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

Second Weekly Impact Monitoring Report - 19th to 25th November 2007

30th November 2007

Environmental Resources Management
21/F Lincoln House
Taikoo Place 979 King's Road
Island East Hong Kong
Telephone 2271 3000
Facsimile 2723 5660

www.erm.com

CLP Power

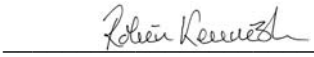
Proposed 132kV Submarine Cable Route for Airport "A" to Castle Peak Power Station Cable Circuit: *Second Weekly Impact Monitoring Report – 19th – 25th November 2007*

November 2007

Reference 0072833

For and on behalf of
ERM-Hong Kong, Limited

Approved by: Dr Robin Kennish

Signed: 

Position: Director

Date: 30 November 2007

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 2nd weekly Environmental Monitoring and Audit (EM&A) report presenting the EM&A works carried out during the period from 19 November to 25 November 2007 in accordance with the EM&A Manual.

Summary of Construction Works undertaken during the Reporting Period

During the reporting week, at the Tuen Mun landing site, rock breaking operations were undertaken by both backhoe machine on land and marine rock breaker on board of the work barge. No marine works (ie dredging and jetting operations) were conducted during the reporting period.

Water Quality

Three monitoring events were scheduled between 19 November and 25 November 2007. All monitoring events at all designated monitoring stations were performed on schedule, ie on 19 November, 21 November and 23 November 2007.

All measured dissolved oxygen levels were within the Action and Limit (AL) Levels while all measured turbidity levels were below the AL levels. Turbidity levels at all monitoring events, with exception of mid-ebb monitoring on 23 November 2007, were below the AL Levels during the reporting week.

Exceedance of the Action Level of depth-averaged Turbidity (NTU) was recorded at upstream Station D1 during mid-ebb tide on 23 November 2007. Since turbidity levels of downstream Stations C1 and U2 were lower than those of upstream Stations D1 and C2, the exceedance was unrelated to the Project and may be due to the natural fluctuation.

Environmental Non-conformance

One exceedance of the Action Level of depth-averaged Turbidity 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 26 November to 2 December 2007), the Project works will mainly involve rock breaking at the inshore area.

CONTENTS

LIST OF TABLES

LIST OF ANNEXES

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 2nd weekly EM&A report which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 12, 19 November to 25 November 2007.

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.

2 PROJECT INFORMATION

2.1 BACKGROUND

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 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. Accordingly, the baseline monitoring programme was undertaken for the Tuen Mun part only and is thereinafter called *Baseline Environmental Monitoring Part A*. Similarly, the Impact Monitoring was carried out for the Tuen Mun part only. This report, therefore, only presents results of the data from monitoring stations around the Tuen Mun landing site (*Figure 2.1)*. Results of the impact monitoring data will therefore be compared against the results of the *Baseline Environmental Monitoring Part A*.

2.2 SITE DESCRIPTION

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

2.3 *MARINE CONSTRUCTION WORKS UNDERTAKEN DURING REPORTING WEEK*

During the reporting week, rock breaking operations were undertaken by both backhoe machine on land and marine rock breaker on board of the work barge at inshore area of Tuen Mun landing. No marine works (ie dredging and jetting operations) were conducted during the reporting period.

The works programme of the period between 19 November and 9 December 2007 is presented in *Annex A*.

2.4 *PROJECT ORGANISATION*

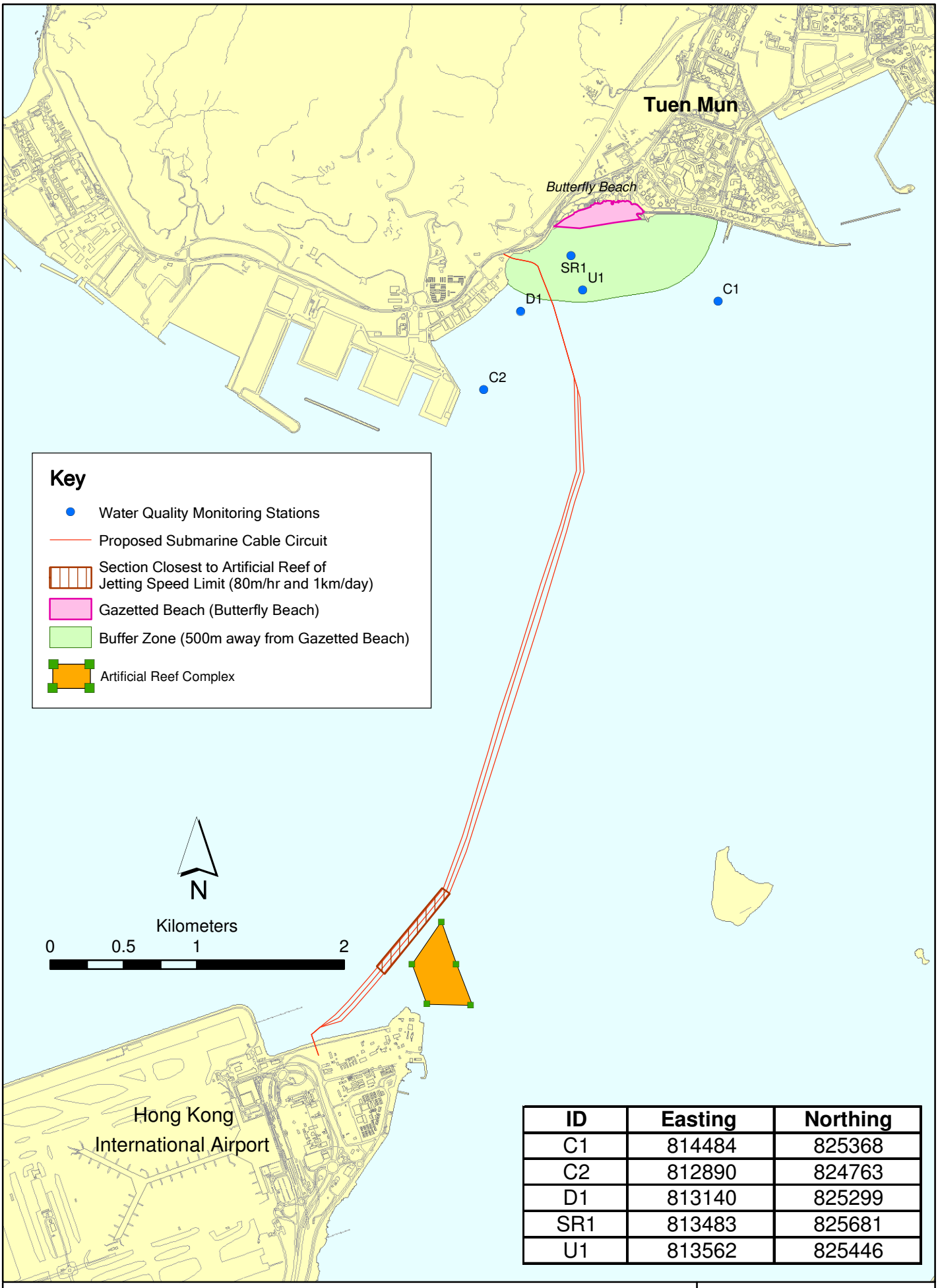
The Project Organisation chart and contact details are shown in *Annex B*.

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



ID	Easting	Northing
C1	814484	825368
C2	812890	824763
D1	813140	825299
SR1	813483	825681
U1	813562	825446

FIGURE 2.1

Location of Water Quality Monitoring around Tuen Mun Landing Site

File: 0072833_2.mxd
Date: 26/11/2007

Environmental Resources Management

ERM

3.1 MONITORING LOCATIONS

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. The locations of the sampling stations are shown in *Figure 2.1.*

- C1 and C2 are Control Stations located over 1 km away from the Tuen Mun landing point and hence are not expected to be influenced by the construction works due to their remoteness;
- U1 and D1 are Gradient Stations situated approximately 300 m either side of the cable alignment for monitoring the effect of dredging at the Tuen Mun landing point and for identifying the source of impact; and,
- SR1 is a Sensitive Receiver used to monitor the effect of the construction works on Butterfly Beach.

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	Description	Easting	Northing
C1	Control Station	>1 km away from the cable alignment	814483.53	825367.63
C2	Control Station	>1 km away from the cable alignment	812890.08	824763.40
U1	Impact Station	300 m away from the cable alignment	813561.87	825446.07
D1	Impact Station	300 m away from the cable alignment	813140.26	825298.99
SR1	Impact Station	Butterfly Beach	813483.43	825681.39

It is noted that water quality monitoring was undertaken at Tuen Mun only, consisting of stations C1, C2, U1, D1 and SR1. The monitoring at the Airport has been postponed until the silt curtains have been installed for the artificial reef near the Airport.

3.2 MONITORING PARAMETERS AND FREQUENCY

The impact water quality monitoring was conducted in accordance with the requirements stated in *EM&A Manual*, which is 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 five locations (three impact monitoring stations D1, U1 and SR1, and two control monitoring stations C1 and C2), as shown on *Figure 2.1.* Samples were taken during mid-flood 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 12 November and 18 November, 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. For stations that were less than 3 m in depth, only the mid depth sample was taken.

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

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 (details refer to *Annex D*).

3.3.3 Action and Limit Levels

The Action and Limit levels, which were established based on the results of *Baseline Environmental Monitoring Part A*, are presented in *Table 3.2*.

Table 3.2 Action and Limit Levels for Water Quality

Parameter	Unit	Tide	Depth	Action Level	Limit Level
Suspended Solids (SS)	mg L^{-1}	Mid-Ebb	Depth-averaged	12.8	13.3
		Mid-Flood	Depth-averaged	23.6	28.3
Dissolved Oxygen (DO)	mg L^{-1}	Mid-Ebb	Surface and Middle	5.2	4.0
			Bottom	5.3	2.0
		Mid-Flood	Surface and Middle	5.5	4.0
			Bottom	5.5	2.0
Turbidity	NTU	Mid-Ebb	Depth-averaged	7.0	8.3
		Mid-Flood	Depth-averaged	14.8	18.9

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*.

Table 3.3 Event and Action Plan for Water Quality

Event	Action
Action Level Exceedance	**Step 1** - repeat sampling event; **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 m^3 day^{-1} for working 10 hours per day, i.e., 150 m^3 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 m^3 day^{-1} and 1,600 m^3 day^{-1} for working 16 hours per day, i.e., 41 m^3 hr^{-1} and 100 41 m^3 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

Since no marine works (ie dredging and jetting operations) were carried out during this reporting week, the mitigation measures as stipulated in the Project Profile and the EP were not required.

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 around the excavator that operates at low tide each day.

5.1 IMPACT MONITORING RESULTS

The monitoring data and graphical presentations are included in *Annex E* and summarised below.

Three monitoring events were scheduled between 19 November and 25 November 2007. All monitoring at all designated monitoring stations were performed on schedule, ie on 19 November, 21 November and 23 November 2007. The monitoring results are presented in *Annexes E1* to *E6*.

No major activities influencing the water quality were identified on 19 November, 21 November and 23 November 2007.

All measured dissolved oxygen levels did not fall below the Action and Limit (AL) Levels while all measured SS levels were below AL Levels. Turbidity levels at all monitoring events, with exception of mid-ebb monitoring on 23 November 2007, were below the Action and Limit (AL) Levels during the reporting week (*Tables 5.1* & *5.2*, and *Annex E*).

Table 5.1 Action and Limit Levels for Water Quality and Status of Impacts Stations D1, U1 and SR1 on the Levels during Mid-ebb Tide

Sampling Date/ Parameter	Action Level	Limit Level	Station D1		Station U1		Station SR1	
			Exceedance of Action Level [1]	Exceedance of Limit Level [1]	Exceedance of Action Level [1]	Exceedance of Limit Level [1]	Exceedance of Action Level [1]	Exceedance of Limit Level [1]
19/11/2007								
DO (mg/L) (Bottom)	5.3	2.0	N	N	N	N	N	N
DO (mg/L) (Depth-averaged)	5.2	4.0	N	N	N	N	N	N
Turbidity (NTU) (Depth-averaged)	7.0	8.3	N	N	N	N	N	N
SS (mg/L) (Depth-averaged)	12.8	13.3	N	N	N	N	N	N
21/11/2007								
DO (mg/L) (Bottom)	5.3	2.0	N	N	N	N	N	N
DO (mg/L) (Depth-averaged)	5.2	4.0	N	N	N	N	N	N
Turbidity (NTU) (Depth-averaged)	7.0	8.3	N	N	N	N	N	N

Sampling Date/ Parameter	Action Level	Limit Level	Station D1		Station U1		Station SR1	
			Exceedance of Action Level [1]	Exceedance of Limit Level [1]	Exceedance of Action Level [1]	Exceedance of Limit Level [1]	Exceedance of Action Level [1]	Exceedance of Limit Level [1]
SS (mg/L) (Depth-averaged)	12.8	13.3	N	N	N	N	N	N
23/11/2007								
DO (mg/L) (Bottom)	5.3	2.0	N	N	N	N	N	N
DO (mg/L) (Depth-averaged)	5.2	4.0	N	N	N	N	N	N
Turbidity (NTU) (Depth-averaged)	7.0	8.3	Y	N	N	N	N	N
SS (mg/L) (Depth-averaged)	12.8	13.3	N	N	N	N	N	N

Notes:

1. "Y" denotes exceedance of Action/Limit Level and "N" denotes no exceedances of Action/Limit Level

Table 5.2 ***Action and Limit Levels for Water Quality and Status of Impacts Stations D1, U1 and SR1 on the Levels during Mid-flood Tide***

Sampling Date/ Parameter	Action Level	Limit Level	Station D1		Station U1		Station SR1	
			Exceedance of Action Level [1]	Exceedance of Limit Level [1]	Exceedance of Action Level [1]	Exceedance of Limit Level [1]	Exceedance of Action Level [1]	Exceedance of Limit Level [1]
19/11/2007								
DO (mg/L) (Bottom)	5.5	2.0	N	N	N	N	N	N
DO (mg/L) (Depth-averaged)	5.5	4.0	N	N	N	N	N	N
Turbidity (NTU) (Depth-averaged)	14.8	18.9	N	N	N	N	N	N
SS (mg/L) (Depth-averaged)	23.6	28.3	N	N	N	N	N	N
21/11/2007								
DO (mg/L) (Bottom)	5.5	2.0	N	N	N	N	N	N
DO (mg/L) (Depth-averaged)	5.5	4.0	N	N	N	N	N	N
Turbidity (NTU) (Depth-averaged)	14.8	18.9	N	N	N	N	N	N

Sampling Date/ Parameter	Action Level	Limit Level	Station D1		Station U1		Station SR1	
			Exceedance of Action Level [1]	Exceedance of Limit Level [1]	Exceedance of Action Level [1]	Exceedance of Limit Level [1]	Exceedance of Action Level [1]	Exceedance of Limit Level [1]
SS (mg/L) (Depth-averaged)	23.6	28.3	N	N	N	N	N	N
23/11/2007								
DO (mg/L) (Bottom)	5.5	2.0	N	N	N	N	N	N
DO (mg/L) (Depth-averaged)	5.5	4.0	N	N	N	N	N	N
Turbidity (NTU) (Depth-averaged)	14.8	18.9	N	N	N	N	N	N
SS (mg/L) (Depth-averaged)	23.6	28.3	N	N	N	N	N	N

Notes:

1. "Y" denotes exceedance of Action/Limit Level and "N" denotes no exceedances of Action/Limit Levels

6 ENVIRONMENTAL NON-CONFORMANCES

6.1 SUMMARY OF ENVIRONMENTAL EXCEEDANCE

Exceedance of the Action Level of depth-averaged Turbidity (mg/L) was recorded at Station D1 during mid-ebb tide on 23 November 2007 (*Table 6.1)*.

Table 6.1 Exceedance of Action Level of Depth-averaged Turbidity (NTU)

Exceedance Log No.	0072833_23 Nov 07_Turb_Station D1	
Sampling date	23 November	
Monitoring station	D1	
Action Levels (mg/L)	Mid-ebb	7.00
	Mid-flood	14.80
Limit Levels (mg/L)	Mid-ebb	8.30
	Mid-flood	18.90
Measured Levels (mg/L)	Mid-ebb	7.49 (exceeds Action Level)
	Mid-flood	6.60

Based on the monitoring results (*Table 6.1* and *Annex E*), measurements for mid-flood were carried out after the mid-ebb monitoring at the same day. The readings taken at all monitoring stations during mid-flood were far below the action and limit levels. According to the visit by the ET to the Project site and the work programme provided by the Contractor, the construction works undertaken on 23 November involved rock breaking at inshore area. There were also no marine works (ie dredging and jetting operations) undertaken for the Project on that day. Moreover, turbidity levels of downstream Stations C1, SR1 and U2 were lower than those of upstream Stations D1 and C2 (see *Figure 6.1*). As a result, the exceedance was unlikely to be caused by the Project. The exceedance was hence considered to be an isolated case and may be due to natural fluctuation. No action was therefore required.

The exceedance incident has been notified to EPD and LCSD.

6.2 SUMMARY OF ENVIRONMENTAL NON-COMPLIANCE

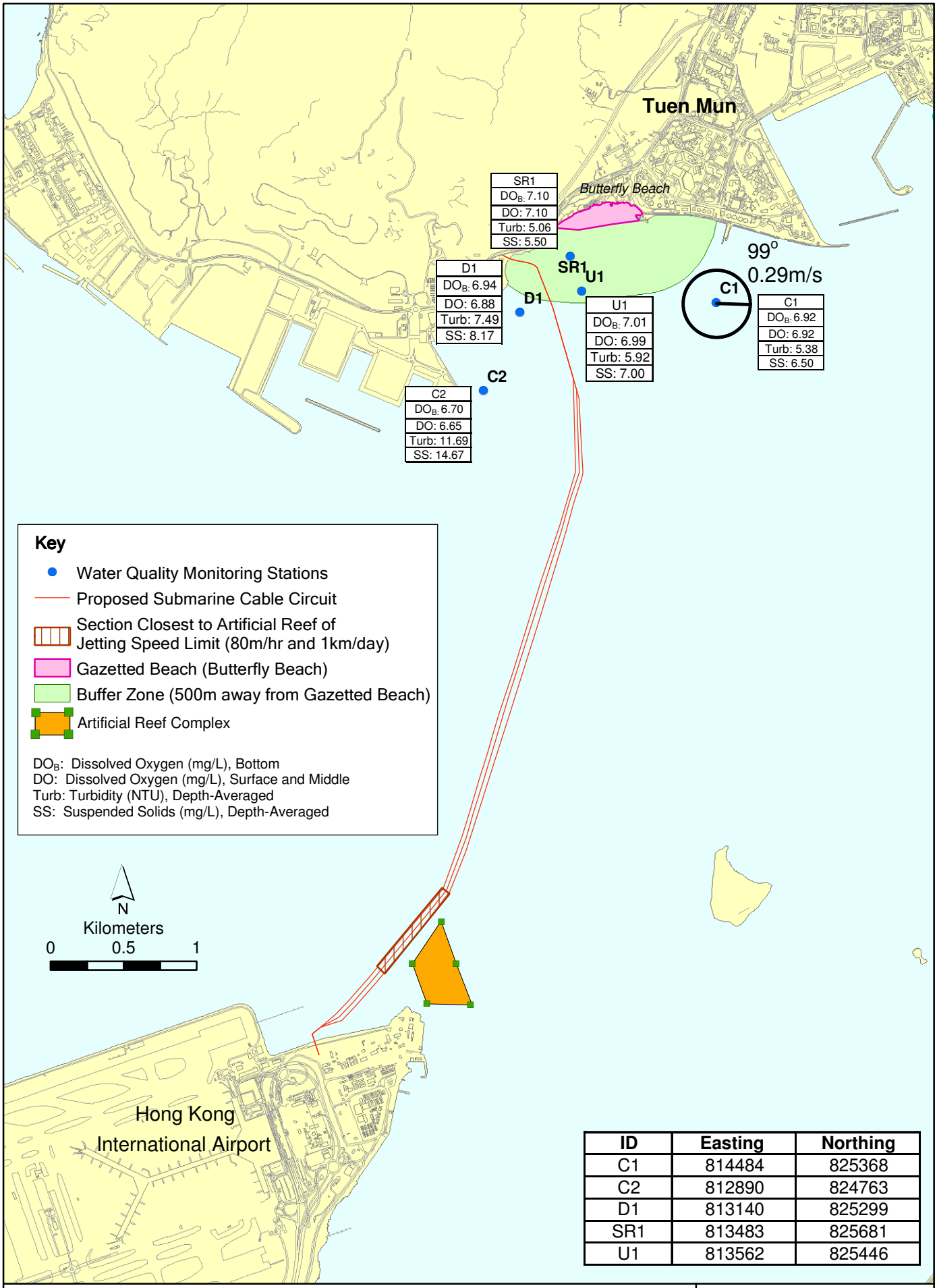
No non-compliance event was recorded during the reporting period.

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.



ID	Easting	Northing
C1	814484	825368
C2	812890	824763
D1	813140	825299
SR1	813483	825681
U1	813562	825446

Figure 6.1

Mid Ebb Water Quality Monitoring
(23 Nov 2007)

File: 0072833_Midd_ebb_3.mxd
Date: 28/11/2007

Environmental Resources Management
ERM

7 FUTURE KEY ISSUES

7.1 KEY ISSUES FOR THE COMING MONTH

During the following week (ie 26 November to 2 December 2007), the project works will mainly involve rock breaking at the inshore area. 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 for November and December is presented in *Annex C*. The environmental monitoring will be conducted at the same monitoring locations as those for this reporting week.

Since there were no marine works (ie dredging and jetting operations) at the Project site during the reporting week, it was not necessary to compare the monitoring data 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 19 November to 25 November 2007 in accordance with the EM&A Manual and the requirements under *EP-267/2007*.

An exceedance of the Action Level of depth-averaged Turbidity (SS, mg/L) was recorded at Station D1 during mid-ebb tide on 23 November 2007. Turbidity levels of downstream Stations C1 and U2 were lower than those of upstream Stations D1 and C2. Since there were no marine works undertaken for the Project on that day, the exceedance was unlikely to be caused by the Project and may be due to natural fluctuation.

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 19 November and 9 December 2007

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

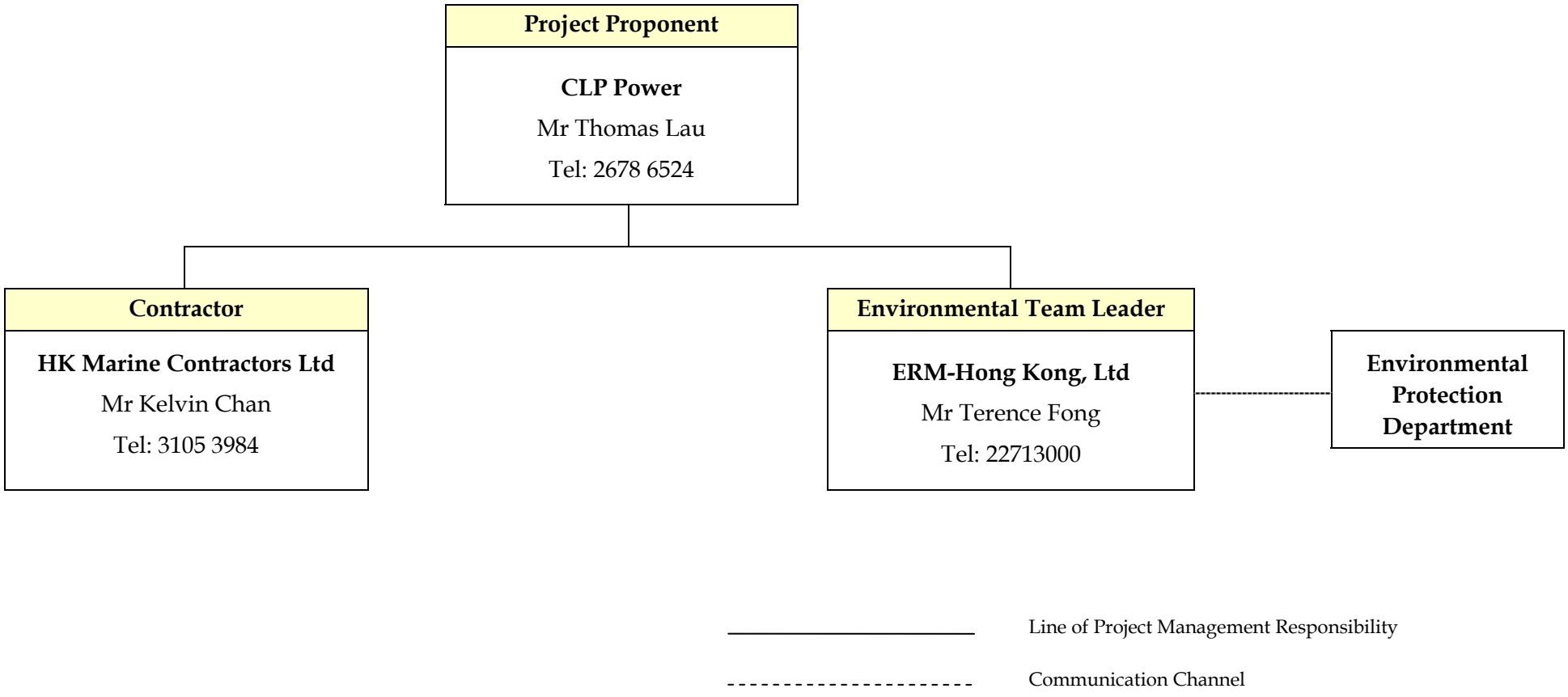
		Workdone for Last Week							Plan for This Week							Anticipate Plan for Next Week						
	Item Date	19/11	20/11	21/11	22/11	23/11	24/11	25/11	26/11	27/11	28/11	29/11	30/11	1/12	2/12	3/12	4/12	5/12	6/12	7/12	8/12	9/12
1	Mobilization of Plants																					
2	Utilities Detection																					
3	Mobilization of Marine Plant																					
4	Site Setting Out																					
5	Site Clearance																					
6	Installation of Silt Curtain																					
5	Rock Breaking																					

Prepared by: Hong Kong Marine Contractors Ltd.
Ref. No. MCERM-132AIRPORTTM-00211-07
Date: 23/11/2007

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 around Tuen Mun landing site - November 2007

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

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				01-Nov	02-Nov	03-Nov
04-Nov	05-Nov	06-Nov	07-Nov	08-Nov	09-Nov	10-Nov
11-Nov	12-Nov	13-Nov	14-Nov	15-Nov	16-Nov	17-Nov
	Mid-Ebb 14:11 Mid-Flood 19:13 *Impact Monitoring*			Mid-Ebb 03:36 Mid-Flood 11:27 *Impact Monitoring*		Mid-Ebb 05:12 Mid-Flood 17:42 *Impact Monitoring*
18-Nov	19-Nov	20-Nov	21-Nov	22-Nov	23-Nov	24-Nov
	Mid-Ebb 07:22 Mid-Flood 15:14 *Impact Monitoring*		Mid-Ebb 09:41 Mid-Flood 16:10 *Impact Monitoring*		Mid-Ebb 11:30 Mid-Flood 17:13 *Impact Monitoring*	
25-Nov	26-Nov	27-Nov	28-Nov	29-Nov	30-Nov	
	Mid-Ebb 14:00 Mid-Flood 19:02 *Impact Monitoring*		Mid-Ebb 10:40 Mid-Flood 15:31 *Impact Monitoring*		Mid-Ebb 04:45 Mid-Flood 17:11 *Impact Monitoring*	

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.

Proposed 132kV Submarine Cable Route for Airport "A" to Castle Peak Power Station Cable Circuit
Tentative Water Quality Monitoring Schedule around Tuen Mun landing site - December 2007

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

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						01-Dec
02-Dec	03-Dec	04-Dec	05-Dec	06-Dec	07-Dec	08-Dec
	Mid-Ebb 07:52 Mid-Flood 15:02 *Impact Monitoring*		Mid-Ebb 09:59 Mid-Flood 15:58 *Impact Monitoring*			Mid-Ebb 12:11 Mid-Flood 17:12 *Impact Monitoring*
09-Dec	10-Dec	11-Dec	12-Dec	13-Dec	14-Dec	15-Dec
	Mid-Ebb 13:19 Mid-Flood 18:12 *Impact Monitoring*		Mid-Ebb 14:27 Mid-Flood 19:16 *Impact Monitoring*		Mid-Ebb 15:51 Mid-Flood 20:37 *Impact Monitoring*	
16-Dec	17-Dec	18-Dec	19-Dec	20-Dec	21-Dec	22-Dec
	Mid-Flood 13:12 Mid-Ebb 19:12 *Impact Monitoring*		Mid-Ebb 07:47 Mid-Flood 14:29 *Impact Monitoring*		Mid-Ebb 10:11 Mid-Flood 15:47 *Impact Monitoring*	
23-Dec	24-Dec	25-Dec	26-Dec	27-Dec	28-Dec	29-Dec
	Mid-Ebb 13:03 Mid-Flood 18:01 *Impact Monitoring*		Mid-Ebb 14:34 Mid-Flood 19:36 *Impact Monitoring*		Mid-Ebb 16:04 Mid-Flood 21:08 *Impact Monitoring*	
30-Dec	31-Dec					
	Mid-Ebb 05:29 Mid-Flood 12:51 *Impact Monitoring*					

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 6**
Contact	:	**MS AIMEE LAU**	Contact	:	**Alice Wong**	Work Order	: **HK0716838**
Address	:	**21/F, LINCOLN HOUSE, 979 KING'S ROAD, TAIKOO PLACE, ISLAND EAST, HONG KONG**	Address	:	**11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong HONG KONG**		
E-mail	:	**Aimee.Lau@erm.com**	E-mail	:	**Alice.Wong@alsenviro.com**		
Telephone	:	**2271 3000**	Telephone	:	**+852 2610 1044**		
Facsimile	:	**2723 5660**	Facsimile	:	**+852 2610 2021**		
Project	:	**EM&A FOR THE PROPOSED 132kV SUBMARINE CABLE ROUTE FOR AIRPORT "A" TO CASTLE PEAK CCTS**	Quote number	:	**----**	Date received	: **20 Nov 2007**
Order number	:	**----**				Date of issue	: **22 Nov 2007**
C-O-C number	:	**----**				No. of samples	- Received : **60**
Site	:	**----**					- Analysed : **60**

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK0716838 supersedes any previous reports with this reference. The completion date of analysis is 21 Nov 2007. 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 HK0716838 : **Sample(s) were received in a chilled condition.**
Water sample(s) analysed and reported on an as received basis.

This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the 'Electronic Transactions Ordinance' of Hong Kong, Chapter 553, Section 6.

Signatory	*Position*	*Authorised results for:-*
Fung Lim Chee, Richard	**General Manager**	**Inorganics**

Quality Control - Laboratory Duplicate (DUP) Results

Matrix Type: WATER

Laboratory Sample ID	Client Sample ID	Method: Analysis Description	CAS number	Duplicate (DUP) Results				
				LOR	Units	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 539396)								
HK0716838-001	2007/11/19/06:13/C1/B/E/	EA025: Suspended Solids (SS)	----	1	mg/L	5	6	0.0
	REPL. 1							
HK0716838-011	2007/11/19/06:25/SR1/M/E/	EA025: Suspended Solids (SS)	----	1	mg/L	4	4	0.0
	REPL. 2							
EA/ED: Physical and Aggregate Properties (QC Lot: 539397)								
HK0716838-021	2007/11/19/06:41/D1/T/E/	EA025: Suspended Solids (SS)	----	1	mg/L	5	5	0.0
	REPL. 1							
HK0716838-031	2007/11/19/14:40/C1/B/F/	EA025: Suspended Solids (SS)	----	1	mg/L	10	9	0.0
	REPL. 1							
EA/ED: Physical and Aggregate Properties (QC Lot: 539398)								
HK0716838-041	2007/11/19/14:53/SR1/M/F/	EA025: Suspended Solids (SS)	----	1	mg/L	7	7	0.0
	REPL. 2							
HK0716838-051	2007/11/19/15:10/D1/T/F/	EA025: Suspended Solids (SS)	----	1	mg/L	7	6	0.0
	REPL. 1							

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

Matrix Type: WATER

Method: Analysis Description	CAS number	Method Blank (MB) Results			Single Control Spike (SCS) and Duplicate Control Spike (DCS) Results						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
		LOR	Units	Result	Concentration	SCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QCLot: 539396)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	95.5	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 539397)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	100	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 539398)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	102	----	85	115	----	----

CERTIFICATE OF ANALYSIS

Client	: ERM HONG KONG	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 6		
Contact	: MS AIMEE LAU	Contact	: Alice Wong	Work Order	: HK0716945		
Address	: 21/F, LINCOLN HOUSE, 979 KING'S ROAD, TAIKOO PLACE, ISLAND EAST, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., HONG KONG				
E-mail	: Aimee.Lau@erm.com	E-mail	: Alice.Wong@alsenviro.com				
Telephone	: 2271 3000	Telephone	: +852 2610 1044				
Facsimile	: 2723 5660	Facsimile	: +852 2610 2021				
Project	: EM&A FOR THE PROPOSED 132kV SUBMARINE CABLE ROUTE FOR AIRPORT "A" TO CASTLE PEAK CCTS	Quote number	: ----	Date received	: 22 Nov 2007		
Order number	: ----			Date of issue	: 23 Nov 2007		
C-O-C number	: ----			No. of samples	- Received : 60		
Site	: ----				- Analysed : 60		

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK0716945 supersedes any previous reports with this reference. The completion date of analysis is 23 Nov 2007. 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 HK0716945 : **Sample(s) were received in a chilled condition.**
Water sample(s) analysed and reported on an as received basis.

This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the 'Electronic Transactions Ordinance' of Hong Kong, Chapter 553, Section 6.

Signatory	*Position*	*Authorised results for:-*
Fung Lim Chee, Richard	**General Manager**	**Inorganics**

Quality Control - Laboratory Duplicate (DUP) Results

Matrix Type: WATER

Laboratory Sample ID	Client Sample ID	Method: Analysis Description	CAS number	Duplicate (DUP) Results				
				LOR	Units	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 541024)								
HK0716945-001	2007/11/21/08:42/C1/B/E/	EA025: Suspended Solids (SS)	----	1	mg/L	9	8	0.0
	REPL. 1							
HK0716945-011	2007/11/21/08:58/SR1/M/E/	EA025: Suspended Solids (SS)	----	1	mg/L	9	8	12.7
	REPL. 2							
EA/ED: Physical and Aggregate Properties (QC Lot: 541025)								
HK0716945-021	2007/11/21/09:14/D1/T/E/	EA025: Suspended Solids (SS)	----	1	mg/L	9	8	18.6
	REPL. 1							
HK0716945-031	2007/11/21/15:06/C1/B/F/	EA025: Suspended Solids (SS)	----	1	mg/L	18	20	14.4
	REPL. 1							
EA/ED: Physical and Aggregate Properties (QC Lot: 541026)								
HK0716945-041	2007/11/21/15:21/SR1/M/F/	EA025: Suspended Solids (SS)	----	1	mg/L	8	7	0.0
	REPL. 2							
HK0716945-051	2007/11/21/15:37/D1/T/F/	EA025: Suspended Solids (SS)	----	1	mg/L	7	8	13.8
	REPL. 1							

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

Matrix Type: WATER

Method: Analysis Description	CAS number	Method Blank (MB) Results			Single Control Spike (SCS) and Duplicate Control Spike (DCS) Results						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
		LOR	Units	Result	Concentration	SCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QCLot: 541024)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	92.0	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 541025)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	96.0	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 541026)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	99.0	----	85	115	----	----

CERTIFICATE OF ANALYSIS

Client	: ERM HONG KONG	Laboratory	: ALS Technichem (HK) Pty Ltd	Page	: 1 of 6		
Contact	: MS AIMEE LAU	Contact	: Alice Wong	Work Order	: HK0717101		
Address	: 21/F, LINCOLN HOUSE, 979 KING'S ROAD, TAIKOO PLACE, ISLAND EAST, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong				
E-mail	: Aimee.Lau@erm.com	E-mail	: Alice.Wong@alsenviro.com				
Telephone	: 2271 3000	Telephone	: +852 2610 1044				
Facsimile	: 2723 5660	Facsimile	: +852 2610 2021				
Project	: EM&A FOR THE PROPOSED 132kV SUBMARINE CABLE ROUTE FOR AIRPORT "A" TO CASTLE PEAK CCTS	Quote number	: ----	Date received	: 24 Nov 2007		
Order number	: ----			Date of issue	: 27 Nov 2007		
C-O-C number	: ----			No. of samples	- Received : 60		
Site	: ----				- Analysed : 60		

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK0717101 supersedes any previous reports with this reference. The completion date of analysis is 27 Nov 2007. 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 HK0717101 : **Sample(s) were received in a chilled condition.**
Water sample(s) analysed and reported on an as received basis.

This document has been electronically signed by those names that appear on this report and are the authorised signatories. Electronic signing has been carried out in compliance with procedures specified in the 'Electronic Transactions Ordinance' of Hong Kong, Chapter 553, Section 6.

Signatory	*Position*	*Authorised results for:-*
Fung Lim Chee, Richard	**General Manager**	**Inorganics**

Quality Control - Laboratory Duplicate (DUP) Results

Matrix Type: WATER

Laboratory Sample ID	Client Sample ID	Method: Analysis Description	CAS number	Duplicate (DUP) Results				
				LOR	Units	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 543005)								
HK0717101-001	2007/11/23/10:05/C1/B/E/	EA025: Suspended Solids (SS)	----	1	mg/L	9	8	17.3
	REPL. 1							
HK0717101-011	2007/11/23/10:20/SR1/M/E/	EA025: Suspended Solids (SS)	----	1	mg/L	5	6	23.8
	REPL. 2							
EA/ED: Physical and Aggregate Properties (QC Lot: 543007)								
HK0717101-021	2007/11/23/10:35/D1/T/E/	EA025: Suspended Solids (SS)	----	1	mg/L	8	9	19.2
	REPL. 1							
HK0717101-031	2007/11/23/16:03/C1/B/F/	EA025: Suspended Solids (SS)	----	1	mg/L	16	16	0.0
	REPL. 1							
EA/ED: Physical and Aggregate Properties (QC Lot: 543008)								
HK0717101-041	2007/11/23/16:17/SR1/M/F/	EA025: Suspended Solids (SS)	----	1	mg/L	7	6	0.0
	REPL. 2							
HK0717101-051	2007/11/23/16:32/D1/T/F/	EA025: Suspended Solids (SS)	----	1	mg/L	8	9	0.0
	REPL. 1							

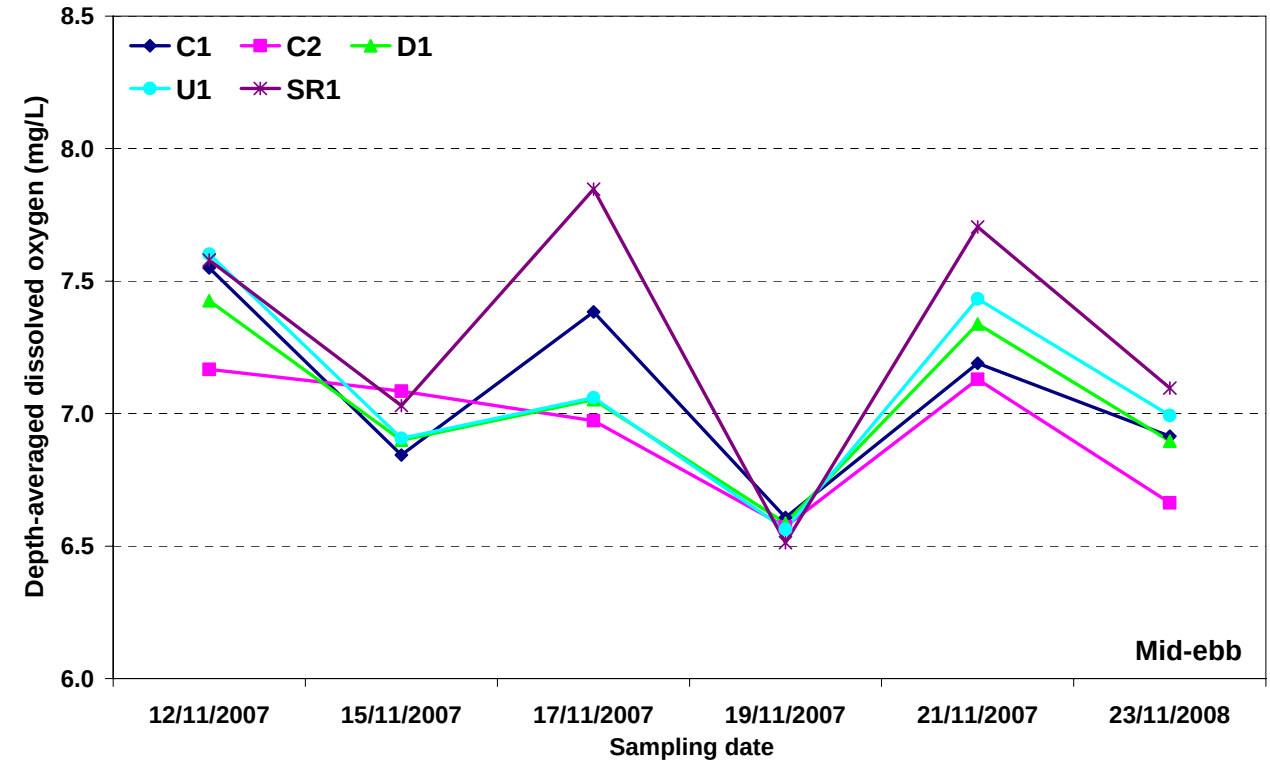
Quality Control - Method Blank (MB), Single Control Spike (SCS) and Duplicate Control Spike (DCS) Results

Matrix Type: WATER

Method: Analysis Description	CAS number	Method Blank (MB) Results			Single Control Spike (SCS) and Duplicate Control Spike (DCS) Results						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
		LOR	Units	Result	Concentration	SCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QCLot: 543005)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	100	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 543007)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	97.5	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 543008)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	98.0	----	85	115	----	----

Annex E

Impact Water Quality Monitoring Results



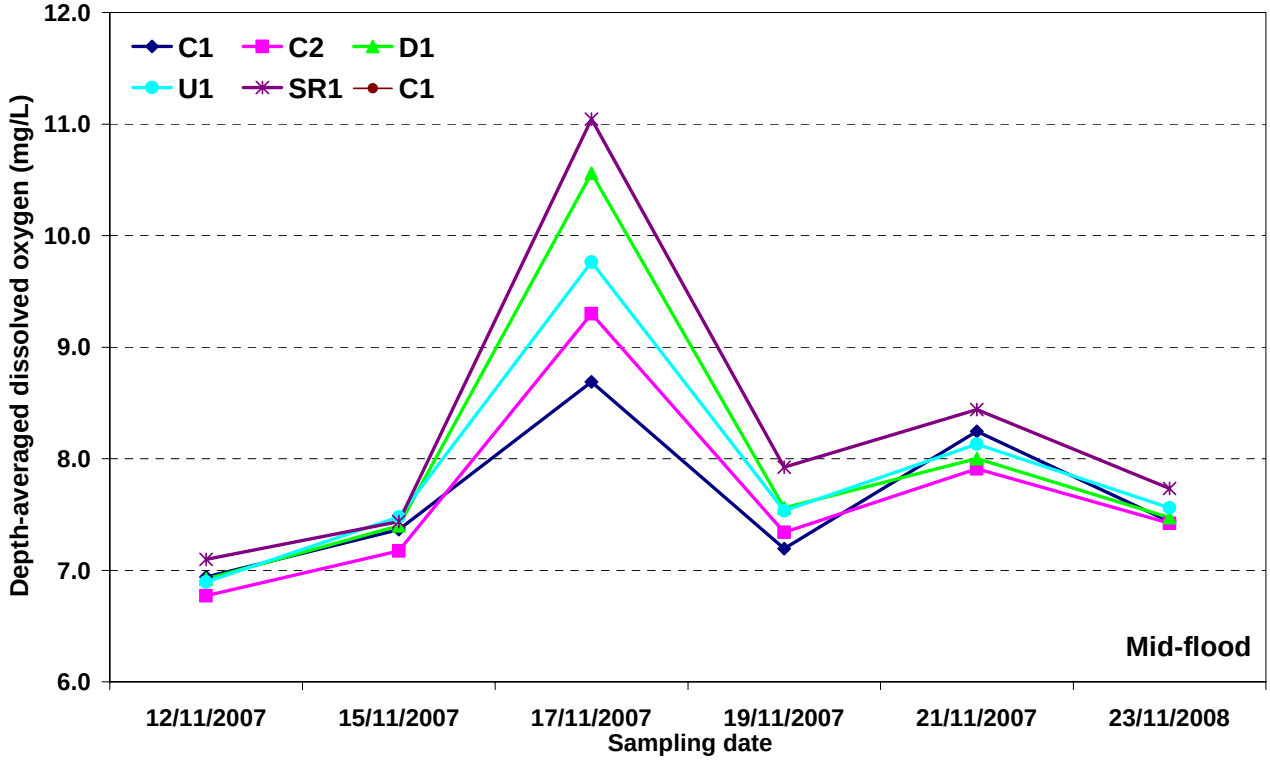
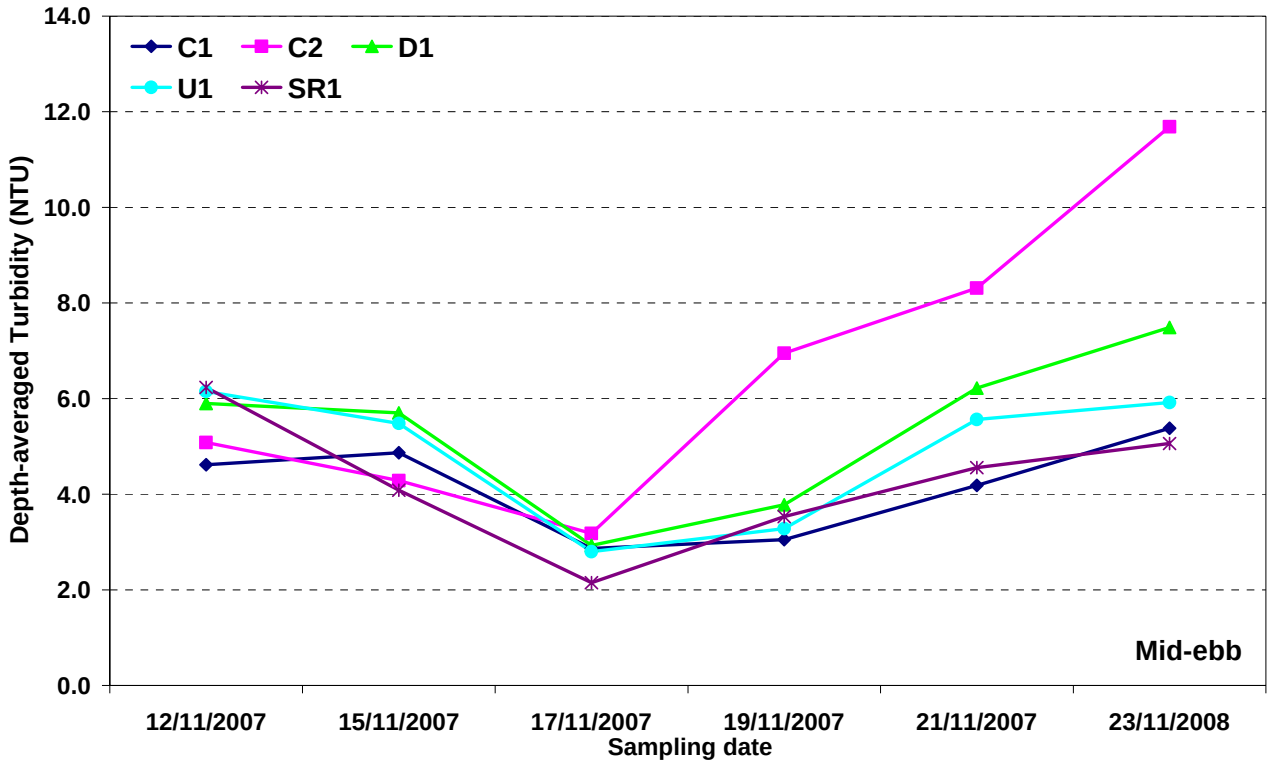


Figure 1 Depth-averaged dissolved oxygen concentration (mg/L) of water samples from the five sampling locations at mid-ebb and mid-flood between 19 November and 23 November 2007, and previous monitoring period between 12 and 18 November 2007



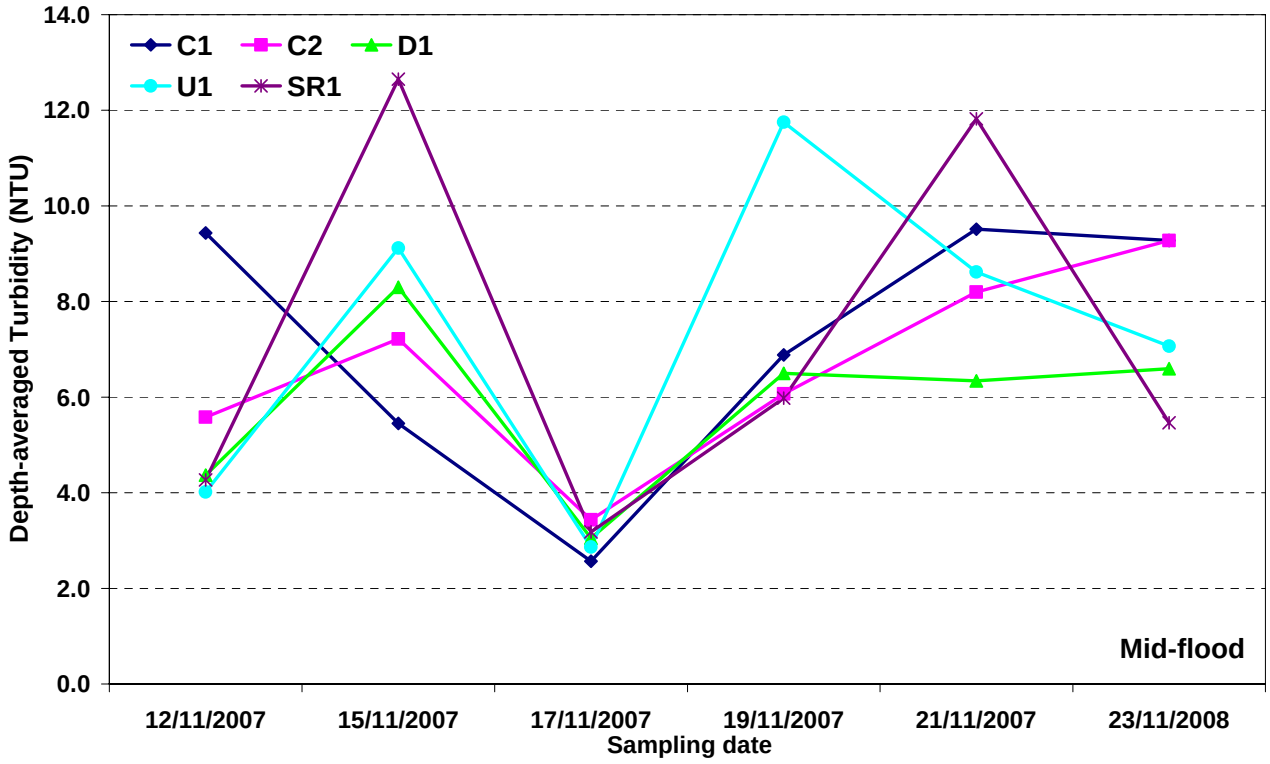
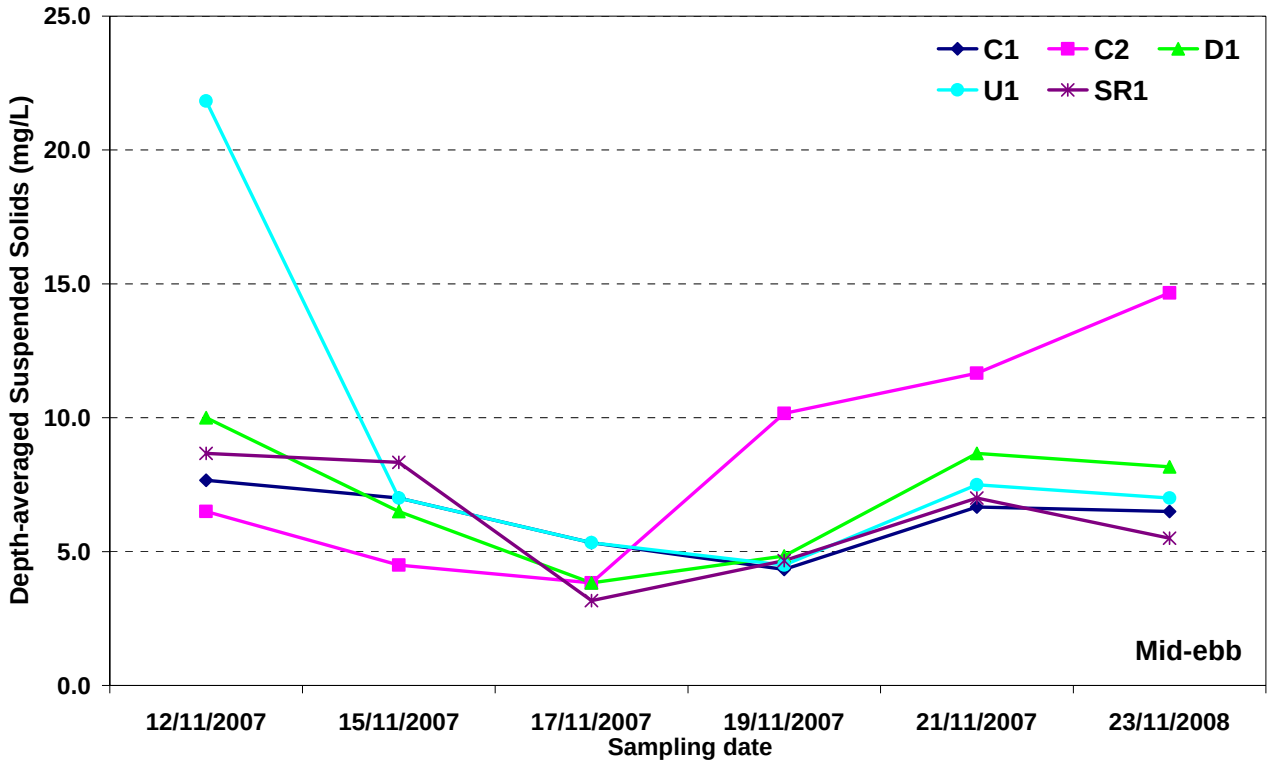


Figure 2 Depth-averaged turbidity (NTU) of water samples from the five sampling locations at mid-ebb and mid-flood between 19 November and 23 November 2007, and previous monitoring period between 12 and 18 November 2007

Ref: 0072833_Annex E_graphs.doc



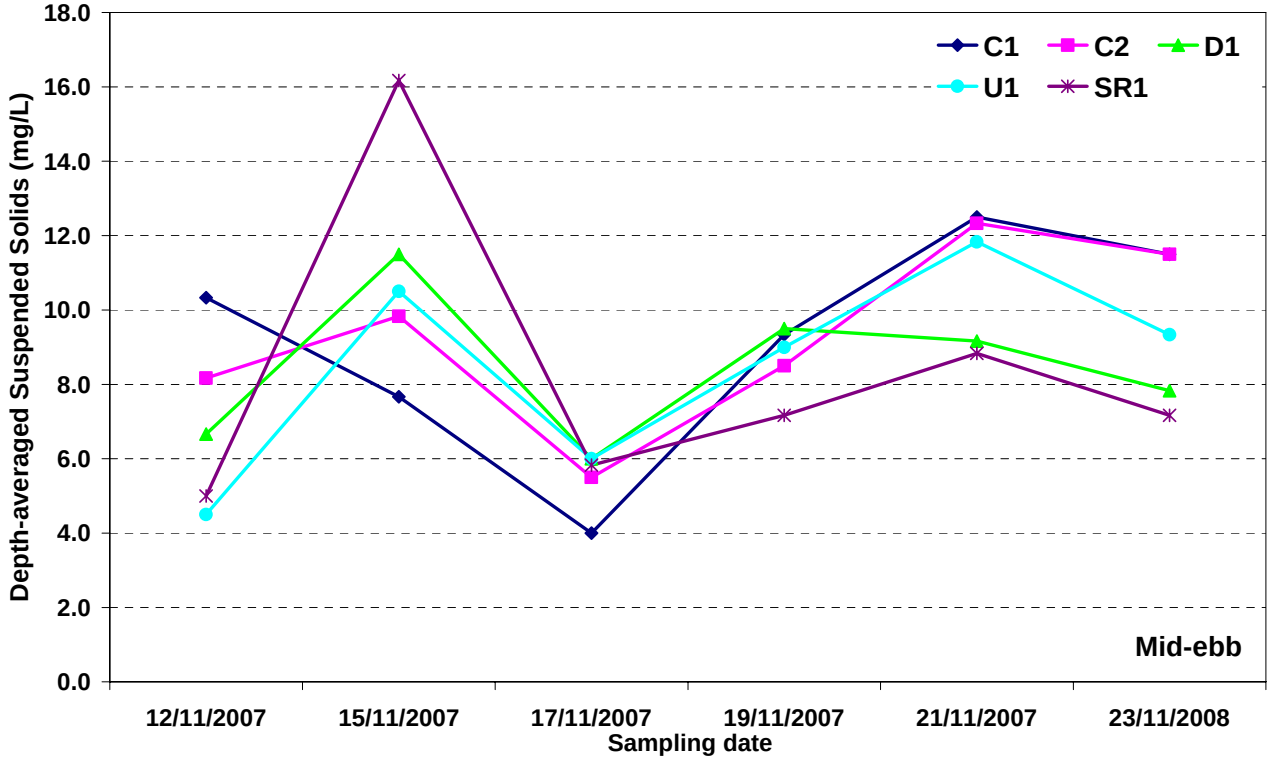


Figure 3 Depth-averaged suspended solids concentration (mg/L) of water samples from the five sampling locations at mid-ebb and mid-flood between 19 November and 23 November 2007, and previous monitoring period between 12 and 18 November 2007

Ref: 0072833_Annex E_graphs.doc

Annex E1 - Water Quality Results, Action and Limit Levels at mid-ebb tide for 19 November 2007

Date	11/19/2007							
Station	C1							
Time (hh:mm)	06:13 - 06:16							
Ambient Temperature (°C)	21							
Weather	Sunny							
Water Depth (m)	8.10							
Monitoring Depth (m)	1.20		4.20		7.10			
Tide	Mid-Ebb							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Bottom*
Water Temperature (°C)	23.3	23.3	23.3	23.3	23.5	23.5	23.35	-
Salinity (ppt)	32.3	32.3	32.3	32.3	32.5	32.5	32.35	-
pH	8.0	8.0	8.0	8.0	7.9	8.0	7.95	
D.O. Saturation (%)	93.4	93.7	93.3	93.7	92.9	93.4	93.40	-
D.O. (mg/L)	6.62	6.64	6.61	6.63	6.56	6.59	6.61	6.58
Turbidity (NTU)	2.80	2.30	2.90	2.60	4.00	3.70	3.05	-
SS (mg/L)	4.0	3.0	4.0	5.0	5.0	5.0	4.33	-
Remarks	-							

Date	11/19/2007							
Station	U1							
Time (hh:mm)	06:31 - 06:34							
Ambient Temperature (°C)	21							
Weather	Sunny							
Water Depth (m)	9.80							
Monitoring Depth (m)	1.00		4.30		8.20			
Tide	Mid-Ebb							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Bottom*
Water Temperature (°C)	23.3	23.3	23.4	23.3	23.4	23.4	23.37	-
Salinity (ppt)	32.2	32.2	32.3	32.2	32.5	32.5	32.32	-
pH	8.0	8.0	8.0	8.0	8.0	8.0	7.97	
D.O. Saturation (%)	93.0	92.9	92.9	92.8	92.6	92.5	92.78	-
D.O. (mg/L)	6.59	6.58	6.57	6.57	6.54	6.53	6.56	6.54
Turbidity (NTU)	2.70	2.80	3.10	2.80	4.30	4.00	3.28	-
SS (mg/L)	4.0	4.0	4.0	5.0	5.0	5.0	4.50	-
Remarks	-							

Date	11/19/2007							
Station	C2							
Time (hh:mm)	06:49 - 06:54							
Ambient Temperature (°C)	21							
Weather	Sunny							
Water Depth (m)	14.20							
Monitoring Depth (m)	1.10		7.10		13.10			
Tide	Mid-Ebb							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Bottom*
Water Temperature (°C)	23.4	23.4	23.4	23.4	23.4	23.4	23.39	-
Salinity (ppt)	32.5	32.5	32.5	32.5	32.5	32.5	32.48	-
pH	8.0	8.0	8.0	8.0	8.0	8.0	7.96	
D.O. Saturation (%)	92.5	93.0	92.8	92.6	94.5	93.2	93.10	-
D.O. (mg/L)	6.53	6.57	6.55	6.54	6.67	6.58	6.57	6.63
Turbidity (NTU)	5.70	4.40	6.60	6.80	8.80	9.40	6.95	-
SS (mg/L)	6.0	6.0	8.0	10.0	11.0	20.0	10.17	-
Remarks	-							

Date	11/19/2007							
Station	SR1							
Time (hh:mm)	06:23 - 06:26							
Ambient Temperature (°C)	21							
Weather	Sunny							
Water Depth (m)	6.20							
Monitoring Depth (m)	1.10		3.00		5.00			
Tide	Mid-Ebb							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Bottom*
Water Temperature (°C)	23.3	23.3	23.3	23.3	23.4	23.4	23.36	-
Salinity (ppt)	32.2	32.2	32.2	32.2	32.4	32.4	32.27	-
pH	8.0	8.0	8.0	8.0	8.0	8.0	7.98	
D.O. Saturation (%)	92.6	92.4	91.9	92.1	91.4	92.0	92.07	-
D.O. (mg/L)	6.56	6.54	6.51	6.52	6.45	6.50	6.51	6.48
Turbidity (NTU)	3.20	2.70	3.50	3.00	4.90	3.90	3.53	-
SS (mg/L)	4.0	4.0	4.0	4.0	7.0	5.0	4.67	-
Remarks	-							

Date	11/19/2007							
Station	D1							
Time (hh:mm)	06:40 - 06:43							
Ambient Temperature (°C)	21							
Weather	Sunny							
Water Depth (m)	9.50							
Monitoring Depth (m)	1.10		4.30		8.10			
Tide	Mid-Ebb							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Bottom*
Water Temperature (°C)	23.4	23.3	23.4	23.4	23.4	23.4	23.40	-
Salinity (ppt)	32.4	32.3	32.4	32.5	32.5	32.5	32.42	-
pH	8.0	8.0	8.0	8.0	8.0	8.0	7.97	
D.O. Saturation (%)	93.3	93.6	93.0	93.3	93.2	93.1	93.25	-
D.O. (mg/L)	6.6	6.6	6.6	6.6	6.6	6.6	6.59	6.58
Turbidity (NTU)	3.10	2.80	3.60	4.00	4.40	4.80	3.78	-
SS (mg/L)	5.0	4.0	3.0	5.0	6.0	6.0	4.83	-
Remarks	-							

Flow Tracking Data

Position	Easting	Northing	Depth	Time	Speed	Direction	Date
C1	814487.98	825362.96	8.7	70301	0	0	20071119
C1	814603.1	825341.81	8.9	70901	0.3251	100.4	20071119
C1	814720.33	825315.32	9	71454	0.3405	102.7	20071119
C1	814816.93	825302.24	9	72037	0.2842	97.7	20071119
				Average	**0.32**	**100.27**	

Dissolved Oxygen (mg/L, Surface and Middle)

C1	6.63
C2	6.55
D1	6.59
U1	6.58
SR1	6.53

Compliance with Action and Limit Level

Parameter	Action Level	Limit Level	D1		U1		SR1	
			Exceedance of Action Level	Exceedance of Limit Level	Exceedance of Action Level	Exceedance of Limit Level	Exceedance of Action Level	Exceedance of Limit Level
DO (Bottom)	5.3	2.0	N	N	N	N	N	N
DO (Surface and Middle)	5.2	4.0	N	N	N	N	N	N
Turbidity (Depth-averaged)	7.0	8.3	N	N	N	N	N	N
SS (Depth-averaged)	12.8	13.3	N	N	N	N	N	N

Annex E2 - Water Quality Results, Action and Limit Levels at mid-flood tide for 19 November 2007

Date	11/19/2007							
Station	C1							
Time (hh:mm)	14:40 - 14:44							
Ambient Temperature (°C)	21							
Weather	Sunny							
Water Depth (m)	8.30							
Monitoring Depth (m)	1.30		4.20		7.20			
Tide	Mid-Flood							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Bottom*
Water Temperature (°C)	23.4	23.4	23.3	23.3	23.3	23.3	23.35	-
Salinity (ppt)	32.4	32.4	32.4	32.4	32.4	32.4	32.43	-
pH	8.0	8.0	7.9	8.0	7.9	7.9	7.94	
D.O. Saturation (%)	103.5	101.8	102.1	100.3	102.4	100.6	101.78	-
D.O. (mg/L)	7.31	7.19	7.22	7.09	7.24	7.12	7.20	7.18
Turbidity (NTU)	5.90	5.70	6.50	7.60	7.10	8.50	6.88	-
SS (mg/L)	7.0	9.0	8.0	9.0	10.0	13.0	9.33	-
Remarks	-							

Date	11/19/2007							
Station	U1							
Time (hh:mm)	15:00 - 15:04							
Ambient Temperature (°C)	21							
Weather	Sunny							
Water Depth (m)	9.60							
Monitoring Depth (m)	1.00		4.60		8.20			
Tide	Mid-Flood							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Bottom*
Water Temperature (°C)	23.5	23.5	23.4	23.4	23.4	23.4	23.42	-
Salinity (ppt)	32.3	32.3	32.4	32.4	32.4	32.4	32.36	-
pH	8.0	8.0	8.0	8.0	7.9	8.0	7.97	
D.O. Saturation (%)	111.3	110.7	104.5	103.9	104.6	105.0	106.67	-
D.O. (mg/L)	7.85	7.82	7.38	7.34	7.40	7.42	7.54	7.41
Turbidity (NTU)	16.20	4.70	17.80	6.40	18.50	6.90	11.75	-
SS (mg/L)	7.0	8.0	9.0	10.0	10.0	10.0	9.00	-
Remarks	-							

Date	11/19/2007							
Station	C2							
Time (hh:mm)	15:18 - 15:22							
Ambient Temperature (°C)	21							
Weather	Sunny							
Water Depth (m)	14.20							
Monitoring Depth (m)	1.10		6.90		13.10			
Tide	Mid-Flood							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Bottom*
Water Temperature (°C)	23.5	23.5	23.4	23.4	23.4	23.4	23.41	-
Salinity (ppt)	32.4	32.4	32.4	32.4	32.4	32.4	32.37	-
pH	8.0	8.0	7.9	7.9	7.9	7.9	7.95	
D.O. Saturation (%)	108.0	106.0	102.5	101.3	102.7	102.6	103.85	-
D.O. (mg/L)	7.62	7.48	7.25	7.17	7.26	7.26	7.34	7.26
Turbidity (NTU)	4.90	5.30	6.10	6.40	6.90	6.80	6.07	-
SS (mg/L)	6.0	7.0	10.0	9.0	9.0	10.0	8.50	-
Remarks	-							

Date	11/19/2007							
Station	SR1							
Time (hh:mm)	14:50 - 14:53							
Ambient Temperature (°C)	21							
Weather	Sunny							
Water Depth (m)	5.50							
Monitoring Depth (m)	1.10		2.80		4.10			
Tide	Mid-Flood							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Bottom*
Water Temperature (°C)	23.7	23.6	23.7	23.5	23.6	23.5	23.58	-
Salinity (ppt)	32.4	32.3	32.4	32.3	32.4	32.3	32.34	-
pH	8.0	8.0	8.0	8.0	8.0	8.0	8.00	
D.O. Saturation (%)	113.9	113.3	112.5	112.3	111.7	111.3	112.50	-
D.O. (mg/L)	8.01	7.98	7.91	7.93	7.86	7.86	7.93	7.86
Turbidity (NTU)	4.60	5.10	5.50	5.50	9.90	5.30	5.98	-
SS (mg/L)	7.0	7.0	6.0	7.0	9.0	7.0	7.17	-
Remarks	-							

Date	11/19/2007							
Station	D1							
Time (hh:mm)	15:09 - 15:12							
Ambient Temperature (°C)	21							
Weather	Sunny							
Water Depth (m)	9.00							
Monitoring Depth (m)	1.00		4.50		8.00			
Tide	Mid-Flood							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Bottom*
Water Temperature (°C)	23.5	23.4	23.4	23.4	23.4	23.4	23.40	-
Salinity (ppt)	32.3	32.4	32.4	32.4	32.4	32.4	32.35	-
pH	8.0	8.0	8.0	8.0	8.0	8.0	7.96	
D.O. Saturation (%)	112.1	104.9	106.8	105.0	106.9	106.1	106.97	-
D.O. (mg/L)	7.91	7.42	7.55	7.42	7.56	7.50	7.56	7.53
Turbidity (NTU)	5.20	5.00	6.30	6.50	7.00	9.00	6.50	-
SS (mg/L)	7.0	9.0	8.0	9.0	11.0	13.0	9.50	-
Remarks	-							

Flow Tracking Data

Position	Easting	Northing	Depth	Time	Speed	Direction	Date
C1	814482	825372	-99	153043	0	0	20071119
C1	814371	825380	-99	153542	0.3723	274.1	20071119
C1	814260	825400	-99	154045	0.3724	280.3	20071119
C1	814149	825417	-99	154633	0.3221	278.7	20071119
				Average	**0.36**	**277.70**	

Dissolved Oxygen (mg/L, Surface and Middle)

C1	7.20
C2	7.38
D1	7.58
U1	7.60
SR1	7.96

Compliance with Action and Limit Level

Parameter	Action Level	Limit Level	D1		U1		SR1	
			Exceedance of Action Level	Exceedance of Limit Level	Exceedance of Action Level	Exceedance of Limit Level	Exceedance of Action Level	Exceedance of Limit Level
DO (Bottom)	5.5	2.0	N	N	N	N	N	N
DO (Depth-averaged)	5.5	4.0	N	N	N	N	N	N
Turbidity (Depth-averaged)	14.8	18.9	N	N	N	N	N	N
SS (Depth-averaged)	23.6	28.3	N	N	N	N	N	N

Annex E3 - Water Quality Results, Action and Limit Levels at mid-ebb tide for 21 November 2007

Date	11/21/2007							
Station	C1							
Time (hh:mm)	08:42 - 08:45							
Ambient Temperature (°C)	19							
Weather	Sunny							
Water Depth (m)	8.30							
Monitoring Depth (m)	1.20		4.60		7.20			
Tide	Mid-Ebb							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Bottom*
Water Temperature (°C)	22.8	22.8	22.9	22.9	22.9	22.9	22.86	-
Salinity (ppt)	32.6	32.6	32.6	32.6	32.6	32.6	32.62	-
pH	8.0	8.0	8.0	8.0	7.9	8.0	7.97	
D.O. Saturation (%)	102.2	102.0	100.6	101.6	99.2	100.0	100.94	-
D.O. (mg/L)	7.29	7.27	7.16	7.24	7.06	7.12	7.19	7.09
Turbidity (NTU)	3.85	3.85	4.25	4.05	4.76	4.35	4.19	-
SS (mg/L)	4.0	8.0	7.0	5.0	9.0	7.0	6.67	-
Remarks	-							

Date	11/21/2007							
Station	U1							
Time (hh:mm)	09:04 - 09:07							
Ambient Temperature (°C)	19							
Weather	Sunny							
Water Depth (m)	9.60							
Monitoring Depth (m)	1.20		4.70		8.10			
Tide	Mid-Ebb							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Bottom*
Water Temperature (°C)	22.8	22.8	22.8	22.8	22.8	22.8	22.82	-
Salinity (ppt)	32.5	32.5	32.6	32.5	32.6	32.5	32.54	-
pH	8.0	8.0	8.0	8.0	8.0	8.0	8.02	
D.O. Saturation (%)	105.1	103.3	104.4	103.4	105.2	104.1	104.26	-
D.O. (mg/L)	7.50	7.37	7.44	7.37	7.50	7.42	7.43	7.46
Turbidity (NTU)	4.86	4.35	6.98	4.35	6.78	6.07	5.57	-
SS (mg/L)	5.0	7.0	10.0	7.0	6.0	10.0	7.50	-
Remarks	-							

Date	11/21/2007							
Station	C2							
Time (hh:mm)	09:23 - 09:27							
Ambient Temperature (°C)	19							
Weather	Sunny							
Water Depth (m)	14.30							
Monitoring Depth (m)	1.10		7.20		12.70			
Tide	Mid-Ebb							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Bottom*
Water Temperature (°C)	22.9	22.9	22.9	22.9	22.9	22.9	22.91	-
Salinity (ppt)	32.5	32.5	32.5	32.5	32.5	32.5	32.48	-
pH	8.0	8.0	8.0	8.0	8.0	8.0	8.00	
D.O. Saturation (%)	100.1	99.0	100.7	99.6	101.7	99.8	100.13	-
D.O. (mg/L)	7.12	7.05	7.17	7.09	7.24	7.11	7.13	7.18
Turbidity (NTU)	5.46	6.78	11.03	7.99	9.01	9.61	8.31	-
SS (mg/L)	10.0	12.0	15.0	10.0	11.0	12.0	11.67	-
Remarks	-							

Date	11/21/2007							
Station	SR1							
Time (hh:mm)	08:55 - 08:58							
Ambient Temperature (°C)	19							
Weather	Sunny							
Water Depth (m)	5.60							
Monitoring Depth (m)	1.10		2.60		4.10			
Tide	Mid-Ebb							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Bottom*
Water Temperature (°C)	22.7	22.7	22.7	22.7	22.7	22.7	22.68	-
Salinity (ppt)	32.5	32.5	32.5	32.5	32.5	32.5	32.48	-
pH	8.0	8.0	8.0	8.0	8.0	8.0	8.01	
D.O. Saturation (%)	106.7	105.6	110.0	106.1	111.3	106.5	107.70	-
D.O. (mg/L)	7.63	7.56	7.87	7.59	7.96	7.62	7.71	7.79
Turbidity (NTU)	4.66	4.66	4.25	4.55	4.45	4.76	4.56	-
SS (mg/L)	7.0	8.0	6.0	9.0	7.0	5.0	7.00	-
Remarks	-							

Date	11/21/2007							
Station	D1							
Time (hh:mm)	09:13 - 09:16							
Ambient Temperature (°C)	19							
Weather	Sunny							
Water Depth (m)	9.40							
Monitoring Depth (m)	1.00		4.70		8.20			
Tide	Mid-Ebb							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Bottom*
Water Temperature (°C)	22.8	22.8	22.8	22.8	22.8	22.8	22.81	-
Salinity (ppt)	32.5	32.5	32.5	32.5	32.5	32.5	32.50	-
pH	8.0	8.0	8.0	8.0	8.0	8.0	8.02	
D.O. Saturation (%)	103.2	102.2	103.5	102.4	103.3	102.7	102.87	-
D.O. (mg/L)	7.36	7.29	7.38	7.30	7.37	7.33	7.34	7.35
Turbidity (NTU)	4.55	4.96	6.07	5.46	9.41	6.88	6.22	-
SS (mg/L)	9.0	8.0	9.0	7.0	9.0	10.0	8.67	-
Remarks	-							

Flow Tracking Data

Position	Easting	Northing	Depth	Time	Speed	Direction	Date
C1	814485.76	825370.45	8.6	93511	0	0	20071121
C1	814584.86	825363.43	8.5	94123	0.2671	94.1	20071121
C1	814697.55	825363.65	9	94805	0.2803	89.9	20071121
C1	814807.3	825352.43	-99	95403	0.3082	95.8	20071121
				Average	**0.29**	**93.27**	

Dissolved Oxygen (mg/L, Surface and Middle)

C1	7.24
C2	7.11
D1	7.33
U1	7.42
SR1	7.66

Compliance with Action and Limit Level

Parameter	Action Level	Limit Level	D1		U1		SR1	
			Exceedance of Action Level	Exceedance of Limit Level	Exceedance of Action Level	Exceedance of Limit Level	Exceedance of Action Level	Exceedance of Limit Level
DO (Bottom)	5.3	2.0	N	N	N	N	N	N
DO (Surface and Middle)	5.2	4.0	N	N	N	N	N	N
Turbidity (Depth-averaged)	7.0	8.3	N	N	N	N	N	N
SS (Depth-averaged)	12.8	13.3	N	N	N	N	N	N

Annex E4 - Water Quality Results, Action and Limit Levels at mid-flood tide for 21 November 2007

Date	11/21/2007							
Station	C1							
Time (hh:mm)	15:06 - 15:09							
Ambient Temperature (°C)	23							
Weather	Sunny							
Water Depth (m)	8.20							
Monitoring Depth (m)	1.10		4.10		7.10			
Tide	Mid-Flood							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Bottom*
Water Temperature (°C)	23.2	23.2	23.0	23.0	23.0	23.0	23.05	-
Salinity (ppt)	32.5	32.5	32.6	32.6	32.6	32.6	32.56	-
pH	8.0	8.1	8.0	8.0	7.9	8.0	7.97	
D.O. Saturation (%)	123.2	121.7	113.2	110.9	113.5	114.3	116.12	-
D.O. (mg/L)	8.73	8.62	8.05	7.88	8.07	8.13	8.25	8.10
Turbidity (NTU)	4.05	4.45	8.20	11.84	14.88	13.66	9.51	-
SS (mg/L)	8.0	6.0	11.0	14.0	18.0	18.0	12.50	-
Remarks	-							

Date	11/21/2007							
Station	U1							
Time (hh:mm)	15:26 - 15:30							
Ambient Temperature (°C)	23							
Weather	Sunny							
Water Depth (m)	9.60							
Monitoring Depth (m)	1.10		4.40		8.00			
Tide	Mid-Flood							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Bottom*
Water Temperature (°C)	23.0	23.1	23.0	23.0	23.0	23.0	23.00	-
Salinity (ppt)	32.5	32.5	32.5	32.5	32.5	32.5	32.53	-
pH	8.0	8.0	8.0	8.0	8.0	8.0	8.02	
D.O. Saturation (%)	114.2	117.7	113.4	114.7	113.3	112.9	114.36	-
D.O. (mg/L)	8.12	8.36	8.07	8.15	8.06	8.03	8.13	8.05
Turbidity (NTU)	8.80	6.98	9.01	8.30	8.50	10.12	8.62	-
SS (mg/L)	10.0	12.0	12.0	11.0	11.0	15.0	11.83	-
Remarks	-							

Date	11/21/2007							
Station	C2							
Time (hh:mm)	15:45 - 15:49							
Ambient Temperature (°C)	23							
Weather	Sunny							
Water Depth (m)	14.20							
Monitoring Depth (m)	1.10		6.70		12.70			
Tide	Mid-Flood							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Bottom*
Water Temperature (°C)	23.1	23.1	23.1	23.1	23.0	23.1	23.06	-
Salinity (ppt)	32.5	32.5	32.6	32.6	32.6	32.6	32.55	-
	8.1	8.0	8.0	8.0	8.0	8.0	8.03	
D.O. Saturation (%)	116.7	110.9	113.3	109.5	108.4	109.6	111.39	-
D.O. (mg/L)	8.28	7.88	8.04	7.77	7.70	7.79	7.91	7.75
Turbidity (NTU)	5.97	7.59	7.08	8.50	10.63	9.41	8.20	-
SS (mg/L)	10.0	10.0	9.0	15.0	19.0	11.0	12.33	-
Remarks	-							

Date	11/21/2007							
Station	SR1							
Time (hh:mm)	15:18 - 15:22							
Ambient Temperature (°C)	23							
Weather	Sunny							
Water Depth (m)	5.70							
Monitoring Depth (m)	1.10		2.60		4.10			
Tide	Mid-Flood							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Bottom*
Water Temperature (°C)	23.2	23.0	23.0	23.0	23.0	23.0	23.04	-
Salinity (ppt)	32.5	32.5	32.5	32.5	32.5	32.5	32.53	-
pH	8.1	8.0	8.0	8.0	8.0	8.0	8.03	
D.O. Saturation (%)	126.4	119.6	117.1	115.9	115.5	118.2	118.80	-
D.O. (mg/L)	8.96	8.50	8.32	8.24	8.22	8.41	8.44	8.32
Turbidity (NTU)	13.76	5.26	15.89	5.77	15.38	14.88	11.82	-
SS (mg/L)	6.0	9.0	11.0	8.0	9.0	10.0	8.83	-
Remarks	-							

Date	11/21/2007							
Station	D1							
Time (hh:mm)	15:36 - 15:40							
Ambient Temperature (°C)	23							
Weather	Sunny							
Water Depth (m)	9.30							
Monitoring Depth (m)	1.20		4.40		8.20			
Tide	Mid-Flood							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Bottom*
Water Temperature (°C)	23.0	23.0	23.0	23.0	23.0	23.0	23.02	-
Salinity (ppt)	32.5	32.5	32.5	32.5	32.5	32.5	32.52	-
pH	8.0	8.0	8.0	8.0	8.0	8.0	8.03	
D.O. Saturation (%)	113.2	111.3	113.5	112.3	113.1	112.1	112.58	-
D.O. (mg/L)	8.05	7.91	8.07	7.98	8.03	7.97	8.00	8.00
Turbidity (NTU)	6.07	6.38	6.27	5.87	6.68	6.78	6.34	-
SS (mg/L)	7.0	9.0	9.0	11.0	10.0	9.0	9.17	-
Remarks	-							

Flow Tracking Data

Position	Easting	Northing	Depth	Time	Speed	Direction	Date
C1	814488	825369	-99	155808	0	0	20071121
C1	814359	825383	-99	160425	0.3458	276.2	20071121
C1	814240	825396	-99	160959	0.3571	276.1	20071121
C1	814134	825402	-99	161525	0.3257	273.3	20071121
				Average	**0.34**	**275.20**	

Dissolved Oxygen (mg/L, Surface and Middle)

C1	8.32
C2	7.99
D1	8.00
U1	8.18
SR1	8.51

Compliance with Action and Limit Level

Parameter	Action Level	Limit Level	D1		U1		SR1	
			Exceedance of Action Level	Exceedance of Limit Level	Exceedance of Action Level	Exceedance of Limit Level	Exceedance of Action Level	Exceedance of Limit Level
DO (Bottom)	5.5	2.0	N	N	N	N	N	N
DO (Depth-averaged)	5.5	4.0	N	N	N	N	N	N
Turbidity (Depth-averaged)	14.8	18.9	N	N	N	N	N	N
SS (Depth-averaged)	23.6	28.3	N	N	N	N	N	N

Annex E5 - Water Quality Results, Action and Limit Levels at mid-ebb tide for 23 November 2007

Date	11/23/2007							
Station	C1							
Time (hh:mm)	10:05 - 10:10							
Ambient Temperature (°C)	22							
Weather	Sunny							
Water Depth (m)	9.00							
Monitoring Depth (m)	1.20		4.60		8.10			
Tide	Mid-Ebb							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Bottom*
Water Temperature (°C)	22.8	22.8	22.7	22.7	22.7	22.7	22.73	-
Salinity (ppt)	32.7	32.7	32.7	32.7	32.7	32.7	32.71	-
pH	7.9	7.9	7.9	7.9	7.9	7.9	7.91	
D.O. Saturation (%)	96.5	98.2	95.6	97.5	96.0	97.6	96.90	-
D.O. (mg/L)	6.88	7.01	6.82	6.95	6.86	6.97	6.92	6.92
Turbidity (NTU)	5.06	5.36	5.16	5.36	5.57	5.77	5.38	-
SS (mg/L)	4.0	6.0	6.0	6.0	9.0	8.0	6.50	-
Remarks	-							

Date	11/23/2007							
Station	U1							
Time (hh:mm)	10:25 - 10:29							
Ambient Temperature (°C)	22							
Weather	Sunny							
Water Depth (m)	9.70							
Monitoring Depth (m)	1.10		4.70		8.20			
Tide	Mid-Ebb							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Bottom*
Water Temperature (°C)	22.7	22.8	22.7	22.8	22.7	22.7	22.73	-
Salinity (ppt)	32.7	32.7	32.7	32.7	32.7	32.7	32.70	-
pH	7.9	7.9	7.9	7.9	7.9	7.9	7.94	
D.O. Saturation (%)	98.0	97.6	98.2	97.9	98.6	97.8	98.01	-
D.O. (mg/L)	6.99	6.96	7.01	6.98	7.04	6.98	6.99	7.01
Turbidity (NTU)	5.97	5.57	6.17	5.77	6.17	5.87	5.92	-
SS (mg/L)	9.0	5.0	6.0	7.0	8.0	7.0	7.00	-
Remarks	-							

Date	11/23/2007							
Station	C2							
Time (hh:mm)	10:44 - 10:48							
Ambient Temperature (°C)	22							
Weather	Sunny							
Water Depth (m)	14.80							
Monitoring Depth (m)	1.10		7.10		13.20			
Tide	Mid-Ebb							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Bottom*
Water Temperature (°C)	22.8	22.8	22.7	22.7	22.7	22.7	22.74	-
Salinity (ppt)	32.7	32.6	32.7	32.7	32.7	32.7	32.65	-
pH	7.9	7.9	7.9	7.9	7.9	7.9	7.94	
D.O. Saturation (%)	93.6	92.1	94.5	92.5	94.7	92.9	93.37	-
D.O. (mg/L)	6.68	6.57	6.74	6.60	6.76	6.63	6.66	6.70
Turbidity (NTU)	8.30	9.61	11.23	10.73	16.09	14.17	11.69	-
SS (mg/L)	11.0	11.0	16.0	13.0	21.0	16.0	14.67	-
Remarks	-							

Date	11/23/2007							
Station	SR1							
Time (hh:mm)	10:17 - 10:20							
Ambient Temperature (°C)	22							
Weather	Sunny							
Water Depth (m)	5.90							
Monitoring Depth (m)	1.10		2.60		4.00			
Tide	Mid-Ebb							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Bottom*
Water Temperature (°C)	22.7	22.7	22.7	22.7	22.7	22.7	22.69	-
Salinity (ppt)	32.7	32.7	32.7	32.7	32.7	32.7	32.69	-
pH	8.0	8.0	8.0	8.0	7.9	8.0	7.95	
D.O. Saturation (%)	99.6	99.5	99.4	99.0	99.5	99.2	99.34	-
D.O. (mg/L)	7.11	7.11	7.10	7.07	7.11	7.08	7.10	7.10
Turbidity (NTU)	5.06	4.96	5.26	4.66	5.57	4.86	5.06	-
SS (mg/L)	5.0	4.0	6.0	5.0	5.0	8.0	5.50	-
Remarks	-							

Date	11/23/2007							
Station	D1							
Time (hh:mm)	10:34 - 10:37							
Ambient Temperature (°C)	22							
Weather	Sunny							
Water Depth (m)	9.40							
Monitoring Depth (m)	1.00		4.60		8.10			
Tide	Mid-Ebb							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Bottom*
Water Temperature (°C)	22.7	22.7	22.7	22.7	22.7	22.7	22.67	-
Salinity (ppt)	32.7	32.7	32.7	32.7	32.7	32.7	32.67	-
pH	7.9	7.9	7.9	7.9	7.9	7.9	7.94	
D.O. Saturation (%)	96.8	95.5	97.0	95.8	97.9	96.3	96.53	-
D.O. (mg/L)	6.91	6.82	6.93	6.84	7.00	6.88	6.90	6.94
Turbidity (NTU)	7.49	7.29	7.89	7.59	7.59	7.08	7.49	-
SS (mg/L)	8.0	8.0	8.0	9.0	8.0	8.0	8.17	-
Remarks	-							

Flow Tracking Data

Position	Easting	Northing	Depth	Time	Speed	Direction	Date
C1	814492.18	825368.54	-99	105650	0	0	20071123
C1	814576.25	825358.97	8.9	110218	0.258	96.5	20071123
C1	814663.58	825339.91	8.9	110717	0.2989	102.3	20071123
C1	814767.61	825324.38	8.9	111247	0.3187	98.5	20071123
				Average	**0.29**	**99.10**	

Dissolved Oxygen (mg/L, Surface and Middle)

C1	6.92
C2	6.65
D1	6.88
U1	6.99
SR1	7.10

Compliance with Action and Limit Level

Parameter	Action Level	Limit Level	D1		U1		SR1	
			Exceedance of Action Level	Exceedance of Limit Level	Exceedance of Action Level	Exceedance of Limit Level	Exceedance of Action Level	Exceedance of Limit Level
DO (Bottom)	5.3	2.0	N	N	N	N	N	N
DO (Surface and Middle)	5.2	4.0	N	N	N	N	N	N
Turbidity (Depth-averaged)	7.0	8.3	Y	N	N	N	N	N
SS (Depth-averaged)	12.8	13.3	N	N	N	N	N	N

Annex E6 - Water Quality Results, Action and Limit Levels at mid-flood tide for 23 November 2007

Date	11/23/2007							
Station	C1							
Time (hh:mm)	16:03 - 16:07							
Ambient Temperature (°C)	23							
Weather	Sunny							
Water Depth (m)	8.90							
Monitoring Depth (m)	1.10		4.10		7.20			
Tide	Mid-Flood							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Bottom*
Water Temperature (°C)	22.8	22.8	22.8	22.8	22.8	22.8	22.77	-
Salinity (ppt)	32.7	32.7	32.7	32.7	32.7	32.7	32.70	-
pH	8.0	8.0	8.0	8.0	8.0	8.0	8.01	
D.O. Saturation (%)	106.3	105.8	103.0	104.0	102.5	104.0	104.26	-
D.O. (mg/L)	7.58	7.54	7.35	7.42	7.31	7.42	7.44	7.37
Turbidity (NTU)	5.06	7.19	8.70	11.03	11.54	12.14	9.28	-
SS (mg/L)	4.0	6.0	12.0	15.0	16.0	16.0	11.50	-
Remarks	-							

Date	11/23/2007							
Station	U1							
Time (hh:mm)	16:22 - 16:26							
Ambient Temperature (°C)	23							
Weather	Sunny							
Water Depth (m)	9.80							
Monitoring Depth (m)	1.30		4.60		8.20			
Tide	Mid-Flood							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Bottom*
Water Temperature (°C)	22.8	22.8	22.8	22.8	22.8	22.8	22.80	-
Salinity (ppt)	32.7	32.7	32.7	32.7	32.7	32.7	32.67	-
pH	8.0	8.0	8.0	8.0	8.0	8.0	8.03	
D.O. Saturation (%)	109.8	107.9	105.8	104.8	103.6	104.5	106.07	-
D.O. (mg/L)	7.82	7.69	7.54	7.47	7.39	7.45	7.56	7.42
Turbidity (NTU)	5.87	6.98	7.19	7.19	7.99	7.19	7.07	-
SS (mg/L)	7.0	9.0	10.0	9.0	10.0	11.0	9.33	-
Remarks	-							

Date	11/23/2007							
Station	C2							
Time (hh:mm)	16:40 - 16:45							
Ambient Temperature (°C)	23							
Weather	Sunny							
Water Depth (m)	14.50							
Monitoring Depth (m)	1.10		7.10		13.10			
Tide	Mid-Flood							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Bottom*
Water Temperature (°C)	22.7	22.8	22.8	22.8	22.8	22.8	22.75	-
Salinity (ppt)	32.7	32.7	32.7	32.7	32.7	32.7	32.68	-
	8.0	8.0	8.0	8.0	8.0	8.0	8.03	
D.O. Saturation (%)	105.5	106.0	104.5	103.2	102.1	103.0	104.04	-
D.O. (mg/L)	7.53	7.56	7.46	7.36	7.28	7.34	7.42	7.31
Turbidity (NTU)	8.91	7.39	8.80	9.01	10.52	11.03	9.28	-
SS (mg/L)	12.0	9.0	10.0	11.0	15.0	12.0	11.50	-
Remarks	-							

Date	11/23/2007							
Station	SR1							
Time (hh:mm)	16:14 - 16:17							
Ambient Temperature (°C)	23							
Weather	Sunny							
Water Depth (m)	5.90							
Monitoring Depth (m)	1.30		2.60		4.10			
Tide	Mid-Flood							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Bottom*
Water Temperature (°C)	22.8	22.9	22.8	22.8	22.8	22.8	22.84	-
Salinity (ppt)	32.7	32.7	32.7	32.7	32.7	32.7	32.70	-
pH	8.0	8.0	8.0	8.0	8.0	8.0	8.03	
D.O. Saturation (%)	109.7	109.2	108.3	108.5	107.4	108.4	108.59	-
D.O. (mg/L)	7.82	7.77	7.71	7.73	7.65	7.72	7.73	7.69
Turbidity (NTU)	4.86	5.06	5.36	5.67	6.07	5.77	5.47	-
SS (mg/L)	6.0	7.0	9.0	7.0	7.0	7.0	7.17	-
Remarks	-							

Date	11/23/2007							
Station	D1							
Time (hh:mm)	16:30 - 16:34							
Ambient Temperature (°C)	23							
Weather	Sunny							
Water Depth (m)	9.40							
Monitoring Depth (m)	1.10		4.60		7.90			
Tide	Mid-Flood							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Bottom*
Water Temperature (°C)	22.8	22.8	22.8	22.8	22.8	22.8	22.80	-
Salinity (ppt)	32.7	32.7	32.7	32.7	32.7	32.7	32.69	-
pH	8.0	8.0	8.0	8.0	8.0	8.0	8.02	
D.O. Saturation (%)	105.0	105.1	104.8	104.7	104.6	104.7	104.80	-
D.O. (mg/L)	7.49	7.50	7.47	7.46	7.45	7.46	7.47	7.46
Turbidity (NTU)	6.38	5.87	6.27	6.27	8.20	6.58	6.60	-
SS (mg/L)	8.0	9.0	9.0	7.0	7.0	7.0	7.83	-
Remarks	-							

Flow Tracking Data

Position	Easting	Northing	Depth	Time	Speed	Direction	Date
C1	814485.4	825366.07	0	165446	0	0	20071123
C1	814325.2	825371.07	0	170030	0.4661	271.8	20071123
C1	814183.4	825371.89	0	170536	0.4633	270.3	20071123
C1	814043.4	825359.16	0	171057	0.4379	264.8	20071123
				Average	0.46	268.97	

Dissolved Oxygen (mg/L, Surface and Middle)

C1	7.47
C2	7.48
D1	7.48
U1	7.63
SR1	7.76

Compliance with Action and Limit Level

Parameter	Action Level	Limit Level	D1		U1		SR1	
			Exceedance of Action Level	Exceedance of Limit Level	Exceedance of Action Level	Exceedance of Limit Level	Exceedance of Action Level	Exceedance of Limit Level
DO (Bottom)	5.5	2.0	N	N	N	N	N	N
DO (Depth-averaged)	5.5	4.0	N	N	N	N	N	N
Turbidity (Depth-averaged)	14.8	18.9	N	N	N	N	N	N
SS (Depth-averaged)	23.6	28.3	N	N	N	N	N	N