



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

*Twenty - Eighth Weekly
Impact Monitoring Report -
2nd June to 8th June 2008*

13th June 2008

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

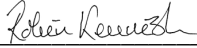
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CLP Power

Proposed 132kV Submarine Cable
Route for Airport "A" to Castle
Peak Power Station Cable Circuit:
*Twenty-Eighth Weekly Impact
Monitoring Report – 2nd June 2008 to
8th June 2008*

June 2008

Reference 0072833

For and on behalf of ERM-Hong Kong, Limited
Approved by: <u>Dr Robin Kennish</u>
Signed: <u></u>
Position: <u>Director</u>
Date: <u>13 June 2008</u>

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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 28th weekly Environmental Monitoring and Audit (EM&A) report presenting the EM&A works carried out during the period from 2 June to 8 June 2008 in accordance with the *EM&A Manual*.

Summary of Construction Works undertaken during the Reporting Period

During the reporting week, concrete slab installation was carried out outside the restriction zone at the Tuen Mun side from 2 June to 7 June 2008. No marine works were undertaken on 8 June 2008.

Water Quality

Three monitoring events were scheduled between 2 June and 8 June 2008 at the Tuen Mun landing site. All monitoring events at all designated monitoring stations were performed on schedule, ie on 3 June, 5 June and 7 June 2008.

All measured Turbidity levels were below the Action and Limit (AL) Levels with the exception of 5 June and 7 June 2008 whereas all Suspended Solids (SS) levels were complied with the AL levels except 3 June 2008.

It should be noted that, on all three monitoring days, the Dissolved Oxygen levels measured at some of the impact stations were found lower than the Action level. This phenomenon was examined in *Section 5.1* and the exceedances were considered to be caused by natural fluctuation and not the Project works.

Environmental Non-conformance

Thirty-one exceedances of Action Levels were recorded on three monitoring days, ie 3 June, 5 June and 7 June 2008 in the reporting week. The exceedances were examined against the construction works. It was concluded that they were isolated cases and unlikely related to the Project.

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 9 June to 15 June 2008), installation of concrete slabs will continue to be undertaken outside the restriction zone at Tuen Mun 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 28th weekly EM&A report, which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 2 June to 8 June 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.

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 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 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 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, concrete slab installation was carried out outside the restriction zone at the Tuen Mun side from 2 June to 7 June 2008. No marine works were undertaken on 8 June 2008.

The works programme of the period between 2 June and 8 June 2008 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
Baseline Environmental Monitoring Report (Part B)	-	Throughout the construction period for Airport Section	approved by EPD on 16 January 2008

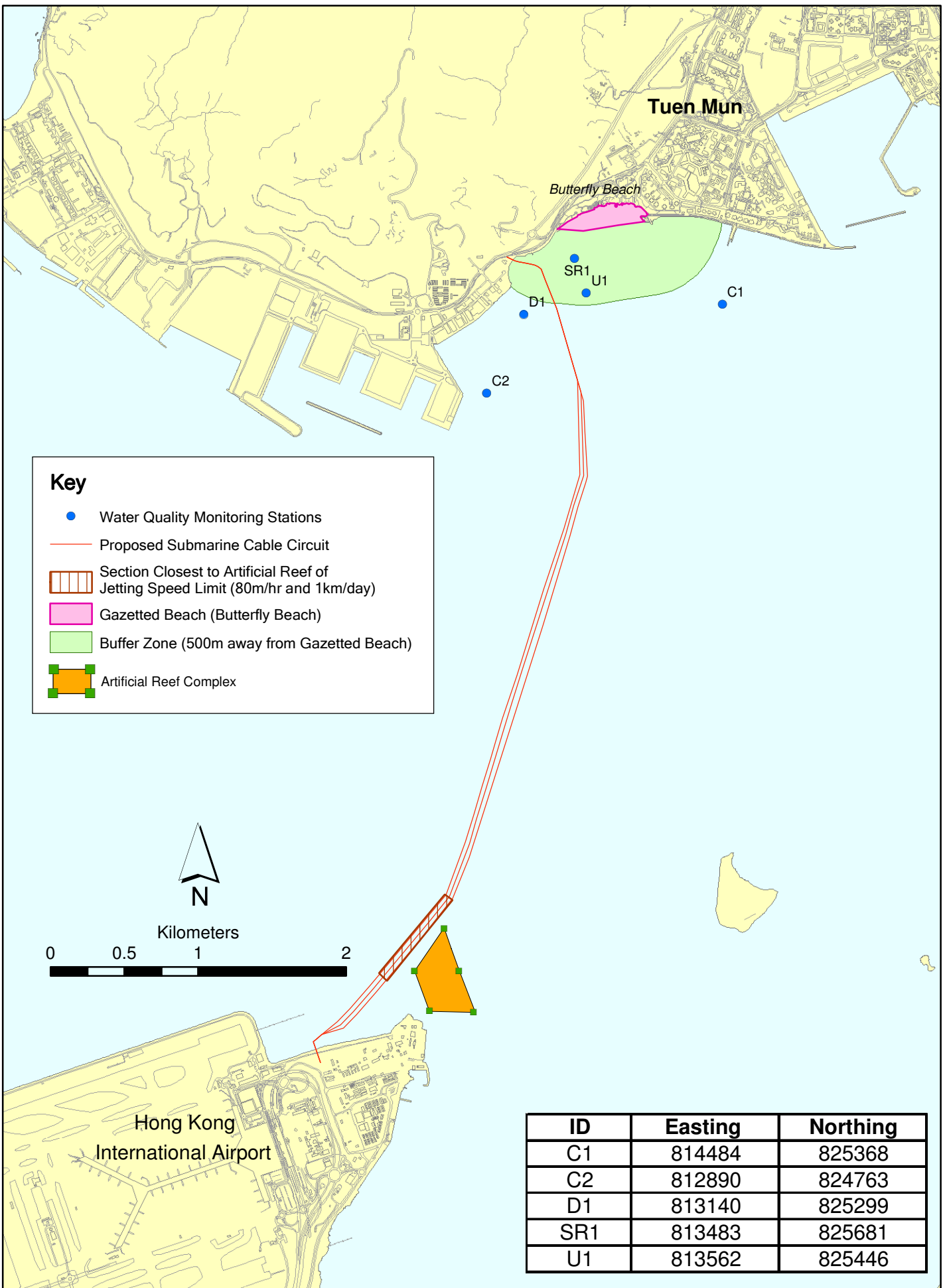


FIGURE 2.1

Location of Water Quality Monitoring around Tuen Mun Landing Site

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 and the Airport. The locations of the sampling stations near the Tuen Mun landing site are shown in *Figure 2.1*.

- C1 and C2 are Control Stations near the Tuen Mun landing site, which are not expected to be influenced by the construction works due to their remoteness from the construction works.
- 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	Easting	Northing
C1	Control Station	814483	825367
C2	Control Station	812890	824763
U1	Impact Station	813561	825446
D1	Impact Station	813140	825298
SR1	Impact Station	813483	825681

3.2 *MONITORING PARAMETERS AND FREQUENCY*

The impact water quality monitoring was conducted in accordance with the requirements stated in the *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) (mg L⁻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 5 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 0.5 m 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 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 Tuen Mun landing site, which were established based on the results of *Baseline Environmental Monitoring Part A*, are presented in *Tables 3.2*.

Table 3.2 *Action and Limit Levels for Water Quality for the Tuen Mun Landing Site*

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

Notes:

(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.

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	<p>Step 1 - repeat sampling event;</p> <p>Step 2 – identify source(s) of impact and confirm whether exceedance was due to the construction works;</p> <p>Step 3 – inform EPD and LCSD and confirm notification of the non-compliance in writing;</p> <p>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).</p> <p>Step 5 - repeat measurements after implementation of mitigation for confirmation of compliance.</p> <p>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.</p>
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 addition 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 five silt curtains have been installed at the five AR blocks along the direction facing the cable alignment during construction of the Project. In addition, the cable laying

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

5.1 IMPACT MONITORING RESULTS

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

Three monitoring events were scheduled between 2 June and 8 June 2008 at the Tuen Mun landing site. All monitoring events at all designated monitoring stations were performed on schedule, ie on 3 June, 5 June and 7 June 2008.

No major activities influencing the water quality were identified between 2 June and 8 June 2008.

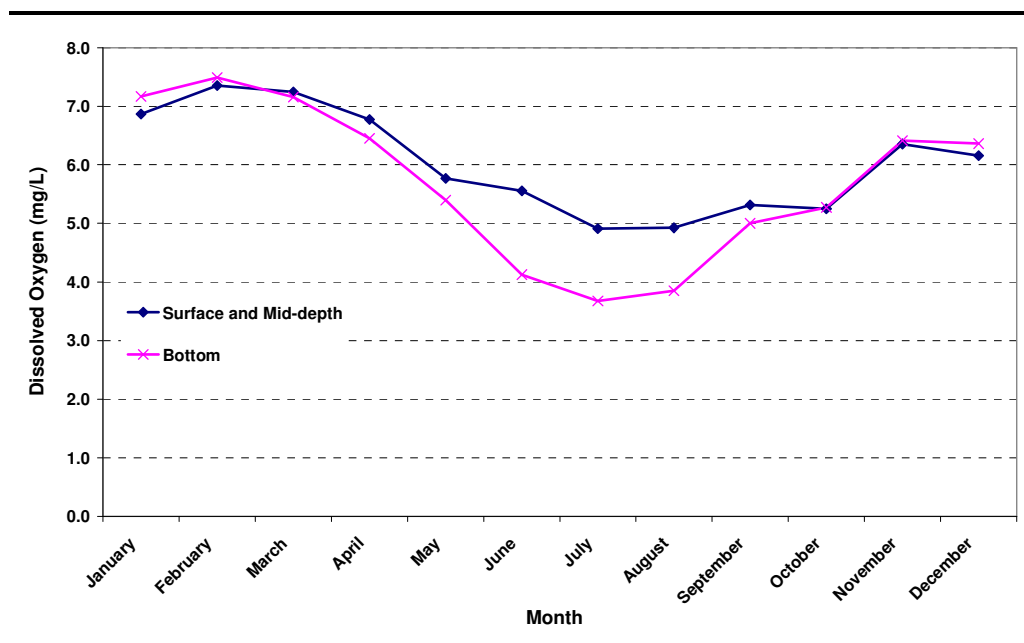
All measured Turbidity levels were below the Action and Limit (AL) Levels with the exception of 5 June and 7 June 2008 whereas all Suspended Solids (SS) levels were complied with the AL levels except 3 June 2008.

It should be noted that, on all three monitoring days, the Dissolved Oxygen levels measured at some of the impact stations were found lower than the Action level.

As discussed in the previous weekly reports, dissolved oxygen levels at all the monitoring stations at both Tuen Mun and Airport sides have started to decrease since the end of Week 15 (ie 3 to 9 March 2008). As seen in *Figures E1* and *E2*, decreasing trends of DO levels continued in the reporting week. It was observed that DO concentrations recorded at Tuen Mun side dropped below the Action Levels. Similar to the results of previous weeks, exceedances of DO were observed at both the control and the impact stations located either upstream or downstream of the project site. This implies that the low DO levels were unlikely to be caused by the project works and may be due to natural fluctuation.

In order to further investigate whether the natural phenomenon was affecting the monitoring results, the monitoring results were compared against those recorded in EPD's routine monitoring programme. The water quality monitoring stations at both Tuen Mun and Airport sides fall within the North Western Water Control Zone (WCZ). EPD routine monitoring station NM3 is located in-between the Airport and Tuen Mun landing sites and, hence, it can be used as a reference station in this study. Based on EPD's marine water quality data for the years 1998 – 2006, the monthly mean and depth averaged dissolved oxygen level at the reference station NM3 is reviewed and shown in *Figure 5.1*. It should be noted that the dissolved oxygen trend varies with seasons, especially for the bottom DO. The DO levels measured in June, July and August were relatively lower than those recorded in the other months. This is probably due to water stratification occurred during the summer.

Figure 5.1 *Monthly Mean and Depth-averaged Dissolved Oxygen at EPD Routine Monitoring Station NM3 (1998-2006)*



For DO, critical conditions usually occur within the bottom waters during the summer months when the water column is stratified, with a warmer surface layer separated from deeper water by a pycnocline, or density gradient. When the density gradient within the pycnocline is high, transport of oxygen from the aerated surface waters to the lower waters by mixing is significantly reduced. In addition, warmer water temperatures during the summer speed up the uptake of oxygen through respiration by living organisms and decomposition of organic matter in the water column and sediments. As a result, the replenishment of dissolved oxygen is less than the DO consumption leading to depletion in dissolved oxygen concentrations.

When comparing the baseline and impact monitoring results as shown in *Figures E1* and *E2* with the monthly mean depth-averaged DO at EPD monitoring station NM3 (see *Figure 5.1*), it can be seen that their trends are similar of which high dissolved oxygen concentrations were recorded in the dry season while the lowest measured of dissolved oxygen were measured in the wet season. This explains the recent declining trends of dissolved oxygen starting from early March 2008 may be due to seasonal variations.

5.2 DOLPHIN MONITORING

The Contractor confirmed that all jetting operations were completed on 23 April 2008. Hence, dolphin monitoring was not required during the reporting week.

5.3

TIDAL FLOW DIRECTION MONITORING

The Contractor confirmed that all jetting operations were completed on 23 April 2008 and therefore, no current flow data were reported.

6.1 SUMMARY OF ENVIRONMENTAL EXCEEDANCE

6.1.1 Exceedance on 3 June 2008

Exceedances of the Action Levels of Dissolved Oxygen, Bottom (mg/L), Dissolved Oxygen, Surface and Middle (mg/L), Depth-averaged Suspended Solids (SS, mg/L) were recorded at Stations D1, U1 and SR1 during both mid-ebb and mid-flood tides on 3 June 2008 (Table 6.1).

Table 6.1 Exceedances of Action Levels of Dissolved Oxygen, Bottom (mg/L), Dissolved Oxygen, Surface and Middle (mg/L) and Depth-averaged Suspended Solids (SS, mg/L) during Mid-ebb and Mid-flood Tides on 3 June 2008

Exceedance Log No.	0072833_03 June 08_DO_E_Station D1 0072833_03 June 08_DOB_E_Station D1 0072833_03 June 08_DO_E_Station U1 0072833_03 June 08_DOB_E_Station U1 0072833_03 June 08_DO_E_Station SR1 0072833_03 June 08_DO_F_Station D1 0072833_03 June 08_DO_F_Station U1 0072833_03 June 08_SS_F_Station SR1		
Sampling date	3 June 2008		
Monitoring station	D1, U1 and SR1		
Parameter	Dissolved Oxygen, Bottom (mg/L) Dissolved Oxygen, Surface and Middle (mg/L) Depth-averaged Suspended Solids (SS, mg/L)		
Action Levels	Mid-Ebb	DO, Surface and Middle = 5.2 DO, Bottom = 5.3 SS, Depth-averaged = 12.8	
	Mid-Flood	DO, Surface and Middle = 5.5 DO, Bottom = 5.5 SS, Depth-averaged = 23.6	
Limit Levels	Mid-Ebb	DO, Surface and Middle = 4.0 DO, Bottom = 2.0 SS, Depth-averaged = 13.3	
	Mid-Flood	DO, Surface and Middle = 4.0 DO, Bottom = 2.0 SS, Depth-averaged = 28.3	
Measured Levels at Station D1	Mid-Ebb	DO, Surface and Middle = 5.05 (exceeds Action Level) DO, Bottom = 4.97 (exceeds Action Level) SS, Depth-averaged = 6.67	
	Mid-Flood	DO, Surface and Middle = 5.46 (exceeds Action Level) DO, Bottom = 5.61 SS, Depth-averaged = 10.83	
Measured Levels at Station U1	Mid-Ebb	DO, Surface and Middle = 4.77 (exceeds Action Level) DO, Bottom = 4.67 (exceeds Action Level) SS, Depth-averaged = 6.67	
	Mid-Flood	DO, Surface and Middle = 5.44 (exceeds Action Level) DO, Bottom = 5.54 SS, Depth-averaged = 22.50	
Measured Levels at Station SR1	Mid-Ebb	DO, Surface and Middle = 5.17 (exceeds Action Level) DO, Bottom = 5.33 SS, Depth-averaged = 9.33	

Mid-Flood	DO, Surface and Middle = 5.64
	DO, Bottom = 5.70
	SS, Depth-averaged = 24.00 (exceeds Action Level)

According to the works programme provided by the Contractor (*Annex A*), the Contractor confirmed that installation of concrete slabs was conducted at Tuen Mun side and over 500m away from the Butterfly beach on 3 June 2008.

During mid-ebb tidal and mid-flood tidal conditions, DO levels at the concerned stations were in similar magnitude to or higher magnitude than the DO level recorded at the Control Stations C1 and C2 (see *Figures 6.1* and *6.2*). In addition, exceedances were recorded at both upstream and downstream stations. This indicates that the exceedances may be due to seasonal changes as discussed in *Section 5.1*.

Station SR1 was located upstream of the Project site during mid-flood and hence was unlikely to be affected by the site works. The SS exceedance may be due to high background levels of SS at the local area. In addition, SS levels of all Impact Stations did not show non-compliance during the preceding mid-ebb tidal conditions

Based on the above, the exceedances were considered to be isolated cases and likely to be caused by natural fluctuation. Hence, no action was required.

The exceedance incident has been notified to EPD and LCSD.

6.1.2 *Exceedance on 5 June 2008*

Exceedances of the Action Levels of Dissolved Oxygen, Bottom (mg/L), Dissolved Oxygen, Surface and Middle (mg/L), Depth-averaged Turbidity (NTU) were recorded at Stations D1, U1 and SR1 during both mid-ebb and mid-flood tides on 5 June 2008 (*Table 6.2*).

Table 6.2 *Exceedances of Action Levels of Dissolved Oxygen, Bottom (mg/L), Dissolved Oxygen, Surface and Middle (mg/L) and Depth-averaged Turbidity (NTU) during Mid-ebb and Mid-flood Tides on 5 June 2008*

Exceedance Log No.	
	0072833_05 June 08_DO_E_Station D1
	0072833_05 June 08_DOB_E_Station D1
	0072833_05 June 08_Turb_E_Station D1
	0072833_05 June 08_DO_E_Station U1
	0072833_05 June 08_DOB_E_Station U1
	0072833_05 June 08_Turb_E_Station U1
	0072833_05 June 08_DO_E_Station SR1
	0072833_05 June 08_DOB_E_Station SR1
	0072833_05 June 08_Turb_E_Station SR1
	0072833_05 June 08_DO_F_Station D1
	0072833_05 June 08_DOB_F_Station D1
	0072833_05 June 08_DO_F_Station U1
	0072833_05 June 08_DOB_F_Station U1
	0072833_05 June 08_DO_F_Station SR1

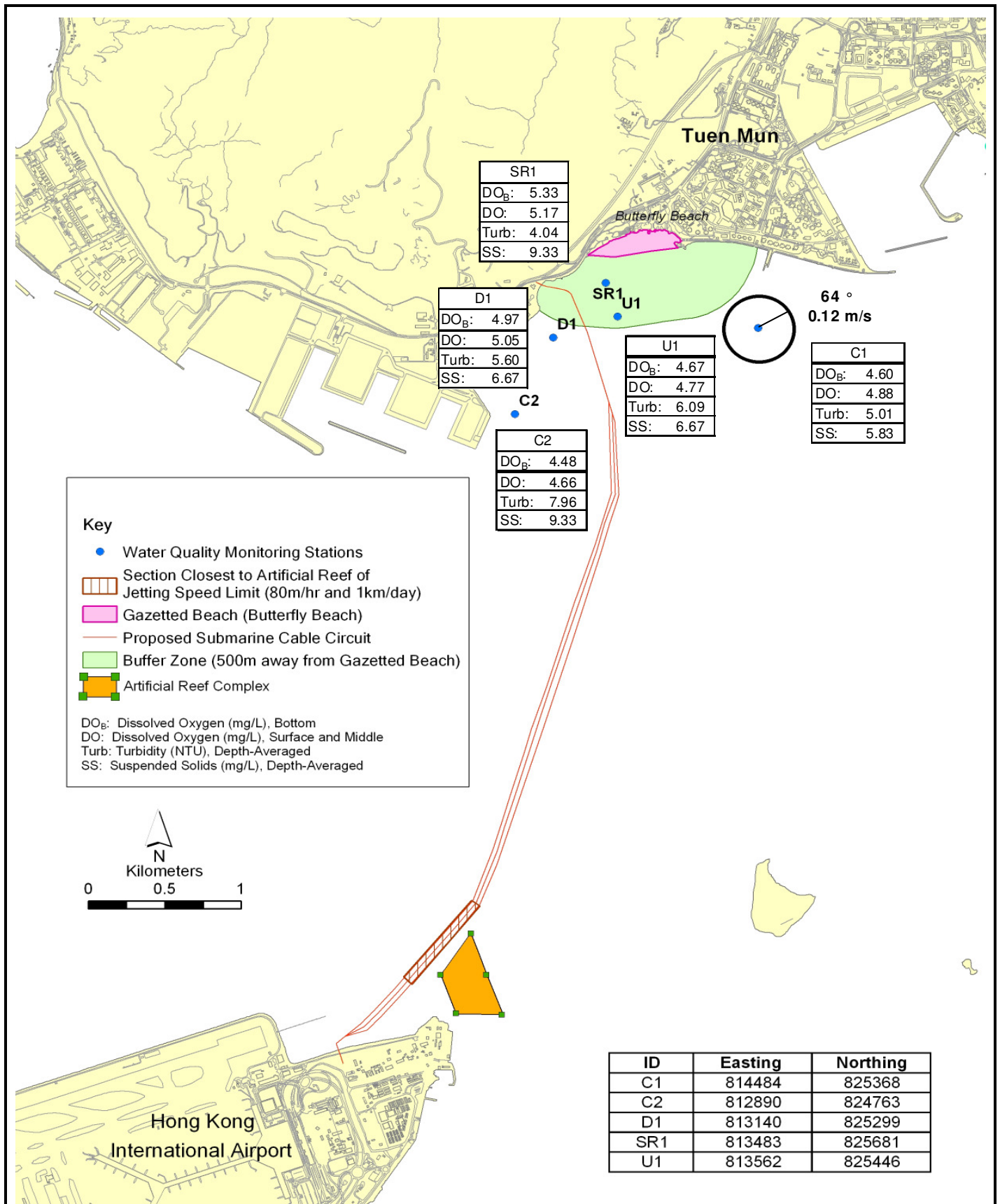


Figure 6.1

Mid Ebb Water Quality Monitoring

(3 June 2008)

Environmental
Resources
Management



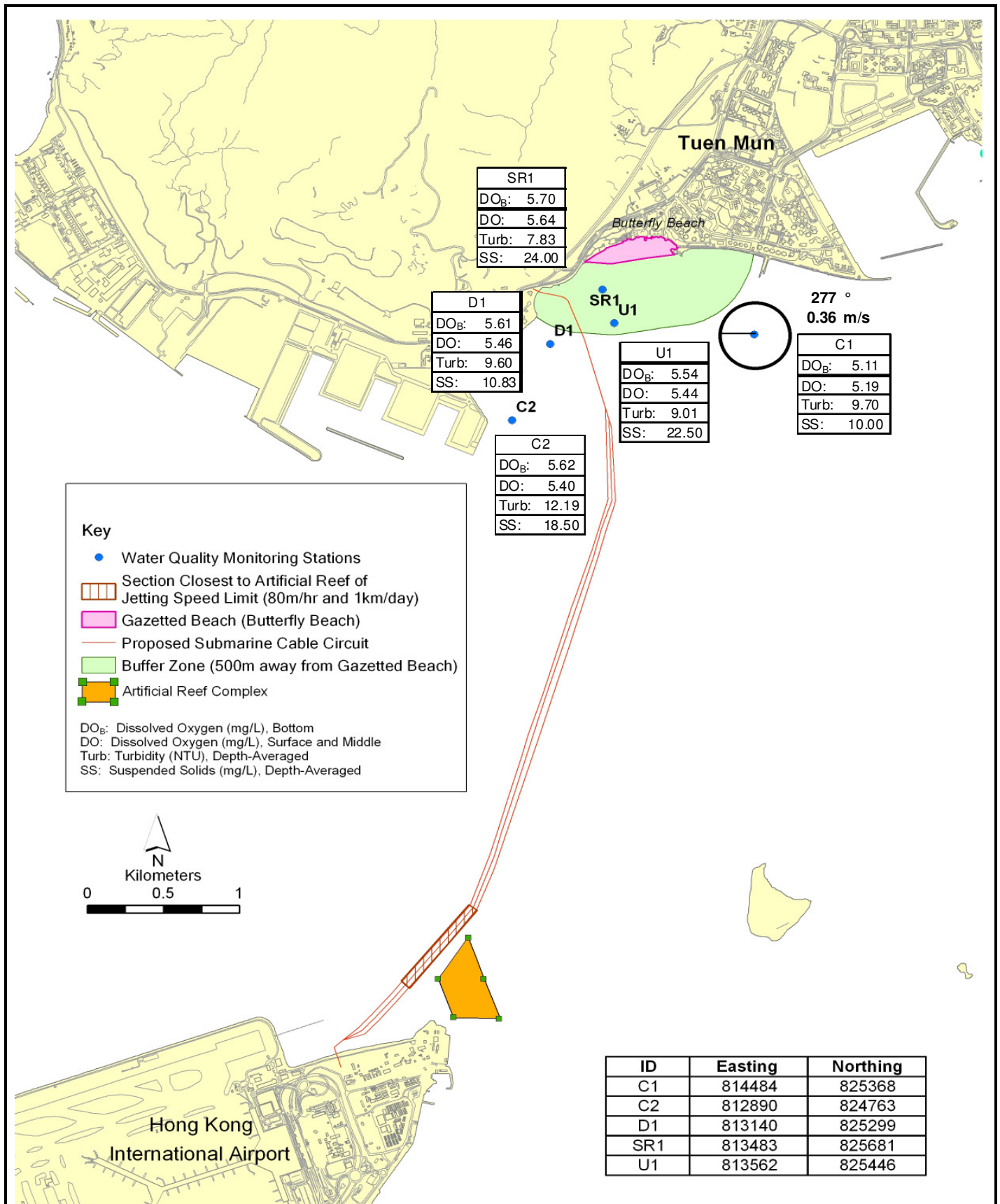


Figure 6.2

Mid Flood Water Quality Monitoring

(3 June 2008)

Environmental
Resources
Management



0072833_05 June 08_DOB_F_Station SR1	
Sampling date	5 June 2008
Monitoring station	D1, U1 and SR1
Parameter	Dissolved Oxygen, Bottom (mg/L) Dissolved Oxygen, Surface and Middle (mg/L) Depth-averaged Turbidity (NTU)
Action Levels	Mid-Ebb DO, Surface and Middle = 5.2 DO, Bottom = 5.3 Turbidity, Depth-averaged = 7.0
	Mid-Flood DO, Surface and Middle = 5.5 DO, Bottom = 5.5 Turbidity, Depth-averaged = 14.8
Limit Levels	Mid-Ebb DO, Surface and Middle = 4.0 DO, Bottom = 2.0 Turbidity, Depth-averaged = 8.3
	Mid-Flood DO, Surface and Middle = 4.0 DO, Bottom = 2.0 Turbidity, Depth-averaged = 18.9
Measured Levels at Station D1	Mid-Ebb DO, Surface and Middle = 4.68 (exceeds Action Level) DO, Bottom = 4.68 (exceeds Action Level) Turbidity, Depth-averaged = 7.17 (exceeds Action Level)
	Mid-Flood DO, Surface and Middle = 5.03 (exceeds Action Level) DO, Bottom = 4.66 (exceeds Action Level) Turbidity, Depth-averaged = 6.20
	Mid-Ebb DO, Surface and Middle = 4.72 (exceeds Action Level) DO, Bottom = 4.55 (exceeds Action Level) Turbidity, Depth-averaged = 7.41 (exceeds Action Level)
Measured Levels at Station U1	Mid-Flood DO, Surface and Middle = 4.85 (exceeds Action Level) DO, Bottom = 4.63 (exceeds Action Level) Turbidity, Depth-averaged = 9.76
	Mid-Ebb DO, Surface and Middle = 4.47 (exceeds Action Level) DO, Bottom = 4.58 (exceeds Action Level) Turbidity, Depth-averaged = 7.72 (exceeds Action Level)
Measured Levels at Station SR1	Mid-Flood DO, Surface and Middle = 5.17 (exceeds Action Level) DO, Bottom = 4.74 (exceeds Action Level) Turbidity, Depth-averaged = 5.49

The Contractor confirmed installation of concrete slabs was conducted at Tuen Mun side and over 500m away from the Butterfly beach on 5 June 2008.

During mid-ebb tidal and mid-flood tidal conditions, DO levels at the impact stations were similar to or higher than those recorded at the Control Stations C1 and C2 (see *Figures 6.3 and 6.4*). In addition, exceedances were recorded at both upstream and downstream stations. This suggests that the exceedances may be due to natural variation as mentioned in *Section 5.1*.

Relatively high levels of turbidity were recorded at the Control Stations C1 and C2 during mid-ebb tide. This implies the exceedances may be due to high background levels of turbidity. Moreover, turbidity levels of all Impact Stations did not show non-compliance during the preceding mid-flood tidal conditions. Therefore, the exceedances during mid-ebb and mid-flood were considered unlikely to be caused by the project and no action was necessary.

The exceedance incident has been notified to EPD and LCSD.

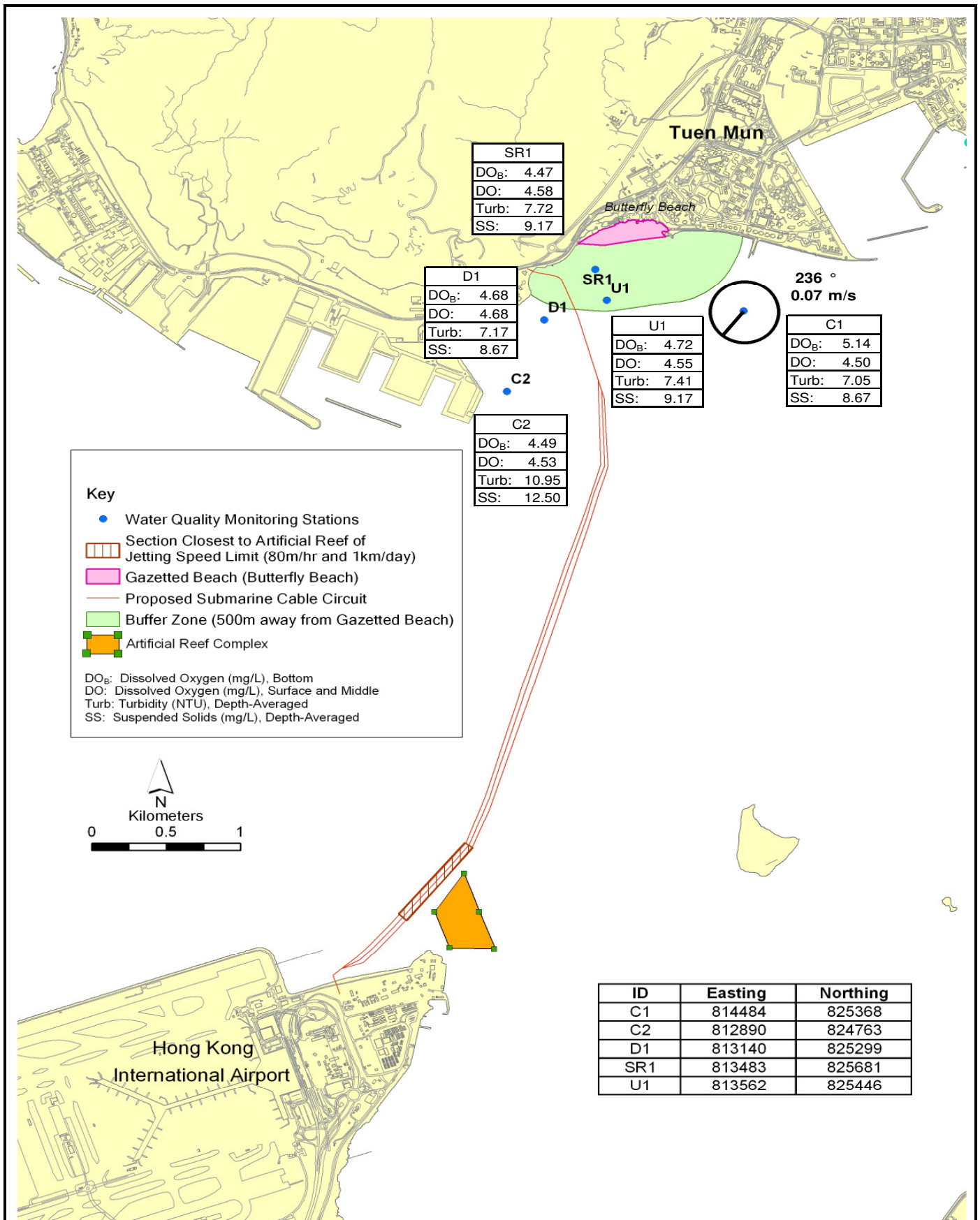


Figure 6.3

Mid Ebb Water Quality Monitoring

(5 June 2008)

Environmental
 Resources
 Management



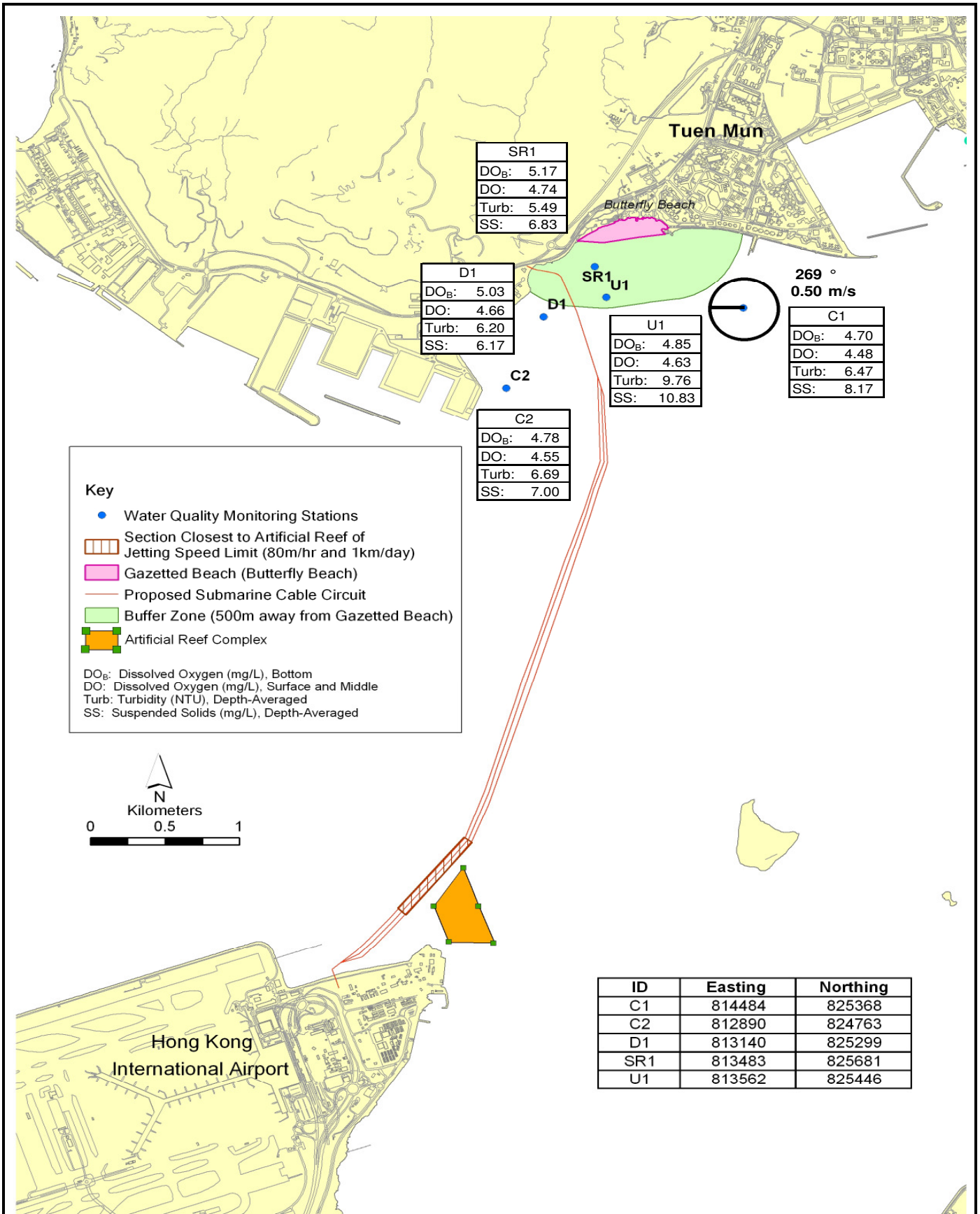


Figure 6.4

Mid Flood Water Quality Monitoring

(5 June 2008)

Environmental
 Resources
 Management



6.1.3

Exceedance on 7 June 2008

Exceedances of the Action Levels of Dissolved Oxygen, Bottom (mg/L) Dissolved Oxygen, Surface and Middle (mg/L), and Depth-averaged Turbidity (NTU) were recorded at Stations D1, U1 and SR1 during both mid-ebb and mid-flood tides on 7 June 2008 (*Table 6.3*).

Table 6.3 *Exceedances of Action Levels of Dissolved Oxygen, Bottom (mg/L), Dissolved Oxygen, Surface and Middle (mg/L) and Depth-averaged Turbidity (NTU) during Mid-ebb and Mid-flood Tides on 7 June 2008*

Exceedance Log No.	0072833_07 June 08_DOB_E_Station D1 0072833_07 June 08_DO_E_Station U1 0072833_07 June 08_DOB_E_Station U1 0072833_07 June 08_Turb_E_Station SR1 0072833_07 June 08_DOB_F_Station D1 0072833_07 June 08_DOB_F_Station U1 0072833_07 June 08_DO_F_Station SR1 0072833_07 June 08_DOB_F_Station SR1		
Sampling date	7 June 2008		
Monitoring station	D1, U1 and SR1		
Parameter	Dissolved Oxygen, Bottom (mg/L) Dissolved Oxygen, Surface and Middle (mg/L) Depth-averaged Turbidity (NTU)		
Action Levels	Mid-Ebb	DO, Surface and Middle = 5.2 DO, Bottom = 5.3 Turbidity, Depth-averaged = 7.0	
	Mid-Flood	DO, Surface and Middle = 5.5 DO, Bottom = 5.5 Turbidity, Depth-averaged = 14.8	
Limit Levels	Mid-Ebb	DO, Surface and Middle = 4.0 DO, Bottom = 2.0 Turbidity, Depth-averaged = 8.3	
	Mid-Flood	DO, Surface and Middle = 4.0 DO, Bottom = 2.0 Turbidity, Depth-averaged = 18.9	
Measured Levels at Station D1	Mid-Ebb	DO, Surface and Middle = 5.32 DO, Bottom = 4.92 (exceeds Action Level) Turbidity, Depth-averaged = 6.92	
	Mid-Flood	DO, Surface and Middle = 5.84 DO, Bottom = 5.43 (exceeds Action Level) Turbidity, Depth-averaged = 8.69	
Measured Levels at Station U1	Mid-Ebb	DO, Surface and Middle = 4.98 (exceeds Action Level) DO, Bottom = 5.16 (exceeds Action Level) Turbidity, Depth-averaged = 6.74	
	Mid-Flood	DO, Surface and Middle = 5.54 DO, Bottom = 4.91 (exceeds Action Level) Turbidity, Depth-averaged = 7.54	
Measured Levels at Station SR1	Mid-Ebb	DO, Surface and Middle = 5.47 DO, Bottom = 5.58 Turbidity, Depth-averaged = 8.11 (exceeds Action Level)	
	Mid-Flood	DO, Surface and Middle = 5.24 (exceeds Action Level) DO, Bottom = 5.06 (exceeds Action Level) Turbidity, Depth-averaged = 8.85	

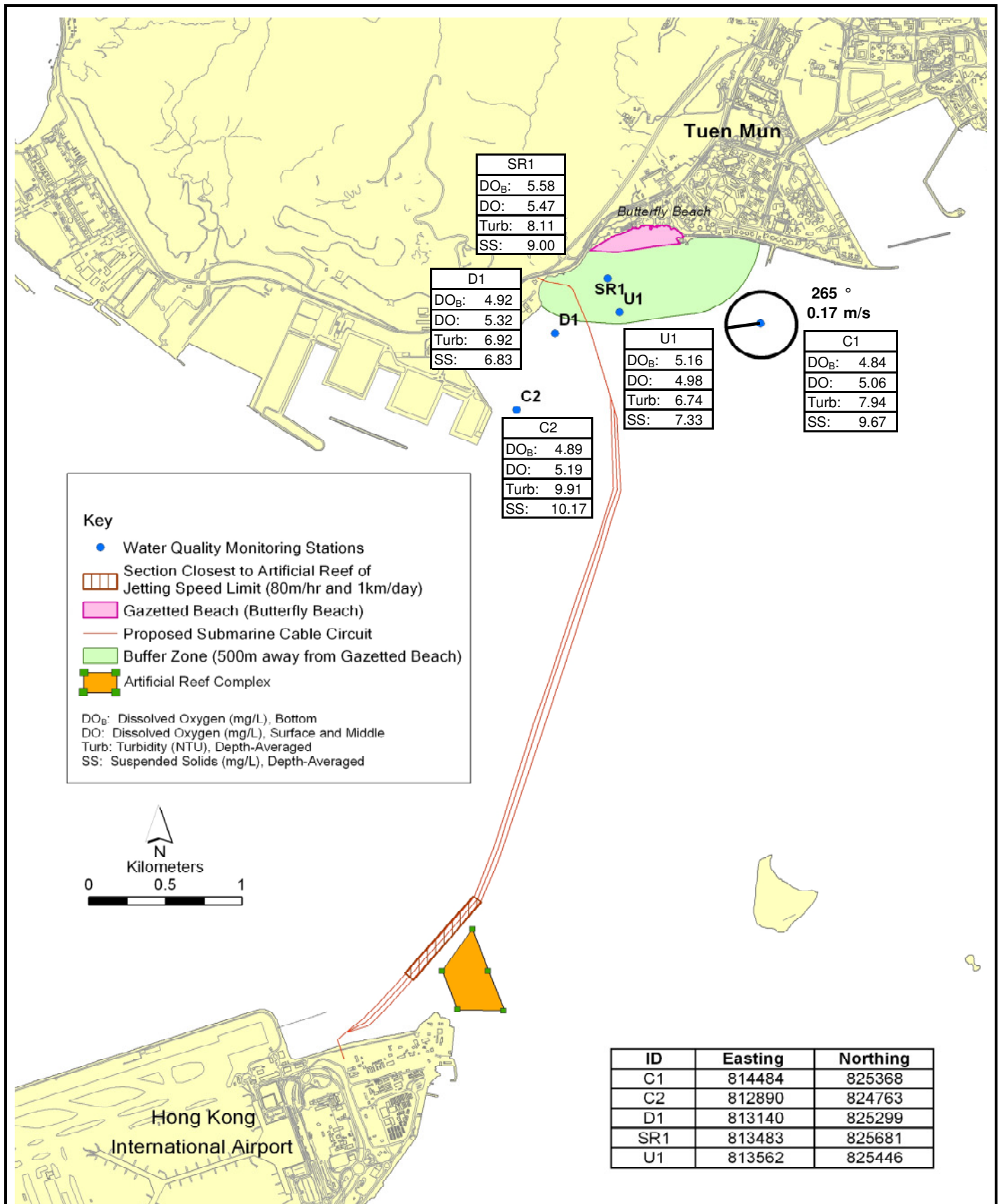


Figure 6.5

Mid Ebb Water Quality Monitoring
(7 June 2008)

Environmental
Resources
Management



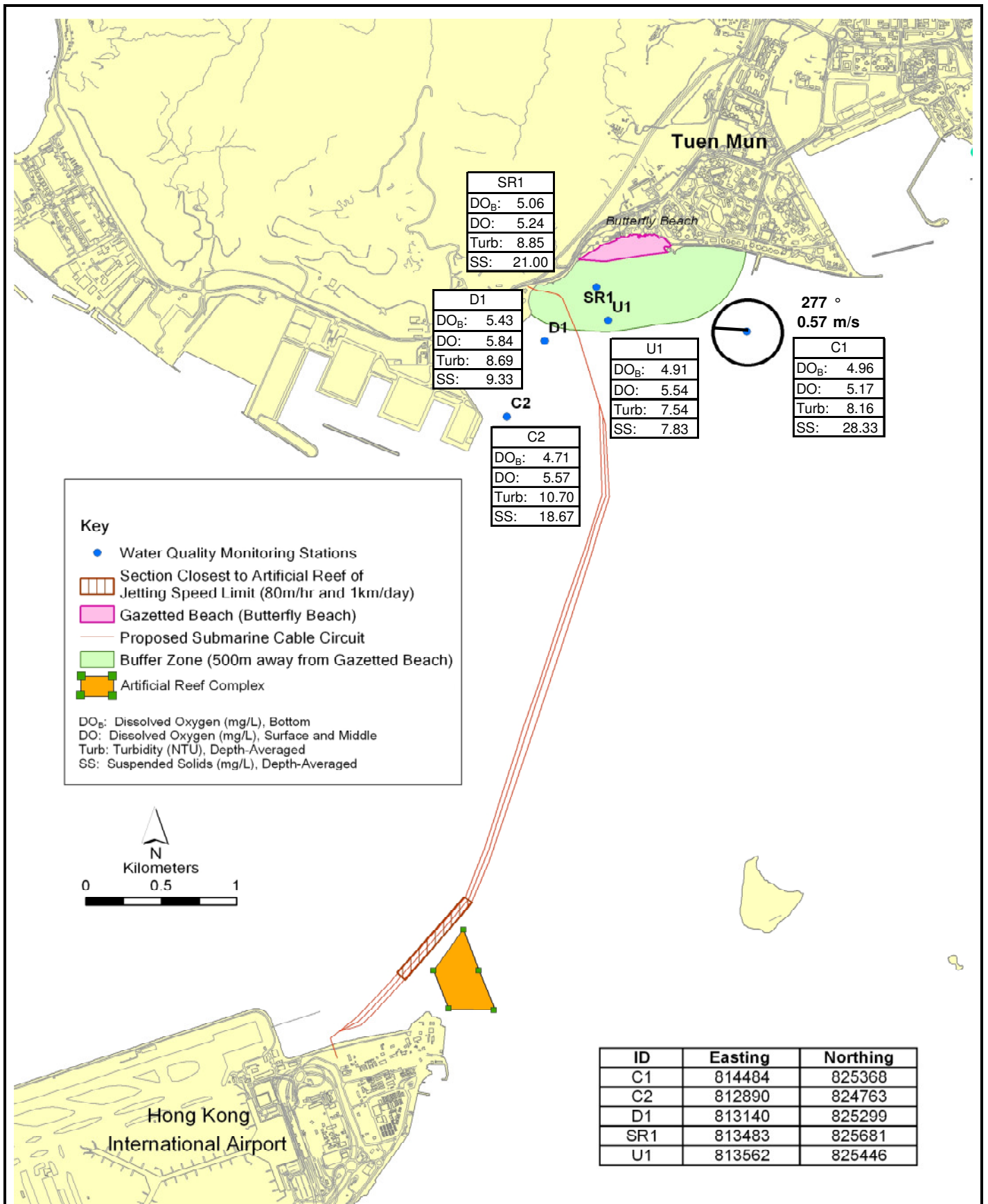


Figure 6.6

Mid Flood Water Quality Monitoring

(7 June 2008)

Environmental
Resources
Management



The Contractor confirmed that concrete slabs were installed near the Tuen Mun landing site over a distance of 500m from the Butterfly beach on 7 June 2008.

During mid-ebb tidal and mid-flood tidal conditions, DO levels at the impact stations were similar to or higher than those recorded at the Control Stations C1 and C2 (see *Figures 6.5 and 6.6*). Installation of the concrete slabs which did not require any removal of seabed sediment was unlikely to result in reduction of DO or increment of turbidity. In addition, exceedances were recorded at both upstream and downstream stations. This suggests that the exceedances may be due to a natural variation as above discussed in *Section 5.1*.

Turbidity levels recorded at the Control Stations C1 and C2 were higher than all impact stations during mid-ebb tide. This implies the exceedances may be due to high background levels of turbidity. Besides, turbidity levels of all Impact Stations did not show non-compliance during the preceding mid-flood tidal conditions.

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.

7 *FUTURE KEY ISSUES*

7.1 *KEY ISSUES FOR THE COMING WEEK*

During the following week (ie 9 June to 15 June 2008), installation of concrete slabs will continue to be undertaken outside the restriction zone at Tuen Mun site.

The expected construction programme is enclosed in *Annex A*.

7.2 *MONITORING SCHEDULE FOR THE COMING WEEK*

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

The Contractor confirmed that all jetting operations were completed on 23 April 2008. Since there were no 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.

CONCLUSIONS

This Weekly Impact Monitoring Report presents the EM&A works undertaken during the period from 2 June to 8 June 2008 in accordance with the EM&A Manual and the requirements under *EP-267/2007*.

All measured Turbidity levels were below the Action and Limit (AL) Levels with the exception of 5 June and 7 June 2008 whereas all Suspended Solids (SS) levels were complied with the AL levels except 3 June 2008. The exceedances were examined against the construction works. It was concluded that they were isolated cases and unlikely related to the Project.

It should be noted that, on all three monitoring days, the Dissolved Oxygen levels measured at some of the impact stations were found lower than the Action level. This phenomenon was examined in *Section 5.1* and the exceedances were considered to be caused by natural fluctuation and not the Project works. However, investigation on the decreasing trend of DO concentrations will continue in the upcoming weekly report.

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 2 June 2008
and 22 June 2008

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

Item	Date	Workdone for Last Week							Plan for This Week							Anticipate Plan for Next Week								
		2/6	3/6	4/6	5/6	6/6	7/6	8/6	9/6	10/6	11/6	12/6	13/6	14/6	15/6	16/6	17/6	18/6	19/6	20/6	21/6	22/6		
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 Barges																							
11	Cable Lay Barges Preparation Work																							
12	Installation of Silt Curtain (AR)																							
13	Cable Burial Machine Testing																							
14	Cable Laying																							
15	Cable Landing Work (Tuen Mun)																							
16	Cable Landing Work (Airport)																							
17	Backfill and Installation of Concrete Slabs (Tuen Mun) * inside the restriction zone.																							
18	Installation of Concrete Slabs (Tuen Mun) * outside the restriction zone.																							

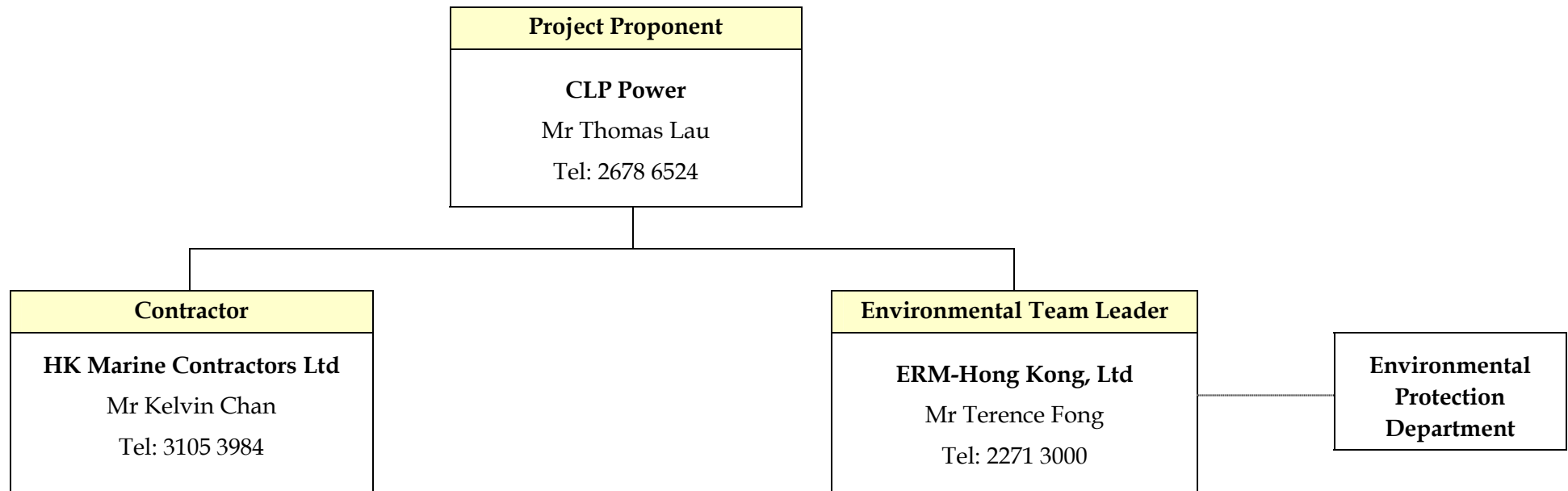
Marine Work of 132kV Submarine Cable Installation between Airport to Tuen Mun

19	Demoblization of cable laying plant																						
20	Transfer of backfill material to barge																						
21	Transfer of concrete slabs to barge																						
22	Backfilling Work (Airport)																						
23	Installation of Articulating Pipes (Airport)																						
24	Concrete Slab Installation (Airport)																						
25	Removal of Silt Curtain (Airport Intake)																						
26	Removal of Silt Curtain (Artificial Reef)																						

Annex B

Project Organisation Chart (with Contact Details)

ANNEX B - PROJECT ORGANIZATION (WITH CONTACT DETAILS)



————— Line of Project Management Responsibility
 Communication Channel

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 - June 2008**

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

As of 22 May 2008

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
28	01-Jun	02-Jun	03-Jun	04-Jun	05-Jun	06-Jun	07-Jun
			Mid-Ebb 12:26 Mid-Flood 19:34 <i>Impact Monitoring (Tuen Mun)</i>		Mid-Flood 07:30 Mid-Ebb 14:05 <i>Impact Monitoring (Tuen Mun)</i>		Mid-Flood 08:22 Mid-Ebb 15:44 <i>Impact Monitoring (Tuen Mun)</i>
29	08-Jun	09-Jun	10-Jun	11-Jun	12-Jun	13-Jun	14-Jun
			Mid-Flood 11:31 Mid-Ebb 18:26 <i>Impact Monitoring (Tuen Mun)</i>		Mid-Ebb 08:47 Mid-Flood 14:33 <i>Impact Monitoring (Tuen Mun)</i>		Mid-Ebb 10:30 Mid-Flood 17:09 <i>Impact Monitoring (Tuen Mun)</i>
30	15-Jun	16-Jun	17-Jun	18-Jun	19-Jun	20-Jun	21-Jun
		Mid-Ebb 11:44 Mid-Flood 18:59 <i>Post-Project Monitoring (Airport)</i>	Mid-Ebb 12:20 Mid-Flood 19:40 <i>Post-Project Monitoring (Tuen Mun)</i>	Mid-Ebb 12:56 Mid-Flood 20:00 <i>Post-Project Monitoring (Airport)</i>	Mid-Ebb 13:31 Mid-Flood 20:00 <i>Post-Project Monitoring (Tuen Mun)</i>	Mid-Flood 07:30 Mid-Ebb 14:07 <i>Post-Project Monitoring (Airport)</i>	Mid-Flood 07:25 Mid-Ebb 14:43 <i>Post-Project Monitoring (Tuen Mun)</i>
31	22-Jun	23-Jun	24-Jun	25-Jun	26-Jun	27-Jun	28-Jun
32	29-Jun	30-Jun					

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



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	: HK0808680
Address	: 21/F, LINCOLN HOUSE, 979 KING'S ROAD, TAIKOO PLACE, ISLAND EAST, QUARRY BAY, Kwai Chung, N.T., 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	: 4 Jun 2008
Order number	: ----			Date of issue	: 6 Jun 2008
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 HK0808680 supersedes any previous reports with this reference. The completion date of analysis is 5 Jun 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 HK0808680 : **Sample(s) were received in a chilled condition.**
Water sample(s) analysed and reported on an as received basis.

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<i>Signatory</i>	<i>Position</i>	<i>Authorised results for:-</i>
Fung Lim Chee, Richard	General Manager	Inorganics



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 Aggregate Properties (QC Lot: 674362)								
HK0808680-001	2008/06/03/1104/C1/B/E/ REPL. 1	EA025: Suspended Solids (SS)	----	1	mg/L	7	8	0.0
HK0808680-011	2008/06/03/1114/SR1/M/E/ REPL. 2	EA025: Suspended Solids (SS)	----	1	mg/L	9	10	0.0
EA/ED: Physical and Aggregate Properties (QC Lot: 674363)								
HK0808680-021	2008/06/03/1124/D1/T/E/ REPL. 1	EA025: Suspended Solids (SS)	----	1	mg/L	4	5	0.0
HK0808680-031	2008/06/03/1813/C1/B/F/ REPL. 1	EA025: Suspended Solids (SS)	----	1	mg/L	13	14	0.0
EA/ED: Physical and Aggregate Properties (QC Lot: 674364)								
HK0808680-038	2008/06/03/1923/SR1/M/F/ REPL. 1	EA025: Suspended Solids (SS)	----	1	mg/L	21	22	6.9
HK0808680-051	2008/06/03/1850/D1/T/F/ REPL. 1	EA025: Suspended Solids (SS)	----	1	mg/L	7	6	0.0

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

Matrix Type: WATER		Method Blank (MB) Results			Single Control Spike (SCS) and Duplicate Control Spike (DCS) Results						
Method: Analysis Description	CAS number	LOR	Units	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
						SCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QCLot: 674362)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	107	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 674363)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	105	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 674364)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	95.0	----	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	: HK0808833
Address	: 21/F, LINCOLN HOUSE, 979 KING'S ROAD, TAIKOO PLACE, ISLAND EAST, QUARRY BAY, Kwai Chung, N.T., 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	: 5 Jun 2008
Order number	: ----			Date of issue	: 10 Jun 2008
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 HK0808833 supersedes any previous reports with this reference. The completion date of analysis is 10 Jun 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 HK0808833 : **Sample(s) were received in a chilled condition.**
Water sample(s) analysed and reported on an as received basis.

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<i>Signatory</i>	<i>Position</i>	<i>Authorised results for:-</i>
Fung Lim Chee, Richard	General Manager	Inorganics



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 Aggregate Properties (QC Lot: 675506)								
HK0808833-001	2008/06/05/1236/C1/B/E/ REPL. 1	EA025: Suspended Solids (SS)	----	1	mg/L	9	10	15.0
HK0808833-011	2008/06/05/1250/SR1/M/E/ REPL. 2	EA025: Suspended Solids (SS)	----	1	mg/L	11	10	11.0
EA/ED: Physical and Aggregate Properties (QC Lot: 675507)								
HK0808833-022	2008/06/05/1300/D1/B/E/ REPL. 2	EA025: Suspended Solids (SS)	----	1	mg/L	12	11	0.0
HK0808833-031	2008/06/05/0609/C1/B/F/ REPL. 1	EA025: Suspended Solids (SS)	----	1	mg/L	11	13	12.1
EA/ED: Physical and Aggregate Properties (QC Lot: 675508)								
HK0808833-042	2008/06/05/0622/SR1/T/F/ REPL. 2	EA025: Suspended Solids (SS)	----	1	mg/L	5	5	0.0
HK0808833-051	2008/06/05/0632/D1/T/F/ REPL. 1	EA025: Suspended Solids (SS)	----	1	mg/L	4	5	0.0

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

Matrix Type: WATER		Method Blank (MB) Results			Single Control Spike (SCS) and Duplicate Control Spike (DCS) Results						
Method: Analysis Description	CAS number	LOR	Units	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
						SCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QCLot: 675506)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	104	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 675507)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	96.0	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 675508)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	96.5	----	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	: HK0809021
Address	: 21/F, LINCOLN HOUSE, 979 KING'S ROAD, TAIKOO PLACE, ISLAND EAST, QUARRY BAY, Kwai Chung, N.T., 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	: 10 Jun 2008
Order number	: ----			Date of issue	: 11 Jun 2008
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 HK0809021 supersedes any previous reports with this reference. The completion date of analysis is 11 Jun 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 HK0809021 : **Sample(s) were received in a chilled condition.**
Water sample(s) analysed and reported on an as received basis.

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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 Hona Kona. Chapter 553. Section 6.

<i>Signatory</i>	<i>Position</i>	<i>Authorised results for:-</i>
Fung Lim Chee, Richard	General Manager	Inorganics



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 Aggregate Properties (QC Lot: 678453)								
HK0809021-001	2008/06/07/1416/C1/B/E/ REPL.1	EA025: Suspended Solids (SS)	----	1	mg/L	10	8	20.5
HK0809021-011	2008/06/07/1430/SR1/M/E/ REPL.2	EA025: Suspended Solids (SS)	----	1	mg/L	8	9	0.0
EA/ED: Physical and Aggregate Properties (QC Lot: 678454)								
HK0809021-021	2008/06/07/1446/D1/T/E/ REPL.1	EA025: Suspended Solids (SS)	----	1	mg/L	7	7	0.0
HK0809021-031	2008/06/07/0702/C1/B/E/ REPL.1	EA025: Suspended Solids (SS)	----	1	mg/L	63	59	7.2
EA/ED: Physical and Aggregate Properties (QC Lot: 678455)								
HK0809021-041	2008/06/07/0716/SR1/M/E/ REPL.2	EA025: Suspended Solids (SS)	----	1	mg/L	7	6	0.0
HK0809021-051	2008/06/07/0732/D1/T/F/ REPL.1	EA025: Suspended Solids (SS)	----	1	mg/L	11	12	11.2

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

Matrix Type: WATER		Method Blank (MB) Results			Single Control Spike (SCS) and Duplicate Control Spike (DCS) Results						
Method: Analysis Description	CAS number	LOR	Units	Result	Spike Concentration	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
						SCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QCLot: 678453)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	91.0	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 678454)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	91.5	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 678455)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	97.0	----	85	115	----	----

Annex E

Impact Water Quality Monitoring Results

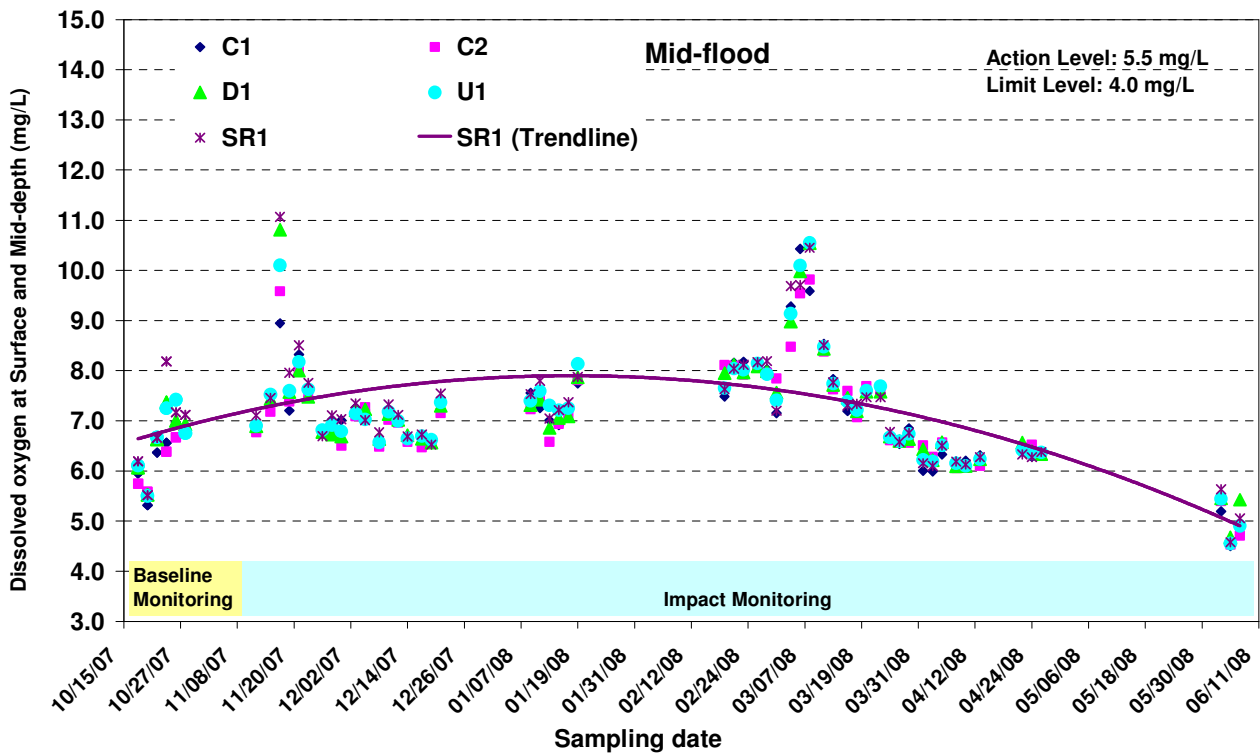
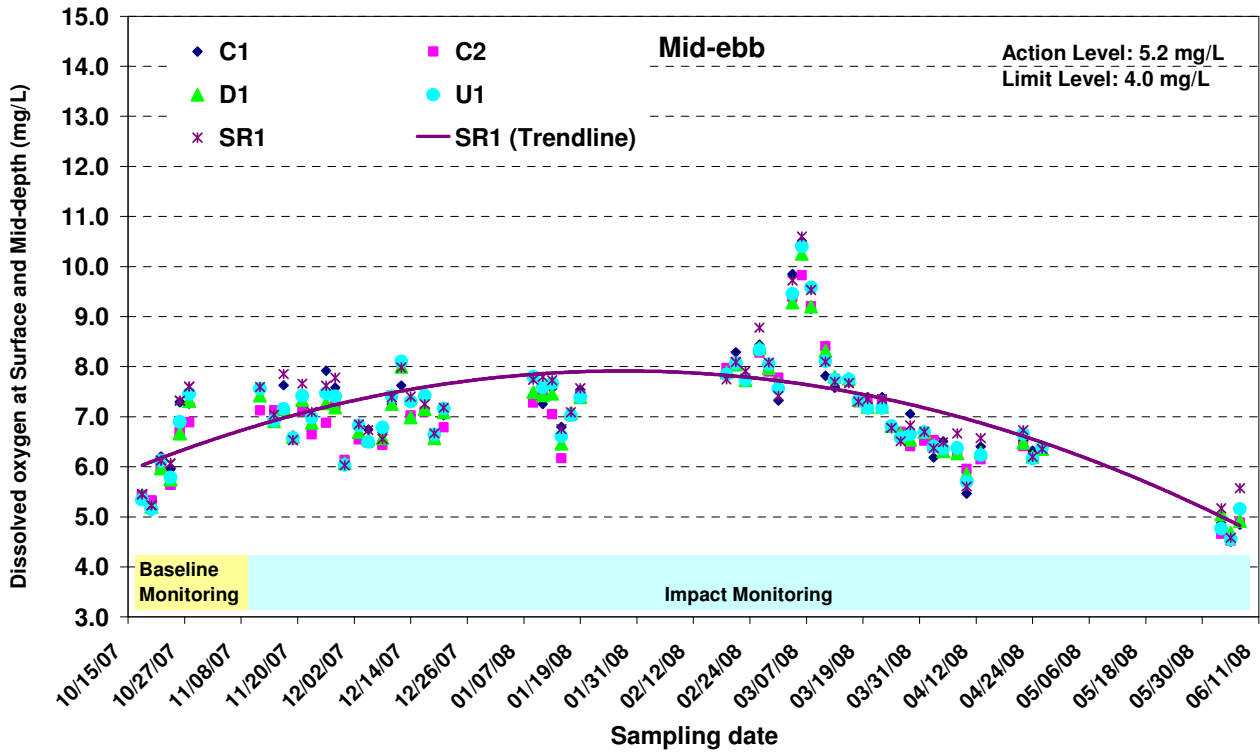


Figure E1 Dissolved oxygen concentration (mean of surface and mid-depth) (mg/L) of water samples from the five sampling locations near Tuen Mun at mid-ebb and mid-flood between 18 October 2007 and 7 June 2008



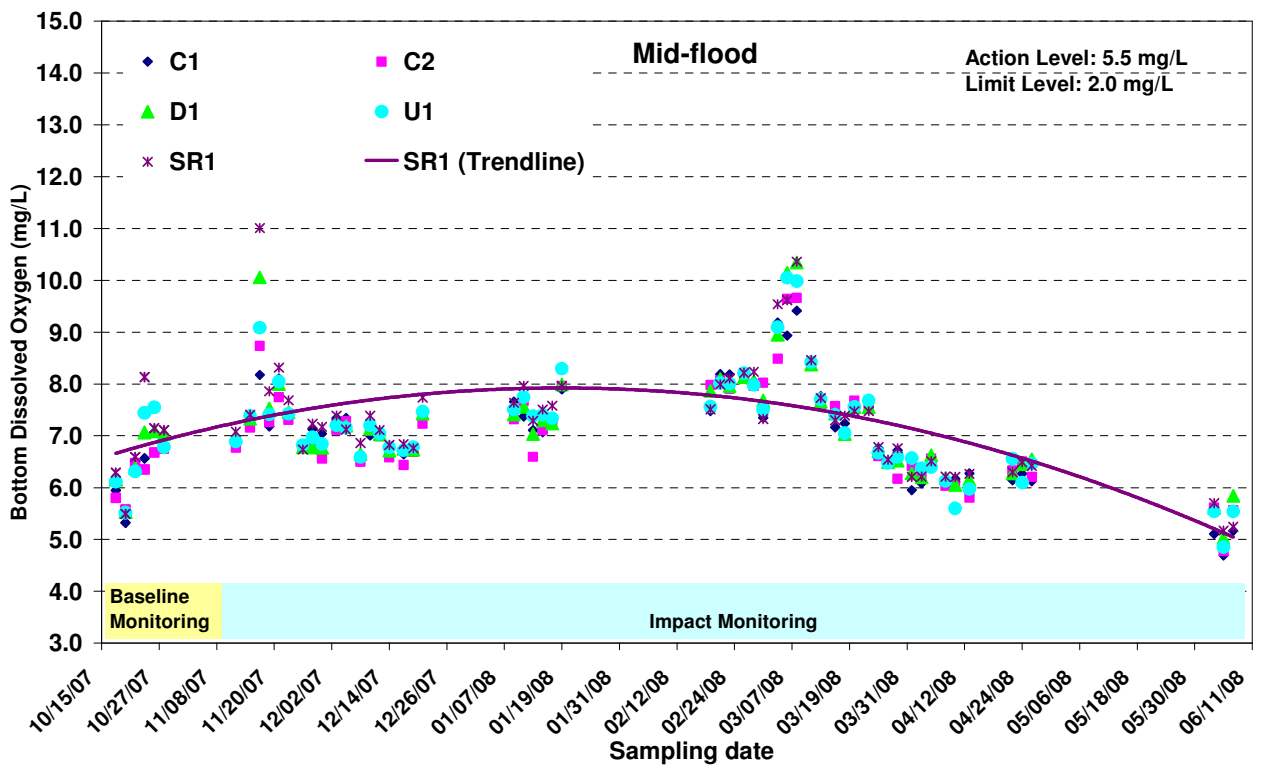
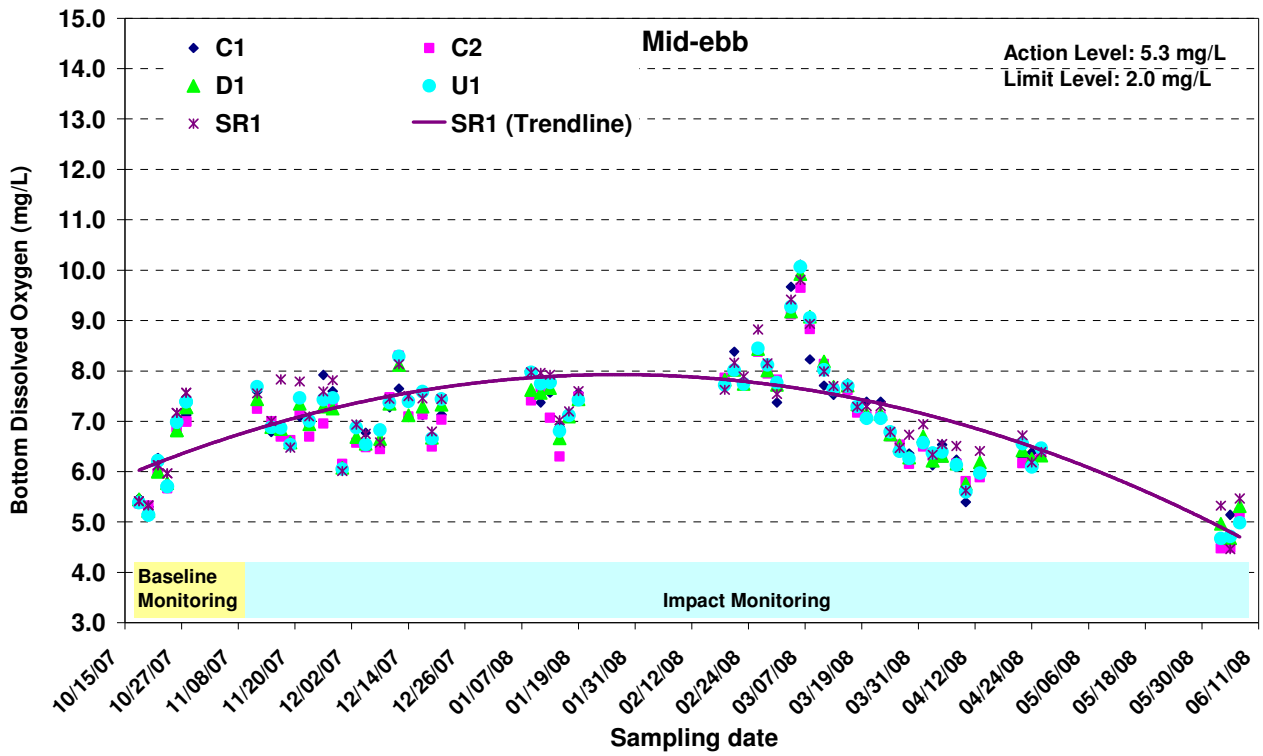


Figure E2 Dissolved oxygen concentration (bottom) (mg/L) of water samples from the five sampling locations near Tuen Mun at mid-ebb and mid-flood between 18 October 2007 and 7 June 2008



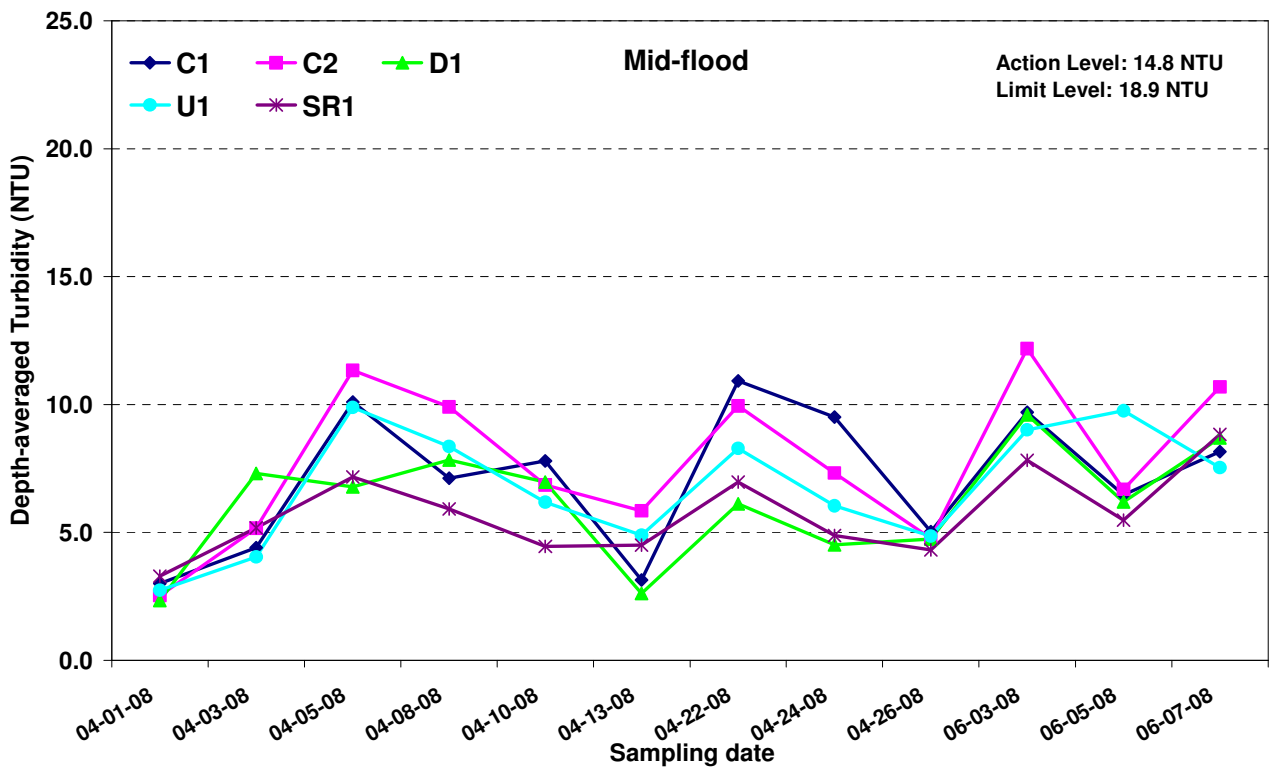
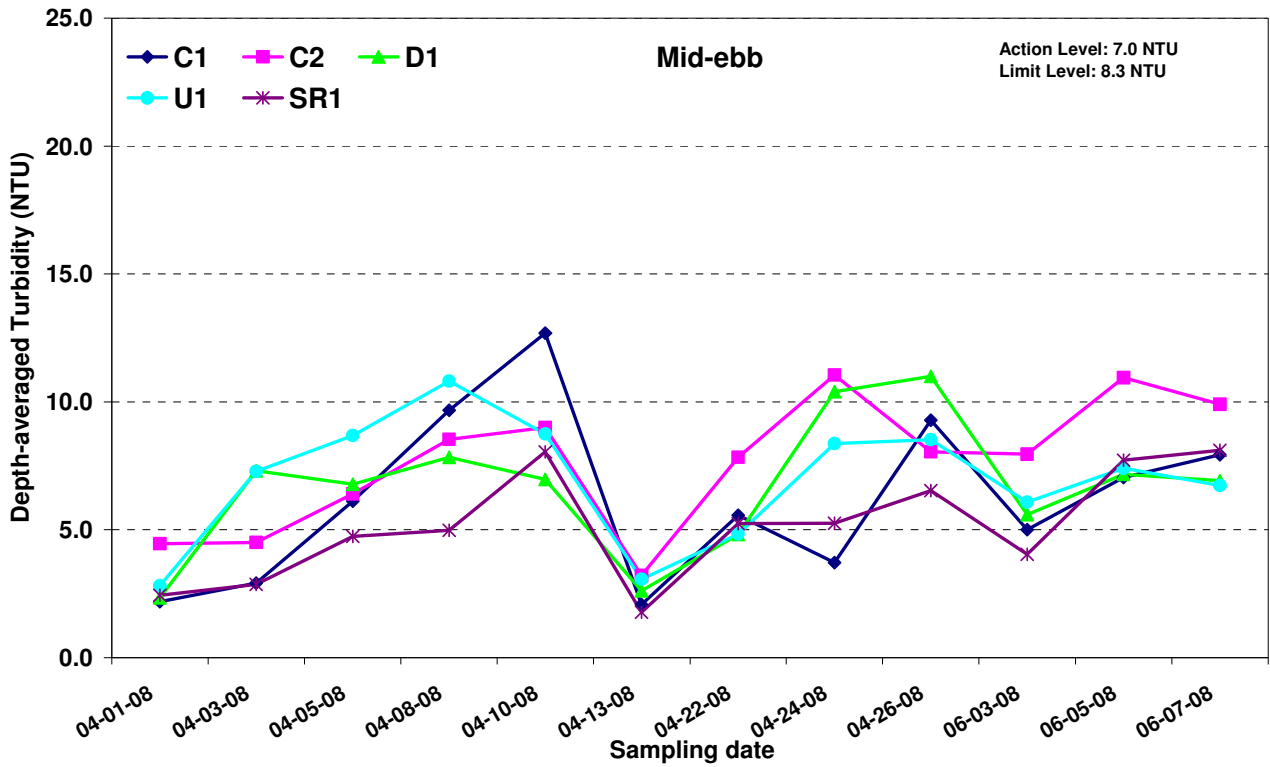


Figure E3 Depth-averaged turbidity (NTU) of water samples from the five sampling locations near Tuen Mun at mid-ebb and mid-flood between 1 April 2008 and 7 June 2008



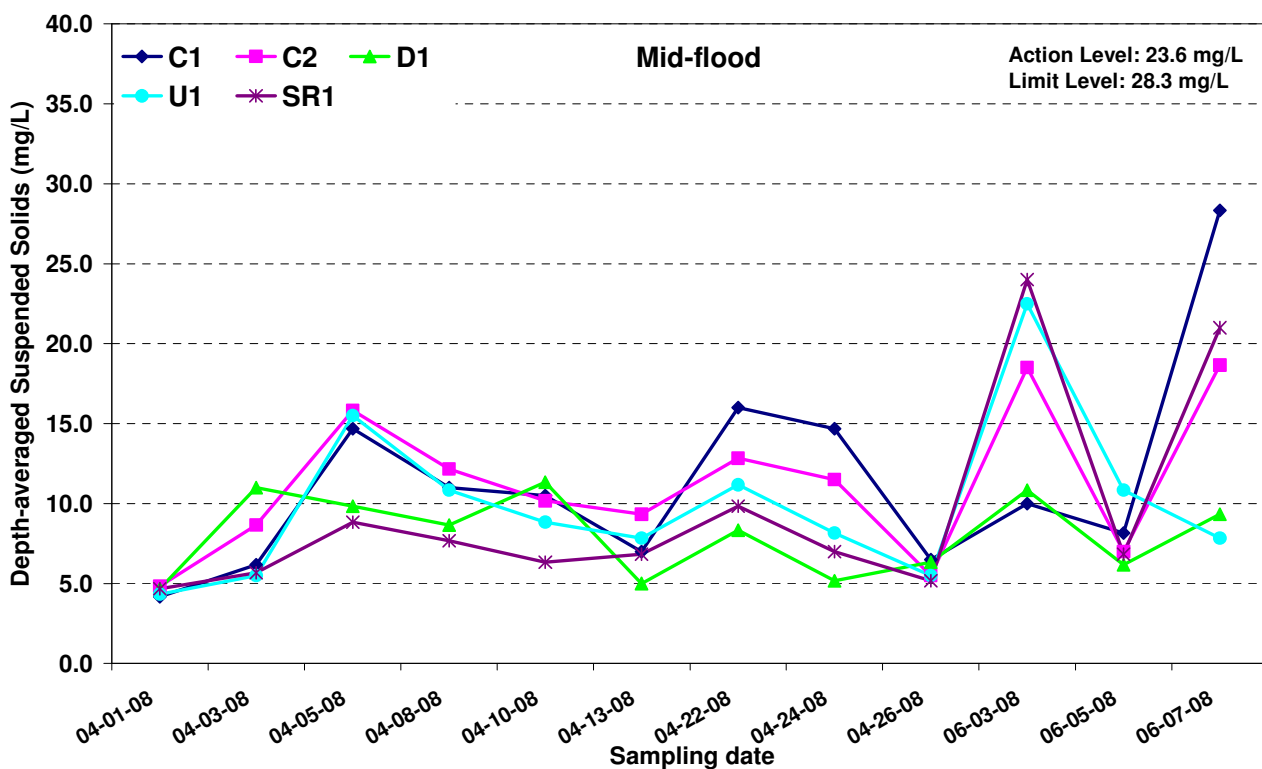
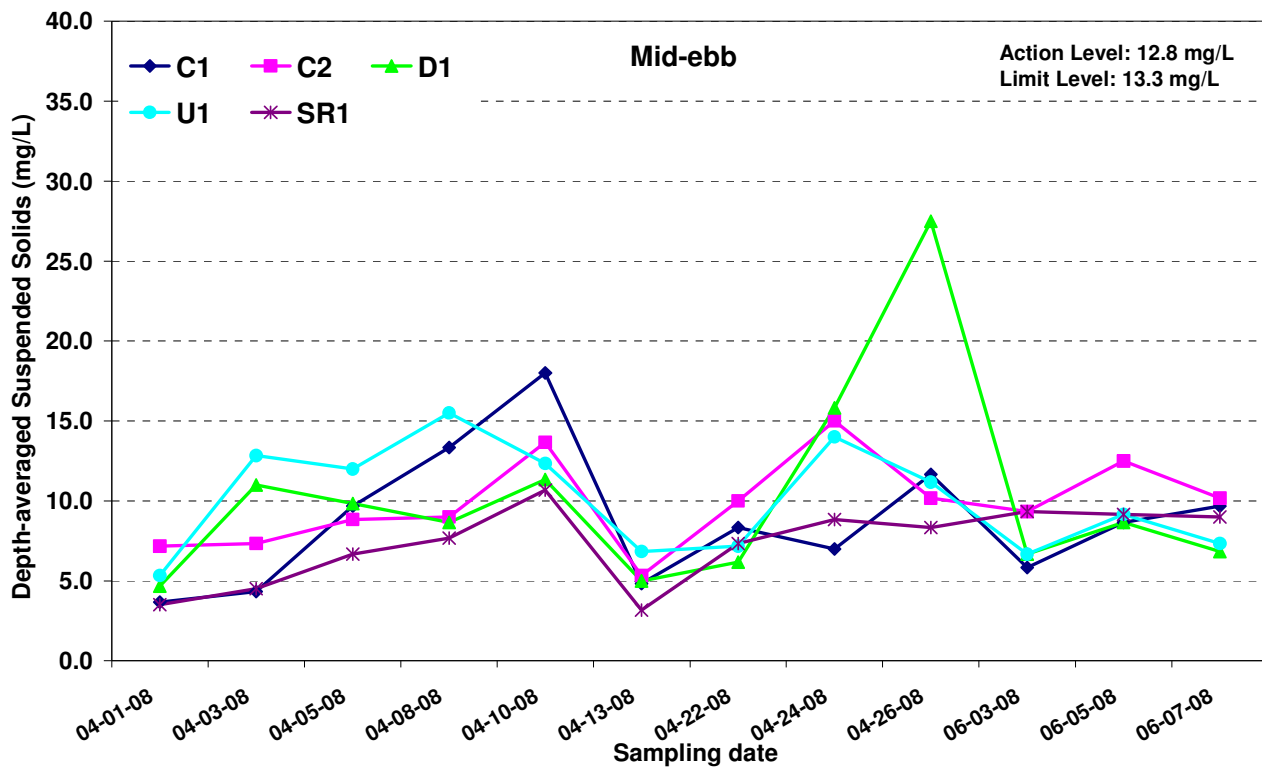


Figure E4 Depth-averaged suspended solids concentration (mg/L) of water samples from the five sampling locations near Tuen Mun at mid-ebb and mid-flood between 1 April 2008 and 7 June 2008



Annex E1 - Water Quality Results at Tuen Mun during mid-ebb tide for 3 June 2008

Date	3/6/2008							
Station	C1							
Time (hh:mm)	11:04 - 11:06							
Ambient Temperature (°C)	24							
Weather	Sunny							
Water Depth (m)	8.50							
Monitoring Depth (m)	1.30	4.30				7.10		
Tide	Mid-Ebb							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	<i>Depth-averaged</i>	<i>Bottom</i>
Water Temperature (°C)	26.8	26.9	26.5	26.5	26.2	26.2	26.50	-
Salinity (ppt)	23.0	22.7	24.7	24.3	27.0	27.0	24.77	-
pH	7.8	7.8	7.8	7.9	7.8	7.8	7.83	-
D.O. Saturation (%)	71.0	71.8	68.1	67.2	66.3	66.1	68.40	-
D.O. (mg/L)	4.99	5.04	4.77	4.72	4.60	4.59	4.79	4.60
Turbidity (NTU)	4.30	4.00	4.50	4.70	6.30	6.20	5.01	-
SS (mg/L)	5.0	5.0	5.0	6.0	7.0	7.0	5.83	-
Remarks	-							

Date	3/6/2008							
Station	C2							
Time (hh:mm)	11:30 - 11:33							
Ambient Temperature (°C)	24							
Weather	Sunny							
Water Depth (m)	13.20							
Monitoring Depth (m)	1.20	6.60				11.70		
Tide	Mid-Ebb							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	<i>Depth-averaged</i>	<i>Bottom</i>
Water Temperature (°C)	26.5	26.6	26.0	26.0	25.9	25.9	26.15	-
Salinity (ppt)	25.0	24.6	28.2	27.9	29.2	29.3	27.36	-
pH	7.9	7.9	7.9	7.9	7.9	7.9	7.90	-
D.O. Saturation (%)	69.1	69.7	64.5	64.3	65.7	64.1	66.24	-
D.O. (mg/L)	4.83	4.88	4.46	4.45	4.53	4.42	4.60	4.48
Turbidity (NTU)	6.20	6.00	8.50	8.10	9.70	9.10	7.96	-
SS (mg/L)	7.0	7.0	8.0	10.0	12.0	12.0	9.33	-
Remarks	-							

Date	3/6/2008							
Station	D1							
Time (hh:mm)	11:23 - 11:26							
Ambient Temperature (°C)	24							
Weather	Sunny							
Water Depth (m)	8.50							
Monitoring Depth (m)	1.10	4.30				7.20		
Tide	Mid-Ebb							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	<i>Depth-averaged</i>	<i>Bottom</i>
Water Temperature (°C)	26.7	27.0	26.2	26.3	26.0	26.0	26.36	-
Salinity (ppt)	23.6	22.5	26.7	26.2	28.3	28.2	25.91	-
pH	7.9	7.9	7.9	7.9	7.9	7.9	7.88	-
D.O. Saturation (%)	71.7	73.8	76.4	66.8	76.6	67.0	72.04	-
D.O. (mg/L)	5.03	5.19	5.31	4.65	5.29	4.64	5.02	4.97
Turbidity (NTU)	4.50	4.00	6.50	5.60	6.50	6.40	5.60	-
SS (mg/L)	4.0	5.0	6.0	8.0	9.0	8.0	6.67	-
Remarks	-							

Date	3/6/2008							
Station	U1							
Time (hh:mm)	11:17 - 11:20							
Ambient Temperature (°C)	24							
Weather	Sunny							
Water Depth (m)	9.50							
Monitoring Depth (m)	1.20	4.80				8.20		
Tide	Mid-Ebb							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	<i>Depth-averaged</i>	<i>Bottom</i>
Water Temperature (°C)	26.7	26.9	26.2	26.2	26.0	26.1	26.35	-
Salinity (ppt)	23.5	22.8	26.8	26.8	27.9	27.9	25.94	-
pH	7.9	7.9	7.9	7.9	7.9	7.9	7.87	-
D.O. Saturation (%)	68.8	71.9	66.4	65.6	68.7	66.2	67.93	-
D.O. (mg/L)	4.83	5.05	4.62	4.56	4.76	4.58	4.73	4.67
Turbidity (NTU)	4.60	4.00	5.80	5.70	7.60	8.70	6.09	-
SS (mg/L)	6.0	5.0	6.0	6.0	9.0	8.0	6.67	-
Remarks	-							

Date	3/6/2008							
Station	SR1							
Time (hh:mm)	11:12 - 11:15							
Ambient Temperature (°C)	24							
Weather	Sunny							
Water Depth (m)	5.50							
Monitoring Depth (m)	1.30	2.80				4.30		
Tide	Mid-Ebb							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	<i>Depth-averaged</i>	<i>Bottom</i>
Water Temperature (°C)	27.0	27.0	26.9	26.7	26.4	26.3	26.73	-
Salinity (ppt)	22.0	22.1	22.4	23.1	25.5	25.9	23.49	-
pH	7.9	7.9	7.9	7.9	7.9	7.9	7.86	-
D.O. Saturation (%)	75.8	75.0	74.1	69.2	76.2	76.4	74.44	-
D.O. (mg/L)	5.33	5.28	5.22	4.86	5.32	5.33	5.22	5.33
Turbidity (NTU)	3.60	3.70	3.90	4.60	4.80	3.60	4.04	-
SS (mg/L)	7.0	6.0	12.0	9.0	10.0	12.0	9.33	-
Remarks	-							

Annex E2 - Water Quality Results at Tuen Mun during mid-flood tide for 3 June 2008

Date	3/6/2008							
Station	C1							
Time (hh:mm)	18:13 - 18:17							
Ambient Temperature (°C)	23							
Weather	Rainy							
Water Depth (m)	8.70							
Monitoring Depth (m)	1.30	4.40				6.70		
Tide	Mid-Flood							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	<i>Depth-averaged</i>	<i>Bottom</i>
Water Temperature (°C)	27.5	27.4	27.1	27.1	27.0	27.0	27.18	-
Salinity (ppt)	19.7	20.1	22.8	23.2	23.4	23.8	22.18	-
pH	7.8	7.8	7.8	7.8	7.8	7.8	7.79	-
D.O. Saturation (%)	76.3	72.3	74.2	72.7	72.6	73.7	73.60	-
D.O. (mg/L)	5.40	5.10	5.19	5.08	5.07	5.14	5.16	5.11
Turbidity (NTU)	6.30	9.50	8.00	9.50	12.40	12.30	9.70	-
SS (mg/L)	7.0	6.0	9.0	8.0	13.0	17.0	10.00	-
Remarks	-							

Date	3/6/2008							
Station	C2							
Time (hh:mm)	18:59 - 19:04							
Ambient Temperature (°C)	23							
Weather	Rainy							
Water Depth (m)	12.90							
Monitoring Depth (m)	1.20	6.50				10.60		
Tide	Mid-Flood							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	<i>Depth-averaged</i>	<i>Bottom</i>
Water Temperature (°C)	27.3	27.3	27.3	27.3	27.3	27.3	27.31	-
Salinity (ppt)	19.1	18.8	20.4	21.3	21.6	21.5	20.46	-
pH	7.8	7.8	7.8	7.8	7.9	7.9	7.83	-
D.O. Saturation (%)	77.2	75.9	75.8	75.8	75.5	84.4	77.42	-
D.O. (mg/L)	5.50	5.41	5.36	5.33	5.30	5.93	5.47	5.62
Turbidity (NTU)	6.20	7.00	6.40	16.50	17.60	19.50	12.19	-
SS (mg/L)	7.0	8.0	8.0	8.0	36.0	44.0	18.50	-
Remarks	-							

Date	3/6/2008							
Station	D1							
Time (hh:mm)	18:49 - 18:53							
Ambient Temperature (°C)	23							
Weather	Rainy							
Water Depth (m)	8.30							
Monitoring Depth (m)	1.30	4.20				6.70		
Tide	Mid-Flood							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	<i>Depth-averaged</i>	<i>Bottom</i>
Water Temperature (°C)	27.5	27.4	27.4	27.4	27.4	27.4	27.41	-
Salinity (ppt)	19.3	19.5	20.6	20.3	20.9	20.7	20.21	-
pH	7.8	7.8	7.8	7.8	7.8	7.9	7.82	-
D.O. Saturation (%)	77.2	76.0	77.6	77.9	79.7	79.5	77.98	-
D.O. (mg/L)	5.47	5.39	5.47	5.50	5.61	5.60	5.51	5.61
Turbidity (NTU)	6.30	6.60	9.10	9.80	12.40	13.20	9.60	-
SS (mg/L)	7.0	7.0	8.0	8.0	16.0	19.0	10.83	-
Remarks	-							

Date	3/6/2008							
Station	U1							
Time (hh:mm)	18:40 - 18:44							
Ambient Temperature (°C)	23							
Weather	Rainy							
Water Depth (m)	8.00							
Monitoring Depth (m)	1.40	4.00				6.40		
Tide	Mid-Flood							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	<i>Depth-averaged</i>	<i>Bottom</i>
Water Temperature (°C)	27.4	27.4	27.4	27.4	27.4	27.4	27.39	-
Salinity (ppt)	18.1	18.6	20.6	20.6	21.2	20.9	20.01	-
pH	7.8	7.8	7.8	7.8	7.8	7.8	7.81	-
D.O. Saturation (%)	76.5	76.4	76.7	77.1	78.4	79.0	77.38	-
D.O. (mg/L)	5.47	5.45	5.41	5.44	5.52	5.56	5.48	5.54
Turbidity (NTU)	6.30	5.70	8.50	8.70	12.90	11.80	9.01	-
SS (mg/L)	7.0	10.0	7.0	11.0	45.0	55.0	22.50	-
Remarks	-							

Date	3/6/2008							
Station	SR1							
Time (hh:mm)	19:23 - 19:26							
Ambient Temperature (°C)	23							
Weather	Rainy							
Water Depth (m)	4.90							
Monitoring Depth (m)	1.20	2.50				3.50		
Tide	Mid-Flood							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	<i>Depth-averaged</i>	<i>Bottom</i>
Water Temperature (°C)	27.4	27.3	27.4	27.4	27.4	27.4	27.38	-
Salinity (ppt)	19.5	19.3	19.7	19.6	19.8	19.9	19.61	-
pH	7.8	7.8	7.9	7.8	7.9	7.9	7.85	-
D.O. Saturation (%)	79.6	78.9	80.2	79.1	81.1	79.9	79.78	-
D.O. (mg/L)	5.65	5.61	5.68	5.61	5.74	5.66	5.66	5.70
Turbidity (NTU)	6.90	5.50	8.40	7.00	9.90	9.10	7.83	-
SS (mg/L)	23.0	22.0	21.0	24.0	26.0	28.0	24.00	-
Remarks	-							

Annex E3 - Water Quality Results at Tuen Mun during mid-ebb tide for 5 June 2008

Date	5/6/2008								
Station	C1								
Time (hh:mm)	12:36 - 12:40								
Ambient Temperature (°C)	23								
Weather	Sunny								
Water Depth (m)	8.50								
Monitoring Depth (m)	1.20	4.30			7.10				
Tide	Mid-Ebb								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	<i>Depth-averaged</i>	<i>Bottom</i>	
Water Temperature (°C)	26.7	26.6	26.4	26.4	26.3	26.3	26.45	-	
Salinity (ppt)	22.7	24.0	25.4	25.6	26.4	26.3	25.03	-	
pH	7.8	7.8	7.8	7.8	7.8	7.8	7.81	-	
D.O. Saturation (%)	65.0	64.1	63.5	64.5	76.6	71.2	67.49	-	
D.O. (mg/L)	4.58	4.50	4.43	4.50	5.33	4.95	4.72	5.14	
Turbidity (NTU)	6.10	6.50	7.40	7.60	6.70	7.90	7.05	-	
SS (mg/L)	8.0	7.0	9.0	9.0	9.0	10.0	8.67	-	
Remarks	-								

Date	5/6/2008								
Station	C2								
Time (hh:mm)	13:05 - 13:08								
Ambient Temperature (°C)	23								
Weather	Sunny								
Water Depth (m)	15.00								
Monitoring Depth (m)	1.10	7.50			12.10				
Tide	Mid-Ebb								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	<i>Depth-averaged</i>	<i>Bottom</i>	
Water Temperature (°C)	27.0	27.1	26.2	26.2	26.1	26.1	26.44	-	
Salinity (ppt)	22.3	22.2	27.8	27.8	28.5	28.6	26.19	-	
pH	7.8	7.8	7.9	7.9	7.9	7.9	7.87	-	
D.O. Saturation (%)	67.5	67.3	62.9	61.9	65.2	65.0	64.98	-	
D.O. (mg/L)	4.75	4.73	4.35	4.28	4.50	4.48	4.52	4.49	
Turbidity (NTU)	7.20	6.80	12.50	10.90	16.00	12.20	10.95	-	
SS (mg/L)	7.0	8.0	11.0	12.0	19.0	18.0	12.50	-	
Remarks	-								

Date	5/6/2008								
Station	D1								
Time (hh:mm)	12:58 - 13:00								
Ambient Temperature (°C)	23								
Weather	Sunny								
Water Depth (m)	8.60								
Monitoring Depth (m)	1.20	4.30			7.20				
Tide	Mid-Ebb								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	<i>Depth-averaged</i>	<i>Bottom</i>	
Water Temperature (°C)	27.2	27.2	26.4	26.4	26.2	26.2	26.58	-	
Salinity (ppt)	20.4	20.8	26.0	25.9	28.0	27.8	24.81	-	
pH	7.8	7.8	7.8	7.9	7.9	7.9	7.84	-	
D.O. Saturation (%)	69.8	67.9	65.2	63.8	70.5	64.9	67.00	-	
D.O. (mg/L)	4.94	4.80	4.54	4.44	4.87	4.48	4.68	4.68	
Turbidity (NTU)	5.80	6.10	7.30	7.70	8.00	8.00	7.17	-	
SS (mg/L)	6.0	7.0	8.0	8.0	11.0	12.0	8.67	-	
Remarks	-								

Date	5/6/2008								
Station	U1								
Time (hh:mm)	12:52 - 12:55								
Ambient Temperature (°C)	23								
Weather	Sunny								
Water Depth (m)	9.70								
Monitoring Depth (m)	1.20	4.90			8.10				
Tide	Mid-Ebb								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	<i>Depth-averaged</i>	<i>Bottom</i>	
Water Temperature (°C)	26.8	26.8	26.2	26.2	26.2	26.2	26.39	-	
Salinity (ppt)	21.9	21.9	27.5	27.5	27.8	27.9	25.75	-	
pH	7.8	7.8	7.9	7.9	7.9	7.9	7.85	-	
D.O. Saturation (%)	66.2	65.2	65.7	63.1	72.8	63.7	66.11	-	
D.O. (mg/L)	4.68	4.61	4.55	4.37	5.03	4.40	4.61	4.72	
Turbidity (NTU)	6.20	6.20	7.60	7.50	8.70	8.10	7.41	-	
SS (mg/L)	7.0	8.0	10.0	9.0	10.0	11.0	9.17	-	
Remarks	-								

Date	5/6/2008								
Station	SR1								
Time (hh:mm)	12:47 - 12:50								
Ambient Temperature (°C)	23								
Weather	Sunny								
Water Depth (m)	5.70								
Monitoring Depth (m)	1.10	2.90			4.30				
Tide	Mid-Ebb								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	<i>Depth-averaged</i>	<i>Bottom</i>	
Water Temperature (°C)	27.1	27.0	26.6	26.4	26.3	26.3	26.62	-	
Salinity (ppt)	20.6	21.0	23.6	25.7	26.3	26.5	23.96	-	
pH	7.8	7.8	7.8	7.8	7.8	7.9	7.82	-	
D.O. Saturation (%)	68.4	65.7	63.8	62.3	64.8	63.6	64.77	-	
D.O. (mg/L)	4.84	4.65	4.48	4.35	4.51	4.42	4.54	4.47	
Turbidity (NTU)	6.00	6.60	8.20	8.70	8.50	8.20	7.72	-	
SS (mg/L)	9.0	7.0	8.0	11.0	10.0	10.0	9.17	-	
Remarks	-								

Annex E4 - Water Quality Results at Tuen Mun during mid-flood tide for 5 June 2008

Date	5/6/2008								
Station	C1								
Time (hh:mm)	06:09 - 06:13								
Ambient Temperature (°C)	23								
Weather	Sunny								
Water Depth (m)	8.40								
Monitoring Depth (m)	1.20	4.20			6.50				
Tide	Mid-Flood								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	<i>Depth-averaged</i>	<i>Bottom</i>	
Water Temperature (°C)	26.9	26.9	26.8	26.8	26.7	26.7	26.77	-	
Salinity (ppt)	19.6	19.7	21.3	21.3	22.4	23.9	21.38	-	
pH	7.6	7.7	7.6	7.7	7.6	7.7	7.66	-	
D.O. Saturation (%)	62.0	63.3	62.6	63.5	63.5	70.1	64.16	-	
D.O. (mg/L)	4.44	4.52	4.44	4.51	4.48	4.91	4.55	4.70	
Turbidity (NTU)	6.20	5.90	5.60	6.00	8.40	6.60	6.47	-	
SS (mg/L)	8.0	6.0	5.0	7.0	11.0	12.0	8.17	-	
Remarks	-								

Date	5/6/2008								
Station	C2								
Time (hh:mm)	06:39 - 06:43								
Ambient Temperature (°C)	23								
Weather	Sunny								
Water Depth (m)	13.10								
Monitoring Depth (m)	1.20	6.60			11.80				
Tide	Mid-Flood								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	<i>Depth-averaged</i>	<i>Bottom</i>	
Water Temperature (°C)	26.8	26.7	26.8	26.8	26.7	26.7	26.74	-	
Salinity (ppt)	21.1	20.5	21.5	21.3	22.4	22.5	21.54	-	
pH	7.7	7.7	7.7	7.7	7.7	7.7	7.73	-	
D.O. Saturation (%)	63.8	64.5	63.4	64.2	65.2	70.2	65.20	-	
D.O. (mg/L)	4.53	4.60	4.50	4.56	4.60	4.95	4.62	4.78	
Turbidity (NTU)	5.90	5.90	6.10	6.70	7.20	8.20	6.69	-	
SS (mg/L)	7.0	11.0	6.0	5.0	6.0	7.0	7.00	-	
Remarks	-								

Date	5/6/2008								
Station	D1								
Time (hh:mm)	06:31 - 06:35								
Ambient Temperature (°C)	23								
Weather	Sunny								
Water Depth (m)	8.70								
Monitoring Depth (m)	1.20	4.40			7.20				
Tide	Mid-Flood								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	<i>Depth-averaged</i>	<i>Bottom</i>	
Water Temperature (°C)	26.8	26.7	26.7	26.8	26.7	26.7	26.73	-	
Salinity (ppt)	19.9	19.5	21.6	20.8	22.0	21.9	20.94	-	
pH	7.7	7.7	7.7	7.7	7.7	7.8	7.73	-	
D.O. Saturation (%)	64.9	65.2	65.7	65.0	73.0	69.1	67.15	-	
D.O. (mg/L)	4.65	4.68	4.66	4.63	5.17	4.89	4.78	5.03	
Turbidity (NTU)	5.60	5.60	6.10	5.80	7.20	6.80	6.20	-	
SS (mg/L)	4.0	7.0	5.0	5.0	8.0	8.0	6.17	-	
Remarks	-								

Date	5/6/2008								
Station	U1								
Time (hh:mm)	06:25 - 06:29								
Ambient Temperature (°C)	23								
Weather	Sunny								
Water Depth (m)	9.60								
Monitoring Depth (m)	1.20	4.80			8.20				
Tide	Mid-Flood								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	<i>Depth-averaged</i>	<i>Bottom</i>	
Water Temperature (°C)	26.8	26.8	26.7	26.7	26.6	26.7	26.71	-	
Salinity (ppt)	20.0	19.8	21.8	21.7	23.2	23.1	21.59	-	
pH	7.7	7.7	7.7	7.7	7.8	7.8	7.73	-	
D.O. Saturation (%)	63.8	64.1	64.3	68.2	68.7	69.2	66.37	-	
D.O. (mg/L)	4.56	4.59	4.55	4.83	4.83	4.87	4.71	4.85	
Turbidity (NTU)	6.70	5.70	10.10	12.20	11.60	12.10	9.76	-	
SS (mg/L)	7.0	5.0	10.0	16.0	14.0	13.0	10.83	-	
Remarks	-								

Date	5/6/2008								
Station	SR1								
Time (hh:mm)	06:19 - 06:22								
Ambient Temperature (°C)	23								
Weather	Sunny								
Water Depth (m)	4.90								
Monitoring Depth (m)	1.20	2.50			4.30				
Tide	Mid-Flood								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	<i>Depth-averaged</i>	<i>Bottom</i>	
Water Temperature (°C)	26.7	26.7	26.7	26.7	26.7	26.7	26.67	-	
Salinity (ppt)	21.0	20.4	21.2	21.1	21.6	21.8	21.18	-	
pH	7.7	7.7	7.7	7.7	7.7	7.7	7.72	-	
D.O. Saturation (%)	65.9	66.1	66.4	67.7	70.5	75.1	68.61	-	
D.O. (mg/L)	4.69	4.73	4.72	4.82	5.01	5.33	4.88	5.17	
Turbidity (NTU)	5.20	5.00	5.40	5.40	5.80	6.00	5.49	-	
SS (mg/L)	10.0	5.0	5.0	6.0	9.0	6.0	6.83	-	
Remarks	-								

Annex E5 - Water Quality Results at Tuen Mun during mid-ebb tide for 7 June 2008

Date	6/7/2008							
Station	C1							
Time (hh:mm)	14:16-14:19							
Ambient Temperature (°C)								
Weather	Rainy							
Water Depth (m)	8.00							
Monitoring Depth (m)	0.80		4.20		6.70			
Tide	Mid-Ebb							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	<i>Depth-averaged</i>	<i>Bottom</i>
Water Temperature (°C)	26.1	26.1	26.3	26.3	26.4	26.4	26.24	-
Salinity (ppt)	14.6	15.6	20.2	20.3	22.6	22.6	19.30	-
pH	7.7	7.7	7.7	7.8	7.7	7.8	7.72	-
D.O. Saturation (%)	74.9	66.0	69.8	65.9	68.3	68.3	68.83	-
D.O. (mg/L)	5.59	4.89	5.03	4.74	4.84	4.84	4.99	4.84
Turbidity (NTU)	8.43	7.42	7.32	7.42	8.43	8.63	7.94	-
SS (mg/L)	10.0	12.0	8.0	8.0	10.0	10.0	9.67	-
Remarks	-							

Date	6/7/2008							
Station	U1							
Time (hh:mm)	14:37-14:40							
Ambient Temperature (°C)								
Weather	Rainy							
Water Depth (m)	9.00							
Monitoring Depth (m)	1.30		4.80		8.00			
Tide	Mid-Ebb							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	<i>Depth-averaged</i>	<i>Bottom</i>
Water Temperature (°C)	26.2	26.2	26.4	26.4	26.4	26.4	26.29	-
Salinity (ppt)	16.2	16.0	22.2	22.2	23.1	23.1	20.46	-
pH	7.7	7.7	7.8	7.8	7.8	7.8	7.77	-
D.O. Saturation (%)	72.2	72.0	65.8	64.7	71.5	74.3	70.07	-
D.O. (mg/L)	5.33	5.32	4.68	4.60	5.06	5.26	5.04	5.16
Turbidity (NTU)	6.72	6.72	6.82	6.22	7.22	6.72	6.74	-
SS (mg/L)	7.0	6.0	6.0	8.0	9.0	8.0	7.33	-
Remarks	-							

Date	6/7/2008							
Station	C2							
Time (hh:mm)	14:51-14:53							
Ambient Temperature (°C)								
Weather	Rainy							
Water Depth (m)	13.00							
Monitoring Depth (m)	1.20		6.60		12.00			
Tide	Mid-Ebb							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	<i>Depth-averaged</i>	<i>Bottom</i>
Water Temperature (°C)	26.1	26.1	26.3	26.3	26.2	26.2	26.20	-
Salinity (ppt)	15.0	15.0	22.4	21.6	26.2	26.3	21.09	-
pH	7.7	7.7	7.8	7.8	7.9	7.9	7.80	-
D.O. Saturation (%)	76.3	75.3	66.9	65.8	73.2	67.0	70.74	-
D.O. (mg/L)	5.68	5.61	4.75	4.70	5.10	4.67	5.09	4.89
Turbidity (NTU)	7.72	7.82	8.02	8.12	12.34	15.45	9.91	-
SS (mg/L)	8.0	7.0	7.0	10.0	14.0	15.0	10.17	-
Remarks	-							

Date	6/7/2008							
Station	SR1							
Time (hh:mm)	14:28-14:30							
Ambient Temperature (°C)								
Weather	Rainy							
Water Depth (m)	5.00							
Monitoring Depth (m)	1.20		2.80		4.10			
Tide	Mid-Ebb							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	<i>Depth-averaged</i>	<i>Bottom</i>
Water Temperature (°C)	26.1	26.1	26.2	26.3	26.3	26.3	26.19	-
Salinity (ppt)	15.6	16.0	16.7	18.9	19.3	19.7	17.70	-
pH	7.7	7.7	7.7	7.7	7.7	7.7	7.71	-
D.O. Saturation (%)	76.6	75.2	74.9	70.4	77.7	76.4	75.20	-
D.O. (mg/L)	5.68	5.57	5.51	5.11	5.63	5.52	5.50	5.58
Turbidity (NTU)	8.83	7.62	7.12	8.53	7.72	8.83	8.11	-
SS (mg/L)	10.0	8.0	8.0	8.0	8.0	12.0	9.00	-
Remarks	-							

Date	6/7/2008							
Station	D1							
Time (hh:mm)	14:45-14:47							
Ambient Temperature (°C)								
Weather	Rainy							
Water Depth (m)	8.00							
Monitoring Depth (m)	1.20		4.20		7.20			
Tide	Mid-Ebb							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	<i>Depth-averaged</i>	<i>Bottom</i>
Water Temperature (°C)	26.1	26.1	26.3	26.2	26.3	26.3	26.22	-
Salinity (ppt)	15.5	15.2	20.0	17.4	23.0	23.0	19.01	-
pH	7.7	7.7	7.8	7.7	7.8	7.8	7.75	-
D.O. Saturation (%)	74.9	75.9	67.7	70.7	70.9	67.9	71.33	-
D.O. (mg/L)	5.56	5.64	4.88	5.19	5.02	4.81	5.18	4.92
Turbidity (NTU)	7.02	7.02	6.92	6.82	6.92	6.82	6.92	-
SS (mg/L)	7.0	7.0	5.0	8.0	7.0	7.0	6.83	-
Remarks	-							

Annex E6 - Water Quality Results at Tuen Mun during mid-flood tide for 7 June 2008

Date	6/7/2008							
Station	C1							
Time (hh:mm)	07:02-07:07							
Ambient Temperature (°C)								
Weather	Rainy							
Water Depth (m)	8.00							
Monitoring Depth (m)	1.30	4.10				7.20		
Tide	Mid-Flood							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	<i>Depth-averaged</i>	<i>Bottom</i>
Water Temperature (°C)	26.1	25.9	26.4	26.4	26.5	26.5	26.30	-
Salinity (ppt)	16.7	15.4	19.7	19.2	22.0	22.1	19.20	-
pH	7.5	7.6	7.4	7.6	7.4	7.6	7.48	-
D.O. Saturation (%)	73.7	74.6	66.9	67.1	70.6	69.0	70.31	-
D.O. (mg/L)	5.44	5.55	4.82	4.85	5.02	4.90	5.10	4.96
Turbidity (NTU)	9.13	13.24	6.22	7.02	6.22	7.12	8.16	-
SS (mg/L)	12.0	13.0	7.0	8.0	63.0	67.0	28.33	-
Remarks	-							

Date	6/7/2008							
Station	C2							
Time (hh:mm)	07:40-07:44							
Ambient Temperature (°C)								
Weather	Rainy							
Water Depth (m)	13.00							
Monitoring Depth (m)	1.40	6.40				11.70		
Tide	Mid-Flood							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	<i>Depth-averaged</i>	<i>Bottom</i>
Water Temperature (°C)	25.6	25.7	26.2	26.2	26.5	26.5	26.13	-
Salinity (ppt)	14.0	14.4	18.1	17.8	22.7	22.1	18.18	-
	7.6	7.6	7.6	7.6	7.6	7.6	7.59	-
D.O. Saturation (%)	73.4	81.7	72.6	72.4	62.4	70.4	72.16	-
D.O. (mg/L)	5.54	6.14	5.30	5.29	4.41	5.01	5.28	4.71
Turbidity (NTU)	7.62	14.84	7.92	7.72	16.15	9.93	10.70	-
SS (mg/L)	20.0	20.0	18.0	18.0	17.0	19.0	18.67	-
Remarks	-							

Date	6/7/2008							
Station	D1							
Time (hh:mm)	07:31-07:34							
Ambient Temperature (°C)								
Weather	Rainy							
Water Depth (m)	8.00							
Monitoring Depth (m)	1.20	4.10				7.10		
Tide	Mid-Flood							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	<i>Depth-averaged</i>	<i>Bottom</i>
Water Temperature (°C)	25.5	25.5	26.3	26.1	26.4	26.4	26.03	-
Salinity (ppt)	12.8	13.1	18.5	17.3	19.6	19.5	16.80	-
pH	7.6	7.6	7.6	7.6	7.6	7.6	7.59	-
D.O. Saturation (%)	82.4	84.0	71.3	75.1	73.2	77.2	77.20	-
D.O. (mg/L)	6.28	6.38	5.19	5.52	5.28	5.57	5.70	5.43
Turbidity (NTU)	11.23	11.84	6.82	8.73	6.62	6.92	8.69	-
SS (mg/L)	11.0	12.0	12.0	12.0	4.0	5.0	9.33	-
Remarks	-							

Date	6/7/2008							
Station	U1							
Time (hh:mm)	07:22-07:26							
Ambient Temperature (°C)								
Weather	Rainy							
Water Depth (m)	9.00							
Monitoring Depth (m)	1.40	4.00				7.20		
Tide	Mid-Flood							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	<i>Depth-averaged</i>	<i>Bottom</i>
Water Temperature (°C)	25.6	25.7	26.4	26.3	26.5	26.4	26.15	-
Salinity (ppt)	15.5	16.5	19.6	19.1	20.7	20.1	18.59	-
pH	7.6	7.6	7.6	7.6	7.6	7.6	7.59	-
D.O. Saturation (%)	83.0	80.5	68.7	69.3	66.5	70.3	73.03	-
D.O. (mg/L)	6.21	5.98	4.95	5.02	4.76	5.05	5.33	4.91
Turbidity (NTU)	9.93	10.73	5.62	6.62	5.92	6.42	7.54	-
SS (mg/L)	10.0	9.0	10.0	7.0	5.0	6.0	7.83	-
Remarks	-							

Date	6/7/2008							
Station	SR1							
Time (hh:mm)	07:14-07:17							
Ambient Temperature (°C)								
Weather	Rainy							
Water Depth (m)	5.00							
Monitoring Depth (m)	1.10	2.30				4.20		
Tide	Mid-Flood							
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	<i>Depth-averaged</i>	<i>Bottom</i>
Water Temperature (°C)	26.2	26.1	26.3	26.3	26.4	26.4	26.29	-
Salinity (ppt)	17.7	17.3	18.6	18.7	20.0	20.1	18.73	-
pH	7.6	7.6	7.5	7.6	7.5	7.6	7.56	-
D.O. Saturation (%)	73.2	73.3	71.1	69.9	70.8	69.8	71.35	-
D.O. (mg/L)	5.36	5.38	5.16	5.07	5.09	5.02	5.18	5.06
Turbidity (NTU)	10.03	10.93	6.12	8.73	8.53	8.73	8.85	-
SS (mg/L)	48.0	49.0	7.0	7.0	7.0	8.0	21.00	-
Remarks	-							