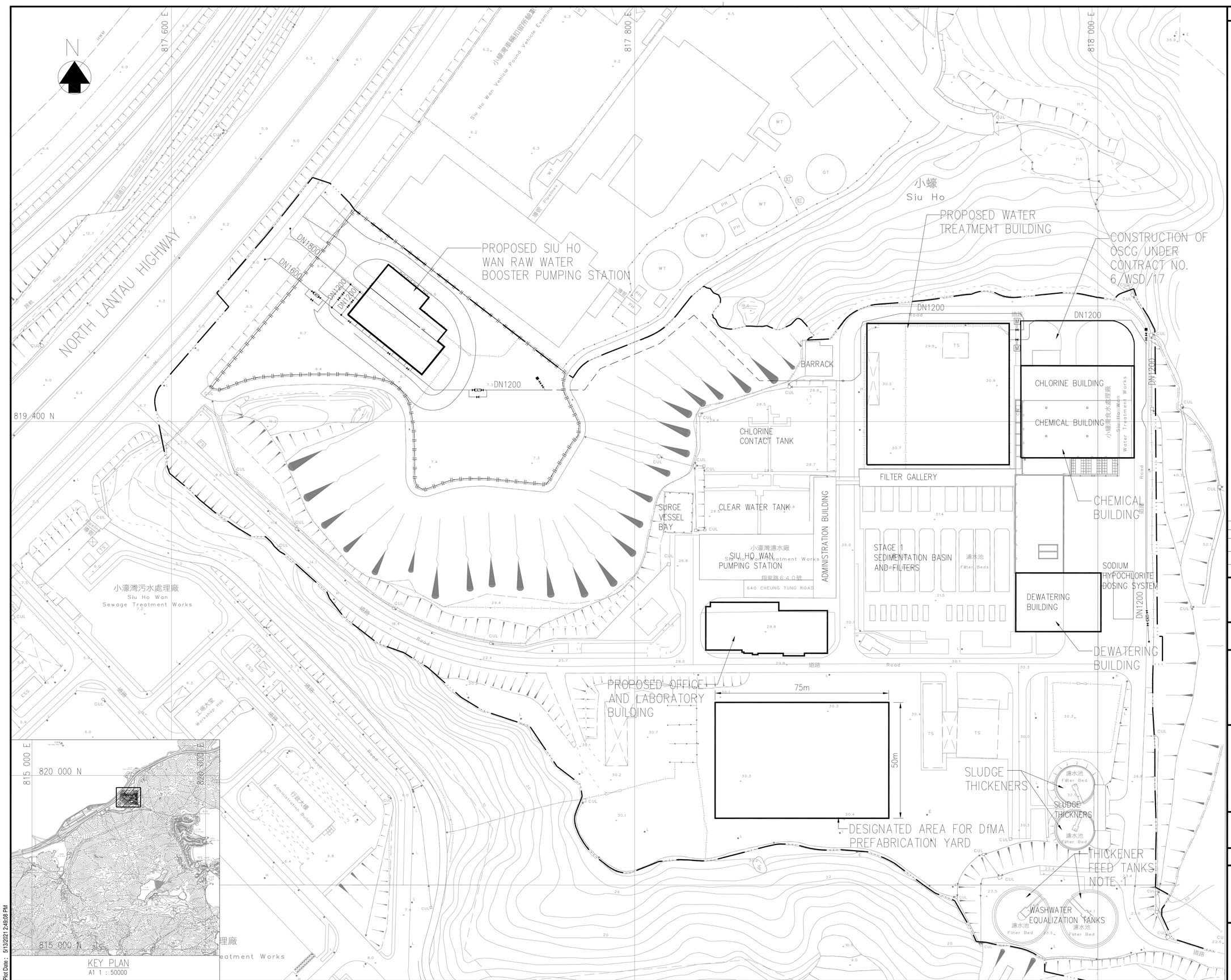
Recommended Action & Limit Levels of Air Quality				
Monitoring Station	**Action Level (μg /m^3)**		**Limit Level (μg/m^3)**	
	1-hour TSP	**24-hour TSP**	**1-hour TSP**	**24-hour TSP**
SHWAB	291	170	500	260

RECOMMENDATIONS

5.03 The baseline monitoring of air quality was conducted within wet season typical (April to October) in Hong Kong. It is important to note that influence of seasonal changes should be taken into account when interpreting monitoring data obtained during dry season. Review of the baseline conditions may need to be conducted regularly, in particular during seasonal changes. If the changes in baseline conditions are evident, the environmental performance criteria should be re-established by agreement of the ER and submitted for EPD endorsement.

Appendix A

Project Site Layout Plan



LEGEND:

- SITE BOUNDARY
- PROPOSED RAW WATER MAINS (BURIED)
- PROPOSED RAW WATER MAINS (EXPOSED)
- PROPOSED FENCING
- PROPOSED BUILDING WORKS

NOTE1:
THE EXISTING WASHWATER EQUAULIZATION TANKS TO BE RENAMED AS "THICKENER FEED TANKS"

Revision	Date	Description			Initial
0	05/21	ISSUE FOR TENDER DRAWING			JC
	Designed	Checked	Drawn	Checked	
Initial	CT/CCK	YFC/AS	SZ	JC	
Date	05/21	05/21	05/21	05/21	

Approved
James Chan

Contract No.
7/WSD/21

Contract Title
CONSTRUCTION OF SIU HO WAN WATER TREATMENT WORKS EXTENSION AND SIU HO WAN RAW WATER BOOSTER PUMPING STATION

Drawing Title
SITE LOCATION

Drawing No.
199755A/B&V/GN/00001

Revision
0

Scale
A1 1 : 750
A3 1 : 1500

水務署
Water Supplies Department

BINNIES HONG KONG LIMITED
賓尼斯工程顧問有限公司

Plot Date : 5/13/2021 2:49:08 PM

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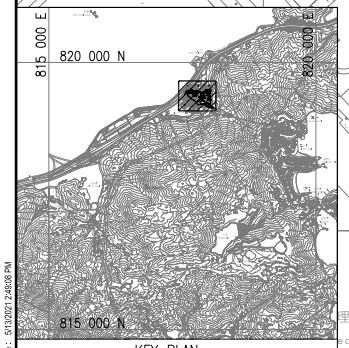
Appendix B

Monitoring Locations

LEGEND:

- SITE BOUNDARY
- PROPOSED RAW WATER MAINS (BURIED)
- PROPOSED RAW WATER MAINS (EXPOSED)
- PROPOSED FENCING
- PROPOSED BUILDING WORKS

NOTE1:
THE EXISTING WASHWATER EQUALIZATION TANKS TO BE RENAMED AS "THICKENER FEED TANKS"



KEY PLAN
A1 1 : 50000

Revision	Date	Description	Initial
0	05/21	ISSUE FOR TENDER DRAWING	JC

	Designed	Checked	Drawn	Checked
Initial	CT/CCK	YFC/AS	SZ	JC
Date	05/21	05/21	05/21	05/21

Approved
James Chan

Contract No.
7/WSD/21

Contract Title
CONSTRUCTION OF SIU HO WAN WATER TREATMENT WORKS EXTENSION AND SIU HO WAN RAW WATER BOOSTER PUMPING STATION

Drawing Title
SITE LOCATION

Drawing No.
199755A/B&V/GN/00001

Revision
0

Scale
A1 1 : 750
A3 1 : 1500

水務署
Water Supplies Department

BINNIES HONG KONG LIMITED
賓尼新工程顧問有限公司

Plot Date : 5/13/2021 12:45:05 PM

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Appendix C

Calibration Certificates of Equipment and the Accreditation Laboratory Certificate

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYTICAL CHEMISTRY & TESTING SERVICES

SUB-CONTRACTING REPORT

CONTACT	: MR BEN TAM	WORK ORDER	:	**HK2210526**
CLIENT	: **ACTION-UNITED ENVIRONMENTAL SERVICES & CONSULTING**			
ADDRESS	: RM A 20/F., GOLD KING IND BLDG, NO. 35-41 TAI LIN PAI ROAD, KWAI CHUNG, N.T.	SUB-BATCH	:	1
		DATE RECEIVED	:	18-MAR-2022
		DATE OF ISSUE	:	28-MAR-2022
PROJECT	: ----	NO. OF SAMPLES	:	1
		CLIENT ORDER	:	----

General Comments

- **Sample(s) was/ were submitted by client. Sample(s) arrived laboratory in ambient condition. The result(s) related only to the item(s) tested.**
- **Sample information (Project name, Sample ID, Sampling date/time, etc.) is provided by client.**
- **Calibration was subcontracted to and analysed by Action United Environmental Services & Consulting.**

Signatories

This document has been signed by those names that appear on this report and are the authorised signatories

Signatories	*Position*
Richard Fung	Managing Director

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

All pages of this report have been checked and approved for release.

ALS Technichem (HK) Pty Ltd
Part of the ALS Laboratory Group
11/F. Chung Shun Knitting Centre 1 - 3 Wing Yip Street Kwai Chung N.T. Hong Kong
Tel. +852 2610 1044 Fax. +852 2610 2021 **www.alsglobal.com**

WORK ORDER	:	HK2210526
SUB-BATCH	:	1
CLIENT	:	ACTION-UNITED ENVIRONMENTAL SERVICES & CONSULTING
PROJECT	:	----

ALS Lab ID	Client's Sample ID	Sample Type	Sample Date	External Lab Report No.
HK2210526-001	S/N: 3Y6501	AIR	18-Mar-2022	S/N: 3Y6501

Equipment Verification Report (TSP)

Equipment Calibrated:

Type:	Laser Dust monitor
Manufacturer:	Sibata LD-3B
Serial No.	3Y6501
Equipment Ref:	EQ111

Standard Equipment:

Standard Equipment:	Higher Volume Sampler (TSP)
Location & Location ID:	AUES office (calibration room)
Equipment Ref:	HVS 018 & HVS 019
Last Calibration Date:	5 November 2021 & 13 December 2021

Equipment Verification Results:

Verification Date: 20 December 2021 & 7 January 2022

Date	Hour	Time	Mean Temp °C	Mean Pressure (hPa)	Concentration in ug/m^3 (Standard Equipment)	Total Count (Calibrated Equipment)	Count/Minute (Total Count/min)
7 Jan 22	2hr	11:55 ~ 13:55	18.6	1021.6	55.1	2574	21.5
7 Jan 22	2hr27mins	14:23 ~ 16:50	18.6	1021.6	54.8	2671	18.2
7 Jan 22	2hr09mins	16:50 ~ 18:59	18.6	1021.6	56.5	2811	21.8
20 Dec 21*	45mins	10:15 ~ 11:00	20.5	1008.7	472.0	10069	223.8
20 Dec 21*	31mins	11:05 ~ 11:36	20.5	1008.7	187.2	2054	67.1

(*) Suspended particle was added into calibration room of HVS019 for high concentration test.

Sensitivity Adjustment Scale Setting (Before Calibration) 657 (CPM)

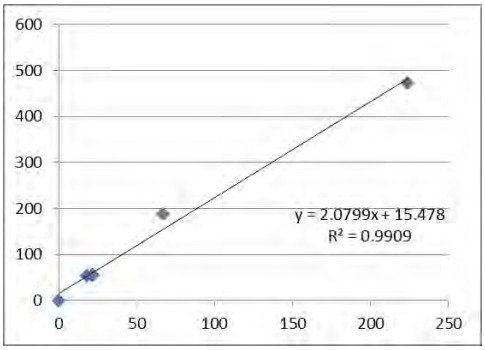
Sensitivity Adjustment Scale Setting (After Calibration) 657 (CPM)

Linear Regression of Y or X

Slope (K-factor): 2.0799 (µg/m^3)/CPM

Correlation Coefficient (R) 0.9954

Date of Issue 15 January 2022



Remarks:

1. Strong Correlation (R>0.8)
2. Factor 2.0799 (µg/m^3)/CPM should be apply for TSP monitoring

*If R<0.5, repair or re-verification is required for the equipment

Operator : Fai So Signature : Date : 15 January 2022

QC Reviewer : Ben Tam Signature : Date : 15 January 2022

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location :	Gold King Industrial Building, Kwai Chung	Date of Calibration:	5-Nov-21
Location ID :	Calibration Room	Next Calibration Date:	5-Feb-22

CONDITIONS

Sea Level Pressure (hPa)	1012.5	Corrected Pressure (mm Hg)	759.375
Temperature (°C)	25.6	Temperature (K)	299

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.10574
Model->	5025A	Qstd Intercept ->	-0.00985
Calibration Date->	19-Jan-21	Expiry Date->	18-Jan-22

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.2	6.2	12.4	1.675	52	51.93	Slope = 24.2092
13	5	5	10.0	1.504	48	47.93	Intercept = 10.8881
10	3.9	3.9	7.8	1.329	42	41.94	Corr. coeff. = 0.9959
8	2.5	2.5	5.0	1.065	36	35.95	
5	1.0	1.0	2.0	0.675	28	27.96	

Calculations :

Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]

IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate

IC = corrected chart respones

I = actual chart response

m = calibrator Qstd slope

b = calibrator Qstd intercept

Ta = actual temperature during calibration (deg K)

Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

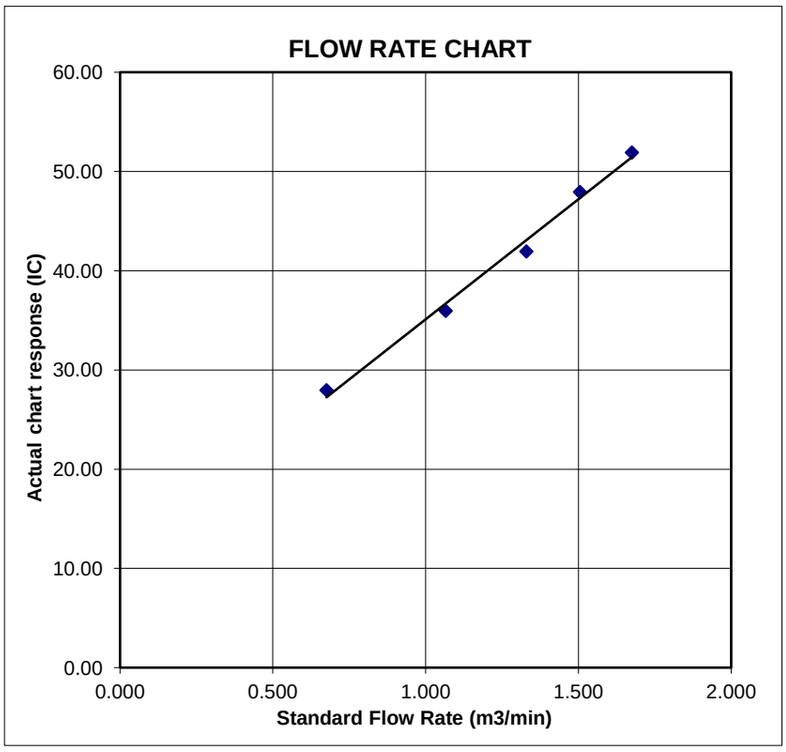
m = sampler slope

b = sampler intercept

I = chart response

Tav = daily average temperature

Pav = daily average pressure



TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location :	Gold King Industrial Building, Kwai Chung	Date of Calibration:	13-Dec-21
Location ID :	Calibration Room	Next Calibration Date:	13-Mar-22

CONDITIONS

Sea Level Pressure (hPa)	1014.3	Corrected Pressure (mm Hg)	760.725
Temperature (°C)	24.0	Temperature (K)	297

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	2.10574
Model->	5025A	Qstd Intercept ->	-0.00985
Calibration Date->	19-Jan-21	Expiry Date->	18-Jan-22

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	6.2	6.2	12.4	1.681	52	52.11	Slope = 36.4525
13	4.9	4.9	9.8	1.495	44	44.10	Intercept = -9.0200
10	3.7	3.7	7.4	1.299	40	40.09	Corr. coeff. = 0.9943
8	2.4	2.4	4.8	1.047	30	30.06	
5	1.5	1.5	3.0	0.829	20	20.04	

Calculations :

Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]

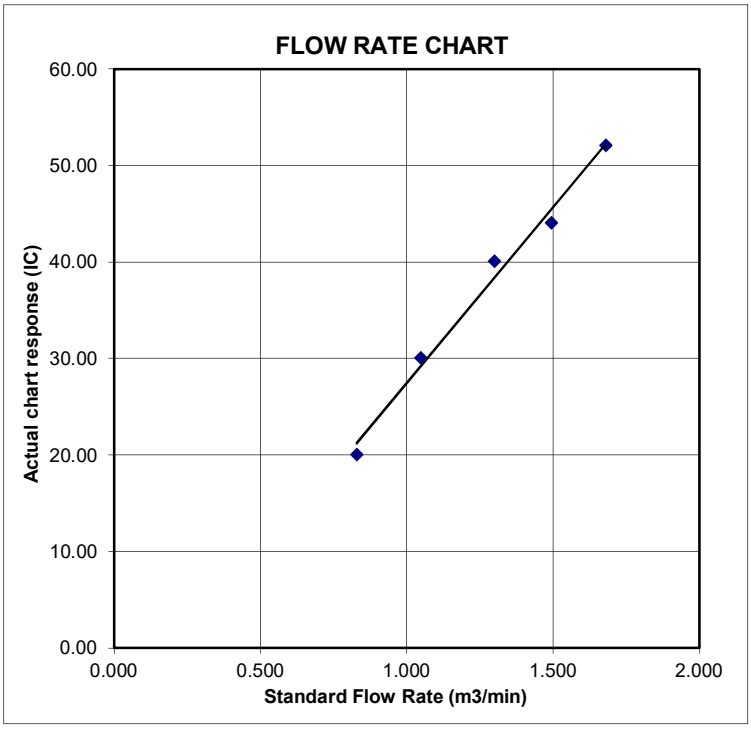
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K)
Pstd = actual pressure during calibration (mm Hg)

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure



TISCH Environmental

RECALIBRATION DUE DATE:
January 19, 2022

Certificate of Calibration

Calibration Certification Information				
Cal. Date:	January 19, 2021	**Rootsmeter S/N:** 438320	**Ta:** 294	°K
Operator:	Jim Tisch		**Pa:** 755.1	mm Hg
Calibration Model #:	TE-5025A	**Calibrator S/N:** **1941**		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.4830	3.2	2.00
2	3	4	1	1.0420	6.4	4.00
3	5	6	1	0.9290	8.0	5.00
4	7	8	1	0.8840	8.8	5.50
5	9	10	1	0.7340	12.9	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis)
1.0029	0.6762	1.4192	0.9958	0.6715	0.8824
0.9986	0.9583	2.0071	0.9915	0.9516	1.2479
0.9965	1.0726	2.2440	0.9894	1.0650	1.3952
0.9954	1.1260	2.3535	0.9883	1.1180	1.4633
0.9899	1.3487	2.8385	0.9829	1.3391	1.7648
QSTD	**m=**	**2.10574**	**QA**	**m=**	**1.31858**
	b=	**-0.00985**		**b=**	**-0.00612**
	r=	**0.99992**		**r=**	**0.99992**

Calculations

Vstd=	ΔVol((Pa-ΔP)/Pstd)(Tstd/Ta)	**Va=**	ΔVol((Pa-ΔP)/Pa)
Qstd=	Vstd/ΔTime	**Qa=**	Va/ΔTime

For subsequent flow rate calculations:

Qstd= $1/m\left(\left(\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}\right)-b\right)$

Qa= $1/m\left(\left(\sqrt{\Delta H\left(Ta/Pa\right)}\right)-b\right)$

Standard Conditions	
Tstd:	298.15 °K
Pstd:	760 mm Hg
Key	
ΔH: calibrator manometer reading (in H2O)	
ΔP: rootsmeter manometer reading (mm Hg)	
Ta: actual absolute temperature (°K)	
Pa: actual barometric pressure (mm Hg)	
b: intercept	
m: slope	

RECALIBRATION

US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30

Tisch Environmental, Inc.
145 South Miami Avenue
Village of Cleves, OH 45002

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TOLL FREE: (877)263-7610
FAX: (513)467-9009

TSP SAMPLER CALIBRATION CALCULATION SPREADSHEET

Location : Siu Ho Wan WTW Administration Building Date of Calibration: 7-Apr-22
Location ID : SHWAB Next Calibration Date: 7-Jun-22
Name and Model: TISCH HVS Model TE-5170 Technician: Fai So

CONDITIONS

Sea Level Pressure (hPa)	1016.8	Corrected Pressure (mm Hg)	762.6
Temperature (°C)	22.8	Temperature (K)	296

CALIBRATION ORIFICE

Make->	TISCH	Qstd Slope ->	1.99838
Model->	5025A	Qstd Intercept ->	-0.00903
Serial # ->	1612		

CALIBRATION

Plate No.	H20 (L) (in)	H2O (R) (in)	H20 (in)	Qstd (m3/min)	I (chart)	IC corrected	LINEAR REGRESSION
18	5.60	5.60	11.2	1.688	56	56.51	Slope = 29.7666
13	4.50	4.50	9.0	1.514	51	51.47	Intercept = 6.1338
10	3.40	3.40	6.8	1.316	44	44.40	Corr. coeff. = 0.9984
7	2.20	2.20	4.4	1.060	38	38.35	
5	1.30	1.30	2.6	0.816	30	30.27	

Calculations :

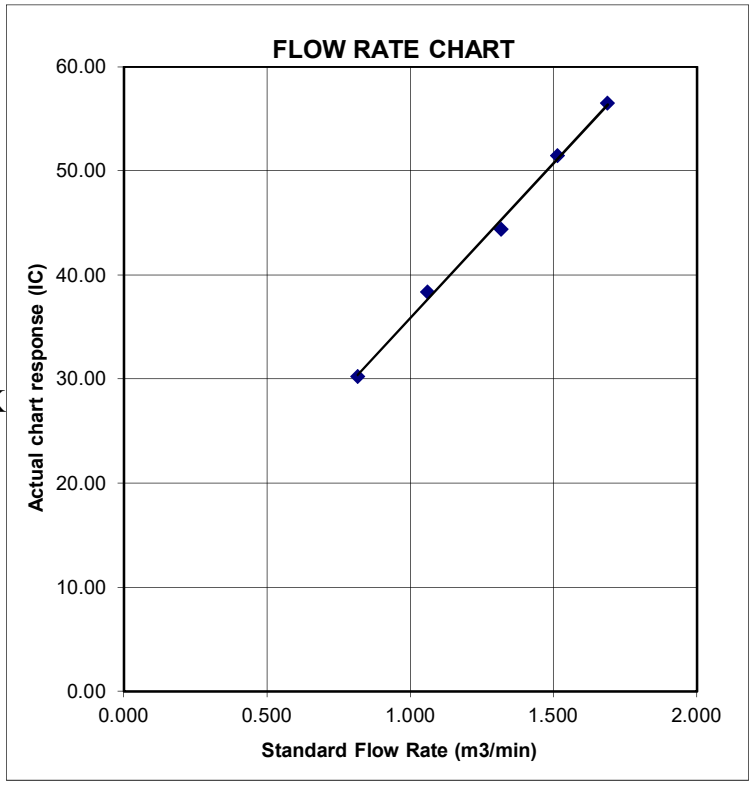
Qstd = 1/m[Sqrt(H20(Pa/Pstd)(Tstd/Ta))-b]
IC = I[Sqrt(Pa/Pstd)(Tstd/Ta)]

Qstd = standard flow rate
IC = corrected chart respones
I = actual chart response
m = calibrator Qstd slope
b = calibrator Qstd intercept
Ta = actual temperature during calibration (deg K
Pstd = actual pressure during calibration (mm Hg

For subsequent calculation of sampler flow:

1/m((I)[Sqrt(298/Tav)(Pav/760)]-b)

m = sampler slope
b = sampler intercept
I = chart response
Tav = daily average temperature
Pav = daily average pressure



TISCH Environmental

RECALIBRATION DUE DATE:
December 27, 2022

Certificate of Calibration

Calibration Certification Information				
Cal. Date:	December 27, 2021	**Rootsmeter S/N:** 438320	**Ta:** 295	°K
Operator:	Jim Tisch		**Pa:** 740.4	mm Hg
Calibration Model #:	TE-5025A	**Calibrator S/N:** **1612**		

Run	Vol. Init (m3)	Vol. Final (m3)	ΔVol. (m3)	ΔTime (min)	ΔP (mm Hg)	ΔH (in H2O)
1	1	2	1	1.3890	3.2	2.00
2	3	4	1	0.9760	6.4	4.00
3	5	6	1	0.8740	7.9	5.00
4	7	8	1	0.8320	8.8	5.50
5	9	10	1	0.6870	12.7	8.00

Data Tabulation

Vstd (m3)	Qstd (x-axis)	$\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}$ (y-axis)	Va	Qa (x-axis)	$\sqrt{\Delta H\left(Ta/Pa\right)}$ (y-axis)
0.9799	0.7055	1.4029	0.9957	0.7168	0.8927
0.9756	0.9996	1.9841	0.9914	1.0157	1.2624
0.9736	1.1140	2.2183	0.9893	1.1320	1.4114
0.9724	1.1688	2.3265	0.9881	1.1876	1.4803
0.9673	1.4079	2.8059	0.9828	1.4306	1.7853
QSTD	**m=**	**1.99838**	**QA**	**m=**	**1.25135**
	b=	**-0.00903**		**b=**	**-0.00574**
	r=	**0.99999**		**r=**	**0.99999**

Calculations			
Vstd=	ΔVol((Pa-ΔP)/Pstd)(Tstd/Ta)	**Va=**	ΔVol((Pa-ΔP)/Pa)
Qstd=	Vstd/ΔTime	**Qa=**	Va/ΔTime

For subsequent flow rate calculations:

Qstd= $1/m\left(\left(\sqrt{\Delta H\left(\frac{Pa}{Pstd}\right)\left(\frac{Tstd}{Ta}\right)}\right)-b\right)$

Qa= $1/m\left(\left(\sqrt{\Delta H\left(Ta/Pa\right)}\right)-b\right)$

Standard Conditions	
Tstd:	298.15 °K
Pstd:	760 mm Hg

Key
ΔH: calibrator manometer reading (in H2O)
ΔP: rootsmeter manometer reading (mm Hg)
Ta: actual absolute temperature (°K)
Pa: actual barometric pressure (mm Hg)
b: intercept
m: slope

RECALIBRATION

US EPA recommends annual recalibration per 1998 40 Code of Federal Regulations Part 50 to 51, Appendix B to Part 50, Reference Method for the Determination of Suspended Particulate Matter in the Atmosphere, 9.2.17, page 30

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FAX: (513)467-900

Hong Kong Accreditation Service
香港認可處

Certificate of Accreditation
認可證書

This is to certify that
特此證明

ALS TECHNICHEM (HK) PTY LIMITED

11/F, Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, New Territories, Hong Kong
香港新界葵涌永業街1-3號忠信針織中心11樓

is accredited by the Hong Kong Accreditation Service (HKAS) to ISO/IEC 17025:2017
for performing specific laboratory activities as listed in the scope of accreditation within the test category of
獲香港認可處根據ISO/IEC 17025:2017認可
進行載於認可範圍內下述測試類別中的指定實驗所活動

Environmental Testing
環境測試

This accreditation to ISO/IEC 17025:2017 demonstrates technical competence for a defined scope and the implementation of a management system relevant to laboratory operation (see joint IAF-ILAC-ISO Communiqué).
此項 ISO/IEC 17025:2017 的認可資格證明此實驗所具備指定範疇內所須的技術能力並實施一套與實驗所運作相關的管理體系(見國際認可論壇、國際實驗所認可合作組織及國際標準化組織的聯合公報)。

The common seal of HKAS is affixed hereto by the authority of the HKAS Executive
現經香港認可處執行機關授權在此蓋上香港認可處的印章

SHUM Wai-leung, Executive Administrator
執行幹事 沈偉良
Issue Date : 28 February 2020
簽發日期：二零二零年二月二十八日

Registration Number : HOKLAS 066
註冊號碼：

Date of First Registration : 15 September 1995
首次註冊日期：一九九五年九月十五日

This certificate is issued subject to the terms and conditions laid down by HKAS
本證書按照香港認可處訂立的條款及條件發出

L001934

Appendix D

Baseline Monitoring Schedule

Baseline Air Monitoring Schedule

Date		AIR QUALITY MONITORING	
		1-HOUR TSP	24-HOUR TSP
Fri	8-Apr-22	✓	✓
Sat	9-Apr-22	✓	✓
Sun	10-Apr-22	✓	✓
Mon	11-Apr-22	✓	✓
Tue	12-Apr-22	✓	✓
Wed	13-Apr-22	✓	✓
Thu	14-Apr-22	✓	✓
Fri	15-Apr-22	✓	✓
Sat	16-Apr-22	✓	✓
Sun	17-Apr-22	✓	✓
Mon	18-Apr-22	✓	✓
Tue	19-Apr-22	✓	✓
Wed	20-Apr-22	✓	✓
Thu	21-Apr-22	✓	✓

✓	Monitoring Day
	Sunday or Public Holiday

Appendix E

Database for 1-Hour & 24-hour TSP Data of Air Quality

Baseline Monitoring Results for 24-hour TSP at SHWAB									**Date of Calibration: 4-Apr-22**					**Slope = 29.7666**	
									Next Calibration Date: 4-Jun-22					**Intercept = 6.1338**	
DATE	SAMPLE NUMBER	ELAPSED TIME		ACTUAL (min)	CHART READING			AVG TEMP (℃)	STANDARD			FILTER WEIGHT (g)		WEIGHT DUST COLLECTED (g)	DUST 24-hour TSP IN AIR (ug/m^3)
		INITIAL	FINAL		MIN	MAX	AVG		AVG PRESS (hPa)	FLOW RATE (m^3/min)	AIR VOLUME (std m^3)	INITIAL	FINAL		
08-Apr-22	28146	17763.31	17787.02	1422.60	32	33	32.5	23.6	1015.7	0.89	1266	2.7625	2.8460	0.0835	66
09-Apr-22	28147	17787.02	17811.01	1439.40	36	37	36.5	23.1	1013.8	1.02	1474	2.7630	2.9100	0.1470	100
10-Apr-22	28148	17811.01	17834.86	1431.00	36	36	36.0	23.8	1012.4	1.01	1438	2.7546	2.8322	0.0776	54
11-Apr-22	28149	17834.86	17858.86	1440.00	36	37	36.5	25.5	1011.0	1.02	1465	2.7511	2.8016	0.0505	34
12-Apr-22	28150	17858.86	17882.57	1422.60	36	36	36.0	25.7	1008.9	1.00	1422	2.7697	2.8199	0.0502	35
13-Apr-22	28151	17882.57	17906.58	1440.60	36	36	36.0	25.3	1006.8	1.00	1439	2.7714	2.8350	0.0636	44
14-Apr-22	28160	17906.58	17930.62	1442.40	36	36	36.0	25.5	1008.4	1.00	1442	2.8170	2.9546	0.1376	95
15-Apr-22	28152	17930.62	17954.56	1436.40	36	36	36.0	24.3	1012.1	1.00	1442	2.8081	2.9390	0.1309	91
16-Apr-22	28153	17954.56	17978.36	1428.00	36	36	36.0	21.8	1013.7	1.01	1442	2.8066	2.9017	0.0951	66
17-Apr-22	28154	17978.36	18002.06	1422.00	36	36	36.0	21.4	1015.6	1.01	1439	2.8169	2.9050	0.0881	61
18-Apr-22	28155	18002.06	18025.69	1417.80	35	37	36.0	21.7	1016.7	1.01	1435	2.7924	2.8578	0.0654	46
19-Apr-22	28156	18025.69	18049.40	1422.60	36	37	36.5	20.1	1017.3	1.03	1469	2.8170	2.8946	0.0776	53
20-Apr-22	28157	18049.40	18073.40	1440.00	38	38	38.0	21.9	1015.4	1.08	1553	2.7880	2.8851	0.0971	63
21-Apr-22	28158	18073.40	18097.35	1437.00	38	38	38.0	23.9	1013.5	1.07	1542	2.8259	2.9002	0.0743	48

1-hour TSP (μg/m^3)					
Date	**Start Time**	**End Time**	**1st Meas.**	**2nd Meas.**	**3rd Meas.**
08-Apr-22	13:07	16:07	88	83	74
09-Apr-22	16:00	19:00	96	107	87
10-Apr-22	12:27	15:27	54	48	46
11-Apr-22	15:43	18:43	42	48	74
12-Apr-22	15:50	18:50	57	48	39
13-Apr-22	15:55	18:55	66	54	49
14-Apr-22	15:05	18:05	88	79	73
15-Apr-22	15:59	18:59	94	86	58
16-Apr-22	15:04	18:04	71	78	71
17-Apr-22	15:05	18:05	59	48	43
18-Apr-22	15:55	18:55	54	39	41
19-Apr-22	15:06	18:06	66	53	50
20-Apr-22	15:56	18:56	60	54	44
21-Apr-22	15:32	18:32	84	54	49

Appendix F

Meteorological Data during Baseline Monitoring Period

Date		Weather	Total Rainfall (mm)	Chek Lap Kok				
				Mean Air Temp. (°C)	Mean Press. (hPa)	Wind Speed (km/h)	Wind Direction	Mean Relative Humidity (%)
Fri	8-Apr-22	Cloudy with a few showers.	0	23.6	1015.7	11	E	50
Sat	9-Apr-22	Cloudy with one or two rain patches.	0	23.1	1013.8	13.6	E/NE	65
Sun	10-Apr-22	Moderate to fresh east to northeasterly winds	0	23.8	1012.4	10.5	E/NE	67
Mon	11-Apr-22	Fine. Hot. Light winds.	0	25.5	1011.0	9	E	74
Tue	12-Apr-22	Mainly cloudy with one or two showers.	0	25.7	1008.9	7.5	E	77
Wed	13-Apr-22	Mainly cloudy with one or two showers.	Trace	25.3	1006.8	6	W/SW	81
Thu	14-Apr-22	Becoming cloudy tonight.	0	25.5	1008.4	10.5	E	69
Fri	15-Apr-22	Cloudy with a few showers.	Trace	24.3	1012.1	16	E	69
Sat	16-Apr-22	Moderate northerly winds.	Trace	21.8	1013.7	12.5	E	73
Sun	17-Apr-22	Light winds tomorrow.	0.4	21.4	1015.6	17.5	E	72
Mon	18-Apr-22	Moderate to fresh easterly winds	Trace	21.7	1016.7	20.6	E	76
Tue	19-Apr-22	Fine. Hot. Light winds.	0.8	20.1	1017.3	19.5	E	83
Wed	20-Apr-22	Light winds tomorrow.	0	21.9	1015.4	16.7	E	75
Thu	21-Apr-22	Fine. Hot. Light winds.	0	23.9	1013.5	12	E	78

Remark: The above information was extracted from the Hong Kong Observatory station of Chek Lap Kok of below link: https://www.hko.gov.hk/en/index.html

Appendix G

Event Action Plan (Air Quality)

Event Action Plan for Air Quality

Event	Action			
	ET	**IEC**	**ER**	**Contractor**
Action Level exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IEC, ER and Contractor; 3. Repeat measurement to confirm finding; and 4. Increase monitoring frequency to daily.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; and 3. Review and advise the ET and ER on the effectiveness of the proposed remedial measures.	1. Notify Contractor.	1. Identify source, investigate the causes of exceedance and propose remedial measures 2. Rectify any unacceptable practice and implement remedial measures; and 3. Amend working methods agreed with ER if appropriate.
Action Level exceedance for two or more consecutive samples	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform IEC, ER and Contractor; 3. Advise the ER and Contractor on the effectiveness of the proposed remedial measures; 4. Repeat measurements to confirm findings; 5. Increase monitoring frequency to daily; 6. Discuss with IEC, ER and Contractor on remedial actions required; 7. If exceedance continues, arrange meeting with IEC and ER; and 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET and Contractor on possible remedial measures; 4. Advise the ET and ER on the effectiveness of the proposed remedial measures; and 5. Supervise Implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; and 3. Supervise and ensure remedial measures properly implemented.	1. Identify source, investigate the causes of exceedance and propose remedial measures 2. Submit proposals for remedial actions to ER with a copy to ET and IEC within 3 working days of notification; 3. Implement the agreed proposals; and 4. Amend proposal if appropriate.
Limit Level exceedance for one sample	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Inform ER, Contractor, IEC and EPD; 3. Repeat measurement to confirm finding; 4. Increase monitoring frequency to daily; 5. Assess effectiveness of	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss with ET, ER and Contractor on possible remedial measures; 4. Advise the ER and ET on the effectiveness of the proposed remedial measures;	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; and 3. Supervise and ensure remedial measures properly implemented.	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial actions to ER with a copy to ET and IEC within 3 working days of notification; 4. Implement the agreed proposals;

	Contractor's remedial actions and keep IEC, EPD and ER informed of the results.	5. Supervise implementation of remedial measures.		and 5. Amend proposal if appropriate.
Limit Level exceedance for two or more consecutive samples	1. Notify IEC, ER, Contractor and EPD; 2. Identify source; 3. Repeat measurement to confirm findings; 4. Increase monitoring frequency to daily; 5. Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented; 6. Arrange meeting with IEC, Contractor and ER to discuss the remedial actions to be taken; 7. Assess effectiveness of Contractor's remedial actions and keep IEC, EPD and ER informed of the results; 8. If exceedance stops, cease additional monitoring.	1. Check monitoring data submitted by ET; 2. Check Contractor's working method; 3. Discuss amongst ER, ET, and Contractor on the potential remedial actions; 4. Review Contractor's remedial actions whenever necessary to assure their effectiveness and advise the ER accordingly; and 5. Supervise the implementation of remedial measures.	1. Confirm receipt of notification of failure in writing; 2. Notify Contractor; 3. In consultation with the ET and IEC, agree with the Contractor on the remedial measures to be implemented; 4. Supervise and ensure remedial measures properly implemented; and 5. If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop that portion of work until the exceedance is abated.	1. Identify source, investigate the causes of exceedance and propose remedial measures; 2. Take immediate action to avoid further exceedance; 3. Submit proposals for remedial actions to ER with a copy to ET and IEC within 3 working days of notification; 4. Implement the agreed proposals; 5. Resubmit proposals if problem still not under control; 6. Stop the relevant portion of works as determined by the ER until the exceedance is abated.

Note:
ET – Environmental Team
IEC – Independent Environmental Checker
ER – Engineer's Representative