MOTT MACDONALD

Mr. WONG Sui Kan
Chief Engineer/Sewerage Projects
Drainage Services Department
Projects and Development Branch
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Contract No. SPW 09/2016
Independent Environmental Checker for Environmental Monitoring and Audit for Operation of Tai Po Sewage Treatment Works Stage 5 Phase 2B
EP Condition 6.6 – Monthly EM&A Report

Our Reference
TC/DC/dc/377000/03/02/L-007

13 September 2017

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Dear Sir,

With reference to the ET's letter ref: MCL/ED/0506/2017/C dated 13 September 2017 associated with the Monthly EM&A Report for April 2016 (Rev.6), we have no further comment.

This letter serves as verification of the captioned submission in line with the requirements as set out in the EM&A Manual.

Should you have any queries, please feel free to contact the undersigned at 2828 5970.

Yours faithfully
FOR MOTT MACDONALD HONG KONG LIMITED

Dulcie Chan
Independent Environmental Checker
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Date : 13 September 2017
Our Ref. : MCL/ED/0506/2017/C

Mott MacDonald Hong Kong Limited
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Landmark East
100 Hau Ming Street
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Hong Kong

BY HAND

Attn.: Ms. Dulcie Chan, IEC

Dear Madam,

Agreement No. CE 21/2014 (EP)
Environmental Monitoring and Audit (EM&A) for Operation of
Tai Po Sewage Treatment Works Stage V Phase 2B – Investigation
EP Condition 6.6 – Monthly EM&A Report

Pursuant to Condition 6.6 of the Environmental Permit (EP No. EP-265/2007/A) for the captioned contract, we are pleased to submit the certified Monthly EM&A Report for April 2016 for your onward submission.

Should you require further information, please do not hesitate to contact our Miss Jamie Tam at 3565 4370 or the undersigned at 3565 4114.

Assuring you of our best attention at all times.

Yours faithfully,
for and on behalf of
MATERIALAB – WASTE
& ENVIRONMENTAL TECHNOLOGIES JOINT VENTURE

Colin Yung
Environmental Team Leader

CY/jt

Encl.

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Monthly EM&A Report
April 2016

Client : Drainage Services Department

Project : Agreement No. CE 21/2014(EP)
Environmental Monitoring and Audit (EM&A)
for Operation of Tai Po Sewage Treatment
Works Stage V Phase 2B – Investigation

Report No. : 0151/15/ED/0528

Prepared by: L.M. Kwok & Jamie Tam

Certified by:

Colin Yung
Environmental Team Leader

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Report No.: 0151/15/ED/0528

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Report No.: 0151/15/ED/0528

EXECUTIVE SUMMARY

This Monthly Environmental Monitoring and Audit (EM&A) Report is prepared for Agreement No. CE 21/2014 (EP) – "Environmental Monitoring and Audit for Operation of Tai Po Sewage Treatment Works Stage V Phase 2B – Investigation" (hereafter referred to as "the Assignment") for the Drainage Services Department (DSD) of Hong Kong Special Administrative Region. MateriaLab – Waste & Environmental Technologies Joint Venture (hereafter referred to as "MLAB") was appointed as the Environmental Team by DSD.

The Assignment is part of the Tai Po Sewage Treatment Works (TPSTW) Stage V extension (hereinafter referred as "the Project") which is a Designated Project under Schedule 2 of the Environmental Impact Assessment (EIA) Ordinance (Cap. 499) and for which an EIA Report (Register No. AEIAR-145/2009) was prepared and approved. The Environmental Permit (EP) for TPSTW Stage V, namely No. EP-265/2007 was issued in March 2007. A Variation Environmental Permit (VEP) EP-265/2007/A was issued on 30 April 2014. These documents are available through the EIA Ordinance Register.

Commencement of the Assignment took place on 9 June 2015 while the operation phase of EM&A programme commenced on 1 March 2016.

This is the second Monthly EM&A Report for the Assignment which summaries the progress of the EM&A programme during the reporting period from 01 April 2016 to 30 April 2016 (the "reporting period"). The monthly EM&A programme was undertaken in accordance with the EM&A Manual for TPSTW Stage V. According to the EM&A Manual, air quality and marine water quality are the key environmental concerns from the Project.

Breaches of Action and Limit Levels

There was no air quality monitoring conducted during the reporting period and therefore, no air quality monitoring result is reported.

Due to the annual inspection of the submarine pipeline, there was an event of overflow of treated effluent from TPSTW to Tolo Harbour, thus daily Tolo Harbour water quality impact monitoring was conducted from 6 April 2016 to 13 April 2016. Based on the monitoring results, the overall water quality in Tolo Harbour was considered acceptable during the monitoring period. The results did not reveal any evidence showing that the overflow event from TPSTW has caused any adverse water quality impact to the surrounding water body.

Complaint Log

There were no complaints received in relation to the environmental impact during the reporting period.

Notifications of Summons and Successful Prosecutions

There were no notifications of summons or prosecutions received during this reporting period.

Reporting Changes

There was no reporting change during the reporting period.

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Future key issues

There were no construction activities and no future key issue is reported during this reporting period.

1. INTRODUCTION

1.1 Background

1.1.1 Tai Po Sewage Treatment Works (TPSTW) is located within the Tai Po Industrial Estate. It currently comprises four Stages: I, II, IVA and IVB works. The TPSTW Stage V aims to upgrade the existing TPSTW to provide additional sewage treatment capacity from the present design flow of 88,000 m^3/day to 130,000 m^3/day to meet the demands of both existing and future developments and to meet the revised discharge license requirements. The TPSTW Stage V will be implemented in two phases, i.e. Phase 1 and Phase 2. The design capacity of Phase 1 is 100,000 m^3/day and Phase 2 is 130,000 m^3/day.

1.1.2 The TPSTW Stage V is a Designated Project under the Environmental Impact Assessment Ordinance (Cap. 449). A study of Environmental Impact Assessment has been carried out to evaluate the environmental impacts associated with the project. An EIA Report and Environmental Monitoring and Audit (EM&A) Manual were approved by the Environmental Protection Department on 28 October 2004. An Environmental Permit (EP) No.EP-202/2007 and a Variation Environmental Permit (VEP) No. EP-202/2007A were issued on 22 March 2007 and 30 April 2014 for TPSTW Stage V Phase 2B (hereafter referred to as "the Project") to DSD as the Permit Holder. The EP stipulates that an EM&A programme is required to ensure the mitigation measures recommended in the EIA Report and the EM&A Manual, are implemented during the construction and operation of the Project.

1.2 Project Description

1.2.1 MateriaLab – Waste and Environmental Technologies Joint Venture (MLAB) was commissioned by DSD to undertake the EM&A services of the Project including Odour Monitoring, Odour Complaint Register and Marine Water Quality Monitoring during the operation phase, under the Agreement No. CE 21/2014 (EP) Environmental Monitoring and Audit for Tai Po Sewage Treatment Works Stage V Phase 2B – Investigation (hereafter referred to as "the Assignment").

1.3 Project Organisation

1.3.1 The Project Organisation for Environmental Works is shown in **Appendix A**. The contact person and telephone numbers of key personnel for the captioned project are shown in Table 1.1.

Table 1.1 Contact Persons and Telephone Numbers of Key Personnel

Party	Role	Position	Contact Person	Telephone No.	Fax No.
DSD	SP Division	Engineer	Ms. Suki Pun	2594 7472	2519 3615
Mott MacDonald	IEC	IEC	Ms. Dulcie Chan	2828 5970	2827 1823
MLAB	Environmental Team	Environmental Team Leader	Mr. Colin Yung	3565 4114	2450 8032

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2. AIR QUALITY MONITORING

2.1.1 There was no air quality monitoring conducted during the reporting period and therefore, no air quality monitoring result is reported.

3. MARINE WATER QUALITY MONITORING

3.1 Monitoring Requirements

Tolo Harbour Marine Water Quality Impact Monitoring

3.1.1 In accordance with Section 4.46 of the EM&A Manual, marine water quality monitoring at six designated monitoring stations should be carried out during the operation phase of the Project under the following conditions:

- Leakage of submarine pipeline is confirmed;
- Emergency discharge of untreated sewage;
- Emergency discharge of treated effluent during shutdown of Tai Po Effluent Pumping Station; and
- Maintenance of Tolo Harbour Effluent Export Scheme (THEES).

3.1.2 Due to the annual inspection of the submarine pipeline by pigging system, which was regarded as the maintenance of THEES, the submarine pipeline was not in service during the inspection resulting in an event of overflow of treated effluent from TPSTW to Tolo Harbour from 10:51 to 23:30 on 6 April 2016 with a total discharge volume of 57,783 cu.m. In accordance with the EM&A Manual, daily marine water quality impact monitoring was conducted from 6 April 2016 to 13 April 2016. EPD and WSD were informed of the overflow event on 6 April 2016. ET has reminded SPD/DSD to inform AFCD of any emergency discharge or THEES maintenance events.

Water Quality Monitoring at Seawater Intakes

3.1.3 In accordance with Section 4.52 of the EM&A Manual, a water quality monitoring programme shall be conducted at the WSD Seawater Intakes at Tai Po and Sha Tin during the first wet season after commissioning of the Project, namely June 2016, July 2016 and August 2016. Thus, no WSD Seawater Intake Water Quality Monitoring result is reported in this reporting period.

3.2 Methodology

Tolo Harbour Marine Water Quality Impact Monitoring

3.2.1 The multifunctional meter (Model YSI 6920) was deployed to measure dissolved oxygen (DO) concentration, DO saturation, temperature, salinity, pH and turbidity.

3.2.2 Water samples were collected by water samplers and were stored in polyethylene bottles, where they were taken to a HOKLAS accredited laboratory for analysis of suspended solids (SS), biological oxygen demand (BOD), total inorganic nitrogen (TIN), Ammonia Nitrogen(NH_3-N), chlorophyll-a and E. coli. Table 3.1 summaries the equipment used in marine water quality monitoring. Table 3.2 summaries the laboratory test method for each laboratory test parameter and its associated limit of reporting.

Table 3.1 Equipment for Marine Water Quality Monitoring

Equipment	Manufacturer / Model	Serial Number	Calibration Date	Next Calibration Date
Water Sampler	Van Dorn	N/A	N/A	N/A
Multifunctional Meter	YSI 6920	000109DF	31 March 2016	30 June 2016

Table 3.2 Laboratory Test Method for Each Laboratory Test Parameter and Its Associated Limit of Reporting

Parameter	Test Method[1]	Reporting Limit
SS	APHA 2540 D	0.5 mg/L
BOD	APHA 5210B	1 mg/L
NH_3-N	APHA 4500NH_3 : H	0.005 mg/L
TIN	APHA 4500NH_3: G, APHA 4500NO_3: I	0.005 mg/L
Chlorophyll-a	APHA 10200 H2&H3	0.001 mg/L
E. coli	DoE Section 7.8 & 7.9 plus in-situ urease test	1 cfu/100ml

Note:
[1] Test method refers to Standard Methods for the Examination of Water and Wastewater the American Public Health Association (APHA).

3.2.3 During each monitoring event, water quality monitoring was conducted at mid-flood and mid-ebb tides and the interval between two monitoring events was less than 36 hours. All in-situ measurements and samplings were conducted at three water depths, namely 1 m below water surface, mid-depth and 1 m above seabed, except where the water depth was less than 6 m, in which case the mid-depth station was omitted. Only mid-depth station was monitored if the water depth was less than 3 m.

3.2.4 At each sampling depth, duplicate readings of DO concentration, DO saturation, salinity, turbidity, pH and temperature were taken. The probes were retrieved out of the water after the first measurement and re-deployed for the second measurement.

3.2.5 Water samples were collected by water samplers and were stored in polyethylene bottles. Sampling bottles were pre-rinsed with the same water samples. The sample bottles were then packed into a cool-box (kept at 4°C) and delivered immediately to a HOKLAS accredited laboratory ALS Technichem (HK) Pty Limited (ALS) for the analysis of SS, BOD, TIN, NH_3-N, chlorophyll-a and E. coli.

3.3 Monitoring Locations

Tolo Harbour Marine Water Quality Impact Monitoring

3.3.1 In accordance with the EM&A Manual, the measurements were taken at all designated impact and control stations as summarized in Table 3.3. The locations of the monitoring stations are shown in Figure 3.1.

Table 3.3 Tolo Harbour Water Quality Monitoring Stations

Station	Description	Easting	Northing
W1	WSD Seawater Intake at Tai Po	837688.18	834676.19
W2	WSD Seawater Intake at Sha Tin	840222.64	830058.70
FC2	Yim Tin Tsai Marine Fish Culture Zone	839321.74	834828.84
G1	Gradient Station	838474.91	834702.06
C1	Pak Sha Tau Corals	843778.51	834659.42
C12	Gruff Head Corals (Control Station)	851027.82	837940.83

3.4 Monitoring Parameter, Frequency and Duration

Tolo Harbour Marine Water Quality Impact Monitoring

3.4.1 The monitoring parameters, frequency and duration of Tolo Harbour Water Quality Impact Monitoring are summarised in Table 3.4.

Table 3.4 Tolo Harbour Water Quality Monitoring Parameters, Frequency and Duration

Monitoring Stations	Parameter, unit	Frequency	No. of Depths
Impact Stations: W1, W2, FC2, C1 Gradient Stations: G1 Control Stations: C12	• Depth, m • pH • Temperature, °C • Salinity, ppt • DO, mg/L • DO Saturation, % • Turbidity, NTU • SS, mg/L • E.coli, cfu/100ml • Ammonia-Nitrogen, mg/L • Total Inorganic Nitrogen, mg/L • BOD5, mg-O2/L • Chlorophyll-a, mg/L	For emergency discharge of treated effluent: Daily monitoring at least 1 week after the normal plant operation is restored.	• 3 water depths: 1m below water surface, mid-depth and 1m above sea bed • If water depth is less than 3m, mid-depth sampling only • If water depth is between 3-6m, omit mid-depth sampling

3.5 Event and action plan

Tolo Harbour Marine Water Quality Impact Monitoring

3.5.1 The event and action plan for emergency discharge / accidental spillage at Tolo Harbour is provided in **Appendix B**.

3.6 Quality Assurance / Quality Control

Tolo Harbour Marine Water Quality Impact Monitoring

3.6.1 The Multifunctional Meter (YSI 6920) used in marine water quality monitoring was checked, calibrated and certified by a laboratory accredited under HOKLAS before use and subsequently re-calibrated at 3-monthly intervals throughout all stages of the water quality monitoring. The copy of the calibration certificate for the Multifunctional Meter (YSI 6920) is attached in **Appendix C**.

3.6.1 Before each round of monitoring, the dissolved oxygen probe of YSI 6920 was calibrated with wet bulb method.

3.6.3 During the measurement of DO concentration, DO saturation, salinity, turbidity, pH and temperature, if the difference between the first and second readings of each set was more than 25% of the value of the first reading, the reading was discarded and further readings were taken.

3.6.4 During water sampling by water samplers, for QA/QC purpose, one duplicate sample from each batch of 20 samples was analysed as required by the HOKLAS. QA/QC results are shown in **Appendix D**.

3.7 Monitoring Results

Tolo Harbour Marine Water Quality Impact Monitoring

3.7.1 Due to annual inspection of the submarine pipeline, the treated effluent from Tai Po Sewage Treatment Works to Tolo Harbour was overflown from 10:51 to 23:30 on 6 April 2016. The total discharged volume of treated effluent was 57,783 cu.m.

3.7.2 The marine water quality impact monitoring was conducted from 6 April to 13 April 2016 on a daily basis. A summary of the monitoring results is presented in Table 3.4. Details of the marine water quality monitoring results are presented in **Appendix E**. Graphical presentations of the results are presented in **Appendix F**.

3.7.3 The levels of salinity, turbidity, E. Coli, ammonia nitrogen, TIN and BOD were within baseline range. Dissolved oxygen level exceeded the maximum baseline level. However, it would not result in adverse impact to seawater.

3.7.4 The depth-averaged pH levels (in the range of 7.8 - 8.8, average 8.2 during mid-ebb tide and in the range of 7.9 - 8.4, average 8.2 during mid-flood tide) measured were slightly higher than the baseline range (in the range of 7.1 – 8.0, average 7.7) at all monitoring stations, including the control station C12. The graphs in Appendix F show no appreciable difference between impact and control stations, hence the higher pH compared to baseline is likely due to natural fluctuation.

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3.7.5 Referring to the graph in Appendix F, the suspended solid level marginally exceeded the maximum baseline level on 7/4/2016. The increase in suspended solid level was most likely a result of natural fluctuation and was not related to any adverse impact of the overflow of treated effluent from TPSTW.

3.7.6 The chlorophyll-a level exceeded the maximum baseline level. With reference to results for TIN and NH_3, there was no appreciable difference between control and impact results, hence the TPSTW treated effluent discharge does not appear to be contributing additional nutrient loading that may be associated with phytoplankton / algae growth.

3.7.7 The depth-averaged temperature level was lower than the minimum baseline level, including control station C12. Referring to the graphs in Appendix F, there was no appreciable difference between impact and control stations, hence the lower temperature is likely due to natural fluctuation.

Table 3.5 Summary of the Water Quality Monitoring Results (from 6 April to 13 April 2016)

Lcation		Temperature (°C)	pH	Salinity (ppt)	DO (Surface & Middle) (mg/L)	DO (Bottom) (mg/L)	Turbidity (NTU)	E-Coli (cfu/100 ml)	NH3-N (mg/L)	TIN (mg/L)	SS (mg/L)	BOD (mg/L)	Chlorophyll-a (mg/L)
Mid-Ebb Tide													
C1	Max	18.8	8.3	31.2	9.0	7.3	2.8	44	0.044	0.069	3.5	3.7	0.019
	Min	18.0	8.1	29.3	7.4	4.6	0.8	0	0	0.019	1.2	0.7	0.002
	Mean	18.4	8.2	30.4	8.3	5.4	1.5	9	0.007	0.032	2.4	2.0	0.009
C12 (control Station)	Max	21.8	8.4	31.5	10.1	7.3	2.5	37	0.037	0.060	2.9	2.7	0.019
	Min	17.3	8.2	30.0	7.8	4.2	1.2	0	0	0.018	1.1	0.7	0.003
	Mean	18.8	8.3	30.8	8.4	5.2	1.7	9	0.006	0.031	2.2	1.5	0.008
G1	Max	19.5	8.4	31.1	11.8	7.9	6.3	118	0.037	0.078	3.8	4.0	0.023
	Min	18.2	8.0	28.1	7.6	2.0	1.4	0	0	0.017	2.1	1.3	0.008
	Mean	18.8	8.2	29.9	8.8	4.7	2.3	7	0.006	0.035	3.0	3.1	0.015
FC2	Max	19.2	8.3	31.2	10.1	6.2	2.5	175	0.031	0.068	4.2	4.0	0.022
	Min	18.1	8.0	29.4	7.3	3.0	1.0	0	0	0.019	2.9	1.3	0.007
	Mean	18.6	8.2	30.4	8.3	4.7	1.8	19	0.008	0.035	3.5	3.3	0.015
W1	Max	22.0	8.8	30.9	12.6	12.9	3.7	139	0.025	0.219	6.7	5.0	0.023
	Min	18.5	7.8	26.0	7.0	3.7	1.2	1	0	0.019	2.5	1.0	0.008
	Mean	19.7	8.2	29.0	10.0	5.5	2.2	5	0.004	0.055	4.1	3.1	0.016
W2	Max	20.0	8.6	30.9	13.7	7.7	5.8	174	0.048	0.137	5.5	4.0	0.019
	Min	18.4	7.9	28.4	7.3	3.0	0.7	0	0	0.029	2.8	0.5	0.005
	Mean	19.2	8.2	29.9	9.7	4.9	2.5	25	0.021	0.059	3.7	2.2	0.012
Defined Baseline Level	Max	29.5	8.0	33.7	9.9	9.2	8.5	595	0.27	0.430	7.0	6.0	0.012
	Min	24.8	7.1	26.1	6.3	0.8	1.0	0	0.01	0.010	2.0	1.0	0.003
	Mean	26.8	7.7	30.8	7.8	5.0	3.6	6*	0.06	0.090	4.0	2.0	0.008

Note:

- The max, min and mean results and baseline levels are depth-averaged values
- Mean results of E.coli are geometric mean
- There may be discrepancies in the mean values with those derived from Appendix E, due to rounding errors

Table 3.5 continued

Lcation		Temperature (°C)	pH	Salinity (ppt)	DO (Surface & Middle) (mg/L)	DO (Bottom) (mg/L)	Turbidity (NTU)	E-Coli (cfu/100 ml)	NH3-N (mg/L)	TIN (mg/L)	SS (mg/L)	BOD (mg/L)	Chlorophyll-a (mg/L)
Mid-Flood Tide													
C1	Max	18.9	8.3	31.2	10.1	8.0	2.5	80	0.015	0.041	3.7	3.0	0.020
	Min	17.3	8.1	28.7	7.2	2.9	1.1	0	0	0.016	1.8	0.7	0.003
	Mean	18.4	8.2	30.0	8.5	5.5	1.7	5	0.003	0.029	2.8	2.1	0.010
C12 (control Station)	Max	19.1	8.3	31.0	8.5	7.7	2.5	28	0.041	0.066	3.6	3.3	0.023
	Min	18.3	8.1	28.8	7.9	3.9	1.1	0	0	0.017	1.5	0.7	0.002
	Mean	18.7	8.2	30.0	8.2	5.4	1.6	4	0.007	0.032	2.5	1.9	0.012
G1	Max	19.0	8.3	31.5	9.2	6.5	2.1	172	0.034	0.076	3.7	3.7	0.031
	Min	18.1	8.1	28.7	7.5	2.9	0.9	0	0	0.012	2.3	1.3	0.008
	Mean	18.5	8.2	30.1	8.3	5.1	1.5	7	0.006	0.031	3.1	2.5	0.014
FC2	Max	19.0	8.3	30.7	10.0	6.2	8.0	149	0.054	0.095	7.4	4.3	0.026
	Min	18.1	8.0	28.7	7.5	2.8	1.3	0	0	0.018	2.8	1.3	0.008
	Mean	18.7	8.2	29.9	8.4	4.5	2.4	10	0.009	0.038	3.6	2.8	0.015
W1	Max	19.8	8.4	30.9	10.6	7.7	5.6	181	0.041	0.071	8.1	5.5	0.024
	Min	18.4	7.9	28.5	8.1	3.5	1.4	0	0	0.018	2.7	1.0	0.008
	Mean	19.3	8.2	29.9	9.1	5.0	2.3	5	0.010	0.034	4.3	2.6	0.013
W2	Max	19.9	8.3	31.0	12.0	9.6	4.1	174	0.048	0.137	5.5	4.0	0.019
	Min	18.4	8.0	28.5	7.9	3.6	1.2	0	0	0.029	2.8	0.5	0.005
	Mean	19.3	8.2	30.0	9.5	5.3	1.9	21	0.021	0.059	3.7	2.2	0.012
Defined Baseline Level	Max	29.5	8.0	33.7	9.9	9.2	8.5	595	0.27	0.430	7.0	6.0	0.012
	Min	24.8	7.1	26.1	6.3	0.8	1.0	0	0.01	0.010	2.0	1.0	0.003
	Mean	26.8	7.7	30.8	7.8	5.0	3.6	6*	0.06	0.090	4.0	2.0	0.008

Note:

- The max, min and mean results and baseline levels are depth-averaged values
- Mean results of E.coli are geometric mean
- There may be discrepancies in the mean values with those derived from Appendix E, due to rounding errors

3.7.8 It was confirmed that the overflow event stopped when inspection was finished and mitigation measures required as per EM&A Manual to minimize the risk of overflow or emergency discharge had been implemented. Based on the findings of the water quality monitoring, it was confirmed that the overflow event had not resulted in adverse water quality impacts and the baseline was confirmed to be restored.

4 ADVICE ON THE SOLID AND LIQUID WASTE MANAGEMENT STATUS

4.1.1 TPSTW had registered as a chemical waste producer for this Project. The license number of Chemical Waste Producer Registration is 0014-727-D2226-15 which is presented in **Appendix H**.

4.1.2 TPSTW is reminded that chemical waste should be properly handled and stored temporarily in designated chemical waste storage area on site in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. TPSTW should also engage a licensed waste collector to collect the chemical waste for proper disposal.

4.1.3 Sludge cake of TPSTW was temporarily stored within the dewatering house. Normally, all the sludge cake was disposed to Sludge Treatment Facility (STF). If STF breaks down, the sludge cake will be disposed to WENT landfill.

5 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

5.1.1 A summary of the Implementation Schedule of Environmental Mitigation Measures (EMIS) for operation phase is presented in **Appendix G**. Most of the necessary mitigation measures at this stage of works were implemented properly.

5.1.2 Implementation status of operational landfill gas monitoring was confirmed with operation team of TPSTW. There is no accumulation of landfill gas at area for normal occupation inside TPSTW. When confined space works were being conducted, gas monitoring was performed before entry in accordance with Code of Practice on Safety and Health at Work in Confined Spaces.

6 SUMMARY OF COMPLAINTS, NOTIFICATION OF SUMMONS AND SUCCESSFUL PROSECUTIONS

6.1.1 There was no complaint received in relation to the environmental impact during this reporting period.

6.1.2 There were no notifications of summons or prosecutions received during this reporting period.

7. CONCLUSION AND RECOMMENDATIONS

7.1.1 There was no air quality monitoring conducted during the reporting period and therefore, no air quality monitoring result is reported.

7.1.2 There was an event of treated effluent overflowing from TPSTW due to the annual inspection of the submarine pipeline on 6 April 2016, with a total discharge volume of 57,783 cu.m. Daily marine water quality data was collected in accordance with the EM&A Manual from 6 April 2016 to 13 April 2016.

7.1.3 Based on the monitoring results, the overall water quality in Tolo Harbour was considered acceptable during the monitoring period. The results did not reveal any evidence showing that the overflow event from TPSTW has caused any adverse marine water quality impact to the surrounding water body.

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Figure 3.1

Tolo Harbour Water Quality Monitoring Stations

MateriaLab – Waste & Environmental Technologies Joint Venture

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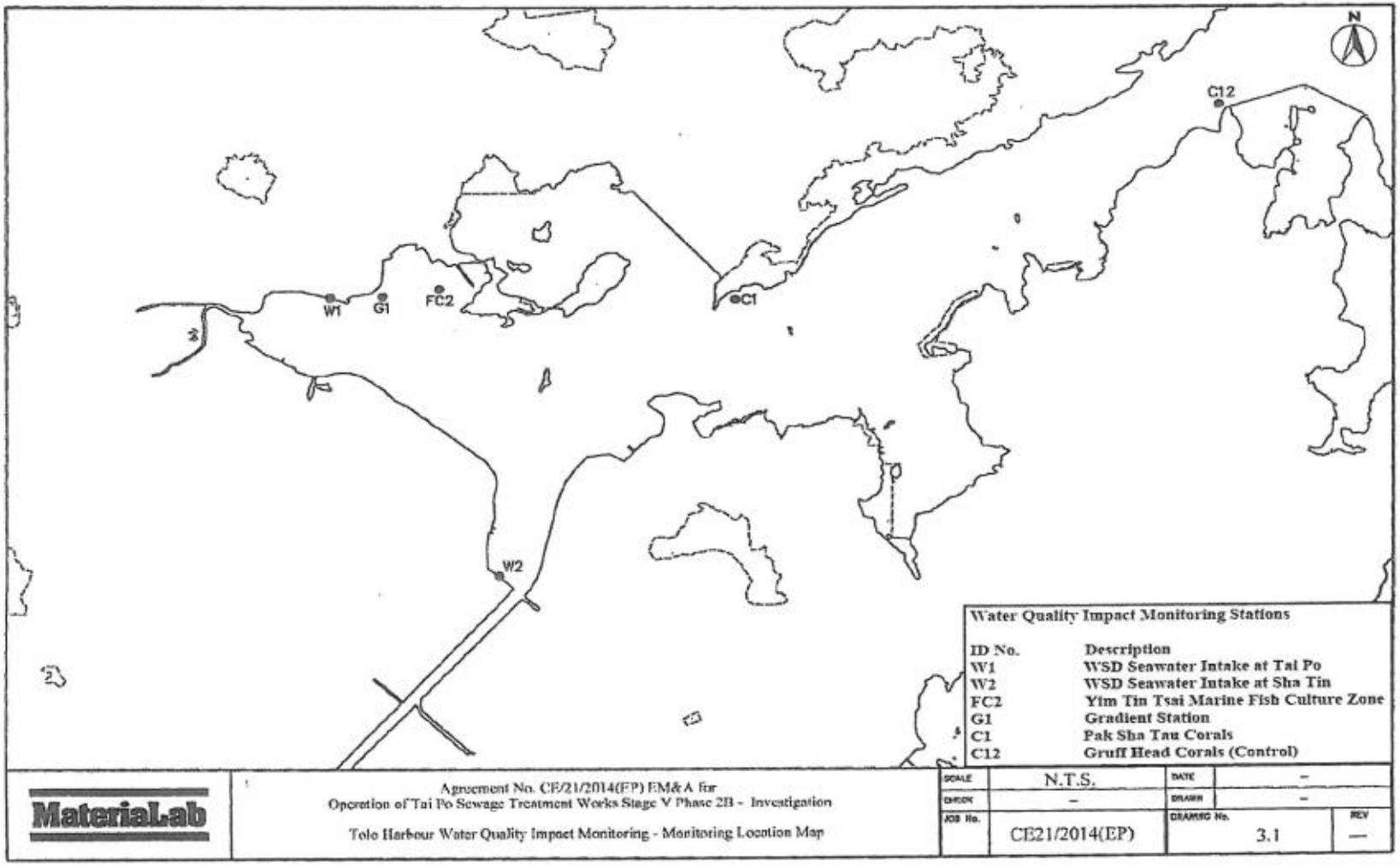
Report No.: 0151/15/ED/0528



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Report No.: 0151/15/ED/0528

Appendix A

Project Organisation Chart

MateriaLab – Waste & Environmental Technologies Joint Venture
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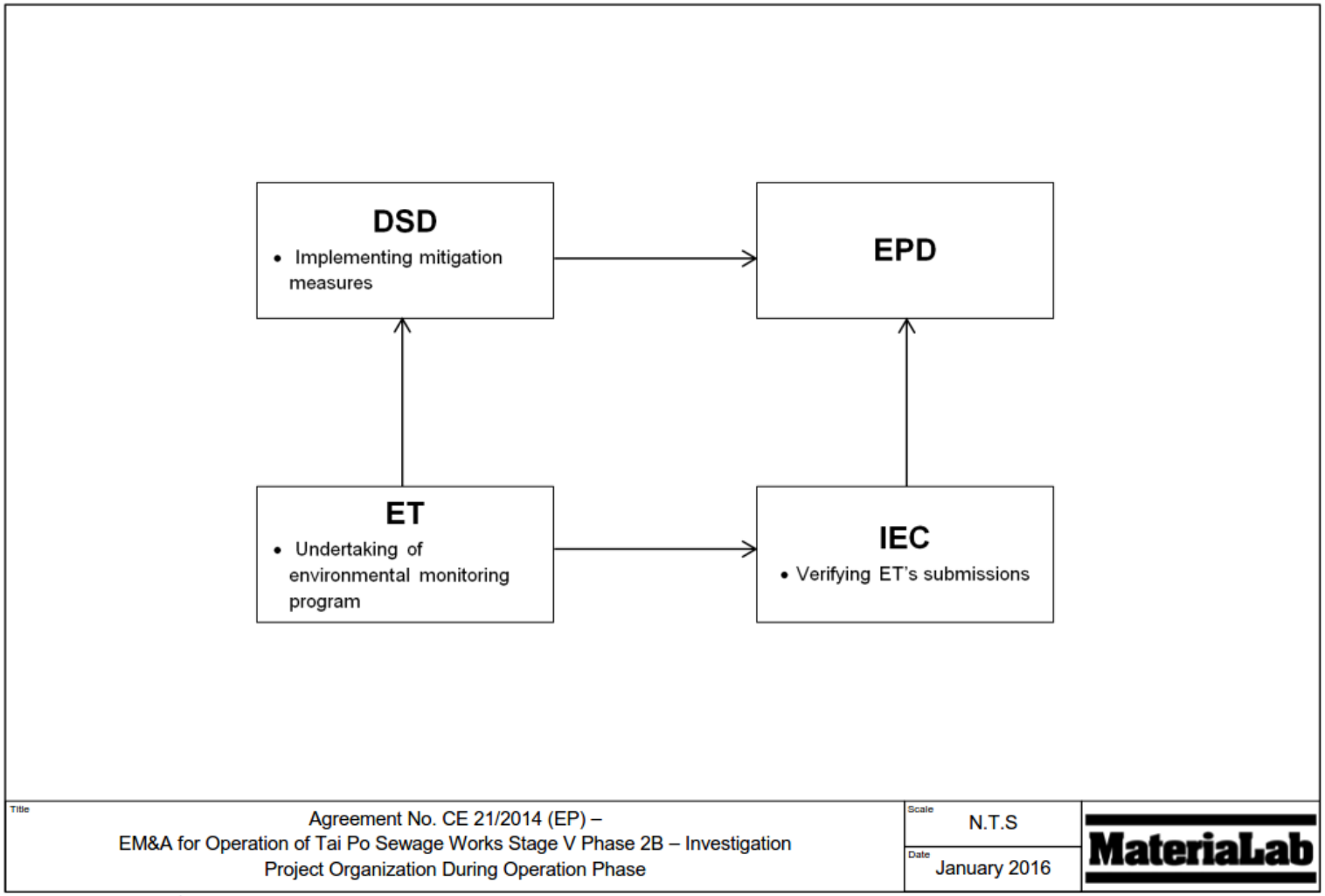
Report No.: 0151/15/ED/0528



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Appendix B

Event / Action Plan for Emergency Discharge / Accidental Spillage at Tolo Harbour

MateriaLab – Waste & Environmental Technologies Joint Venture
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Event	Action Plan
Pipe leakage as detected by dye test	1. Carry out investigation to determine the reason of such detection and identify the location of any leakage. 2. If pipe leakage is confirmed, inform EPD and WSD. 3. Determine possible remedial measures such as pipe repairing work. 4. Ensure remedial actions are properly implemented. 5. Assess effectiveness of the remedial actions and keep EPD, AFCD and WSD informed of the results. 6. If leakage continues, consider what portion of the work is responsible and reassess the remedial actions. 7. Arrange meeting with EPD, AFCD and WSD to discuss the required remedial actions if necessary and ensure all necessary remedial actions are properly implemented. 8. Conduct daily effluent and marine water monitoring (as discussed in Sections 4.6 to 4.11 and 4.45 to 4.51) until the baseline water quality levels are restored or at least 1 week after the leakage is abated. 9. The monitoring data collected in Item 8 above shall be compared with the baseline data collected under normal operation of the Project to identify the degree of impact caused by the pipe leakage.
Failure of power supply, treatment units or equipment	1. Investigate the reason of failure. 2. Determine possible remedial measures and identify the need of emergency discharge. 3. If emergency discharge is required,inform EPD and WSD. 4. Ensure remedial measures are implemented. 5. Assess the effectiveness of the implemented remedial measures and identify alternative measures if necessary. 6. Discuss with EPD, AFCD and WSD for the required remedial actions if necessary and ensure all necessary remedial actions are properly implemented. 7. Conduct daily effluent and marine water monitoring (as discussed in Sections 4.6 to 4.11 and 4.45 to 4.51) until the baseline water quality levels are restored or at least 1 week after normal plant operation is resumed (whichever is longer). 8. The monitoring data collected in Item 7 above shall be compared with the baseline data collected under normal operation of the Project to identify the degree of impact caused by the emergency discharge (if any).
THEES Maintenance period	1. Inform EPD, WSD and AFCD of the maintenance event before any discharge. 2. Conduct daily effluent and marine water monitoring (as discussed in Sections 4.6 to 4.11 and 4.45 to 4.51) until the baseline water quality levels are restored or at least 4 weeks after termination of the maintenance period (whichever is longer). 3. Install silt curtains at Tai Po and Shatin seawater intakes during the whole discharge period until the baseline water quality levels are restored. 4. The monitoring data collected in Item 2 above shall be compared with the baseline data collected under normal operation of the Project to identify the degree of impact caused by the THEES maintenance discharge.

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Report No.: 0151/15/ED/0528

Appendix C

Calibration Certificate

Report No.: 0151/15/ED/0528

ALS Technichem (HK) Pty Ltd
11/F, Chung Shun Knitting Centre
1-3 Wing Yip Street
Kwai Chung, N.T., Hong Kong
T: +852 2610 1044
F: +852 2610 2021
www.alsglobal.com

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

CONTACT:	MR IVAN LEUNG	**WORK ORDER:**	HK1612311
CLIENT:	ALS TECHNICHEM (HK) PTY LTD	**SUB-BATCH:**	0
ADDRESS:	11/F., CHUNG SHUN KNITTING CENTRE, 1-3 WING YIP STREET, KWAI CHUNG, N.T., HONG KONG	**LABORATORY:**	HONG KONG
		DATE RECEIVED:	31/03/2016
		DATE OF ISSUE:	06/04/2016

COMMENTS

The performance of the equipment stated in this report is checked with independent reference material and results compared against a calibrated secondary source.
The "Tolerance Limit" quoted is the acceptance criteria applicable for similar equipment used by the ALS Hong Kong laboratory or quoted from relevant international standards.
The "Next Calibration Date" is recommended according to best practice principals as practised by the ALS Hong Kong laboratory or quoted from relevant international standards.

Scope of Test:	Conductivity, Dissolved Oxygen, pH, Salinity, Turbidity and Temperature
Equipment Type:	Multifunctional Meter
Brand Name:	YSI
Model No.:	6920
Serial No.:	000109DF
Equipment No.:	--
Date of Calibration:	31 March, 2016

NOTES

This is the Final Report and supersedes any preliminary report with this batch number.
Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release.

Mr. Fung Lim Chee, Richard
General Manager -
Greater China & Hong Kong

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Email : mcl@fugro.com

Report No.: 0151/15/ED/0528

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1612311
Sub-Batch: 0
Client: ALS TECHNICHEM (HK) PTY LTD
Date of Issue: 06/04/2016

Equipment Type: Multifunctional Meter
Brand Name: YSI
Model No.: 6920
Serial No.: 000109DF
Equipment No.: --
Date of Calibration: 31 March, 2016 Date of next Calibration: 30 June, 2016

Parameters:

Conductivity

Method Ref: APHA (21st edition), 2510B

Expected Reading (uS/cm)	Displayed Reading (uS/cm)	Tolerance (%)
146.9	141.9	-3.4
6667	6704	+0.6
12890	12956	+0.5
58670	58196	-0.8
	Tolerance Limit (%)	±10.0

Dissolved Oxygen

Method Ref: APHA (21st edition), 4500-O: G

Expected Reading (mg/L)	Displayed Reading (mg/L)	Tolerance (mg/L)
1.50	1.44	-0.06
5.02	4.96	-0.06
9.04	9.00	-0.04
	Tolerance Limit (mg/L)	±0.20

pH Value

Method Ref: APHA 21st Ed. 4500H:B

Expected Reading (pH Unit)	Displayed Reading (pH Unit)	Tolerance (pH unit)
4.0	4.05	+0.05
7.0	7.02	+0.02
10.0	9.98	-0.02
	Tolerance Limit (pH unit)	±0.20

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Mr. Fung Lim Chee, Richard
General Manager -
Greater China & Hong Kong

ALS Technichem (HK) Pty Ltd
ALS Environmental

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Report No.: 0151/15/ED/0528

REPORT OF EQUIPMENT PERFORMANCE CHECK/CALIBRATION

Work Order: HK1612311
Sub-Batch: 0
Client: ALS TECHNICHEM (HK) PTY LTD
Date of Issue: 06/04/2016

Equipment Type: Multifunctional Meter
Brand Name: YSI
Model No.: 6920
Serial No.: 000109DF
Equipment No.: --
Date of Calibration: 31 March, 2016 Date of next Calibration: 30 June, 2016

Parameters:

Salinity

Method Ref: APHA (21st edition), 2520B

Expected Reading (ppt)	Displayed Reading (ppt)	Tolerance (%)
10	9.94	-0.6
20	19.78	-1.1
30	29.81	-0.6
	Tolerance Limit (%)	±10.0

Temperature

Method Ref: Section 6 of International Accreditation New Zealand Technical Guide No. 3 Second edition March 2008: Working Thermometer Calibration Procedure.

Expected Reading (°C)	Displayed Reading (°C)	Tolerance (°C)
13	13.1	+0.1
21	20.9	-0.1
31	30.6	-0.4
	Tolerance Limit (°C)	±2.0

Turbidity

Method Ref: APHA 21st Ed. 2130B

Expected Reading (NTU)	Displayed Reading (NTU)	Tolerance (%)
4	3.9	-2.5
40	39.4	-1.5
80	78.1	-2.4
400	386.5	-3.4
800	788.2	-1.5
	Tolerance Limit (%)	±10.0

Remark: "Displayed Reading" presents the figures shown on item under calibration / checking regardless of equipment precision or significant figures.

Mr. Fung Lim Chee, Richard
General Manager -
Greater China & Hong Kong

ALS Technichem (HK) Pty Ltd
ALS Environmental

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Report No.: 0151/15/ED/0528

Appendix D

QA/QC Results

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: MATERIALAB CONSULTANTS LIMITED	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 11
Contact	: MR ALEX H.K. NG	Contact	: Fung Lim Chee, Richard	Work Order	: HK1601236
Address	: ROOM 723 & 725, 7/F, BLOCK B, PROFIT INDUSTRIAL BUILDING, 1-15 KWAI FUNG CRESCENT, KWAI FONG HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: hk.ng@fugro.com	E-mail	: Richard.Fung@alsglobal.com		
Telephone	: +852 3565 4485	Telephone	: +852 2610 1044		
Facsimile	: +852 2450 8032	Facsimile	: +852 2610 2021		
Project	: TOLO HARBOUR AND WSD SEAWATER INTAKE WATER QUALITY MONITORING	Quote number	: ----	Date Samples Received	: 07-APR-2016
Order number	: ----			Issue Date	: 15-APR-2016
C-O-C number	: ----			No. of samples received	: 32
Site	: ----			No. of samples analysed	: 32

This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Fung Lim Chee, Richard	**General Manager**	**Inorganics**
Ng Sin Kou, May	**Assistant Laboratory Manager**	**Microbiology**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 12-APR-2016

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1601236

Sample(s) were collected by ALS Technichem (HK) staff.
Water sample(s) analysed and reported on an as received basis.
Dissolved Oxygen, pH, Temperature, Salinity, Turbidity and Water Depth were measured on-site by ALS Technichem (HK) staff.
Total Inorganic Nitrogen is the sum of the Total Oxidizable Nitrogen and Ammonical Nitrogen.
In marine and freshwater samples, chlorophyll b, if present, will cause some interference to the analysis of chlorophyll a.
Sample(s) arrived in the laboratory at 09:00. Microbiological sample(s), in plastic bottles, were received in a chilled condition. Microbiological testing period: 07/04/2016 - 09/04/2016.
NOT DETECTED denotes result(s) is (are) less than the Limit of Report (LOR).

Laboratory Duplicate (DUP) Report

Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 4175967)								
HK1601236-001	W1- MF - S	**EA025: Suspended Solids (SS)**	----	0.5	mg/L	3.0	3.9	27.2
HK1601236-015	FC2 - MF - B	**EA025: Suspended Solids (SS)**	----	0.5	mg/L	4.8	4.9	0.0
EA/ED: Physical and Aggregate Properties (QC Lot: 4175968)								
HK1601236-025	C1 - MF - S	**EA025: Suspended Solids (SS)**	----	0.5	mg/L	2.3	2.6	13.2
HK1601236-035	C12 - ME - M	**EA025: Suspended Solids (SS)**	----	0.5	mg/L	1.0	1.2	17.6
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4175202)								
HK1601236-001	W1- MF - S	**EK059A: Nitrite + Nitrate as N**	----	0.01	mg/L	0.02	0.02	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4175203)								
HK1601236-015	FC2 - MF - B	**EK059A: Nitrite + Nitrate as N**	----	0.01	mg/L	0.02	0.02	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4175649)								
HK1601236-001	W1- MF - S	**EK055K: Ammonia as N**	7664-41-7	0.005	mg/L	<0.005	<0.005	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4175650)								
HK1601236-021	G1 - MF - B	**EK055K: Ammonia as N**	7664-41-7	0.005	mg/L	<0.005	<0.005	0.0
EP: Aggregate Organics (QC Lot: 4177324)								
HK1601236-001	W1- MF - S	**EP008F: Chlorophyll a**	----	1	mg/m3	16	16	0.0
EP: Aggregate Organics (QC Lot: 4177325)								
HK1612344-001	Anonymous	**EP008F: Chlorophyll a**	----	0.1	mg/m3	2.0	2.1	0.0

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QC Lot: 4175967)											
EA025: Suspended Solids (SS)	----	0.5	mg/L	<0.5	20.0 mg/L	114	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QC Lot: 4175968)											
EA025: Suspended Solids (SS)	----	0.5	mg/L	<0.5	20.0 mg/L	111	----	85	115	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4175202)											
EK059A: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.05 mg/L	107	----	85	115	----	----
				----	0.4 mg/L	101	----	97	111	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4175203)											
EK059A: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.05 mg/L	102	----	85	115	----	----
				----	0.4 mg/L	100	----	97	111	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4175649)											
EK055K: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	102	----	92	108	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4175650)											
EK055K: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	104	----	92	108	----	----
EP: Aggregate Organics (QC Lot: 4175275)											

Matrix: WATER

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EP: Aggregate Organics (QC Lot: 4175275) - Continued											
EP030: Biochemical Oxygen Demand	----	2	mg/L	----	198 mg/L	98.2	----	87	117	----	----
EP: Aggregate Organics (QC Lot: 4175276)											
EP030: Biochemical Oxygen Demand	----	2	mg/L	----	198 mg/L	101	----	87	117	----	----
EP: Aggregate Organics (QC Lot: 4177324)											
EP008F: Chlorophyll a	----	0.1	mg/m3	<0.1	10.1 mg/m3	98.7	----	82	112	----	----
EP: Aggregate Organics (QC Lot: 4177325)											
EP008F: Chlorophyll a	----	0.1	mg/m3	<0.1	10.1 mg/m3	96.3	----	82	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4175202)										
HK1601236-001	W1- MF - S	EK059A: Nitrite + Nitrate as N	----	1.0 mg/L	105	----	75	125	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4175203)										
HK1601236-015	FC2 - MF - B	EK059A: Nitrite + Nitrate as N	----	1.0 mg/L	106	----	75	125	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4175649)										
HK1601236-001	W1- MF - S	EK055K: Ammonia as N	7664-41-7	0.5 mg/L	110	----	75	125	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4175650)										
HK1601236-021	G1 - MF - B	EK055K: Ammonia as N	7664-41-7	0.5 mg/L	98.0	----	75	125	----	----

CERTIFICATE OF ANALYSIS

Client	: MATERIALAB CONSULTANTS LIMITED	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 11
Contact	: MR ALEX H.K. NG	Contact	: Fung Lim Chee, Richard	Work Order	: HK1613131
Address	: ROOM 723 & 725, 7/F, BLOCK B, PROFIT INDUSTRIAL BUILDING, 1-15 KWAI FUNG CRESCENT, KWAI FONG HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: hk.ng@fugro.com	E-mail	: Richard.Fung@alsglobal.com		
Telephone	: +852 3565 4485	Telephone	: +852 2610 1044		
Facsimile	: +852 2450 8032	Facsimile	: +852 2610 2021		
Project	: TOLO HARBOUR AND WSD SEAWATER INTAKE WATER QUALITY MONITORING	Quote number	: ----	Date Samples Received	: 08-APR-2016
Order number	: ----			Issue Date	: 18-APR-2016
C-O-C number	: ----			No. of samples received	: 32
Site	: ----			No. of samples analysed	: 32

This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Fung Lim Chee, Richard	**General Manager**	**Inorganics**
Ng Sin Kou, May	**Assistant Laboratory Manager**	**Microbiology**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 13-APR-2016

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1613131

Sample(s) were collected by ALS Technichem (HK) staff.
Water sample(s) analysed and reported on an as received basis.
Dissolved Oxygen, pH, Temperature, Salinity, Turbidity and Water Depth were measured on-site by ALS Technichem (HK) staff.
Total Inorganic Nitrogen is the sum of the Total Oxidizable Nitrogen and Ammonical Nitrogen.
In marine and freshwater samples, chlorophyll b, if present, will cause some interference to the analysis of chlorophyll a.
Sample(s) arrived in the laboratory at 09:00. Microbiological sample(s), in plastic bottles, were received in a chilled condition. Microbiological testing period: 08/04/2016 - 10/04/2016.
NOT DETECTED denotes result(s) is (are) less than the Limit of Report (LOR).

Laboratory Duplicate (DUP) Report

Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 4175971)								
HK1613131-003	W1- MF - B	**EA025: Suspended Solids (SS)**	----	0.5	mg/L	11.2	11.1	0.0
HK1613131-015	FC2 - MF - B	**EA025: Suspended Solids (SS)**	----	0.5	mg/L	9.0	10.1	11.5
EA/ED: Physical and Aggregate Properties (QC Lot: 4175972)								
HK1613131-025	C1 - MF - S	**EA025: Suspended Solids (SS)**	----	0.5	mg/L	3.6	3.7	0.0
HK1613131-035	C12 - ME - M	**EA025: Suspended Solids (SS)**	----	0.5	mg/L	1.4	1.2	12.3
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4175206)								
HK1613038-014	Anonymous	**EK059A: Nitrite + Nitrate as N**	----	0.01	mg/L	<0.01	<0.01	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4175207)								
HK1613131-001	W1- MF - S	**EK059A: Nitrite + Nitrate as N**	----	0.01	mg/L	0.02	0.02	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4175208)								
HK1613131-015	FC2 - MF - B	**EK059A: Nitrite + Nitrate as N**	----	0.01	mg/L	0.02	0.02	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4175652)								
HK1601241-031	Anonymous	**EK055K: Ammonia as N**	7664-41-7	0.005	mg/L	<0.005	<0.005	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4175653)								
HK1601236-025	Anonymous	**EK055K: Ammonia as N**	7664-41-7	0.005	mg/L	<0.005	<0.005	0.0
EP: Aggregate Organics (QC Lot: 4177327)								
HK1612590-001	Anonymous	**EP008F: Chlorophyll a**	----	0.1	mg/m3	0.6	0.7	0.0
EP: Aggregate Organics (QC Lot: 4177328)								
HK1613131-001	W1- MF - S	**EP008F: Chlorophyll a**	----	1	mg/m3	29	29	0.0
EP: Aggregate Organics (QC Lot: 4177329)								
HK1613131-031	C12 - MF - S	**EP008F: Chlorophyll a**	----	1	mg/m3	5	5	0.0

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QC Lot: 4175971)											
EA025: Suspended Solids (SS)	----	0.5	mg/L	<0.5	20.0 mg/L	94.0	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QC Lot: 4175972)											
EA025: Suspended Solids (SS)	----	0.5	mg/L	<0.5	20.0 mg/L	88.0	----	85	115	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4175206)											
EK059A: Nitrite + Nitrate as N	----	0.01	mg/L	----	0.4 mg/L	103	----	97	111	----	----
				<0.01	0.05 mg/L	109	----	85	115	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4175207)											
EK059A: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.05 mg/L	105	----	85	115	----	----
				----	0.4 mg/L	99.2	----	97	111	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4175208)											
EK059A: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.05 mg/L	105	----	85	115	----	----

Matrix: WATER

Method: Compound	CAS Number	Method Blank (MB) Report LOR	Unit	Result	Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report Spike Concentration	Spike Recovery (%) LCS	DCS	Recovery Limits (%) Low	High	RPD (%) Value	Control Limit
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4175208) - Continued											
EK059A: Nitrite + Nitrate as N	----	0.01	mg/L	----	0.4 mg/L	99.6	----	97	111	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4175652)											
EK055K: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	101	----	92	108	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4175653)											
EK055K: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	99.1	----	92	108	----	----
EP: Aggregate Organics (QC Lot: 4175282)											
EP030: Biochemical Oxygen Demand	----	2	mg/L	----	198 mg/L	95.6	----	87	117	----	----
EP: Aggregate Organics (QC Lot: 4175283)											
EP030: Biochemical Oxygen Demand	----	2	mg/L	----	198 mg/L	102	----	87	117	----	----
EP: Aggregate Organics (QC Lot: 4177327)											
EP008F: Chlorophyll a	----	0.1	mg/m3	<0.1	10.1 mg/m3	102	----	82	112	----	----
EP: Aggregate Organics (QC Lot: 4177328)											
EP008F: Chlorophyll a	----	0.1	mg/m3	<0.1	10.1 mg/m3	103	----	82	112	----	----
EP: Aggregate Organics (QC Lot: 4177329)											
EP008F: Chlorophyll a	----	0.1	mg/m3	<0.1	10.1 mg/m3	106	----	82	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report Spike Concentration	Spike Recovery (%) MS	MSD	Recovery Limits (%) Low	High	RPD (%) Value	Control Limit
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4175206)										
HK1613038-014	Anonymous	EK059A: Nitrite + Nitrate as N	----	1.0 mg/L	99.0	----	75	125	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4175207)										
HK1613131-001	W1- MF - S	EK059A: Nitrite + Nitrate as N	----	1.0 mg/L	106	----	75	125	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4175208)										
HK1613131-015	FC2 - MF - B	EK059A: Nitrite + Nitrate as N	----	1.0 mg/L	103	----	75	125	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4175652)										
HK1601241-031	Anonymous	EK055K: Ammonia as N	7664-41-7	0.5 mg/L	108	----	75	125	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4175653)										
HK1601241-025	Anonymous	EK055K: Ammonia as N	7664-41-7	0.5 mg/L	116	----	75	125	----	----

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ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: MATERIALAB CONSULTANTS LIMITED	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 11
Contact	: MR ALEX H.K. NG	Contact	: Fung Lim Chee, Richard	Work Order	: HK1601241
Address	: ROOM 723 & 725, 7/F, BLOCK B, PROFIT INDUSTRIAL BUILDING, 1-15 KWAI FUNG CRESCENT, KWAI FONG HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: hk.ng@fugro.com	E-mail	: Richard.Fung@alsglobal.com		
Telephone	: +852 3565 4485	Telephone	: +852 2610 1044		
Facsimile	: +852 2450 8032	Facsimile	: +852 2610 2021		
Project	: TOLO HARBOUR AND WSD SEAWATER INTAKE WATER QUALITY MONITORING	Quote number	: ----	Date Samples Received	: 09-APR-2016
Order number	: ----			Issue Date	: 19-APR-2016
C-O-C number	: ----			No. of samples received	: 32
Site	: ----			No. of samples analysed	: 32

This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Fung Lim Chee, Richard	**General Manager**	**Inorganics**
Ng Sin Kou, May	**Assistant Laboratory Manager**	**Microbiology**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 14-APR-2016

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1601241

Sample(s) were collected by ALS Technichem (HK) staff.
Water sample(s) analysed and reported on an as received basis.
Dissolved Oxygen, pH, Temperature, Salinity, Turbidity and Water Depth were measured on-site by ALS Technichem (HK) staff.
Total Inorganic Nitrogen is the sum of the Total Oxidizable Nitrogen and Ammonical Nitrogen.
In marine and freshwater samples, chlorophyll b, if present, will cause some interference to the analysis of chlorophyll a.
Sample(s) arrived in the laboratory at 09:00. Microbiological sample(s), in plastic bottles, were received in a chilled condition. Microbiological testing period: 09/04/2016 - 11/04/2016.
NOT DETECTED denotes result(s) is (are) less than the Limit of Report (LOR).

Laboratory Duplicate (DUP) Report

Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 4175969)								
HK1601241-003	W1 - MF - B	EA025: Suspended Solids (SS)	----	0.5	mg/L	5.0	4.9	2.0
HK1601241-015	FC2 - MF - B	EA025: Suspended Solids (SS)	----	0.5	mg/L	3.2	3.3	0.0
EA/ED: Physical and Aggregate Properties (QC Lot: 4175970)								
HK1601241-025	C1 - MF - S	EA025: Suspended Solids (SS)	----	0.5	mg/L	2.7	2.7	0.0
HK1601241-035	C12 - ME - M	EA025: Suspended Solids (SS)	----	0.5	mg/L	3.2	3.2	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4175650)								
HK1601236-021	Anonymous	EK055K: Ammonia as N	7664-41-7	0.005	mg/L	<0.005	<0.005	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4175651)								
HK1601241-001	W1 - MF - S	EK055K: Ammonia as N	7664-41-7	0.005	mg/L	<0.005	<0.005	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4175652)								
HK1601241-031	C12 - MF - S	EK055K: Ammonia as N	7664-41-7	0.005	mg/L	<0.005	<0.005	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4176494)								
HK1601241-021	G1 - MF - B	EK059A: Nitrite + Nitrate as N	----	0.01	mg/L	0.02	0.01	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4176495)								
HK1601241-012	W2 - ME - B	EK059A: Nitrite + Nitrate as N	----	0.01	mg/L	0.02	0.01	0.0
EP: Aggregate Organics (QC Lot: 4177325)								
HK1612344-001	Anonymous	EP008F: Chlorophyll a	----	0.1	mg/m3	2.0	2.1	0.0
EP: Aggregate Organics (QC Lot: 4177326)								
HK1601241-001	W1 - MF - S	EP008F: Chlorophyll a	----	1	mg/m3	17	17	0.0
EP: Aggregate Organics (QC Lot: 4177327)								
HK1612590-001	Anonymous	EP008F: Chlorophyll a	----	0.1	mg/m3	0.6	0.7	0.0

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QC Lot: 4175969)											
EA025: Suspended Solids (SS)	----	0.5	mg/L	<0.5	20.0 mg/L	95.0	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QC Lot: 4175970)											
EA025: Suspended Solids (SS)	----	0.5	mg/L	<0.5	20.0 mg/L	94.5	----	85	115	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4175650)											
EK055K: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	104	----	92	108	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4175651)											
EK055K: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	101	----	92	108	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4175652)											
EK055K: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	101	----	92	108	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4176494)											

Matrix: WATER

Method: Compound	CAS Number	Method Blank (MB) Report LOR	Unit	Result	Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report Spike Concentration	Spike Recovery (%) LCS	DCS	Recovery Limits (%) Low	High	RPD (%) Value	Control Limit
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4176494) - Continued											
EK059A: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.05 mg/L	107	----	85	115	----	----
				----	0.4 mg/L	103	----	97	111	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4176495)											
EK059A: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.05 mg/L	99.2	----	85	115	----	----
				----	0.4 mg/L	101	----	97	111	----	----
EP: Aggregate Organics (QC Lot: 4175442)											
EP030: Biochemical Oxygen Demand	----	2	mg/L	----	198 mg/L	95.3	----	87	117	----	----
EP: Aggregate Organics (QC Lot: 4175443)											
EP030: Biochemical Oxygen Demand	----	2	mg/L	----	198 mg/L	98.2	----	87	117	----	----
EP: Aggregate Organics (QC Lot: 4177325)											
EP008F: Chlorophyll a	----	0.1	mg/m3	<0.1	10.1 mg/m3	96.3	----	82	112	----	----
EP: Aggregate Organics (QC Lot: 4177326)											
EP008F: Chlorophyll a	----	0.1	mg/m3	<0.1	10.1 mg/m3	102	----	82	112	----	----
EP: Aggregate Organics (QC Lot: 4177327)											
EP008F: Chlorophyll a	----	0.1	mg/m3	<0.1	10.1 mg/m3	102	----	82	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report Spike Concentration	Spike Recovery (%) MS	MSD	Recovery Limits (%) Low	High	RPD (%) Value	Control Limit
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4175650)										
HK1601236-021	Anonymous	**EK055K: Ammonia as N**	7664-41-7	0.5 mg/L	98.0	----	75	125	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4175651)										
HK1601241-001	W1 - MF - S	**EK055K: Ammonia as N**	7664-41-7	0.5 mg/L	102	----	75	125	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4175652)										
HK1601241-031	C12 - MF - S	**EK055K: Ammonia as N**	7664-41-7	0.5 mg/L	108	----	75	125	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4176494)										
HK1601241-001	W1 - MF - S	**EK059A: Nitrite + Nitrate as N**	----	1.0 mg/L	99.2	----	75	125	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4176495)										
HK1601241-012	W2 - ME - B	**EK059A: Nitrite + Nitrate as N**	----	1.0 mg/L	96.1	----	75	125	----	----

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CERTIFICATE OF ANALYSIS

Client	: MATERIALAB CONSULTANTS LIMITED	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 11
Contact	: MR ALEX H.K. NG	Contact	: Fung Lim Chee, Richard	Work Order	: HK1613341
Address	: ROOM 723 & 725, 7/F, BLOCK B, PROFIT INDUSTRIAL BUILDING, 1-15 KWAI FUNG CRESCENT, KWAI FONG HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: hk.ng@fugro.com	E-mail	: Richard.Fung@alsglobal.com		
Telephone	: +852 3565 4485	Telephone	: +852 2610 1044		
Facsimile	: +852 2450 8032	Facsimile	: +852 2610 2021		
Project	: TOLO HARBOUR AND WSD SEAWATER INTAKE WATER QUALITY MONITORING	Quote number	: ----	Date Samples Received	: 09-APR-2016
Order number	: ----			Issue Date	: 19-APR-2016
C-O-C number	: ----			No. of samples received	: 32
Site	: ----			No. of samples analysed	: 32

This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Fung Lim Chee, Richard	**General Manager**	**Inorganics**
Ng Sin Kou, May	**Assistant Laboratory Manager**	**Microbiology**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 18-APR-2016

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1613341

The accredited LOR for Total Inorganic Nitrogen is 0.02mg/L. The results below the accredited LOR reported are for reference only.
Sample(s) were collected by ALS Technichem (HK) staff.
Water sample(s) analysed and reported on an as received basis.
Dissolved Oxygen, pH, Temperature, Salinity, Turbidity and Water Depth were measured on-site by ALS Technichem (HK) staff.
Total Inorganic Nitrogen is the sum of the Total Oxidizable Nitrogen and Ammonical Nitrogen.
In marine and freshwater samples, chlorophyll b, if present, will cause some interference to the analysis of chlorophyll a.
Sample(s) arrived in the laboratory at 16:50. Microbiological sample(s), in plastic bottles, were received in a chilled condition. Microbiological testing period: 09/04/2016 - 11/04/2016.
NOT DETECTED denotes result(s) is (are) less than the Limit of Report (LOR).

Laboratory Duplicate (DUP) Report

Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 4176894)								
HK1613341-001	W1 - MF - S	**EA025: Suspended Solids (SS)**	----	0.5	mg/L	2.6	2.6	0.0
HK1613341-015	FC2 - MF - B	**EA025: Suspended Solids (SS)**	----	0.5	mg/L	3.5	3.5	0.0
EA/ED: Physical and Aggregate Properties (QC Lot: 4176895)								
HK1613341-025	C1 - MF - S	**EA025: Suspended Solids (SS)**	----	0.5	mg/L	3.4	3.3	0.0
HK1613341-035	C12 - ME - M	**EA025: Suspended Solids (SS)**	----	0.5	mg/L	3.1	3.1	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177039)								
HK1613341-001	W1 - MF - S	**EK059A: Nitrite + Nitrate as N**	----	0.01	mg/L	0.02	0.02	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177040)								
HK1613341-021	G1 - MF - B	**EK059A: Nitrite + Nitrate as N**	----	0.01	mg/L	0.04	0.04	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177043)								
HK1613341-001	W1 - MF - S	**EK055K: Ammonia as N**	7664-41-7	0.005	mg/L	<0.005	<0.005	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177044)								
HK1613341-031	C12 - MF - S	**EK055K: Ammonia as N**	7664-41-7	0.005	mg/L	<0.005	<0.005	0.0
EP: Aggregate Organics (QC Lot: 4180110)								
HK1613341-015	FC2 - MF - B	**EP008F: Chlorophyll a**	----	1	mg/m3	4	4	0.0
EP: Aggregate Organics (QC Lot: 4180111)								
HK1613341-027	C1 - MF - B	**EP008F: Chlorophyll a**	----	1	mg/m3	21	22	5.1

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QC Lot: 4176894)											
EA025: Suspended Solids (SS)	----	0.5	mg/L	<0.5	20.0 mg/L	95.0	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QC Lot: 4176895)											
EA025: Suspended Solids (SS)	----	0.5	mg/L	<0.5	20.0 mg/L	99.5	----	85	115	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177039)											
EK059A: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.05 mg/L	94.2	----	85	115	----	----
				----	0.4 mg/L	102	----	97	111	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177040)											
EK059A: Nitrite + Nitrate as N	----	0.01	mg/L	----	0.4 mg/L	105	----	97	111	----	----
				<0.01	0.05 mg/L	102	----	85	115	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177043)											
EK055K: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	99.1	----	92	108	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177044)											
EK055K: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	101	----	92	108	----	----
EP: Aggregate Organics (QC Lot: 4176660)											

Matrix: WATER

Method: Compound	CAS Number	Method Blank (MB) Report LOR	Unit	Result	Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report Spike Concentration	Spike Recovery (%) LCS	DCS	Recovery Limits (%) Low	High	RPD (%) Value	Control Limit
EP: Aggregate Organics (QC Lot: 4176660) - Continued											
EP030: Biochemical Oxygen Demand	----	2	mg/L	----	198 mg/L	102	----	87	117	----	----
EP: Aggregate Organics (QC Lot: 4176661)											
EP030: Biochemical Oxygen Demand	----	2	mg/L	----	198 mg/L	101	----	87	117	----	----
EP: Aggregate Organics (QC Lot: 4180110)											
EP008F: Chlorophyll a	----	0.1	mg/m3	<0.1	10.44 mg/m3	94.1	----	82	112	----	----
EP: Aggregate Organics (QC Lot: 4180111)											
EP008F: Chlorophyll a	----	0.1	mg/m3	<0.1	10.44 mg/m3	104	----	82	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report Spike Concentration	Spike Recovery (%) MS	MSD	Recovery Limits (%) Low	High	RPD (%) Value	Control Limit
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177039)										
HK1613341-001	W1 - MF - S	EK059A: Nitrite + Nitrate as N	----	1.0 mg/L	99.4	----	75	125	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177040)										
HK1613341-021	G1 - MF - B	EK059A: Nitrite + Nitrate as N	----	1.0 mg/L	88.2	----	75	125	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177043)										
HK1613341-001	W1 - MF - S	EK055K: Ammonia as N	7664-41-7	0.5 mg/L	96.0	----	75	125	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177044)										
HK1613341-031	C12 - MF - S	EK055K: Ammonia as N	7664-41-7	0.5 mg/L	90.0	----	75	125	----	----

CERTIFICATE OF ANALYSIS

Client	: MATERIALAB CONSULTANTS LIMITED	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 12
Contact	: MR ALEX H.K. NG	Contact	: Fung Lim Chee, Richard	Work Order	: HK1613710
Address	: ROOM 723 & 725, 7/F, BLOCK B, PROFIT INDUSTRIAL BUILDING, 1-15 KWAI FUNG CRESCENT, KWAI FONG HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: hk.ng@fugro.com	E-mail	: Richard.Fung@alsglobal.com		
Telephone	: +852 3565 4485	Telephone	: +852 2610 1044		
Facsimile	: +852 2450 8032	Facsimile	: +852 2610 2021		
Project	: TOLO HARBOUR AND WSD SEAWATER INTAKE WATER QUALITY MONITORING	Quote number	: ----	Date Samples Received	: 10-APR-2016
Order number	: ----			Issue Date	: 19-APR-2016
C-O-C number	: ----			No. of samples received	: 32
Site	: ----			No. of samples analysed	: 32

This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Fung Lim Chee, Richard	**General Manager**	**Inorganics**
Ng Sin Kou, May	**Assistant Laboratory Manager**	**Microbiology**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 18-APR-2016

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1613710

The accredited LOR for Total Inorganic Nitrogen is 0.02mg/L. The results below the accredited LOR reported are for reference only.
Sample(s) were collected by ALS Technichem (HK) staff.
Water sample(s) analysed and reported on an as received basis.
Dissolved Oxygen, pH, Temperature, Salinity, Turbidity and Water Depth were measured on-site by ALS Technichem (HK) staff.
Total Inorganic Nitrogen is the sum of the Total Oxidizable Nitrogen and Ammonical Nitrogen.
In marine and freshwater samples, chlorophyll b, if present, will cause some interference to the analysis of chlorophyll a.
Sample(s) arrived in the laboratory at 12:00. Microbiological sample(s), in plastic bottles, were received in a chilled condition. Microbiological testing period: 10/04/2016 - 13/04/2016.
NOT DETECTED denotes result(s) is (are) less than the Limit of Report (LOR).

Laboratory Duplicate (DUP) Report

Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 4176897)								
HK1613710-004	W1- ME - S	**EA025: Suspended Solids (SS)**	----	0.5	mg/L	3.3	3.4	4.2
HK1613710-015	FC2 - MF - B	**EA025: Suspended Solids (SS)**	----	0.5	mg/L	3.1	3.1	0.0
EA/ED: Physical and Aggregate Properties (QC Lot: 4176898)								
HK1613710-025	C1 - MF - S	**EA025: Suspended Solids (SS)**	----	0.5	mg/L	2.1	2.1	0.0
HK1613710-035	C12 - ME - M	**EA025: Suspended Solids (SS)**	----	0.5	mg/L	1.6	1.7	9.2
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177040)								
HK1613341-021	Anonymous	**EK059A: Nitrite + Nitrate as N**	----	0.01	mg/L	0.04	0.04	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177041)								
HK1613710-021	G1 - MF - B	**EK059A: Nitrite + Nitrate as N**	----	0.01	mg/L	0.04	0.04	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177042)								
HK1613710-031	C12 - MF - S	**EK059A: Nitrite + Nitrate as N**	----	0.01	mg/L	0.04	0.04	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177044)								
HK1613341-031	Anonymous	**EK055K: Ammonia as N**	7664-41-7	0.005	mg/L	<0.005	<0.005	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177045)								
HK1613710-001	W1- MF - S	**EK055K: Ammonia as N**	7664-41-7	0.005	mg/L	<0.005	<0.005	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177046)								
HK1613710-031	C12 - MF - S	**EK055K: Ammonia as N**	7664-41-7	0.005	mg/L	<0.005	<0.005	0.0
EP: Aggregate Organics (QC Lot: 4180111)								
HK1613341-027	Anonymous	**EP008F: Chlorophyll a**	----	1	mg/m3	21	22	5.1
EP: Aggregate Organics (QC Lot: 4180112)								
HK1613710-001	W1- MF - S	**EP008F: Chlorophyll a**	----	1	mg/m3	13	13	0.0
EP: Aggregate Organics (QC Lot: 4180113)								
HK1613710-024	G1 - ME - B	**EP008F: Chlorophyll a**	----	1	mg/m3	5	5	0.0

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QC Lot: 4176897)											
EA025: Suspended Solids (SS)	----	0.5	mg/L	<0.5	20.0 mg/L	106	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QC Lot: 4176898)											
EA025: Suspended Solids (SS)	----	0.5	mg/L	<0.5	20.0 mg/L	91.0	----	85	115	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177040)											
EK059A: Nitrite + Nitrate as N	----	0.01	mg/L	----	0.4 mg/L	105	----	97	111	----	----
				<0.01	0.05 mg/L	102	----	85	115	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177041)											
EK059A: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.05 mg/L	95.4	----	85	115	----	----
				----	0.4 mg/L	105	----	97	111	----	----

Matrix: WATER

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177042)											
EK059A: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.05 mg/L	95.0	----	85	115	----	----
				----	0.4 mg/L	101	----	97	111	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177044)											
EK055K: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	101	----	92	108	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177045)											
EK055K: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	102	----	92	108	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177046)											
EK055K: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	97.2	----	92	108	----	----
EP: Aggregate Organics (QC Lot: 4176661)											
EP030: Biochemical Oxygen Demand	----	2	mg/L	----	198 mg/L	101	----	87	117	----	----
EP: Aggregate Organics (QC Lot: 4176662)											
EP030: Biochemical Oxygen Demand	----	2	mg/L	----	198 mg/L	100	----	87	117	----	----
EP: Aggregate Organics (QC Lot: 4176663)											
EP030: Biochemical Oxygen Demand	----	2	mg/L	----	198 mg/L	99.4	----	87	117	----	----
EP: Aggregate Organics (QC Lot: 4180111)											
EP008F: Chlorophyll a	----	0.1	mg/m3	<0.1	10.44 mg/m3	104	----	82	112	----	----
EP: Aggregate Organics (QC Lot: 4180112)											
EP008F: Chlorophyll a	----	0.1	mg/m3	<0.1	10.44 mg/m3	105	----	82	112	----	----
EP: Aggregate Organics (QC Lot: 4180113)											
EP008F: Chlorophyll a	----	0.1	mg/m3	<0.1	10.44 mg/m3	101	----	82	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report						
				Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
					MS	MSD	Low	High	Value	Control Limit
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177040)										
HK1613341-021	Anonymous	**EK059A: Nitrite + Nitrate as N**	----	1.0 mg/L	88.2	----	75	125	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177041)										
HK1613710-021	G1 - MF - B	**EK059A: Nitrite + Nitrate as N**	----	1.0 mg/L	108	----	75	125	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177042)										
HK1613710-031	C12 - MF - S	**EK059A: Nitrite + Nitrate as N**	----	1.0 mg/L	106	----	75	125	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177044)										
HK1613341-031	Anonymous	**EK055K: Ammonia as N**	7664-41-7	0.5 mg/L	90.0	----	75	125	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177045)										
HK1613710-001	W1- MF - S	**EK055K: Ammonia as N**	7664-41-7	0.5 mg/L	96.0	----	75	125	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177046)										
HK1613710-031	C12 - MF - S	**EK055K: Ammonia as N**	7664-41-7	0.5 mg/L	96.0	----	75	125	----	----

CERTIFICATE OF ANALYSIS

Client	: MATERIALAB CONSULTANTS LIMITED	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 11
Contact	: MR ALEX H.K. NG	Contact	: Fung Lim Chee, Richard	Work Order	: HK1613801
Address	: ROOM 723 & 725, 7/F, BLOCK B, PROFIT INDUSTRIAL BUILDING, 1-15 KWAI FUNG CRESCENT, KWAI FONG HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: hk.ng@fugro.com	E-mail	: Richard.Fung@alsglobal.com		
Telephone	: +852 3565 4485	Telephone	: +852 2610 1044		
Facsimile	: +852 2450 8032	Facsimile	: +852 2610 2021		
Project	: TOLO HARBOUR AND WSD SEAWATER INTAKE WATER QUALITY MONITORING	Quote number	: ----	Date Samples Received	: 11-APR-2016
Order number	: ----			Issue Date	: 20-APR-2016
C-O-C number	: ----			No. of samples received	: 32
Site	: ----			No. of samples analysed	: 32

This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Fung Lim Chee, Richard	**General Manager**	**Inorganics**
Ng Sin Kou, May	**Assistant Laboratory Manager**	**Microbiology**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 18-APR-2016

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1613801

Sample(s) were collected by ALS Technichem (HK) staff.
Water sample(s) analysed and reported on an as received basis.
Dissolved Oxygen, pH, Temperature, Salinity, Turbidity and Water Depth were measured on-site by ALS Technichem (HK) staff.
Total Inorganic Nitrogen is the sum of the Total Oxidizable Nitrogen and Ammonical Nitrogen.
In marine and freshwater samples, chlorophyll b, if present, will cause some interference to the analysis of chlorophyll a.
Sample(s) arrived in the laboratory at 17:45. Microbiological sample(s), in plastic bottles, were received in a chilled condition. Microbiological testing period: 12/04/2016 - 14/04/2016.
NOT DETECTED denotes result(s) is (are) less than the Limit of Report (LOR).

Laboratory Duplicate (DUP) Report

Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 4176902)								
HK1613801-001	W1- MF - S	**EA025: Suspended Solids (SS)**	----	0.5	mg/L	2.6	2.6	0.0
HK1613801-015	FC2 - MF - B	**EA025: Suspended Solids (SS)**	----	0.5	mg/L	4.4	4.1	7.1
EA/ED: Physical and Aggregate Properties (QC Lot: 4176903)								
HK1613801-025	C1 - MF - S	**EA025: Suspended Solids (SS)**	----	0.5	mg/L	2.9	2.8	4.2
HK1613801-035	C12 - ME - M	**EA025: Suspended Solids (SS)**	----	0.5	mg/L	2.3	2.2	5.4
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177494)								
HK1613801-001	W1- MF - S	**EK055K: Ammonia as N**	7664-41-7	0.005	mg/L	<0.005	<0.005	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177495)								
HK1613801-021	G1 - MF - B	**EK055K: Ammonia as N**	7664-41-7	0.005	mg/L	<0.005	<0.005	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177496)								
HK1613801-031	C12 - MF - S	**EK055K: Ammonia as N**	7664-41-7	0.005	mg/L	<0.005	<0.005	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4179741)								
HK1613801-001	W1- MF - S	**EK059A: Nitrite + Nitrate as N**	----	0.01	mg/L	0.02	0.02	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4179742)								
HK1613801-021	G1 - MF - B	**EK059A: Nitrite + Nitrate as N**	----	0.01	mg/L	0.02	0.02	0.0
EP: Aggregate Organics (QC Lot: 4180113)								
HK1613710-024	Anonymous	**EP008F: Chlorophyll a**	----	1	mg/m3	5	5	0.0
EP: Aggregate Organics (QC Lot: 4180114)								
HK1613801-001	W1- MF - S	**EP008F: Chlorophyll a**	----	1	mg/m3	12	12	0.0

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QC Lot: 4176902)											
EA025: Suspended Solids (SS)	----	0.5	mg/L	<0.5	20.0 mg/L	101	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QC Lot: 4176903)											
EA025: Suspended Solids (SS)	----	0.5	mg/L	<0.5	20.0 mg/L	92.0	----	85	115	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177494)											
EK055K: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	101	----	92	108	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177495)											
EK055K: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	96.0	----	92	108	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177496)											
EK055K: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	96.2	----	92	108	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4179741)											
EK059A: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.05 mg/L	103	----	85	115	----	----
				----	0.4 mg/L	99.9	----	97	111	----	----

Matrix: WATER

Method: Compound	CAS Number	Method Blank (MB) Report LOR	Unit	Result	Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report Spike Concentration	Spike Recovery (%) LCS	DCS	Recovery Limits (%) Low	High	RPD (%) Value	Control Limit
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4179742)											
EK059A: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.05 mg/L	101	----	85	115	----	----
				----	0.4 mg/L	99.3	----	97	111	----	----
EP: Aggregate Organics (QC Lot: 4178270)											
EP030: Biochemical Oxygen Demand	----	2	mg/L	----	198 mg/L	100	----	87	117	----	----
EP: Aggregate Organics (QC Lot: 4178271)											
EP030: Biochemical Oxygen Demand	----	2	mg/L	----	198 mg/L	104	----	87	117	----	----
EP: Aggregate Organics (QC Lot: 4180113)											
EP008F: Chlorophyll a	----	0.1	mg/m3	<0.1	10.44 mg/m3	101	----	82	112	----	----
EP: Aggregate Organics (QC Lot: 4180114)											
EP008F: Chlorophyll a	----	0.1	mg/m3	<0.1	10.4 mg/m3	93.9	----	82	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report Spike Concentration	Spike Recovery (%) MS	MSD	Recovery Limits (%) Low	High	RPD (%) Value	Control Limit
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177494)										
HK1613801-001	W1- MF - S	EK055K: Ammonia as N	7664-41-7	0.5 mg/L	88.0	----	75	125	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177495)										
HK1613801-021	G1 - MF - B	EK055K: Ammonia as N	7664-41-7	0.5 mg/L	90.0	----	75	125	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4177496)										
HK1613801-031	C12 - MF - S	EK055K: Ammonia as N	7664-41-7	0.5 mg/L	86.0	----	75	125	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4179741)										
HK1613801-001	W1- MF - S	EK059A: Nitrite + Nitrate as N	----	1.0 mg/L	103	----	75	125	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4179742)										
HK1613801-021	G1 - MF - B	EK059A: Nitrite + Nitrate as N	----	1.0 mg/L	104	----	75	125	----	----

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: MATERIALAB CONSULTANTS LIMITED	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 11
Contact	: MR ALEX H.K. NG	Contact	: Fung Lim Chee, Richard	Work Order	: HK1613962
Address	: ROOM 723 & 725, 7/F, BLOCK B, PROFIT INDUSTRIAL BUILDING, 1-15 KWAI FUNG CRESCENT, KWAI FONG HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: hk.ng@fugro.com	E-mail	: Richard.Fung@alsglobal.com		
Telephone	: +852 3565 4485	Telephone	: +852 2610 1044		
Facsimile	: +852 2450 8032	Facsimile	: +852 2610 2021		
Project	: TOLO HARBOUR AND WSD SEAWATER INTAKE WATER QUALITY MONITORING	Quote number	: ----	Date Samples Received	: 12-APR-2016
Order number	: ----			Issue Date	: 20-APR-2016
C-O-C number	: ----			No. of samples received	: 32
Site	: ----			No. of samples analysed	: 32

This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Fung Lim Chee, Richard	**General Manager**	**Inorganics**
Ng Sin Kou, May	**Assistant Laboratory Manager**	**Microbiology**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 18-APR-2016

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1613962

Sample(s) were collected by ALS Technichem (HK) staff.
Water sample(s) analysed and reported on an as received basis.
Dissolved Oxygen, pH, Temperature, Salinity, Turbidity and Water Depth were measured on-site by ALS Technichem (HK) staff.
Total Inorganic Nitrogen is the sum of the Total Oxidizable Nitrogen and Ammonical Nitrogen.
In marine and freshwater samples, chlorophyll b, if present, will cause some interference to the analysis of chlorophyll a.
Sample(s) arrived in the laboratory at 18:30. Microbiological sample(s), in plastic bottles, were received in a chilled condition. Microbiological testing period: 13/04/2016 - 15/04/2016.
NOT DETECTED denotes result(s) is (are) less than the Limit of Report (LOR).

Laboratory Duplicate (DUP) Report

Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 4179337)								
HK1613962-001	W1- MF - S	**EA025: Suspended Solids (SS)**	----	0.5	mg/L	3.2	3.0	7.1
HK1613962-015	FC2 - MF - B	**EA025: Suspended Solids (SS)**	----	0.5	mg/L	2.4	2.4	0.0
EA/ED: Physical and Aggregate Properties (QC Lot: 4179338)								
HK1613962-025	C1 - MF - S	**EA025: Suspended Solids (SS)**	----	0.5	mg/L	2.2	2.1	4.7
HK1613962-035	C12 - ME - M	**EA025: Suspended Solids (SS)**	----	0.5	mg/L	2.5	2.6	5.5
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4179737)								
HK1613962-017	FC2 - ME - M	**EK055K: Ammonia as N**	7664-41-7	0.005	mg/L	0.020	0.020	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4179738)								
HK1613962-021	G1 - MF - B	**EK055K: Ammonia as N**	7664-41-7	0.005	mg/L	0.008	0.008	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4179742)								
HK1613801-021	Anonymous	**EK059A: Nitrite + Nitrate as N**	----	0.01	mg/L	0.02	0.02	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4179743)								
HK1613962-001	W1- MF - S	**EK059A: Nitrite + Nitrate as N**	----	0.01	mg/L	0.03	0.04	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4179744)								
HK1613962-021	G1 - MF - B	**EK059A: Nitrite + Nitrate as N**	----	0.01	mg/L	0.03	0.02	0.0
EP: Aggregate Organics (QC Lot: 4180114)								
HK1613801-001	Anonymous	**EP008F: Chlorophyll a**	----	1	mg/m3	12	12	0.0
EP: Aggregate Organics (QC Lot: 4180115)								
HK1614156-012	Anonymous	**EP008F: Chlorophyll a**	----	1	mg/m3	2	2	0.0
EP: Aggregate Organics (QC Lot: 4180116)								
HK1613962-012	W2 - ME - B	**EP008F: Chlorophyll a**	----	1	mg/m3	4	4	0.0

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QC Lot: 4179337)											
EA025: Suspended Solids (SS)	----	0.5	mg/L	<0.5	20.0 mg/L	95.0	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QC Lot: 4179338)											
EA025: Suspended Solids (SS)	----	0.5	mg/L	<0.5	20.0 mg/L	96.5	----	85	115	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4179737)											
EK055K: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	102	----	92	108	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4179738)											
EK055K: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	103	----	92	108	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4179742)											
EK059A: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.05 mg/L	101	----	85	115	----	----
				----	0.4 mg/L	99.3	----	97	111	----	----

Matrix: WATER

Method: Compound	CAS Number	Method Blank (MB) Report LOR	Unit	Result	Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report Spike Concentration	Spike Recovery (%) LCS	DCS	Recovery Limits (%) Low	High	RPD (%) Value	Control Limit
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4179743)											
EK059A: Nitrite + Nitrate as N	----	0.01	mg/L	----	0.4 mg/L	99.7	----	97	111	----	----
				<0.01	0.05 mg/L	101	----	85	115	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4179744)											
EK059A: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.05 mg/L	103	----	85	115	----	----
				----	0.4 mg/L	100	----	97	111	----	----
EP: Aggregate Organics (QC Lot: 4178851)											
EP030: Biochemical Oxygen Demand	----	2	mg/L	----	198 mg/L	99.1	----	87	117	----	----
EP: Aggregate Organics (QC Lot: 4178852)											
EP030: Biochemical Oxygen Demand	----	2	mg/L	----	198 mg/L	99.1	----	87	117	----	----
EP: Aggregate Organics (QC Lot: 4180114)											
EP008F: Chlorophyll a	----	0.1	mg/m3	<0.1	10.4 mg/m3	93.9	----	82	112	----	----
EP: Aggregate Organics (QC Lot: 4180115)											
EP008F: Chlorophyll a	----	0.1	mg/m3	<0.1	10.4 mg/m3	93.8	----	82	112	----	----
EP: Aggregate Organics (QC Lot: 4180116)											
EP008F: Chlorophyll a	----	0.1	mg/m3	<0.1	10.4 mg/m3	108	----	82	112	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report Spike Concentration	Spike Recovery (%) MS	MSD	Recovery Limits (%) Low	High	RPD (%) Value	Control Limit
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4179737)										
HK1613962-001	W1- MF - S	**EK055K: Ammonia as N**	7664-41-7	0.5 mg/L	95.4	----	75	125	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4179738)										
HK1613962-021	G1 - MF - B	**EK055K: Ammonia as N**	7664-41-7	0.5 mg/L	95.9	----	75	125	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4179742)										
HK1613801-021	Anonymous	**EK059A: Nitrite + Nitrate as N**	----	1.0 mg/L	104	----	75	125	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4179743)										
HK1613962-001	W1- MF - S	**EK059A: Nitrite + Nitrate as N**	----	1.0 mg/L	103	----	75	125	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4179744)										
HK1613962-021	G1 - MF - B	**EK059A: Nitrite + Nitrate as N**	----	1.0 mg/L	102	----	75	125	----	----

CERTIFICATE OF ANALYSIS

Client	: MATERIALAB CONSULTANTS LIMITED	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 11
Contact	: MR ALEX H.K. NG	Contact	: Fung Lim Chee, Richard	Work Order	: HK1614156
Address	: ROOM 723 & 725, 7/F, BLOCK B, PROFIT INDUSTRIAL BUILDING, 1-15 KWAI FUNG CRESCENT, KWAI FONG HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong		
E-mail	: hk.ng@fugro.com	E-mail	: Richard.Fung@alsglobal.com		
Telephone	: +852 3565 4485	Telephone	: +852 2610 1044		
Facsimile	: +852 2450 8032	Facsimile	: +852 2610 2021		
Project	: TOLO HARBOUR AND WSD SEAWATER INTAKE WATER QUALITY MONITORING	Quote number	: ----	Date Samples Received	: 13-APR-2016
Order number	: ----			Issue Date	: 25-APR-2016
C-O-C number	: ----			No. of samples received	: 32
Site	: ----			No. of samples analysed	: 32

This document has been signed by those names that appear on this report and are the authorised signatories.

Signatories	*Position*	*Authorised results for*
Fung Lim Chee, Richard	**General Manager**	**Inorganics**
Ng Sin Kou, May	**Assistant Laboratory Manager**	**Microbiology**

General Comments

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. All pages of this report have been checked and approved for release. When sampling time information is not provided by the client, sampling dates are shown without a time component. In these instances, the time component has been assumed by the laboratory for processing purposes. The completion date of analysis is: 19-APR-2016

Key: LOR = Limit of reporting; CAS Number = CAS registry number from database maintained by Chemical Abstracts Services. The Chemical Abstracts Service is a division of the American Chemical Society.

Specific Comments for Work Order: HK1614156

The accredited LOR for Inorganic Nitrogen is 0.02mg/L. The results below the accredited LOR reported are for reference only.
Sample(s) were collected by ALS Technichem (HK) staff.
Water sample(s) analysed and reported on an as received basis.
Dissolved Oxygen, pH, Temperature, Salinity, Turbidity and Water Depth were measured on-site by ALS Technichem (HK) staff.
Total Inorganic Nitrogen is the sum of the Total Oxidizable Nitrogen and Ammonical Nitrogen.
In marine and freshwater samples, chlorophyll b, if present, will cause some interference to the analysis of chlorophyll a.
Sample(s) arrived in the laboratory at 19:30. Microbiological sample(s), in plastic bottles, were received in a chilled condition. Microbiological testing period: 14/04/2016 - 16/04/2016.
NOT DETECTED denotes result(s) is (are) less than the Limit of Report (LOR).

Laboratory Duplicate (DUP) Report

Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 4181172)								
HK1614156-001	W1- MF - S	**EA025: Suspended Solids (SS)**	----	0.5	mg/L	2.3	2.4	5.1
HK1614156-015	FC2 - MF - B	**EA025: Suspended Solids (SS)**	----	0.5	mg/L	3.2	3.3	0.0
EA/ED: Physical and Aggregate Properties (QC Lot: 4181173)								
HK1614156-025	C1 - MF - S	**EA025: Suspended Solids (SS)**	----	0.5	mg/L	1.7	1.7	0.0
HK1614156-035	C12 - ME - M	**EA025: Suspended Solids (SS)**	----	0.5	mg/L	2.0	2.0	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4179738)								
HK1613962-021	Anonymous	**EK055K: Ammonia as N**	7664-41-7	0.005	mg/L	0.008	0.008	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4179739)								
HK1614156-012	W2 - ME - B	**EK055K: Ammonia as N**	7664-41-7	0.005	mg/L	0.056	0.061	8.9
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4179740)								
HK1614156-021	G1 - MF - B	**EK055K: Ammonia as N**	7664-41-7	0.005	mg/L	0.026	0.032	19.9
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4180254)								
HK1614156-012	W2 - ME - B	**EK059A: Nitrite + Nitrate as N**	----	0.01	mg/L	0.02	0.02	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4180255)								
HK1614156-021	G1 - MF - B	**EK059A: Nitrite + Nitrate as N**	----	0.01	mg/L	0.02	0.02	0.0
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4180256)								
HK1614156-031	C12 - MF - S	**EK059A: Nitrite + Nitrate as N**	----	0.01	mg/L	0.03	0.03	0.0
EP: Aggregate Organics (QC Lot: 4180116)								
HK1613962-012	Anonymous	**EP008F: Chlorophyll a**	----	1	mg/m3	4	4	0.0
EP: Aggregate Organics (QC Lot: 4180117)								
HK1614156-021	G1 - MF - B	**EP008F: Chlorophyll a**	----	1	mg/m3	1	1	0.0

Method Blank (MB), Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report

Matrix: WATER

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report					
					Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPD (%)	
		LOR	Unit	Result		LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QC Lot: 4181172)											
EA025: Suspended Solids (SS)	----	0.5	mg/L	<0.5	20.0 mg/L	94.0	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QC Lot: 4181173)											
EA025: Suspended Solids (SS)	----	0.5	mg/L	<0.5	20.0 mg/L	87.5	----	85	115	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4179738)											
EK055K: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	103	----	92	108	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4179739)											
EK055K: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	96.9	----	92	108	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4179740)											
EK055K: Ammonia as N	7664-41-7	0.01	mg/L	<0.01	0.5 mg/L	106	----	92	108	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4180254)											

Matrix: WATER

Method: Compound	CAS Number	Method Blank (MB) Report LOR	Unit	Result	Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report: Spike Concentration	Spike Recovery (%) LCS	Spike Recovery (%) DCS	Recovery Limits (%) Low	Recovery Limits (%) High	RPD (%) Value	RPD (%) Control Limit
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4180254) - Continued											
EK059A: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.05 mg/L	99.0	----	85	115	----	----
				----	0.4 mg/L	105	----	97	111	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4180255)											
EK059A: Nitrite + Nitrate as N	----	0.01	mg/L	----	0.4 mg/L	102	----	97	111	----	----
				<0.01	0.05 mg/L	104	----	85	115	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4180256)											
EK059A: Nitrite + Nitrate as N	----	0.01	mg/L	<0.01	0.05 mg/L	104	----	85	115	----	----
				----	0.4 mg/L	104	----	97	111	----	----
EP: Aggregate Organics (QC Lot: 4180116)											
EP008F: Chlorophyll a	----	0.1	mg/m3	<0.1	10.4 mg/m3	108	----	82	112	----	----
EP: Aggregate Organics (QC Lot: 4180117)											
EP008F: Chlorophyll a	----	0.1	mg/m3	<0.1	10.4 mg/m3	94.7	----	82	112	----	----
EP: Aggregate Organics (QC Lot: 4180235)											
EP030: Biochemical Oxygen Demand	----	2	mg/L	----	198 mg/L	103	----	87	117	----	----
EP: Aggregate Organics (QC Lot: 4180236)											
EP030: Biochemical Oxygen Demand	----	2	mg/L	----	198 mg/L	107	----	87	117	----	----

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report

Matrix: WATER

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Matrix Spike (MS) and Matrix Spike Duplicate (MSD) Report: Spike Concentration	Spike Recovery (%) MS	Spike Recovery (%) MSD	Recovery Limits (%) Low	Recovery Limits (%) High	RPD (%) Value	RPD (%) Control Limit
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4179738)										
HK1613962-021	Anonymous	EK055K: Ammonia as N	7664-41-7	0.5 mg/L	95.9	----	75	125	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4179739)										
HK1614156-012	W2 - ME - B	EK055K: Ammonia as N	7664-41-7	0.5 mg/L	100	----	75	125	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4179740)										
HK1614156-021	G1 - MF - B	EK055K: Ammonia as N	7664-41-7	0.5 mg/L	101	----	75	125	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4180254)										
HK1614156-012	W2 - ME - B	EK059A: Nitrite + Nitrate as N	----	1.0 mg/L	104	----	75	125	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4180255)										
HK1614156-021	G1 - MF - B	EK059A: Nitrite + Nitrate as N	----	1.0 mg/L	108	----	75	125	----	----
ED/EK: Inorganic Nonmetallic Parameters (QC Lot: 4180256)										
HK1614156-031	C12 - MF - S	EK059A: Nitrite + Nitrate as N	----	1.0 mg/L	108	----	75	125	----	----

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Appendix E

Tolo Harbour Water Quality Monitoring Results

MateriaLab – Waste & Environmental Technologies Joint Venture
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Report No.: 0151/15/ED/0528

Water Quality Monitoring Results at C1 - Mid-Ebb Tide (In-situ Data)

Date	Weather Condition	Sea Condition	Sampling Time	Depth (m)		Temperature(°C)			pH			Salinity (ppt)			DO Saturation (%)		Dissloved Oxygen (mg/L)			Turbidity(NTU)		
						Value	Average	DA*	Value	Average	DA*	Value	Average	DA*	Value	Average	Value	Average	DA*	Value	Average	DA*
06-Apr-16	Cloudy	Calm	11:30	Surface	1.0	20.3	20.3	18.0	8.6	8.6	8.3	30.2	30.2	31.2	126.0	126.0	9.5	9.5	9.0	0.8	0.8	0.8
						20.3			8.6			30.2			126.0		9.5			0.8		
				Middle	3.6	17.2	17.2		8.2	8.2		31.7	31.7		106.7	106.7	8.5	8.5		0.9	1.0	
						17.2			8.2			31.7			106.7		8.5			1.0		
				Bottom	6.1	16.6	16.6		8.2	8.2		31.8	31.8		90.8	90.8	7.3	7.3	7.3	0.5	0.5	
						16.6			8.2			31.8			90.8		7.3			0.5		
07-Apr-16	Cloudy	Calm	12:20	Surface	1.0	22.7	22.7	18.8	8.8	8.8	8.2	29.0	29.0	30.4	127.1	127.1	9.3	9.3	8.6	2.5	2.5	1.7
						22.7			8.8			29.0			127.1		9.3			2.5		
				Middle	3.7	17.1	17.1		8.1	8.1		31.0	31.0		98.3	98.3	7.9	7.9		0.6	0.6	
						17.1			8.1			31.0			98.3		7.9			0.6		
				Bottom	6.3	16.7	16.7		7.8	7.8		31.2	31.2		57.1	57.1	4.6	4.6	4.6	1.9	1.9	
						16.7			7.8			31.2			57.1		4.6			1.9		
08-Apr-16	Cloudy	Calm	13:00	Surface	1.0	23.2	23.2	18.8	8.6	8.6	8.2	29.4	29.4	30.8	122.2	122.2	8.8	8.8	8.6	6.7	6.7	2.8
						23.2			8.6			29.4			122.2		8.8			6.7		
				Middle	3.5	16.8	16.8		8.1	8.1		31.4	31.4		103.1	103.1	8.3	8.3		1.0	1.0	
						16.8			8.1			31.4			103.1		8.3			1.0		
				Bottom	6.0	16.4	16.4		7.9	7.9		31.6	31.6		77.5	77.5	6.3	6.3	6.3	0.8	0.8	
						16.4			7.9			31.6			77.5		6.3			0.7		
09-Apr-16	Cloudy	Calm	07:30	Surface	1.0	20.9	20.9	18.2	8.6	8.6	8.2	28..1	28.1	29.3	109.1	109.1	8.3	8.3	8.1	1.0	1.1	1.3
						20.9			8.6			28.1			109.1		8.3			1.1		
				Middle	3.4	17.0	17.0		8.1	8.1		29.7	29.7		96.2	96.2	7.8	7.8		1.4	1.4	
						17.0			8.1			29.7			96.2		7.8			1.3		
				Bottom	5.8	16.6	16.6		8.0	8.0		30.2	30.2		58.0	58.0	4.7	4.7	4.7	1.4	1.4	
						16.6			8.0			30.2			58.0		4.7			1.4		

When values below detection limit are present, they will be considered as 0.

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MateriaLab

Report No.: 0151/15/ED/0528

Date	Weather Condition	Sea Condition	Sampling Time	Depth (m)		Temperature(°C)			pH			Salinity (ppt)			DO Saturation (%)		Dissloved Oxygen (mg/L)			Turbidity(NTU)		
						Value	Average	DA*	Value	Average	DA*	Value	Average	DA*	Value	Average	Value	Average	DA*	Value	Average	DA*
10-Apr-16	Rainy	Moderate	08:10	Surface	1.0	21.7	21.7	18.6	8.5	8.5	8.2	29.2	29.2	30.5	116.9	116.9	8.7	8.7	8.4	3.2	3.2	1.8
						21.7			8.5			29.2			116.9		8.7			3.2		
				Middle	3.3	17.4	17.4		8.1	8.1		31.1	31.1		100.6	100.6	8.0	8.0		1.2	1.2	
						17.4			8.1			31.1			100.6		8.0			1.2		
				Bottom	5.6	16.7	16.7		7.9	7.9		31.3	31.3		60.0	60.0	4.8	4.8	4.8	0.9	0.9	
						16.7			7.9			31.3			60.0		4.8			0.8		
11-Apr-16	Rainy	Moderate	15:15	Surface	1.0	21.2	21.2	18.6	8.5	8.5	8.1	28.7	28.7	30.0	114.0	114.0	8.6	8.6	8.1	1.3	1.3	1.2
						21.2			8.5			28.7			114.0		8.6			1.3		
				Middle	3.6	17.5	17.5		8.0	8.0		30.6	30.6		96.0	96.0	7.6	7.6		0.9	0.9	
						17.5			8.0			30.6			96.0		7.6			0.9		
				Bottom	6.1	17.1	17.1		7.9	7.9		30.7	30.7		65.8	65.8	5.3	5.5	5.5	1.4	1.4	
						17.1			7.9			30.7			65.8		5.6			1.4		
12-Apr-16	Rainy	Moderate	16:10	Surface	1.0	19.8	19.8	18.0	8.5	8.5	8.1	30.3	30.3	30.8	108.0	108.0	8.2	8.2	7.9	1.1	1.1	1.1
						19.8			8.5			30.3			108.0		8.2			1.1		
				Middle	3.6	17.6	17.6		7.9	7.9		31.0	31.0		96.2	96.2	7.6	7.6		1.3	1.3	
						17.6			7.9			31.0			96.2		7.6			1.3		
				Bottom	6.1	16.6	16.6		7.9	7.9		31.2	31.2		58.9	58.9	4.8	4.8	4.8	1.0	1.0	
						16.6			7.9			31.2			58.9		4.8			1.0		
13-Apr-16	Rainy	Moderate	17:05	Surface	1.0	20.1	20.1	18.4	8.4	8.4	8.2	28.7	28.7	30.5	101.3	101.3	7.8	7.8	7.4	1.0	1.0	0.9
						20.1			8.4			28.7			101.3		7.8			1.0		
				Middle	3.6	18.5	18.5		8.2	8.2		31.1	31.1		89.2	89.2	7.0	7.0		0.6	0.6	
						18.5			8.2			31.1			89.2		7.0			0.6		
				Bottom	6.2	16.7	16.7		7.9	7.9		31.8	31.8		63.0	63.0	5.1	5.1	5.1	1.0	1.0	
						16.7			7.9			31.8			63.0		5.1			0.9		

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Report No.: 0151/15/ED/0528

Water Quality Monitoring Results at C1 - Mid-Ebb Tide (Laboratory Data)

Date	Weather	Sea Condition	Sampling Time	Depth (m)		E-coli (cfu/100ml)		Ammonia-Nitrogen (mg-N/L)		Total Inorganic Nitrogen		Suspended Solids (mg/L)		Biochemical Oxygen Demand		Chlorophyll-a (mg/L)	
						Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA
06-Apr-16	Cloudy	Calm	11:30	Surface	1.0	NOT DETECTED	0	<0.005	0	0.016	0.020	2.0	3.5	2.0	3.7	0.006	0.015
				Middle	3.6	NOT DETECTED		<0.005		0.021		3.4		5.0		0.020	
				Bottom	6.1	NOT DETECTED		<0.005		0.022		5.1		4.0		0.019	
07-Apr-16	Cloudy	Calm	12:20	Surface	1.0	NOT DETECTED	0	<0.005	0	0.022	0.022	2.2	2.6	1.0	1.7	0.005	0.007
				Middle	3.7	NOT DETECTED		<0.005		0.024		2.1		1.0		0.004	
				Bottom	6.3	NOT DETECTED		<0.005		0.020		3.4		3.0		0.013	
08-Apr-16	Cloudy	Calm	13:00	Surface	1.0	NOT DETECTED	0	<0.005	0	0.023	0.020	3.0	3.4	2.0	3.0	0.004	0.008
				Middle	3.5	NOT DETECTED		<0.005		0.015		2.6		1.0		0.004	
				Bottom	6.0	NOT DETECTED		<0.005		0.023		4.5		6.0		0.017	
09-Apr-16	Cloudy	Calm	07:30	Surface	1.0	NOT DETECTED	0	<0.005	0	0.036	0.039	2.5	2.5	1.0	1.7	0.005	0.008
				Middle	3.4	NOT DETECTED		<0.005		0.040		2.7		2.0		0.005	
				Bottom	5.8	NOT DETECTED		<0.005		0.042		2.2		2.0		0.014	
10-Apr-16	Rainy	Moderate	08:10	Surface	1.0	NOT DETECTED	0	<0.005	0	0.037	0.037	1.0	1.2	2.0	1.3	0.008	0.007
				Middle	3.3	NOT DETECTED		<0.005		0.034		1.1		1.0		0.009	
				Bottom	5.6	NOT DETECTED		<0.005		0.039		1.5		1.0		0.003	
11-Apr-16	Rainy	Moderate	15:15	Surface	1.0	4	4	<0.005	0	0.020	0.019	2.1	2.3	1.0	0.7	0.006	0.004
				Middle	3.6	7		<0.005		0.019		2.3		1.0		0.005	
				Bottom	6.1	NOT DETECTED		<0.005		0.019		2.5		<1		0.002	
12-Apr-16	Rainy	Moderate	16:10	Surface	1.0	3	4	<0.005	0.009	<0.005	0.033	2.1	2.3	1.0	1.0	0.004	0.002
				Middle	3.6	6		<0.005		0.042		2.4		2.0		0.003	
				Bottom	6.1	4		0.028		0.057		2.5		<1		<0.001	
13-Apr-16	Rainy	Moderate	17:05	Surface	1.0	74	44	0.054	0.044	0.081	0.069	1.6	1.6	4.0	2.7	0.029	0.019
				Middle	3.6	57		0.043		0.070		1.7		4.0		0.028	
				Bottom	6.2	NOT DETECTED		0.036		0.056		1.5		<1		<0.001	

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Report No.: 0151/15/ED/0528

Water Quality Monitoring Results at C1 - Mid-flood Tide (In-situ Data)

Date	Weather Condition	Sea Condition	Sampling Time	Depth (m)		Temperature(°C)			pH			Salinity ppt			DO Saturation (%)		Dissloved Oxygen (mg/L)			Turbidity(NTU)		
						Value	Average	DA*	Value	Average	DA*	Value	Average	DA*	Value	Average	Value	Average	DA*	Value	Average	DA*
06-Apr-16	Cloudy	Calm	17:30	Surface	1.0	18.2	18.2	17.3	8.6	8.6	8.3	31.0	31.0	31.2	147.8	147.8	11.6	11.6	10.1	1.9	1.9	2.5
						18.2			8.6			31.0			147.8		11.6			1.9		
				Middle	3.4	17.0	17.0		8.3	8.3		31.2	31.2		106.5	106.5	8.5	8.5		1.3	1.3	
						17.0			8.3			31.2			106.5		8.5			1.3		
				Bottom	5.8	16.6	16.6		8.1	8.1		31.4	31.4		66.2	66.2	5.3	5.3	5.3	4.2	4.2	
						16.6			8.0			31.4			66.2		5.3			4.2		
07-Apr-16	Cloudy	Calm	18:10	Surface	1.0	21.3	21.3	18.4	8.6	8.6	8.3	29.5	29.5	30.3	123.3	123.3	9.2	9.2	8.9	2.9	2.9	1.7
						21.3			8.6			29.5			123.3		9.2			2.9		
				Middle	3.5	17.0	17.0		8.2	8.2		30.7	30.7		107.2	107.2	8.6	8.6		1.3	1.3	
						17.0			8.2			30.7			107.2		8.6			1.3		
				Bottom	5.9	16.8	16.8		8.1	8.1		30.8	30.8		91.5	91.5	7.4	7.4	7.4	0.9	1.0	
						16.8			8.1			30.8			91.5		7.4			1.1		
08-Apr-16	Cloudy	Calm	19:20	Surface	1.0	22.3	22.3	18.6	8.6	8.6	8.2	28.5	28.5	29.5	119.6	119.6	8.8	8.8	8.4	4.2	4.2	2.3
						22.3			8.6			28.5			119.6		8.8			4.2		
				Middle	3.3	17.0	17.0		8.2	8.2		29.4	29.4		97.2	97.2	7.9	7.9		1.3	1.3	
						17.0			8.2			29.4			97.2		7.9			1.3		
				Bottom	5.6	16.5	16.5		7.9	7.9		30.6	30.6		58.3	58.3	4.7	4.7	4.7	1.4	1.4	
						16.5			7.9			30.6			58.3		4.7			1.3		
09-Apr-16	Cloudy	Calm	07:30	Surface	1.0	20.9	20.9	18.2	8.6	8.6	8.2	28.1	28.1	29.3	109.1	109.1	8.3	8.3	8.1	1.0	1.1	1.3
						20.9			8.6			28.1			109.1		8.3			1.1		
				Middle	3.4	17.0	17.0		8.1	8.1		29.7	29.7		96.2	96.2	7.8	7.8		1.4	1.4	
						17.0			8.1			29.7			96.2		7.8			1.3		
				Bottom	5.8	16.6	16.6		8.0	8.0		30.2	30.2		58.0	58.0	4.7	4.7	4.7	1.4	1.4	
						16.6			8.0			30.2			58.0		4.7			1.4		

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Report No.: 0151/15/ED/0528

Date	Weather Condition	Sea Condition	Sampling Time	Depth (m)		Temperature(°C)			pH			Salinity ppt			DO Saturation (%)		Dissloved Oxygen (mg/L)			Turbidity(NTU)		
						Value	Average	DA*	Value	Average	DA*	Value	Average	DA*	Value	Average	Value	Average	DA*	Value	Average	DA*
10-Apr-16	Rainy	Moderate	08:10	Surface	1.0	21.7	21.7	18.6	8.5	8.5	8.2	29.2	29.2	30.5	116.9	116.9	8.7	8.7	8.4	3.2	3.2	1.8
						21.7			8.5			29.2			116.9		8.7			3.2		
				Middle	3.3	17.4	17.4		8.1	8.1		31.1	31.1		100.6	100.6	8.0	8.0		1.2	1.2	
						17.4			8.1			31.1			100.6		8.0			1.2		
				Bottom	5.6	16.7	16.7		7.9	7.9		31.3	31.3		60.0	60.0	4.8	4.8	4.8	0.9	0.9	
						16.7			7.9			31.3			60.0		4.8			0.8		
11-Apr-16	Rainy	Moderate	08:50	Surface	1.0	20.9	20.9	18.6	8.5	8.5	8.1	29.2	29.2	30.3	111.5	111.5	8.3	8.3	8.0	1.1	1.1	1.1
						20.9			8.5			29.2			111.5		8.3			1.1		
				Middle	3.4	17.5	17.5		7.9	7.9		30.8	30.8		98.7	98.7	7.6	7.6		1.0	1.0	
						17.5			7.9			30.8			98.7		7.6			1.0		
				Bottom	5.8	17.3	17.3		7.9	7.9		31.0	31.0		61.2	61.2	8.0	8.0	8.0	1.3	1.3	
						17.3			7.9			31.0			61.2		8.0			1.3		
12-Apr-16	Rainy	Moderate	09:30	Surface	1.0	21.2	21.2	18.9	8.5	8.5	8.1	27.3	27.3	28.7	115.6	115.6	8.8	8.8	8.7	1.3	1.3	1.4
						21.2			8.5			27.3			115.6		8.8			1.3		
				Middle	3.3	18.4	18.4		7.9	7.9		29.3	29.3		107.4	107.4	8.5	8.5		1.2	1.2	
						18..4			7.9			29.3			107.4		8.5			1.2		
				Bottom	5.5	17.2	17.2		7.8	7.8		29.4	29.4		77.1	77.1	6.2	6.2	6.2	1.8	1.8	
						17.2			7.8			29.4			77.1		6.2			1.8		
13-Apr-16	Rainy	Moderate	10:15	Surface	1.0	21.4	21.4	18.7	8.3	8.3	8.1	28.5	28.5	30.0	110.5	110.5	8.3	8.3	7.2	1.3	1.3	1.5
						21.4			8.3			28.5			110.5		8.3			1.3		
				Middle	3.5	17.6	17.6		8.2	8.2		30.7	30.7		76.7	76.7	6.1	6.1		1.5	1.6	
						17.6			8.2			30.7			76.7		6.1			1.6		
				Bottom	6.0	17.0	17.0		7.9	7.9		30.8	30.8		36.1	36.3	2.9	2.9	2.9	1.7	1.7	
						17.0			7.9			30.8			36.4		2.9			1.7		

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Water Quality Monitoring Results at C1 - Mid-flood Tide (Laboratory Data)

Date	Weather	Sea Condition	Sampling Time	Depth (m)		E-coli (cfu/100ml)		Ammonia-Nitrogen (mg-N/L)		Total Inorganic Nitrogen		Suspended Solids (mg/L)		Biochemical Oxygen Demand		Chlorophyll-a (mg/L)	
						Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA
06-Apr-16	Cloudy	Calm	17:30	Surface	1.0	2	1	<0.005	0	0.022	0.021	2.3	2.8	2.0	2.0	0.008	0.008
				Middle	3.4	NOT DETECTED		<0.005		0.019		3.1		2.0		0.006	
				Bottom	5.8	NOT DETECTED		<0.005		0.021		3.1		2.0		0.010	
07-Apr-16	Cloudy	Calm	18:10	Surface	1.0	NOT DETECTED	0	<0.005	0	0.021	0.016	3.6	3.7	2.0	3.0	0.004	0.015
				Middle	3.5	NOT DETECTED		<0.005		0.012		3.7		6.0		0.035	
				Bottom	5.9	NOT DETECTED		<0.005		0.016		3.7		1.0		0.006	
08-Apr-16	Cloudy	Calm	19:20	Surface	1.0	NOT DETECTED	0	<0.005	0	0.024	0.018	2.7	2.8	2.0	3.0	0.004	0.009
				Middle	3.3	NOT DETECTED		<0.005		0.014		2.9		1.0		0.005	
				Bottom	5.6	NOT DETECTED		<0.005		0.016		2.8		6.0		0.018	
09-Apr-16	Cloudy	Calm	07:30	Surface	1.0	NOT DETECTED	0	<0.005	0	0.042	0.041	3.4	3.6	2.0	2.7	0.005	0.010
				Middle	3.4	NOT DETECTED		<0.005		0.043		2.9		2.0		0.004	
				Bottom	5.8	NOT DETECTED		<0.005		0.037		4.4		4.0		0.021	
10-Apr-16	Rainy	Moderate	08:10	Surface	1.0	NOT DETECTED	0	<0.005	0	0.024	0.032	2.1	2.2	1.0	1.7	0.008	0.010
				Middle	3.3	NOT DETECTED		<0.005		0.032		2.3		1.0		0.008	
				Bottom	5.6	NOT DETECTED		<0.005		0.039		2.3		3.0		0.014	
11-Apr-16	Rainy	Moderate	08:50	Surface	1.0	3	2	<0.005	0	0.029	0.025	2.9	2.7	1.0	0.7	0.005	0.004
				Middle	3.4	4		<0.005		0.022		2.4		1.0		0.006	
				Bottom	5.8	NOT DETECTED		<0.005		0.023		2.7		<1		0.002	
12-Apr-16	Rainy	Moderate	09:30	Surface	1.0	6	3	<0.005	0.015	<0.005	0.041	2.2	2.7	1.0	1.0	0.004	0.003
				Middle	3.3	2		0.009		0.057		3.3		2.0		0.005	
				Bottom	5.5	1		0.037		0.065		2.5		<1		<0.001	
13-Apr-16	Rainy	Moderate	10:15	Surface	1.0	110	80	0.017	0.012	0.045	0.038	1.7	1.8	4.0	2.7	0.031	0.020
				Middle	3.5	130		<0.005		0.028		2.0		4.0		0.03	
				Bottom	6.0	NOT DETECTED		0.019		0.040		1.8		<1		<0.001	

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Water Quality Monitoring Results at C12 - Mid-Ebb Tide (In-situ Data)

Date	Weather Condition	Sea Condition	Sampling Time	Depth (m)		Temperature(°C)			pH			Salinity ppt			DO Saturation (%)		Dissloved Oxygen (mg/L)			Turbidity(NTU)		
						Value	Average	DA*	Value	Average	DA*	Value	Average	DA*	Value	Average	Value	Average	DA*	Value	Average	DA*
06-Apr-16	Cloudy	Calm	12:00	Surface	1.0	18.2	18.2	17.3	8.6	8.6	8.3	31.0	31.0	31.2	147.8	147.8	11.6	11.6	10.1	1.9	1.9	2.5
						18.2			8.6			31.0			147.8		11.6			1.9		
				Middle	7.8	17	17.0		8.3	8.3		31.2	31.2		106.5	106.5	8.5	8.5		1.3	1.3	
						17			8.3			31.2			106.5		8.5			1.3		
				Bottom	14.5	16.6	16.6		8.1	8.1		31.4	31.4		66.2	66.2	5.3	5.3	5.3	4.2	4.2	
						16.6			8.0			31.4			66.2		5.3			4.2		
07-Apr-16	Cloudy	Calm	13:00	Surface	1.0	21.4	21.4	18.5	8.7	8.7	8.4	29.8	29.8	30.6	115.6	115.6	8.6	8.6	8.6	1.9	1.9	2.5
						21.4			8.7			29.8			115.6		8.6			1.9		
				Middle	7.7	17.2	17.2		8.3	8.3		31.0	31.0		108.0	108.0	8.6	8.6		1.3	1.3	
						17.2			8.3			31.0			108.0		8.6			1.3		
				Bottom	14.3	16.8	16.8		8.2	8.2		31.0	31.0		90.6	90.6	7.3	7.3	7.3	4.2	4.2	
						16.8			8.2			31.0			90.6		7.3			4.2		
08-Apr-16	Cloudy	Calm	13:40	Surface	1.0	23.3	23.3	19.0	8.6	8.6	8.3	29.8	29.8	30.9	113.6	113.6	8.2	8.2	8.6	1.2	1.3	1.2
						23.3			8.6			29.8			113.6		8.2			1.3		
				Middle	7.7	17.3	17.3		8.4	8.4		31.4	31.4		112.7	112.7	9.0	9.0		0.9	0.9	
						17.3			8.4			31.4			112.7		9.0			0.9		
				Bottom	14.4	16.4	16.4		7.9	7.9		31.6	31.6		65.5	65.5	5.3	5.3	5.3	1.5	1.6	
						16.4			7.9			31.6			65.5		5.3			1.6		
09-Apr-16	Cloudy	Calm	14:30	Surface	1.0	21.7	21.7	18.4	8.6	8.6	8.3	30.5	30.5	31.5	120.6	120.6	8.9	8.9	8.0	2.8	2.8	1.6
						21.7			8.6			30.5			120.6		8.9			2.8		
				Middle	7.8	17.0	17.0		8.2	8.2		32.0	32.0		89.5	89.5	7.1	7.1		1.0	1.0	
						17.0			8.2			32.0			89.5		7.1			1.0		
				Bottom	14.6	16.6	16.6		8.0	8.0		32.0	32.0		68.9	68.9	5.5	5.5	5.5	0.9	0.9	
						16.6			8.0			32.0			68.9		5.5			0.9		

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Date	Weather Condition	Sea Condition	Sampling Time	Depth (m)		Temperature(oC)			pH			Salinity ppt			DO Saturation (%)		Dissloved Oxygen (mg/L)			Turbidity(NTU)		
						Value	Average	DA*	Value	Average	DA*	Value	Average	DA*	Value	Average	Value	Average	DA*	Value	Average	DA*
10-Apr-16	Rainy	Moderate	15:15	Surface	1.0	22.8	22.8	19.1	8.6	8.6	8.2	27.7	27.7	30.0	117.6	117.6	8.7	8.7	7.9	1.6	1.7	1.9
						22.8			8.6			27.7			117.6		8.7			1.7		
				Middle	7.8	17.6	17.6		8.1	8.1		31.1	31.1		90.0	90.0	7.1	7.1		0.9	0.9	
						17.6			8.1			31.1			90.0		7.1			0.9		
				Bottom	14.5	17.0	17.0		7.9	7.9		31.3	31.3		52.7	52.7	4.2	4.2	4.2	3.1	3.1	
						17.0			7.9			31.3			52.7		4.2			3.1		
11-Apr-16	Rainy	Moderate	16:10	Surface	1.0	20.3	20.3	18.2	8.5	8.5	8.2	30.2	30.2	31.1	106.5	106.5	8.1	8.1	7.9	1.6	1.6	1.2
						20.3			8.5			30.2			106.5		8.1			1.6		
				Middle	7.7	17.7	17.7		8.1	8.1		31.5	31.5		96.3	96.3	7.6	7.6		1.1	1.1	
						17.7			8.1			31.5			96.3		7.6			1.1		
				Bottom	14.3	16.7	16.7		7.9	7.9		31.7	31.7		59.3	59.3	4.8	4.8	4.8	0.8	0.8	
						16.7			7.9			31.7			59.3		4.8			0.7		
12-Apr-16	Rainy	Moderate	16:50	Surface	1.0	20.0	20.0	18.1	8.5	8.5	8.2	30.3	30.3	31.0	108.6	108.6	8.3	8.3	7.9	1.3	1.4	1.2
						20.0			8.5			30.3			108.6		8.3			1.4		
				Middle	7.7	17.7	17.7		8.1	8.1		31.3	31.3		94.3	94.3	7.5	7.5		1.0	1.0	
						17.7			8.1			31.3			94.3		7.5			1.0		
				Bottom	14.3	16.6	16.6		7.9	7.9		31.4	31.4		59.5	59.5	4.8	4.8	4.8	1.2	1.2	
						16.6			7.9			31.4			59.5		4.8			1.2		
13-Apr-16	Rainy	Moderate	17:50	Surface	1.0	20.2	20.2	21.8	8.4	8.4	8.2	27.9	27.9	30.2	101.5	101.5	7.8	7.8	7.8	1.9	2.0	1.3
						20.2			8.4			27.9			101.5		7.8			2.0		
				Middle	7.8	28.6	28.6		8.2	8.2		31.0	31.0		94.9	94.9	7.7	7.7		1.1	1.1	
						28.6			8.2			31.0			94.9		7.7			1.0		
				Bottom	14.5	16.7	16.7		7.9	7.9		31.7	31.7		59.5	59.5	4.8	4.8	4.8	0.9	0.9	
						16.7			7.9			31.7			59.5		4.8			0.9		

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Report No.: 0151/15/ED/0528

Water Quality Monitoring Results at C12 - Mid-Ebb Tide (Laboratory Data)

Date	Weather	Sea Condition	Sampling Time	Depth (m)		E-coli (cfu/100ml)		Ammonia-Nitrogen (mg-N/L)		Total Inorganic Nitrogen		Suspended Solids (mg/L)		Biochemical Oxygen Demand		Chlorophyll-a (mg/L)	
						Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA
06-Apr-16	Cloudy	Calm	12:00	Surface	1.0	1	0	<0.005	0	0.023	0.021	2.0	1.3	3.0	1.3	0.003	0.003
				Middle	7.8	NOT DETECTED		<0.005		0.021		1.0		<1		0.004	
				Bottom	14.5	NOT DETECTED		<0.005		0.019		1.0		1.0		0.003	
07-Apr-16	Cloudy	Calm	13:00	Surface	1.0	NOT DETECTED	0	<0.005	0	0.022	0.018	1.3	1.1	1.0	1.3	0.004	0.007
				Middle	7.7	NOT DETECTED		<0.005		0.015		1.4		1.0		0.004	
				Bottom	14.3	NOT DETECTED		<0.005		0.018		0.7		2.0		0.012	
08-Apr-16	Cloudy	Calm	13:40	Surface	1.0	NOT DETECTED	0	<0.005	0	0.020	0.021	2.3	2.9	2.0	2.0	0.012	0.011
				Middle	7.7	NOT DETECTED		<0.005		0.017		3.2		<1		0.004	
				Bottom	14.4	NOT DETECTED		<0.005		0.026		3.2		4.0		0.016	
09-Apr-16	Cloudy	Calm	14:30	Surface	1.0	NOT DETECTED	0	<0.005	0	0.043	0.037	2.8	2.7	2.0	1.7	0.005	0.007
				Middle	7.8	NOT DETECTED		<0.005		0.027		3.1		1.0		0.004	
				Bottom	14.6	NOT DETECTED		<0.005		0.042		2.3		2.0		0.013	
10-Apr-16	Rainy	Moderate	15:15	Surface	1.0	NOT DETECTED	0	<0.005	0	0.040	0.036	1.8	1.7	1.0	1.3	0.008	0.007
				Middle	7.8	NOT DETECTED		<0.005		0.034		1.6		2.0		0.009	
				Bottom	14.5	NOT DETECTED		<0.005		0.035		1.6		1.0		0.003	
11-Apr-16	Rainy	Moderate	16:10	Surface	1.0	11	6	<0.005	0	0.019	0.025	2.1	2.5	1.0	0.7	0.006	0.004
				Middle	7.7	5		<0.005		0.027		2.3		1.0		0.005	
				Bottom	14.3	1		<0.005		0.029		3.2		<1		0.002	
12-Apr-16	Rainy	Moderate	16:50	Surface	1.0	4	3	<0.005	0.008	<0.005	0.028	2.9	2.8	1.0	1.0	0.004	0.003
				Middle	7.7	3		<0.005		0.027		2.5		2.0		0.004	
				Bottom	14.3	1		0.024		0.058		2.9		<1		<0.001	
13-Apr-16	Rainy	Moderate	17:50	Surface	1.0	48	37	0.033	0.037	0.060	0.060	2.6	2.3	4.0	2.7	0.027	0.019
				Middle	7.8	64		0.037		0.063		2.0		4.0		0.031	
				Bottom	14.5	NOT DETECTED		0.041		0.056		2.2		<1		<0.001	

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Report No.: 0151/15/ED/0528

Water Quality Monitoring Results at C12 - Mid-flood Tide (In-situ Data)

Date	Weather Condition	Sea Condition	Sampling Time	Depth (m)		Temperature(°C)			pH			Salinity (ppt)			DO Saturation (%)		Dissloved Oxygen (mg/L)			Turbidity(NTU)		
						Value	Average	DA*	Value	Average	DA*	Value	Average	DA*	Value	Average	Value	Average	DA*	Value	Average	DA*
06-Apr-16	Cloudy	Calm	18:10	Surface	1.0	21.5	21.5	18.3	8.7	8.7	8.3	29.9	29.9	31.0	122.9	122.9	9.1	9.1	8.6	1.8	1.8	1.4
						21.5			8.7			29.9			122.9		9.1			1.8		
				Middle	7.5	17.2	17.2		8.2	8.2		31.4	31.4		101.8	101.8	8.1	8.1		1.2	1.2	
						17.2			8.2			31.4			101.8		8.1			1.2		
				Bottom	13.9	16.3	16.3		8.0	8.0		31.7	31.7		80.9	80.9	6.5	6.5	6.5	1.1	1.2	
						16.3			8.0			31.7			80.9		6.5			1.2		
07-Apr-16	Cloudy	Calm	18:10	Surface	1.0	21.6	21.6	18.5	8.6	8.6	8.2	29.2	29.2	30.5	122.3	122.3	9.1	9.1	8.2	2.1	2.1	1.7
						21.6			8.6			29.2			122.3		9.1			2.0		
				Middle	7.5	17.2	17.2		8.1	8.1		31.0	31.0		90.9	90.9	7.3	7.3		0.9	0.9	
						17.2			8.1			31.0			90.9		7.3			0.9		
				Bottom	14.0	16.7	16.7		7.8	7.8		31.2	31.2		48.5	48.5	3.9	3.9	3.9	2.2	2.3	
						16.7			7.8			31.2			48.5		3.9			2.3		
08-Apr-16	Cloudy	Calm	20:00	Surface	1.0	22.5	22.5	18.8	8.6	8.6	8.3	28.9	28.9	29.8	118.6	118.6	8.7	8.7	8.2	1.0	1.0	1.1
						22.5			8.6			28.9			118.6		8.7			1.0		
				Middle	7.5	17.3	17.3		8.3	8.3		29.6	29.6		96.4	96.4	7.7	7.7		1.0	1.0	
						17.3			8.3			29.6			96.4		7.7			0.9		
				Bottom	13.9	16.6	16.6		7.9	7.9		30.8	30.8		60.1	60.1	4.9	4.9	4.9	1.2	1.2	
						16.6			7.9			30.8			60.1		4.9			1.2		
09-Apr-16	Cloudy	Calm	08:20	Surface	1.0	21.1	21.1	18.3	8.5	8.5	8.2	28.3	28.3	29.6	106.9	106.9	8.1	8.1	7.9	3.0	3.0	2.0
						21.1			8.5			28.3			106.9		8.1			3.0		
				Middle	7.4	17.2	17.2		8.1	8.1		29.8	29.8		94.8	94.8	7.6	7.6		1.2	1.2	
						17.2			8.1			29.8			94.8		7.6			1.2		
				Bottom	13.8	16.5	16.5		8.1	8.1		30.6	30.6		53.2	53.2	4.3	4.3	4.3	1.6	1.7	
						16.5			8.1			30.6			53.2		4.3			1.7		

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Report No.: 0151/15/ED/0528

Date	Weather Condition	Sea Condition	Sampling Time	Depth (m)		Temperature(°C)			pH			Salinity (ppt)			DO Saturation (%)		Dissloved Oxygen (mg/L)			Turbidity(NTU)		
						Value	Average	DA*	Value	Average	DA*	Value	Average	DA*	Value	Average	Value	Average	DA*	Value	Average	DA*
10-Apr-16	Rainy	Moderate	08:50	Surface	1.0	22.8	22.8	19.1	8.7	8.7	8.2	27.9	27.9	29.9	119.6	119.6	8.8	8.8	8.0	2.1	2.1	2.5
						22.8			8.7			27.9			119.6		8.8			2.1		
				Middle	7.3	17.5	17.5		8.1	8.1		30.9	30.9		89.5	89.5	7.1	7.1		1.6	1.6	
						17.5			8.1			30.9			89.5		7.1			1.6		
				Bottom	13.6	17.1	17.1		7.9	7.9		31.0	31.0		53.2	53.2	4.3	4.3	4.3	3.9	3.9	
						17.1			7.9			31.0			53.2		4.3			3.8		
11-Apr-16	Rainy	Moderate	09:30	Surface	1.0	21.1	21.1	18.6	8.5	8.5	8.2	29.0	29.0	30.3	113.4	113.4	8.5	8.5	8.2	1.3	1.4	1.3
						21.1			8.5			29.0			113.4		8.5			1.4		
				Middle	7.5	17.5	17.5		8.1	8.1		31.0	31.0		98.0	98.0	7.8	7.8		1.4	1.4	
						17.5			8.1			31.0			98.0		7.8			1.4		
				Bottom	13.9	17.2	17.2		7.9	7.9		30.8	30.8		62.1	62.1	5.0	5.0	5.0	1.0	1.1	
						17.2			7.9			30.8			62.1		5.0			1.1		
12-Apr-16	Rainy	Moderate	10:15	Surface	1.0	21.3	21.3	18.9	8.5	8.5	8.1	27.1	27.1	28.8	113.7	113.7	8.6	8.6	8.5	1.3	1.3	1.6
						21.3			8.5			27.1			113.7		8.6			1.3		
				Middle	7.4	18.4	18.4		8.1	8.1		29.5	29.5		105.4	105.4	8.3	8.3		1.4	1.5	
						18.4			8.1			29.5			105.4		8.3			1.5		
				Bottom	13.7	17.1	17.1		7.8	7.8		29.7	29.7		76.2	76.2	6.2	6.2	6.2	2.0	2.0	
						17.1			7.8			29.7			76.2		6.2			2.0		
13-Apr-16	Rainy	Moderate	10:55	Surface	1.0	21.5	21.5	18.7	8.3	8.3	8.1	28.8	28.8	30.1	109.7	109.7	8.6	8.6	8.3	1.3	1.4	1.4
						21.5			8.3			28.8			109.7		8.6			1.4		
				Middle	7.4	17.7	17.7		8.2	8.2		30.6	30.6		76.2	76.2	7.9	7.9		1.2	1.2	
						17.7			8.2			30.6			76.2		7.9			1.2		
				Bottom	13.8	16.8	16.8		7.9	7.9		30.9	30.9		36.3	36.3	7.7	7.7	7.7	1.6	1.6	
						16.8			7.9			30.9			36.3		7.7			1.6		

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Water Quality Monitoring Results at C12 - Mid-flood Tide (Laboratory Data)

Date	Weather	Sea Condition	Sampling Time	Depth (m)		E-coli (cfu/100ml)		Ammonia-Nitrogen (mg-N/L)		Total Inorganic Nitrogen		Suspended Solids (mg/L)		Biochemical Oxygen Demand		Chlorophyll-a (mg/L)	
						Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA
06-Apr-16	Cloudy	Calm	18:10	Surface	1.0	NOT DETECTED	0	<0.005	0	0.023	0.020	2.4	3.6	2.0	1.7	0.005	0.023
				Middle	7.5	NOT DETECTED		<0.005		0.021		2.9		2.0		0.009	
				Bottom	13.9	NOT DETECTED		<0.005		0.016		5.4		1.0		0.056	
07-Apr-16	Cloudy	Calm	18:10	Surface	1.0	NOT DETECTED	0	<0.005	0	0.014	0.017	1.8	2.5	2.0	3.3	0.005	0.018
				Middle	7.5	NOT DETECTED		<0.005		0.022		2.9		3.0		0.021	
				Bottom	14.0	NOT DETECTED		<0.005		0.015		2.9		5.0		0.028	
08-Apr-16	Cloudy	Calm	20:00	Surface	1.0	NOT DETECTED	0	<0.005	0	0.019	0.019	2.3	2.9	2.0	2.3	0.004	0.009
				Middle	7.5	NOT DETECTED		<0.005		0.020		2.0		1.0		0.005	
				Bottom	13.9	NOT DETECTED		<0.005		0.019		4.5		4.0		0.017	
09-Apr-16	Cloudy	Calm	08:20	Surface	1.0	NOT DETECTED	0	<0.005	0	0.039	0.041	2.2	2.9	2.0	2.7	0.004	0.009
				Middle	7.4	NOT DETECTED		<0.005		0.038		3.0		2.0		0.004	
				Bottom	13.8	NOT DETECTED		<0.005		0.047		3.6		4.0		0.019	
10-Apr-16	Rainy	Moderate	08:50	Surface	1.0	NOT DETECTED	0	<0.005	0	0.039	0.031	1.3	1.5	1.0	1.3	0.008	0.010
				Middle	7.3	NOT DETECTED		<0.005		0.029		1.6		1.0		0.007	
				Bottom	13.6	NOT DETECTED		<0.005		0.024		1.5		2.0		0.015	
11-Apr-16	Rainy	Moderate	09:30	Surface	1.0	3	3	<0.005	0	0.027	0.029	3.1	2.6	1.0	0.7	0.006	0.005
				Middle	7.5	7		<0.005		0.035		2.6		1.0		0.006	
				Bottom	13.9	NOT DETECTED		<0.005		0.025		2.2		<1		0.002	
12-Apr-16	Rainy	Moderate	10:15	Surface	1.0	1	1	0.014	0.013	0.014	0.034	2.1	2.2	1.0	0.7	0.002	0.002
				Middle	7.4	3		<0.005		0.026		2.3		1.0		0.004	
				Bottom	13.7	NOT DETECTED		0.026		0.061		2.2		<1		<0.001	
13-Apr-16	Rainy	Moderate	10:55	Surface	1.0	26	28	0.046	0.041	0.076	0.066	1.7	1.6	4.0	2.7	0.03	0.020
				Middle	7.4	57		0.040		0.067		1.5		4.0		0.03	
				Bottom	13.8	NOT DETECTED		0.036		0.056		1.6		<1		<0.001	

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Water Quality Monitoring Results at FC2 - Mid-Ebb Tide (In-situ Data)

Date	Weather Condition	Sea Condition	Sampling Time	Depth (m)		Temperature(°C)			pH			Salinity ppt			DO Saturation (%)		Dissloved Oxygen (mg/L)			Turbidity(NTU)		
						Value	Average	DA*	Value	Average	DA*	Value	Average	DA*	Value	Average	Value	Average	DA*	Value	Average	DA*
06-Apr-16	Cloudy	Calm	12:00	Surface	1.0	18.2	18.2	17.3	8.6	8.6	8.3	31.0	31.0	31.2	147.8	147.8	11.6	11.6	10.1	1.9	1.9	2.5
						18.2			8.6			31.0			147.8		11.6			1.9		
				Middle	7.8	17.0	17.0		8.3	8.3		31.2	31.2		106.5	106.5	8.5	8.5		1.3	1.3	
						17.0			8.3			31.2			106.5		8.5			1.3		
				Bottom	14.5	16.6	16.6		8.1	8.1		31.4	31.4		66.2	66.2	5.3	5.3	5.3	4.2	4.2	
						16.6			8.0			31.4			66.2		5.3			4.2		
07-Apr-16	Cloudy	Calm	11:45	Surface	1.0	22.4	22.4	18.8	8.7	8.7	8.2	28.3	28.3	29.4	148.5	148.5	10.9	10.9	9.1	1.2	1.2	1.2
						22.4			8.7			28.3			148.5		10.9			1.2		
				Middle	3.4	17.4	17.4		8.1	8.1		29.9	29.9		91.0	91.0	7.3	7.3		0.7	0.8	
						17.4			8.1			29.9			91.0		7.3			0.8		
				Bottom	5.8	16.7	16.7		7.9	7.9		30.1	30.1		76.3	76.3	6.2	6.2	6.2	1.5	1.5	
						16.7			7.9			30.1			76.3		6.2			1.5		
08-Apr-16	Cloudy	Calm	12:30	Surface	1.0	23.1	23.1	19.2	8.7	8.7	8.2	29.1	29.1	30.4	124.8	124.8	9.0	9.0	8.5	2.6	2.6	2.0
						23.1			8.7			29.1			124.8		9.0			2.6		
				Middle	3.5	17.6	17.6		8.2	8.2		30.9	30.9		99.2	99.2	7.9	7.9		1.0	1.0	
						17.6			8.2			30.9			99.2		7.9			1.0		
				Bottom	5.9	16.8	16.8		7.8	7.8		31.1	31.1		57.7	57.7	4.7	4.7	4.7	2.5	2.5	
						16.8			7.8			31.1			57.7		4.7			2.4		
09-Apr-16	Cloudy	Calm	12:30	Surface	1.0	23.1	23.1	19.2	8.7	8.7	8.2	29.1	29.1	30.4	124.8	124.8	9.0	9.0	8.5	2.6	2.6	2.0
						23.1			8.7			29.1			124.8		9.0			2.6		
				Middle	3.5	17.6	17.6		8.2	8.2		30.9	30.9		99.2	99.2	7.9	7.9		1.0	1.0	
						17.6			8.2			30.9			99.2		7.9			1.0		
				Bottom	5.9	16.8	16.8		7.8	7.8		31.1	31.1		57.7	57.7	4.7	4.7	4.7	2.5	2.5	
						16.8			7.8			31.1			57.7		4.7			2.4		

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MateriaLab – Waste & Environmental Technologies Joint Venture

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MateriaLab

Report No.: 0151/15/ED/0528

Date	Weather Condition	Sea Condition	Sampling Time	Depth (m)		Temperature(°C)			pH			Salinity ppt			DO Saturation (%)		Dissloved Oxygen (mg/L)			Turbidity(NTU)		
						Value	Average	DA*	Value	Average	DA*	Value	Average	DA*	Value	Average	Value	Average	DA*	Value	Average	DA*
10-Apr-16	Rainy	Moderate	13:55	Surface	1.0	22.9	22.9	19.2	8.7	8.7	8.3	27.7	27.7	29.7	117.2	117.2	8.6	8.6	7.8	1.3	1.3	1.4
						22.9			8.7			27.7			117.2		8.6			1.3		
				Middle	3.6	17.6	17.6		8.2	8.2		30.6	30.6		87.8	87.8	7.0	7.0		1.2	1.2	
						17.6			8.2			30.6			87.8		7.0			1.2		
				Surface	6.2	17.1	17.1		7.9	7.9		30.8	30.8		53.6	53.6	4.3	4.3	4.3	1.6	1.6	
						17.1			7.9			30.8			53.6		4.3			1.6		
11-Apr-16	Rainy	Moderate	14:45	Middle	1.0	21.1	21.1	18.5	8.5	8.5	8.0	28.7	28.7	29.9	111.4	111.4	8.4	8.4	7.3	3.0	3.0	2.3
						21.1			8.5			28.7			111.4		8.4			3.0		
				Bottom	3.6	17.5	17.5		8.0	8.0		30.5	30.5		77.1	77.1	6.1	6.1		1.0	1.1	
						17.5			8.0			30.5			77.1		6.1			1.1		
				Surface	6.5	17.0	17.0		7.6	7.6		30.6	30.6		37.6	37.6	3.0	3.0	3.0	2.8	2.9	
						17.0			7.6			30.6			37.6		3.0			2.9		
12-Apr-16	Rainy	Moderate	15:35	Middle	1.0	19.9	19.9	18.1	8.5	8.5	8.1	30.5	30.5	31.1	109.4	109.4	8.3	8.3	7.8	2.2	2.3	1.9
						19.9			8.5			30.5			109.4		8.3			2.3		
				Bottom	3.6	17.8	17.8		8.0	8.0		31.4	31.4		92.3	92.3	7.3	7.3		1.7	1.7	
						17.8			8.0			31.4			92.3		7.3			1.6		
				Surface	6.1	16.6	16.6		7.7	7.7		31.3	31.3		60.4	60.4	4.9	4.9	4.9	1.9	1.9	
						16.6			7.7			31.3			60.4		4.9			1.9		
13-Apr-16	Rainy	Moderate	16:30	Surface	1.0	20.2	20.2	18.8	8.4	8.4	8.2	29.7	29.7	31.1	101.5	101.5	8.1	8.1	7.6	1.3	1.3	1.0
						20.2			8.4			29.7			101.5		8.1			1.3		
				Middle	3.7	18.6	18.6		8.2	8.2		31.7	31.7		94.9	94.9	7.0	7.0		0.8	0.8	
						18.6			8.2			31.7			94.9		7.0			0.8		
				Bottom	6.3	17.6	17.6		7.9	7.9		31.8	31.8		59.5	59.5	4.6	4.6	4.6	1.0	1.0	
						17.6			7.9			31.8			59.5		4.6			0.9		

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Report No.: 0151/15/ED/0528

Water Quality Monitoring Results at FC2 - Mid-Ebb Tide (Laboratory Data)

Date	Weather	Sea Condition	Sampling Time	Depth (m)		E-coli (cfu/100ml)		Ammonia-Nitrogen (mg-N/L)		Total Inorganic Nitrogen		Suspended Solids (mg/L)		Biochemical Oxygen Demand		Chlorophyll-a (mg/L)	
						Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA
06-Apr-16	Cloudy	Calm	12:00	Surface	1.0	220	78	<0.005	0	0.030	0.019	4.8	3.5	5	3.7	0.022	0.019
				Middle	7.8	NOT DETECTED		<0.005		0.016		2.9		5		0.017	
				Bottom	14.5	14		<0.005		0.010		2.9		1		0.017	
07-Apr-16	Cloudy	Calm	11:45	Surface	1.0	NOT DETECTED	0	<0.005	0	0.024	0.021	5.7	3.5	3	4.0	0.019	0.021
				Middle	3.4	NOT DETECTED		<0.005		0.017		4.8		6		0.028	
				Bottom	5.8	NOT DETECTED		<0.005		0.021		<0.5		3		0.016	
08-Apr-16	Cloudy	Calm	12:30	Surface	1.0	NOT DETECTED	1	<0.005	0.008	0.017	0.027	2.0	2.9	2	3.7	0.011	0.011
				Middle	3.5	NOT DETECTED		0.025		0.040		2.3		3		0.012	
				Bottom	5.9	3		<0.005		0.025		4.3		6		0.010	
09-Apr-16	Cloudy	Calm	12:30	Surface	1.0	1	0	0.057	0.019	0.102	0.060	3.3	2.9	4	2.3	0.018	0.013
				Middle	3.5	NOT DETECTED		<0.005		0.044		2.8		1		0.014	
				Bottom	5.9	NOT DETECTED		<0.005		0.034		2.7		2		0.007	
10-Apr-16	Rainy	Moderate	13:55	Surface	1.0	120	49	<0.005	0	0.040	0.037	4.0	3.8	5	4.0	0.03	0.022
				Middle	3.6	15		<0.005		0.029		4.3		5		0.029	
				Bottom	6.2	13		<0.005		0.041		3.2		2		0.006	
11-Apr-16	Rainy	Moderate	14:45	Surface	1.0	26	14	<0.005	0	0.022	0.020	2.8	3.6	2	1.3	0.013	0.010
				Middle	3.6	14		<0.005		0.020		3.1		2		0.012	
				Bottom	6.5	1		<0.005		0.017		4.9		<1		0.004	
12-Apr-16	Rainy	Moderate	15:35	Surface	1.0	6	5	<0.005	0.007	<0.005	0.027	3.6	3.5	2	3.0	0.006	0.007
				Middle	3.6	5		0.02		0.048		3.6		2		0.007	
				Bottom	6.1	4		<0.005		0.033		3.4		5		0.009	
13-Apr-16	Rainy	Moderate	16:30	Surface	1.0	230	175	0.027	0.031	0.075	0.068	3.9	4.2	6	4.0	0.031	0.019
				Middle	3.7	280		0.041		0.088		3.6		6		0.024	
				Bottom	6.3	14		0.024		0.042		5.2		<1		0.001	

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Report No.: 0151/15/ED/0528

Water Quality Monitoring Results at FC2 - Mid-flood Tide (In-situ Data)

Date	Weather Condition	Sea Condition	Sampling Time	Depth (m)		Temperature(°C)			pH			Salinity ppt			DO Saturation (%)		Dissloved Oxygen (mg/L)			Turbidity(NTU)		
						Value	Average	DA*	Value	Average	DA*	Value	Average	DA*	Value	Average	Value	Average	DA*	Value	Average	DA*
06-Apr-16	Cloudy	Calm	17:00	Surface	1.0	22.4	22.4	18.8	8.8	8.8	8.2	29.2	29.2	30.6	157.0	157.0	11.5	11.5	10.0	11.5	11.5	8.0
						22.4			8.8			29.2			157.0		11.5			11.5		
				Middle	3..3	17.2	17.2		8.2	8.2		31.2	31.2		106.0	106.0	8.5	8.5		8.5	8.5	
						17.2			8.2			31.2			106.0		8.5			8.5		
				Bottom	5.6	16.8	16.8		7.7	7.7		31.4	31.4		47.6	47.6	3.8	3.8	3.8	3.9	3.9	
						16.8			7.7			31.4			47.6		3.8			3.8		
07-Apr-16	Cloudy	Calm	17:00	Surface	1.0	22.8	22.8	19.0	8.7	8.7	8.2	27.9	27.9	29.9	124.6	124.6	9.1	9.1	8.5	1.7	4.7	2.3
						22.8			8.7			27.9			124.6		9.1			7.7		
				Middle	3.4	17.5	17.5		8.1	8.1		30.8	30.8		97.5	97.5	7.8	7.8		0.7	0.8	
						17.5			8.1			30.8			97.5		7.8			0.8		
				Bottom	5.8	16.8	16.8		7.9	7.9		30.9	30.9		57.2	57.2	4.6	4.6	4.6	1.4	1.4	
						16.8			7.9			30.9			57.2		4.6			1.4		
08-Apr-16	Cloudy	Calm	18:50	Surface	1.0	22.5	22.5	18.7	8.6	8.6	8.2	28.3	28.3	29.3	115.2	115.2	8.5	8.5	8.1	2.0	2.0	1.8
						22.5			8.6			28.3			115.2		8.5			2.0		
				Middle	3.4	17.0	17.0		8.2	8.2		29.5	29.5		94.8	94.8	7.7	7.7		1.2	1.2	
						17.0			8.2			29.5			94.8		7.7			1.2		
				Bottom	5.7	16.6	16.6		7.8	7.8		30.2	30.2		53.6	53.6	4.4	4.4	4.4	2.0	2.1	
						16.6			7.8			30.2			53.6		4.4			2.1		
09-Apr-16	Cloudy	Calm	07:00	Surface	1.0	20.9	20.9	18.1	8.6	8.6	8.3	28.3	28.3	29.5	112.3	112.3	8.5	8.5	8.1	0.8	0.9	1.3
						20.9			8.6			28.3			112.3		8.5			0.9		
				Middle	3.3	17.3	17.3		8.2	8.2		29.6	29.6		94.8	94.8	7.6	7.6		1.3	1.4	
						17.3			8.2			29.6			94.8		7.6			1.4		
				Bottom	5.6	16.2	16.2		8.0	8.0		30.5	30.5		49.2	49.2	4.0	4.0	4.0	1.8	1.8	
						16.2			8.0			30.5			49.2		4.0			1.8		

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Report No.: 0151/15/ED/0528

Date	Weather Condition	Sea Condition	Sampling Time	Depth (m)		Temperature(°C)			pH			Salinity ppt			DO Saturation (%)		Dissloved Oxygen (mg/L)			Turbidity(NTU)		
						Value	Average	DA*	Value	Average	DA*	Value	Average	DA*	Value	Average	Value	Average	DA*	Value	Average	DA*
10-Apr-16	Rainy	Moderate	07:35	Surface	1.0	21.6	21.6	18.6	8.5	8.5	8.2	29.4	29.4	30.7	110.5	110.5	8.2	8.2	8.1	1.0	1.0	1.0
						21.6			8.5			29.4			110.5		8.2			0.9		
				Middle	3.4	17.5	17.5		8.2	8.2		31.2	31.2		99.3	99.3	7.9	7.9		1.2	1.3	
						17.5			8.2			31.2			99.3		7.9			1.3		
				Surface	5.7	16.6	16.6		7.9	7.9		31.4	31.4		70.2	70.2	5.7	5.7	5.7	0.9	0.9	
						16.6			7.9			31.4			70.2		5.7			0.9		
11-Apr-16	Rainy	Moderate	08:15	Middle	1.0	21.1	21.1	18.6	8.5	8.5	8.1	28.9	28.9	30.1	109.8	109.8	8.3	8.3	8.1	2.5	2.5	2.1
						21.1			8.5			28.9			109.8		8.3			2.4		
				Bottom	3.3	17.5	17.5		8.0	8.0		30.6	30.6		97.6	97.6	7.8	7.8		1.6	1.6	
						17.5			8.0			30.6			97.6		7.8			1.6		
				Surface	5.6	17.2	17.2		7.7	7.7		30.9	30.9		60.4	60.4	4.8	4.8	4.8	2.1	2.1	
						17.2			7.7			30.9			60.4		4.8			2.1		
12-Apr-16	Rainy	Moderate	09:00	Middle	1.0	21.5	21.5	19.0	8.5	8.5	8.0	26.9	26.9	28.7	114.4	114.4	8.6	8.6	8.5	1.3	1.3	1.5
						21.5			8.5			26.9			114.4		8.6			1.3		
				Bottom	3.4	18.5	18.5		7.9	7.9		29.4	29.4		106.5	106.5	8.4	8.4		1.6	1.6	
						18.5			7.9			29.4			106.5		8.4			1.6		
				Surface	5.7	17.0	17.0		7.7	7.7		29.7	29.7		77.2	77.2	6.2	6.2	6.2	1.6	1.6	
						17.0			7.7			29.7			77.2		6.2			1.6		
13-Apr-16	Rainy	Moderate	09:45	Surface	1.0	21.5	21.5	18.7	8.3	8.3	8.1	28.5	28.5	30.0	114.6	114.6	8.6	8.6	7.5	1.0	1.0	1.5
						21.5			8.3			28.5			114.6		8.6			1.0		
				Middle	3.4	17.6	17.6		8.2	8.2		30.6	30.6		79.3	79.3	6.3	6.3		1.7	1.7	
						17.6			8.2			30.6			79.3		6.3			1.6		
				Bottom	5.7	17.1	17.1		7.8	7.8		30.9	30.9		35.1	35.1	2.8	2.8	2.8	1.9	1.9	
						17.1			7.8			30.9			35.1		2.8			1.9		

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Report No.: 0151/15/ED/0528

Water Quality Monitoring Results at FC2 – Mid-flood Tide (Laboratory Data)

Date	Weather	Sea Condition	Sampling Time	Depth (m)		E-coli (cfu/100ml)		Ammonia-Nitrogen (mg-N/L)		Total Inorganic Nitrogen		Suspended Solids (mg/L)		Biochemical Oxygen Demand		Chlorophyll-a (mg/L)	
						Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA
6-Apr-16	Cloudy	Calm	17:00	Surface	1.0	NOT DETECTED	0	<0.005	0	0.023	0.027	2.3	3.9	2	4.3	0.011	0.024
				Middle	3.3	NOT DETECTED		<0.005		0.032		4.7		5		0.030	
				Bottom	5.6	NOT DETECTED		<0.005		0.025		4.8		6		0.032	
7-Apr-16	Cloudy	Calm	17:00	Surface	1.0	3	10	<0.005	0	0.018	0.020	7.0	7.4	3	3.0	0.017	0.016
				Middle	3.4	2		<0.005		0.021		6.3		4		0.021	
				Bottom	5.8	25		<0.005		0.020		9.0		2		0.010	
8-Apr-16	Cloudy	Calm	18:50	Surface	1.0	NOT DETECTED	2	<0.005	0	0.014	0.018	2.5	2.8	2	3.3	0.010	0.011
				Middle	3.4	NOT DETECTED		<0.005		0.020		2.8		4		0.012	
				Bottom	5.7	6		<0.005		0.020		3.2		4		0.010	
9-Apr-16	Cloudy	Calm	7:00	Surface	1.0	2	1	<0.005	0.002	0.032	0.038	2.4	2.9	3	2.7	0.017	0.013
				Middle	3.3	NOT DETECTED		<0.005		0.035		2.9		3		0.018	
				Bottom	5.6	NOT DETECTED		0.006		0.046		3.5		2		0.004	
10-Apr-16	Rainy	Moderate	7:35	Surface	1.0	NOT DETECTED	0	<0.005	0	0.040	0.041	2.6	2.9	1	1.3	0.013	0.011
				Middle	3.4	NOT DETECTED		<0.005		0.040		3.0		1		0.012	
				Bottom	5.7	NOT DETECTED		<0.005		0.043		3.1		2		0.008	
11-Apr-16	Rainy	Moderate	8:15	Surface	1.0	43	33	<0.005	0.004	0.030	0.029	2.2	3.1	2	1.3	0.014	0.010
				Middle	3.3	56		<0.005		0.020		2.7		2		0.013	
				Bottom	5.6	NOT DETECTED		0.013		0.037		4.4		<1		0.004	
12-Apr-16	Rainy	Moderate	9:00	Surface	1.0	11	10	<0.005	0.010	<0.005	0.033	2.4	2.8	2	2.7	0.009	0.008
				Middle	3.4	17		0.031		0.066		3.5		2		0.006	
				Bottom	5.7	1		<0.005		0.032		2.4		4		0.009	
13-Apr-16	Rainy	Moderate	9:45	Surface	1.0	270	149	0.055	0.054	0.105	0.095	2.6	3.0	6	4.0	0.030	0.026
				Middle	3.4	170		0.070		0.118		3.2		6		0.046	
				Bottom	5.7	7		0.038		0.061		3.2		<1		0.001	

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Water Quality Monitoring Results at G1 - Mid-Ebb Tide (In-situ Data)

Date	Weather Condition	Sea Condition	Sampling Time	Depth (m)		Temperature(°C)			pH			Salinity ppt			DO Saturation (%)		Dissloved Oxygen (mg/L)			Turbidity(NTU)		
						Value	Average	DA*	Value	Average	DA*	Value	Average	DA*	Value	Average	Value	Average	DA*	Value	Average	DA*
06-Apr-16	Cloudy	Calm	10:45	Surface	1.0	22	22.0	19.5	8.8	8.8	8.4	28.3	28.3	29.8	15.9	15.9	11.2	11.2	11.8	1.2	1.2	2.2
						22			8.8			28.3			15.9		11.2			1.2		
				Middle	3.5	19.6	19.7		8.7	8.7		29.9	29.9		161.3	161.3	12.4	12.4		1.3	1.3	
						19.7			8.7			29.9			161.3		12.4			1.3		
				Bottom	6.0	16.8	16.8		7.6	7.6		31.3	31.3		24.5	24.5	2.0	2.0	2.0	4.2	4.2	
						16.8			7.6			31.3			24.5		2.0			4.2		
07-Apr-16	Cloudy	Calm	11:30	Surface	1.0	22.4	22.4	18.8	8.7	8.7	8.1	26.9	26.9	28.1	149.4	149.4	11.1	11.1	9.6	1.1	1.2	1.7
						22.4			8.7			26.9			149.4		11.1			1.2		
				Middle	3.7	17.3	17.3		8.1	8.1		28.6	28.6		99.5	99.5	8.0	8.0		0.5	0.5	
						17.3			8.1			28.6			99.5		8.0			0.5		
				Bottom	6.3	16.6	16.6		7.6	7.6		28.8	28.8		59.2	59.2	4.9	4.9	4.9	3.5	3.5	
						16.6			7.6			28.8			59.2		4.9			3.5		
08-Apr-16	Cloudy	Calm	12:15	Surface	1.0	23.0	23.0	19.0	8.8	8.8	8.2	28.7	28.7	29.8	129.8	129.8	9.4	9.4	8.9	0.8	0.8	1.4
						23.0			8.8			28.7			129.8		9.4			0.8		
				Middle	3.6	17.2	17.2		8.0	8.0		30.3	30.3		104.1	104.1	8.4	8.4		0.9	0.9	
						17.2			8.0			30.3			104.1		8.4			0.9		
				Bottom	6.2	16.8	16.8		7.7	7.7		30.5	30.5		53.8	53.8	4.4	4.4	4.4	2.5	2.5	
						16.8			7.7			30.5			53.8		4.4			2.5		
09-Apr-16	Cloudy	Calm	13:00	Surface	1.0	21.3	21.3	18.4	8.6	8.6	8.1	29.7	29.7	30.7	117.9	117.9	8.8	8.8	7.6	1.1	1.1	1.8
						21.3			8.6			29.7			117.9		8.8			1.1		
				Middle	3.6	17.1	17.1		8.0	8.0		31.2	31.2		80.3	80.3	6.4	6.4		1.0	1.0	
						17.1			8.0			31.2			80.3		6.4			1.0		
				Bottom	6.2	16.7	16.7		7.7	7.7		31.2	31.2		35.7	35.7	2.9	2.9	2.9	3.3	3.3	
						16.7			7.7			31.2			35.7		2.9			3.3		

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MateriaLab

Report No.: 0151/15/ED/0528

Date	Weather Condition	Sea Condition	Sampling Time	Depth (m)		Temperature(°C)			pH			Salinity ppt			DO Saturation (%)		Dissloved Oxygen (mg/L)			Turbidity(NTU)		
						Value	Average	DA*	Value	Average	DA*	Value	Average	DA*	Value	Average	Value	Average	DA*	Value	Average	DA*
10-Apr-16	Rainy	Moderate	13:40	Surface	1.0	22.8	22.8	19.0	8.6	8.6	8.2	28.0	28.0	30.1	120.0	120.0	8.9	8.9	8.5	1.6	1.6	1.4
						22.8			8.6			28.0			120.0		8.9			1.5		
				Middle	3.6	17.3	17.3		8.0	8.0		31.1	31.1		91.0	91.0	8.0	8.0		1.4	1.4	
						17.3			8.0			31.1			91.0		8.0			1.4		
				Surface	6.1	17.0	17.0		7.9	7.9		31.2	31.2		53.4	53.4	7.9	7.9	7.9	1.2	1.2	
						17.0			7.9			31.2			53.4		7.9			1.2		
11-Apr-16	Rainy	Moderate	14:30	Middle	1.0	21.0	21.0	18.8	8.4	8.4	8.1	27.3	27.3	28.7	116.6	116.6	8.9	8.9	8.6	3.9	3.9	1.9
						21.0			8.4			27.3			116.6		8.9			3.9		
				Bottom	3.5	18.2	18.2		8.1	8.1		29.3	29.3		104.2	104.4	8.3	8.3		1.1	1.1	
						18.2			8.1			29.3			104.5		8.3			1.1		
				Surface	5.9	17.2	17.2		7.9	7.9		29.6	29.6		76.3	76.3	6.2	6.2	6.2	0.7	0.7	
						17.2			7.9			29.6			76.3		6.2			0.7		
12-Apr-16	Rainy	Moderate	15:20	Middle	1.0	20.2	20.2	18.2	8.4	8.4	8.1	30.4	30.4	31.1	107.1	107.1	8.1	8.1	7.9	2.8	2.8	1.8
						20.2			8.4			30.4			107.1		8.1			2.8		
				Bottom	3.5	17.6	17.6		8.1	8.1		31.4	31.4		96.0	96.0	7.6	7.6		1.4	1.4	
						17.6			8.1			31.4			96.0		7.6			1.4		
				Surface	6.0	16.7	16.7		7.9	7.9		31.4	31.4		59.2	59.2	4.8	4.8	4.8	1.3	1.3	
						16.7			7.9			31.4			59.2		4.8			1.3		
13-Apr-16	Rainy	Moderate	16:15	Surface	1.0	20.3	20.3	18.8	8.3	8.3	8.0	29.4	29.4	30.8	106.3	106.3	8.1	8.1	7.6	3.0	3.1	6.3
						20.3			8.3			29.4			106.3		8.1			3.1		
				Middle	3.6	18.4	18.4		8.0	8.0		31.5	31.5		90.3	90.3	7.0	7.0		1.6	1.6	
						18.4			8.0			31.5			90.3		7.0			1.6		
				Bottom	6.2	17.7	17.7		7.7	7.7		31.6	31.6		57.5	57.5	4.5	4.5	4.5	2.6	14.3	
						17.7			7.7			31.6			57.5		4.5			26.0		

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Report No.: 0151/15/ED/0528

Water Quality Monitoring Results at G1 - Mid-Ebb Tide (Laboratory Data)

Date	Weather	Sea Condition	Sampling Time	Depth (m)		E-coli (cfu/100ml)		Ammonia-Nitrogen (mg-N/L)		Total Inorganic Nitrogen		Suspended Solids (mg/L)		Biochemical Oxygen Demand		Chlorophyll-a (mg/L)	
						Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA
06-Apr-16	Cloudy	Calm	10:45	Surface	1.0	1	0	<0.005	0	0.025	0.026	2.6	3.1	3	3.7	0.018	0.017
				Middle	3.5	NOT DETECTED		<0.005		0.030		3.2		4		0.015	
				Bottom	6.0	NOT DETECTED		<0.005		0.022		3.6		4		0.017	
07-Apr-16	Cloudy	Calm	11:30	Surface	1.0	NOT DETECTED	1	<0.005	0	0.020	0.017	3.0	2.8	2	2.7	0.008	0.015
				Middle	3.7	NOT DETECTED		<0.005		0.016		3.0		4		0.027	
				Bottom	6.3	2		<0.005		0.016		2.5		2		0.009	
08-Apr-16	Cloudy	Calm	12:15	Surface	1.0	NOT DETECTED	3	<0.005	0	0.021	0.024	3.0	2.9	2	3.0	0.011	0.014
				Middle	3.6	NOT DETECTED		<0.005		0.025		3.2		4		0.022	
				Bottom	6.2	8		<0.005		0.026		2.5		3		0.01	
09-Apr-16	Cloudy	Calm	13:00	Surface	1.0	1	1	<0.005	0	0.042	0.042	3.3	3.8	4	3.3	0.015	0.013
				Middle	3.6	NOT DETECTED		<0.005		0.048		4.1		4		0.015	
				Bottom	6.2	1		<0.005		0.036		3.9		2		0.008	
10-Apr-16	Rainy	Moderate	13:40	Surface	1.0	84	28	<0.005	0.003	0.034	0.040	3.3	3.4	5	3.7	0.032	0.022
				Middle	3.6	NOT DETECTED		<0.005		0.037		3.5		5		0.03	
				Bottom	6.1	NOT DETECTED		0.009		0.050		3.3		1		0.005	
11-Apr-16	Rainy	Moderate	14:30	Surface	1.0	28	17	<0.005	0	0.021	0.023	2.1	2.1	2	1.3	0.013	0.010
				Middle	3.5	23		<0.005		0.024		2.1		2		0.013	
				Bottom	5.9	NOT DETECTED		<0.005		0.025		2.2		<1		0.003	
12-Apr-16	Rainy	Moderate	15:20	Surface	1.0	1	3	0.014	0.005	0.014	0.027	2.9	2.6	2	2.7	0.007	0.008
				Middle	3.5	2		<0.005		0.037		2.8		2		0.007	
				Bottom	6.0	5		<0.005		0.030		2.2		4		0.009	
13-Apr-16	Rainy	Moderate	16:15	Surface	1.0	190	118	0.052	0.037	0.102	0.078	3.0	3.6	6	4.0	0.025	0.023
				Middle	3.6	150		0.038		0.092		3.0		6		0.044	
				Bottom	6.2	13		0.022		0.040		4.7		<1		0.001	

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Report No.: 0151/15/ED/0528

Water Quality Monitoring Results at G1 - Mid-flood Tide (In-situ Data)

Date	Weather Condition	Sea Condition	Sampling Time	Depth (m)		Temperature(°C)			pH			Salinity ppt			DO Saturation (%)		Dissloved Oxygen (mg/L)			Turbidity(NTU)		
						Value	Average	DA*	Value	Average	DA*	Value	Average	DA*	Value	Average	Value	Average	DA*	Value	Average	DA*
06-Apr-16	Cloudy	Calm	16:45	Surface	1.0	21.3	21.3	18.2	8.7	8.7	8.3	30.0	30.0	31.0	129.0	129.0	9.6	9.6	9.2	1.4	1.4	0.9
						21.3			8.7			30.0			129.0		9.6			1.4		
				Middle	3.3	17.1	17.1		8.2	8.2		31.5	31.5		109.1	109.1	8.7	8.7		0.9	0.9	
						17.1			8.2			31.5			109.1		8.7			0.9		
				Bottom	5.5	16.4	16.3		8.1	8.1		31.6	31.6		80.6	80.6	6.5	6.5	6.5	0.5	0.5	
						16.1			8.1			31.6			80.6		6.5			0.4		
07-Apr-16	Cloudy	Calm	16:45	Surface	1.0	21.8	21.8	18.5	8.7	8.7	8.3	30.5	30.5	31.5	129.0	129.0	9.5	9.5	8.7	1.1	1.1	1.1
						21.8			8.7			30.5			129.0		9.5			1.1		
				Middle	3.4	17.0	17.0		8.2	8.2		31.9	31.9		97.3	97.3	7.8	7.8		0.8	0.8	
						17.0			8.2			31.9			97.3		7.8			0.8		
				Bottom	5.8	16.6	16.6		8.0	8.0		32.0	32.0		73.0	73.0	5.9	5.9	5.9	1.3	1.3	
						16.6			8.0			32.0			73.0		5.9			1.3		
08-Apr-16	Cloudy	Calm	18:35	Surface	1.0	22.4	22.4	18.7	8.6	8.6	8.1	28.2	28.2	29.4	118.0	118.0	8.7	8.7	8.2	1.4	1.4	1.6
						22.4			8.6			28.2			118.0		8.7			1.4		
				Middle	3.2	17.1	17.1		8.0	8.0		29.6	29.6		95.4	95.4	7.7	7.7		1.2	1.2	
						17.1			8.0			29.6			95.4		7.7			1.2		
				Bottom	5.3	16.5	16.5		7.8	7.8		30.3	30.3		56.3	56.3	4.6	4.6	4.6	2.1	2.1	
						16.5			7.8			30.3			56.3		4.6			2.0		
09-Apr-16	Cloudy	Calm	06:45	Surface	1.0	20.8	20.8	18.1	8.6	8.6	8.1	28.4	28.4	29.6	110.0	110.0	8.3	8.3	8.0	1.3	1.3	1.7
						20.8			8.6			28.4			110.0		8.3			1.3		
				Middle	3.2	17.2	17.2		8.1	8.1		29.8	29.8		96.2	96.2	7.7	7.7		1.3	1.3	
						17.2			8.1			29.8			96.2		7.7			1.2		
				Bottom	5.3	16.3	16.3		7.7	7.7		30.6	30.6		54.8	54.8	4.5	4.5	4.5	2.6	2.6	
						16.3			7.7			30.6			54.8		4.5			2.6		

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Date	Weather Condition	Sea Condition	Sampling Time	Depth (m)		Temperature(°C)			pH			Salinity ppt			DO Saturation (%)		Dissloved Oxygen (mg/L)			Turbidity(NTU)		
						Value	Average	DA*	Value	Average	DA*	Value	Average	DA*	Value	Average	Value	Average	DA*	Value	Average	DA*
10-Apr-16	Rainy	Moderate	07:20	Surface	1.0	21.6	21.6	18.6	8.5	8.5	8.2	29.3	29.3	30.7	109.2	109.2	8.1	8.1	8.0	1.3	1.3	1.2
						21.6			8.5			29.3			109.2		8.1			1.2		
				Middle	3.2	17.5	17.5		8.2	8.2		31.2	31.2		99.1	99.1	7.9	7.9		1.0	1.0	
						17.5			8.2			31.2			99.1		7.9			1.0		
				Surface	5.3	16.6	16.6		7.9	7.9		31.5	31.5		68.3	68.3	5.5	5.5	5.5	1.3	1.3	
						16.6			7.9			31.5			68.3		5.5			1.2		
11-Apr-16	Rainy	Moderate	08:00	Middle	1.0	21.0	21.0	18.6	8.4	8.4	8.1	28.7	28.7	30.0	111.6	111.6	8.4	8.4	8.1	3.3	3.3	2.1
						21.0			8.4			28.7			111.6		8.4			3.3		
				Bottom	3.1	17.6	17.6		8.1	8.1		30.8	30.8		97.1	97.1	7.7	7.7		1.7	1.7	
						17.6			8.1			30.8			97.1		7.7			1.6		
				Surface	5.2	17.1	17.1		7.9	7.9		30.5	30.5		62.1	62.1	5.0	5.0	5.0	1.2	1.2	
						17.1			7.9			30.5			62.1		5.0			1.2		
12-Apr-16	Rainy	Moderate	08:45	Middle	1.0	21.5	21.5	19.0	8.5	8.5	8.2	26.9	26.9	28.7	115.5	115.5	8.7	8.7	8.5	1.8	1.8	2.0
						21.5			8.5			26.9			115.5		8.7			1.8		
				Bottom	3.4	18.5	18.5		8.1	8.1		29.5	29.5		103.7	103.7	8.2	8.2		1.9	1.9	
						18.5			8.1			29.5			103.7		8.2			1.9		
				Surface	5.8	16.9	16.9		7.9	7.9		29.8	29.8		76.5	76.5	6.2	6.2	6.2	2.4	2.4	
						16.9			7.9			29.8			76.5		6.2			2.4		
13-Apr-16	Rainy	Moderate	09:30	Surface	1.0	21.3	21.3	18.6	8.4	8.4	8.1	28.6	28.6	29.9	115.1	115.1	8.6	8.6	7.5	1.2	1.2	1.6
						21.3			8.4			28.6			115.1		8.6			1.2		
				Middle	3.5	17.5	17.5		8.1	8.1		30.4	30.4		79.9	79.9	6.4	6.4		1.6	1.7	
						17.5			8.1			30.4			79.9		6.4			1.7		
				Bottom	5.9	16.9	16.9		7.8	7.8		30.7	30.7		35.5	35.5	2.9	2.9	2.9	1.8	1.8	
						16.9			7.8			30.7			35.5		2.9			1.8		

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Water Quality Monitoring Results at G1 - Mid-flood Tide (Laboratory Data)

Date	Weather	Sea Condition	Sampling Time	Depth (m)		E-coli (cfu/100ml)		Ammonia-Nitrogen (mg-N/L)		Total Inorganic Nitrogen		Suspended Solids (mg/L)		Biochemical Oxygen Demand		Chlorophyll-a (mg/L)	
						Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA
06-Apr-16	Cloudy	Calm	10:45	Surface	1.0	2	1	<0.005	0	<0.005	0.012	2.3	3.3	2	2.7	0.012	0.014
				Middle	3.3	NOT DETECTED		<0.005		0.016		3.8		3		0.014	
				Bottom	5.5	NOT DETECTED		<0.005		0.02		3.8		3		0.015	
07-Apr-16	Cloudy	Calm	11:30	Surface	1.0	NOT DETECTED	7	<0.005	0	0.022	0.019	4.2	3.5	3	3.0	0.017	0.016
				Middle	3.4	NOT DETECTED		<0.005		0.015		3.9		4		0.022	
				Bottom	5.8	21		<0.005		0.020		2.5		2		0.010	
08-Apr-16	Cloudy	Calm	12:15	Surface	1.0	NOT DETECTED	2	<0.005	0	0.022	0.019	2.0	3.7	2	2.7	0.012	0.011
				Middle	3.2	NOT DETECTED		<0.005		0.016		4.3		4		0.011	
				Bottom	5.3	6		<0.005		0.020		4.7		2		0.010	
09-Apr-16	Cloudy	Calm	13:00	Surface	1.0	NOT DETECTED	0	<0.005	0	0.020	0.029	2.9	2.9	3	2.3	0.015	0.011
				Middle	3.2	NOT DETECTED		<0.005		0.029		2.9		3		0.014	
				Bottom	5.3	NOT DETECTED		<0.005		0.038		2.8		1		0.004	
10-Apr-16	Rainy	Moderate	13:40	Surface	1.0	NOT DETECTED	0	<0.005	0	0.038	0.039	2.3	2.3	1	1.3	0.011	0.009
				Middle	3.2	NOT DETECTED		<0.005		0.037		2.2		1		0.010	
				Bottom	5.3	NOT DETECTED		<0.005		0.041		2.3		2		0.006	
11-Apr-16	Rainy	Moderate	14:30	Surface	1.0	18	14	<0.005	0	0.019	0.019	3.2	2.9	2	1.3	0.013	0.010
				Middle	3.1	24		<0.005		0.021		2.7		2		0.013	
				Bottom	5.2	1		<0.005		0.017		2.9		<1		0.004	
12-Apr-16	Rainy	Moderate	15:20	Surface	1.0	6	5	0.013	0.013	0.013	0.034	2.8	3.0	2	2.7	0.007	0.008
				Middle	3.4	6		0.019		0.056		3.2		2		0.007	
				Bottom	5.8	4		0.008		0.034		3.0		4		0.009	
13-Apr-16	Rainy	Moderate	16:15	Surface	1.0	350	172	0.049	0.034	0.104	0.076	2.8	3.5	6	3.7	0.047	0.031
				Middle	3.5	160		0.028		0.075		3.8		5		0.045	
				Bottom	5.9	7		0.026		0.050		3.8		<1		0.001	

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Report No.: 0151/15/ED/0528

Water Quality Monitoring Results at W1 - Mid-Ebb Tide (In-situ Data)

Date	Weather Condition	Sea Condition	Sampling Time	Depth (m)		Temperature(°C)			pH			Salinity ppt			DO Saturation (%)		Dissloved Oxygen (mg/L)			Turbidity(NTU)		
						Value	Average	DA*	Value	Average	DA*	Value	Average	DA*	Value	Average	Value	Average	DA*	Value	Average	DA*
06-Apr-16	Cloudy	Calm	10:30	Surface	1.0	22.4	22.4	22.0	8.8	8.8	8.8	25.4	25.4	26.0	168.4	168.4	12.6	12.6	12.6	1.9	1.9	1.8
						22.4			8.8			25.4			168.4		12.6			1.9		
				Bottom	2.7	21.6	21.6		8.7	8.7		26.5	26.5		170.9	170.9	12.9	12.9	12.9	1.8	1.8	
						21.6			8.7			26.5			170.8		12.9			1.7		
07-Apr-16	Cloudy	Calm	11:15	Surface	1.0	22.6	22.6	19.8	8.8	8.8	8.3	28.8	28.8	29.9	158.5	158.5	11.6	11.6	11.6	0.9	0.9	1.2
						22.6			8.8			28.8			158.5		11.6			0.9		
				Bottom	2.9	16.9	16.9		7.7	7.7		30.9	30.9		45.8	45.8	3.7	3.7	3.7	1.5	1.5	
						16.9			7.7			30.9			45.8		3.7			1.5		
08-Apr-16	Cloudy	Calm	12:00	Surface	1.0	24.6	24.6	20.9	8.7	8.8	8.3	25.3	25.3	27.5	163.5	163.5	11.8	11.8	11.8	1.7	1.7	3.3
						24.6			8.9			25.3			163.5		11.8			1.7		
				Bottom	2.7	17.1	17.1		7.7	7.7		29.6	29.6		48.7	48.7	3.9	3.9	3.9	5	5.0	
						17.1			7.7			29.6			48.7		3.9			4.9		
09-Apr-16	Cloudy	Calm	12:45	Surface	1.0	21.4	21.4	19.2	8.7	8.7	8.3	30.0	30.0	30.9	147.6	147.6	11.0	11.0	11.0	1.4	1.4	1.6
						21.4			8.7			30.0			147.6		11.0			1.4		
				Bottom	2.8	16.9	16.9		7.8	7.8		31.8	31.8		48.2	48.2	3.9	3.9	3.9	1.8	1.9	
						16.9			7.8			31.8			48.2		3.9			1.9		
10-Apr-16	Rainy	Moderate	13:25	Surface	1.0	20.0	20.0	18.5	8.3	8.3	8.0	29.1	29.1	30.1	103.2	103.2	7.9	7.9	7.9	2.1	2.1	2.1
						20.0			8.3			29.1			103.2		7.9			2.1		
				Bottom	3.0	17.0	17.0		7.7	7.7		31.0	31.0		53.7	53.7	4.3	4.3	4.3	2.0	2.1	
						17.0			7.7			31.0			53.7		4.3			2.1		
11-Apr-16	Rainy	Moderate	14:15	Surface	1.0	20.6	20.6	19.1	8.5	8.5	8.2	29.4	29.4	30.5	120.4	120.4	9.1	9.1	9.1	1.1	1.2	1.9
						20.6			8.5			29.4			120.4		9.1			1.2		
				Bottom	2.8	17.5	17.5		7.8	7.8		31.5	31.5		60.8	60.8	4.8	4.8	4.8	2.7	2.7	
						17.5			7.8			31.5			60.8		4.8			2.6		
12-Apr-16	Rainy	Moderate	15:05	Surface	1.0	20.9	20.9	19.0	8.5	8.5	8.2	26.8	26.8	28.3	118.8	118.8	9.1	9.1	9.1	1.2	1.2	1.6
						20.9			8.5			26.8			118.8		9.1			1.2		
				Bottom	3.0	17.1	17.1		7.9	7.9		29.8	29.8		75.0	75.0	6.1	6.1	6.1	2.1	2.1	
						17.1			7.9			29.8			75.0		6.1			2.0		
13-Apr-16	Rainy	Moderate	16:00	Surface	1.0	20.1	20.1	18.9	8.0	8.0	7.8	27.3	27.3	28.8	91.1	91.1	7.0	7.0	7.0	4.9	4.9	3.7
						20.1			8.0			27.3			91.1		7.0			4.9		
				Bottom	3.1	17.6	17.6		7.6	7.6		30.2	30.2		56.7	56.7	4.5	4.5	4.5	2.4	2.5	
						17.6			7.6			30.2			56.7		4.5			2.5		

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Report No.: 0151/15/ED/0528

Water Quality Monitoring Results at W1 - Mid-Ebb Tide (Laboratory Data)

Date	Weather	Sea Condition	Sampling Time	Depth (m)		E-coli (cfu/100ml)		Ammonia-Nitrogen (mg-N/L)		Total Inorganic Nitrogen		Suspended Solids (mg/L)		Biochemical Oxygen Demand		Chlorophyll-a (mg/L)	
						Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA
6-Apr-16	Cloudy	Calm	10:30	Surface	1.0	43	40	<0.005	0	0.410	0.219	4.0	4.5	4	4.0	0.024	0.023
				Bottom	2.7	36		<0.005		0.028		5.0		4		0.021	
7-Apr-16	Cloudy	Calm	11:15	Surface	1.0	1	1	<0.005	0	0.024	0.023	7.3	6.7	4	2.5	0.039	0.021
				Bottom	2.9	NOT DETECTED		<0.005		0.022		6.0		1		0.003	
8-Apr-16	Cloudy	Calm	12:00	Surface	1.0	1	1	<0.005	0	0.029	0.022	3.9	4.8	4	5.0	0.017	0.012
				Bottom	2.7	1		<0.005		0.015		5.7		6		0.006	
9-Apr-16	Cloudy	Calm	12:45	Surface	1.0	NOT DETECTED	1	<0.005	0	0.048	0.040	3.9	3.2	5	4.5	0.017	0.013
				Bottom	2.8	2		<0.005		0.032		2.5		4		0.008	
10-Apr-16	Rainy	Moderate	13:25	Surface	1.0	55	28	<0.005	0	0.036	0.038	3.3	3.3	5	3.0	0.027	0.017
				Bottom	3.0	1		<0.005		0.039		3.2		1		0.006	
11-Apr-16	Rainy	Moderate	14:15	Surface	1.0	NOT DETECTED	1	<0.005	0	0.020	0.019	4.4	4.7	2	1.0	0.013	0.008
				Bottom	2.8	1		<0.005		0.017		4.9		<1		0.003	
12-Apr-16	Rainy	Moderate	15:05	Surface	1.0	8	5	0.016	0.008	0.016	0.023	2.6	2.5	2	2.0	0.007	0.008
				Bottom	3.0	1		<0.005		0.030		2.4		2		0.008	
13-Apr-16	Rainy	Moderate	16:00	Surface	1.0	270	139	0.027	0.025	0.073	0.058	2.4	3.3	6	3.0	0.043	0.022
				Bottom	3.1	7		0.023		0.043		4.2		<1		0.001	

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Report No.: 0151/15/ED/0528

Water Quality Monitoring Results at W1 - Mid-flood Tide (In-situ Data)

Date	Weather Condition	Sea Condition	Sampling Time	Depth (m)		Temperature(°C)			pH			Salinity ppt			DO Saturation (%)		Dissloved Oxygen (mg/L)			Turbidity(NTU)		
						Value	Average	DA*	Value	Average	DA*	Value	Average	DA*	Value	Average	Value	Average	DA*	Value	Average	DA*
06-Apr-16	Cloudy	Calm	16:30	Surface	1.0	22.4	22.4	19.7	8.9	8.9	8.3	29.0	29.0	30.3	163.2	163.2	8.9	8.9	8.9	7.9	7.9	5.6
						22.4			8.9			29.0			163.2		8.9			7.9		
				Bottom	2.4	16.9	16.9		7.7	7.7		31.5	31.5		41.6	41.6	7.7	7.7	7.7	3.3	3.4	
						16.9			7.7			31.5			41.6		7.7			3.4		
07-Apr-16	Cloudy	Calm	16:30	Surface	1.0	22.7	22.7	19.8	8.8	8.8	8.4	28.8	28.8	29.9	144.7	144.7	10.6	10.6	10.6	1.2	1.2	1.9
						22.7			8.8			28.8			144.7		10.6			1.2		
				Bottom	2.4	16.8	16.8		7.9	7.9		30.9	30.9		58.3	58.3	4.7	4.7	4.7	2.5	2.5	
						16.8			7.9			30.9			58.3		4.7			2.5		
08-Apr-16	Cloudy	Calm	18:10	Surface	1.0	21.4	21.4	19.2	8.7	8.7	8.3	30.0	30.0	30.9	129.8	129.8	9.7	9.7	9.7	1.5	1.5	2.0
						21.4			8.7			30.0			129.8		9.7			1.5		
				Bottom	2.2	16.9	16.9		7.8	7.8		31.8	31.8		43.4	43.4	3.5	3.5	3.5	2.5	2.5	
						16.9			7.8			31.8			43.4		3.5			2.5		
09-Apr-16	Cloudy	Calm	06:30	Surface	1.0	22.6	22.6	19.8	8.6	8.6	8.2	28.2	28.2	29.2	121.6	121.6	8.9	8.9	8.9	1.2	1.2	1.4
						22.6			8.6			28.2			121.6		8.9			1.2		
				Bottom	2.3	16.9	16.9		7.7	7.7		30.1	30.1		53.0	53.0	4.3	4.3	4.3	1.6	1.6	
						16.9			7.7			30.1			53.0		4.3			1.5		
10-Apr-16	Rainy	Moderate	07:05	Surface	1.0	19.7	19.7	18.4	8.3	8.3	8.1	29.1	29.1	30.3	104.8	104.8	8.1	8.1	8.1	1.5	1.5	1.9
						19.7			8.3			29.1			104.8		8.1			1.5		
				Bottom	2.4	17.1	17.1		7.8	7.8		31.5	31.5		53.0	53.0	4.2	4.2	4.2	2.3	2.4	
						17.1			7.8			31.5			53.0		4.2			2.4		
11-Apr-16	Rainy	Moderate	07:45	Surface	1.0	23.0	23.0	19.8	8.5	8.5	8.2	29.2	29.2	29.9	126.1	126.1	9.1	9.1	9.1	1.3	1.3	1.6
						23.0			8.5			29.2			126.1		9.1			1.3		
				Bottom	2.1	16.6	16.6		7.8	7.8		30.5	30.5		57.6	57.6	4.7	4.7	4.7	1.9	2.0	
						16.6			7.8			30.5			57.6		4.7			2.0		
12-Apr-16	Rainy	Moderate	08:30	Surface	1.0	21.5	21.5	19.2	8.5	8.5	8.2	27.1	27.1	28.5	116.9	116.9	8.8	8.8	8.8	1.6	1.6	1.8
						21.5			8.5			27.1			116.9		8.8			1.6		
				Bottom	2.3	16.8	16.8		7.8	7.8		29.8	29.8		77.4	77.4	6.3	6.3	6.3	2.0	2.0	
						16.8			7.8			29.8			77.4		6.3			1.9		
13-Apr-16	Rainy	Moderate	09:15	Surface	1.0	20.3	20.3	18.4	8.1	8.1	7.9	30.1	30.1	30.2	112.6	112.6	8.5	8.5	8.5	3.0	3.0	2.3
						20.3			8.1			30.1			112.6		8.5			3.0		
				Bottom	2.2	16.4	16.4		7.6	7.6		30.2	30.2		57.2	57.2	4.6	4.6	4.6	1.6	1.7	
						16.4			7.6			30.2			57.2		4.6			1.7		

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Water Quality Monitoring Results at W1 - Mid-flood Tide (Laboratory Data)

Date	Weather	Sea Condition	Sampling Time	Depth (m)		E-coli (cfu/100ml)		Ammonia-Nitrogen (mg-N/L)		Total Inorganic Nitrogen		Suspended Solids (mg/L)		Biochemical Oxygen Demand		Chlorophyll-a (mg/L)	
						Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA
6-Apr-16	Cloudy	Calm	16:30	Surface	1.0	NOT DETECTED	0	<0.005	0	0.019	0.021	3.0	4.5	3	3.0	0.016	0.017
				Bottom	2.4	NOT DETECTED		<0.005		0.022		5.9		3		0.018	
7-Apr-16	Cloudy	Calm	16:30	Surface	1.0	1	1	<0.005	0.026	0.020	0.045	4.9	8.1	4	2.0	0.029	0.018
				Bottom	2.4	1		0.052		0.070		11.2		<1		0.006	
8-Apr-16	Cloudy	Calm	18:10	Surface	1.0	3	2	<0.005	0	0.028	0.023	4.3	4.7	5	5.5	0.017	0.011
				Bottom	2.2	NOT DETECTED		<0.005		0.018		5.0		6		0.005	
9-Apr-16	Cloudy	Calm	6:30	Surface	1.0	NOT DETECTED	1	<0.005	0	0.016	0.026	2.6	2.9	3	2.5	0.016	0.010
				Bottom	2.3	1		<0.005		0.035		3.1		2		0.004	
10-Apr-16	Rainy	Moderate	7:15	Surface	1.0	NOT DETECTED	0	<0.005	0	0.040	0.038	3.3	3.4	1	1.5	0.013	0.011
				Bottom	2.4	NOT DETECTED		<0.005		0.035		3.5		2		0.008	
11-Apr-16	Rainy	Moderate	7:45	Surface	1.0	14	18	<0.005	0	0.018	0.018	2.6	3.9	2	1.0	0.012	0.008
				Bottom	2.1	21		<0.005		0.017		5.1		<1		0.003	
12-Apr-16	Rainy	Moderate	8:30	Surface	1.0	4	3	0.028	0.014	0.028	0.030	3.2	3.9	2	2.5	0.006	0.008
				Bottom	2.3	1		<0.005		0.031		4.6		3		0.010	
13-Apr-16	Rainy	Moderate	9:15	Surface	1.0	350	181	0.042	0.041	0.088	0.071	2.3	2.7	6	3.0	0.047	0.024
				Bottom	2.2	11		0.040		0.053		3.1		<1		0.001	

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Water Quality Monitoring Results at W2 - Mid-Ebb Tide (In-situ Data)

Date	Weather Condition	Sea Condition	Sampling Time	Depth (m)		Temperature(°C)			pH			Salinity (ppt)			DO Saturation (%)		Dissloved Oxygen (mg/L)			Turbidity(NTU)		
						Value	Average	DA*	Value	Average	DA*	Value	Average	DA*	Value	Average	Value	Average	DA*	Value	Average	DA*
06-Apr-16	Cloudy	Calm	13:10	Surface	1.0	22.0	22.0	20.0	8.9	8.9	8.6	29.0	29.0	30.0	185.1	185.1	13.7	13.7	13.7	0.4	0.4	0.7
						22.0			8.9			29.0			185.1		13.7			0.4		
				Bottom	4.4	18.0	18.0		8.2	8.2		30.9	30.9		97.2	97.2	7.7	7.7	7.7	0.9	1.0	
						18.0			8.2			30.9			97.2		7.7			1.0		
07-Apr-16	Cloudy	Calm	13:54	Surface	1.0	22.8	22.8	19.9	9.0	9.0	8.3	28.1	28.1	29.7	151.0	151.0	11.1	11.1	11.1	3.6	3.6	4.3
						22.8			9.0			28.1			151.0		11.1			3.6		
				Bottom	4.1	17.0	17.0		7.7	7.7		31.2	31.2		37.1	37.1	3.0	3.0	3.0	5.0	5.1	
						17.0			7.6			31.2			37.1		3.0			5.1		
08-Apr-16	Cloudy	Calm	14:30	Surface	1.0	21.8	21.8	19.4	8.7	8.7	8.3	28.4	28.4	29.6	140.9	140.9	10.5	10.5	10.5	3.6	3.7	2.8
						21.8			8.7			28.4			140.9		10.5			3.7		
				Bottom	4.2	17.0	17.0		7.8	7.8		30.7	30.7		57.1	57.1	4.6	4.6	4.6	1.8	1.9	
						17.0			7.8			30.7			57.1		4.6			1.9		
09-Apr-16	Cloudy	Calm	15:15	Surface	1.0	22.1	22.1	19.5	8.7	8.7	8.3	29.8	29.8	30.8	140.9	140.9	10.3	10.3	10.3	2.4	2.4	2.0
						22.1			8.7			29.8			140.9		10.3			2.3		
				Bottom	4.3	16.9	16.9		7.8	7.8		31.8	31.8		54.7	54.7	4.4	4.4	4.4	1.7	1.7	
						16.9			7.8			31.8			54.7		4.4			1.7		
10-Apr-16	Rainy	Moderate	16:10	Surface	1.0	19.9	19.9	18.4	8.3	8.3	8.0	29.2	29.2	30.4	106.5	106.5	8.2	8.2	8.2	1.8	1.8	1.5
						19.9			8.3			29.2			106.5		8.2			1.8		
				Bottom	4.2	16.9	16.9		7.7	7.7		31.5	31.5		52.1	52.1	4.2	4.2	4.2	1.3	1.3	
						16.9			7.7			31.5			52.1		4.2			1.2		
11-Apr-16	Rainy	Moderate	17:00	Surface	1.0	20.3	20.3	18.5	8.4	8.4	8.2	30.1	30.1	30.9	107.1	107.1	8.1	8.1	8.1	1.4	1.4	1.1
						20.3			8.4			30.1			107.1		8.1			1.3		
				Bottom	4.3	16.7	16.7		7.9	7.9		31.7	31.7		60.2	60.2	4.8	4.8	4.8	0.8	0.8	
						16.7			7.9			31.7			60.2		4.8			0.8		
12-Apr-16	Rainy	Moderate	17:40	Surface	1.0	21.0	21.0	19.0	8.7	8.6	8.2	27.2	27.2	28.4	114.4	114.4	8.7	8.7	8.7	1.2	1.2	1.6
						21.0			8.4			27.2			114.4		8.7			1.2		
				Bottom	4.2	16.9	16.9		7.9	7.9		29.5	29.5		76.8	76.8	6.2	6.2	6.2	2.0	2.0	
						16.9			7.9			29.5			76.8		6.2			1.9		
13-Apr-16	Rainy	Moderate	18:40	Surface	1.0	20.2	20.2	18.9	8.2	8.2	7.9	27.4	27.4	29.0	94.6	94.6	7.3	7.3	7.3	3.2	5.7	5.8
						20.2			8.2			27.4			94.6		7.3			8.2		
				Bottom	4.1	17.5	17.5		7.6	7.6		30.6	30.6		54.4	54.4	4.3	4.3	4.3	4.0	5.8	
						17.5			7.6			30.6			54.4		4.3			7.6		

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Report No.: 0151/15/ED/0528

Water Quality Monitoring Results at W2 - Mid-Ebb Tide (Laboratory Data)

Date	Weather	Sea Condition	Sampling Time	Depth (m)		E-coli (cfu/100ml)		Ammonia-Nitrogen (mg-N/L)		Total Inorganic Nitrogen		Suspended Solids (mg/L)		Biochemical Oxygen Demand		Chlorophyll-a (mg/L)	
						Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA
6-Apr-16	Cloudy	Calm	13:10	Surface	1.0	25	34	<0.005	0.007	0.019	0.035	4.2	5.5	5	4.0	0.018	0.018
				Bottom	4.4	43		0.014		0.050		6.8		3		0.017	
7-Apr-16	Cloudy	Calm	13:54	Surface	1.0	NOT DETECTED	0	<0.005	0.022	0.022	0.046	4.3	5.4	2	2.0	0.01	0.012
				Bottom	4.1	NOT DETECTED		0.044		0.070		6.4		2		0.013	
8-Apr-16	Cloudy	Calm	14:30	Surface	1.0	1	1	<0.005	0.012	0.020	0.030	3.2	3.1	3	3.5	0.009	0.014
				Bottom	4.2	1		0.024		0.040		2.9		4		0.018	
9-Apr-16	Cloudy	Calm	15:15	Surface	1.0	8	4	<0.005	0.028	0.020	0.056	3.0	3.4	2	2.0	0.009	0.010
				Bottom	4.3	NOT DETECTED		0.056		0.092		3.8		2		0.011	
10-Apr-16	Rainy	Moderate	16:10	Surface	1.0	270	136	0.042	0.024	0.231	0.137	3.2	3.1	1	0.5	0.006	0.008
				Bottom	4.2	1		0.006		0.042		3.0		<1		0.010	
11-Apr-16	Rainy	Moderate	17:00	Surface	1.0	340	174	<0.005	0	0.042	0.029	2.7	3.6	2	2.0	0.014	0.012
				Bottom	4.3	7		<0.005		0.016		4.4		2		0.01	
12-Apr-16	Rainy	Moderate	17:40	Surface	1.0	140	79	0.022	0.025	0.022	0.042	3.1	2.9	1	1.5	0.005	0.005
				Bottom	4.2	18		0.027		0.061		2.7		2		0.004	
13-Apr-16	Rainy	Moderate	18:40	Surface	1.0	35	21	0.040	0.048	0.108	0.095	2.8	2.8	4	2.0	0.036	0.019
				Bottom	4.1	6		0.056		0.081		2.8		<1		0.002	

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Water Quality Monitoring Results at W2 - Mid-flood Tide (In-situ Data)

Date	Weather Condition	Sea Condition	Sampling Time	Depth (m)		Temperature(°C)			pH			Salinity (ppt)			DO Saturation (%)		Dissloved Oxygen (mg/L)			Turbidity(NTU)		
						Value	Average	DA*	Value	Average	DA*	Value	Average	DA*	Value	Average	Value	Average	DA*	Value	Average	DA*
06-Apr-16	Cloudy	Calm	16:45	Surface	1.0	20.8	20.8	19.7	8.8	8.8	8.6	29.1	29.1	29.8	158.5	158.5	12.0	12.0	12.0	1.3	1.3	1.2
						20.8			8.8			29.1			158.5		12.0			1.3		
				Bottom	4.1	18.5	18.5		8.3	8.4		30.4	30.4		123.3	123.3	9.6	9.6	9.6	1.0	1.1	
						18.5			8.4			30.4			123.3		9.6			1.1		
07-Apr-16	Cloudy	Calm	19:00	Surface	1.0	22.8	22.8	19.9	8.9	8.9	8.3	27.7	27.7	29.5	133.0	133.0	9.7	9.7	9.7	2.0	2.0	4.1
						22.8			8.9			27.7			133.0		9.7			2.0		
				Bottom	4.2	17.0	17.0		7.6	7.6		31.2	31.2		45.0	45.0	3.6	3.6	3.6	6.1	6.1	
						17.0			7.6			31.2			45.0		3.6			6.1		
08-Apr-16	Cloudy	Calm	20:45	Surface	1.0	21.1	21.1	19.0	8.7	8.7	8.2	28.9	28.9	30.0	124.2	124.2	9.0	9.0	9.0	1.2	1.2	1.2
						21.1			8.7			28.9			124.2		9.0			1.2		
				Bottom	3.9	16.9	16.9		7.7	7.7		31.0	31.0		56.2	56.2	4.6	4.6	4.6	1.1	1.2	
						16.9			7.7			31.0			56.2		4.6			1.2		
09-Apr-16	Cloudy	Calm	09:15	Surface	1.0	22.1	22.1	19.5	8.6	8.6	8.2	29.8	29.8	30.8	140.9	140.9	10.3	10.3	10.3	2.1	2.1	1.6
						22.1			8.6			29.8			140.9		10.3			2.1		
				Bottom	3.9	16.9	16.9		7.8	7.8		31.8	31.8		54.7	54.7	4.4	4.4	4.4	1.1	1.2	
						16.9			7.8			31.8			54.7		4.4			1.2		
10-Apr-16	Rainy	Moderate	09:30	Surface	1.0	19.8	19.8	18.4	8.3	8.3	8.1	28.9	28.9	30.2	102.9	102.9	7.9	7.9	7.9	1.5	1.5	1.4
						19.8			8.3			28.9			102.9		7.9			1.5		
				Bottom	4.0	17.0	17.0		7.8	7.8		31.5	31.5		49.1	49.1	3.9	3.9	3.9	1.3	1.3	
						17.0			7.8			31.5			49.1		3.9			1.3		
11-Apr-16	Rainy	Moderate	10:15	Surface	1.0	23.0	23.0	19.8	8.5	8.5	8.2	28.9	28.9	29.8	126.2	126.2	9.2	9.2	9.2	1.3	1.3	1.3
						23.0			8.5			28.9			126.2		9.2			1.2		
				Bottom	4.1	16.6	16.6		7.8	7.8		30.6	30.6		58.5	58.5	4.7	4.7	4.7	1.4	1.4	
						16.6			7.8			30.6			58.5		4.7			1.4		
12-Apr-16	Rainy	Moderate	11:05	Surface	1.0	21.5	21.5	19.3	8.5	8.5	8.2	27.0	27.0	28.5	119.1	119.1	9.0	9.0	9.0	1.4	1.5	1.7
						21.5			8.5			27.0			119.1		9.0			1.5		
				Bottom	4.2	17.1	17.1		7.8	7.8		30.0	30.0		80.6	80.6	6.5	6.5	6.5	1.9	1.9	
						17.1			7.8			30.0			80.6		6.5			1.9		
13-Apr-16	Rainy	Moderate	11:50	Surface	1.0	20.3	20.3	18.5	8.2	8.2	8.0	30.2	30.2	31.0	115.0	115.0	8.7	8.7	8.7	3.2	3.2	2.6
						20.3			8.2			30.2			115.0		8.7			3.2		
				Bottom	3.7	16.7	16.7		7.7	7.7		31.7	31.7		58.4	58.4	4.7	4.7	4.7	2.0	2.0	
						16.7			7.7			31.7			58.4		4.7			1.9		

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Water Quality Monitoring Results at W2 - Mid-flood Tide (Laboratory Data)

Date	Weather	Sea Condition	Sampling Time	Depth (m)		E-coli (cfu/100ml)		Ammonia-Nitrogen (mg-N/L)		Total Inorganic Nitrogen		Suspended Solids (mg/L)		Biochemical Oxygen Demand		Chlorophyll-a (mg/L)	
						Value	DA	Value	DA	Value	DA	Value	DA	Value	DA	Value	DA
6-Apr-16	Cloudy	Calm	16:45	Surface	1.0	25	13	<0.005	0.007	0.019	0.035	4.2	5.5	5	4.0	0.018	0.018
				Bottom	4.4	NOT DETECTED		0.014		0.050		6.8		3		0.017	
7-Apr-16	Cloudy	Calm	19:00	Surface	1.0	NOT DETECTED	0	<0.005	0.022	0.022	0.046	4.3	5.4	2	2.0	0.010	0.012
				Bottom	4.1	NOT DETECTED		0.044		0.070		6.4		2		0.013	
8-Apr-16	Cloudy	Calm	20:45	Surface	1.0	1	1	<0.005	0.012	0.020	0.030	3.2	3.1	3	3.5	0.009	0.014
				Bottom	4.2	1		0.024		0.040		2.9		4		0.018	
9-Apr-16	Cloudy	Calm	9:15	Surface	1.0	8	4	<0.005	0.028	0.020	0.056	3.0	3.4	2	2.0	0.009	0.010
				Bottom	4.3	NOT DETECTED		0.056		0.092		3.8		2		0.011	
10-Apr-16	Rainy	Moderate	9:30	Surface	1.0	270	136	0.042	0.024	0.231	0.137	3.2	3.1	1	0.5	0.006	0.008
				Bottom	4.2	1		0.006		0.042		3.0		<1		0.010	
11-Apr-16	Rainy	Moderate	10:15	Surface	1.0	340	174	<0.005	0	0.042	0.029	2.7	3.6	2	2.0	0.014	0.012
				Bottom	4.3	7		<0.005		0.016		4.4		2		0.010	
12-Apr-16	Rainy	Moderate	11:05	Surface	1.0	140	79	0.022	0.025	0.022	0.042	3.1	2.9	1	1.5	0.005	0.005
				Bottom	4.2	18		0.027		0.061		2.7		2		0.004	
13-Apr-16	Rainy	Moderate	11:50	Surface	1.0	35	21	0.040	0.048	0.108	0.095	2.8	2.8	4	2.0	0.036	0.019
				Bottom	4.1	6		0.056		0.081		2.8		<1		0.002	

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Appendix F

Graphical Presentation of Water Quality Monitoring Results

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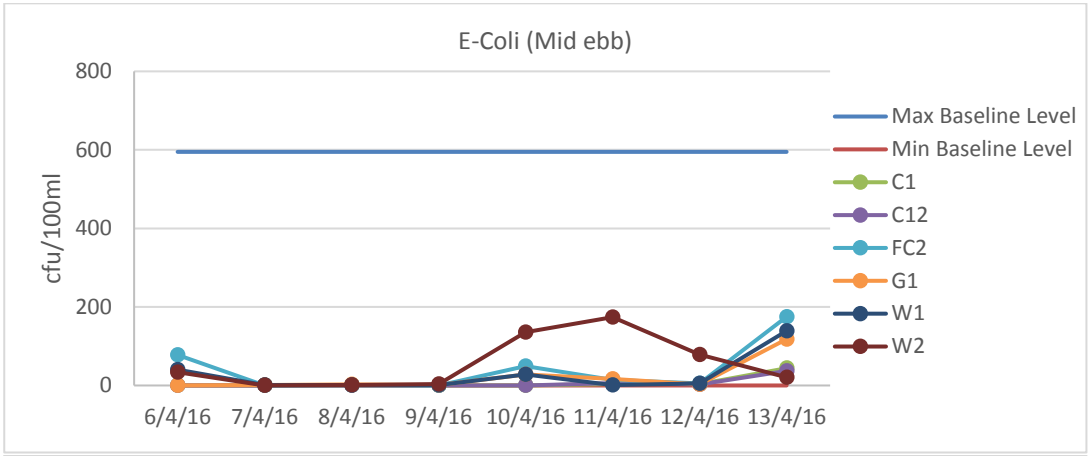

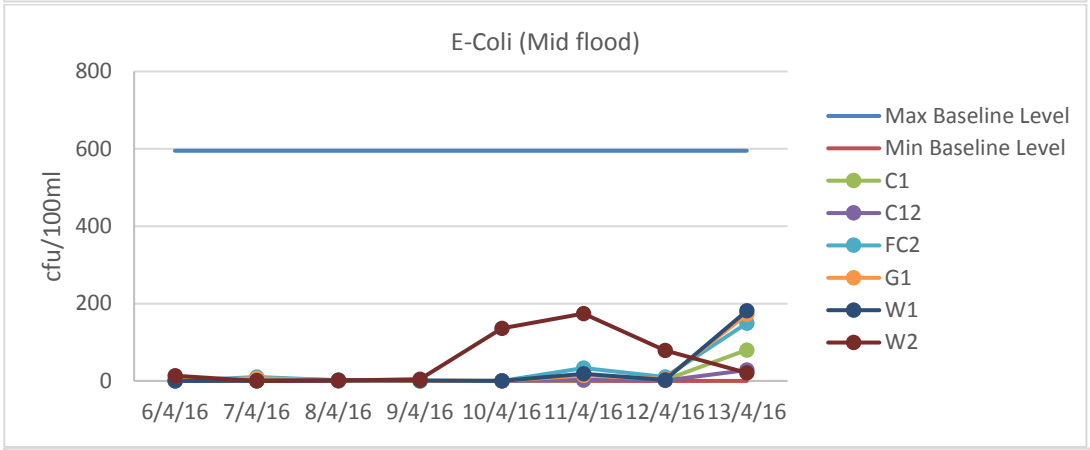

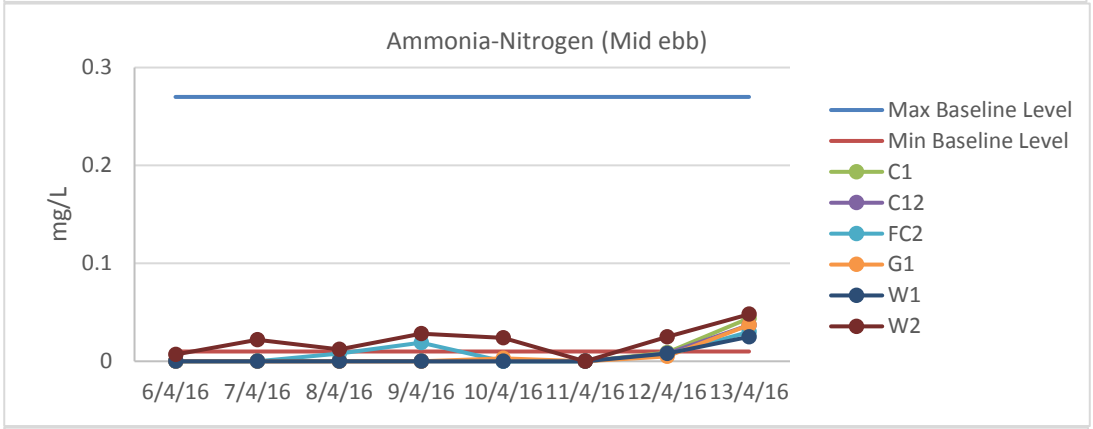

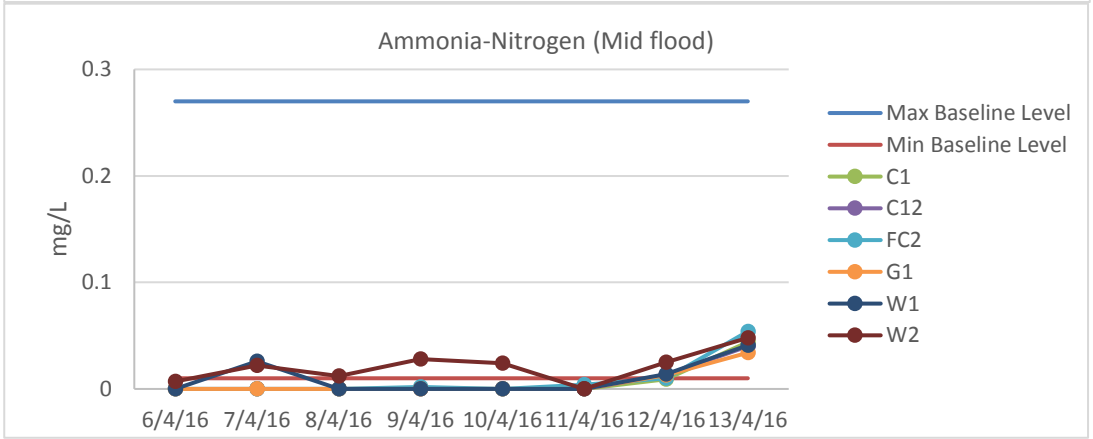

Note: Results and baseline level are in depth-average values (except for DO).

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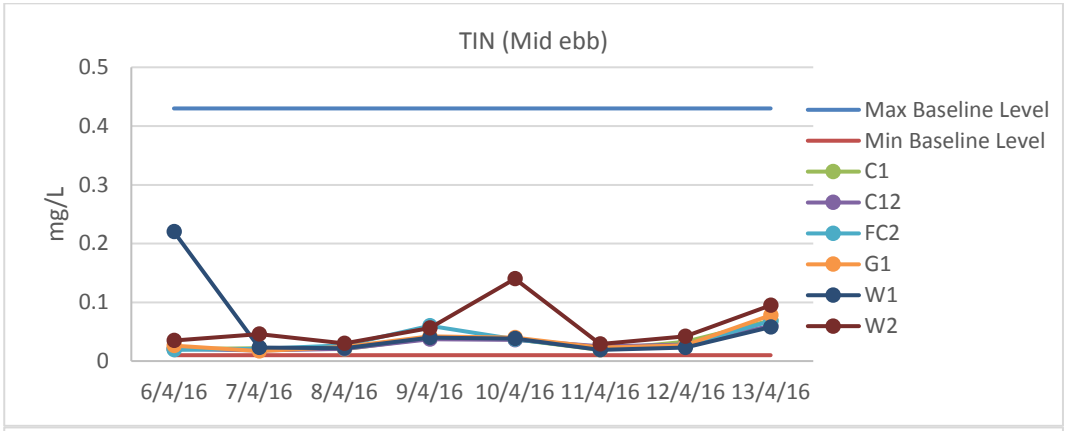

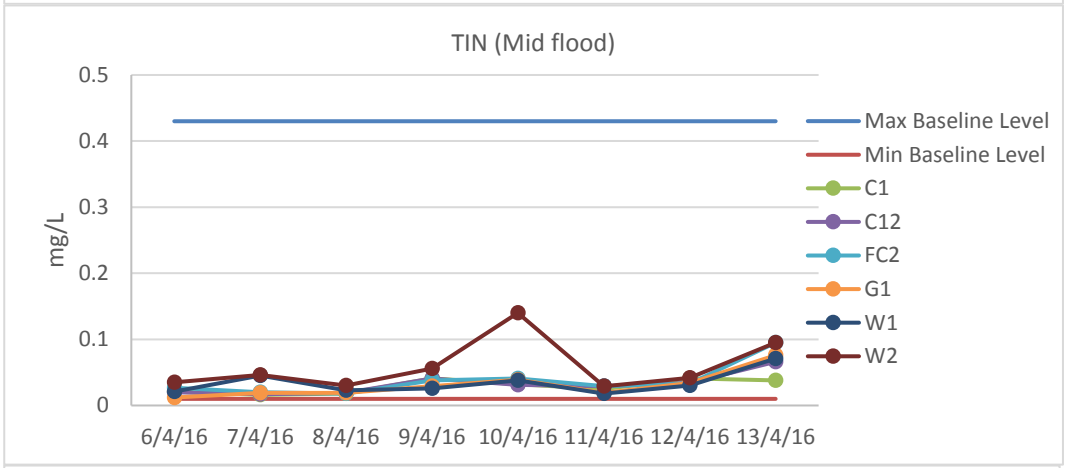

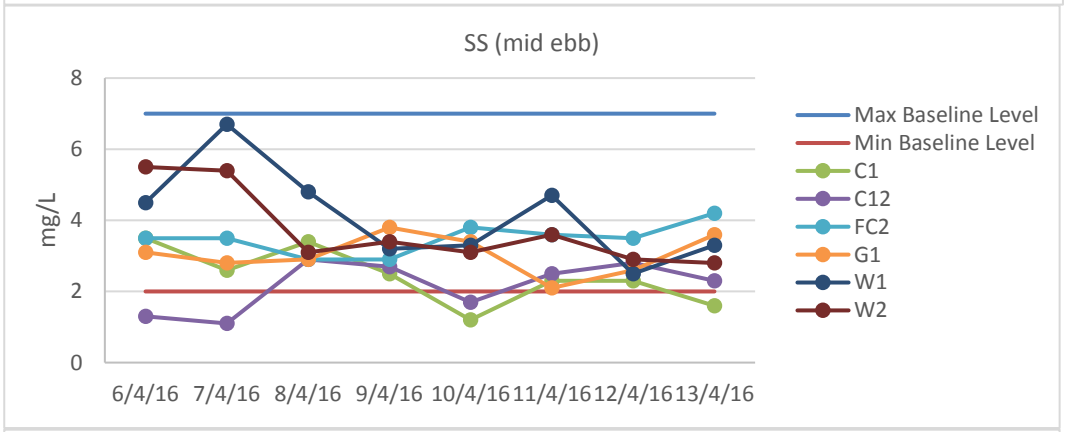

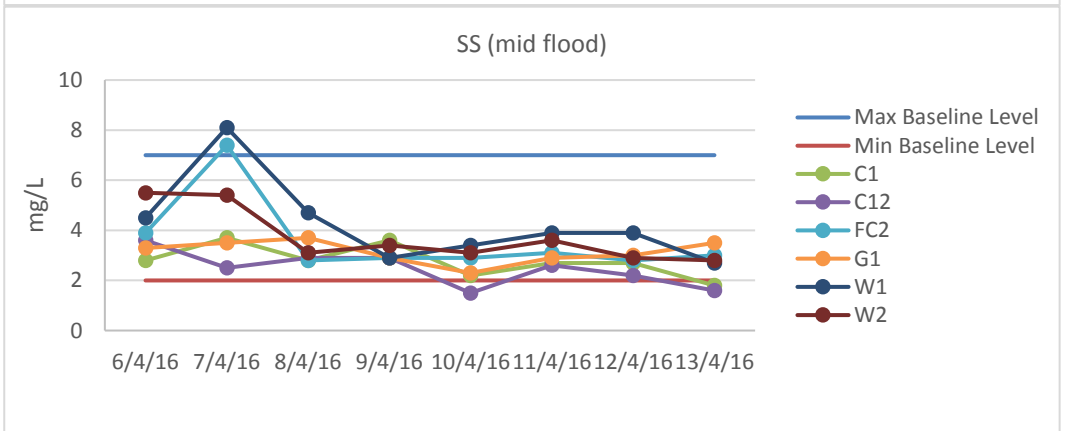

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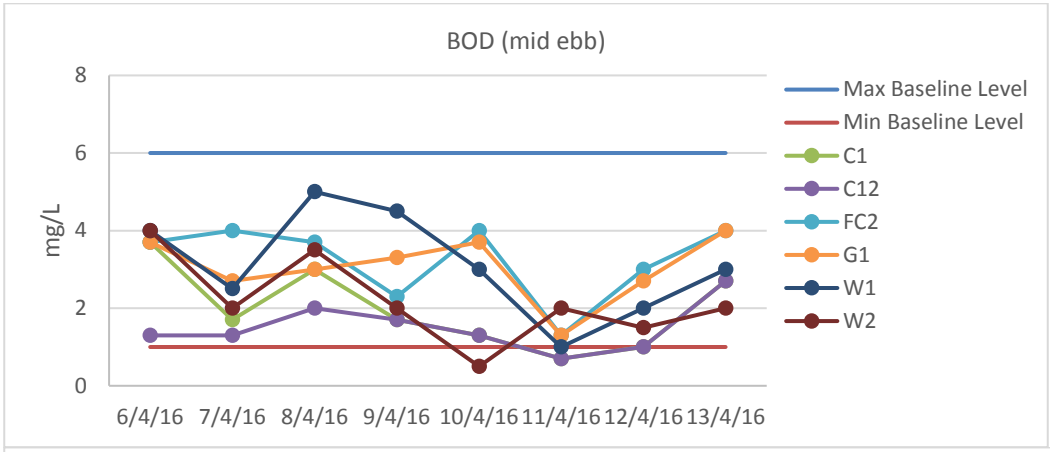

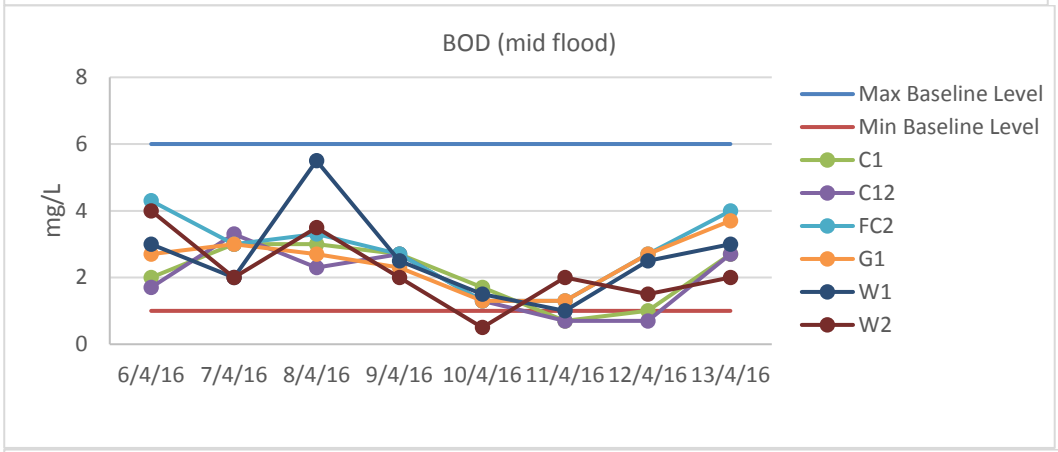

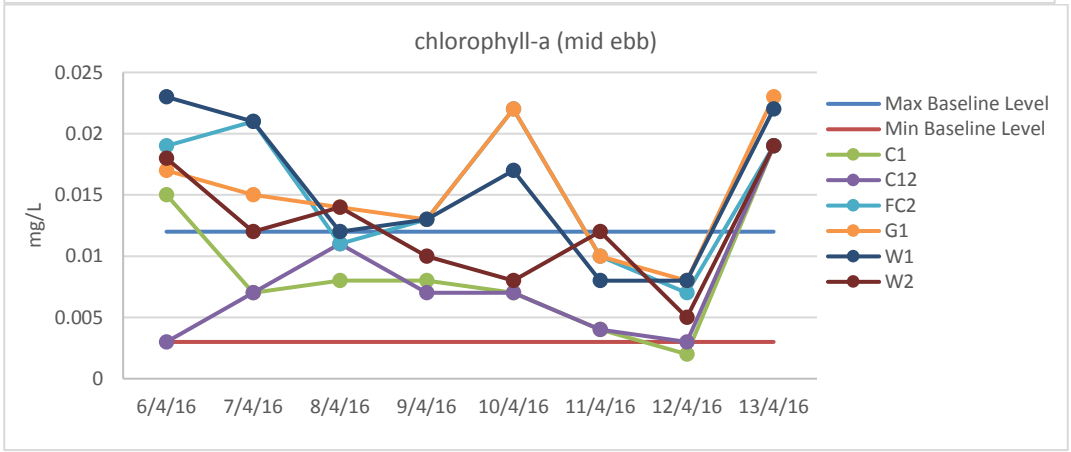

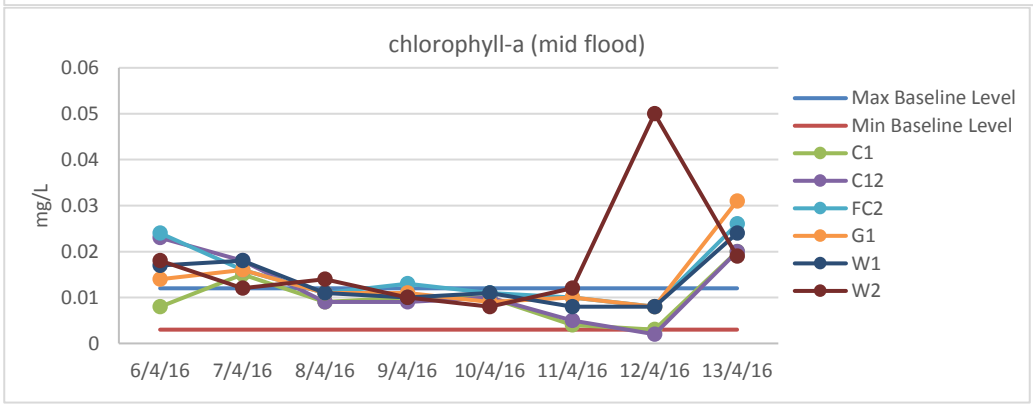

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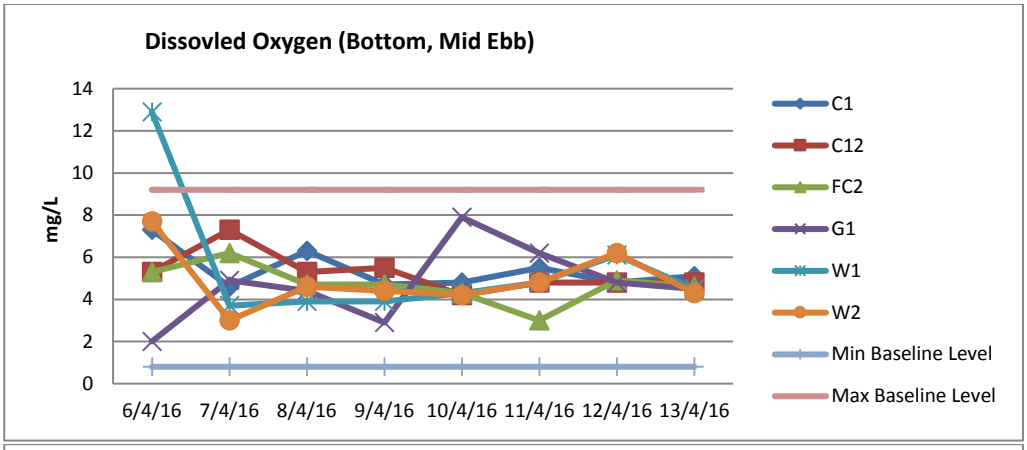

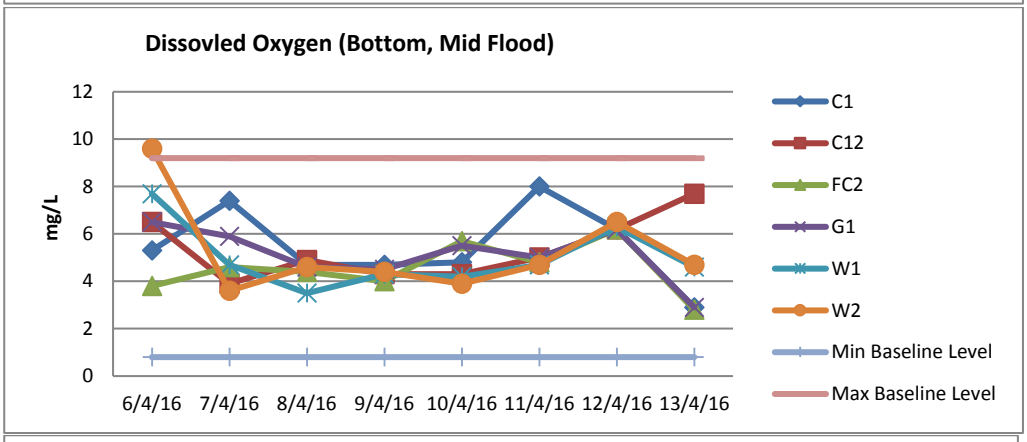

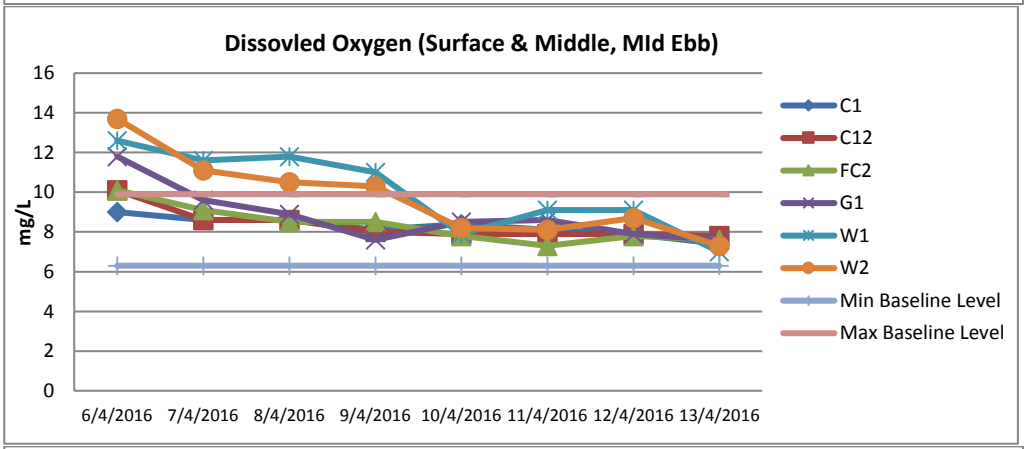

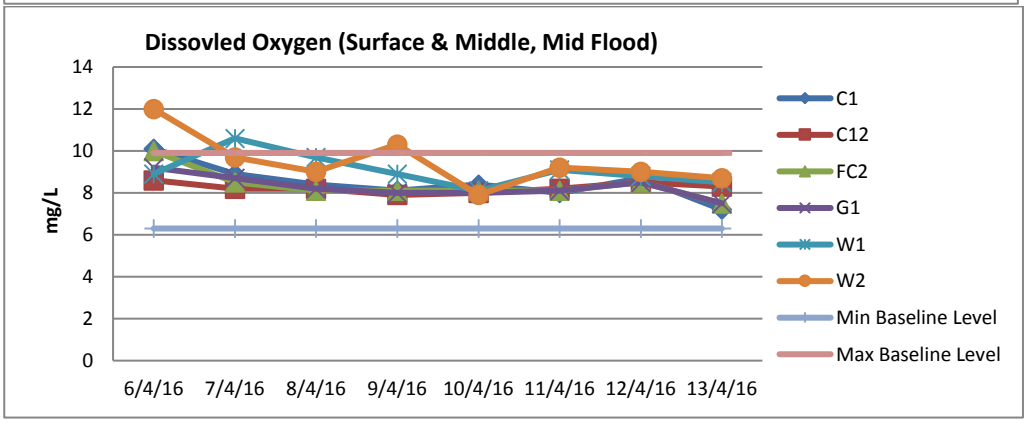

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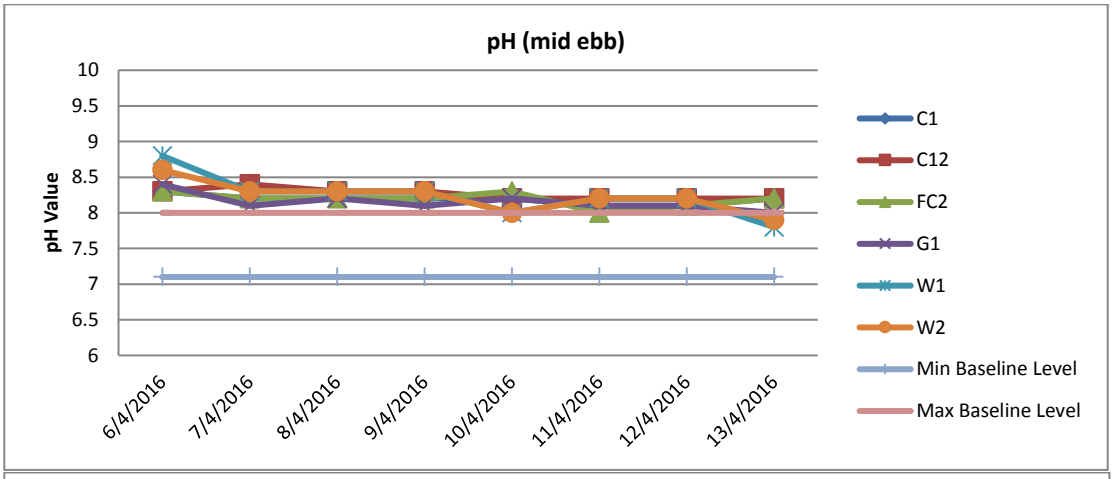

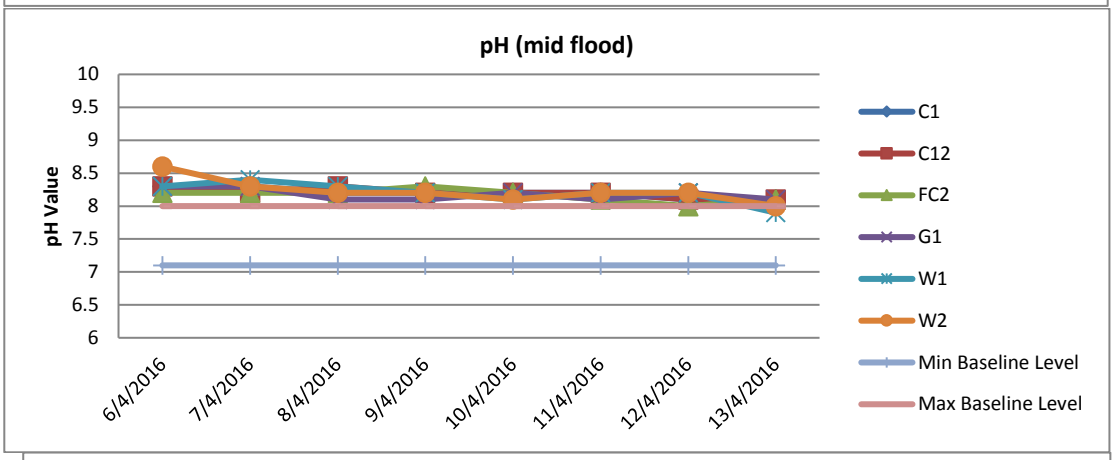

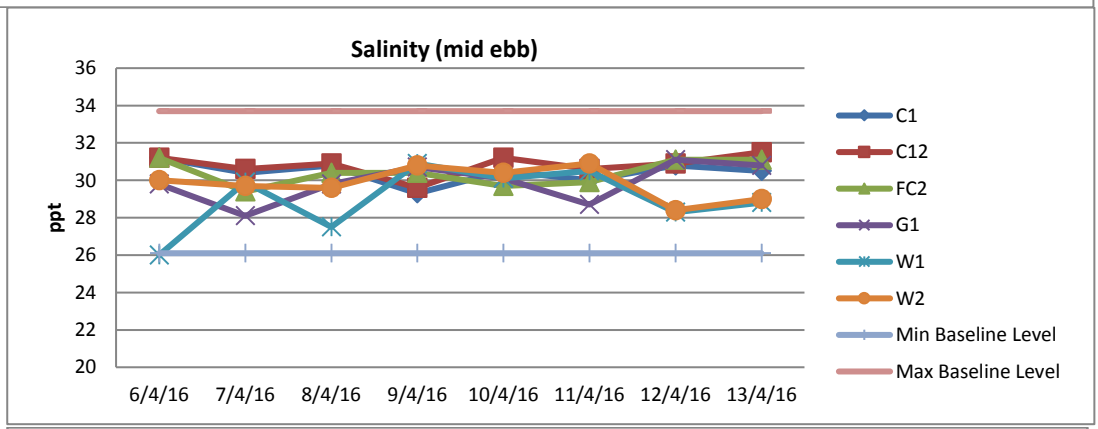

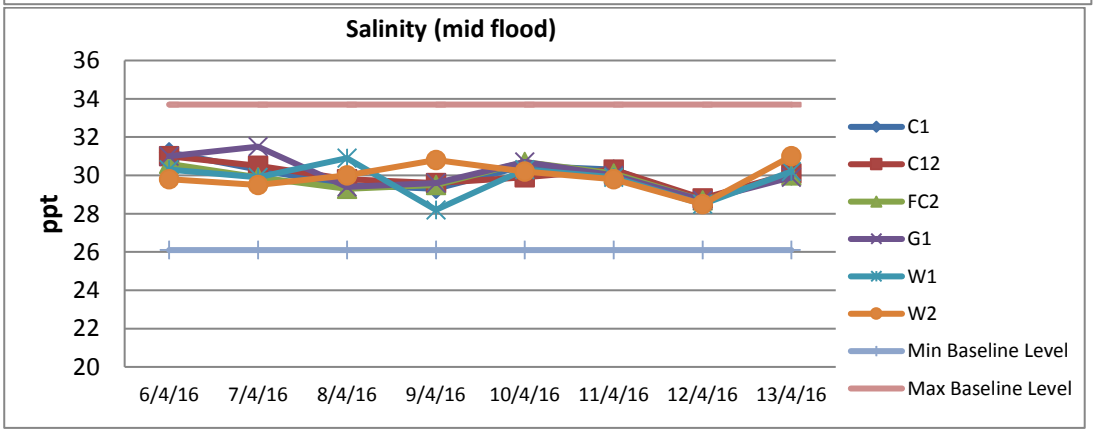

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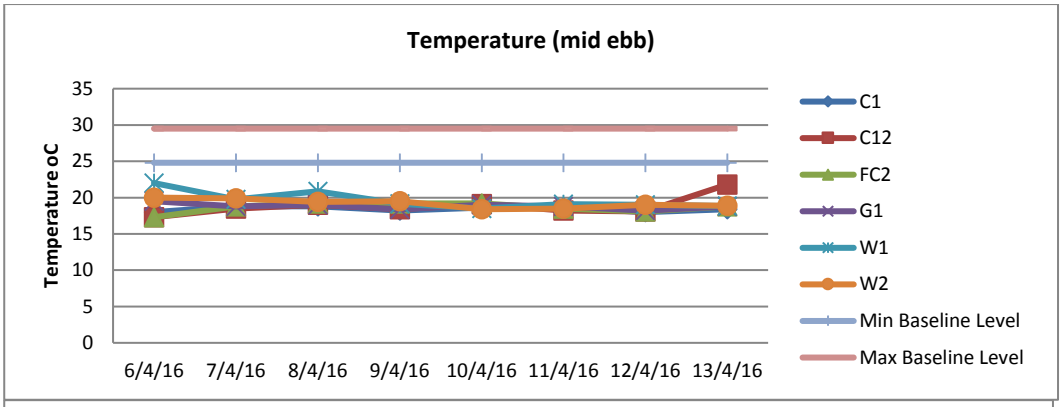

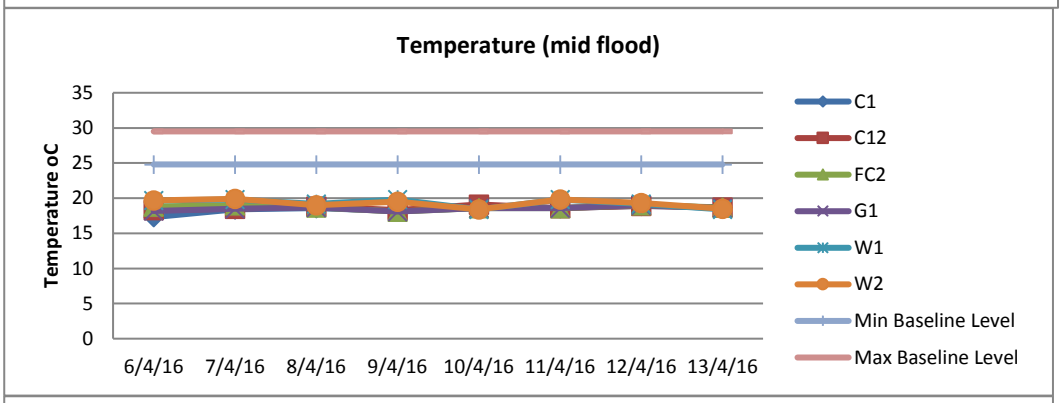

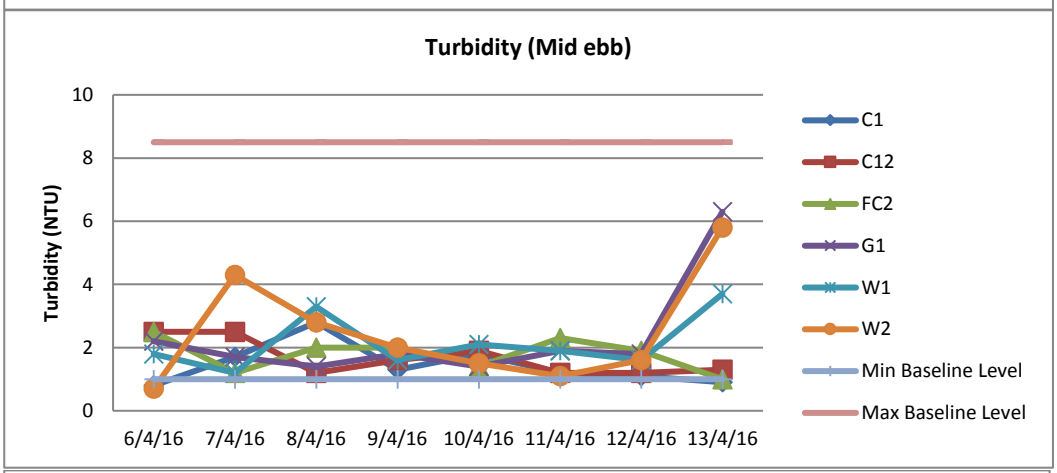

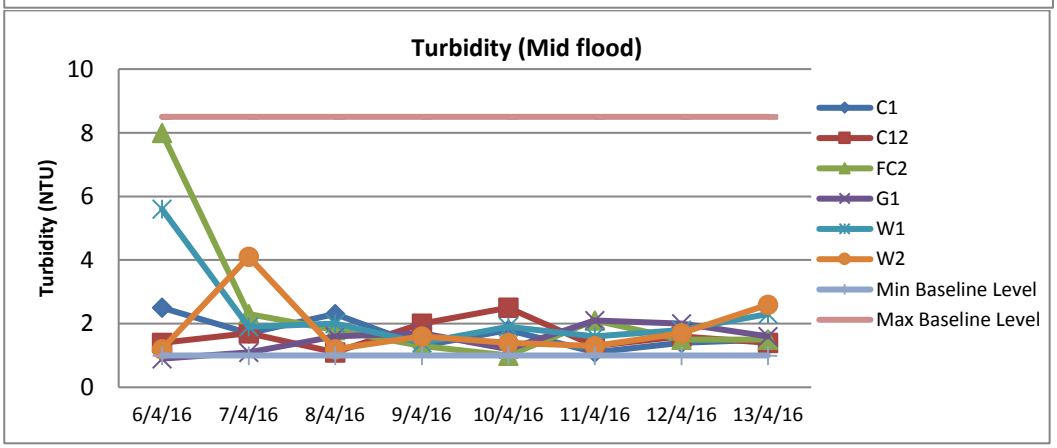

Note: Results and baseline level are in depth-average values (except for DO).

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Appendix G

Implementation Schedule of Environmental Mitigation Measures (EMIS) for operation phase

EIA Ref.	Environmental Protection Measures	Location of the measures	Implementation Status
Air Quality			
S3.7.5 & 3.7.8	Exposed area at Stage I/II & IV of inlet pumping stations, sludge digestion tank outlet chambers should be covered, with the foul air drawn through deodorization units and discharged after treatment. The grit removal & flume channel at Stage I/II inlet works and the grit removal at Stage IV inlet works should be covered.	TPSTW	V
S3.7.6	Weir launders of the Stage I/II and Stage IV primary sedimentation tanks should be covered to control odour emission. Chemical should also be added to the sewage at Tai Yuen Sewage Pumping Station No.4 for the control of odour at Stage IV inlet pumping station, screen house and primary sedimentation tanks.	TPSTW	V
S3.7.7	The sludge gravity thickeners, sludge consolidation tanks, screening unit (next to dewatering house), exposed area of wet well of Stage I/II returned activated sludge pumping station and wet well of Stage I/II sludge pumping station should be enclosed to ensure no leakage of odorous gas whereas foul air from the sludge gravity thickeners and sludge consolidation tanks would be discharged via deodorizers.	TPSTW	V
Water Quality			
S4.8.10	Silt curtains should be installed at the Shatin and Tai Po Seawater Intakes. Relevant government departments including EPD and WSD should be informed of then maintenance.	TPSTW	V
S4.8.11	Dual power supply or ring main supply from CLP should be provided for the Project to avoid any loss of electrical supply. In addition, standby facilities for the main treatment units, standby parts/accessories to the equipment should also be provided in order to minimize the chance of emergency discharge.	TPSTW	V
S4.8.10 S4.8.12	Shutdown of the THEES, if unavoidable, should be shortened as far as possible. The relevant procedures established in the contingency plan as attached in Appendix 4.5 of the EIA report should be properly followed.	TPSTW	V
S4.8.13	Dye test is recommended for detection of pipe leakage.	Submarine pipeline at Tolo Harbour	V
S4.10.1	Effluent monitoring is recommended to ensure the effectiveness of the proposed treatment process. Details of the monitoring requirements are specified in the EM&A.	Exit of disinfection facilities	V
S4.10.2	A post project monitoring (PPM) programme for Victoria Harbour should be implemented to confirm the predictions of the water quality made in the EIA report. The PPM would consist of one- year baseline monitoring before commissioning and one-year impact monitoring after commissioning of the Project. The extent of PPM programme is subject to the prevailing environmental conditions at the time before commissioning of the Project. A more detailed description of the PPM requirements is given in the standalone EM&A Manual	Victoria Harbour	V
S4.10.3	A PPM programme will be also implemented in the Tolo Harbour during the operational phase. The PPM would involve water quality monitoring at the Tai Po and Sha Tin seawater intake during the first wet season (June to August) after full commissioning of the Project. Marine water quality parameters including SS and NH3-N should be monitored. The water quality monitoring frequency shall be twice per month and should cover the effects of different tidal status (at least one for high tide and one for low tide) for each seawater intake.	Tolo Harbour	To be conducted in June 2016
S4.8.10 &S4.10.4	Marine water quality monitoring should be carried out under emergency condition or during maintenance of the THEES tunnel to verify the findings of the water quality modelling. It is recommended that the maintenance of the THEES tunnel, if unavoidable, should be conducted during winter season or low flow periods and to avoid the ”blooming” season of algae (normally from April to June)if practicable. Details of the monitoring requirements are specified in the EM&A Manual.	Tolo Harbour	V
Waste Management			
S5.5.9	<u>Chemical Waste</u> For the disposal of spent UV lamps, the STW operator would be required to register with the EPD as a Chemical Waste Producer and to follow the requirements stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. A chemical waste producer must engage a licensed waste collector to transport and dispose of the chemical wastes in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.	TPSTW	V
Landfill Gas Hazard			
S6.6.9	When service voids, manholes or inspection chambers within the	Area of TPSTW	V

	proposed site are entered for maintenance, monitoring and a checklist system of safety requirements should be performed before entry in accordance with Code of Practice on Safety and Health at Work in Confined Spaces.	within 250m consultation zone	
S6.6.10	For newly built permanent structures, gas- resistant polymeric membranes shall be incorporated into floor or wall construction to act as a continuous sealed layer for the structure. In addition, forced ventilation shall be installed in such rooms or buildings. Gas detection systems should also be proposed where there is an organization involved in the long-term or frequently use of the development in order to monitor internal spaces inside buildings.	Area of TPSTW within 250m consultation zone	V
S6.6.11	Forced ventilation should be used if methane of more than 0.5% (by volume) in the internal atmosphere (e.g. In service voids, manholes, inspection chambers or rooms as mentioned above) is detected.	Area of TPSTW within 250m consultation zone	V
S6.6.12	No person should enter or remain in any confined spaces or trenches where the carbon dioxide concentration exceeds 1.5% (by volume).	Area of TPSTW within 250m consultation zone	V
S6.6.13	Oxygen concentration should be monitored and no person shall enter or remain in any confined spaces or trenches where the oxygen content of air has fallen below 18% by volume.	Area of TPSTW within 250m consultation zone	V
S6.6.14	All the access to these confined spaces should be restricted only to authorized personnel who should be aware of the LFG hazard. No member of general public should be permitted or allowed to access these confined spaces, manholes or inspection chambers.	Area of TPSTW within 250m consultation zone	V
S6.6.9	When service voids, manholes or inspection chambers within the proposed site are entered for maintenance, monitoring and a checklist system of safety requirements should be performed before entry in accordance with Code of Practice on Safety and Health at Work in Confined Spaces.	Area of TPSTW within 250m consultation zone	V

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Appendix H

Chemical Waste Producer Registration License

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MateriaLab

Report No.: 0151/15/ED/0528

(30)

MEMO

From : Director of Environmental Protection
Ref. : ( ) in EP CW/D2226/727/15
Tel. : 2634 3884 Fax 2685 1155
Date : 19 APRIL , 2000

To : Director of Drainage Services
(Attn. Mr. Ho Wai Hung) / Tai Po STW
Your Ref. : _____ in TP/A57
dated : _____ Fax no 26660207

Waste Disposal Ordinance (Cap.354)
Waste Disposal (Chemical Waste) (General) Regulation
Registration as a Chemical Waste Producer
Tai Po Sewage Treatment Works

I refer to your memo under reference.

2. Our records show that there are duplicate registration as a chemical waste producer (CWP) for the Tai Po Sewage Treatment Works. As per your request, we have removed one of the CWP registration (WPN of 0014-727-D2158-02 dated 26.10.1992) from the register with effect from the date of this memo. As a result, the registration form (Form EPD 130) with WPN of 0014-727-D2158-02 dated 26.10.1992 for the above premises is no longer valid.

3. On the other hand, I am pleased to inform you that your revised registration (WPN of 0014-727-D2226-15) with this Department as a CWP has been completed. Your assiged Waste Producer Number (WPN) and the particulars of your establishment are printed in the enclosed form (EPD 130). Please check these entries in the form and notify this Department immediately in any irregularities are detected. Please note that this registration is not transferable and will be valid only in respect of the applicant and the premises registered. In case of any change in the registration particulars, you should inform this Department as soon as possible so that our record so that our record can be amended accordingly.

4. Should you have any queries, please contact our Mr. YIU on 26851156 or the undersigned.

(W.C. SUN)
Local Control Office (Territory North)
for Director of Environmental Protection

Encl.

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Environmental Protection Department
環境保護署

Waste Disposal Ordinance (Chapter 354)
香港法例第354章廢物處理條例
Waste Disposal (Chemical Waste) (General) Regulation
廢物處理(化學廢物)(一般)規例
Registration of Waste Producer
廢物產生者登記證

To: 致

Waste Producer 廢物產生者

Full Name (English) DIRECTOR OF (Chinese) 渠務署署長
全 名：(英 文) DRAINAGE SERVICES (中 文)
I.D. Card No. (if any) - - -
身份證號碼：(如有者)
Business Reg. Cert. No. (if any)
商業登記證號碼：(如有者) - - -
Address for Correspondence
通訊地址：DSD, TAI PO SEWAGE TREATMENT WORKS,
7 DAI KWAI STREET, TAI PO INDUSTRIAL ESTATE, TAI PO, N.T.
Tel. No. 26640011 Fax No. 26660207
電 話： 圖文傳真：

With reference to your application dated 09 / 03 / 2000 for registration as a Waste Producer under the Waste Disposal (Chemical Waste) (General) Regulation, the Waste Producer Number, WPN [5][0][1][1][4]-[7][1][2][7]-[D][1][2][1][2][1][6]-[1][1][5] is assigned to you in respect of the location or premises listed below:—

前於 二000 年 三 月 九 日根據廢物處理(化學廢物)(一般)規例而來信，申請登記為廢物產生者，茲特配予廢物產生者編號第 [5][0][1][1][4]-[7][1][2][7]-[D][1][2][1][2][1][6]-[1][1][5] 號，予下開地點或樓宇：—

Location or Premises where the waste is produced 產生廢物的地點或樓宇

Name of Establishment
機構名稱：DSD, TAI PO SEWAGE TREATMENT WORKS
Business Reg. Cert. No. (if any)
商業登記證號碼：(如有者) - - -
Nature of Business
業務性質：SEWAGE TREATMENT
Major chemical waste types
主要化學廢物種類：SPENT LUBRICATING OIL & SPENT SOLVENT
Address
地 址：DSD, TAI PO SEWAGE TREATMENT WORKS, 7 DAI KWAI STREET,
TAI PO INDUSTRIAL ESTATE, TAI PO, N.T.
Tel. No. 26640011 Fax No. 26660207
電 話： 圖文傳真：
Contact Person (Full Name) HO WAI HUNG (Capacity) WORKS MANAGER
聯絡人：(全 名) (職 位)

HONG KONG ENVIRONMENTAL PROTECTION DEPARTMENT 香港環境保護署

(W.C. SUN)
for *Director of Environmental Protection*
環境保護署署長 (辛清才 代行)

Date
日期 19 / 04 / 2000

WARNING: Any registered waste producer who fails to inform the Director of Environmental Protection of any change in his registration particulars commits an offence and is liable on conviction to a fine of $10,000.
警 告： 任何已登記的廢物產生者，若其登記資料有任何改變而不知會環境保護署署長，即屬違法，被定罪者最高罰款港幣10,000元。