



PROJECT No.: TCS/00512/09

DSD CONTRACT NO. DC/2009/13
CONSTRUCTION OF SEWAGE TREATMENT WORKS AT
YUNG SHUE WAN AND SOK KWU WAN

YUNG SHUE WAN PORTION AREA
QUARTERLY ENVIRONMENTAL MONITORING AND
AUDIT (EM&A) REPORT FOR POST
COMMISSIONING – MAY TO JULY 2015

PREPARED FOR
LEADER CIVIL ENGINEERING CORPORATION LIMITED

Quality Index

Date	Reference No.	Prepared By	Approved By
16 November 2015	TCS00512/09/600/R0913v1	 Nicola Hon Environmental Consultant	 T.W. Tam Environmental Team Leader

Version	Date	Description
1	16 November 2015	First Submission
2	15 December 2015	Amended against the IEC's comments on 23 November 2015

AECOM CDM Joint Venture

Chief Engineer/Harbour Area Treatment Scheme
Drainage Services Department
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Attention: Mr P.F. Ma

Your reference:

Our reference: 05117/6/16/448941

Date: 5 January 2016

BY FAX

Dear Sir,

Contract No. DC/2009/13
Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan
Yung Shue Wan Portion Area
Quarterly EM&A Report for Post Commissioning – May to July 2015

We refer to the Environmental Permit (EP-282/2007/A) and the email from the Environmental Team, Action-United Environmental Services and Consulting (AUES), with the revised report for the captioned project, dated 15 December 2015. We have no comment and have verified the captioned report.

Yours faithfully
AECOM CDM JOINT VENTURE



Rodney Ip
Independent Environmental Checker

ICWR/DCYO/wwsc

cc Leader Civil Engineering (Attn: Mr Ron Hung)
 AUES (Attn: Mr T.W. Tam)
 ER/LAMMA (Attn: Mr Kenneth Kwong)
 CDM (Attn: Mr Sylvester Hsu)

EXECUTIVE SUMMARY

- ES.01. The Leader Civil Engineering Corporation Limited (Leader) has been awarded the *Contract DC/2009/13 - Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan* (the Project) by the Drainage Services Department (DSD) on 4 May 2010. This Project is part of an overall plan approved under a statutory EIA for Outlying Islands Sewerage Stage 1 Phase 2 Package J – Sok Kwu Wan Sewage Collection and Treatment (Register No. AEIAR-075/2003) and Disposal Facilities and Outlying Islands Sewerage Stage 1 Phase 1 Package C – Yung Shue Wan Sewage Treatment Works and Outfall (Register No. EIA-124/BC). The Environmental Permit (No. EP-281/2007/A and EP-282/2007) for the Project have been obtained by the DSD on 29 June 2007 for the relevant works.
- ES.02. For ease of reporting, the EM&A report under the Project is separated two stand-alone parts:
- (a) Sok Kwu Wan (under EP No. 281/2007/A);
 - (b) Yung Shue Wan (under EP No. 282/2007).
- ES.03. According to the construction information provided by the Contractor, the Yung Shue Wan Sewage Treatment Works (YSW STW) has been handed over to maintenance authority Drainage Services Department (DSD/ST2) for operation on 31 December 2014. As agreed by the Contractor, IEC and RE, the construction phase EM&A programme was terminated on 31 December 2014 and the EM&A Programme has been proceeded to operation phase on 1 January 2015. In this regards, an associated letter ref. TCS0052/10/300/L0856 date 20 January 2015 has been issued to EPD for approval. To avoid absent of monitoring data before the proposal get agreed by the EPD, the impact monitoring under EM&A programme is ongoing until 31 January 2015.
- ES.04. According to the EM&A Manual Section 4.9 of Yung Shue Wan, Operation Phase Monitoring shall be conducted during Sewage Treatment Work (STW) commissioning for a year period. Upon completion of the construction phase of the project, commissioning of the STW of Yung Shue Wan was commenced on 1 February 2015.
- ES.05. The main objective of the post-commissioning monitoring work is to ensure that the water quality in Yung Shue Wan due to outfall discharge is more or less in line with the EIA prediction (i.e. no deterioration in local water quality).
- ES.06. According to the EM&A Manual Section 12.5.1, a total of four quarterly summary reports for the post-commissioning monitoring should be prepared with appropriate statistical analyses to show the water quality changes before and after the commissioning the outfall.
- ES.07. This is the 2nd Quarterly Post- Commissioning Monitoring Report prepared for Operation Phase of Yung Shue Wan Sewage Treatment Plant for the period of 1 May to 31 July 2015 (Reporting Period).
- ES.08. In the Reporting Period, marine water quality monitoring was conducted on 14 and 27 May, 11 and 25 June and 14 and 22 July 2015 at the designated monitoring locations. Statistical analysis for the monitoring result was made to compare to the baseline monitoring data. Overall, all the monitoring result obtained during operation phase is similar to the baseline data.
- ES.09. In order to minimize the odour nuisance, all proposed MBR feed pump station and sludge dewatering room would be enclosed and the outlet air from these facilities would be properly treated by deodorization facility. The performance test for the deodorization facility was conducted upon installation and the test report shown that the deodorization facility at YSWSTP could achieve 99.5% odour removal which in line with the EIA prediction.
- ES.10. In the Reporting Period, a total of eighteen (18) Action/ Limit Level exceedances of parameters of Ammonia-N and TIN were recorded at WY1, WY2 and WY3 in the Reporting Period. In view of the measurement result, high value of Ammonia-N and TIN was also at control station on the same day. It is considered that exceedance was due to natural variation. No deterioration in local water quality related to the project was found which in line with the prediction to the EIA prediction.

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1 INTRODUCTION

PROJECT BACKGROUND

- 1.01 The *Contract DC/2009/13 - Construction of Sewage Treatment Works at Yung Shue Wan and Sok Kwu Wan* (the Project) is part of an overall plan approved under a statutory EIA for Outlying Islands Sewerage Stage 1 Phase 2 Package J – Sok Kwu Wan Sewerage Collection and Treatment (Register No. AEIAR-075/2003) and Disposal Facilities and Outlying Islands Sewerage Stage 1 Phase 1 Package C – Yung Shue Wan Sewerage Treatment Works and Outfall (Register No. EIA-124/BC). The Environmental Permit (EP) No. EP-281/2007A and EP-282/2007 for the Project have been obtained by the DSD for the relevant works. The site layout plan for the captioned work under the Project is showing in *Appendix A*.
- 1.02 Action-United Environmental Services and Consulting (AUES) has been commissioned by Leader as the ET to implement the relevant EM&A programme including Construction (Impact and Post- Construction Monitoring) and Operation (Post- Commissioning Monitoring) Phases.
- 1.03 For ease of reporting, the EM&A report under the Project is separated two stand-alone parts:
(a) Sok Kwu Wan (under EP No. 281/2007/A);
(b) Yung Shue Wan (under EP No. 282/2007).
- 1.04 The construction of Sok Kwu Wan and Yung Shue Wan were respectively commenced on **27 July 2010** and **14 September 2010**. Moreover, all the construction works at Yung Shue Wan completed on **31 December 2014** but Sok Kwu Wan still ongoing. A termination of Construction Phase EM&A Programme has issued to notify EPD on **20 January 2015**.
- 1.05 According to the EM&A Manual Section 4.9 of Yung Shue Wan, Operation Phase Monitoring shall be conducted during Sewage Treatment Work (STW) commissioning for a year period. Upon completion of the construction phase of the project, commissioning of the STW of Yung Shue Wan was commenced on 1 February 2015.
- 1.06 The main objective of the post-commissioning monitoring work is to ensure that the water quality in Yung Shue Wan due to outfall discharge is more or less in line with the EIA prediction (i.e. no deterioration in local water quality)
- 1.07 This is the 2nd Quarterly Post- Commissioning Monitoring Report prepared for Operation Phase of Yung Shue Wan Sewerage Treatment Plant for the period of 1 May to 31 July 2015 (Reporting Period).

REPORT STRUCTURE

- 1.08 The Post- Commissioning Environmental Monitoring and Audit (EM&A) Report – Yung Shue Wan structures into the following sections:-

SECTION 1	INTRODUCTION
SECTION 2	POST- COMMISSIONING MONITORING REQUIREMENTS
SECTION 3	WATER QUALITY MONITORING RESULTS
SECTION 4	ODOUR MONITORING RESULTS
SECTION 5	CONCLUSIONS

2 POST-COMMISSIONING MONITORING REQUIREMENTS

ENVIRONMENTAL ASPECT

2.01 The post-commissioning EM&A programme only included the marine water quality monitoring. The detailed monitoring requirement is presented in the following sub-sections.

2.02 A summary of the Marine Water monitoring parameters is listed in *Table 2-1*:

Table 2-1 Summary of the Marine Water monitoring parameters of EM &A Requirements

Measurement	Parameters
In-situ	<ul style="list-style-type: none"> • Dissolved Oxygen Concentration (mg/L); • Dissolved Oxygen Saturation (%); • Turbidity (NTU); • pH unit; • Salinity (ppt); • Water depth (m); and • Temperature (°C).
Laboratory Analysis	<ul style="list-style-type: none"> • Suspended Solids (mg/L) • Ammonia-Nitrogen (mg/L) • Total Inorganic Nitrogen as N (mg/L) • E Coli (cfu/100mL)

MONITORING LOCATIONS

2.03 The marine water quality monitoring stations were adopted as recommended in the *EM&A Manual Section 4.5.1*. Two control stations (CY1 and CY2) were identified at locations representative of the project site in its undisturbed condition. Three impact stations (WY1, WY2 and WY3) were identified in the vicinity of sensitive receivers (the coral colonies in the vicinity of Yung Shue Wan, and secondary contact recreation subzone). Details of the marine water monitoring stations are described in *Table 2-2*. The graphical of marine water quality monitoring stations is shown in *Appendix B*.

Table 2-2 Location of the Marine Water Quality Monitoring Station

Monitoring Station	Description	Coordinates	
		Easting	Northing
WY1	Coral Station on seawall at STW Site	829 170	809 550
WY2	Coral colonies at Shek Kok Tsui	829 000	810 400
WY3	Coral colonies at O Tsai (headland N of YSW ferry pier)	829 200	809 850
CY1 (flood)	Control Station	828 400	810 800
CY2 (ebb)	Control Station	828 000	808 800

MONITORING FREQUENCY AND PERIOD

2.04 The post-commissioning monitoring was basically carried out in accordance with the requirements in the EM&A Manual Sections 4.9. The marine water quality monitoring requirements are listed as follows:

Parameters: Duplicate in-situ measurements: water depth, temperature, Dissolved Oxygen, pH, turbidity and salinity;

HOKLAS-accredited laboratory analysis: Suspended Solids, Ammonia as N (NH₃-N), Total Inorganic Nitrogen (TIN) and *E-coli*.

Frequency: 2 occasions per month (mid-ebb and mid-flood tides)

Sampling Depth Two depths: 1m below water surface and 1m above sea bottom

Duration: One year monitoring upon the STW commissioning

MONITORING EQUIPMENT

2.05 The monitoring equipments adopted for the EM&A program was proposed by ET. The equipments used for monitoring is listed in *Table 2-3* as below.

Table 2-3 Monitoring Equipments Used in EM&A Program

<i>Marine Water quality</i>	
A Digital Global Positioning System	GPS12 Garmin
Water Depth Detector	Eagle Sonar
Water Sampler	A 2-litre transparent PVC cylinder with latex cups at both ends
Thermometer & DO meter	YSI Model 6820 Multi-parameter Water Quality Monitoring System or YSI 550A DO Meter
pH meter	YSI Model 6820 Multi-parameter Water Quality Monitoring System or Hanna HI 98128
Turbidimeter	YSI Model 6820 Multi-parameter Water Quality Monitoring System or Hach 2100p
Salinometer	YSI Model 6820 Multi-parameter Water Quality Monitoring System or ATAGO Hand Refractometer.
Sample Container	High density polythene bottles (provided by laboratory)
Storage Container	'Willow' 33-litter plastic cool box with Ice pad
Suspended Solids; Ammonia as N (NH ₃ -N), Total Inorganic Nitrogen (TIN) and <i>E-coli</i>	HOKLAS-accredited laboratory (ALS Technichem (HK) Pty Ltd)

- i. **Dissolved Oxygen and Temperature Measuring Equipment** – The instrument should be a portable and weatherproof dissolved oxygen (DO) measuring instrument complete with cable, sensor and a DC power source. The equipment should be capable of measuring as a DO level in the range of 0 – 20mg L⁻¹ and 0 – 200% saturation; and a temperature of 0 – 45 degree Celsius.
- ii. **pH Meter** – The instrument should consist of a potentiometer, a glass electrode, a reference electrode and a temperature-compensating device. It should be readable to 0.1 pH in arrange of 0 to 14.
- iii. **Turbidity (NTU) Measuring Equipment** – The instrument should be a portable and weatherproof turbidity measuring instrument using a DC power source. It should have a photoelectric sensor capable of measuring turbidity between 0 - 1000 NTU.
- iv. **Water Sampling Equip ment** – A water sampler should comprise a transparent PVC cylinder with a capacity not less than 2 litres, which can be effectively sealed with latex cups at both ends. The sampler should have a positive latching system to keep it open and prevent premature closure until released by a messenger when the sampler is at the selected water depth.
- v. **Water Depth Detector** – A portable, battery-operated echo sounder should be used for the determination of water depth at each designated monitoring station. This unit can either be hand held or affixed to the bottom of the work boat.
- vi. **Salinity Measuring Equipment** – A portable salinometer capable of measuring salinity in the range of 0 - 40 parts per thousand (ppt) should be provided for measuring salinity of the water at each monitoring location.
- vii. **Sample Containers and Storage** – Water samples for Suspended Solids should be stored in high density polythene bottles with no preservative added, packed in ice (cooled to 4°C without being frozen).
- viii. **Monitoring Position Equipment** - A hand-held or boat-fixed type digital Differential Global Positioning System (DGPS) with way point bearing indication and Radio Technical Commission for maritime (RTCM) Type 16 error message 'screen pop-up' facilities (for real-time auto-display of error messages and DGPS corrections from the Hong Kong Hydrographic Office), or other equipment instrument of similar accuracy, should be provided and used during marine water monitoring to ensure the monitoring vessel is at the correct location before taking measurements.

- ix. **Suspended Solids, Ammonia-Nitrogen, Total Inorganic Nitrogen and E.Coli Analysis** – Analysis of those parameters shall be carried out in a HOKLAS or other international accredited laboratory following the analytical methods listed in *Table 2-4*.

Table 2-4 Analytical Methods to be applied to Marine Water Quality Samples.

Determinant	Standard	Detection Limit
SS (mg/L)	APHA 2540D	0.5mg/L
NH3-N (mg/L)	ASTM D3590-89 B(FIA)	0.005mg/L
E-Coli	In-house method, membrane filtration with CHRIMagar Liquid E.coli-coliform culture	1cfu/100mL

MONITORING PROCEDURES

- 2.06 The marine water quality monitoring was conducted at the five designated locations at Yung Shue Wan. The sampling procedure including the in-situ monitoring are presented as below:
- 2.07 A Digital Global Positioning System (GPS) was used to identify the designated monitoring stations prior water sampling. A portable, battery-operated echo sounder was used for the determination of water depth at each station. At each station, marine water samples were collected at two depths: 1m below water surface and 1m above sea bottom.
- 2.08 The marine water sampler was lowered into the water body at the predetermined depth. The trigger system of the sampler was activated with a messenger. The opening ends of the sampler then were closed accordingly and water samples were collected.
- 2.09 The sample container was rinsed with a portion of the water sample. The water sample then was transferred to the high-density polythene bottles as provided by the laboratory, labeled with a unique sample number and sealed with a screw cap.
- 2.10 Before commencement of the sampling, general information such as the date and time of sampling, weather condition and tidal condition as well as the personnel responsible for the monitoring were be recorded on the monitoring field data sheet.
- 2.11 A ‘Willow’ 33-liter plastic cool box packed with ice was used to preserve the collected water samples prior to arrival at the laboratory for chemical determination. The water temperature of the cool box was maintained at a temperature as close to 40C as possible without being frozen. Samples collected were delivered to the laboratory upon collection.

In-situ Measurement

Positioning of Monitoring Locations

- 2.12 A digital Global Positioning System (GPS) was used during marine water monitoring to ensure the monitoring vessel is at the correct location when taking measurement and samples.

Depth, Dissolved Oxygen (DO), Temperature, Turbidity, Salinity and pH value

- 2.13 The YSI Model 6820 Multi-parameter Water Quality Monitoring System was used for marine water in-situ measurement, which automates the measurements and data logging of depth, temperature, dissolved oxygen, dissolved oxygen saturation, turbidity, pH and salinity simultaneously. Before each round of monitoring, the dissolved oxygen probe was calibrated by the wet bulb method and the turbidity and salinity probes checked with distilled water.
- 2.14 The laboratory has be comprehensive quality assurance and quality control programme. For QA/QC procedures, one duplicate samples of every batch of 20 samples is analyzed as followed the HOKLAS accredited requirement.

EQUIPMENT CALIBRATION

- 2.15 The Multi-parameter Water Quality Monitoring System will be calibrated by HOKLAS accredited laboratory of three month intervals. The available calibration certificate will be issued to ensure the performance of Multi-parameter Water Quality Monitoring System to use for in-situ measurement.
- 2.16 Valid calibration certificates of the monitoring equipment used for EM&A program in the Reporting Period would be attached in *Appendix C*.

DATA MANAGEMENT AND DATA QA/QC CONTROL

- 2.17 The monitoring data are handled by the ET's systematic data recording and management, which complies with in-house Quality Management System. Standard Field Data Sheets (FDS) are used in the monitoring programme.
- 2.18 The monitoring data recorded in Multi-parameter Water Quality Monitoring System, are downloaded directly from the equipments at the end of each monitoring day. The downloaded monitoring data are input into a computerized database properly maintained by the ET. The laboratory results are input directly into the computerized database and QA/QC checked by personnel other than those who input the data. For monitoring activities require laboratory analysis, the local laboratory follows the QA/QC requirements as set out under the HOKLAS scheme for all laboratory testing.

DETERMINATION OF ACTION/LIMIT (A/L) LEVELS

- 2.19 The baseline marine water quality monitoring was carried out from 29 July 2010 to 28 December 2010 for consecutive six months. Based on the baseline monitoring data, the proposed Action and Limit Levels for water quality was determined and they are shown in *Table 2-5*.

Table 2-5 Action and Limit Levels of Water Quality Monitoring during Operation Stage of the STP

Parameter	Performance Criteria	Impact Station		
		WY1	WY2	WY3
DO Concentration (Surface and Middle) (mg/L)	Action Level	3.63	3.53	3.61
	Limit Level	3.32	3.47	3.42
DO Concentration (Bottom) (mg/L)	Action Level	3.33	2.92	3.36
	Limit Level	3.23	2.63	3.14
Turbidity (Depth-Average) (NTU)	Action Level	10.94	14.16	14.99
	Limit Level	17.35	15.20	16.21
Suspended Solids (Depth-Average) (mg/L)	Action Level	17.52	14.23	14.52
	Limit Level	25.62	16.51	16.88
Ammonia as N (Depth – Average) (mg/L)	Action Level	0.098	0.090	0.095
	Limit Level	0.104	0.095	0.099
Total Inorganic Nitrogen as N (Depth-Average) (mg/L)	Action Level	0.603	0.578	0.605
	Limit Level	0.673	0.659	0.683
<i>E. coli</i> Depth-Average (1cfu/100ml)	Action Level	28	31	44
	Limit Level	610	610	610

Notes:

- The proposed Action/Limit Levels of DO are adopted to be used 5%-ile/1%-ile of baseline data;
- The proposed Action/Limit Levels of Turbidity, SS, Ammonia and TIN are adopted to be used 95%-ile/99%-ile of baseline data;
- *E-coli* performance criteria of Action and Limit Levels are respectively proposed to use 95%-ile baseline data and 610 cfu/100mL geometric mean; and
- All the figures given in the table are used for reference only and the EPD may amend the figures whenever it is considered necessary.

3 POST-COMMISSIONING WATER QUALITY MONITORING RESULTS

3.01 The Operation Phase EM&A Programme was commenced on 1 February 2015. In this reporting period, 6 monitoring events have been carried out at the designated locations. The monitoring results including in-situ measurements and laboratory testing results are provided in *Appendix D* and the graphical plots of monitoring results are shown in *Appendix E*.

Monitoring Result

3.02 In the Reporting Period, water Monitoring was carried out on 14 and 27 May, 11 and 25 June and 14 and 22 July 2015. Monitoring results of key parameters: dissolved oxygen (DO), turbidity, suspended solids, Ammonia-N, TIN and E.coli are summarized in *Tables 3-1 to 3-8*.

Table 3-1 Summary of Water Quality Results – Mid-ebb Tides (Dissolved Oxygen)

Sampling date	DO conc. of Depth Ave. of Surf. and Mid Layer (mg/L)					DO conc. of Depth Ave. of Bottom Layer (mg/L)				
	WY1	WY2	WY3	CY1	CY2	WY1	WY2	WY3	CY1	CY2
14-May-15	6.69	6.46	6.99	6.455	6.56	7.1	6.16	6.67	5.62	5.1
27-May-15	6.42	6.96	6.78	6.03	6.51	5.92	6.19	5.61	5.35	5.17
11-Jun-15	6.65	6.55	6.70	6.19	6.91	6.40	5.13	7.08	3.17	3.69
25-Jun-15	6.04	6.18	5.36	6.42	5.92	6.30	5.87	5.91	5.54	3.91
14-Jul-15	6.33	6.59	5.43	6.62	7.42	6.31	6.18	5.17	5.69	5.29
22-Jul-15	6.53	6.71	6.17	6.39	5.83	6.24	6.42	5.96	6.06	3.82

Table 3-2 Summary of Water Quality Results – Mid-ebb Tides (Turbidity & Suspended Solids)

Sampling date	Turbidity Depth Ave. (NTU)					SS Depth Ave. (mg/L)				
	WY1	WY2	WY3	CY1	CY2	WY1	WY2	WY3	CY1	CY2
14-May-15	1.9	2.05	2.98	1.85	1.73	16.50	2.00	13.00	2.00	4.00
27-May-15	1.80	2.38	2.50	1.75	2.78	3.00	3.00	3.50	4.50	3.00
11-Jun-15	3.00	2.88	3.18	2.35	4.55	4.50	5.50	5.00	8.50	9.00
25-Jun-15	0.87	0.46	1.93	1.90	1.68	4.00	6.50	7.00	5.50	5.00
14-Jul-15	0.78	1.63	2.08	2.45	3.75	6.50	7.00	5.50	3.50	4.00
22-Jul-15	6.40	6.50	6.65	6.68	7.08	6.00	6.00	6.00	4.50	5.50

Table 3-3 Summary of Water Quality Results – Mid-ebb Tides (Ammonia –N and TIN)

Sampling date	Ammonia-N(mg/L)					TIN (mg/L)				
	WY1	WY2	WY3	CY1	CY2	WY1	WY2	WY3	CY1	CY2
14-May-15	0.02	<0.01	<0.01	0.06	0.04	0.38	0.36	0.4	0.54	0.39
27-May-15	0.03	0.03	0.03	0.04	0.03	0.95	0.85	0.93	0.62	0.59
11-Jun-15	<0.01	<0.01	<0.01	0.01	0.02	0.66	0.65	0.67	0.42	0.43
25-Jun-15	<0.01	<0.01	<0.01	<0.01	<0.01	0.44	0.40	0.41	0.41	0.43
14-Jul-15	0.02	0.03	0.04	0.05	0.02	0.21	0.15	0.19	0.28	0.18
22-Jul-15	0.11	0.08	0.12	0.08	0.07	0.67	0.51	0.74	0.51	0.43

Note: (1) Bolded and italic indicated Action Level exceedance.

(2) Bolded and underlined indicated Limit Level exceedance.

Table 3-4 Summary of Water Quality Results – Mid-ebb Tides (E.coli)

Sampling date	E.coli (CFU/100ml)				
	WY1	WY2	WY3	CY1	CY2
14-May-15	9	Not Detected	1	Not Detected	Not Detected
27-May-15	Not Detected	2.00	2.50	2.00	Not Detected
11-Jun-15	1.50	2.00	2.50	Not Detected	Not Detected
25-Jun-15	1.00	1.00	Not Detected	1.00	Not Detected
14-Jul-15	3.00	2.00	13.00	1.50	1.00
22-Jul-15	18.50	29.50	18.50	7.50	10.50

Table 3-5 Summary of Water Quality Results – Mid-flood Tides (Dissolved Oxygen)

Sampling date	DO conc. of Depth Ave. of Surf. and Mid Layer (mg/L)					DO conc. of Depth Ave. of Bottom Layer (mg/L)				
	WY1	WY2	WY3	CY1	CY2	WY1	WY2	WY3	CY1	CY2
14-May-15	6.95	6.38	6.63	6.63	6.23	7.27	7.11	6.69	6.34	5.11
27-May-15	7.40	7.98	7.14	7.58	6.71	6.72	5.78	7.66	7.08	5.17
11-Jun-15	7.39	7.65	7.44	9.39	9.39	7.86	5.56	6.60	4.69	2.48
25-Jun-15	5.77	5.65	6.54	5.69	5.62	5.76	6.32	5.68	5.69	4.11
14-Jul-15	6.22	8.31	5.65	6.72	7.08	6.03	7.82	5.50	6.21	5.36
22-Jul-15	6.77	6.96	6.81	6.79	5.79	6.29	6.11	5.76	5.48	3.91

Table 3-6 Summary of Water Quality Results – Mid- flood Tides (Turbidity & Suspended Solids)

Sampling date	Turbidity Depth Ave. (NTU)					SS Depth Ave. (mg/L)				
	WY1	WY2	WY3	CY1	CY2	WY1	WY2	WY3	CY1	CY2
14-May-15	1.7	2.58	3.08	3.38	1.83	4.00	4.50	6.00	12.00	4.00
27-May-15	1.90	2.75	1.70	1.01	3.08	5.00	5.00	5.00	14.50	10.00
11-Jun-15	2.68	2.69	2.43	2.94	3.89	10.50	8.50	11.50	11.00	9.50
25-Jun-15	0.95	1.48	0.83	1.80	2.43	4.50	4.50	5.50	6.00	5.00
14-Jul-15	3.43	4.45	5.03	3.23	3.98	6.50	6.00	9.50	4.00	6.00
22-Jul-15	7.05	7.08	7.25	6.30	6.78	6.00	8.00	9.00	4.00	5.00

Table 3-7 Summary of Water Quality Results – Mid- flood Tides (Ammonia –N and TIN)

Sampling date	Ammonia-N(mg/L)					TIN (mg/L)				
	WY1	WY2	WY3	CY1	CY2	WY1	WY2	WY3	CY1	CY2
14-May-15	0.04	0.03	0.04	0.06	0.05	0.49	0.47	0.5	0.41	0.35
27-May-15	<0.01	0.04	<0.01	0.05	0.03	0.80	0.64	0.81	0.67	0.72
11-Jun-15	0.02	<0.01	<0.01	<0.01	0.03	0.60	0.55	0.59	0.49	0.39
25-Jun-15	<0.01	<0.01	<0.01	<0.01	<0.01	0.43	0.43	0.42	0.44	0.43
14-Jul-15	<0.01	0.02	<0.01	0.05	0.06	0.24	0.20	0.19	0.39	0.21
22-Jul-15	0.10	0.09	0.11	0.08	0.06	0.64	0.48	0.64	0.46	0.37

Note: (1) Bolded and italic indicated Action Level exceedance.

(2) Bolded and underlined indicated Limit Level exceedance.

Table 3-8 Summary of Water Quality Results – Mid- flood Tides (E.coli)

Sampling date	E.coli (CFU/100ml)				
	WY1	WY2	WY3	CY1	CY2
14-May-15	3	Not Detected	1.5	Not Detected	2
27-May-15	Not Detected	5.00	Not Detected	3.00	Not Detected
11-Jun-15	Not Detected	Not Detected	Not Detected	Not Detected	Not Detected
25-Jun-15	1.00	Not Detected	4.00	1.00	1.00
14-Jul-15	Not Detected	2.00	5.00	4.50	1.00
22-Jul-15	22.50	11.50	30.00	3.00	3.50

3.03 Statistical analysis for the monitoring result was made to compare to the baseline monitoring data. Overall, all the monitoring result obtained during operation phase is fall within and similar to the baseline data. The comparison of operation phase and baseline monitoring result is presented in **Tables 3-9**. Moreover, a summary of exceedances for the key parameters are shown in **Table 3-10**.

Table3-9 Fluctuation Ranges for the Monitored Operation Phase Water Quality Parameters

Parameter		WY1	WY2	WY3	CY1	CY2
DO (mg/L)	Surface + Middle	5.77 – 7.40 (2.65 – 6.99)	5.65 – 8.31 (3.02 – 7.41)	5.36 – 7.44 (3.27 – 7.77)	5.69 – 9.39 (3.46 – 9.87)	5.61 – 9.39 (3.40 – 9.36)
	Bottom	5.76 – 7.86 (1.58 – 7.65)	5.13 – 7.82 (1.79 – 6.71)	5.17 – 7.66 (3.21 – 7.65)	3.17 – 7.08 (2.55 – 7.47)	2.48 – 5.36 (3.09 – 7.50)
Turbidity (NTU)		0.78 – 7.05 (2.00 – 10.83)	0.46 – 7.08 (2.27 – 10.57)	0.83 – 7.25 (2.28 – 19.18)	1.01 – 6.68 (2.03 – 15.32)	1.68 – 7.08 (2.38 – 16.30)
SS (mg/L)		3.00 – 16.50 (1.77 – 15.50)	2.00 – 8.50 (2.13 – 10.77)	3.50 – 13.00 (3.05 – 27.95)	2.00 – 14.50 (2.13 – 17.17)	3.00 – 10.00 (2.40 – 17.50)
Ammonia-N (mg/L)		0.02 – 0.11 (0.005 – 0.100)	0.02 – 0.09 (0.005 – 0.090)	0.03 – 0.12 (0.005 – 0.105)	0.01 – 0.08 (0.005 – 0.095)	0.02 – 0.07 (0.005 – 0.099)
TIN (mg/L)		0.21 – 0.95 (0.047 – 0.643)	0.15 – 0.85 (0.018 – 0.653)	0.19 – 0.93 (0.060 – 0.690)	0.28 – 0.67 (0.060 – 0.680)	0.18 – 0.72 (0.065 – 0.705)
E.coli (CFU/100ml)		1.00 – 22.50 (1 – 30)	1.00 – 29.50 (1 – 42)	1.00 – 30.00 (1 – 44)	1.00 – 7.50 (1 – 43)	1.00 – 10.50 (1 – 47)

Note:

1. The numbers in brackets denote the range of baseline monitoring result.

Table 3-10 Summary of Exceedances of Marine Water Quality

Station	DO (Ave of surf. & mid-depth)		DO (Ave. of Bottom Layer)		Turbidity (Depth Ave)		SS (Depth Ave)		Ammonia – N (Depth Ave)		TIN (Depth Ave)		E.coli (Depth Ave)	
	A	L	A	L	A	L	A	L	A	L	A	L	A	L
Mid-Ebb														
WY1	0	0	0	0	0	0	0	0	0	1	2	1	2	2
WY2	0	0	0	0	0	0	0	0	0	0	2	1	2	1
WY3	0	0	0	0	0	0	0	0	0	1	1	2	1	3
Mid-Flood														
WY1	0	0	0	0	0	0	0	0	1	0	1	1	2	1
WY2	0	0	0	0	0	0	0	0	0	0	1	0	1	0
WY3	0	0	0	0	0	0	0	0	0	1	1	1	1	2
No. of exceed.	0	0	0	0	0	0	0	0	1	3	8	6	9	9

- 3.04 According to the monitoring result, a total of eighteen (18) Action/ Limit Level exceedances of parameters of Ammonia-N and TIN were recorded at WY1, WY2 and WY3 in the Reporting Period. In view of the measurement result, high value of Ammonia-N and TIN was also at control station on the same day. It is considered that exceedance was due to natural variation. No deterioration in local water quality related to the project was found which in line with the prediction to the EIA prediction.

4 ODOUR MONITORING RESULTS

- 4.01 As presented in the EIA Report and subsequent Review Report on EIA Study, it was predicted that air quality at the ASRs would satisfy the odour criteria with the proposed mitigation measures. Nevertheless, monitoring would be carried out during the operation phase to monitor the performance of the deodorization facilities.
- 4.02 In order to minimize the odour nuisance, all proposed MBR feed pump station and sludge dewatering room would be enclosed and the outlet air from these facilities would be properly treated by deodorization facility. The performance test for the deodorization facility was conducted upon installation and it aims to achieve 99.5% odour removal.

Methodology

- 4.03 The odour samples of air were collected at the inlet and outlet in accordance with ISC 3rd edition, Method 701 “Determination of Hydrogen Sulphide Content of the Atmosphere”.
- 4.04 Hydrogen sulfide (H₂S), as an odourous indicator gas in this odour removal efficiency test for the deodorizer, was generated by mixing sodium sulfide hydrates and concentrated sulfuric acid at the inlet of the deodorizer. The generation rate of gaseous of H₂S was kept constant by controlling the delivery rate of concentrated sulfuric acid from the dropping funnel. Gaseous sample containing H₂S was withdrawn from each sampling port (inlet and outlet) at a flow rate of 2 L/min., using a sampling pump. H₂S present in the gas stream was collected in the impinger which contained 10 – 15 mL absorbing solution. Sampling time was about 10 minutes to avoid overloading of the absorbing solution while ensuring a large enough sample was collected.
- 4.05 Colorimetric analytical method (ISC 3rd edition, Method 701 “Determination of Hydrogen Sulphide Content of the Atmosphere”) was used to determine the concentration of H₂S in the deodorizer odour removal test.
- 4.06 H₂S will be injected in the inlet as per following table, one sample of inlet H₂S concentration and one sample of outlet H₂S concentration will be measured and the removal efficiency of the deodorizer will be calculated as :-
- 4.07 Efficiency = (1-outlet concentration/inlet concentration) x 100%.

Injection H2S concentration	Location
At least 7 ppm	YSWSTW

Test Report

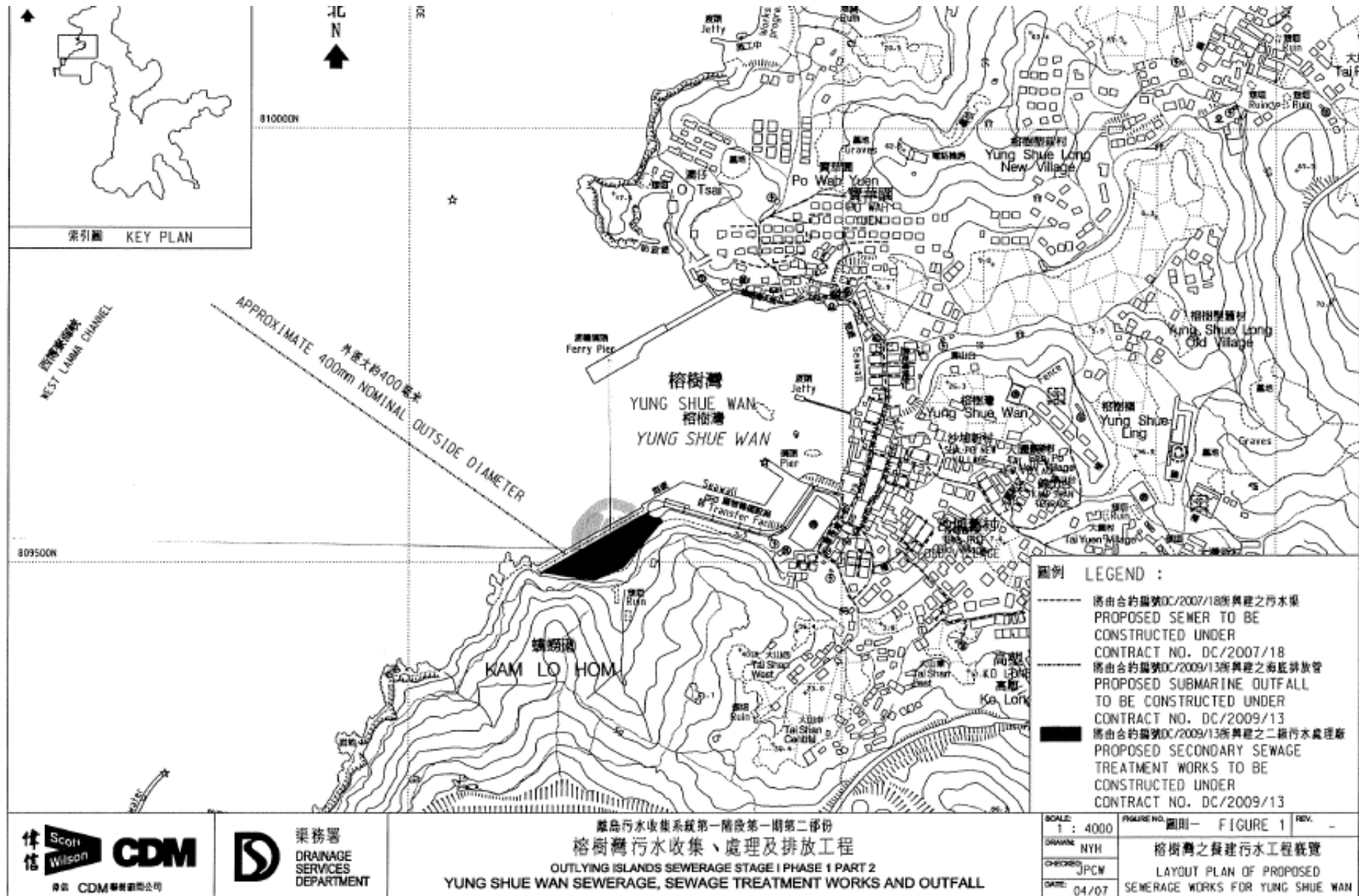
- 4.08 According to the test report provided by the laboratory, it shows that the deodorization facility at two DO tanks could achieve over 99.5% odour removal which in line with the EIA prediction. The test reports for performance of deodorization facility at YSWSTW are presented in **Appendix F**.

5 CONCLUSIONS

- 5.01 This is the 2nd Quarterly Post- Commissioning Monitoring Report prepared for Operation Phase of Yung Shue Wan Sewage Treatment Plant for the period of 1 May to 31 July 2015 (Reporting Period).
- 5.02 In the Reporting Period, marine water quality monitoring was conducted on 14 and 27 May, 11 and 25 June and 14 and 22 July 2015 at the designated monitoring locations. Statistical analysis for the monitoring result was made to compare to the baseline monitoring data. Overall, all the monitoring result obtained during operation phase is similar to the baseline data.
- 5.03 In the Reporting Period, a total of eighteen (18) Action/ Limit Level exceedances of parameters of Ammonia-N and TIN were recorded at WY1, WY2 and WY3 in the Reporting Period. In view of the measurement result, high value of Ammonia-N and TIN was also at control station on the same day. It is considered that exceedance was due to natural variation. No deterioration in local water quality related to the project was found which in line with the prediction to the EIA prediction.
- 5.04 In order to minimize the odour nuisance, all proposed MBR feed pump station and sludge dewatering room would be enclosed and the outlet air from these facilities would be properly treated by deodorization facility. The performance test for the deodorization facility was conducted upon installation and the test report shown that the deodorization facility at YSWSTP could achieve 99.5% odour removal which in line with the EIA prediction.

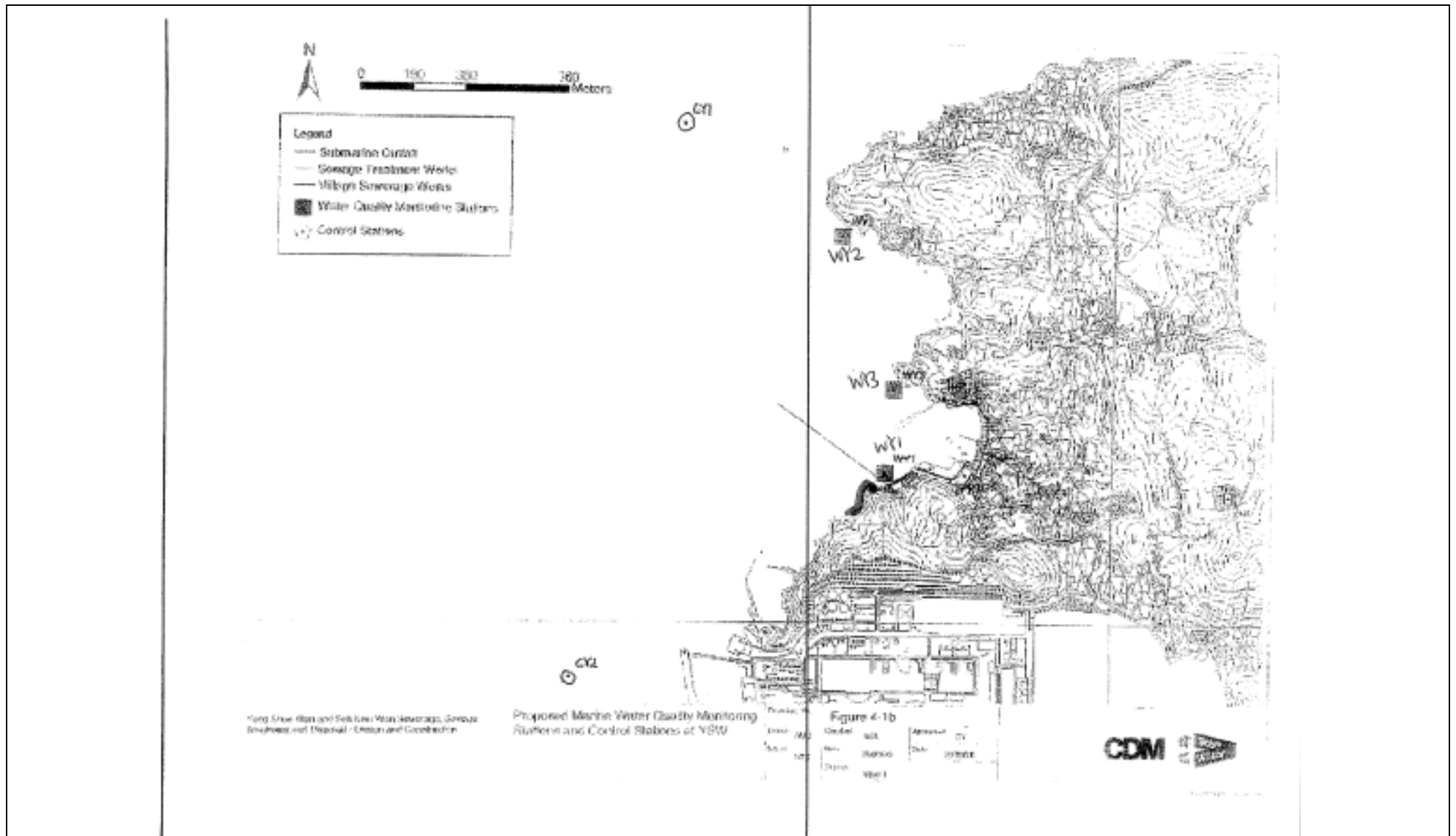
Appendix A

Site Layout Plan – Yung Shue Wan Portion Area



Appendix B

**Location of Monitoring Stations
(Water Quality)**



Appendix C

Monitoring Equipments Calibration Certificate



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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT: MR BEN TAM
CLIENT: ACTION UNITED ENVIRO SERVICES
ADDRESS: RM A 20/F., GOLD KING IND BLDG,
NO. 35-41 TAI LIN PAI ROAD,
KWAI CHUNG,
N.T., HONG KONG.

WORK ORDER: HK1509486
SUB-BATCH: 0
LABORATORY: HONG KONG
DATE RECEIVED: 18/03/2015
DATE OF ISSUE: 25/03/2015

COMMENTS

The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.

The "Tolerance Limit" quoted is the acceptance criteria applicable for similar equipment used by the ALS Hong Kong laboratory or quoted from relevant international standards.


The "Next Calibration Date" is recommended according to best practice principals as practised by the ALS Hong Kong laboratory or quoted from relevant international standards.

Scope of Test: Dissolved Oxygen, pH, Salinity, Temperature and Turbidity
Equipment Type: YSI Sonde/ Multifunctional Meter
Brand Name: YSI
Model No.: YSI 6820/ 650MDS
Serial No.: 02J0912/02K0788 AA
Equipment No.: --
Date of Calibration: 25 March, 2015

NOTES

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

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


Mr. Fung Lim Chee, Richard
General Manager -
Greater China & Hong Kong

REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION



Work Order: HK1509486
Sub-Batch: 0
Date of Issue: 25/03/2015
Client: ACTION UNITED ENVIRO SERVICES

Equipment Type: YSI Sonde/ Multifunctional Meter
Brand Name: YSI
Model No.: YSI 6820/ 650MDS
Serial No.: 02J0912/02K0788 AA
Equipment No.: --
Date of Calibration: 25 March, 2015

Date of next Calibration: 25 June, 2015

Parameters:

Dissolved Oxygen

Method Ref: APHA (21st edition), 4500O: G

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
4.15	4.18	+0.03
6.24	6.44	+0.20
8.94	8.98	+0.04
Tolerance Limit (mg/L)		±0.20

pH Value

Method Ref: APHA 21st Ed. 4500H:B

Expected Reading (pH Unit)	Displayed Reading (pH Unit)	Tolerance (pH unit)
4.0	4.04	+0.04
7.0	7.01	+0.01
10.0	9.96	-0.04
Tolerance Limit (pH unit)		±0.20

Salinity

Method Ref: APHA (21st edition), 2520B

Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
0	0.00	--
10	10.90	+9.0
20	21.95	+9.8
30	31.87	+6.2
Tolerance Limit (%)		±10.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.



 Mr. Fung Lim Chee, Richard
 General Manager -
 Greater China & Hong Kong

REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION



Work Order: HK1509486
Sub-Batch: 0
Date of Issue: 25/03/2015
Client: ACTION UNITED ENVIRO SERVICES

Equipment Type: YSI Sonde/ Multifunctional Meter
Brand Name: YSI
Model No.: YSI 6820/ 650MDS
Serial No.: 02J0912/02K0788 AA
Equipment No.: --
Date of Calibration: 25 March, 2015 Date of next Calibration: 25 June, 2015

Parameters:

Temperature

Method Ref: Section 6 of International Accreditation New Zealand Technical
Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

Expected Reading (°C)	Displayed Reading (°C)	Tolerance (°C)
10.0	10.06	+0.1
20.0	18.54	-1.5
40.0	38.06	-1.9
	Tolerance Limit (°C)	±2.0

Turbidity

Method Ref: APHA (21st edition), 2130B

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0.2	--
4	3.9	-2.5
40	38.4	-4.0
80	79.1	-1.1
400	390.2	-2.5
800	761.5	-4.8
	Tolerance Limit (%)	±10.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Mr. Fung Lim Chee, Richard
General Manager -
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REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT: MR BEN TAM
CLIENT: ACTION UNITED ENVIRO SERVICES
ADDRESS: RM A 20/F., GOLD KING IND BLDG,
NO. 35-41 TAI LIN PAI ROAD,
Kwai Chung,
N.T., HONG KONG.

WORK ORDER: HK1521789
SUB-BATCH: 0
LABORATORY: HONG KONG
DATE RECEIVED: 25/06/2015
DATE OF ISSUE: 02/07/2015

COMMENTS

The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.

The "Tolerance Limit" quoted is the acceptance criteria applicable for similar equipment used by the ALS Hong Kong laboratory or quoted from relevant international standards.

The "Next Calibration Date" is recommended according to best practice principals as practised by the ALS Hong Kong laboratory or quoted from relevant international standards.

Scope of Test: Conductivity, Dissolved Oxygen, pH, Salinity, Temperature and Turbidity
Equipment Type: Multifunctional Meter
Brand Name: YSI
Model No.: YSI 6820 / 650MDS
Serial No.: 02J0912/02K0788 AA
Equipment No.: --
Date of Calibration: 02 July, 2015

NOTES

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

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


Mr. Fung Lim Chee, Richard
General Manager -
Greater China & Hong Kong

REPORT OF EQUIPMENT PERFORMANCE CHECK / CALIBRATION



Work Order: HK1521789
Sub-Batch: 0
Date of Issue: 02/07/2015
Client: ACTION UNITED ENVIRO SERVICES

Equipment Type: Multifunctional Meter
Brand Name: YSI
Model No.: YSI 6820 / 650MDS
Serial No.: 02J0912/02K0788 AA
Equipment No.: --

Date of Calibration: 02 July, 2015 **Date of next Calibration:** 02 October, 2015

Parameters:

Conductivity

Method Ref: APHA (21st edition), 2510B

Expected Reading (uS/cm)	Displayed Reading (uS/cm)	Tolerance (%)
146.9	150.1	+2.2
6667	6552	-1.7
12890	13060	+1.3
58670	58070	-1.0
Tolerance Limit (%)		±10.0

Dissolved Oxygen

Method Ref: APHA (21st edition), 4500O: G

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
2.98	2.99	+0.01
5.00	5.07	+0.07
7.80	7.88	+0.08
Tolerance Limit (mg/L)		±0.20

pH Value

Method Ref: APHA 21st Ed. 4500H:B

Expected Reading (pH Unit)	Displayed Reading (pH Unit)	Tolerance (pH unit)
4.0	4.08	+0.08
7.0	7.09	+0.09
10.0	9.97	-0.03
Tolerance Limit (pH unit)		±0.20

Salinity

Method Ref: APHA (21st edition), 2520B

Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
0	0.00	--
10	9.69	-3.1
20	19.71	-1.5
30	30.03	+0.1
Tolerance Limit (%)		±10.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.


 Mr. Fung Lim Chee, Richard
 General Manager -
 Greater China & Hong Kong

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION



Work Order: HK1521789
Sub-Batch: 0
Date of Issue: 02/07/2015
Client: ACTION UNITED ENVIRO SERVICES

Equipment Type: Multifunctional Meter
Brand Name: YSI
Model No.: YSI 6820 / 650MDS
Serial No.: 02J0912/02K0788 AA
Equipment No.: --
Date of Calibration: 02 July, 2015

Date of next Calibration: 02 October, 2015

Parameters:

Temperature

Method Ref: Section 6 of International Accreditation New Zealand Technical
Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

Expected Reading (°C)	Displayed Reading (°C)	Tolerance (°C)
11.0	11.4	+0.4
20.0	19.8	-0.2
31.0	30.2	-0.8
Tolerance Limit (°C)		±2.0

Turbidity

Method Ref: APHA (21st edition), 2130B

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
0	0.2	--
4	4.0	+0.0
40	39.4	-1.5
80	81.3	+1.6
400	414.8	+3.7
800	833.6	+4.2
Tolerance Limit (%)		±10.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.


Mr. Fung Lim Chee, Richard
General Manager
Greater China & Hong Kong



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

has been accepted by the HKAS Executive, on the recommendation of the Accreditation Advisory Board, as a
為香港認可處執行機關根據認可諮詢委員會建議而接受的

HOKLAS Accredited Laboratory
「香港實驗所認可計劃」認可實驗所

This laboratory meets the requirements of ISO / IEC 17025 : 2005 – General requirements for the competence of testing and calibration laboratories and it has been accredited for performing specific tests or calibrations as listed in the HOKLAS Directory of Accredited Laboratories within the test category of
此實驗所符合ISO / IEC 17025 : 2005 –《測試及校正實驗所能力的通用規定》所訂的要求，獲認可進行載於香港實驗所認可計劃《認可實驗所名冊》內下述測試類別中的指定
測試或校正工作

Environmental Testing
環境測試

This laboratory is accredited in accordance with the recognised International Standard ISO / IEC 17025 : 2005.
本實驗所乃根據公認的國際標準 ISO / IEC 17025 : 2005 獲得認可。

This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (see joint IAF-ILAC-ISO Communiqué).
這項認可資格演示在指定範疇所需的技術能力及實驗所質量管理體系的運作
(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 the Hong Kong Accreditation Service is affixed hereto by the authority of the HKAS Executive
香港認可處根據認可處執行機關的權限在此蓋上通用印章

CHAN Sing Sing, Terence, Executive Administrator
執行幹事 陳成城
Issue Date : 5 May 2009
簽發日期：二零零九年五月五日

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



Appendix D

Monitoring Data Sheet

Contract No. DC/2009/13

**Construction of Sewage Treatment Works
at Yung Shue Wan and Sok Kwn Wan**



**Yung Shue Wan
Post-commissioning Martine Water Monitoring Programme
14-May-15**

Date / Time	Location	Tide	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l	Ammonia N mg/l	TIN mg/l	E.coli 1CFU/100ml
			East	North												
2015/5/14 10:03:00	WY1	ME	829166	809561	4.5	1.00	27.94	6.63	100.8	1.2	28.2	8.26	2	0.02	0.4	not detected
						1.00	27.93	6.75	102.5	1.3	28.1	8.22				
						3.50	27.74	7.18	108.9	2.6	28.5	8.49				
2015/5/14 09:41:00	WY2	ME	828994	810403	6.5	3.50	27.75	7.02	106.5	2.5	28.4	8.5	31	<0.01	0.36	9
						1.00	28.03	6.38	97.3	1.3	28.5	8.31				
						1.00	28.03	6.54	99.6	1.4	28.5	8.34				
2015/5/14 09:56:00	WY3	ME	829207	809846	4.4	5.50	27.84	6.15	94.1	2.6	29.4	8.55	2	<0.01	0.36	not detected
						1.00	27.78	6.16	94.1	2.9	29.5	8.56				
						1.00	27.92	7.01	106.8	2.2	28.5	8.38				
2015/5/14 09:25:00	CY1	ME	828403	810813	11.4	1.00	27.87	6.97	105.9	2.6	28.5	8.36	<2	<0.01	0.4	1
						3.40	27.8	6.66	101.4	3.6	28.7	8.48				
						3.40	27.8	6.67	101.5	3.5	28.7	8.48				
2015/5/14 10:23:00	CY2	ME	828006	808796	16	1.00	27.42	6.47	97.2	1.2	27.6	8.52	2	0.05	0.55	not detected
						1.00	27.43	6.44	96.8	1.3	27.6	8.53				
						10.40	26.31	5.67	85.7	2.5	31.3	8.83				
2015/5/14 14:54:00	WY1	MF	829168	809555	4.6	10.40	26.39	5.57	84.2	2.4	31.1	8.83	2	0.07	0.52	not detected
						1.00	27.63	6.56	99	1.2	27.8	8.07				
						1.00	27.58	6.56	98.9	1.3	27.7	8.07				
2015/5/14 15:17:00	WY2	MF	829001	810402	6.6	15.00	26.52	5.17	78.4	2.1	31.1	8.46	4	<0.01	0.47	not detected
						1.00	27.63	6.56	99	1.2	27.8	8.07				
						1.00	27.58	6.56	98.9	1.3	27.7	8.07				
2015/5/14 15:04:00	WY3	MF	829206	809861	3.8	15.00	26.21	5.03	76	2.3	31.4	8.48	4	0.04	0.3	not detected
						1.00	28.4	6.92	105.5	1.2	27.6	8.27				
						1.00	28.31	6.98	106.5	1.3	27.9	8.27				
2015/5/14 15:34:00	CY1	MF	828401	810798	11.7	3.60	28.18	7.18	109.5	2	28.1	8.28	4	0.03	0.48	3
						3.60	28.2	7.35	112.2	2.3	28.3	8.29				
						1.00	28.94	6.4	98.5	2.1	27.8	8.16				
2015/5/14 14:33:00	CY2	MF	827996	808796	16.8	1.00	28.92	6.36	97.8	2.3	27.8	8.17	2	0.03	0.49	not detected
						5.60	27.97	7.27	110.5	2.9	28.3	8.38				
						5.60	27.84	6.95	105.5	3	28.4	8.37				
2015/5/14 15:34:00	CY1	MF	828401	810798	11.7	1.00	28.29	6.65	101.2	2.5	27.6	8.21	4	0.05	0.52	1
						1.00	28.3	6.61	100.7	2.6	27.6	8.22				
						2.80	27.6	6.87	104	3.8	28.4	8.27				
2015/5/14 15:34:00	CY1	MF	828401	810798	11.7	2.80	27.83	6.51	98.7	3.4	28.1	8.26	<2	0.04	0.5	not detected
						1.00	28.19	6.59	100.4	2.1	28	8.18				
						1.00	28.19	6.66	101.4	2.6	28	8.19				
2015/5/14 14:33:00	CY2	MF	827996	808796	16.8	10.70	26.42	6.36	98.6	4.5	30.9	8.23	12	0.08	0.32	not detected
						10.70	26.39	6.32	98.3	4.3	31	8.24				
						1.00	29.91	6.28	98.8	0.9	28.7	8.13				
2015/5/14 14:33:00	CY2	MF	827996	808796	16.8	1.00	29.96	6.18	97.2	1.2	28.7	8.1	<2	0.05	0.46	not detected
						15.80	25.93	5.13	77.3	2.7	31.9	8.26				
						15.80	26.03	5.09	76.9	2.5	31.8	8.25				

Remarks: MF - Middle Flood tide
ME - Middle Ebb tide

Contract No. DC/2009/13

**Construction of Sewage Treatment Works
at Yung Shue Wan and Sok Kwn Wan**



**Yung Shue Wan
Post-commissioning Martine Water Monitoring Programme
27-May-15**

Date / Time	Location	Tide	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l	Ammonia N mg/l	TIN mg/l	E.coli 1CFU/100ml
			East	North												
2015/5/27 10:11:00	WY1	ME	829162	809548	4	1.00	29.68	6.5	96.8	0.8	20.8	8.15	3	0.02	0.98	not detected
						1.00	29.34	6.34	94.2	0.9	21	8.32				
						3.00	28.47	5.94	88.6	2.9	23.7	8.3				
						3.00	28.47	5.9	88	2.6	23.9	8.31				
2015/5/27 09:49:00	WY2	ME	828991	810403	6.7	1.00	29.76	6.95	103	1.3	19.8	8.25	3	0.03	0.99	not detected
						1.00	29.74	6.97	103.2	1.5	19.8	8.23				
						5.70	27.49	6.27	95.8	3	28.8	8.26				
						5.70	27.94	6.1	92	3.7	26.5	8.26				
2015/5/27 10:03:00	WY3	ME	829192	809839	3.7	1.00	29.64	6.86	102.1	1.7	20.7	8.27	3	0.02	1.01	3
						1.00	29.56	6.69	99.6	1.9	20.9	8.4				
						2.70	28.94	5.68	84.8	3.2	22.9	8.37				
						2.70	29.23	5.54	82.5	3.2	21.9	8.34				
2015/5/27 09:33:00	CY1	ME	828407	810813	10.7	1.00	28.45	6.14	90.2	0.7	21.5	8.28	4	0.04	0.96	2
						1.00	28.28	5.91	86.6	1.3	21.6	8.23				
						9.70	26.92	5.22	82.2	2.7	30.1	8.4				
						9.70	26.85	5.48	80.5	2.3	30.3	8.42				
2015/5/27 10:27:00	CY2	ME	827986	808813	15.4	1.00	29.37	6.43	95.2	2.2	20.6	8.19	2	<0.01	1	not detected
						1.00	29.39	6.58	97.5	1.9	20.6	8.12				
						14.40	26.55	5.19	73.5	3.6	31.2	8.42				
						14.40	26.54	5.15	73	3.4	31.2	8.42				
2015/5/27 14:57:00	WY1	MF	829159	819510	3.9	1.00	30.34	7.36	111.2	1.2	21.5	8.2	4	<0.01	0.86	not detected
						1.00	30.35	7.44	112.5	1.3	21.5	8.26				
						2.90	29.66	6.69	100.6	2.6	22.4	8.36				
						2.90	29.8	6.75	101.6	2.5	22.1	8.36				
2015/5/27 15:18:00	WY2	MF	828997	810396	6.8	1.00	30.24	7.99	120	2.4	20.7	8.26	4	<0.01	0.88	not detected
						1.00	30.23	7.96	119.5	2.3	20.6	8.26				
						5.80	27.72	5.86	88.7	3.1	28.1	8.34				
						5.80	27.69	5.69	86.2	3.2	28.2	8.33				
2015/5/27 15:08:00	WY3	MF	828197	809862	3.7	1.00	30.27	7.15	107.6	1.2	21	8.32	4	<0.01	0.87	not detected
						1.00	30.29	7.13	107.4	1	21	8.37				
						2.70	30.01	7.62	114.8	2.2	21.7	8.39				
						2.70	30.01	7.69	115.8	2.4	21.8	8.38				
2015/5/27 15:33:00	CY1	MF	828396	810785	10.6	1.00	30.14	7.53	112.9	0.48	20.8	8.28	6	0.04	0.9	not detected
						1.00	30.15	7.63	114.6	0.46	20.8	8.19				
						9.60	26.97	7.19	108.7	1.5	29.6	8.3				
						9.60	26.9	6.96	105.2	1.6	29.9	8.29				
2015/5/27 14:35:00	CY2	MF	827994	808809	15.3	1.00	30.22	6.69	102.4	2.4	18.8	8.23	4	0.03	1.01	not detected
						1.00	30.28	6.72	103.7	2.1	18.4	8.22				
						14.30	26.61	5.2	82.6	3.8	31.1	8.41				
						14.30	26.61	5.13	79.8	4	31.2	8.41				

Remarks: MF - Middle Flood tide
ME - Middle Ebb tide

Contract No. DC/2009/13

Construction of Sewage Treatment Works
at Yung Shue Wan and Sok Kwn Wan



Yung Shue Wan

Post-commissioning Martine Water Monitoring Programme
11-Jun-15

Date / Time	Location	Tide	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l	Ammonia N mg/l	TIN mg/l	E.coli 1CFU/100ml
			East	North												
2015/6/11 08:53:00	WY1	ME	829163	809547	4	1.00	29.7	6.7	102	2.2	24.1	8.02	3	<0.01	0.66	2
						1.00	29.71	6.59	100.2	2.6	24.1	8.06				
						3.00	29.6	6.41	97.4	3.52	24.2	8.22	6	<0.01	0.65	1
						3.00	29.6	6.39	97.1	3.66	24.2	8.29				
2015/6/11 08:31:00	WY2	ME	828997	810400	7	1.00	30.39	6.55	100.4	2.5	23.7	8.13	4	<0.01	0.66	2
						1.00	30.34	6.54	100.1	2.9	23.7	8.13				
						6.00	28.33	5.12	78	2.97	27.7	8.22	7	<0.01	0.64	2
						6.00	28.45	5.13	78.3	3.14	27.3	8.26				
2015/6/11 08:45:00	WY3	ME	829190	809843	4.2	1.00	29.95	6.72	102.6	3.1	24.1	7.99	5	<0.01	0.69	3
						1.00	30	6.67	101.8	3.16	24	7.96				
						3.20	29.59	7.08	107.8	3.24	24.5	8.02	5	<0.01	0.64	2
						3.20	29.58	7.07	107.7	3.23	24.5	8.01				
2015/6/11 08:13:00	CY1	ME	828406	810811	10.2	1.00	29.05	6.27	94.4	2	23.8	7.88	4	<0.01	0.64	not detected
						1.00	29.12	6.1	91.8	1.9	23.7	7.81				
						9.20	26.26	3.01	45.5	3	31.4	8.03	13	0.01	0.2	not detected
						9.20	26.51	3.32	50.2	2.5	30.7	8.04				
2015/6/11 09:11:00	CY2	ME	827991	808816	15.6	1.00	30.42	6.89	105.8	3.4	23.8	7.64	5	0.02	0.64	not detected
						1.00	30.41	6.93	106.4	2.9	23.9	7.68				
						14.60	25.85	3.8	57.6	5.3	33	8	13	0.02	0.21	not detected
						14.60	25.79	3.58	54.3	6.6	33.1	8.01				
2015/6/11 13:58:00	WY1	MF	829162	819160	4.4	1.00	31.05	7.41	115.2	2.2	24.4	7.88	8	<0.01	0.58	not detected
						1.00	31.09	7.36	114.6	2	24.4	7.83				
						3.40	29.68	7.98	122	3.1	25	8.19	13	0.02	0.61	not detected
						3.40	29.89	7.73	118.2	3.4	24.6	8.16				
2015/6/11 14:21:00	WY2	MF	828999	810393	6.7	1.00	31.45	7.68	120.1	1.66	24.4	8.03	5	<0.01	0.55	not detected
						1.00	31.44	7.62	119.2	1.67	24.3	8.04				
						5.70	28.22	6.96	106.1	3.63	28	8.21	12	<0.01	0.54	not detected
						5.70	27.6	4.15	63	3.81	28.8	8.23				
2015/6/11 14:10:00	WY3	MF	829191	809846	4.4	1.00	30.44	7.58	116.6	1.8	24.1	8.15	11	<0.01	0.58	not detected
						1.00	30.52	7.3	112.5	1.5	24.1	8.19				
						3.40	29.84	6.58	100.7	3.4	24.8	8.23	12	<0.01	0.59	not detected
						3.40	30.02	6.61	101.4	3	24.6	8.28				
2015/6/11 14:35:00	CY1	MF	828397	810790	9.9	1.00	31.01	9.36	144.5	2.39	23.4	7.97	12	<0.01	0.5	not detected
						1.00	30.89	9.42	145.4	2.36	23.5	7.99				
						8.90	26.74	5.13	77.8	3.41	30.6	8.05	10	<0.01	0.48	not detected
						8.90	26.39	4.25	64.4	3.61	31.7	8.04				
2015/6/11 13:41:00	CY2	MF	827998	808807	16	1.00	30.73	9.4	144.6	3.32	23.4	7.95	8	0.02	0.55	not detected
						1.00	30.65	9.37	144.3	3.14	23.7	7.99				
						15.00	25.67	2.54	38.5	4.4	33.3	8.12	11	0.03	0.23	not detected
						15.00	25.6	2.42	36.7	4.7	33.3	8.19				

Remarks: MF - Middle Flood tide
ME - Middle Ebb tide

Contract No. DC/2009/13

**Construction of Sewage Treatment Works
at Yung Shue Wan and Sok Kwn Wan**



Yung Shue Wan

Post-commissioning Martine Water Monitoring Programme
25-Jun-15

Date / Time	Location	Tide	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l	Ammonia N mg/l	TIN mg/l	E.coli 1CFU/100ml
			East	North												
2015/6/25 08:51:00	WY1	ME	829170	809551	4.3	1.00	30.08	6.03	91.7	0.99	23.1	7.88	4	<0.01	0.44	1
						1.00	30.07	6.05	92	1.1	23.1	7.89				
						3.30	30.01	6.3	95.8	0.75	23.2	8.02				
						3.30	30	6.29	95.6	0.63	23.2	8.03				
2015/6/25 08:25:00	WY2	ME	828998	810404	7.1	1.00	30.01	6.15	93.3	0	23	8.01	6	<0.01	0.4	1
						1.00	30.02	6.2	94.1	0	23	8				
						6.10	29.94	5.91	89.8	0.98	23.4	8.16				
						6.10	29.94	5.82	88.5	0.85	23.4	8.13				
2015/6/25 08:34:00	WY3	ME	829193	809850	4.6	1.00	30.01	5.35	81.3	1.4	23.1	7.83	7	<0.01	0.41	not detected
						1.00	30.01	5.37	81.6	1.1	23.1	7.82				
						3.60	30.01	5.87	89.2	2.5	23.3	8.01				
						3.60	30.01	5.95	90.5	2.7	23.3	8.06				
2015/6/25 08:08:00	CY1	ME	828408	810813	10.3	1.00	30.41	6.45	98.5	1.5	23	7.88	5	<0.01	0.41	not detected
						1.00	30.42	6.38	97.5	1.8	23.1	7.83				
						9.30	28.88	5.52	83.2	2.3	24.6	7.93				
						9.30	28.76	5.55	83.5	2	24.7	7.96				
2015/6/25 09:11:00	CY2	ME	827994	808810	16.7	1.00	29.81	6.01	90.9	1.2	22.9	7.78	4	<0.01	0.43	not detected
						1.00	29.81	5.83	88.2	1.3	23	7.73				
						15.70	27.45	4	60.4	1.9	28.6	7.9				
						15.70	27.42	3.82	57.8	2.3	28.6	7.93				
2015/6/25 12:19:00	WY1	MF	829163	819163	4.9	1.00	30.43	5.7	87.3	0.5	23.3	7.82	5	<0.01	0.43	1
						1.00	30.48	5.84	89.4	0.6	23.2	7.83				
						3.90	30.54	5.84	89.6	1.6	23.2	7.91				
						3.90	30.55	5.68	87.1	1.1	23.2	7.93				
2015/6/25 12:38:00	WY2	MF	828996	810397	7.3	1.00	30.6	5.63	86.1	1.6	22.9	7.72	5	<0.01	0.43	not detected
						1.00	30.64	5.67	87	1.5	23	7.73				
						6.30	30.66	6.31	96.8	1.4	23.2	7.96				
						6.30	30.65	6.32	96.9	1.4	23.2	7.98				
2015/6/25 12:30:00	WY3	MF	829198	809853	5	1.00	30.56	6.43	98.6	0	23.2	7.82	6	<0.01	0.41	2
						1.00	30.56	6.65	100	0.2	20.1	7.83				
						4.00	30.49	5.6	85.8	1.7	23.2	7.96				
						4.00	30.5	5.76	88.2	1.4	23.2	7.92				
2015/6/25 12:52:00	CY1	MF	828403	810796	10.5	1.00	30.71	5.69	87.4	1.2	23.2	7.8	7	<0.01	0.44	not detected
						1.00	30.71	5.68	87.2	1.1	23.2	7.81				
						9.50	30.51	5.69	87.4	2.9	23.5	8.03				
						9.50	30.62	5.69	87.3	2	23.3	8.04				
2015/6/25 12:05:00	CY2	MF	827994	808811	17.1	1.00	30.56	5.72	87.5	1.6	23	7.95	5	<0.01	0.43	1
						1.00	30.59	5.51	84.3	1.8	22.9	7.96				
						16.10	28.55	4.31	65.3	3.1	26.4	8.08				
						16.10	28.47	3.91	59.5	3.2	26.8	8.07				

Remarks: MF - Middle Flood tide
ME - Middle Ebb tide

Contract No. DC/2009/13

**Construction of Sewage Treatment Works
at Yung Shue Wan and Sok Kwn Wan**



Yung Shue Wan

Post-commissioning Martine Water Monitoring Programme
14-Jul-15

Date / Time	Location	Tide	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l	Ammonia N mg/l	TIN mg/l	E.coli 1CFU/100ml
			East	North												
2015/7/14 11:17:00	WY1	ME	829163	809563	5.4	1.00	27.69	6.32	95.8	0.7	31.79	8.23	5	0.01	0.17	3
						1.00	27.69	6.33	96	0.7	31.8	8.23				
						4.40	27.7	6.31	95.8	0.8	31.83	8.23	8	0.02	0.24	not detected
						4.40	27.7	6.3	95.7	0.9	31.82	8.23				
2015/7/14 10:59:00	WY2	ME	829006	810404	7.3	1.00	27.64	6.6	100.3	0.8	32.13	8.16	3	0.02	0.17	not detected
						1.00	27.7	6.57	99.8	0.9	32.07	8.16				
						6.30	26.43	6.22	93.4	2.2	33.73	8.23	11	0.03	0.13	2
						6.30	26.42	6.13	92	2.6	33.73	8.23				
2015/7/14 11:09:00	WY3	ME	829203	809860	5.1	1.00	28.26	5.45	83.7	1.5	32.34	8.13	5	0.03	0.19	6
						1.00	28.28	5.4	82.9	1.5	32.33	8.13				
						4.10	27.46	5.18	78.8	2.6	32.81	8.15	6	0.04	0.18	20
						4.10	27.42	5.16	78.5	2.7	32.83	8.15				
2015/7/14 10:45:00	CY1	ME	828396	810791	11.4	1.00	27.06	6.63	99.1	0.8	31.03	8.11	3	0.05	0.4	2
						1.00	27.05	6.6	98.6	0.8	31.05	8.11				
						10.40	26.01	5.74	85.7	4.1	33.94	8.2	4	0.04	0.15	1
						10.40	25.99	5.64	84.2	4.1	33.95	8.2				
2015/7/14 11:35:00	CY2	ME	827992	808813	15.2	1.00	27.37	7.41	111.6	0.7	31.44	8.19	2	0.02	0.25	1
						1.00	27.35	7.42	111.8	0.7	31.4	8.18				
						14.20	25.97	5.29	78.9	6.9	33.93	8.2	6	0.02	0.11	not detected
						14.20	25.97	5.28	78.7	6.7	33.93	8.2				
2015/7/14 17:27:00	WY1	MF	829163	809539	4.3	1.00	27.62	6.22	93.9	2.8	31.19	8.24	5	<0.01	0.23	not detected
						1.00	27.61	6.22	93.9	2.9	31.19	8.24				
						3.30	27.6	6.04	91.2	4.2	31.23	8.23	8	<0.01	0.24	not detected
						3.30	27.62	6.02	90.9	3.8	31.23	8.23				
2015/7/14 17:46:00	WY2	MF	829002	810413	6.7	1.00	27.6	8.32	125.9	4.5	31.59	8.22	6	0.02	0.21	not detected
						1.00	27.59	8.3	125.6	4.4	31.62	8.22				
						5.70	27.84	7.81	118.8	4.5	31.85	8.22	6	<0.01	0.19	2
						5.70	27.85	7.82	118.9	4.4	31.85	8.22				
2015/7/14 17:35:00	WY3	MF	829203	809862	4.4	1.00	27.76	5.65	85.7	3.8	31.38	8.22	8	<0.01	0.2	5
						1.00	27.76	5.65	85.6	3.9	31.38	8.22				
						3.40	27.57	5.53	83.6	6.3	31.59	8.21	11	<0.01	0.18	not detected
						3.40	27.5	5.46	82.5	6.1	31.63	8.21				
2015/7/14 18:01:00	CY1	MF	828411	810806	10.6	1.00	27.66	6.71	100.3	0.4	29.06	8.11	4	0.05	0.43	4
						1.00	27.59	6.73	100.4	0.5	29.11	8.11				
						9.60	26.57	6.21	92.4	6	31.74	8.13	4	0.05	0.34	5
						9.60	26.57	6.2	92.3	6	31.73	8.13				
2015/7/14 17:07:00	CY2	MF	827992	808807	15.9	1.00	28.13	7.08	107.5	0.7	30.7	8.27	3	<0.01	0.26	1
						1.00	28.1	7.07	107.3	0.6	30.68	8.27				
						14.90	26.23	5.36	80	6.9	33.34	8.18	9	0.06	0.16	not detected
						14.90	26.19	5.36	80.1	7.7	33.39	8.18				

Remarks: MF - Middle Flood tide
ME - Middle Ebb tide

Contract No. DC/2009/13

Construction of Sewage Treatment Works
at Yung Shue Wan and Sok Kwn Wan



Yung Shue Wan

Post-commissioning Martine Water Monitoring Programme
22-Jul-15

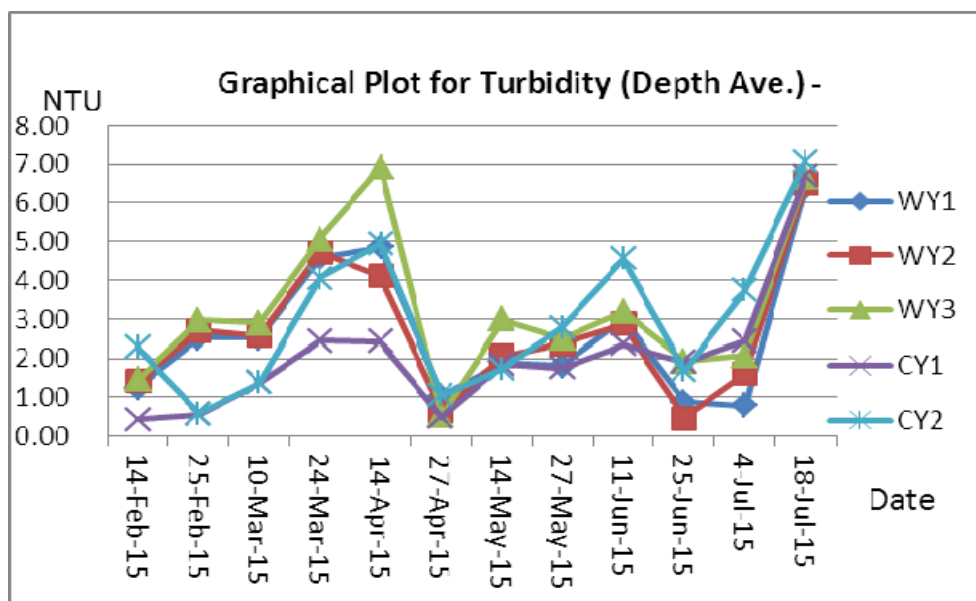
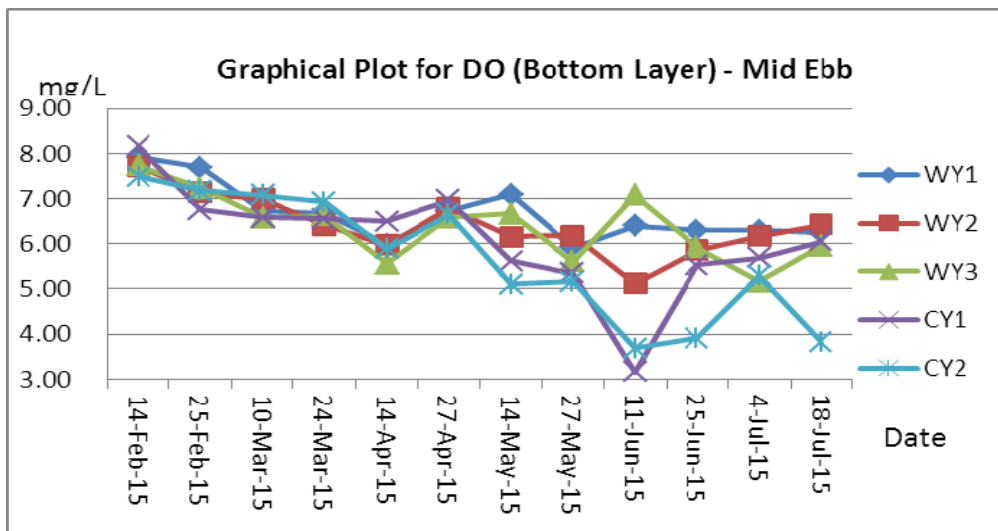
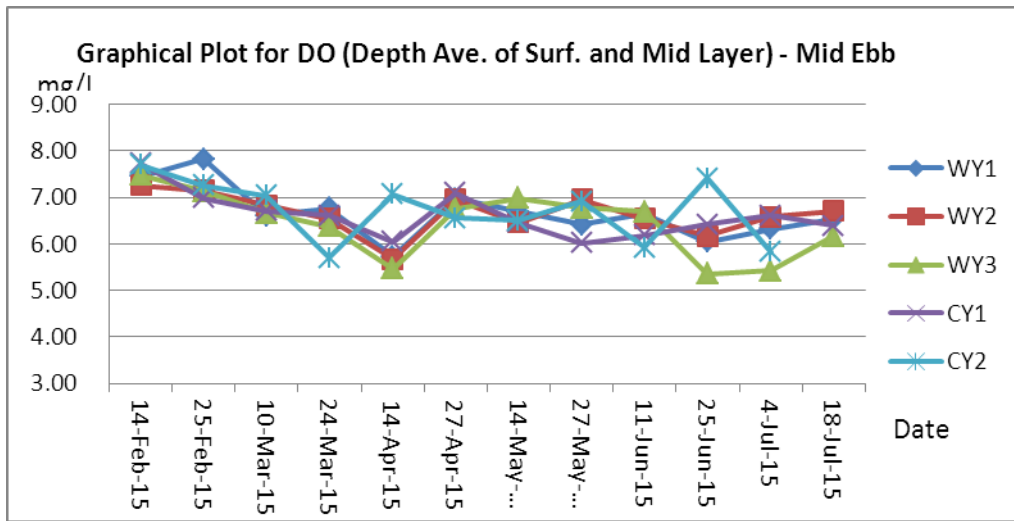
Date / Time	Location	Tide	Co-ordinates		Water Depth m	Sampling Depth m	Temp °C	DO Conc mg/L	DO Saturation %	Turbidity NTU	Salinity ppt	pH unit	SS mg/l	Ammonia N mg/l	TIN mg/l	E.coli 1CFU/100ml
			East	North												
2015/7/22 15:09:00	WY1	ME	829168	809569	4.5	1.00	26.82	6.52	94.8	4.5	26.64	8.05	6	0.11	0.69	14
						1.00	26.82	6.54	95	4.5	26.63	8.05				
						3.50	27.09	6.28	92.3	8.2	28.03	8.04				
						3.50	27.2	6.19	91.2	8.4	28.03	8.04				
2015/7/22 15:38:00	WY2	ME	829004	810407	6.8	1.00	26.76	6.72	97.5	4.2	26.69	8.05	5	0.1	0.63	57
						1.00	26.76	6.7	97.3	4.1	26.74	8.05				
						5.80	28.19	6.45	97.5	8.3	29.67	8.06				
						5.80	28.12	6.39	96.5	9.4	29.69	8.06				
2015/7/22 15:20:00	WY3	ME	829209	809872	4.8	1.00	26.8	6.21	90.2	4.5	26.72	8.04	6	0.1	0.73	16
						1.00	26.8	6.13	89.1	4.6	26.74	8.04				
						3.80	26.85	5.98	87.4	8.2	27.69	8.03				
						3.80	26.87	5.94	86.8	9.3	27.65	8.03				
2015/7/22 15:51:00	CY1	ME	828403	810793	9.9	1.00	26.8	6.4	93	4.3	26.85	8.04	4	0.09	0.62	3
						1.00	26.8	6.38	92.7	4.1	26.88	8.04				
						8.90	25.6	6.22	92.2	8.8	33.77	8.09				
						8.90	25.54	5.9	87.4	9.5	33.84	8.09				
2015/7/22 14:57:00	CY2	ME	827993	808806	16.1	1.00	28.53	5.82	87.4	5.8	27.62	8.06	6	0.06	0.47	3
						1.00	28.31	5.84	87.5	5.5	27.66	8.06				
						15.10	24.96	3.86	56.8	8.4	34.36	8.12				
						15.10	24.91	3.77	55.4	8.6	34.4	8.12				
2015/7/22 09:15:00	WY1	MF	829172	809538	4.7	1.00	26.82	6.8	98.8	4.7	26.59	8.04	5	0.1	0.64	11
						1.00	26.81	6.73	97.8	4.7	26.56	8.04				
						3.70	26.99	6.34	93	9.2	27.9	8.03				
						3.70	27.04	6.24	91.7	9.6	27.99	8.03				
2015/7/22 08:51:00	WY2	MF	829006	810410	7	1.00	26.77	6.97	100.8	5	26.1	8.03	6	0.1	0.63	3
						1.00	26.77	6.94	100.4	4.9	26.14	8.03				
						6.00	28.5	6.05	91.9	9.2	29.59	8.07				
						6.00	28.61	6.17	93.8	9.2	29.55	8.07				
2015/7/22 09:03:00	WY3	MF	829206	809863	4.9	1.00	26.83	6.88	99.8	4.5	26.46	8.04	8	0.1	0.64	30
						1.00	26.82	6.73	97.7	4.5	26.49	8.04				
						3.90	26.86	5.8	84.7	10	27.55	8.02				
						3.90	26.85	5.71	83.4	10	27.56	8.02				
2015/7/22 08:36:00	CY1	MF	828419	810809	10.3	1.00	26.8	6.85	99.6	4	26.93	8	2	0.09	0.62	4
						1.00	26.8	6.72	97.7	4	26.91	8.01				
						9.30	25.68	5.26	78	8.8	33.68	8.1				
						9.30	25.62	5.7	84.4	8.4	33.78	8.1				
2015/7/22 09:38:00	CY2	MF	827996	808802	16.3	1.00	28.06	5.8	86.5	5.3	27.69	8.05	5	0.06	0.47	6
						1.00	28.1	5.77	86.1	5	27.57	8.05				
						15.30	24.97	3.91	57.5	8	34.36	8.11				
						15.30	24.94	3.91	57.5	8.8	34.38	8.11				

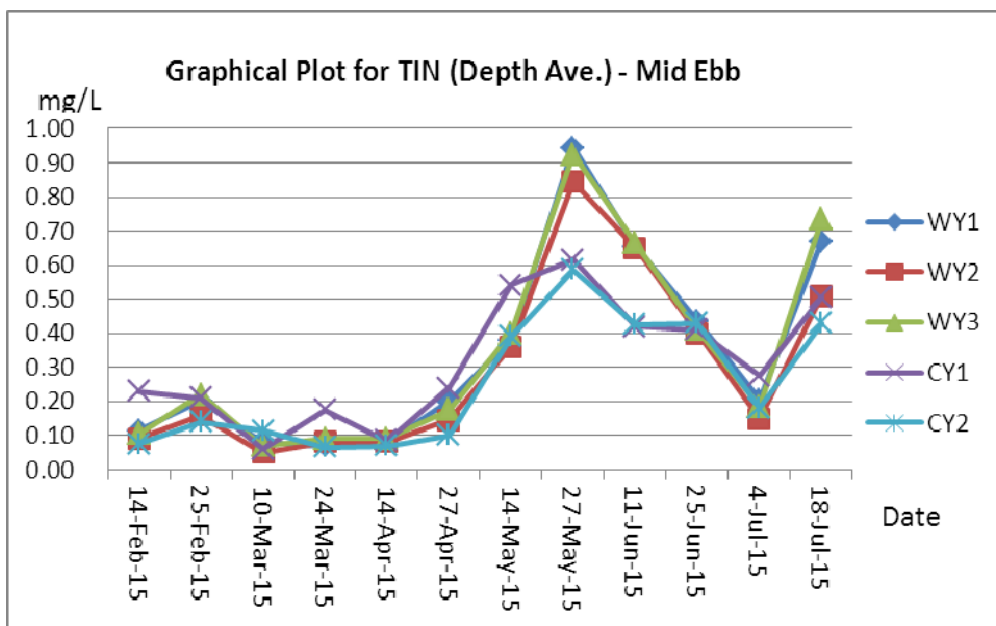
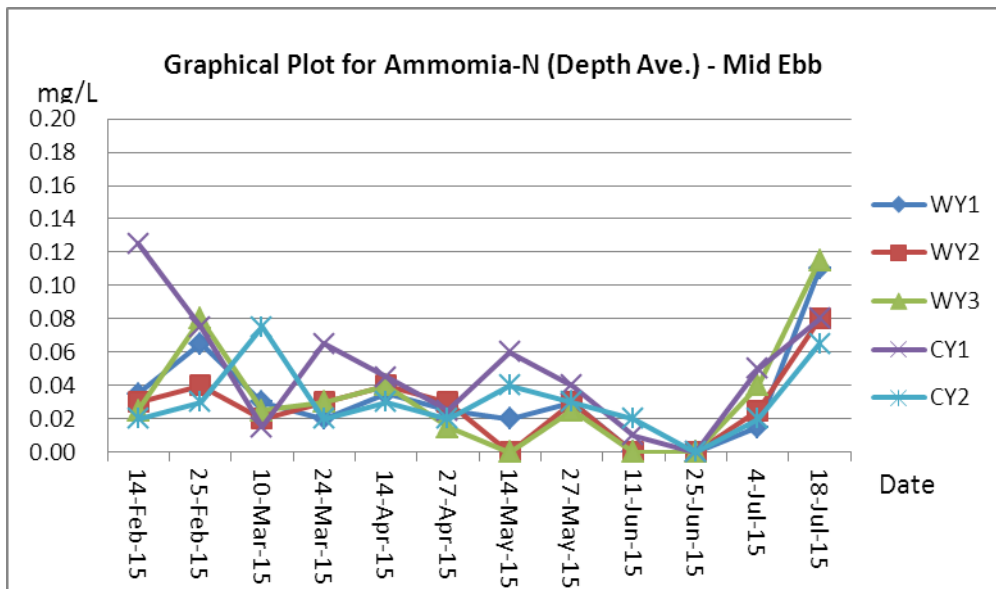
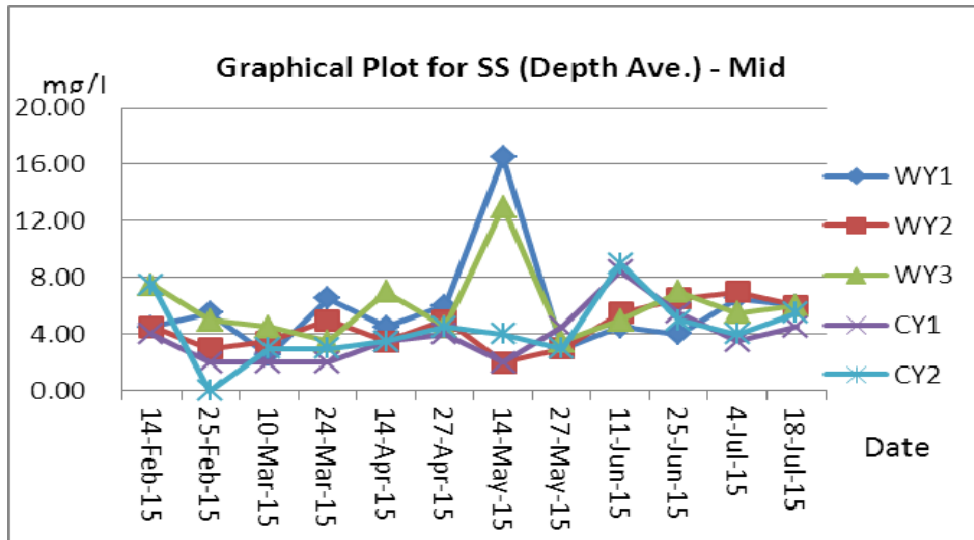
Remarks: MF - Middle Flood tida
ME - Middle Ebb tida

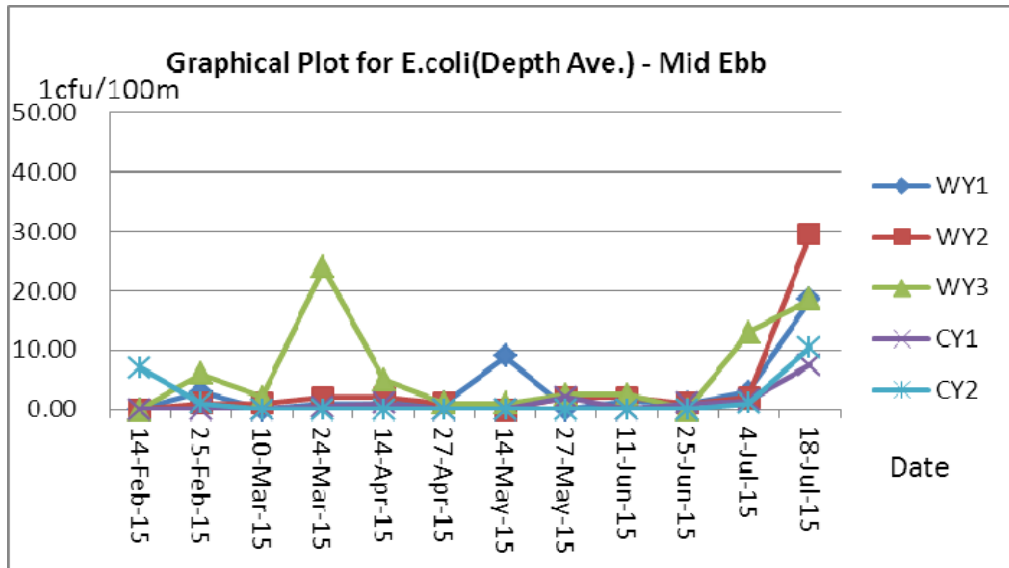
Appendix E

Graphical Plots of Monitoring Results

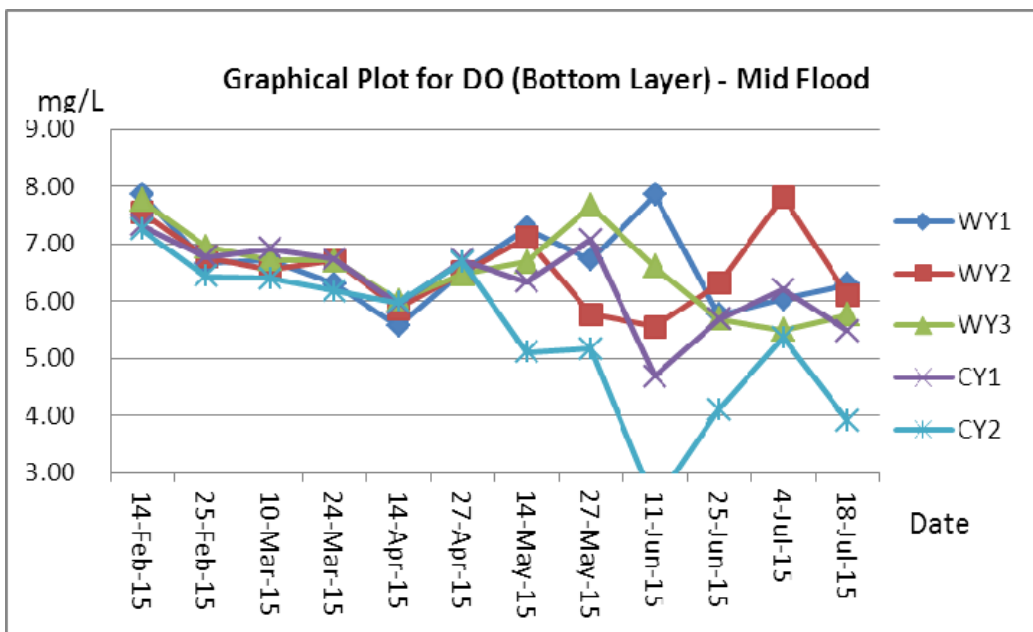
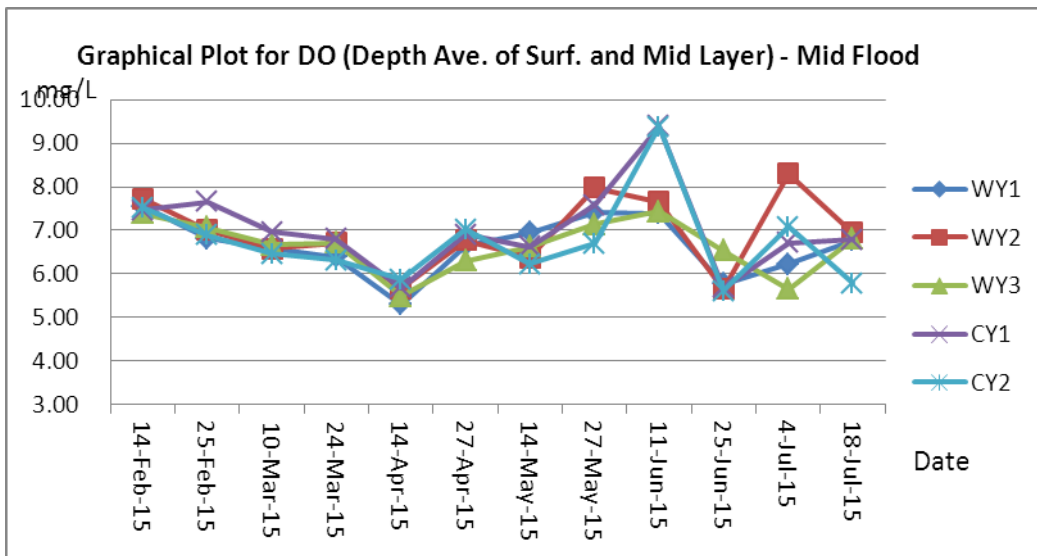
Water Quality Monitoring Result – Mid Ebb

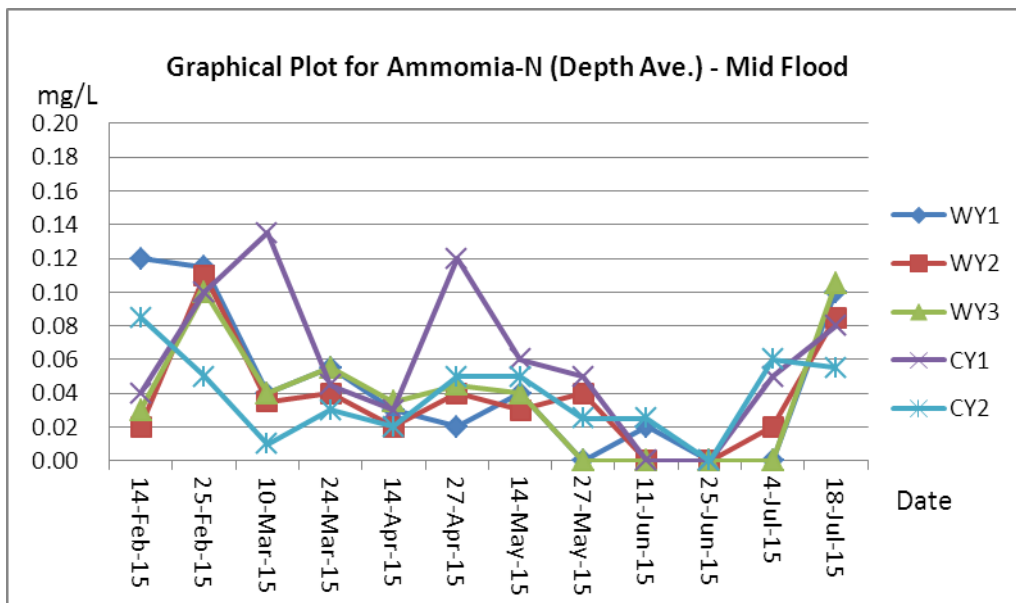
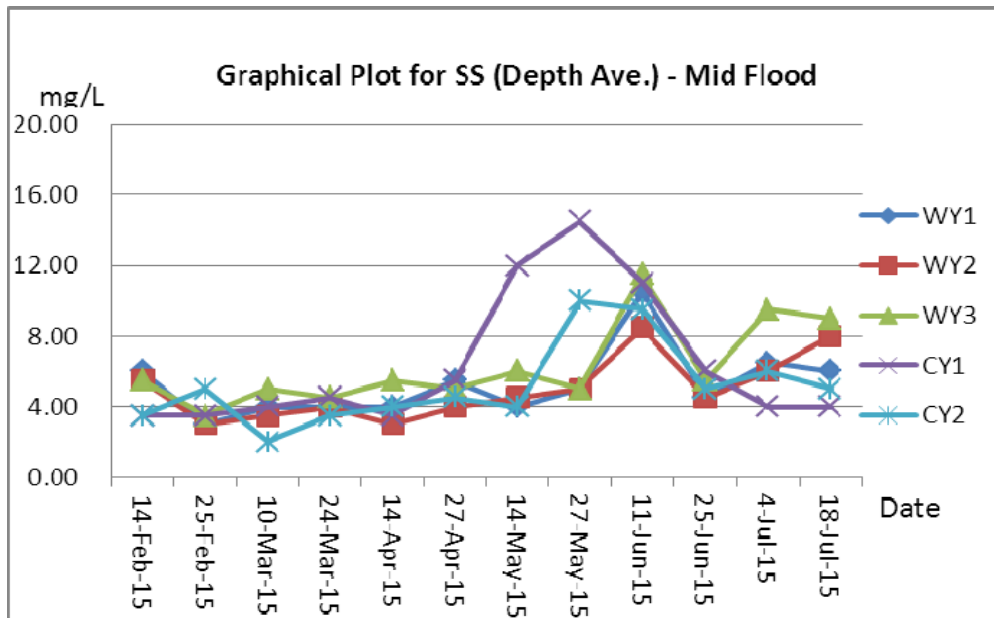
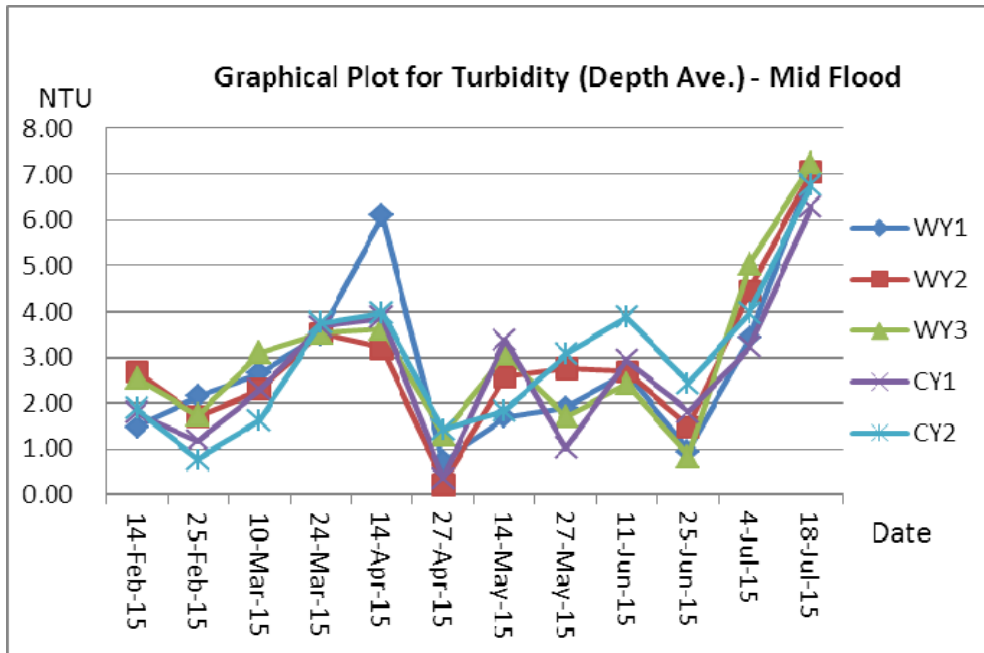


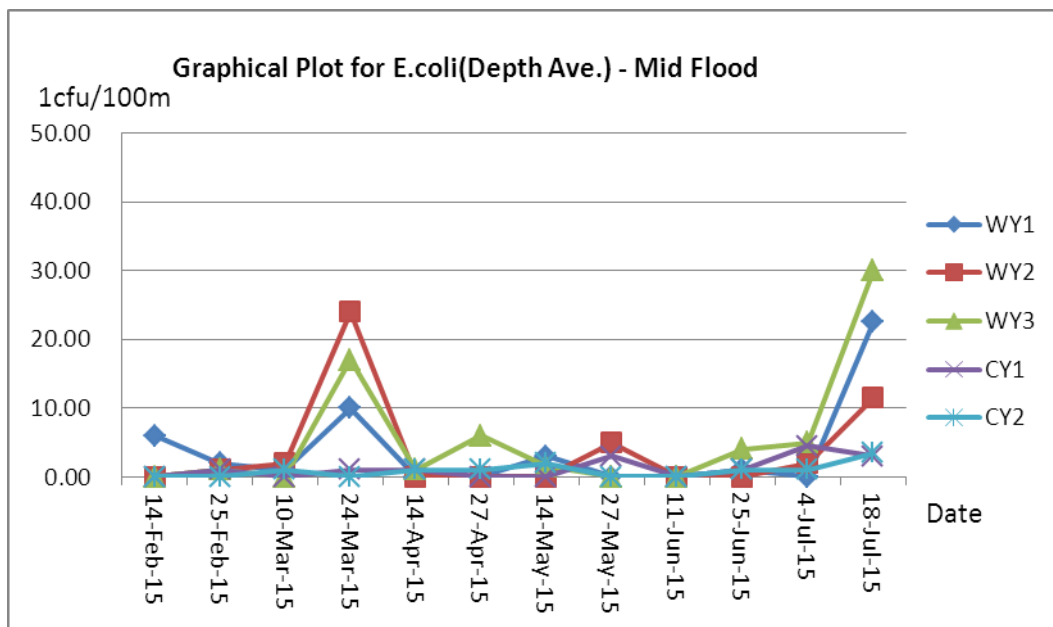
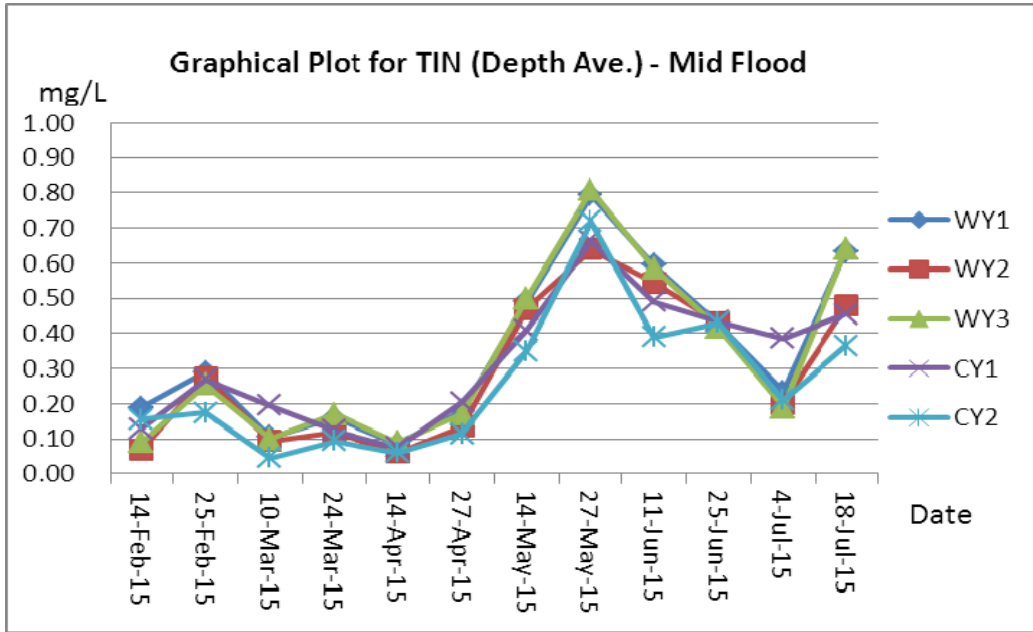




Water Quality Monitoring Result – Mid Flood







Appendix F

**Test Reports for Performance
of Deodorization Facility at YSWSTW**



PHARMTECH (HONG KONG) LIMITED

Unit 1C, 6/F., Cheung Fung Industrial Building,
23-39 Pak Tin Par Street, Tsuen Wan, Hong Kong.
Tel: (852) 2499 8886 Fax: (852) 2405 7005
Website: www.pharmtechhk.com E-mail: lab@pharmtech.com.hk

TEST REPORT

Name of Client :	Kai Mei Environmental Co. Ltd. No.18-20, 9/F Block A Hi-Tech Ind. Ctr. 5-21 Pak Tin Par St., Tsuen Wan Hong Kong	Report No. :	LR14/00352
Contact Person :	Mr. Johnson Wong	Date of Issue :	14-07-2014
		Date Received :	11-07-2014
		Date Commenced :	12-07-2014
		Date Completed :	12-07-2014
		Page No. :	1 of 1

Information of Sample(s):

Sample Description	2 liquid absorbent samples as received
Sampling Date	11-07-2014
Sampling Location	Yung Shue Wan STW
Equipment Model	U13000
Serial Number	101205

Test Parameter(s) & Method Reference(s):

Parameter(s)	Method Reference(s)	Limit of Reporting
Hydrogen Sulphide Content	Refer to ISC 3 rd edition, Method 701 “Determination of Hydrogen Sulphide Content of the Atmosphere”	0.02 ppm

Test Result(s):

	Inlet (sample 1)	Outlet (sample 2)
Sample Code	LR14/00352/001	LR14/00352/002
Hydrogen Sulphide Content, ppm (v/v)	8.3	<0.02

***** END *****

PREPARED AND APPROVED BY:




T.C. Lee, Jeffrey
Date: 14-07-2014



PHARMTECH (HONG KONG) LIMITED

Unit 1C, 6/F., Cheung Fung Industrial Building,
23-39 Pak Tin Par Street, Tsuen Wan, Hong Kong.

Tel: (852) 2499 8886 Fax: (852) 2405 7005

Website: www.pharmtechhk.com E-mail: lab@pharmtech.com.hk

TEST REPORT

Name of Client :	Kai Mei Environmental Co. Ltd. No.18-20, 9/F Block A Hi-Tech Ind. Ctr. 5-21 Pak Tin Par St., Tsuen Wan Hong Kong	Report No. :	LR14/00351
Contact Person :	Mr. Johnson Wong	Date of Issue :	14-07-2014
		Date Received :	11-07-2014
		Date Commenced :	12-07-2014
		Date Completed :	12-07-2014
		Page No. :	1 of 1

Information of Sample(s):

Sample Description	2 liquid absorbent samples as received
Sampling Date	11-07-2014
Sampling Location	Yung Shue Wan STW
Equipment Model	U13000
Serial Number	101206

Test Parameter(s) & Method Reference(s):

Parameter(s)	Method Reference(s)	Limit of Reporting
Hydrogen Sulphide Content	Refer to ISC 3 rd edition, Method 701 "Determination of Hydrogen Sulphide Content of the Atmosphere"	0.02 ppm

Test Result(s):

	Inlet (sample 1)	Outlet (sample 2)
Sample Code	LR14/00351/001	LR14/00351/002
Hydrogen Sulphide Content, ppm (v/v)	7.9	<0.02

***** END *****

PREPARED AND APPROVED BY:

T.C. Lee, Jeffrey
Date: 14-07-2014