



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 Apr 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 : LA005704(5)

Report Number : AA0029215(8)

Report Issued Date : 21 Jun 2021

Remark: This report supersedes the report no. AA0017126(6) issued on 06 May 2021.

For and on behalf of
CMA Industrial Development Foundation Limited

A handwritten signature in black ink, appearing to read "Lau Yan Kin".

Authorized Signature : _____

Lau Yan Kin
Senior Manager
Environmental Division



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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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

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 Analysing 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	16 Apr 2021	E.coli, Total Residual Chlorine (TRC), Chlorination by-products (CBPs) and Contaminants of Concern (COCs)



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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) (hereafter 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



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

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 ($\mu\text{g/L}$)
TRC and Potential CBPs		
Total Residual Chlorine	APHA 23ed 4500 Cl G	10
Bromoform	Tri-halomethanes (THMs)	0.1
Bromodichloromethane		0.1
Chloroform		0.1
Dibromochloromethane		5
Bromoacetic acid		2
Chloroacetic acid	Haloacetic Acids (HAAs)	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	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	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		In house method TG-ENV-WW-86 (by GC-MSD)	0.01
Hexachlorocyclopentadiene			2.5
Hexachloroethane			0.5
1,2,4-trichlorobenzene			0.5
Alpha-BHC			0.01
Beta-BHC			0.01
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

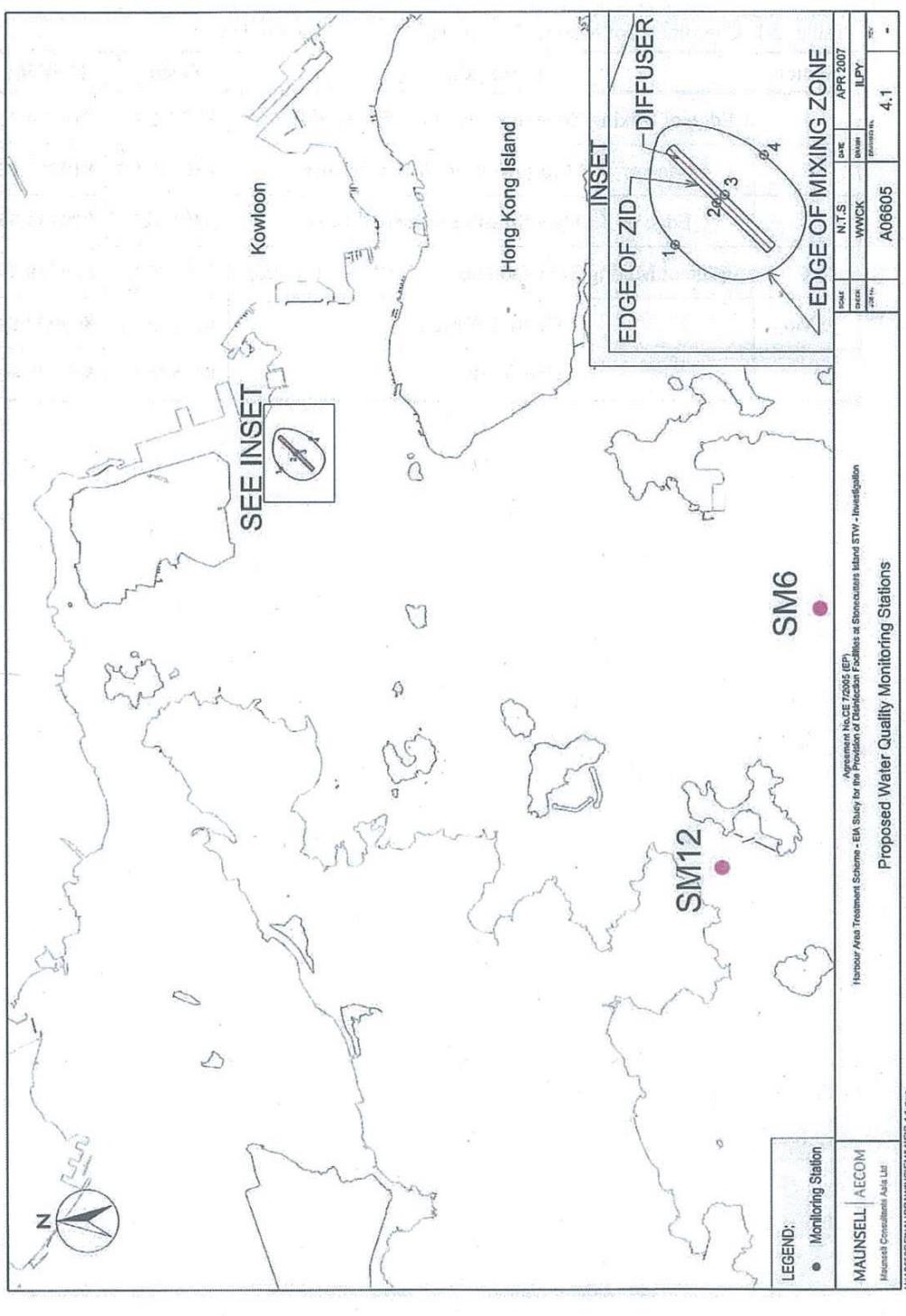
- 3.2. The in-situ measurement results include dissolved oxygen, turbidity, salinity, pH and temperature of the marine water monitoring. Also, the results of marine water quality monitoring conducted on the monitoring date and QC report are shown in **Appendix II**.



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

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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

Appendix II - Report for Laboratory Test(s)



TEST REPORT

Report No. : AA0016653(0) Date: 06 May 2021

Application No. : LA005704(5)

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 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 11.

Sampling Location	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

Lau Yan Kin
Senior Manager
Environmental Division

Authorized Signature : _____

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The conformity statement stated in Conclusion above is based on the decision rule agreed with applicant and listed in www.cmatesting.org/qac/statement-of-conformity.pdf.
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CMA Industrial Development Foundation Limited

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Tel: (852) 2698 8198 Fax: (852) 2695 4177 E-mail: info@cmatesting.org Web Site: <http://www.cmatesting.org>



TEST REPORT

Report No. : AA0016653(0) Date: 06 May 2021

Application No. : LA005704(5)

Sampling Date : 16 Apr 2021.

Date Received : 16 Apr 2021.

Test Period : 16 Apr 2021 to 05 May 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. Chlороacetic 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. : AA0016653(0)

Date: 06 May 2021

Application No. : LA005704(5)

- 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 11.



TEST REPORT

Report No. : AA0016653(0)

Date: 06 May 2021

Application No. : LA005704(5)

Marine Water Quality

Sampling Date 16-Apr-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	13:44-15:46	9.2	1.0	220	24.3	24.3	32.1	32.1	7.6	7.6	5.9	5.9	84.0	84.0	3.8	3.8	0.02	0.02
			4.6	310	24.2	24.2	32.3	32.3	7.6	7.6	5.8	5.8	83.1	83.1	3.3	3.3	0.02	0.02
			8.2	260	24.1	24.1	32.8	32.8	7.7	7.7	5.9	5.9	84.9	84.9	3.1	3.1	0.01	0.01
2	15:51-15:53	9.5	1.0	210	24.2	24.2	32.5	32.5	7.0	7.0	6.6	6.6	94.3	94.3	2.0	2.0	0.03	0.03
			4.8	330	24.2	24.2	32.5	32.5	7.1	7.1	6.6	6.6	94.1	94.1	2.1	2.1	0.04	0.04
			8.5	260	24.1	24.1	32.7	32.7	7.1	7.1	6.5	6.5	93.1	93.1	3.0	3.0	0.02	0.02
3	15:54-15:58	9.6	1.0	210	24.2	24.2	32.4	32.4	6.8	6.8	6.2	6.2	88.9	88.9	3.7	3.7	0.03	0.03
			4.8	270	24.1	24.1	32.6	32.6	6.9	6.9	6.1	6.1	88.1	88.1	2.9	2.9	0.03	0.03
			8.6	260	24.1	24.1	32.8	32.8	6.9	6.9	6.2	6.2	88.6	88.6	3.3	3.3	0.01	0.01
4	16:02-16:05	9.4	1.0	120	24.1	24.1	32.5	32.5	6.7	6.7	6.1	6.1	87.3	87.3	3.9	3.9	0.02	0.02
			4.7	120	24.1	24.1	32.5	32.5	6.7	6.7	6.1	6.1	86.7	86.7	3.7	3.7	0.02	0.02
			8.4	100	24.1	24.1	32.7	32.7	6.8	6.8	6.0	6.0	86.5	86.5	3.9	3.9	0.03	0.03
SM6	14:12-14:16	14.9	1.0	140	24.4	24.4	32.2	32.2	7.5	7.5	6.5	6.5	92.6	92.6	3.6	3.6	0.03	0.03
			7.5	170	24.4	24.4	32.5	32.5	7.5	7.5	6.4	6.4	91.6	91.6	2.2	2.2	0.03	0.03
			13.9	75	24.2	24.2	32.7	32.7	7.5	7.5	6.3	6.3	90.6	90.6	2.0	2.0	0.01	0.01
SM12	13:34-13:38	9.2	1.0	39	24.3	24.3	32.2	32.2	7.5	7.5	6.5	6.5	93.0	93.0	3.5	3.5	0.03	0.03
			4.6	33	24.2	24.2	32.3	32.3	7.5	7.5	6.5	6.5	92.4	92.4	2.2	2.2	0.01	0.01
			8.2	26	24.1	24.1	32.6	32.6	7.5	7.5	6.4	6.4	91.7	91.7	1.9	1.9	0.03	0.03



TEST REPORT

Report No. : AA0016653(0)

Date: 06 May 2021

Application No. : LA005704(5)

Marine Water Quality

Sampling Date 16-Apr-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	13:44-15:46	9.2	1.0	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<5	<5	<2	<2
			4.6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<5	<2	<2
			8.2	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<5	<2	<2
2	15:51-15:53	9.5	1.0	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<5	<5	<2	<2
			4.8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<5	<2	<2
			8.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<5	<2	<2
3	15:54-15:58	9.6	1.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<5	<2	<2
			4.8	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<5	<2	<2
			8.6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<5	<2	<2
4	16:02-16:05	9.4	1.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<5	<2	<2
			4.7	0.1	0.1	<0.1	<0.1	<0.1	<0.1	<5	<5	<2	<2
			8.4	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<5	<2	<2
SM6	14:12-14:16	14.9	1.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<5	<2	<2
			7.5	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<5	<2	<2
			13.9	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<5	<2	<2
SM12	13:34-13:38	9.2	1.0	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<5	<2	<2
			4.6	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<5	<5	<2	<2
			8.2	<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	



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Date: 06 May 2021

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Marine Water Quality

Sampling Date 16-Apr-2021

Monitoring Location	Time	Water Depth (m)	Sampling Depth (m)	Chloroacetic acid ($\mu\text{g/L}$)	Dibromoacetic acid ($\mu\text{g/L}$)	Dichloroacetic acid ($\mu\text{g/L}$)	Trichloroacetic acid ($\mu\text{g/L}$)
1	13:44-15:46	9.2	1.0	<2	<2	<2	<2
			4.6	<2	<2	<2	<2
			8.2	<2	<2	<2	<2
2	15:51-15:53	9.5	1.0	<2	<2	<2	<2
			4.8	<2	<2	<2	<2
			8.5	<2	<2	<2	<2
3	15:54-15:58	9.6	1.0	<2	<2	<2	<2
			4.8	<2	<2	<2	<2
			8.6	<2	<2	<2	<2
4	16:02-16:05	9.4	1.0	<2	<2	<2	<2
			4.7	<2	<2	<2	<2
			8.4	<2	<2	<2	<2
SM6	14:12-14:16	14.9	1.0	<2	<2	<2	<2
			7.5	<2	<2	<2	<2
			13.9	<2	<2	<2	<2
SM12	13:34-13:38	9.2	1.0	<2	<2	<2	<2
			4.6	<2	<2	<2	<2
			8.2	<2	<2	<2	<2
			LRV	<2	<2	<2	<2



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Date: 06 May 2021

Application No. : LA005704(5)

Marine Water Quality

Sampling Date 16-Apr-2021

Monitoring Location	Time	Water Depth (m)	Sampling Depth (m)	Methylene chloride ($\mu\text{g/L}$)	Carbon tetrachloride ($\mu\text{g/L}$)	1,1-dichloroethane ($\mu\text{g/L}$)	1,2-dichloroethane ($\mu\text{g/L}$)	1,1- dichloroethylene ($\mu\text{g/L}$)	1,2-dichloropropane ($\mu\text{g/L}$)
1	13:44-15:46	9.2	1.0	<20	<20	<0.5	<0.5	<0.5	<0.5
			4.6	<20	<20	<0.5	<0.5	<0.5	<0.5
			8.2	<20	<20	<0.5	<0.5	<0.5	<0.5
2	15:51-15:53	9.5	1.0	<20	<20	<0.5	<0.5	<0.5	<0.5
			4.8	<20	<20	<0.5	<0.5	<0.5	<0.5
			8.5	<20	<20	<0.5	<0.5	<0.5	<0.5
3	15:54-15:58	9.6	1.0	<20	<20	<0.5	<0.5	<0.5	<0.5
			4.8	<20	<20	<0.5	<0.5	<0.5	<0.5
			8.6	<20	<20	<0.5	<0.5	<0.5	<0.5
4	16:02-16:05	9.4	1.0	<20	<20	<0.5	<0.5	<0.5	<0.5
			4.7	<20	<20	<0.5	<0.5	<0.5	<0.5
			8.4	<20	<20	<0.5	<0.5	<0.5	<0.5
SM6	14:12-14:16	14.9	1.0	<20	<20	<0.5	<0.5	<0.5	<0.5
			7.5	<20	<20	<0.5	<0.5	<0.5	<0.5
			13.9	<20	<20	<0.5	<0.5	<0.5	<0.5
SM12	13:34-13:38	9.2	1.0	<20	<20	<0.5	<0.5	<0.5	<0.5
			4.6	<20	<20	<0.5	<0.5	<0.5	<0.5
			8.2	<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. : AA0016653(0)

Date: 06 May 2021

Application No. : LA005704(5)

Marine Water Quality

Sampling Date 16-Apr-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	13:44-15:46	9.2	1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			4.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			8.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2	15:51-15:53	9.5	1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			4.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			8.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
3	15:54-15:58	9.6	1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			4.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			8.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4	16:02-16:05	9.4	1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			4.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			8.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SM6	14:12-14:16	14.9	1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			7.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			13.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SM12	13:34-13:38	9.2	1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			4.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			8.2	<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. : AA0016653(0)

Date: 06 May 2021

Application No. : LA005704(5)

Marine Water Quality

Sampling Date 16-Apr-2021

Monitoring Location	Time	Water Depth (m)	Sampling Depth (m)	p-chloro-m-cresol ($\mu\text{g/L}$)	Pentachlorophenol ($\mu\text{g/L}$)	2,4,6-trichlorophenol ($\mu\text{g/L}$)	Bis(2-chloroethoxy) methane ($\mu\text{g/L}$)	Chlorobenzene ($\mu\text{g/L}$)	1,4-dichlorobenzene ($\mu\text{g/L}$)
1	13:44-15:46	9.2	1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			4.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			8.2	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
2	15:51-15:53	9.5	1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			4.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			8.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
3	15:54-15:58	9.6	1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			4.8	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			8.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
4	16:02-16:05	9.4	1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			4.7	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			8.4	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SM6	14:12-14:16	14.9	1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			7.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			13.9	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
SM12	13:34-13:38	9.2	1.0	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			4.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
			8.2	<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. : AA0016653(0)

Date: 06 May 2021

Application No. : LA005704(5)

Marine Water Quality

Sampling Date 16-Apr-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	13:44-15:46	9.2	1.0	<0.01	<0.01	<2.5	<2.5	<0.5	<0.5	<0.5
			4.6	<0.01	<0.01	<2.5	<2.5	<0.5	<0.5	<0.5
			8.2	<0.01	<0.01	<2.5	<2.5	<0.5	<0.5	<0.5
2	15:51-15:53	9.5	1.0	<0.01	<0.01	<2.5	<2.5	<0.5	<0.5	<0.5
			4.8	<0.01	<0.01	<2.5	<2.5	<0.5	<0.5	<0.5
			8.5	<0.01	<0.01	<2.5	<2.5	<0.5	<0.5	<0.5
3	15:54-15:58	9.6	1.0	<0.01	<0.01	<2.5	<2.5	<0.5	<0.5	<0.5
			4.8	<0.01	<0.01	<2.5	<2.5	<0.5	<0.5	<0.5
			8.6	<0.01	<0.01	<2.5	<2.5	<0.5	<0.5	<0.5
4	16:02-16:05	9.4	1.0	<0.01	<0.01	<2.5	<2.5	<0.5	<0.5	<0.5
			4.7	<0.01	<0.01	<2.5	<2.5	<0.5	<0.5	<0.5
			8.4	<0.01	<0.01	<2.5	<2.5	<0.5	<0.5	<0.5
SM6	14:12-14:16	14.9	1.0	<0.01	<0.01	<2.5	<2.5	<0.5	<0.5	<0.5
			7.5	<0.01	<0.01	<2.5	<2.5	<0.5	<0.5	<0.5
			13.9	<0.01	<0.01	<2.5	<2.5	<0.5	<0.5	<0.5
SM12	13:34-13:38	9.2	1.0	<0.01	<0.01	<2.5	<2.5	<0.5	<0.5	<0.5
			4.6	<0.01	<0.01	<2.5	<2.5	<0.5	<0.5	<0.5
			8.2	<0.01	<0.01	<2.5	<2.5	<0.5	<0.5	<0.5
			LRV	<0.01		<2.5		<0.5		<0.5
								<0.01		<0.01



TEST REPORT

Report No. : AA0016653(0)

Date: 06 May 2021

Application No. : LA005704(5)

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	103	85-115	96	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	116	80-120	107	70-130	8	≤20
Bromodichloromethane	<0.02	<0.02	105	80-120	112	70-130	6	≤20
Chloroform	<0.02	<0.02	118	80-120	86	70-130	8	≤20
Dibromochloromethane	<1	<1	97	80-120	108	70-130	4	≤20
Bromoacetic acid	<0.4	<0.4	105	80-120	97	70-130	5	≤20
Chloroacetic acid	<0.4	<0.4	112	80-120	104	70-130	5	≤20
Dibromoacetic acid	<0.4	<0.4	85	80-120	87	70-130	7	≤20
Dichloroacetic acid	<0.4	<0.4	93	80-120	84	70-130	2	≤20
Trichloroacetic acid	<0.4	<0.4	85	80-120	91	70-130	9	≤20



TEST REPORT

Report No. : AA0016653(0)

Date: 06 May 2021

Application No. : LA005704(5)

QC Report

Parameter	Method Blank	Acceptance Criteria	QC Recovery	Acceptance Criteria	Spike Recovery	Acceptance Criteria	Duplicate (RPD)	Acceptance Criteria
	(µg/L)	(µg/L)	(%)	(%)	(%)	(%)	(%)	(%)
Methylene chloride	<4	<4	87	80-120	85	70-130	7	≤20
Carbon tetrachloride	<0.1	<0.1	94	80-120	92	70-130	5	≤20
1,1-dichloroethane	<0.1	<0.1	106	80-120	95	70-130	9	≤20
1,2-dichloroethane	<0.1	<0.1	88	80-120	88	70-130	11	≤20
1,1-dichloroethylene	<0.1	<0.1	94	80-120	112	70-130	4	≤20
1,2-dichloropropane	<0.1	<0.1	113	80-120	117	70-130	3	≤20
Tetrachloroethylene	<0.1	<0.1	102	80-120	91	70-130	9	≤20
1,1,1-trichloroethane	<0.1	<0.1	106	80-120	82	70-130	9	≤20
1,1,2-trichloroethane	<0.1	<0.1	110	80-120	102	70-130	8	≤20
Trichloroethylene	<0.1	<0.1	94	80-120	87	70-130	2	≤20
2-chlorophenol	<0.1	<0.1	102	80-120	87	70-130	6	≤20
2,4-dichlorophenol	<0.1	<0.1	93	80-120	103	70-130	7	≤20
p-chloro-m-cresol	<0.1	<0.1	97	80-120	110	70-130	3	≤20
Pentachlorophenol	<0.1	<0.1	113	80-120	94	70-130	9	≤20
2,4,6-trichlorophenol	<0.1	<0.1	105	80-120	86	70-130	10	≤20
Bis(2-chloroethoxy) methane	<0.1	<0.1	105	80-120	95	70-130	11	≤20
Chlorobenzene	<0.1	<0.1	82	80-120	106	70-130	6	≤20
1,4-dichlorobenzene	<0.1	<0.1	97	80-120	84	70-130	2	≤20
Hexachlorobenzene	<0.005	<0.005	108	80-120	111	70-130	4	≤20
Hexachlorocyclopentadiene	<0.5	<0.5	112	80-120	93	70-130	9	≤20
Hexachloroethane	<0.1	<0.1	115	80-120	116	70-130	12	≤20
1,2,4-trichlorobenzene	<0.1	<0.1	90	80-120	94	70-130	8	≤20
Alpha-BHC	<0.005	<0.005	101	80-120	87	70-130	8	≤20
Beta-BHC	<0.005	<0.005	109	80-120	89	70-130	6	≤20
Gamma-BHC	<0.005	<0.005	87	80-120	90	70-130	9	≤20



TEST REPORT

Report No. : AA0016653(0)

Date: 06 May 2021

Application No. : LA005704(5)

Calibration Certificate



Calibration Certificate

Certificate No.: CC0322102

1. Description

Calibration item :	a) pH at 25°C b) Temperature c) Dissolve Oxygen d) Conductivity at 25°C e) Salinity f) Oxidation-Reduction Potential (ORP)
Equipment description :	Multiparaters Instrument
Manufacturer :	YSI
Type / Model No. :	Professional Plus
Serial No. :	Meter: 17F104341
Assigned equipment no. :	N/A
Adjustment :	N/A
Remark :	Received with good condition

2. 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
Date of receipt :	29 January 2021

3. Date of performance of the calibration

Date of calibration :	1 February 2021
Next Calibration date :	1 May 2021



Authorized Signatory

Warren Yeung

Company Chop:

Certificate issue date: 5 February 2021

Page 1 of 3

cc0322102

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Cal Lab Limited
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Tel : (852)25680106 Fax:(852)30116194 Email: info@callab.com.hk Website:callab.com.hk



TEST REPORT

Report No. : AA0016653(0)

Date: 06 May 2021

Application No. : LA005704(5)



4. Result of Calibration

a) Temperature

Reference reading (°C)	Display Reading (°C)	Error of indication (°C)
14.84	15.0	0.1
25.10	25.0	-0.1
35.18	34.8	-0.4

b) Dissolved Oxygen

Reference reading (mg/L)	Display Reading (mg/L)	Error of indication
0.00	0.00	0.00
4.11	4.02	-0.09
8.16	8.11	-0.05

c) Conductivity at 25°C

Reference reading (uS/cm)	Display Reading (uS/cm)	Error of indication (%)
147.4	146.3	-0.7
1411	1324	-6.2
12846	12713	-1.0
111310	109244	-1.9

d) Salinity

Reference reading (ppt)	Display Reading (ppt)	Error of indication (%)
10	9.94	-0.6
20	19.88	-0.6
30	29.82	-0.6

Oxidation-Reduction Potential (ORP)

Reference reading (mV)	Display Reading (mV)	Error of indication (mV)
+230	+233	+3

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TEST REPORT

Report No. : AA0016653(0)

Date: 06 May 2021

Application No. : LA005704(5)



e) pH at 25°C

Reference reading	Display Reading	Error of indication
4.00	4.04	0.04
6.86	6.96	0.10
9.18	9.18	0.00
10.01	10.02	0.01

5. Reference method for calibration

pH at 25°C	APHA 21e 4500-H B
Dissolved Oxygen	APHA 21e 4500-O G
Conductivity at 25°C	APHA 21e 2510 B
Temperature	JJG 130-2011
Salinity	APHA 21e 2520 B
Oxidation-Reduction Potential (ORP)	APHA 21e 2580 B

6. Environment condition of calibration

Temperature ; °C	18 – 25 °C
Relative humidity ; %RH	< 75 %RH

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TEST REPORT

Report No. : AA0016653(0)

Date: 06 May 2021

Application No. : LA005704(5)



Calibration Certificate

Certificate No.: CC0332102

1. Description

Calibration item :	a) Turbidity
Equipment description :	Portable Turbidimeter
Manufacturer :	Hach
Type / Model No. :	2100Q
Serial No. :	17040C057757
Assigned equipment no. :	N/A
Adjustment :	N/A
Remark :	Received with good condition

2. 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
Date of receipt :	29 January 2021

3. Date of performance of the calibration

Date of calibration :	1 February 2021
Date of next calibration :	1 May 2021

Authorized Signatory

Warren Yeung

Company Chop:



Certificate issue date: 5 February 2021

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TEST REPORT

Report No. : AA0016653(0)

Date: 06 May 2021

Application No. : LA005704(5)



CALIBRATION

4. Result of Calibration

a) Turbidity

Reference reading (NTU)	Display Reading (NTU)	Error of indication (%)
Blank	0.00	N/A
10	9.94	-0.6
20	19.7	-1.5
100	99.3	-0.7
800	798	-0.3

5. Reference method for calibration

Turbidity	APHA 21e 2130B
-----------	----------------

6. Environment condition of calibration

Temperature ; °C	18 – 25 °C
Relative humidity ; %RH	< 75 %RH

*** End of Certificate ***

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TESTING

TEST REPORT

Report No. : AA0016653(0)

Date: 06 May 2021

Application No. : LA005704(5)

CMA
TESTING

TEST REPORT

Report No. : AA0019401(4))

Date : 06 Apr 2021

Application No. : LZ003543(4)

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 : 02 Apr 2021.

Test Period : 02 Apr 2021 to 05 Apr 2021.

Date of next checking : 01 Jul 2021

Test Method : APHA 23e 4500Cl-G

Test Result : Refer to the results on page 2.

For and on behalf of
CMA Industrial Development Foundation Limited

Authorized Signature :

Tang Tsz Wang
Manager

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/gac/statement-of-conformity.pdf.
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CMA Industrial Development Foundation Limited
Room 1302, Yan Hing Centre, 9-13 Wong Chuk Yeung St., Fo Tan, Shatin, N.T., Hong Kong.
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CMA Industrial Development Foundation Limited

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TESTING

TEST REPORT

Report No. : AA0016653(0)

Date: 06 May 2021

Application No. : LA005704(5)



TEST REPORT

Application No.: L7002542(4)

Date : 08 Apr 2021

Test Result

[View Details](#)

Test Item	(mg/L)	(mg/L)	Error of indication (%)
Chlorine	1.00	0.99	-1

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

ing Centre, 9-13 Wong Chuk Yeung St., Fo Tan, Shatin
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