

**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**

**Provision of Effluent Quality Monitoring (EQM) Services
Report for the Month of Jul 2023**

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 : L0019824(2)

Report Number : A00034106(3)

Report Issued Date : 24 Aug 2023

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.cmatesting.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

TABLE OF CONTENT

1. Introduction	2
2. Effluent Quality Monitoring	3 – 4
3. Results and Observations	5
Appendix	
Appendix I	– Report for Laboratory Test(s)



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 and Certification Laboratory (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 (2020-2023)”. This report documented the results and findings of Operation Phase Environmental Monitoring works conducted for Effluent Quality Monitoring (EQM) of Project in Jul 2023.
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 1**.

Table 1. Summary Table for Environmental Monitoring Works Conducted in the Reporting Month

Monitoring Parameters	Monitoring Period	Laboratory Testing Parameters
Effluent Quality	27 Jul 2023 (10 a.m.) to 28 Jul 2023 (10 a.m.)	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 include 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 Effluent Quality Monitoring (EQM) of Project on monitoring period.



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2. EFFLUENT QUALITY MONITORING

Monitoring Requirements

- 2.1. Effluent samples were collected at Disinfection Facilities in a full 24-hour period. 24-hour flow weighted composite effluent samples for subsequent chemical analysis and testing were prepared by CMA Testing according to the following procedures:
 - Collect effluent sub-sample by direct grab sampling method at bi-hourly interval over a 24 hour sampling period;
 - Obtain flow record of Stonecutters Island Sewage Treatment Works (SCISTW) for the 24 hour sampling period;
 - Calculate the volume of each sub-sample for preparing the bi-hourly of 24 hour flow-weighted composite samples; and
 - Transfer the appropriate volume of sub-samples to a clean container and mix thoroughly.
- 2.2. Bi-hourly of 24 hour composite sample for Chlorination By-Products (CBPs) and Contaminants of Concern (COCs) tests shall be performed quarterly throughout the contract period.

Monitoring Location

- 2.3. The sampling locations for effluent from SCISTW were collected at the Disinfection Facilities

Monitoring Schedule

- 2.4. The effluent quality monitoring was conducted in the monitoring period shown in **Table 1**. Collection of marine water samples were within the time period of effluent quality monitoring was to be collected.

Laboratory Measurement / Analysis

- 2.5. In the reporting month, the bi-hourly of 24-hour flow-weighted composite effluent sample was collected for subsequent laboratory analysis and testing on CBPs and COCs as shown in **Table 2.1**.

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

Table 2.1 Analytical Methods for Laboratory Analysis for Effluent Samples

Parameters	Analytical Method	Limit of Reporting (µg/L)
Potential CBPs		
Bromoform	Tri-halomethanes (THMs)	0.1
Bromodichloromethane		0.1
Chloroform		0.1
Dibromochloromethane		5
Bromoacetic acid	Haloacetic Acids (HAAs)	2
Chloroacetic acid		2
Dibromoacetic acid		2
Dichloroacetic acid		2
Trichloroacetic acid		2
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		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
Pentachlorophenol		0.5
2,4,6-trichlorophenol		0.5
Bis(2-chloroethoxy) methane		0.5
Chlorobenzene	Chlorinated Hydrocarbons & Organochlorine Pesticides	0.5
1,4-dichlorobenzene		0.5
Hexachlorobenzene		0.01
Hexachlorocyclopentadiene		2.5
Hexachloroethane		0.5
1,2,4-trichlorobenzene	In house method TG-ENV-WW-86 (by GC-MSD)	0.5
Alpha-BHC		0.01
Beta-BHC		0.01
Gamma-BHC		0.01



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

3. RESULTS AND OBSERVATIONS

Effluent Quality

3.1. The results of effluent quality monitoring conducted during the monitoring period shown in **Table 1**, whereas the laboratory testing and QC report are shown in **Appendix I**.



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 - Report for Laboratory Test(s)

TEST REPORT

Report No. : A00034107(4) Date: 24 Aug 2023

Application No. : L0019824(2)

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

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 : Bi-hourly of 24-hour flow-weighted composite effluent sample was
collected by the staff of CMA Industrial Development Foundation
Limited.
Sample was refrigerated during delivery.

Sample ID : Refer to Sample ID on page 3 - 4.

Sampling Location : SCISTW- Disinfection Facilities

Sampling Date : 27 Jul 2023 to 28 Jul 2023.

Date Received : 28 Jul 2023.

Test Period : 31 Jul 2023 to 07 Aug 2023.

For and on behalf of
CMA Industrial Development Foundation Limited



Lau Yan Kin
Senior Manager
Environmental Division

Authorized Signature : _____

Page 1 of 6

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CMA Industrial Development Foundation Limited

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TEST REPORT

Report No. : A00034107(4)

Date: 24 Aug 2023

Application No. : L0019824(2)

Test Requested : 1. Bromoform
2. Bromodichloromethane
3. Chloroform
4. Dibromochloromethane
5. Bromoacetic acid
6. Chloroacetic acid
7. Dibromoacetic acid
8. Dichloroacetic acid
9. Trichloroacetic acid
10. Methylene chloride
11. Carbon tetrachloride
12. 1,1-dichloroethane
13. 1,2-dichloroethane
14. 1,1-dichloroethylene
15. 1,2-dichloropropane
16. Tetrachloroethylene
17. 1,1,1-trichloroethane
18. 1,1,2-trichloroethane
19. Trichloroethylene
20. 2-chlorophenol
21. 2,4-dichlorophenol
22. p-chloro-m-cresol
23. Pentachlorophenol
24. 2,4,6-trichlorophenol
25. Bis(2-chloroethoxy) methane
26. Chlorobenzene
27. 1,4-dichlorobenzene
28. Hexachlorobenzene
29. Hexachlorocyclopentadiene
30. Hexachloroethane
31. 1,2,4-trichlorobenzene
32. Alpha-BHC
33. Beta-BHC
34. Gamma-BHC

Test Method : 1-4. USEPA 8260B
5-9. TG-ENV-WW-79 (by GC-ECD)
10-19. ISO 17943:2016 & USEPA 8260B
20-25. In house method TG-ENV-WW-80, 84 & 86 (by GC-MSD)
26-34. 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 3 - 4.

TEST REPORT

Report No. : A00034107(4)

Date: 24 Aug 2023

Application No. : L0019824(2)

Effluent Water Quality

Application No.:	L0019824(2)	
Sampling Date	27-Jul-23 to 28-Jul-23	
Monitoring Location	Chamber 15A	

Parameter	Results (µg/L)	Discharge limit (measured in HATs effluent) (µg/L)
Bromoform	0.2	16,000
Bromodichloromethane	<0.1	1,000
Chloroform	1.8	560
Dibromochloromethane	<5	1,500
Bromoacetic acid	<2	75,000
Chloroacetic acid	<2	1,500,000
Dibromoacetic acid	<2	32,000
Dichloroacetic acid	<2	10,000
Trichloroacetic acid	<2	4,300,000

*TRC is 0.1mg/L by reference to Chamber 15A Sampling Tanks Daily Monitoring result on 27 Jul 2023.



TESTING

TEST REPORT

Report No. : A00034107(4)

Date: 24 Aug 2023

Application No. : L0019824(2)

Application No.:	L0019824(2)
Sampling Date	27-Jul-23 to 28-Jul-23
Monitoring Location	Chamber 15A

Parameter	Results (µg/L)
Methylene chloride	<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	<0.5
1,1,2-trichloroethane	<0.5
Trichloroethylene	<0.5
2-chlorophenol	<0.5
2,4-dichlorophenol	<0.5
p-chloro-m-cresol	<0.5
Pentachlorophenol	<0.5
2,4,6-trichlorophenol	<0.5
Bis(2-chloroethoxy) methane	<0.5
Chlorobenzene	<0.5
1,4-dichlorobenzene	<0.5
Hexachlorobenzene	<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



TEST REPORT

Report No. : A00034107(4)

Date: 24 Aug 2023

Application No. : L0019824(2)

QC Report

Parameter	Method Blank	Acceptance Criteria	QC Recovery	Acceptance Criteria	Spike Recovery	Acceptance Criteria	Duplicate (RPD)	Acceptance Criteria
	(μ g/L)	(μ g/L)	(%)	(%)	(%)	(%)	(%)	(%)
Bromoform	<0.02	<0.02	86	80-120	89	70-130	10	\leq 20
Bromodichloromethane	<0.02	<0.02	92	80-120	96	70-130	15	\leq 20
Chloroform	<0.02	<0.02	95	80-120	90	70-130	9	\leq 20
Dibromochloromethane	<1	<1	99	80-120	102	70-130	8	\leq 20
Bromoacetic acid	<0.4	<0.4	94	80-120	97	70-130	12	\leq 20
Chloroacetic acid	<0.4	<0.4	100	80-120	93	70-130	11	\leq 20
Dibromoacetic acid	<0.4	<0.4	103	80-120	106	70-130	9	\leq 20
Dichloroacetic acid	<0.4	<0.4	102	80-120	110	70-130	9	\leq 20
Trichloroacetic acid	<0.4	<0.4	100	80-120	92	70-130	13	\leq 20



TEST REPORT

Report No. : A00034107(4)

Date: 24 Aug 2023

Application No. : L0019824(2)

QC Report

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

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

Page 6 of 6