



**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 Effluent Quality Monitoring (EQM) 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 : LA031302(9)

Report Number : AA0055250(6)

Report Issued Date : 17 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.cmatesting.org/oac/statement-of-conformity.pdf](http://www.cmatesting.org/oac/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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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 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 Oct 2021.
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**

| <b>Monitoring Parameters</b> | <b>Monitoring Period</b>                          | <b>Laboratory Testing Parameters</b>  |
|------------------------------|---|---|
| Effluent Quality             | 27 Oct 2021 (10 a.m.) to<br>28 Oct 2021 (10 a.m.) | Total Residual Chlorine (TRC)<br>Chlorination by-products (CBPs)<br>and Contaminants of Concern<br>(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

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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) (thereafter 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.

## 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 Total Residual Chloride (TRC), 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 TRC, 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) |
|---------------------------------------|--|---|---------------------------|
| <b>TRC and Potential CBPs</b>         |  |   |                           |
| 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<br>TG-ENV-WW-79<br>(by GC-ECD)  | 2                         |
| Chloroacetic acid                     |  |   | 2                         |
| Dibromoacetic acid                    |  |   | 2                         |
| Dichloroacetic acid                   |  |   | 2                         |
| Trichloroacetic acid                  |  |   | 2                         |
| <b>Contaminants of Concern (COCs)</b> |  |   |                           |
| Methylene chloride                    | Halogenated Aliphatics                               | ISO 17943:2016 &<br>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                 |  |   | 0.5                       |
| 1,1,2-trichloroethane                 |  |   | 0.5                       |
| Trichloroethylene                     |  |   | 0.5                       |
| 2-chlorophenol                        |  |   | Phenols & Haloethers      |
| 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<br>TG-ENV-WW-78<br>(by Headspace GC-MSD)<br>&<br>In house method<br>TG-ENV-WW-86<br>(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   |   |                           |



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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### 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

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**Appendix I - Report for Laboratory Test(s)**





**TESTING**

**TEST REPORT**

Report No. : AA0055251(7) Date: 17 Nov 2021

Application No. : LA031302(9)

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 : 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 4 - 5.

Sampling Location : SCISTW- Disinfection Facilities


Sampling Date : 27 Oct 2021 to 28 Oct 2021.

Date Received : 28 Oct 2021.

Test Period : 29 Oct 2021 to 12 Nov 2021.

*For and on behalf of*  
CMA Industrial Development Foundation Limited

Authorized Signature : \_\_\_\_\_

  
Lau Yan Kin  
Senior Manager  
Environmental Division

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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.

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



TESTING

## TEST REPORT

Report No. : AA0055251(7)

Date: 17 Nov 2021

Application No. : LA031302(9)

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



TESTING

**TEST REPORT**

Report No. : AA0055251(7)

Date: 17 Nov 2021

Application No. : LA031302(9)

Test Method : 1. APHA 23ed 4500 Cl G  
2-5. USEPA 8260B  
6-10. TG-ENV-WW-79 (by GC-ECD)  
11-20. ISO 17943:2016 & USEPA 8260B  
21-26. In house method TG-ENV-WW-80, 84 & 86 (by GC-MSD)  
27-35. 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 - 5.



TESTING

**TEST REPORT**

Report No. : AA0055251(7)

Date: 17 Nov 2021

Application No. : LA031302(9)

Effluent Water Quality

|                         |                        |
|-------------------------|------------------------|
| Application No.:        | LA031302               |
| Sampling Date           | 27-Oct-21 to 28-Oct-21 |
| Monitoring Location     | Chamber 15A            |
|                         |                        |
|                         |                        |
|                         |                        |
| <b>Parameter</b>        | <b>Results (mg/L)</b>  |
| Total Residual Chlorine | <0.01                  |
| <b>Parameter</b>        | <b>Results (µg/L)</b>  |
| Bromoform               | 0.1                    |
| Bromodichloromethane    | <0.1                   |
| Chloroform              | 1.8                    |
| Dibromochloromethane    | <5                     |
| Bromoacetic acid        | <2                     |
| Chloroacetic acid       | <2                     |
| Dibromoacetic acid      | <2                     |
| Dichloroacetic acid     | 2                      |
| Trichloroacetic acid    | <2                     |

## TEST REPORT

Report No. : AA0055251(7)

Date: 17 Nov 2021

Application No. : LA031302(9)

| Application No.:            | LA031302               |
|-----------------------------|------------------------|
| Sampling Date               | 27-Oct-21 to 28-Oct-21 |
| 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. : AA0055251(7)

Date: 12 Nov 2021

Application No. : LA031302(9)

### 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               | 110         | 85-115              | 105            | 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               | 98          | 80-120              | 95             | 70-130              | 7               | ≤20                 |
| Bromodichloromethane    | <0.02        | <0.02               | 96          | 80-120              | 99             | 70-130              | 10              | ≤20                 |
| Chloroform              | <0.02        | <0.02               | 99          | 80-120              | 101            | 70-130              | 8               | ≤20                 |
| Dibromochloromethane    | <1           | <1                  | 103         | 80-120              | 100            | 70-130              | 13              | ≤20                 |
| Bromoacetic acid        | <0.4         | <0.4                | 89          | 80-120              | 91             | 70-130              | 10              | ≤20                 |
| Chloroacetic acid       | <0.4         | <0.4                | 86          | 80-120              | 99             | 70-130              | 8               | ≤20                 |
| Dibromoacetic acid      | <0.4         | <0.4                | 92          | 80-120              | 89             | 70-130              | 12              | ≤20                 |
| Dichloroacetic acid     | <0.4         | <0.4                | 90          | 80-120              | 93             | 70-130              | 11              | ≤20                 |
| Trichloroacetic acid    | <0.4         | <0.4                | 95          | 80-120              | 90             | 70-130              | 10              | ≤20                 |



## TEST REPORT

Report No. : AA0055251(7)

Date: 12 Nov 2021

Application No. : LA031302(9)

### QC Report

| Parameter                   | (µg/L) | (µg/L) | (%) | (%)    | (%) | (%)    | (%) | (%) |
|-----------------------------|--------|--------|-----|--------|-----|--------|-----|-----|
| Methylene chloride          | <4     | <4     | 92  | 80-120 | 95  | 70-130 | 10  | ≤20 |
| Carbon tetrachloride        | <0.1   | <0.1   | 97  | 80-120 | 100 | 70-130 | 9   | ≤20 |
| 1,1-dichloroethane          | <0.1   | <0.1   | 89  | 80-120 | 93  | 70-130 | 6   | ≤20 |
| 1,2-dichloroethane          | <0.1   | <0.1   | 88  | 80-120 | 95  | 70-130 | 11  | ≤20 |
| 1,1-dichloroethylene        | <0.1   | <0.1   | 96  | 80-120 | 101 | 70-130 | 12  | ≤20 |
| 1,2-dichloropropane         | <0.1   | <0.1   | 93  | 80-120 | 91  | 70-130 | 8   | ≤20 |
| Tetrachloroethylene         | <0.1   | <0.1   | 90  | 80-120 | 96  | 70-130 | 13  | ≤20 |
| 1,1,1-trichloroethane       | <0.1   | <0.1   | 101 | 80-120 | 103 | 70-130 | 15  | ≤20 |
| 1,1,2-trichloroethane       | <0.1   | <0.1   | 94  | 80-120 | 98  | 70-130 | 8   | ≤20 |
| Trichloroethylene           | <0.1   | <0.1   | 103 | 80-120 | 100 | 70-130 | 7   | ≤20 |
| 2-chlorophenol              | <0.1   | <0.1   | 97  | 80-120 | 99  | 70-130 | 9   | ≤20 |
| 2,4-dichlorophenol          | <0.1   | <0.1   | 99  | 80-120 | 95  | 70-130 | 10  | ≤20 |
| p-chloro-m-cresol           | <0.1   | <0.1   | 95  | 80-120 | 98  | 70-130 | 11  | ≤20 |
| Pentachlorophenol           | <0.1   | <0.1   | 104 | 80-120 | 100 | 70-130 | 13  | ≤20 |
| 2,4,6-trichlorophenol       | <0.1   | <0.1   | 102 | 80-120 | 96  | 70-130 | 9   | ≤20 |
| Bis(2-chloroethoxy) methane | <0.1   | <0.1   | 105 | 80-120 | 91  | 70-130 | 6   | ≤20 |
| Chlorobenzene               | <0.1   | <0.1   | 110 | 80-120 | 102 | 70-130 | 10  | ≤20 |
| 1,4-dichlorobenzene         | <0.1   | <0.1   | 99  | 80-120 | 105 | 70-130 | 13  | ≤20 |
| Hexachlorobenzene           | <0.005 | <0.005 | 98  | 80-120 | 104 | 70-130 | 7   | ≤20 |
| Hexachlorocyclopentadiene   | <0.5   | <0.5   | 89  | 80-120 | 86  | 70-130 | 14  | ≤20 |
| Hexachloroethane            | <0.1   | <0.1   | 96  | 80-120 | 91  | 70-130 | 11  | ≤20 |
| 1,2,4-trichlorobenzene      | <0.1   | <0.1   | 99  | 80-120 | 106 | 70-130 | 9   | ≤20 |
| Alpha-BHC                   | <0.005 | <0.005 | 109 | 80-120 | 102 | 70-130 | 8   | ≤20 |
| Beta-BHC                    | <0.005 | <0.005 | 94  | 80-120 | 99  | 70-130 | 9   | ≤20 |
| Gamma-BHC                   | <0.005 | <0.005 | 98  | 80-120 | 103 | 70-130 | 10  | ≤20 |

## TEST REPORT

Report No. : AA0055251(7)

Date: 12 Nov 2021

Application No. : LA031302(9)



### TEST REPORT

Report No. : AA0055662(2) 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. : 19030A000878

Date Received : 24 Sep 2021.

Test Period : 24 Sep 2021 to 27 Sep 2021.

Date of next checking : 23 Dec 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

  
Tang Tsz Wang  
Environmental Consultant

Authorized Signature : \_\_\_\_\_ 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/attachment/05conformity.pdf](http://www.cmatesting.org/attachment/05conformity.pdf).  
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## TEST REPORT

Report No. : AA0055251(7)

Date: 12 Nov 2021

Application No. : LA031302(9)

  
**TEST REPORT**

Report No. : AA0055662(2) 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                     | 0.99                   | -1                      |

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

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CMA Industrial Development Foundation Limited  
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\*\*\*\*\* End of Report \*\*\*\*\*

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