



**Term Contract for Provision of Sampling and Analyzing of Samples
for Various Sewage Treatment Facilities in Urban Area, Lantau and
Outlying Islands to the Drainage Service Department**

Provision of Routine Marine Water Quality Monitoring Services

Report for the Month of Oct 2021

Contract No. : DE/2020/02

Applicant : SEWAGE TREATMENT DIVISION 2
ELECTRICAL AND MECHANICAL BRANCH
DRAINAGE SERVICES DEPARTMENT

Address : STONECUTTERS ISLAND SEWAGE TREATMENT WORKS.,
NGONG SHUNG ROAD, NGONG SHUEN CHAU,
KOWLOON, HONG KONG


Application Number : LA031303(0)

Report Number : AA0055252(8)

Report Issued Date : 15 Nov 2021

For and on behalf of
CMA Industrial Development Foundation Limited

Authorized Signature : _____


Lau Yan Kin
Senior Manager
Environmental Division

The conformity statement stated in Conclusion above is based on the decision rule agreed with applicant and listed in www.cmateesting.org/qac/statement-of-conformity.pdf
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Term Contract for Provision of Sampling and Analyzing of Samples for Various Sewage Treatment Facilities in Urban Area, Lantau and Outlying Islands to the Drainage Services Department

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EXECUTIVE SUMMARY

1. This is the water quality monitoring report prepared by CMA Testing for Contract No. DE/2020/02 “Term Contract for Provision of Sampling and Analyzing of Samples for Various Sewage Treatment Facilities in Urban Area, Lantau and Outlying Islands to the Drainage Services Department”. This report documented the results and findings of Operation Phase Environmental Monitoring works conducted for Routine Marine Water Quality Monitoring (rMWQM) of Project.
2. In accordance with the Final EM&A Manual, environmental monitoring has been conducted in the reporting month with a Quarterly Basis for various parameters as summarized in **Table I**.

Table I Summary Table for Environmental Monitoring Works Conducted in the Reporting Month

Monitoring Parameters	Monitoring Date	Laboratory Testing Parameters
Marine Water Quality	27 Oct 2021	E.coli, Total Residual Chlorine (TRC), Chlorination by-products (CBPs) and Contaminants of Concern (COCs)



Term Contract for Provision of Sampling and Analyzing of Samples for Various Sewage Treatment Facilities in Urban Area, Lantau and Outlying Islands to the Drainage Services Department

1. INTRODUCTION

- 1.1. CMA Testing was commissioned by Drainage Services Department (DSD) to undertake the operation phase environmental monitoring for Advance Disinfection Facilities (ADF) at Stonecutters Island Sewage Treatment Works (SCISTW) (thereafter called the “the Services”).
- 1.2. The operation phase monitoring, which includes effluent quality monitoring, marine water quality monitoring and emergency discharge monitoring, is to monitor the effluent and marine water quality impact of ADF during its operation phase.
- 1.3. This is the water quality monitoring report prepared by CMA Testing that documented the results and findings of Operation Phase Water Quality Monitoring works conducted for Routine Marine Water Quality Monitoring (rMWQM) of Project.

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2. MARINE WATER QUALITY MONITORING

Monitoring Requirements

- 2.1. Monitoring was taken at three water depths, namely, 1m below water surface, mid-depth and 1m above sea bed, except where the water depth is less than 6m, in which case the mid-depth station may be omitted. If the water depth be less than 3m, only the mid-depth station will be monitored.
- 2.2. Six samples (replicates) at each monitoring stations were collected by collecting the same amount of water sample at each depth.
- 2.3. One grab sample was collected at each water depth for E.coli analysis.

Monitoring Locations

- 2.4. Six monitoring stations were designated for the marine water quality monitoring programme. The locations are summarized in Table 2.1 and shown on **Appendix I**.

Table 2.1 Proposed Marine Water Quality Monitoring Stations

Station	Description	Coordinates	
		Easting	Northing
1	Edge of Mixing Zone (northwest of effluent diffuser)	829762.00	819604.47
2	Edge of ZID (northwest of effluent diffuser)	830117.99	819251.93
3	Edge of ZID (southeast of effluent diffuser)	830186.21	819184.37
4	Edge of Mixing Zone (southeast of effluent diffuser)	830525.00	818848.87
SM6	Control Station	826179.81	805902.89
SM12	Control Station	819524.19	808420.40

Monitoring Schedule

- 2.5. The marine water quality monitoring was conducted coincide with effluent quality monitoring on monitoring date.

Monitoring Equipment

- 2.6. The equipment used in the marine water quality monitoring in the reporting month is summarized in Table 2.2. Copies of calibration certificates are shown in **Appendix II**.

Table 2.2 Marine Water Quality Monitoring Equipment

Equipment	Model and Make	Qty
Water Sampler	Kahlsico Water Sampler	1
Water Depth Detector	Garmin Striker 4 or equivalent	1
Positioning System	Global Positioning System (GPS)	1
Chlorine Meter	HACH Pocket Colorimeter II or equivalent	1
Turbidimeter	HACH 2100Q or equivalent	1
Multi-parameter Water Quality System	YSI Professional Plus (Pro Plus) or equivalent	1

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Monitoring Parameters and Frequency

- 2.7. Marine Water sampling on E.coli, Total Residual Chlorine (TRC), Chlorination By-Products (CBPs) and the Contaminants of Concern (COCs) shall be performed quarterly throughout the contract period.
- 2.8. The list of parameters to be analysed as well as the corresponding analytical methods and detection limit are listed in Table 2.3

Table 2.3 Analytical Methods for Laboratory Analysis for Marine Water Samples

Parameters		Analytical Method	Limit of Reporting (µg/L)
TRC and Potential CBPs			
Total Residual Chlorine		APHA 23ed 4500 Cl G	10
Bromoform	Tri-halomethanes (THMs)	USEPA 8260B	0.1
Bromodichloromethane			0.1
Chloroform			0.1
Dibromochloromethane			5
Bromoacetic acid	Haloacetic Acids (HAAs)	In house method TG-ENV-WW-79 (by GC-ECD)	2
Chloroacetic acid			2
Dibromoacetic acid			2
Dichloroacetic acid			2
Trichloroacetic acid			2
Bacteria			
E.coli		Environmental Monitoring Laboratory Test Method Manual TM09/EC/10/098 Issue 3, Environmental Protection Department, HK.	1 cfu/100ml
Contaminants of Concern (COCs)			
Methylene chloride	Halogenated Aliphatics	ISO 17943:2016 & USEPA 8206B	20
Carbon tetrachloride			0.5
1,1-dichloroethane			0.5
1,2-dichloroethane			0.5
1,1-dichloroethylene			0.5
1,2-dichloropropane			0.5
Tetrachloroethylene			0.5
1,1,1-trichloroethane	Halogenated Aliphatics		0.5
1,1,2-trichloroethane			0.5
Trichloroethylene			0.5
2-chlorophenol	Phenols & Haloethers	In house method TG-ENV-WW-80, 84 & 86 (by GC-MSD)	0.5
2,4-dichlorophenol			0.5
p-chloro-m-cresol			0.5

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Pentachlorophenol			0.5
2,4,6-trichlorophenol			0.5
Bis(2-chloroethoxy) methane			0.5
Chlorobenzene	Chlorinated Hydrocarbons & Organochlorine Pesticides	In house method TG-ENV-WW-78 (by Headspace GC/MSD) &	0.5
1,4-dichlorobenzene			0.5
Hexachlorobenzene			0.01
Hexachlorocyclopentadiene			2.5
Hexachloroethane			0.5
1,2,4-trichlorobenzene		In house method	
Alpha-BHC		TG-ENV-WW-86	
Beta-BHC		(by GC-MSD)	
Gamma-BHC		0.01	

3. RESULTS AND OBSERVATIONS

Weather and Sea Condition

- 3.1. The weather condition was Fine while the sea condition was moderate during the sampling period on the monitoring date

Marine Water Quality

- 3.2. The in-situ measurement results include dissolved oxygen, turbidity, salinity, pH and temperature of the marine water monitoring. Also, the results of marine water quality monitoring conducted on the monitoring date and QC report are shown in **Appendix II**.



Term Contract for Provision of Sampling and Analyzing of Samples for Various Sewage Treatment Facilities in Urban Area, Lantau and Outlying Islands to the Drainage Services Department

Appendix I - Location of Monitoring Stations



Term Contract for Provision of Sampling and Analyzing of Samples for Various Sewage Treatment Facilities in Urban Area, Lantau and Outlying Islands to the Drainage Services Department

Appendix II - Report for Laboratory Test(s)

TEST REPORT

Report No. : AA0055253(9) Date: 15 Nov 2021
 Application No. : LA031303(0)
 Applicant : SEWAGE TREATMENT DIVISION 2
 ELECTRICAL AND MECHANICAL BRANCH
 DRAINAGE SERVICES DEPARTMENT
 STONECUTTERS ISLAND SEWAGE TREATMENT WORKS.,
 NGONG SHUNG ROAD, NGONG SHUEN CHAU,
 KOWLOON, HONG KONG

Contract No. : DE/2020/02
 Project Name : Term Contract for Provision of Sampling and Analyzing of Samples for Various Sewage Treatment Facilities in Urban Area, Lantau and Outlying Islands to the Drainage Services Department
 Sample Description : Eighteen (18) marine sampling point, Eighteen (18) marine water samples sampled by the staff of CMA Industrial Development Foundation Limited.
 Samples were refrigerated during delivery.
 Sample ID : Refer to Sample ID on page 4 to 10.

Station	Description	Coordinates	
		Easting	Northing
1	Edge of Mixing Zone (northwest of effluent diffuser)	829762.00	819604.47
2	Edge of ZID (northwest of effluent diffuser)	830117.99	819251.93
3	Edge of ZID (southeast of effluent diffuser)	830186.21	819184.37
4	Edge of Mixing Zone (southeast of effluent diffuser)	830525.00	818848.87
SM6	Control Station	826179.81	805902.89
SM12	Control Station	819524.19	808420.40

For and on behalf of
 CMA Industrial Development Foundation Limited

Authorized Signature : 

 Lau Yan Kin
 Senior Manager
 Environmental Division

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TEST REPORT

Report No. : AA0055253(9) Date: 15 Nov 2021

Application No. : LA031303(0)

Sampling Date : 27 Oct 2021.

Date Received : 27 Oct 2021.

Test Period : 27 Oct 2021 to 12 Nov 2021.

Test Requested :

1. Temperature (on-site measurement)
2. pH (on-site measurement)
3. Salinity (on-site measurement)
4. Dissolved Oxygen (DO) (mg/L) (on-site measurement)
5. Dissolved Oxygen (DOS) (% saturation) (on-site measurement)
6. Turbidity (on-site measurement)
7. Total Residual Chlorine (on-site measurement)
8. E. coli count
9. Bromoform
10. Bromodichloromethane
11. Chloroform
12. Dibromochloromethane
13. Bromoacetic acid
14. Chloroacetic acid
15. Dibromoacetic acid
16. Dichloroacetic acid
17. Trichloroacetic acid
18. Methylene chloride
19. Carbon tetrachloride
20. 1,1-dichloroethane
21. 1,2-dichloroethane
22. 1,1-dichloroethylene
23. 1,2-dichloropropane
24. Tetrachloroethylene
25. 1,1,1-trichloroethane
26. 1,1,2-trichloroethane
27. Trichloroethylene
28. 2-chlorophenol
29. 2,4-dichlorophenol
30. p-chloro-m-cresol
31. Pentachlorophenol
32. 2,4,6-trichlorophenol
33. Bis(2-chloroethoxy) methane
34. Chlorobenzene
35. 1,4-dichlorobenzene
36. Hexachlorobenzene
37. Hexachlorocyclopentadiene
38. Hexachloroethane
39. 1,2,4-trichlorobenzene
40. Alpha-BHC
41. Beta-BHC
42. Gamma-BHC



TEST REPORT

Report No. : AA0055253(9) Date: 15 Nov 2021

Application No. : LA031303(0)

Test Method : 1-5. In house method (by multimeter)
6. APHA 23ed 2130 B
7. APHA 23ed 4500 Cl G
8. Environmental Monitoring Laboratory Test Method Manual
TM09/EC/10/098 Issue 3, Environmental Protection
Department, HK.
9-12. USEPA 8260B
13-17. In house method TG-ENV-WW-79 (by GC-MSD)
18-27. ISO 17943:2016 & USEPA 8260B
28-33. In house method TG-ENV-WW-80, 84 & 86 (by GC-MSD)
34-42. In house method TG-ENV-WW-78 (by Headspace GC-MSD) &
In house method TG-ENV-WW-86 (by GC-MSD)

Test Result : Refer to results on page 4 to 10.



TEST REPORT

Report No. : AA0055253(9)

Date: 15 Nov 2021

Application No. : LA031303(0)

Marine Water Quality

Sampling Date 27-Oct-2021

Monitoring Location	Time	Water Depth (m)	Sampling Depth (m)	E.coli (CFU/100mL)	Temperature (°C)		Salinity (ppt)		pH		DO (mg/L)		DOS (%)		Turbidity (NTU)		TRC (mg/L)	
1	12:52-12:57	9.7	1.0	150	26.5	26.5	32.8	32.8	8.3	8.3	5.4	5.4	79.9	79.9	4.8	4.8	0.05	0.05
			4.9	180	26.4	26.4	33.1	33.1	8.7	8.7	5.4	5.4	80.5	80.5	4.1	4.1	0.03	0.03
			8.7	200	26.4	26.4	33.1	33.1	8.7	8.7	5.4	5.4	81.0	81.0	4.8	4.8	0.03	0.03
2	13:27-13:32	10.9	1.0	95	26.5	26.5	32.7	32.7	8.2	8.2	5.4	5.4	80.3	80.3	4.3	4.3	0.01	0.01
			5.5	130	26.5	26.5	32.8	32.8	8.3	8.3	5.3	5.3	79.2	79.2	4.2	4.2	0.03	0.03
			9.9	120	26.4	26.4	33.1	33.1	8.4	8.4	5.3	5.3	80.0	80.0	4.6	4.6	0.03	0.03
3	13:17-13:22	10.7	1.0	100	26.5	26.5	32.7	32.7	8.3	8.3	5.5	5.5	81.6	81.6	4.0	4.0	0.01	0.01
			5.4	110	26.5	26.5	32.8	32.8	8.4	8.4	5.3	5.3	79.8	79.8	3.7	3.7	0.02	0.02
			9.7	125	26.5	26.5	32.8	32.8	8.4	8.4	5.3	5.3	79.7	79.7	3.6	3.6	0.02	0.02
4	13:06-13:11	10.2	1.0	85	26.5	26.5	32.8	32.8	8.3	8.3	5.5	5.5	82.7	82.7	3.8	3.8	0.01	0.01
			5.1	78	26.4	26.4	33.0	33.0	8.5	8.5	5.5	5.5	81.7	81.7	3.6	3.6	0.01	0.01
			9.2	63	26.4	26.4	33.1	33.1	8.5	8.5	5.5	5.5	82.3	82.3	3.9	3.9	0.02	0.02
SM6	11:47-11:52	15.3	1.0	18	26.3	26.3	33.3	33.3	8.2	8.2	6.4	6.4	95.9	95.9	3.1	3.1	0.01	0.01
			7.7	23	26.2	26.2	33.3	33.3	8.2	8.2	6.4	6.4	94.8	94.8	3.9	3.9	0.01	0.01
			14.3	15	26.2	26.2	33.2	33.2	8.3	8.3	6.3	6.3	94.5	94.5	6.0	6.0	0.02	0.02
SM12	10:38-10:43	8.8	1.0	10	25.4	25.4	32.9	32.9	8.5	8.5	6.7	6.7	97.7	97.7	7.4	7.4	0.05	0.05
			4.4	18	25.4	25.4	32.9	32.9	8.9	8.9	6.6	6.6	97.4	97.4	9.6	9.6	0.03	0.03
			7.8	12	25.4	25.4	32.9	32.9	9.1	9.1	6.6	6.6	97.2	97.2	10.6	10.6	0.03	0.03
			LRV	1	0.1		1		0.1		0.5 mg/L		-		1		0.01 mg/L	



TEST REPORT

Report No. : AA0055253(9)

Date: 15 Nov 2021

Application No. : LA031303(0)

Marine Water Quality

Sampling Date 27-Oct-2021

Monitoring Location	Time	Water Depth (m)	Sampling Depth (m)	Bromoform (µg/L)		Bromodichloromethane (µg/L)		Chloroform (µg/L)		Dibromochloromethane (µg/L)		Bromacetic acid (µg/L)	
1	12:52-12:57	9.7	1.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<5	<2	<2
			4.9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<5	<2	<2
			8.7	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<5	<5	<2	<2
2	13:27-13:32	10.9	1.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<5	<2	<2
			5.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<5	<2	<2
			9.9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<5	<2	<2
3	13:17-13:22	10.7	1.0	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<5	<5	<2	<2
			5.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<5	<2	<2
			9.7	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<5	<2	<2
4	13:06-13:11	10.2	1.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<5	<2	<2
			5.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<5	<2	<2
			9.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<5	<2	<2
SM6	11:47-11:52	15.3	1.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<5	<2	<2
			7.7	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<5	<2	<2
			14.3	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<5	<5	<2	<2
SM12	10:38-10:43	8.8	1.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<5	<2	<2
			4.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<5	<2	<2
			7.8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<5	<2	<2
			LRV	0.1		0.1		0.1		5		2	



TEST REPORT

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Date: 15 Nov 2021

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Marine Water Quality

Sampling Date 27-Oct-2021

Monitoring Location	Time	Water Depth (m)	Sampling Depth (m)	Chloroacetic acid (µg/L)		Dibromoacetic acid (µg/L)		Dichloroacetic acid (µg/L)		Trichloroacetic acid (µg/L)	
1	12:52-12:57	9.7	1.0	<2	<2	<2	<2	<2	<2	<2	<2
			4.9	<2	<2	<2	<2	<2	<2	<2	<2
			8.7	<2	<2	<2	<2	<2	<2	<2	<2
2	13:27-13:32	10.9	1.0	<2	<2	<2	<2	<2	<2	<2	<2
			5.5	<2	<2	<2	<2	<2	<2	<2	<2
			9.9	<2	<2	<2	<2	<2	<2	<2	<2
3	13:17-13:22	10.7	1.0	<2	<2	<2	<2	<2	<2	<2	<2
			5.4	<2	<2	<2	<2	<2	<2	<2	<2
			9.7	<2	<2	<2	<2	<2	<2	<2	<2
4	13:06-13:11	10.2	1.0	<2	<2	<2	<2	<2	<2	<2	<2
			5.1	<2	<2	<2	<2	<2	<2	<2	<2
			9.2	<2	<2	<2	<2	<2	<2	<2	<2
SM6	11:47-11:52	15.3	1.0	<2	<2	<2	<2	<2	<2	<2	<2
			7.7	<2	<2	<2	<2	<2	<2	<2	<2
			14.3	<2	<2	<2	<2	<2	<2	<2	<2
SM12	10:38-10:43	8.8	1.0	<2	<2	<2	<2	<2	<2	<2	<2
			4.4	<2	<2	<2	<2	<2	<2	<2	<2
			7.8	<2	<2	<2	<2	<2	<2	<2	<2
			LRV	2		2		2		2	



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Date: 15 Nov 2021

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Marine Water Quality

Sampling Date 27-Oct-2021

Monitoring Location	Time	Water Depth (m)	Sampling Depth (m)	Methylene chloride (µg/L)	Carbon tetrachloride (µg/L)	1,1-dichloroethane (µg/L)	1,2-dichloroethane (µg/L)	1,1-dichloroethylene (µg/L)	1,2-dichloropropane (µg/L)
1	12:52-12:57	9.7	1.0	<20	<20	<0.5	<0.5	<0.5	<0.5
			4.9	<20	<20	<0.5	<0.5	<0.5	<0.5
			8.7	<20	<20	<0.5	<0.5	<0.5	<0.5
2	13:27-13:32	10.9	1.0	<20	<20	<0.5	<0.5	<0.5	<0.5
			5.5	<20	<20	<0.5	<0.5	<0.5	<0.5
			9.9	<20	<20	<0.5	<0.5	<0.5	<0.5
3	13:17-13:22	10.7	1.0	<20	<20	<0.5	<0.5	<0.5	<0.5
			5.4	<20	<20	<0.5	<0.5	<0.5	<0.5
			9.7	<20	<20	<0.5	<0.5	<0.5	<0.5
4	13:06-13:11	10.2	1.0	<20	<20	<0.5	<0.5	<0.5	<0.5
			5.1	<20	<20	<0.5	<0.5	<0.5	<0.5
			9.2	<20	<20	<0.5	<0.5	<0.5	<0.5
SM6	11:47-11:52	15.3	1.0	<20	<20	<0.5	<0.5	<0.5	<0.5
			7.7	<20	<20	<0.5	<0.5	<0.5	<0.5
			14.3	<20	<20	<0.5	<0.5	<0.5	<0.5
SM12	10:38-10:43	8.8	1.0	<20	<20	<0.5	<0.5	<0.5	<0.5
			4.4	<20	<20	<0.5	<0.5	<0.5	<0.5
			7.8	<20	<20	<0.5	<0.5	<0.5	<0.5
			LRV	20	0.5	0.5	0.5	0.5	0.5

TEST REPORT

Report No. : AA0055253(9)

Date: 15 Nov 2021

Application No. : LA031303(0)

Marine Water Quality

Sampling Date 27-Oct-2021

Monitoring Location	Time	Water Depth (m)	Sampling Depth (m)	Tetrachloroethylene (µg/L)		1,1,1-trichloroethane (µg/L)		1,1,2-trichloroethane (µg/L)		Trichloroethylene (µg/L)		2-chlorophenol (µg/L)		2,4-dichlorophenol (µg/L)	
1	12:52-12:57	9.7	1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			4.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			8.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2	13:27-13:32	10.9	1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			5.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			9.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
3	13:17-13:22	10.7	1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			5.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			9.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4	13:06-13:11	10.2	1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			5.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			9.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SM6	11:47-11:52	15.3	1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			7.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			14.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SM12	10:38-10:43	8.8	1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			4.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			7.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			LRV	0.5		0.5		0.5		0.5		0.5		0.5	



TEST REPORT

Report No. : AA0055253(9)

Date: 15 Nov 2021

Application No. : LA031303(0)

Marine Water Quality

Sampling Date 27-Oct-2021

Monitoring Location	Time	Water Depth (m)	Sampling Depth (m)	p-chloro-m-cresol (µg/L)	Pentachlorophenol (µg/L)	2,4,6-trichlorophenol (µg/L)	Bis(2-chloroethoxy) methane (µg/L)	Chlorobenzene (µg/L)	1,4-dichlorobenzene (µg/L)
1	12:52-12:57	9.7	1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			4.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			8.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2	13:27-13:32	10.9	1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			5.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			9.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
3	13:17-13:22	10.7	1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			5.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			9.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4	13:06-13:11	10.2	1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			5.1	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			9.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SM6	11:47-11:52	15.3	1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			7.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			14.3	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SM12	10:38-10:43	8.8	1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			4.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			7.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			LRV	0.5	0.5	0.5	0.5	0.5	0.5



TEST REPORT

Report No. : AA0055253(9)

Date: 15 Nov 2021

Application No. : LA031303(0)

Marine Water Quality

Sampling Date 27-Oct-2021

Monitoring Location	Time	Water Depth (m)	Sampling Depth (m)	Hexachlorobenzene (µg/L)	Hexachlorocyclopentadiene (µg/L)	Hexachloroethane (µg/L)	1,2,4-trichlorobenzene (µg/L)	Alpha-BHC (µg/L)	Beta-BHC (µg/L)	Gamma-BHC (µg/L)								
1	12:52-12:57	9.7	1.0	<0.01	<0.01	<2.5	<2.5	<0.5	<0.5	<0.5	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
			4.9	<0.01	<0.01	<2.5	<2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
			8.7	<0.01	<0.01	<2.5	<2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
2	13:27-13:32	10.9	1.0	<0.01	<0.01	<2.5	<2.5	<0.5	<0.5	<0.5	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
			5.5	<0.01	<0.01	<2.5	<2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
			9.9	<0.01	<0.01	<2.5	<2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
3	13:17-13:22	10.7	1.0	<0.01	<0.01	<2.5	<2.5	<0.5	<0.5	<0.5	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
			5.4	<0.01	<0.01	<2.5	<2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
			9.7	<0.01	<0.01	<2.5	<2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
4	13:06-13:11	10.2	1.0	<0.01	<0.01	<2.5	<2.5	<0.5	<0.5	<0.5	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
			5.1	<0.01	<0.01	<2.5	<2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
			9.2	<0.01	<0.01	<2.5	<2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SM6	11:47-11:52	15.3	1.0	<0.01	<0.01	<2.5	<2.5	<0.5	<0.5	<0.5	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
			7.7	<0.01	<0.01	<2.5	<2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
			14.3	<0.01	<0.01	<2.5	<2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
SM12	10:38-10:43	8.8	1.0	<0.01	<0.01	<2.5	<2.5	<0.5	<0.5	<0.5	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	
			4.4	<0.01	<0.01	<2.5	<2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
			7.8	<0.01	<0.01	<2.5	<2.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
			LRV	0.01	2.5	0.5	0.5	0.01	0.01	0.01								

TEST REPORT

Report No. : AA0055253(9)

Date: 15 Nov 2021

Application No. : LA031303(0)

QC Report

Parameter	Method Blank	Acceptance Criteria	QC Recovery	Acceptance Criteria	Spike Recovery	Acceptance Criteria	Duplicate (RPD)	Acceptance Criteria
	(mg/L)	(mg/L)	(%)	(%)	(%)	(%)	(%)	(%)
Total Residual Chlorine	<0.01	<0.01	92	85-115	90	85-115	<1	≤20
Parameter	Method Blank	Acceptance Criteria	QC Recoery	Acceptance Criteria	Spike Recovery	Acceptance Criteria	Duplicate (RPD)	Acceptance Criteria
	(µg/L)	(µg/L)	(%)	(%)	(%)	(%)	(%)	(%)
Bromoform	<0.02	<0.02	102	80-120	95	70-130	12	≤20
Bromodichloromethane	<0.02	<0.02	100	80-120	89	70-130	9	≤20
Chloroform	<0.02	<0.02	95	80-120	93	70-130	6	≤20
Dibromochloromethane	<1	<1	101	80-120	104	70-130	13	≤20
Bromoacetic acid	<0.4	<0.4	98	80-120	96	70-130	15	≤20
Chloroacetic acid	<0.4	<0.4	89	80-120	85	70-130	10	≤20
Dibromoacetic acid	<0.4	<0.4	93	80-120	90	70-130	12	≤20
Dichloroacetic acid	<0.4	<0.4	96	80-120	91	70-130	16	≤20
Trichloroacetic acid	<0.4	<0.4	92	80-120	87	70-130	11	≤20

TEST REPORT

Report No. : AA0055253(9)

Date: 15 Nov 2021

Application No. : LA031303(0)

QC Report

Parameter	Method Blank	Acceptance Criteria	QC Recovery	Acceptance Criteria	Spike Recovery	Acceptance Criteria	Duplicate (RPD)	Acceptance Criteria
	(mg/L)	(mg/L)	(%)	(%)	(%)	(%)	(%)	(%)
Methylene chloride	<4	<4	95	80-120	106	70-130	13	≤20
Carbon tetrachloride	<0.1	<0.1	93	80-120	97	70-130	10	≤20
1,1-dichloroethane	<0.1	<0.1	101	80-120	110	70-130	11	≤20
1,2-dichloroethane	<0.1	<0.1	90	80-120	105	70-130	9	≤20
1,1-dichloroethylene	<0.1	<0.1	90	80-120	89	70-130	12	≤20
1,2-dichloropropane	<0.1	<0.1	86	80-120	91	70-130	15	≤20
Tetrachloroethylene	<0.1	<0.1	88	80-120	92	70-130	11	≤20
1,1,1-trichloroethane	<0.1	<0.1	85	80-120	86	70-130	8	≤20
1,1,2-trichloroethane	<0.1	<0.1	94	80-120	100	70-130	9	≤20
Trichloroethylene	<0.1	<0.1	91	80-120	96	70-130	10	≤20
2-chlorophenol	<0.1	<0.1	101	80-120	98	70-130	15	≤20
2,4-dichlorophenol	<0.1	<0.1	105	80-120	95	70-130	11	≤20
p-chloro-m-cresol	<0.1	<0.1	100	80-120	93	70-130	13	≤20
Pentachlorophenol	<0.1	<0.1	99	80-120	107	70-130	8	≤20
2,4,6-trichlorophenol	<0.1	<0.1	97	80-120	101	70-130	8	≤20
Bis(2-chloroethoxy) methane	<0.1	<0.1	104	80-120	111	70-130	12	≤20
Chlorobenzene	<0.1	<0.1	100	80-120	91	70-130	10	≤20
1,4-dichlorobenzene	<0.1	<0.1	105	80-120	98	70-130	9	≤20
Hexachlorobenzene	<0.005	<0.005	103	80-120	100	70-130	5	≤20
Hexachlorocyclopentadiene	<0.5	<0.5	98	80-120	90	70-130	12	≤20
Hexachloroethane	<0.1	<0.1	92	80-120	97	70-130	14	≤20
1,2,4-trichlorobenzene	<0.1	<0.1	108	80-120	105	70-130	15	≤20
Alpha-BHC	<0.005	<0.005	110	80-120	102	70-130	9	≤20
Beta-BHC	<0.005	<0.005	107	80-120	110	70-130	10	≤20
Gamma-BHC	<0.005	<0.005	103	80-120	99	70-130	13	≤20

TEST REPORT

Report No. : AA0055253(9)

Date: 12 Nov 2021

Application No. : LA031303(0)

Calibration Certificate

		Cal Lab Limited 校正實驗室有限公司 Room 2103, Technology Plaza, 29-35 Sha Tsui Road, Tsuen Wan, NT, Hong Kong Tel: +852 25680106 Email: info@callab.com.hk Fax: +852 30116194 Website: callab.com.hk		
Calibration Certificate No.: CC0182109				
Customer Information				
Customer: CMA Testing and Certification Laboratories				
Address: Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung Street, Fatan, Shatin, NT, Hong Kong				
Equipment Identification				
Equipment Description	Manufacturer	Model No.	Serial No.	Assigned equipment No.:
Multiparameter Instrument	YSI	Professional Plus	Meter: 17H105750	N/A
Certificate Information				
Date of Receipt:	7 September 2021	Calibration Condition:	18-25°C, <75%RH	
Date of Calibration:	10 September 2021	Adjustment:	N/A	
Due Date of Calibration:	10 December 2021	Appearance:	Good	
Calibration Procedure:	APHA 21e 4500-H B, APHA 21e 4500-C G, APHA 21e 2510 B, JIG 130-2011, APHA 21e 2520 B, APHA 21e 2580 B	Remark:	N/A	
Note 1: The estimated expanded uncertainties have been calculated in "Evaluation and expression of uncertainty in measurement" and give an internal estimate to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated. Note 2: The standard (s) and instrument used in the calibration are traceable to national or international recognized standard and are calibrated on a schedule to maintain the accuracy and good condition. Note 3: The result reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long term stability of the instrument. Note 4: The result shown in this calibration certificate relate only to the item calibrated, and the result only applies to the calibration item as received.				
Approved By:  Warren Yeung		Company Chop:  Certificate Issue Date: 13 September 2021		
1. The certificate shall not be reproduced except in full, without written approval of Cal Lab Calibration 2. The certificate is issued subject to the latest Terms and Conditions, available at our web site				
				CT-REG-03 CC0182109 Page 1 of 2

TEST REPORT

Report No. : AA0055253(9)

Date: 12 Nov 2021

Application No. : LA031303(0)



Cal Lab Limited 校正實驗室有限公司
 Room 2103, Technology Plaza, 29-35 Sha Tsui Road,
 Tsuen Wan, NT, Hong Kong
 Tel: +852 25680106 Email: info@callab.com.hk
 Fax: +852 30116194 Website: callab.com.hk

Result of Calibration

a) Temperature

Reference reading (°C)	Display Reading (°C)	Error of indication (°C)
15.03	14.9	-0.1
24.96	25.2	0.2
35.10	35.1	0.0

b) Dissolved Oxygen

Reference reading (mg/L)	Display Reading (mg/L)	Error of indication (mg/L)
0.00	0.00	0.00
4.02	3.96	-0.06
8.06	8.05	-0.01

c) Conductivity at 25°C

Reference reading (uS/cm)	Display Reading (uS/cm)	Error of indication (%)
147.4	144.4	-2.0
1411	1415	0.3
12846	12101	-5.8
111310	108330	-2.7

d) Salinity

Reference reading (ppt)	Display Reading (ppt)	Error of indication (%)
10	9.99	-0.1
20	19.94	-0.3
30	29.82	-0.6

e) Oxidation-Reduction Potential (ORP)

Reference reading (mV)	Display Reading (mV)	Error of indication (mV)
+230	+229	-1

f) pH at 25°C

Reference reading	Display Reading	Error of indication
4.00	4.04	0.04
6.86	6.87	0.01
9.18	9.20	0.02
10.01	10.03	0.02

*** End of Certificate ***

1. The certificate shall not be reproduced except in full, without written approval of Cal Lab Calibration
 2. The certificate is issued subject to the latest Terms and Conditions, available at our web site

TEST REPORT

Report No. : AA0055253(9)

Date: 12 Nov 2021

Application No. : LA031303(0)



Cal Lab Limited 校正實驗室有限公司

Room 2103, Technology Plaza, 29-35 Sha Tsui Road,
Tsuen Wan, NT, Hong Kong
Tel: +852 25680106 Email: info@callab.com.hk
Fax: +852 30116194 Website: callab.com.hk

Calibration Certificate No.: CC0602110

Customer Information

Customer: CMA Testing and Certification Laboratories
Address: Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung Street, Fotan, Shatin, NT, Hong Kong

Equipment Identification

Equipment Description	Manufacturer	Model No.	Serial No.	Assigned equipment No.:
Portable Turbidimeter	Hach	2100Q	17040CD57757	N/A

Certificate Information

Date of Receipt:	22 October 2021	Calibration Condition:	18-25°C, <75%RH
Date of Calibration:	25 October 2021	Adjustment:	N/A
Due Date of Calibration:	25 January 2022	Appearance:	Good
Calibration Procedure:	APHA 21e 2130B	Remark:	N/A

Result of Calibration

Turbidity

Reference reading (NTU)	Display Reading (NTU)	Error of indication (%)
Blank	0.00	0.0
10	9.94	-0.6
20	19.9	-0.5
100	103	3.0
800	803	0.4

- Note1: The estimated expanded uncertainties have been calculated in "Evaluation and expression of uncertainty in measurement" and give an interval estimated to have a level of confidence of 95%. A coverage factor of 2 is assumed unless explicitly stated.
- Note2: The standard (s) and instrument used in the calibration are traceable to national or international recognized standard and are calibrated on a schedule to maintain the accuracy and good condition.
- Note3: The result reported in this certificate refer to the condition of the instrument on the date of calibration and carry no implication regarding the long term stability of the instrument.
- Note4: The result shown in this calibration certificate relate only to the item calibrated, and the result only applies to the calibration item as received.

Approved By:


Sherry Cheung

Company Chop:



Certificate Issue Date: 26 October 2021

CT-88G-01

*** End of Certificate ***

- The certificate shall not be reproduced except in full, without written approval of Cal Lab Calibration
- The certificate is issued subject to the latest Terms and Conditions, available at our web site:

CC0602110
Page 1 of 1

TEST REPORT

Report No. : AA0055253(9)

Date: 12 Nov 2021

Application No. : LA031303(0)




TEST REPORT

Report No. : AA0055661(1) Date : 03 Nov 2021
Application No. : LA031475(9)
Applicant : CMA INDUSTRIAL DEVELOPMENT FOUNDATION LIMITED
ROOM 1302, YAN HING CENTRE,
9-13 WONG CHUK YEUNG STREET,
FO TAN, SHATIN,
N.T., HONG KONG.
Instrument : HACH Portable Colorimeter (DR300)
Serial No. : 19030A000277
Date Received : 24 Sep 2021.
Test Period : 24 Sep 2021 to 27 Sep 2021.
Date of next checking : 23 Dec 2021
Test Method : APHA 23c-4500Cl-G
Test Result : Refer to the results on page 2.

For and on behalf of
CMA Industrial Development Foundation Limited

Authorized Signature :


Tang Yze Wang
Environmental Consultant

Page 1 of 2

The conformity statement stated in Conclusion above is based on the decision rule agreed with applicant and listed in www.cmatesting.org/qa/qa_statement_of_conformity.pdf.
This document is issued subject to the basic CMA Testing (General Terms and Conditions of Testing and Inspection Services, available on request or accessible at www.cmatesting.org).
This document shall not be reproduced except in full without written approval by CMA Testing. The results apply to the sample as received unless otherwise specified. The abbreviations and test results in this report are relevant only to the sample tested.

CMA Industrial Development Foundation Limited
Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St., Fo Tan, Shatin, N.T., Hong Kong.
Tel: (852) 2698 8198 Fax: (852) 2695 4177 E-mail: info@cmatesting.org Web Site: <http://www.cmatesting.org>

TEST REPORT

Report No. : AA0055253(9)

Date: 12 Nov 2021

Application No. : LA031303(0)



TEST REPORT

Report No. : AA0055661(1)

Date : 03 Nov 2021

Application No. : LA031475(9)

Test Result :

Test Item	Reference reading (mg/L)	Display Reading (mg/L)	Error of indication (%)
Chlorine	1.00	0.98	-2

***** End of Report *****

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***** End of Report *****

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