IMPACT MONITORING REPORT





Proposed 132kV Submarine Cable Route for Airport "A" to Castle Peak Power Station Cable Circuit

Twelfth Weekly Impact Monitoring Report - 11th February to 17th February 2008

22nd February 2008

Environmental Resources Management

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CLP Power

Proposed 132kV Submarine Cable Route for Airport "A" to Castle Peak Power Station Cable Circuit: Twelfth Weekly Impact Monitoring Report – 11th February 2008 – 17th February 2008

February 2008

Reference 0072833

For and on ERM-Hong	behalf of g Kong, Limited
Approved	by: Dr Robin Kennish
Signed: _	Zdien Kenneth
Position: _	Director
Date:	22 February 2008

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We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.

This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.

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EXECUTIVE SUMMARY

The construction works for the Proposed 132kV Submarine Cable Route for Airport "A" to Castle Peak Power Station Cable Circuit (Application No. *DIR-143/2006*) commenced on 10 November 2007. This is the 12th weekly Environmental Monitoring and Audit (EM&A) report presenting the EM&A works carried out during the period from 11 February to 17 February 2008 in accordance with the EM&A Manual.

Summary of Construction Works undertaken during the Reporting Period

During the reporting week, at the Airport landing site, mobilization of cablelaying barges, installation of silt curtain at the artificial reefs and testing of cable burial machine were undertaken at the Airport landing site during the reporting period from 11 February to 17 February 2008.

Water Quality

Three monitoring events were scheduled between 11 February and 17 February 2008 at Airport landing sites. All monitoring events at all designated monitoring stations were performed on schedule, ie on 11 February, 13 February and 15 February 2008

All measured dissolved oxygen levels complied with the Action and Limit (AL) Levels, and all measured Turbidity and Suspended Solids (SS) levels were below AL Levels during the reporting week.

Environmental Non-conformance

No exceedance of Action and Limit Levels was recorded during the reporting week.

No non-compliance event was recorded during the reporting week.

No complaint and summons/prosecution was received during the reporting week.

Future Key Issues

During the following week (ie 18 February to 24 February 2008), cable laying will be carried out at the Airport landing site.

1 INTRODUCTION

ERM-Hong Kong, Limited (ERM) was appointed by CLP Power (CLP) as the Environmental Team (ET) to implement the Environmental Monitoring and Audit (EM&A) programme for the Proposed 132kV Submarine Cable Route for Airport "A" to Castle Peak Power Station Cable Circuit (thereinafter called the ('Project')).

1.1 PURPOSE OF THE REPORT

This is the 12th weekly EM&A report, which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 11 February to 17 February 2008.

1.2 STRUCTURE OF THE REPORT

The structure of the report is as follows:

Section 1: Introduction

Details the background, purpose and structure of the report.

Section 2: **Project Information**

Summarises background and scope of the project, site description, project organisation and contact details, construction programme, the construction works undertaken and the status of Environmental Permits/Licenses during the reporting period.

Section 3: Environmental Monitoring Requirement

Summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations, Action and Limit Levels, Event / Action Plans, environmental mitigation measures as recommended in the EIA report and relevant environmental requirements.

Section 4: Implementation Status on Environmental Mitigation Measures Summarises the implementation of environmental protection measures during the reporting period.

Section 5: Monitoring Results

Summarises the monitoring results obtained in the reporting period.

Section 6: Environmental Non-conformance

Summarises any monitoring exceedance, environmental complaints and environmental summons within the reporting period.

Section 7: Future Key Issues

Summarises the monitoring schedule for the next week.

Section 8: Review of EM&A Data and Impact Assessment Predictions

Compares and contrasts the EM&A data in the reporting period with the impact assessment predictions and annotates with

explanations of discrepancies.

Section 9: Conclusions

Presents the key findings of the impact monitoring results.

PROJECT INFORMATION

2.1 BACKGROUND

2

CLP will install a 132 kV submarine cable circuit to connect Castle Peak Power Station and Hong Kong International Airport in order to meet the electricity load growth at the Airport.

The proposed cable route will start from Tuen Mun and extend southward crossing the Urmston Road to the Airport. The cable landing sites will be located to the west of Butterfly Beach, Tuen Mun and at the northern part of the platform of the Airport (see *Figure 2.1*).

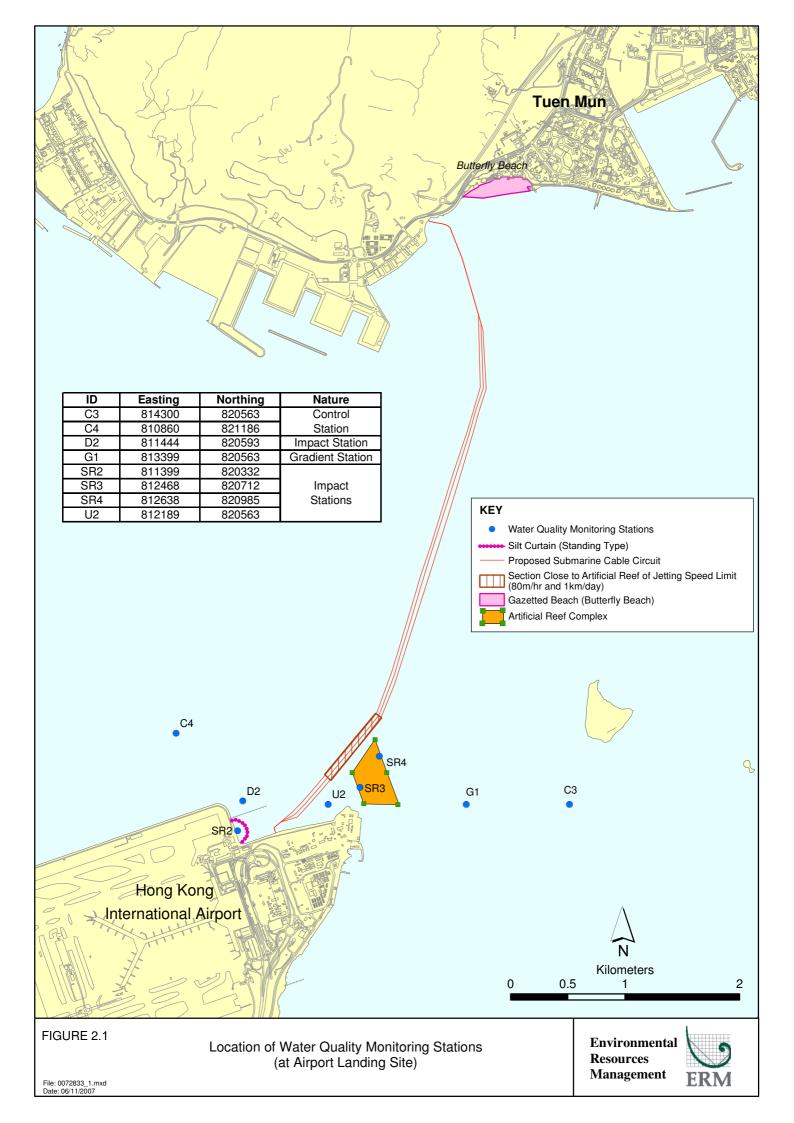
In September 2006, a Project Profile (PP) for the proposed 132kV Cable Route for Airport "A" to Castle Peak CCTS (thereinafter called the 'Project') was prepared and submitted to the Environmental Protection Department (EPD) under the *Environmental Impact Assessment Ordinance (EIAO)* for application for Permission to apply directly for Environmental Permit (EP) (Application No. *DIR-143/2006*).

An Environmental Permit (*EP-267/2007*) for the works was granted on 29 March 2007. Under the requirements of *Condition 2.12* of the EP, an EM&A programme as set out in the *Environmental Monitoring and Audit Manual* (*EM&A Manual*) is required to be implemented. In accordance with the *EM&A Manual*, impact monitoring of water quality is required for the Project.

Baseline Monitoring was conducted at Tuen Mun landing site between 18 October and 28 October 2007. Through communications with EPD, a silt curtain at the water intake of the Airport should already be in place during the baseline monitoring. EPD hence advised the baseline monitoring (thereinafter called *Baseline Environmental Monitoring Part B*) for the Airport East section of works should be postponed until a silt curtain is ready. The baseline monitoring for Tuen Mun section of the Project and sediment quality testing were hence undertaken first (thereinafter called *Baseline Environmental Monitoring Part A*) and the results were presented in *Part A* of the report which was submitted to EPD.

The silt curtains were installed at the Airport seawater intake on 20 December 2007 and *Baseline Environmental Monitoring Part B* was then carried out between 22 December 2007 and 2 January 2008.

Impact Monitoring has been carried out at Tuen Mun landing site since 10 November 2007 and at Airport landing site since 16 January 2008. This report, therefore, presents results of the data from monitoring stations around the Tuen Mun and Airport landing sites (*Figure 2.1*). Results of the impact monitoring data will therefore be compared against the results of the *Baseline Environmental Monitoring Part A* and *Part B*.



2.2 SITE DESCRIPTION

The proposed 132kV cable is located in-between Tuen Mun and the Hong Kong International Airport. The alignment of the cable is illustrated in *Figure* 2.1.

2.3 MARINE CONSTRUCTION WORKS UNDERTAKEN DURING REPORTING WEEK

During the reporting week, at the Airport landing site, mobilization of cablelaying barges, installation of silt curtain at the 5 artificial reef (AR) blocks along the direction facing the cable alignment and testing of cable burial machine were undertaken at the Airport landing site during the reporting period.

The works programme of the period between 11 February and 17 February 2008 is presented in Annex A. The photos taken during the installation of silt curtain at the ARs are shown in Annex F (selected photos with descriptions) and Annex G (all photos provided in soft copy only).

2.4 PROJECT ORGANISATION

The Project Organisation chart and contact details are shown in *Annex B*.

2.5 STATUS OF ENVIRONMENTAL APPROVAL DOCUMENTS

A summary of the relevant permits, licences, notifications and/or reports on environmental protection for this Project is presented in *Table 2.1*.

Table 2.1 Summary of Environmental Licensing, Notification, Permit and Reporting Status

Permit / Licence /	Reference	Validity Period	Remarks
Notification / Report			
EM&A Manual	-	Throughout the	submitted on 25
		construction period	January 2007
Environmental Permit	EP-267/2007	Throughout the	granted on 29
		construction period	March 2007
Baseline Environmental	-	Throughout the	approved by EPD
Monitoring Report (Part A)		construction period for	on 8 November
		Tuen Mun Section	2007
Baseline Environmental	-	Throughout the	approved by EPD
Monitoring Report (Part B)		construction period for	on 16 January
		Airport Section	2008

ENVIRONMENTAL MONITORING REQUIREMENT

3.1 MONITORING LOCATIONS

3

In accordance with the *EM&A Manual*, prior to the installation of the cable, water quality sampling was undertaken at stations situated around the cable laying works area at Tuen Mun and the Airport. The locations of the sampling stations are shown in *Figure 2.1*.

- C3 and C4 are Control Stations near the Airport, which are not expected to be influenced by the construction works due to their remoteness from the construction works.
- U2 and D2 are Impact Stations located approximately 300 m either from the cable alignment for monitoring the effect of dredging at the Airport landing point.
- SR2 is Impact Station (sensitive receiver) used to monitor the effect of the construction works to the Seawater Intake at the Airport.
- SR3 and SR4 are Impact Stations (sensitive receivers) used to verify the
 predictions concerning sediment plume dispersion during dredging at the
 areas close to the Artificial Reef (AR) and at the landing sites.
- G1 is Gradient Station which is situated in between C3 and the AR. It is used to determine the source of pollutants by comparing the monitoring results with those recorded at C3, SR3 and SR4. Since G1 is located between C3 and the construction work alignment, it serves the gradient function with C3 during flood tide, but has no relationship and function with C4 during ebb tide.

The co-ordinates of these monitoring stations are listed in *Table 3.1*.

Table 3.1 Co-ordinates of Water Quality Monitoring Stations (HK Grid)

Station	Nature	Easting	Northing	
C3	Control Station	814300	820563	
C4	Control Station	810860	821186	
U2	Impact Station	812189	820563	
D2	Impact Station	811444	820593	
SR2	Impact Station	811399	820332	
SR3	Impact Station	812468	820712	
SR4	Impact Station	812638	820985	
G1	Gradient Station	813399	820563	

3.2 MONITORING PARAMETERS AND FREQUENCY

The impact water quality monitoring was conducted in accordance with the requirements stated in *EM&A Manual*. These are presented below.

3.2.1 Monitoring Parameters

Parameters measured in situ were:

- dissolved oxygen (DO) (% saturation and mg L-1);
- temperature (°C);
- turbidity (NTU); and
- salinity (%).

The only parameter measured in the laboratory was:

• suspended solids (SS) (mgL-1).

In addition to the water quality parameters, other relevant data were measured and recorded in field logs, including the location of the sampling stations, water depth, time, weather conditions, sea conditions, tidal state, special phenomena and work activities undertaken around the monitoring and works area that may influence the monitoring results.

3.2.2 *Monitoring Frequency*

Impact water quality monitoring was carried out three times a week. The interval between two sets of monitoring was not less than 36 hours. The monitoring was undertaken at 8 locations (five impact monitoring stations D2, U2, SR2, SR3 and SR4, one gradient station G1, and two control monitoring stations C3 and C4), as shown on *Figure 2.1*. Samples were taken during midflood and mid-ebb tidal state on each sampling occasion.

3.3 MONITORING EQUIPMENT AND METHODOLOGY

3.3.1 Monitoring Equipment

Dissolved Oxygen, Temperature, Salinity, Turbidity Measuring Equipment

The instrument was a portable, weatherproof multi-parameter measuring instrument (YSI 6820) complete with cables, multi-probe sensor, comprehensive operation manuals, and was operable from a DC power source. It was capable of measuring:

- dissolved oxygen levels in the range of 0 50 mg L⁻¹; and 0-500% saturation;
- temperature of -5 to 50 °C;
- turbidity levels between 0-1000 NTU (response of the sensor was checked with certified standard turbidity solutions before the start of measurement); and,
- salinity in the range of 0-40 ppt (checked with 30 ppt Salinity solutions before the start of the measurement).

Water Depth Gauge

The water depth gauge affixed to the bottom of the water quality monitoring vessel was used.

Current Velocity and Direction

Current velocity and direction was estimated by conducting float tracking.

Positioning Device

A Global Positioning System (GPS) was used (C-Navigator World DGPS, GPS 72A) during monitoring to ensure the accurate recording of the position of the monitoring vessel before taking measurements. The use of DGPS was used for positioning device, which was well calibrated at appropriate checkpoint.

Water Sampling Equipment

Water samples for suspended solids measurement were collected by the use of a multi-bottle water sampling system (General Oceanics Inc., Rosette Sampler ROS02), consisting of PVC bottles of more than two litres, which could be effectively sealed with cups at both ends. The water sampler had a positive latching system to keep it open and prevent premature closure until released by a messenger when the sampler was at the selected water depth.

3.3.2 *Monitoring Methodology*

Timing & Frequency

The water quality sampling was undertaken within a 3 hour window of 1.5 hours before and 1.5 hours after mid-flood and mid-ebb tides. Tidal range for flood and ebb tides was not less than 0.5m for capturing representative tides.

Reference was made to the predicted tides at Lok On Pai, which is the tidal station nearest to the Project site, published on the website of Hong Kong Observatory⁽¹⁾. Based on the predicted water levels at Lok On Pai, the impact water quality monitoring was conducted between 28 January and 3 February 2008, following the schedule presented in *Annex C*.

Duplicate samples were collected from each of the monitoring events for *in situ* measurements and laboratory analysis.

Depths

Each station was sampled and measurements were taken at three depths, 1 m below the sea surface, mid depth and 1m above the sea bed.

Protocols

The multi-parameter measuring instrument (YSI 6820) was checked and calibrated by an HOKLAS accredited laboratory before use. Onsite calibration was also carried out to check the responses of sensors and electrodes using certified standard solutions before each use. Sufficient stocks of spare parts were maintained for replacements when necessary, and backup monitoring equipment was made available.

Water samples for SS measurements were collected in high density polythene bottles, packed in ice (cooled to 4° C without being frozen), and delivered to an HOKLAS accredited laboratory as soon as possible after collection.

Laboratory Analysis

All laboratory work was carried out by an HOKLAS accredited laboratory. Water samples of about 1,000 mL were collected at the monitoring and control stations for carrying out the laboratory determinations. The determination work started within the next working day after collection of the water samples. The analyses followed the standard methods as described in *APHA Standard Methods for the Examination of Water and Wastewater*, 19th Edition, unless otherwise specified (APHA 2540D for SS).

The QA/QC details were in accordance with requirements of HOKLAS or another internationally accredited scheme (for details refer to *Annex D*).

(1) Hong Kong Observatory (2007) http://www.hko.gov.hk/tide/eLOPtide.htm [Accessed on 13 October 2007]

3.3.3 Action and Limit Levels

The Action and Limit levels for the Airport landing site, which were established based on the results of *Baseline Environmental Monitoring Part B*, are presented in *Tables 3.2* respectively.

Table 3.2 Action and Limit Levels for Water Quality for the Airport Landing Site

Parameter	Unit	Tide	Depth	Action Level	Limit Level
Suspended Solids (SS)	mg L ⁻¹	Mid-Ebb	Depth-averaged	21.6	29.8
		Mid-Flood	Depth-averaged	30.8	34.3
Dissolved	mg L ⁻¹	Mid-Ebb	Surface and Middle	6.6	4.0
Oxygen (DO)			Bottom	6.9	2.0
		Mid-Flood	Surface and Middle	6.8	4.0
			Bottom	6.8	2.0
Turbidity	NTU	Mid-Ebb	Depth-averaged	17.4	25.9
		Mid-Flood	Depth-averaged	22.9	27.9

Notes:

3.3.4 Event and Action Plan

The Event and Action Plan for water quality monitoring which was stipulated in the *EM&A Manual* is presented in *Table 3.3*.

⁽¹⁾ The results recorded at the gradient station during the mid-flood period will be used to decide whether any exceedance being recorded during mid-flood are arising from the marine works of this Project.

⁽²⁾ Turbidity and SS levels will make reference to 120% and 130% of value recorded at the upstream control station during the same tidal conditions to assess the compliance of Action and Limit Levels respectively.

Table 3.3 Event and Action Plan for Water Quality

Event	Action
Action Level	Step 1 - repeat sampling event;
Exceedance	Step 2 – identify source(s) of impact and confirm whether exceedance was due to the construction works;
	Step 3 – inform EPD and LCSD and confirm notification of the non-compliance in writing;
	Step 4 - discuss with cable installation contractor the most appropriate method of reducing suspended solids during cable installation (e.g. reduce cable laying speed/volume of water used during installation, increase effectiveness of silt curtain).
	Step 5 - repeat measurements after implementation of mitigation for confirmation of compliance.
	Step 6 - if non compliance continues - increase measures in Step 3 and repeat measurements in Step 3. If non compliance occurs a third time, suspend cable laying operations.
Limit Level Exceedance	Undertake Steps 1-5 immediately, if further non compliance continues at the Limit Level, suspend cable laying operations until an effective solution is identified.

4 IMPLEMENTATION STATUS OF ENVIRONMENTAL MITIGATION MEASURES

4.1 RECOMMENDED MITIGATION MEASURES

Mitigation measures for water quality control have been recommended in the Project Profile and the Environmental Permit. The Contractor is responsible for the design and implementation of the following measures.

During cable laying the following will be undertaken:

- Although the sediment loss during both grab dredging and suction dredging is expected to be quite small, the Contractor will be employing a silt curtain around the dredgers to reduce the dispersion of sediments from the landing points.
- Closed grab dredgers will be used to avoid dispersion of suspended solids into the sea.
- The maximum dredging rate at Tuen Mun shore approach will be limited to 1,500 m³ day⁻¹ for working 10 hours per day, i.e., 150 m³ hr⁻¹.
- The maximum dredging rates of grab dredgers and suction method, whichever to be deployed by the contractor, at the Airport shore approach will be limited to 650 m³ day⁻¹ and 1,600 m³ day⁻¹ for working 16 hours per day, i.e., 41 m³ hr⁻¹ and 100 m³ hr⁻¹.
- All barges used for the transport of dredged materials will be fitted with tight bottom seals in order to prevent leakage of material during loading and transport.
- All barges will be filled to a level, to ensure that material does not spill
 over during loading and transport to the disposal site and that adequate
 freeboard is maintained to ensure that the decks are not washed by
 wave action.
- The forward speed of the jetting machine will be limited to a maximum of 80 m hr⁻¹ and 24 hours operation.

4.2 IMPLEMENTATION STATUS OF MITIGATION MEASURES

In additional to the regulatory requirements as mentioned in *Section 4.1* above, the Contractor has implemented a precautionary measure for the works undertaken at the inshore area. As a precautionary measure, a silt curtain has been installed at the Airport seawater intake and 5 silt curtains have been installed at the 5 AR blocks along the direction facing the cable alignment during construction of the Project. In addition, the cable laying works

undertaken in the tidal current is m	e vicinity of the ARs will be restricted to periods when loving away from the artificial reef towards the works	n the area.

5 MONITORING RESULTS

5.1 IMPACT MONITORING RESULTS

The monitoring data and graphical presentations of the results are included in *Annex E*. These are summarised below.

A total of three monitoring events were scheduled between 11 February and 17 February at the Airport landing sites. All monitoring events at all designated monitoring stations were performed on schedule, ie on 11 February, 13 February and 15 February 2008.

No major activities influencing the water quality were identified between 11 February and 17 February.

All measured dissolved oxygen levels complied with the Action and Limit (AL) Levels, and all measured Turbidity and Suspended Solids (SS) levels were below AL Levels during the reporting week. (*Annex E*).

6 ENVIRONMENTAL NON-CONFORMANCES

6.1 SUMMARY OF ENVIRONMENTAL EXCEEDANCE

No exceedance of the Action and Limit Levels was recorded during the reporting period.

6.2 SUMMARY OF ENVIRONMENTAL NON-COMPLIANCE

No non-compliance event was recorded during the reporting period.

6.3 SUMMARY OF ENVIRONMENTAL COMPLAINT

No complaint was received during the reporting period.

6.4 SUMMARY OF ENVIRONMENTAL SUMMONS AND PROSECUTION

No summons or prosecution on environmental matters was received during the reporting period.

7 FUTURE KEY ISSUES

7.1 KEY ISSUES FOR THE COMING MONTH

During the following week (ie 18 February to 22 February 2008), cable laying will be carried out at the Airport landing site. The expected construction programme is enclosed in *Annex A*.

7.2 MONITORING SCHEDULE FOR THE COMING MONTHS

The tentative schedule of impact water quality monitoring in February 2008 is presented in *Annex C*. The environmental monitoring will be conducted at the same monitoring locations as those for this reporting week.

8 REVIEW OF THE EM&A AND IMPACT ASSESSEMENT PREDICTIONS

Since there were no dredging and jetting operations at the Airport landing site during the reporting week, it was considered that the monitoring data collected during the reporting period was not applicable to compare with the impact assessment predictions in the Project Profile.

9 CONCLUSIONS

This Weekly Impact Monitoring Report presents the EM&A work undertaken during the period from 11 February to 17 February 2008 in accordance with the EM&A Manual and the requirements under *EP-267/2007*.

No exceedance of Action and Limit Levels was recorded during the reporting week.

No non-compliance event was recorded during the reporting week.

No complaint and summons/prosecution was received during the reporting week.

The ET will keep track of the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

Annex A

Works Programme of the Period between 11 February and 2 March 2008

Marine Work of 132kV Submarine Cable Installation between Airport to Tuen Mun

				Work	done fo	or Las	Week				Plan f	or This	s Wee	k			Antic	ipate F	Plan fo	r Next	Week	
	Item Date	11/2	12/2	13/2	14/2	15/2	16/2	17/2	18/2	19/2	20/2	21/2	22/2	23/2	24/2	25/2	26/2	27/2	28/2	29/2	3/1	3/2
1	Mobilization of Plants																					
2	Utilities Detection																					
3	Mobilization of Marine Plant																					
4	Site Setting Out																					
5	Site Clearance																					
6	Installation of Silt Curtain																					
5	Rock Breaking (Land Portion)																					
6	Rock Breaking (Marine Portion)																					
7	Dredging (Tuen Mun)																					
8	Mobilization of Marine Plant																					
9	Dredging (Airport)																					
10	Mobilization of Cable Laying Bard																					
11	Cable Lay Barges Preparation We																					
12	Installation of Silt Curtain (AR)																					
13	Cable Burial Machine Testing																					
14	Cable Laying																					

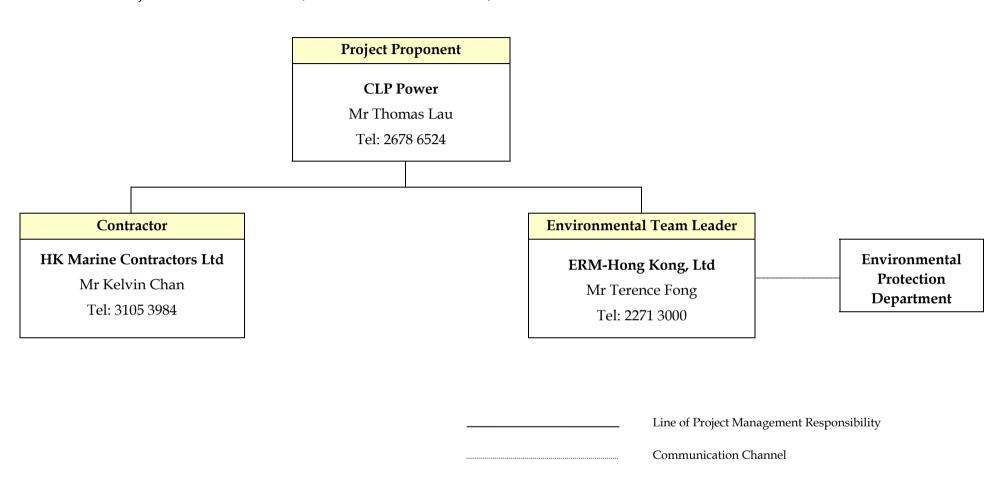
Prepared by: Hong Kong Marine Contractors Ltd. Ref. No. MCERM-132AIRPORTTM-00302-08

Date: 19/02/2008

Annex B

Project Organisation Chart (with Contact Details)

ANNEX B - PROJECT ORGANIZATION (WITH CONTACT DETAILS)



Annex C

Tentative Monitoring Schedule

Proposed 132kV Submarine Cable Route for Airport "A" to Castle Peak Power Station Cable Circuit Tentative Water Quality Monitoring Schedule at Tuen Mun and Airport landing site - February 2008

Reference Tidal Station: Lok On Pai (source: HK Observatory Department)

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
					01-Feb	02-Feb
						Mid-Flood 10:08
						Mid-Ebb 22:24
						Impact Monitoring
						(Airport)
03-Feb		05-Feb		07-Feb	08-Feb	
	Mid-Ebb 11:34		Mid-Flood 07:46			Mid-Flood 08:55
	Mid-Flood 16:06		Mid-Ebb 12:54			Mid-Ebb 14:32
	Impact Monitoring		Impact Monitoring			Impact Monitoring
10.5.1	(Airport)	10.5.1	(Airport)	4451	45.5.1	(Airport)
10-Feb		12-Feb				16-Feb
	Mid-Flood 09:41		Mid-Flood 10:38		Mid-Flood 11:50	
	Mid-Ebb 15:44		Mid-Ebb 17:27		Mid-Ebb 20:08	
	Impact Monitoring		Impact Monitoring		Impact Monitoring	
17-Feb	(Airport) 18-Feb	19-Feb	(Airport) 20-Feb	21-Feb	(Airport) 22-Feb	23-Feb
17-1 60	Mid-Flood 16:09	Mid-Ebb 12:11	Mid-Ebb 12:48		Mid-Ebb 13:53	Mid-Flood 08:40
	Mid-Ebb 23:37	Mid-Flood 17:19	Mid-Flood 18:12		Mid-Flood 19:39	Mid-Ebb 14:21
	Impact Monitoring	Impact Monitoring	Impact Monitoring	Impact Monitoring	Impact Monitoring	Impact Monitoring
	(Airport)	(Tuen Mun)	(Airport) + Ma Wan	(Tuen Mun)	(Airport)	(Tuen Mun)
24-Feb				· · · · · · · · · · · · · · · · · · ·		· · · · · · · · · · · · · · · · · · ·
	Mid-Flood 09:18	Mid-Flood 09:39	Mid-Flood 10:00	Mid-Flood 10:18	Mid-Flood 10:21	
	Mid-Ebb 15:22	Mid-Ebb 15:58	Mid-Ebb 16:40	Mid-Ebb 17:34	Mid-Ebb 19:13	
	Impact Monitoring	Impact Monitoring	Impact Monitoring	Impact Monitoring	Impact Monitoring	
	(Airport)	(Tuen Mun)	(Airport) + Ma Wan	(Tuen Mun)	(Airport)	

The schedule is subject to agreement from the EPD on the monitoring times. The schedule will be revised after reviewing the progress of the construction works or due to adverse (safety, weather etc) conditions.

Annex D

QA/QC Results of Laboratory Testing for Suspended Solids

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYICAL CHEMISTRY & TESTING SERVICES



CERTIFICATE OF ANALYSIS

Client : ERM HONG KONG Laboratory : ALS Technichem (HK) Pty Ltd Page : 1 of 9

Contact : MS KAREN LUI Contact : Alice Wong Work Order : HK0802000
Address : 21/F, LINCOLN HOUSE. Address : 11/F,, Chung Shun Knitting Centre.

: 21/F, LINCOLN HOUSE, Address : 11/F., Chung Shun Knitting Centre, 979 KING`S ROAD, 1 - 3 Wing Yip Street,

TAIKOO PLACE, ISLAND EAST, QUARRY BAY Kwai Chung, N.T., Hong Kong

HONG KONG

Telephone : 2271 3000 Telephone : +852 2610 1044
Facsimile : 2723 5660 Facsimile : +852 2610 2021

Project : EM&A FOR THE PROPOSED 132kV Quote number : --- Date received : 12 Feb 2008

SUBMARINE CABLE ROUTE FOR AIRPORT "A"

TO CASTLE PEAK CCTS

Order number : ---- Date of issue : 15 Feb 2008

C-O-C number : ---- No. of samples - Received : 92

Site : --- - Analysed : 92

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK0802000 supersedes any previous reports with this reference. The completion date of analysis is 14 Feb 2008. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific comments for Work Order HK0802000: Sample(s) were received in a chilled condition.

Water sample(s) analysed and reported on an as received basis.

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Signatory Position Authorised results for:-

Fung Lim Chee, Richard General Manager Inorganics

Page Number : 8 of 9

Client : ERM HONG KONG

Work Order HK0802000



Quality Control - Laboratory Duplicate (DUP) Results

Matrix Type: WATER			Duplicate (DUP) Results							
Laboratory Sample ID	Client Sample ID	Method: Analysis Description	CAS number	LOR	Units	Original Result	Duplicate Result	RPD (%)		
EA/ED: Physical and A	Aggregate Properties (QC Lot: 5920	54)					·			
HK0802000-001	2008/02/11/16:42/C4/B/E/	EA025: Suspended Solids (SS)		1	mg/L	47	47	0.0		
	REPL.1									
HK0802000-011	2008/02/11/16:11/SR3/M/E/	EA025: Suspended Solids (SS)		1	mg/L	14	13	10.6		
	REPL.2									
EA/ED: Physical and A	Aggregate Properties (QC Lot: 5920	55)								
HK0802000-021	2008/02/11/16:31/D2/T/E/	EA025: Suspended Solids (SS)		1	mg/L	12	13	0.0		
	REPL.1									
HK0802000-031	2008/02/11/15:56/SR4/B/E/	EA025: Suspended Solids (SS)		1	mg/L	16	15	6.6		
	REPL.1									
EA/ED: Physical and A	Aggregate Properties (QC Lot: 5920	56)								
HK0802000-041	2008/02/11/15:46/G1/M/E/	EA025: Suspended Solids (SS)		1	mg/L	16	15	8.8		
	REPL.2									
HK0802000-051	2008/02/11/09:08/SR3/T/F/	EA025: Suspended Solids (SS)		1	mg/L	21	20	4.8		
	REPL.1									
EA/ED: Physical and A	Aggregate Properties (QC Lot: 5920	57)								
HK0802000-061	2008/02/11/09:23/D2/B/F/	EA025: Suspended Solids (SS)		1	mg/L	17	17	0.0		
	REPL.1									
HK0802000-071	2008/02/11/08:39/C3/M/F/	EA025: Suspended Solids (SS)		1	mg/L	18	18	0.0		
	REPL.2									
EA/ED: Physical and A	Aggregate Properties (QC Lot: 5920	61)								
HK0802000-081	2008/02/11/08:50/G1/T/F/	EA025: Suspended Solids (SS)		1	mg/L	15	15	0.0		
	REPL.1									
HK0802000-091	2008/02/11/09:16/SR2/B/F/	EA025: Suspended Solids (SS)		1	mg/L	11	11	0.0		
	REPL.2									

Quality Control - Method Blank (MB), Single Control Spike (SCS) and Duplicate Control Spike (DCS) Results

Page Number : 9 of 9

Client : ERM HONG KONG

Work Order HK0802000



Matrix Type: WATER		Method Blank (MB) Results			Single Control Spike (SCS) and Duplicate Control Spike (DCS) Results						
					Spike	Spike Red	covery (%)	Recovery Limits (%)		RPDs (%)	
Method: Analysis Description	CAS number	LOR	Units	Result	Concentration	scs	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Proper	ties (QCLot: 592054)										
EA025: Suspended Solids (SS)		2	mg/L	<2	20 mg/L	104		85	115		
EA/ED: Physical and Aggregate Proper	ties (QCLot: 592055)										
EA025: Suspended Solids (SS)		2	mg/L	<2	20 mg/L	93.5		85	115		
EA/ED: Physical and Aggregate Proper	ties (QCLot: 592056)										
EA025: Suspended Solids (SS)		2	mg/L	<2	20 mg/L	106		85	115		
EA/ED: Physical and Aggregate Proper	ties (QCLot: 592057)										
EA025: Suspended Solids (SS)		2	mg/L	<2	20 mg/L	103		85	115		
EA/ED: Physical and Aggregate Proper	ties (QCLot: 592061)										
EA025: Suspended Solids (SS)		2	mg/L	<2	20 mg/L	102		85	115		

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYICAL CHEMISTRY & TESTING SERVICES



CERTIFICATE OF ANALYSIS

Client : ERM HONG KONG Laboratory : ALS Technichem (HK) Pty Ltd Page : 1 of 9

Contact : MS KAREN LUI Contact : Alice Wong Work Order : HK0802193

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Project : EM&A FOR THE PROPOSED 132kV Quote number : --- Date received : 14 Feb 2008

SUBMARINE CABLE ROUTE FOR AIRPORT "A"

TO CASTLE PEAK CCTS

Order number : ---- Date of issue : 18 Feb 2008

C-O-C number : ---- No. of samples - Received : 92

Site : --- - Analysed : 92

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK0802193 supersedes any previous reports with this reference. The completion date of analysis is 18 Feb 2008. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific comments for Work Order HK0802193 : Sample(s) were received in a chilled condition.

Water sample(s) analysed and reported on an as received basis.

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Signatory Position Authorised results for:-

Fung Lim Chee, Richard General Manager Inorganics

Page Number : 8 of 9

Client : ERM HONG KONG

Work Order HK0802193



Quality Control - Laboratory Duplicate (DUP) Results

Matrix Type: WATER				Duplicate (DUP) Results						
Laboratory Sample ID	Client Sample ID	Method: Analysis Description	CAS number	LOR	Units	Original Result	Duplicate Result	RPD (%)		
EA/ED: Physical and A	Aggregate Properties (QC Lot: 5942	01)								
HK0802193-001	2008/02/13/17:18/C4/B/E/	EA025: Suspended Solids (SS)		1	mg/L	38	36	4.4		
	REPL. 1									
HK0802193-011	2008/02/13/16:52/SR3/M/E/	EA025: Suspended Solids (SS)		1	mg/L	7	7	0.0		
	REPL. 2									
EA/ED: Physical and A	Aggregate Properties (QC Lot: 5942	02)								
HK0802193-021	2008/02/13/17:09/C4/T/E/	EA025: Suspended Solids (SS)		1	mg/L	8	9	17.9		
	REPL. 1									
HK0802193-031	2008/02/13/16:38/SR4/B/E/	EA025: Suspended Solids (SS)		1	mg/L	15	15	0.0		
	REPL. 1									
EA/ED: Physical and A	Aggregate Properties (QC Lot: 5942	03)								
	2008/02/13/16:52/G1/M/E/	EA025: Suspended Solids (SS)		1	mg/L	13	12	0.0		
	REPL. 2									
HK0802193-053	2008/02/13/10:00/SR3/B/F/	EA025: Suspended Solids (SS)		1	mg/L	18	18	0.0		
	REPL. 1									
EA/ED: Physical and A	Aggregate Properties (QC Lot: 5942	04)								
HK0802193-061	2008/02/13/10:12/U2/T/F/	EA025: Suspended Solids (SS)		1	mg/L	16	16	0.0		
	REPL. 1									
HK0802193-071	2008/02/13/09:27/C3/B/F/	EA025: Suspended Solids (SS)		1	mg/L	12	13	0.0		
	REPL. 1									
EA/ED: Physical and A	Aggregate Properties (QC Lot: 5942	05)								
HK0802193-081	2008/02/13/09:53/SR4/M/F/	EA025: Suspended Solids (SS)		1	mg/L	8	8	0.0		
	REPL. 2									
HK0802193-092	2008/02/13/11:17/SR2/T/F/	EA025: Suspended Solids (SS)		1	mg/L	10	9	0.0		
	REPL. 2									

Quality Control - Method Blank (MB), Single Control Spike (SCS) and Duplicate Control Spike (DCS) Results

Page Number : 9 of 9

Client : ERM HONG KONG

Work Order HK0802193



Matrix Type: WATER		Method Blank (MB) Results			Single Control Spike (SCS) and Duplicate Control Spike (DCS) Results						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
Method: Analysis Description	CAS number	LOR	Units	Result	Concentration	scs	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Proper	ties (QCLot: 594201)										
EA025: Suspended Solids (SS)		2	mg/L	<2	20 mg/L	94.0		85	115		
EA/ED: Physical and Aggregate Proper	ties (QCLot: 594202)										
EA025: Suspended Solids (SS)		2	mg/L	<2	20 mg/L	101		85	115		
EA/ED: Physical and Aggregate Proper	ties (QCLot: 594203)										
EA025: Suspended Solids (SS)		2	mg/L	<2	20 mg/L	104		85	115		
EA/ED: Physical and Aggregate Proper	ties (QCLot: 594204)										
EA025: Suspended Solids (SS)		2	mg/L	<2	20 mg/L	96.5		85	115		
EA/ED: Physical and Aggregate Proper	ties (QCLot: 594205)			•							
EA025: Suspended Solids (SS)		2	mg/L	<2	20 mg/L	95.0		85	115		

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group

ANALYICAL CHEMISTRY & TESTING SERVICES



CERTIFICATE OF ANALYSIS

Client : ERM HONG KONG Laboratory : ALS Technichem (HK) Pty Ltd Page : 1 of 9

Contact : MS KAREN LUI Contact : Alice Wong Work Order : HK0802413
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Project : EM&A FOR THE PROPOSED 132kV Quote number : ---- Date received : 15 Feb 2008

SUBMARINE CABLE ROUTE FOR AIRPORT "A"

TO CASTLE PEAK CCTS

Order number : ---- Date of issue : 20 Feb 2008

C-O-C number : ---- No. of samples - Received : 92

Site : ---- - Analysed : 92

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK0802413 supersedes any previous reports with this reference. The completion date of analysis is 20 Feb 2008. Results apply to sample(s) as submitted. All pages of this report have been checked and approved for release. When date(s) and/or time(s) are shown bracketed, these have been assumed by the laboratory for process purposes. Abbreviations: CAS number = Chemical Abstract Services number. LOR = Limit of reporting.

Specific comments for Work Order HK0802413: Sample(s) were received in a chilled condition.

Water sample(s) analysed and reported on an as received basis.

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Signatory Position Authorised results for:-

Fung Lim Chee, Richard General Manager Inorganics

Page Number : 8 of 9

Client : ERM HONG KONG

Work Order HK0802413



Quality Control - Laboratory Duplicate (DUP) Results

Matrix Type: WATER						Duplicate (DUP)	Results	
Laboratory Sample ID	Client Sample ID	Method: Analysis Description	CAS number	LOR	Units	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and A	Aggregate Properties (QC Lot: 5960	07)						
HK0802413-001	2008/02/15/19:48/C4/B/E/	EA025: Suspended Solids (SS)		1	mg/L	15	15	0.0
	REPL. 1							
HK0802413-011	2008/02/15/19:21/SR3/M/E/	EA025: Suspended Solids (SS)		1	mg/L	7	7	0.0
	REPL. 2							
EA/ED: Physical and A	Aggregate Properties (QC Lot: 5960	08)						
HK0802413-021	2008/02/15/19:39/D2/T/E/	EA025: Suspended Solids (SS)		1	mg/L	5	5	0.0
	REPL. 1							
HK0802413-031	2008/02/15/19:11/SR4/B/E/	EA025: Suspended Solids (SS)		1	mg/L	6	6	0.0
	REPL. 1							
EA/ED: Physical and A	Aggregate Properties (QC Lot: 5960	09)						
HK0802413-041	2008/02/15/19:04/G1/M/E/	EA025: Suspended Solids (SS)		1	mg/L	6	6	0.0
	REPL. 2							
HK0802413-051	2008/02/15/11:35/C4/M/F/	EA025: Suspended Solids (SS)		1	mg/L	6	4	0.0
	REPL. 2							
EA/ED: Physical and A	Aggregate Properties (QC Lot: 5960	10)						
HK0802413-061	2008/02/15/11:12/U2/T/F/	EA025: Suspended Solids (SS)		1	mg/L	9	8	0.0
	REPL. 1							
HK0802413-071	2008/02/15/10:32/C3/B/F/	EA025: Suspended Solids (SS)		1	mg/L	4	5	0.0
	REPL. 1							
EA/ED: Physical and A	Aggregate Properties (QC Lot: 5960	11)						
HK0802413-081	2008/02/15/10:57/SR4/M/F/	EA025: Suspended Solids (SS)		1	mg/L	3	3	0.0
	REPL. 2							
HK0802413-091	2008/02/15/11:22/SR2/B/F/	EA025: Suspended Solids (SS)		1	mg/L	30	29	3.9
	REPL. 2							

Quality Control - Method Blank (MB), Single Control Spike (SCS) and Duplicate Control Spike (DCS) Results

Page Number : 9 of 9

Client : ERM HONG KONG

Work Order HK0802413



Matrix Type: WATER			Method Blank (M.	B) Results		Single Co.	ntrol Spike (SCS) and Du	ıplicate Con	trol Spike (D	CS) Results	
					Spike	Spike Red	covery (%)	Recovery	Limits (%)	RPD	s (%)
Method: Analysis Description	CAS number	LOR	Units	Result	Concentration	scs	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Property	ties (QCLot: 596007)										
EA025: Suspended Solids (SS)		2	mg/L	<2	20 mg/L	100		85	115		
EA/ED: Physical and Aggregate Property	ties (QCLot: 596008)										
EA025: Suspended Solids (SS)		2	mg/L	<2	20 mg/L	97.5		85	115		
EA/ED: Physical and Aggregate Property	ties (QCLot: 596009)										
EA025: Suspended Solids (SS)		2	mg/L	<2	20 mg/L	93.0		85	115		
EA/ED: Physical and Aggregate Property	ties (QCLot: 596010)										
EA025: Suspended Solids (SS)		2	mg/L	<2	20 mg/L	96.0		85	115		
EA/ED: Physical and Aggregate Propert	ties (QCLot: 596011)										
EA025: Suspended Solids (SS)		2	mg/L	<2	20 mg/L	94.0		85	115		

Annex E

Impact Water Quality Monitoring Results

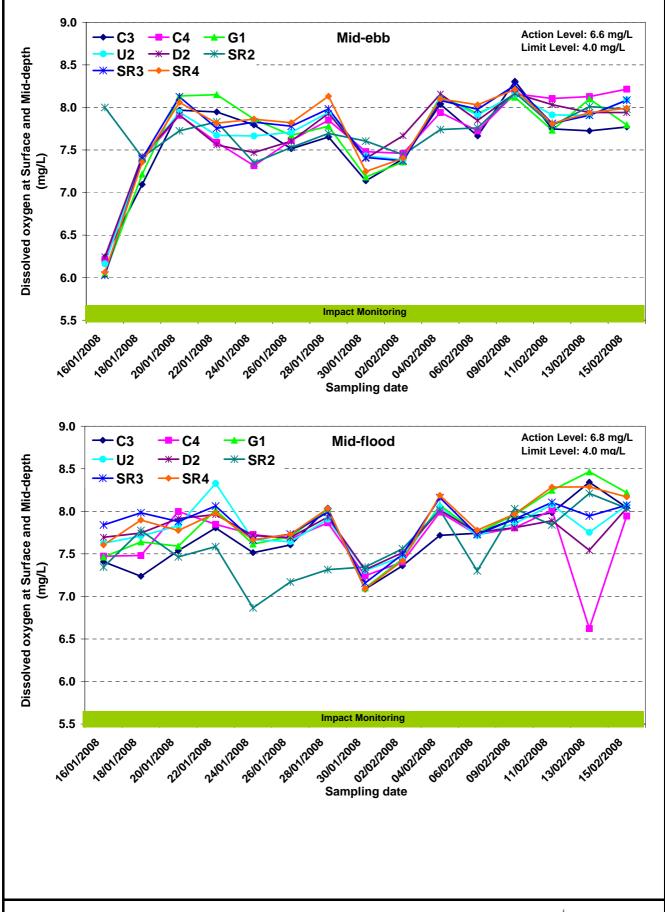


Figure E1 Dissolved oxygen concentration (mean of surface and mid-depth) (mg/L) of water samples from the eight sampling locations near the airport at mid-ebb and mid-flood between 11 February and 17 February 2008, and previous monitoring period between 14 January 2008 and 10 February 2008



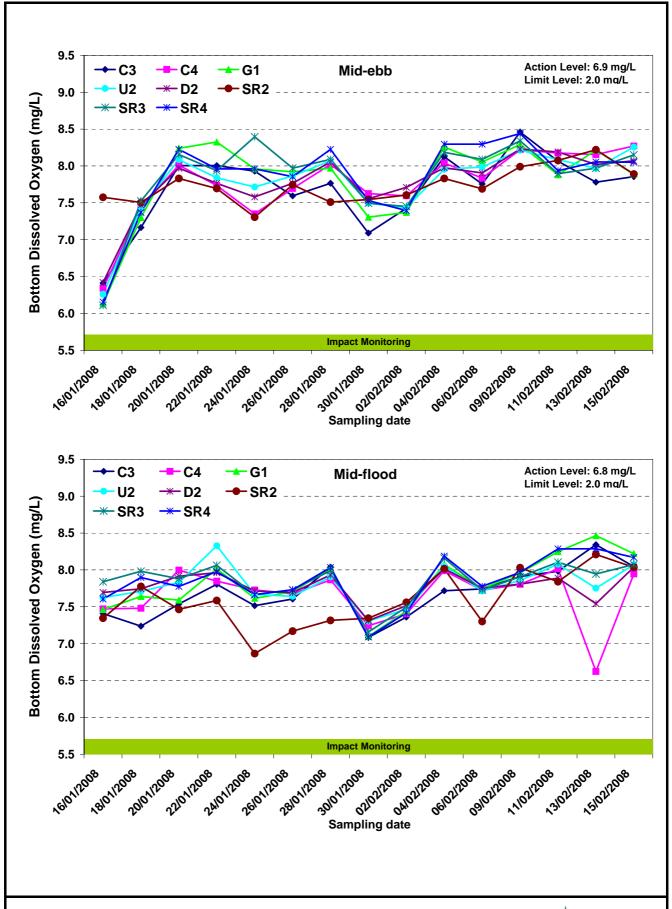


Figure E2 Dissolved oxygen concentration (bottom) (mg/L) of water samples from the eight sampling locations near the airport at mid-ebb and mid-flood between 11 February and 17 February 2008, and previous monitoring period between 14 January 2008 and 10 February 2008



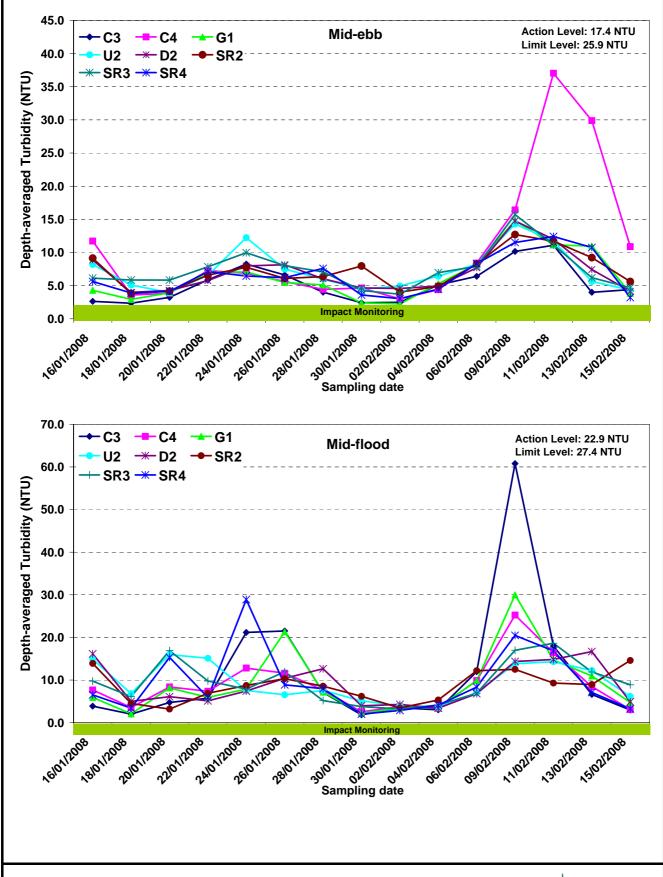


Figure E3 Depth-averaged turbidity (NTU) of water samples of water samples from the eight sampling locations near the airport at mid-ebb and mid-flood between 11 February and 17 February 2008, and previous monitoring period between 14 January 2008 and 10 February 2008



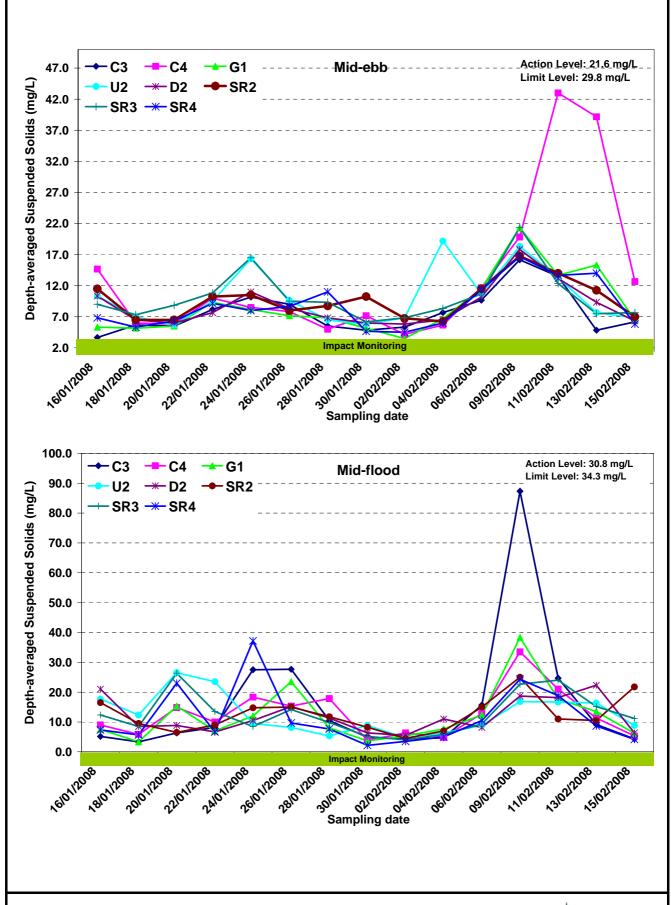


Figure E4 Depth-averaged suspended solids concentration (mg/L) of water samples from the eight sampling locations near the airport at mid-ebb and mid-flood between 11 February and 17 February 2008, and previous monitoring period between 14 January 2008 and 10 February 2008



84	:	-	_	_
IVI	IU	-E	n	u

Sampling Date	02/11/2008
Weather & Ambient Temperature	Sunny, 12C

Station				23						Station			L	J2					
Time (hh:mm)			15:30	-15:35						Time (hh:mm)			16:20	-16:24					
Water Depth (m)			11	.80						Water Depth (m)			8.	50					
Monitoring Depth (m)	1.	.00	5.	.60	10	.00				Monitoring Depth (m)	1.	.10	4.	20	7.	.10			
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&	Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&Mi
							averaged		Middle								averaged		ddle
Water Temperature (°C)	14.5	14.4	14.4	14.3	14.1	14.0	14.28	-		Water Temperature (°C)	13.9	13.9	13.9	13.9	13.9	13.9	13.88	-	
Salinity (ppt)	32.2	32.2	32.2	32.6	32.2	32.2	32.25	-		Salinity (ppt)	32.3	32.7	32.3	32.3	32.3	32.3	32.34	-	
pH	7.7	7.7	7.7	7.7	7.7	7.7	7.69			pH	7.8	7.8	7.8	7.8	7.8	7.8	7.81		
D.O. Saturation (%)	91.2	92.4	92.2	94.4	94.3	96.9	93.56	-		D.O. Saturation (%)	94.1	93.2	94.2	92.8	97.8	93.3	94.22	-	
D.O. (mg/L)	7.63	7.74	7.72	7.90	7.95	8.18	7.85	8.07	7.75	D.O. (mg/L)	7.96	7.87	7.97	7.85	8.28	7.89	7.97	8.09	7.91
Turbidity (NTU)	7.10	7.40	8.20	9.50	15.20	19.30	11.09	-		Turbidity (NTU)	11.00	11.00	11.50	11.30	12.60	12.90	11.73	-	
SS (mg/L)	9.0	8.0	9.0	12.0	22.0	21.0	13.50	-		SS (mg/L)	12.0	15.0	14.0	12.0	12.0	15.0	13.33	-	
Remarks				•	•					Remarks		•				•			

Station			(4			1			Station			S	R2			1		
Time (hh:mm)			16:42	-16:46						Time (hh:mm)			15:42	-15:52					
Water Depth (m)			9	40						Water Depth (m)			4.	20					
Monitoring Depth (m)	0.	.80	4	60	7.	90				Monitoring Depth (m)	1.	10			2.	90			
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&	Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&Mi
							averaged		Middle								averaged		ddle
Water Temperature (°C)	13.8	13.8	13.8	13.8	13.8	13.8	13.80	-		Water Temperature (°C)	14.0	14.0			13.9	14.0	13.96	•	
Salinity (ppt)	32.3	32.3	32.3	32.3	32.3	32.3	32.28	-		Salinity (ppt)	32.1	32.1			32.1	32.1	32.13	-	
pH	7.8	7.9	7.9	7.9	7.9	7.9	7.85			pH	7.9	7.9			7.8	7.9	7.87		Ī
D.O. Saturation (%)	95.6	95.4	95.9	95.6	96.9	96.1	95.90	-		D.O. Saturation (%)	92.6	91.7			99.1	92.0	93.83	-	T
D.O. (mg/L)	8.10	8.09	8.13	8.10	8.21	8.14	8.13	8.18	8.11	D.O. (mg/L)	7.83	7.75			8.38	7.77	7.93	8.08	7.79
Turbidity (NTU)	33.50	30.30	38.50	34.00	47.50	38.40	37.03	-		Turbidity (NTU)	11.80	11.80			10.90	12.30	11.71	-	Ī
SS (mg/L)	42.0	37.0	40.0	42.0	47.0	50.0	43.00	-		SS (mg/L)	15.0	15.0			13.0	13.0	14.00		
Remarks		·		·			·			Remarks		·	·	·	·			·	

Station)2						Station			SI	R3					
Time (hh:mm)			16:29	-16:34						Time (hh:mm)			16:07	-16:12					
Water Depth (m)			8.	10						Water Depth (m)			12	.90					
Monitoring Depth (m)	0.	.90	4.	10	7.	00				Monitoring Depth (m)	1.	10	5.	90	11	.00			
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&	Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&Mi
							averaged		Middle								averaged		ddle
Water Temperature (°C)	13.9	13.9	13.9	13.9	13.9	13.9	13.93	-		Water Temperature (°C)	13.9	13.9	13.9	13.9	13.9	13.9	13.89		
Salinity (ppt)	32.3	32.3	32.3	32.3	32.2	32.3	32.26	-		Salinity (ppt)	32.3	32.3	32.3	32.3	32.2	32.3	32.26	-	
pH	7.8	7.8	7.8	7.8	7.8	7.8	7.81			pH	7.8	7.8	7.8	7.8	7.8	7.8	7.78		
D.O. Saturation (%)	96.2	93.8	96.0	94.0	98.2	95.6	95.63	-		D.O. Saturation (%)	92.2	92.3	92.8	92.0	93.7	92.9	92.66	-	
D.O. (mg/L)	8.13	7.93	8.12	7.95	8.30	8.08	8.09	8.19	8.03	D.O. (mg/L)	7.80	7.81	7.85	7.79	7.93	7.86	7.84	7.90	7.81
Turbidity (NTU)	11.30	11.20	12.70	13.00	12.10	11.50	11.99	-		Turbidity (NTU)	9.30	10.00	11.30	11.60	12.30	12.50	11.18	-	
SS (mg/L)	12.0	12.0	12.0	16.0	12.0	15.0	13.17	-		SS (mg/L)	12.0	10.0	12.0	14.0	13.0	13.0	12.33	-	
Remarks										Remarks									

Station			(31						Station			S	R4			1		
Time (hh:mm)			15:42	-15:47						Time (hh:mm)			15:56	-15:59					
Water Depth (m)			12	.50						Water Depth (m)			13	.80					
Monitoring Depth (m)	1.	10	6.	00	11	.20				Monitoring Depth (m)	1.	10	6.	70	11	.80			
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&	Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&Mi
							averaged		Middle								averaged		ddle
Water Temperature (°C)	14.1	14.2	14.0	14.1	14.0	14.0	14.06	-		Water Temperature (°C)	14.1	14.1	14.0	14.0	14.0	14.0	14.01	-	
Salinity (ppt)	32.6	32.2	32.2	32.3	32.2	32.3	32.31	-		Salinity (ppt)	32.2	32.3	32.3	32.3	32.3	32.3	32.26	-	
pH	7.8	7.8	7.8	7.8	7.8	7.8	7.78			pH	7.8	7.8	7.8	7.8	7.8	7.8	7.81		
D.O. Saturation (%)	92.4	90.0	93.5	91.3	95.4	91.4	92.31	-		D.O. Saturation (%)	92.3	92.0	93.4	92.6	95.0	92.9	93.03	-	
D.O. (mg/L)	7.77	7.57	7.89	7.70	8.05	7.71	7.78	7.88	7.73	D.O. (mg/L)	7.78	7.76	7.88	7.82	8.02	7.85	7.85	7.94	7.81
Turbidity (NTU)	8.50	7.10	11.20	10.50	14.20	15.50	11.16	-		Turbidity (NTU)	8.30	8.00	13.00	14.50	15.10	15.70	12.42	-	
SS (mg/L)	8.0	9.0	10.0	16.0	15.0	24.0	13.67	-		SS (mg/L)	8.0	10.0	15.0	15.0	16.0	18.0	13.67	-	
Remarks										Remarks									

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Sampling Date	02/11/2008
Weather & Ambient Temperature	Sunny, 9C

Station				23						Station			U	J2					
Time (hh:mm)			08:35	-08:40						Time (hh:mm)			09:14	-09:17					
Water Depth (m)			11	.40						Water Depth (m)			8.	80					
Monitoring Depth (m)	1.	.00	5.	.50	10	.20				Monitoring Depth (m)	1.	10	4.	00	7.	.10			
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&	Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&Mi
							averaged		Middle								averaged		ddle
Water Temperature (°C)	14.2	14.2	14.1	14.1	14.0	14.0	14.10	-		Water Temperature (°C)	13.9	13.9	13.9	14.0	13.9	13.9	13.92	-	
Salinity (ppt)	32.2	32.2	32.2	32.2	32.2	32.2	32.17	-		Salinity (ppt)	32.3	32.2	31.4	32.2	32.2	32.3	32.11	-	
pH	7.7	7.7	7.7	7.7	7.7	7.7	7.72			pH	7.8	7.9	7.8	7.8	7.9	7.9	7.84		1
D.O. Saturation (%)	95.1	93.6	95.6	95.0	95.9	95.1	95.04	-		D.O. Saturation (%)	95.7	95.1	96.3	94.8	96.8	95.3	95.64	-	
D.O. (mg/L)	8.00	7.87	8.06	8.00	8.11	8.03	8.01	8.07	7.98	D.O. (mg/L)	8.10	8.04	8.18	7.99	8.19	8.06	8.09	8.13	8.08
Turbidity (NTU)	11.20	10.20	14.50	14.70	26.40	30.90	17.98	-		Turbidity (NTU)	14.70	13.70	14.40	11.60	15.80	15.70	14.31	-	1
SS (mg/L)	13.0	14.0	19.0	18.0	38.0	46.0	24.67	-		SS (mg/L)	18.0	15.0	18.0	13.0	16.0	20.0	16.67	-	
Remarks										Remarks									

Station			(:4						Station			S	R2			1		
Time (hh:mm)			09:33	-09:36						Time (hh:mm)			09:10	-09:18					
Water Depth (m)			9	40						Water Depth (m)			4.	20					
Monitoring Depth (m)	1.	00	4	60	8.10					Monitoring Depth (m)	1.	10			2.	80			
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&	Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&Mi
							averaged		Middle								averaged		ddle
Water Temperature (°C)	14.0	14.0	14.0	14.0	14.0	14.0	14.01	-		Water Temperature (°C)	14.2	14.3			14.2	14.2	14.20	-	
Salinity (ppt)	32.2	32.3	32.2	32.2	32.2	32.2	32.24	-		Salinity (ppt)	32.1	32.1			32.1	32.1	32.08	-	
pH	7.9	7.9	7.9	7.9	7.9	7.9	7.87			pH	7.9	7.9			7.9	7.9	7.93		
D.O. Saturation (%)	94.7	94.7	95.4	95.2	96.1	95.0	95.19	-		D.O. Saturation (%)	97.0	89.4			95.5	91.6	93.35	-	
D.O. (mg/L)	7.99	7.99	8.05	8.03	8.12	8.02	8.03	8.07	8.02	D.O. (mg/L)	8.16	7.52			8.04	7.71	7.86	7.88	7.84
Turbidity (NTU)	15.80	15.20	16.70	16.00	17.70	17.30	16.42	-		Turbidity (NTU)	8.00	9.50			9.50	10.30	9.31	-	
SS (mg/L)	23.0	18.0	18.0	20.0	26.0	21.0	21.00	-		SS (mg/L)	12.0	11.0			10.0	11.0	11.00	-	
Remarks										Remarks									

Station)2						Station			SI	R3					
Time (hh:mm)			09:23	-09:26						Time (hh:mm)			09:07-	-09:10					
Water Depth (m)			8.	00						Water Depth (m)			12.	.90					
Monitoring Depth (m)	0.	90	4.	00	6.	90				Monitoring Depth (m)	1.	10	6.3	30	11	.10			
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&	Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&Mi
							averaged		Middle								averaged		ddle
Water Temperature (°C)	13.9	13.9	13.9	13.9	13.9	13.9	13.92	-		Water Temperature (°C)	14.0	14.0	14.0	14.0	14.0	14.0	14.01	-	
Salinity (ppt)	32.3	32.3	32.3	32.3	32.2	31.9	32.19	-		Salinity (ppt)	32.2	32.2	32.2	31.1	32.2	32.2	32.04	-	
pH	7.9	7.9	7.8	7.9	7.9	7.9	7.85			pH	7.8	7.8	7.8	7.8	7.8	7.8	7.83		
D.O. Saturation (%)	93.2	93.2	93.8	93.2	95.7	93.5	93.76	-		D.O. Saturation (%)	96.4	95.0	96.5	95.5	97.6	95.9	96.14	-	
D.O. (mg/L)	7.88	7.87	7.93	7.88	8.09	7.92	7.93	8.01	7.89	D.O. (mg/L)	8.13	8.02	8.15	8.12	8.24	8.09	8.13	8.17	8.11
Turbidity (NTU)	13.60	15.10	13.50	15.90	15.50	15.50	14.83	-		Turbidity (NTU)	17.00	16.10	19.10	18.90	21.10	19.80	18.65	-	
SS (mg/L)	15.0	21.0	19.0	18.0	17.0	19.0	18.17	-		SS (mg/L)	21.0	26.0	23.0	22.0	27.0	25.0	24.00	-	
Remarks										Remarks									

Station			(31						Station			SI	R4			1		
Time (hh:mm)			08:48	-08:52						Time (hh:mm)			08:59	-09:02					
Water Depth (m)			12	.50						Water Depth (m)			13	.60					
Monitoring Depth (m)	1.	10	6	20	11	.20				Monitoring Depth (m)	1.	10	6.	80	12	.20			
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&	Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&Mi
							averaged		Middle								averaged		ddle
Water Temperature (°C)	14.0	14.0	14.0	14.0	14.0	14.0	13.99	-		Water Temperature (°C)	14.0	14.0	14.0	14.0	14.0	14.0	14.01	-	
Salinity (ppt)	32.2	32.2	32.2	32.2	32.2	32.2	32.22	-		Salinity (ppt)	32.2	32.2	30.5	30.5	32.2	32.2	31.66	-	
pH	7.8	7.8	7.8	7.8	7.8	7.8	7.79			pH	7.8	7.8	7.8	7.8	7.8	7.8	7.82		
D.O. Saturation (%)	97.1	97.4	98.0	98.1	99.4	99.3	98.23	-		D.O. Saturation (%)	97.1	96.9	98.3	98.2	99.7	103.9	99.01	-	
D.O. (mg/L)	8.20	8.23	8.28	8.28	8.40	8.39	8.30	8.40	8.25	D.O. (mg/L)	8.20	8.18	8.38	8.38	8.42	8.77	8.39	8.60	8.29
Turbidity (NTU)	12.10	11.70	13.80	15.30	18.90	16.60	14.73	-		Turbidity (NTU)	12.40	12.10	12.80	16.40	29.50	17.80	16.83	-	
SS (mg/L)	15.0	16.0	14.0	14.0	22.0	25.0	17.67	-		SS (mg/L)	16.0	16.0	13.0	19.0	26.0	23.0	18.83	-	
Remarks										Remarks									

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Sampling Date	2/13/2008
Weather & Ambient Temperature	Cloudy, 11C

Station			C	23						Station			U	J2					
Time (hh:mm)			16:04	-16:16						Time (hh:mm)			16:57	-17:00					
Water Depth (m)			11	.80						Water Depth (m)			9.	20					
Monitoring Depth (m)	1.	.10	5.	.80	10	.30				Monitoring Depth (m)	1.	20	4.	60	7.	90			
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth- averaged	Bottom	Surface& Middle	Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth- averaged	Bottom	Surface&Mi ddle
Water Temperature (°C)	14.6	14.5	14.6	14.5	14.5	14.5	14.52	-		Water Temperature (°C)	14.3	14.3	14.2	14.1	14.2	14.1	14.19	-	
Salinity (ppt)	32.0	32.1	32.0	32.1	32.0	32.1	32.05	-		Salinity (ppt)	32.2	32.2	32.2	32.2	32.2	32.2	32.17	-	
pH	7.8	7.8	7.8	7.8	7.8	7.8	7.79			pH	7.8	7.8	7.8	7.8	7.9	7.8	7.84		
D.O. Saturation (%)	93.4	91.8	93.1	91.4	93.1	92.7	92.59	-		D.O. Saturation (%)	94.0	93.6	94.5	94.0	95.5	93.9	94.25	-	
D.O. (mg/L)	7.80	7.68	7.78	7.64	7.80	7.76	7.74	7.78	7.73	D.O. (mg/L)	7.90	7.86	7.95	7.92	8.03	7.91	7.93	7.97	7.91
Turbidity (NTU)	3.80	3.80	3.50	3.30	4.60	5.00	4.01	-		Turbidity (NTU)	4.90	4.60	6.30	5.80	6.00	6.50	5.64	-	
SS (mg/L)	6.0	4.0	4.0	4.0	6.0	5.0	4.83	-		SS (mg/L)	7.0	7.0	7.0	8.0	9.0	8.0	7.67	-	
Remarks										Remarks									

Station			(:4						Station			S	R2					
Time (hh:mm)			17:18	-17:22						Time (hh:mm)			16:13	-16:29					
Water Depth (m)			10	.20						Water Depth (m)			4.	50					
Monitoring Depth (m)	1.	10	4	90	8.	70				Monitoring Depth (m)	1.	10			3.	10			
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&	Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&Mi
							averaged		Middle								averaged		ddle
Water Temperature (°C)	13.5	13.5	13.5	13.5	13.5	13.5	13.51	-		Water Temperature (°C)	14.1	14.1			14.1	14.1	14.08		
Salinity (ppt)	32.3	32.3	32.3	32.3	32.3	32.3	32.28	-		Salinity (ppt)	32.1	32.1			32.1	32.1	32.06	ı	
pH	7.9	7.9	7.8	7.9	7.9	7.9	7.85			pH	7.9	7.9			7.9	7.9	7.93		
D.O. Saturation (%)	95.6	95.2	95.5	95.0	96.1	95.2	95.43	-		D.O. Saturation (%)	95.5	94.3			100.5	94.3	96.15	-	
D.O. (mg/L)	8.15	8.12	8.14	8.10	8.20	8.11	8.14	8.16	8.13	D.O. (mg/L)	8.06	7.96			8.48	7.96	8.12	8.22	8.01
Turbidity (NTU)	28.40	25.70	29.30	32.00	31.10	32.90	29.90	-		Turbidity (NTU)	9.10	9.10			9.40	9.40	9.23	-	
SS (mg/L)	44.0	36.0	34.0	36.0	38.0	47.0	39.17	-		SS (mg/L)	13.0	11.0			11.0	10.0	11.25		
Remarks										Remarks									

Station)2						Station			SI	R3					
Time (hh:mm)			17:08	-17:12						Time (hh:mm)			16:49	-16:52					
Water Depth (m)			8.	90						Water Depth (m)			13	.40					
Monitoring Depth (m)	0.	.90	4.	20	7.	10				Monitoring Depth (m)	1.	00	6.	80	11	.80			
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&	Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&Mi
							averaged		Middle								averaged		ddle
Water Temperature (°C)	14.0	14.1	14.0	14.0	14.0	14.0	14.00	-		Water Temperature (°C)	14.3	14.3	14.3	14.3	14.2	14.2	14.26		
Salinity (ppt)	32.2	32.2	32.2	32.2	32.2	32.2	32.22	-		Salinity (ppt)	32.1	32.1	32.2	32.2	32.2	32.2	32.16	-	
pH	7.8	7.8	7.8	7.8	7.8	7.8	7.83			pH	7.8	7.8	7.8	7.8	7.9	7.8	7.84		
D.O. Saturation (%)	94.5	93.4	94.7	93.6	95.5	94.4	94.35	-		D.O. Saturation (%)	94.2	93.5	94.7	94.2	95.5	94.0	94.36	-	
D.O. (mg/L)	7.98	7.88	8.00	7.90	8.07	7.97	7.97	8.02	7.94	D.O. (mg/L)	7.91	7.85	7.96	7.91	8.04	7.90	7.93	7.97	7.91
Turbidity (NTU)	7.20	7.50	6.90	9.00	7.20	7.00	7.44	-		Turbidity (NTU)	5.00	5.40	6.40	6.00	7.10	7.60	6.21	-	
SS (mg/L)	8.0	9.0	8.0	11.0	10.0	10.0	9.33	-		SS (mg/L)	6.0	6.0	7.0	7.0	10.0	9.0	7.50	-	
Remarks										Remarks									

Station			(31			1			Station			SI	R4			1		
Time (hh:mm)			16:26	-16:31						Time (hh:mm)			16:38	-16:42					
Water Depth (m)			12	.50						Water Depth (m)			14	.20					
Monitoring Depth (m)	1.	20	6.	20	11	.20				Monitoring Depth (m)	1.	00	7.	00	12	.80			
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&	Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&Mi
							averaged		Middle								averaged		ddle
Water Temperature (°C)	14.1	14.1	14.1	14.1	14.1	14.1	14.09	-		Water Temperature (°C)	14.4	14.4	14.2	14.3	14.0	14.0	14.21	-	
Salinity (ppt)	32.2	32.2	32.2	32.2	32.2	32.2	32.19	-		Salinity (ppt)	32.1	32.1	32.2	32.2	32.2	32.2	32.15	-	
pH	7.8	7.9	7.8	7.9	7.8	7.9	7.85			pH	7.8	7.8	7.8	7.8	7.8	7.9	7.84		
D.O. Saturation (%)	96.6	95.3	97.0	95.6	98.5	96.3	96.55	-		D.O. Saturation (%)	95.4	93.6	94.9	94.2	95.8	94.9	94.81	-	
D.O. (mg/L)	8.14	8.04	8.17	8.05	8.31	8.12	8.14	8.22	8.10	D.O. (mg/L)	7.99	7.85	7.99	7.92	8.09	8.02	7.98	8.06	7.94
Turbidity (NTU)	7.40	8.70	10.00	10.20	13.40	16.20	10.98	-		Turbidity (NTU)	7.00	7.30	10.70	9.80	13.20	16.60	10.76	-	
SS (mg/L)	7.0	13.0	15.0	13.0	16.0	28.0	15.33	-		SS (mg/L)	8.0	9.0	17.0	14.0	15.0	21.0	14.00	-	
Remarks										Remarks									

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Sampling Date	2/13/2008
Weather & Ambient Temperature	Cloudy, 9C

Station			C	3						Station			U	J2					
Time (hh:mm)			09:27	-09:30						Time (hh:mm)			10:11	-10:15					
Water Depth (m)			11	.70						Water Depth (m)			9.	10					
Monitoring Depth (m)	0.	.90	5.	50	10	.10				Monitoring Depth (m)	1.	00	4.	50	8.	00			
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&	Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&Mi
							averaged		Middle								averaged		ddle
Water Temperature (°C)	14.2	14.2	14.1	14.1	14.1	14.1	14.13	-		Water Temperature (°C)	13.7	13.7	13.7	13.7	13.7	13.7	13.69	-	
Salinity (ppt)	32.1	32.1	32.1	32.1	32.1	32.1	32.08	-		Salinity (ppt)	32.2	32.2	32.2	32.2	32.2	32.2	32.22	-	
pH	7.7	7.7	7.7	7.7	7.7	7.7	7.71			pH	7.8	7.8	7.8	7.8	7.8	7.8	7.81		
D.O. Saturation (%)	99.0	98.2	99.6	99.2	100.5	99.5	99.34	-		D.O. Saturation (%)	92.2	89.1	94.2	89.5	96.1	90.4	91.91	-	
D.O. (mg/L)	8.33	8.26	8.41	8.37	8.48	8.40	8.38	8.44	8.34	D.O. (mg/L)	7.83	7.57	8.01	7.60	8.17	7.68	7.81	7.93	7.75
Turbidity (NTU)	4.10	4.10	7.50	6.50	8.70	8.90	6.63	-		Turbidity (NTU)	12.00	10.10	13.80	11.60	13.60	12.10	12.22	-	
SS (mg/L)	5.0	7.0	10.0	7.0	12.0	14.0	9.17	-		SS (mg/L)	16.0	15.0	19.0	15.0	17.0	16.0	16.33	-	
Remarks										Remarks									

Station			(4						Station			S	R2					
Time (hh:mm)			10:29	-10:34			Ī			Time (hh:mm)			11:09	-11:17					
Water Depth (m)			10	.30						Water Depth (m)			4.	50					
Monitoring Depth (m)	1.	.00	5	20	9.	00				Monitoring Depth (m)	1.	10			3.	10			
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&	Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&Mi
							averaged		Middle								averaged		ddle
Water Temperature (°C)	14.1	14.1	14.0	14.0	14.0	14.0	14.04	•		Water Temperature (°C)	13.8	13.8			13.8	13.8	13.78		
Salinity (ppt)	32.2	32.2	32.2	32.2	32.2	32.2	32.18	•		Salinity (ppt)	32.1	32.1			32.1	32.1	32.07	ı	
pH	7.8	7.8	7.8	7.8	7.8	7.8	7.80			pH	8.0	8.0			8.0	8.0	8.00		
D.O. Saturation (%)	79.5	76.3	80.7	77.4	83.5	78.8	79.36	-		D.O. Saturation (%)	98.7	94.8			95.6	94.2	95.81	-	
D.O. (mg/L)	6.71	6.44	6.81	6.53	7.05	6.65	6.70	6.85	6.62	D.O. (mg/L)	8.37	8.05			8.12	8.00	8.14	8.06	8.21
Turbidity (NTU)	8.10	8.80	7.50	8.70	8.90	8.90	8.47	-		Turbidity (NTU)	8.40	8.50			9.40	9.60	8.96	-	
SS (mg/L)	12.0	11.0	10.0	14.0	10.0	11.0	11.33	-		SS (mg/L)	11.0	10.0			11.0	10.0	10.50	-	
Remarks										Remarks									

Station)2						Station			SI	₹3					
Time (hh:mm)			10:40	-10:44						Time (hh:mm)			10:00	-10:04					
Water Depth (m)			8.	60						Water Depth (m)			13	.70					
Monitoring Depth (m)	0.	.90	4.	00	6.	80				Monitoring Depth (m)	1.	10	6.	20	12	.20			
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&	Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&Mi
							averaged		Middle								averaged		ddle
Water Temperature (°C)	13.7	13.7	13.7	13.7	13.7	13.7	13.70	ı		Water Temperature (°C)	13.8	13.7	13.7	13.7	13.7	13.7	13.71	ı	
Salinity (ppt)	32.3	32.2	32.3	32.2	32.2	32.2	32.24	-		Salinity (ppt)	32.2	32.2	32.2	32.2	32.2	32.2	32.22	-	
pH	7.8	7.8	7.8	7.8	7.8	7.8	7.81			pH	7.8	7.8	7.8	7.8	7.8	7.8	7.82		
D.O. Saturation (%)	90.4	85.5	92.1	87.2	93.6	88.3	89.51	-		D.O. Saturation (%)	95.0	91.2	96.2	92.0	97.6	93.8	94.30	-	
D.O. (mg/L)	7.68	7.26	7.82	7.41	7.95	7.50	7.60	7.73	7.54	D.O. (mg/L)	8.06	7.74	8.17	7.81	8.30	7.97	8.01	8.14	7.95
Turbidity (NTU)	13.00	17.10	18.90	16.80	16.30	18.10	16.68	-		Turbidity (NTU)	8.70	11.30	10.90	11.60	14.20	14.80	11.92	-	
SS (mg/L)	19.0	23.0	22.0	22.0	24.0	24.0	22.33	-		SS (mg/L)	10.0	13.0	13.0	15.0	18.0	22.0	15.17	-	
Remarks										Remarks									

Station			(31						Station			S	R4			1		
Time (hh:mm)			09:40	-09:44						Time (hh:mm)			09:50	-09:54					
Water Depth (m)			12	.80						Water Depth (m)			14	.10					
Monitoring Depth (m)	1.	10	5	80	10	.80				Monitoring Depth (m)	1.	00	7.	10	12	.70			
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&	Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&Mi
							averaged		Middle								averaged		ddle
Water Temperature (°C)	14.1	14.1	14.1	14.0	13.8	13.9	14.00	-		Water Temperature (°C)	14.1	14.0	13.9	14.0	13.9	14.0	13.97	-	
Salinity (ppt)	32.1	32.2	32.1	32.2	32.2	32.2	32.16	-		Salinity (ppt)	32.2	32.2	32.2	32.2	32.2	32.2	32.17	-	
pH	7.8	7.8	7.8	7.8	7.8	7.8	7.79			pH	7.8	7.8	7.8	7.8	7.8	7.8	7.82		
D.O. Saturation (%)	101.4	97.8	103.0	99.3	104.5	100.6	101.09	-		D.O. Saturation (%)	99.1	95.3	101.1	97.0	102.8	97.9	98.86	-	
D.O. (mg/L)	8.55	8.24	8.69	8.38	8.85	8.52	8.54	8.69	8.47	D.O. (mg/L)	8.36	8.04	8.56	8.19	8.71	8.27	8.36	8.49	8.29
Turbidity (NTU)	4.80	5.00	5.70	5.70	23.70	21.00	10.96	-		Turbidity (NTU)	4.80	5.20	7.70	5.70	13.00	6.40	7.11	-	
SS (mg/L)	8.0	6.0	7.0	7.0	21.0	32.0	13.50	-		SS (mg/L)	10.0	8.0	8.0	8.0	10.0	8.0	8.67	-	
Remarks										Remarks									

Sampling Date	2/15/2008
Weather & Ambient Temperature	Sunny, 9C

Station			(23						Station			U	J2					
Time (hh:mm)			18:50	-18:53						Time (hh:mm)			19:28	-19:33					
Water Depth (m)			10	.40						Water Depth (m)			9.	40					
Monitoring Depth (m)	0.	.90	5.	.30	9.	10				Monitoring Depth (m)	1.	10	4.	40	8.	.00			
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface& Middle	Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&Mi ddle
	44.4	44.4	440	440	44.0	440	averaged			W . T . (00)	44.0	40.0	40.0	40.0	40.0	40.0	averaged		aaie
Water Temperature (°C)	14.4	14.4	14.3	14.3	14.3	14.3	14.30	-		Water Temperature (°C)	14.0	13.9	13.8	13.8	13.6	13.6	13.77	-	
Salinity (ppt)	32.0	32.0	32.1	32.1	32.1	32.1	32.05	-		Salinity (ppt)	32.2	32.2	32.2	32.2	32.2	32.2	32.18	-	
pH	7.7	7.7	7.7	7.7	7.6	7.7	7.67			pH	7.8	7.8	7.8	7.8	7.8	7.8	7.79		
D.O. Saturation (%)	92.4	92.3	93.0	92.6	94.6	92.4	92.86	-		D.O. Saturation (%)	94.8	95.2	95.9	96.1	96.8	96.9	95.98	-	
D.O. (mg/L)	7.75	7.74	7.81	7.78	7.95	7.76	7.80	7.86	7.77	D.O. (mg/L)	8.01	8.06	8.14	8.15	8.25	8.26	8.15	8.26	8.09
Turbidity (NTU)	3.70	3.90	4.40	3.90	5.30	5.20	4.41	-		Turbidity (NTU)	3.10	3.60	3.80	3.80	6.20	5.50	4.34	-	
SS (mg/L)	6.0	5.0	6.0	6.0	8.0	6.0	6.17	-		SS (mg/L)	6.0	8.0	7.0	5.0	7.0	8.0	6.83	-	
Remarks										Remarks									

Station			(24						Station			S	R2					
Time (hh:mm)			19:48	3-19:52						Time (hh:mm)			19:01	-19:12					
Water Depth (m)			9	.50						Water Depth (m)			4.	60					
Monitoring Depth (m)	1.	.10	4	.60	8.	10				Monitoring Depth (m)	1.	00			3.	00			
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&	Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&Mi
							averaged		Middle								averaged		ddle
Water Temperature (°C)	13.6	13.6	13.6	13.6	13.6	13.6	13.62	-		Water Temperature (°C)	14.3	14.3			14.3	14.3	14.25	•	
Salinity (ppt)	32.2	32.2	32.2	32.2	32.2	32.2	32.17	-		Salinity (ppt)	31.9	31.9			31.9	31.9	31.91	-	
pH	7.8	7.8	7.8	7.8	7.8	7.8	7.83			pH	7.9	7.9			7.9	7.9	7.89		
D.O. Saturation (%)	96.6	96.4	96.7	96.3	98.0	96.4	96.74	-		D.O. Saturation (%)	97.3	92.3			95.4	92.1	94.23	-	
D.O. (mg/L)	8.22	8.21	8.23	8.20	8.34	8.20	8.23	8.27	8.22	D.O. (mg/L)	8.19	7.77			8.03	7.75	7.94	7.89	7.98
Turbidity (NTU)	9.80	9.20	11.10	10.60	11.80	12.80	10.89	-		Turbidity (NTU)	4.80	4.40			6.80	6.50	5.63	-	
SS (mg/L)	13.0	9.0	12.0	14.0	15.0	13.0	12.67	-		SS (mg/L)	6.0	6.0			8.0	8.0	7.00	-	
Remarks										Remarks									

Station				02						Station			SI	R3					
Time (hh:mm)			19:38	3-19:42						Time (hh:mm)			19:18	-19:22					
Water Depth (m)			8	.20						Water Depth (m)			12	.10					
Monitoring Depth (m)	1.	.00	4	.10	7.	10				Monitoring Depth (m)	1.	00	6.	10	10	.90			
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&	Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&Mi
							averaged		Middle								averaged		ddle
Water Temperature (°C)	14.2	14.2	13.9	14.0	13.7	13.8	13.97	-		Water Temperature (°C)	14.0	14.0	13.7	13.7	13.7	13.7	13.78		
Salinity (ppt)	32.1	32.1	32.1	32.1	32.2	32.2	32.15	-		Salinity (ppt)	32.2	32.2	32.2	32.2	32.2	32.2	32.19	-	
pH	7.8	7.8	7.8	7.8	7.8	7.8	7.79			pH	7.8	7.8	7.8	7.8	7.8	7.8	7.77		
D.O. Saturation (%)	94.1	93.9	94.7	93.9	95.8	94.3	94.47	-		D.O. Saturation (%)	95.4	95.0	95.7	95.5	96.8	95.1	95.56	-	
D.O. (mg/L)	7.92	7.90	8.01	7.93	8.14	8.00	7.98	8.07	7.94	D.O. (mg/L)	8.06	8.03	8.13	8.12	8.22	8.08	8.11	8.15	8.09
Turbidity (NTU)	3.20	3.40	4.80	3.90	4.90	4.80	4.16	-		Turbidity (NTU)	3.30	2.90	5.40	5.20	5.70	5.80	4.70	-	
SS (mg/L)	5.0	4.0	7.0	8.0	6.0	8.0	6.33	-		SS (mg/L)	8.0	6.0	6.0	7.0	11.0	8.0	7.67	-	
Remarks										Remarks									

Station			(31			1			Station			SI	R4			1		
Time (hh:mm)			19:01	-19:04						Time (hh:mm)			19:11	-19:14					
Water Depth (m)			12	.80						Water Depth (m)			13	.20					
Monitoring Depth (m)	1.	10	6.	20	11	.10				Monitoring Depth (m)	1.	10	6.	60	12	.20			
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&	Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&Mi
							averaged		Middle								averaged		ddle
Water Temperature (°C)	14.2	14.2	14.2	14.2	14.2	14.1	14.19	-		Water Temperature (°C)	14.1	14.0	13.8	13.9	13.8	13.8	13.91	•	
Salinity (ppt)	32.1	32.1	32.1	32.1	32.1	32.1	32.10	-		Salinity (ppt)	32.1	32.1	32.2	32.2	32.2	32.2	32.16	ı	
pH	7.7	7.8	7.7	7.7	7.8	7.8	7.73			pH	7.8	7.8	7.8	7.8	7.8	7.8	7.76		
D.O. Saturation (%)	92.5	92.3	93.1	92.7	94.4	92.9	92.95	-		D.O. Saturation (%)	94.2	94.5	95.1	94.7	95.8	94.2	94.71	-	
D.O. (mg/L)	7.78	7.76	7.84	7.80	7.95	7.82	7.83	7.89	7.80	D.O. (mg/L)	7.94	7.97	8.05	8.01	8.12	7.98	8.01	8.05	7.99
Turbidity (NTU)	4.00	3.30	3.70	3.40	4.30	4.10	3.84	-		Turbidity (NTU)	2.90	3.00	3.20	2.90	3.50	3.60	3.22	-	
SS (mg/L)	5.0	6.0	6.0	6.0	7.0	9.0	6.50	-		SS (mg/L)	6.0	6.0	5.0	5.0	6.0	7.0	5.83	-	
Remarks										Remarks									

Mid-Floor	4

Sampling Date	2/15/2008
Weather & Ambient Temperature	Sunny, 10C

Station			(23						Station			U	J2					
Time (hh:mm)			10:32	-10:36						Time (hh:mm)			11:11	-11:13					
Water Depth (m)			10	.10						Water Depth (m)			8.	20					
Monitoring Depth (m)	1.	.10	5	.20	9.	10				Monitoring Depth (m)	1.	00	4.	10	6.	.90			
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&	Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&Mi
							averaged		Middle								averaged		ddle
Water Temperature (°C)	14.4	14.4	14.2	14.3	14.1	14.0	14.24	-		Water Temperature (°C)	14.1	14.1	14.1	14.0	14.0	14.0	14.02	-	
Salinity (ppt)	32.0	32.0	32.1	32.1	32.1	32.1	32.06	-		Salinity (ppt)	32.1	32.1	32.1	32.1	32.1	32.1	32.13	-	
pH	7.7	7.7	7.7	7.7	7.7	7.7	7.69			pH	7.8	7.8	7.8	7.8	7.8	7.8	7.77		
D.O. Saturation (%)	95.3	95.5	96.5	96.0	97.9	96.0	96.20	-		D.O. Saturation (%)	95.9	94.8	96.6	95.2	97.2	95.5	95.85	-	
D.O. (mg/L)	7.99	8.00	8.12	8.07	8.25	8.11	8.09	8.18	8.05	D.O. (mg/L)	8.09	8.00	8.15	8.04	8.21	8.07	8.09	8.14	8.07
Turbidity (NTU)	2.40	2.30	2.70	2.70	3.30	4.30	2.98	-		Turbidity (NTU)	4.40	5.80	6.20	5.80	7.80	7.20	6.18	-	
SS (mg/L)	4.0	4.0	4.0	5.0	4.0	5.0	4.33	-		SS (mg/L)	9.0	9.0	9.0	8.0	9.0	9.0	8.83	-	
Remarks				•						Remarks						•			

Station			(:4						Station			S	R2					
Time (hh:mm)			11:31	-11:36						Time (hh:mm)			11:16	-11:26					
Water Depth (m)			8	70						Water Depth (m)			4.	60					
Monitoring Depth (m)	1.	00	4	10	6.	90				Monitoring Depth (m)	1.	00			3.	00			
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&	Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&Mi
							averaged		Middle								averaged		ddle
Water Temperature (°C)	14.2	14.2	14.0	13.9	13.8	13.9	14.00	-		Water Temperature (°C)	14.0	14.0			14.0	14.0	13.99		
Salinity (ppt)	32.1	32.1	32.1	32.1	32.2	32.2	32.13	-		Salinity (ppt)	32.0	32.0			32.0	32.0	32.00	ı	
pH	7.8	7.8	7.8	7.8	7.8	7.8	7.79			pH	7.9	7.9			7.9	7.9	7.91		
D.O. Saturation (%)	94.2	93.2	95.2	94.1	96.1	95.0	94.63	-		D.O. Saturation (%)	95.0	95.1			94.8	94.6	94.88	-	
D.O. (mg/L)	7.93	7.85	8.04	7.96	8.14	8.04	7.99	8.09	7.95	D.O. (mg/L)	8.03	8.04			8.02	8.01	8.03	8.02	8.04
Turbidity (NTU)	2.70	2.60	2.90	3.10	3.60	3.40	3.08	-		Turbidity (NTU)	14.40	11.20			18.90	13.90	14.61	-	
SS (mg/L)	6.0	6.0	4.0	6.0	6.0	4.0	5.33	-		SS (mg/L)	16.0	14.0			27.0	30.0	21.75		
Remarks										Remarks									

Station	D2									Station	SR3								
Time (hh:mm)	11:20-11:24									Time (hh:mm) 11:03-11:06									
Water Depth (m)	7.50						Water Depth (m)						12						
Monitoring Depth (m)	1.10 3.60			6.00					Monitoring Depth (m)	1.10			6.10		10.70				
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&	Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&Mi
							averaged		Middle								averaged		ddle
Water Temperature (°C)	14.1	14.1	14.1	14.1	14.0	14.1	14.08	-		Water Temperature (°C)	14.3	14.3	14.0	14.2	13.8	13.9	14.07	ı	
Salinity (ppt)	32.1	32.1	32.1	32.1	32.1	32.1	32.12	-		Salinity (ppt)	32.1	32.1	32.1	32.1	32.2	32.2	32.12	-	
pH	7.8	7.8	7.8	7.8	7.8	7.8	7.78			pH	7.8	7.8	7.8	7.8	7.8	7.8	7.77		
D.O. Saturation (%)	95.6	94.1	96.3	95.3	96.9	96.1	95.72	-		D.O. Saturation (%)	96.1	94.5	97.6	95.4	98.3	95.7	96.27	-	
D.O. (mg/L)	8.06	7.93	8.12	8.04	8.18	8.11	8.07	8.15	8.04	D.O. (mg/L)	8.08	7.93	8.25	8.03	8.34	8.11	8.12	8.23	8.07
Turbidity (NTU)	4.10	4.20	5.50	4.70	5.70	5.30	4.90	-		Turbidity (NTU)	4.00	2.60	11.20	5.50	15.90	14.20	8.91	-	
SS (mg/L)	5.0	6.0	7.0	5.0	7.0	8.0	6.33	-		SS (mg/L)	5.0	7.0	11.0	8.0	17.0	19.0	11.17	-	
Remarks										Remarks									

Station			(31]			Station SR4						1			
Time (hh:mm)	10:43-10:47						Time (hh:mm)				10:54-10:58								
Water Depth (m)	11.20									Water Depth (m)	12.40								
Monitoring Depth (m)	1.00 5.60			9.80				Monitoring Depth (m)	1.10 6.20			20	10	.90					
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&	Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	Depth-	Bottom	Surface&Mi
							averaged		Middle								averaged		ddle
Water Temperature (°C)	14.4	14.4	14.2	14.2	14.0	14.0	14.20	•		Water Temperature (°C)	14.2	14.3	14.2	14.2	13.9	14.1	14.16	-	
Salinity (ppt)	32.1	32.1	32.1	32.1	32.1	32.1	32.08	•		Salinity (ppt)	32.1	32.1	32.1	32.1	32.2	32.1	32.11	-	
pH	7.8	7.8	7.8	7.8	7.8	7.8	7.76			pH	7.8	7.8	7.8	7.8	7.7	7.8	7.77		
D.O. Saturation (%)	98.2	96.7	99.2	97.3	100.6	97.9	98.31	-		D.O. Saturation (%)	97.6	96.0	98.5	96.4	99.3	97.0	97.48	-	
D.O. (mg/L)	8.24	8.11	8.35	8.18	8.49	8.28	8.28	8.39	8.22	D.O. (mg/L)	8.21	8.06	8.30	8.11	8.41	8.18	8.21	8.30	8.17
Turbidity (NTU)	2.20	2.10	2.80	2.80	9.60	8.80	4.73	-		Turbidity (NTU)	2.70	2.10	3.30	2.60	4.90	3.90	3.27	-	
SS (mg/L)	5.0	3.0	4.0	6.0	9.0	10.0	6.17	-		SS (mg/L)	4.0	3.0	4.0	3.0	6.0	5.0	4.17	-	
Remarks										Remarks									

Annex F

Selected Photos taken during the Installation of Silt Curtain at the Artificial Reefs



Photo 1 Preparation Works on the Work Barge.

The silt curtain was wrapped before placing it down to the seabed and it was unwrapped underwater by the diver. At the bottom of the silt curtain, there are concrete sinkers which sinkers, anchors are in place to secure the float booms to the seabed. These anchors were placed at approximately 16m on either sides of the silt curtain to limit the movement of the floating booms. On the top of the silt curtain, there are floats which make the silt curtain hanging upwards.

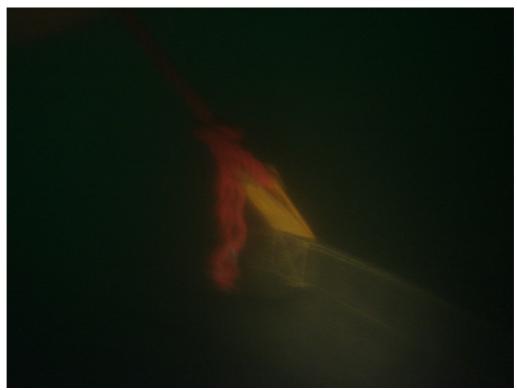


Photo 2 Underwater Installation Works.

The silt curtain was fixed at the designated position in the water. Note that due to the high tidal flow during the installation period, the visibility in the water was very low. The divers also reported that high turbulence was observed near the seabed. The picture shows the holding joint between the curtain and the float.

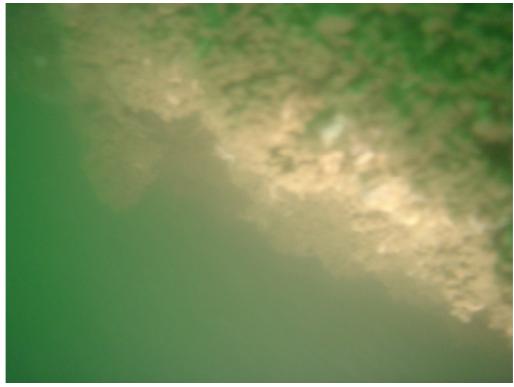


Photo 3 Artificial Reefs. The picture shows one of the artificial reef blocks.

Annex G

All Photos taken during the Installation of Silt Curtain at the Artificial Reefs (provided in the CD-ROM only)