



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 (2023-2026)

Provision of Effluent Quality Monitoring (EQM) Services

Report for the Month of Oct 2024

Contract No. : DE/2022/15

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 : L1020827(9)

Report Number : A10038553(3)

Report Issued Date : 12 Nov 2024

For and on behalf of
CMA Industrial Development Foundation Limited

Lee Hoi Yung, Benson
Deputy Manager
Environmental Division

Authorized Signature :

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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 (2023-2026)

EXECUTIVE SUMMARY

1. This is the water quality monitoring report prepared by CMA Testing and Certification Laboratory (CMA Testing) for Contract No. DE/2022/15 "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 (2023-2026)". This report documented the results and findings of Operation Phase Environmental Monitoring works conducted for Effluent Quality Monitoring (EQM) of Project in Oct 2024.
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	16 Oct 2024 (10 a.m.) To 17 Oct 2024 (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

2.1 Monitoring Requirements

2.1.1 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.

2.1.2 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.

2.2 Monitoring Location

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

2.3 Monitoring Schedule

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.



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2.4 Laboratory Measurement / Analysis

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**.

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



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 (2023-2026)

Parameters	Analytical Method	Limit of Reporting (µg/L)
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
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) & In house method TG-ENV-WW-86 (by GC-MSD)	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



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3 RESULTS AND OBSERVATIONS

3.1 Effluent Quality

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.**



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Appendix I
Report for Laboratory Test(s)



TEST REPORT

Report No. : A10038554(4)

Date: 11 Nov 2024

Application No. : L1020827(9)

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/2022/15

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 : 16 Oct 2024 to 17 Oct 2024.

Date Received : 17 Oct 2024.

Test Period : 21 Oct 2024 to 25 Oct 2024.

For and on behalf of
CMA Industrial Development Foundation Limited

Authorized Signature :

Lee Hoi Yung, Benson
Deputy 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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TEST REPORT

Report No. : A10038554(4)

Date: 11 Nov 2024

Application No. : L1020827(9)

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 8260D & In house method TG-ENV-WW-78 & 85 (by Headspace GC/MSD) 5-9. TG-ENV-WW-79 (by GC-ECD) 10-19. ISO 17943:2016 & In house method TG-ENV-WW-78 & 85 (by Headspace GC/MSD) 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.



TESTING

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Date: 11 Nov 2024

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Effluent Water Quality

Application No.:	L1020827
Sampling Date	16-Oct-24 to 17-Oct-24
Monitoring Location	Chamber 15A

Parameter	Results (µg/L)	Discharge limit (measured in HATs effluent) (µg/L)
Bromoform	0.5	16,000
Bromodichloromethane	<0.1	1,000
Chloroform	1.5	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 16 Oct 2024.



TEST REPORT

Report No. : A10038554(4)

Date: 11 Nov 2024

Application No. : L1020827(9)

Application No.:	<u>L1020827</u>
Sampling Date	<u>16-Oct-24 to 17-Oct-24</u>
Monitoring Location	<u>Chamber 15A</u>

Parameter	Results ($\mu\text{g/L}$)
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



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TEST REPORT

Report No. : A10038554(4)

Date: 11 Nov 2024

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QC Report

Parameter	Method Blank	Acceptance Criteria	QC Recovery	Acceptance Criteria	Spike Recovery	Acceptance Criteria	Duplicate (RPD)	Acceptance Criteria
	($\mu\text{g/L}$)	($\mu\text{g/L}$)	(%)	(%)	(%)	(%)	(%)	(%)
Bromoform	<0.02	<0.02	89	80-120	82	70-130	10	≤ 20
Bromodichloromethane	<0.02	<0.02	92	80-120	99	70-130	14	≤ 20
Chloroform	<0.02	<0.02	90	80-120	103	70-130	15	≤ 20
Dibromochloromethane	<1	<1	96	80-120	110	70-130	11	≤ 20
Bromoacetic acid	<0.4	<0.4	91	80-120	98	70-130	8	≤ 20
Chloroacetic acid	<0.4	<0.4	106	80-120	109	70-130	9	≤ 20
Dibromoacetic acid	<0.4	<0.4	110	80-120	101	70-130	16	≤ 20
Dichloroacetic acid	<0.4	<0.4	101	80-120	107	70-130	10	≤ 20
Trichloroacetic acid	<0.4	<0.4	98	80-120	113	70-130	15	≤ 20



TESTING

TEST REPORT

Report No. : A10038554(4)

Date: 11 Nov 2024

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QC Report

Parameter	Method Blank	Acceptance Criteria	QC Recovery	Acceptance Criteria	Spike Recovery	Acceptance Criteria	Duplicate (RPD)	Acceptance Criteria
	($\mu\text{g/L}$)	($\mu\text{g/L}$)	(%)	(%)	(%)	(%)	(%)	(%)
Methylene chloride	<4	<4	104	80-120	110	70-130	9	≤ 20
Carbon tetrachloride	<0.1	<0.1	93	80-120	90	70-130	17	≤ 20
1,1-dichloroethane	<0.1	<0.1	90	80-120	106	70-130	12	≤ 20
1,2-dichloroethane	<0.1	<0.1	105	80-120	115	70-130	10	≤ 20
1,1-dichloroethylene	<0.1	<0.1	108	80-120	94	70-130	13	≤ 20
1,2-dichloropropane	<0.1	<0.1	113	80-120	103	70-130	11	≤ 20
Tetrachloroethylene	<0.1	<0.1	102	80-120	118	70-130	10	≤ 20
1,1,1-trichloroethane	<0.1	<0.1	95	80-120	105	70-130	8	≤ 20
1,1,2-trichloroethane	<0.1	<0.1	87	80-120	92	70-130	14	≤ 20
Trichloroethylene	<0.1	<0.1	96	80-120	85	70-130	13	≤ 20
2-chlorophenol	<0.1	<0.1	106	80-120	97	70-130	15	≤ 20
2,4-dichlorophenol	<0.1	<0.1	111	80-120	108	70-130	11	≤ 20
p-chloro-m-cresol	<0.1	<0.1	101	80-120	113	70-130	14	≤ 20
Pentachlorophenol	<0.1	<0.1	92	80-120	106	70-130	10	≤ 20
2,4,6-trichlorophenol	<0.1	<0.1	109	80-120	117	70-130	13	≤ 20
Bis(2-chloroethoxy) methane	<0.1	<0.1	97	80-120	109	70-130	9	≤ 20
Chlorobenzene	<0.1	<0.1	100	80-120	118	70-130	12	≤ 20
1,4-dichlorobenzene	<0.1	<0.1	86	80-120	104	70-130	8	≤ 20
Hexachlorobenzene	<0.005	<0.005	89	80-120	102	70-130	15	≤ 20
Hexachlorocyclopentadiene	<0.5	<0.5	98	80-120	107	70-130	17	≤ 20
Hexachloroethane	<0.1	<0.1	104	80-120	116	70-130	10	≤ 20
1,2,4-trichlorobenzene	<0.1	<0.1	114	80-120	120	70-130	11	≤ 20
Alpha-BHC	<0.005	<0.005	111	80-120	103	70-130	9	≤ 20
Beta-BHC	<0.005	<0.005	95	80-120	105	70-130	13	≤ 20
Gamma-BHC	<0.005	<0.005	109	80-120	115	70-130	8	≤ 20

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

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