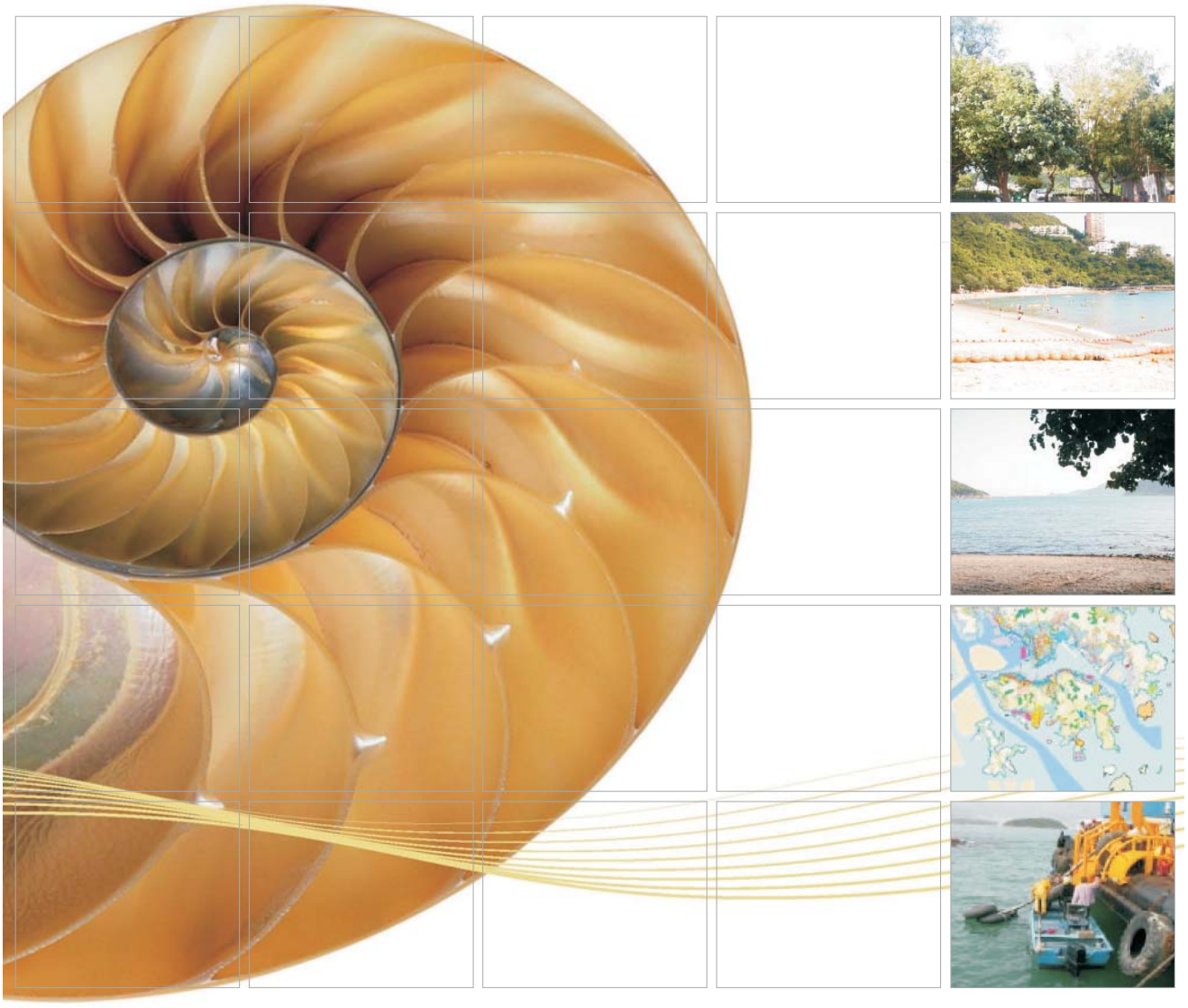

VSNL Intra Asia Submarine Cable System - Deep Water Bay

Eighth Weekly Impact Monitoring Report
7th August 2009 to 13th August 2009

August 2009

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

Delivering sustainable solutions in a more competitive world

VSNL Intra Asia Submarine Cable System – Deep Water Bay

Environmental Resources Management

21/F Lincoln House
979 King's Road
Taikoo Place
Island East
Hong Kong
Telephone: (852) 2271 3000
Facsimile: (852) 2723 5660
E-mail: post.hk@erm.com
http://www.erm.com

Eighth Weekly Impact Monitoring Report
7th August 2009 to 13th August 2009

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Client:	Proposal No:
Tata Communications (Bermuda) Ltd	0096120
Summary: This report presents the monitoring requirements, methodologies and results of the impact water quality monitoring in accordance with the EM&A Manual.	Date: 27 August 2009 Approved by: *Dr Robin Kennish* *Project Director*

0	Impact Water Quality Monitoring Report	FZ	TFONG	RK	27 Aug 09
Revision	Description	By	Checked	Approved	Date

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EXECUTIVE SUMMARY

The construction works for the VSNL Intra Asia Submarine Cable System – Deep Water Bay commenced on 16 March 2009. This is the eighth Weekly Impact Monitoring Report presenting the impact water quality monitoring conducted during the period from 7 August to 13 August 2009 in accordance with the EM&A Manual.

Summary of Construction Works undertaken during the Reporting Period

During the reporting period, cable repair works continued in Zone A and were completed on 11 August 2009. Following this, the cable repair barge "Challenger 1" demobilised on 12 August 2009.

Water Quality

For the impact monitoring, four monitoring events were scheduled between 7 August and 13 August 2009. Monitoring events at all designated monitoring stations were performed on schedule, ie four events took place on 7 August, 8 August, 10 August and 11 August.

Environmental Non-conformance

There were daily exceedances of Action and Limit Levels for dissolved oxygen, both bottom layer (on all days) and depth-averaged (also on all days). There were daily exceedances of suspended solids with the exception of 7 August 2009 Such exceedances were recorded at only one station of the four, except during the mid-flood tide on 10 August when they were recorded at three stations. Depth-averaged turbidity was compliant with Action and Limit levels throughout the reporting period, with the exception of one Action Level exceedance at Station S1 on 8 August. Results of detailed investigations have indicated that with the exception of one exceedance (Suspended Solids (SS) at B1 on 11 August 2009 during mid-flood tide) none of the mentioned exceedances were attributed to the Project construction works. The exceedance of SS at B1 on 11 August 2009 during mid-flood tide was considered potentially to be due to the Project works but further investigation was not possible since at the time of receiving the SS analysis results (17 August 2009) the cable repair barge had already demobilised (on 12 August 2009).

No complaints were received during the reporting week.

No environmental summons/prosecution were received during the reporting week.

Future Key Issues

Repair of the cable has now been completed and as there will be no cable installation works in the following weeks, the impact monitoring will be suspended until the resumption of the marine works.

1 INTRODUCTION

ERM-Hong Kong, Limited (ERM) was appointed by Tata Communications (Bermuda) Ltd (formerly Videsh Sanchar Nigam Limited (VSNL)) as the Monitoring Team (MT) to implement the Environmental Monitoring and Audit (EM&A) programme for the VSNL Intra Asia Submarine Cable System – Deep Water Bay (thereinafter called the ('Project')).

1.1 PURPOSE OF THE REPORT

This is the eighth Weekly Impact Monitoring Report, which summarises the impact monitoring results and audit findings for the EM&A programme during the reporting period from 7 August to 13 August 2009.

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, the construction works undertaken and the status of Environmental Permits/Licenses during the reporting period.

Section 3 : ***Water Quality Monitoring Requirements***
Summarises the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations, Action and Limit Levels, and Event / Action Plans.

Section 4 : ***Impact Monitoring Results***
Summarises the monitoring results obtained in the reporting period.

Section 5 : ***Environmental Non-conformance***
Summarises any monitoring exceedances, environmental complaints and environmental summons within the reporting period.

Section 6 : ***Future Key Issues***
Summarises the monitoring schedule for the next week.

Section 7 : ***Conclusions***
Presents the key findings of the impact monitoring results.

2 PROJECT INFORMATION

2.1 BACKGROUND

Tata Communications (Bermuda) Ltd (formerly Videsh Sanchar Nigam Limited (VSNL)) proposes to install a submarine telecommunications cable, which will run from Deep Water Bay and through southeast Hong Kong offshore waters. The cable landing site will be at the western edge of Deep Water Bay beach at an existing cable landing manhole location. From Deep Water Bay, the cable will extend southwards towards the East Lamma Channel. Near to Round Island, the cable will turn approximately parallel to the East Lamma Channel passing to the south of Po Toi Island. The cable will then run eastward close to the boundary of HKSAR waters and then out beyond Hong Kong territorial waters into the South China Sea. At the southeast offshore waters, it will be necessary to install a grout mattress to protect the cable where it crosses Hong Kong Electric Co., Ltd's (HKE) gas pipeline. A map of the proposed cable route is presented in *Figure 2.1*.

In August 2007, a Project Profile (PP) included an assessment of the potential environmental impacts associated with the installation of the submarine cable circuit was prepared and submitted to the Environmental Protection Department (EPD) under *section 5.(1)(b) and 5.(11) of the Environmental Impact Assessment Ordinance (EIAO)* for application for Permission to apply directly for an Environmental Permit (EP). The Environmental Protection Department, subsequently issued an Environmental Permit (EP-294/2007) and Further Environmental Permit (FEP-01/294/2007). Amendments to the permitting requirements were incorporated into the Environmental Permit to address potential environmental impacts associated with cable crossings over the HKE's gas pipeline in southeast Hong Kong waters. Under the requirements of *Condition 3* 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 near Deep Water Bay (ie Zones A and E) between 27 February 2009 and 9 March 2009 and the results were presented in the *Baseline Water Quality Monitoring Report Part A*. Baseline monitoring for the Po Toi section of works was undertaken from 27 February 2009 to 13 March 2009 and the *Baseline Water Quality Monitoring Report Part B* presented the results of the monitoring data for Zones B to D near Po Toi Island.

Impact Monitoring has been carried out at Deep Water Bay (ie Zone A) since 25 March 2009. The barge "CB Networker" completed the cable installation works in Hong Kong waters on 2 June 2009 and the water quality monitoring was suspended subsequently.

A cable fault was then identified in the previously laid submarine telecommunications cable in Zone A. Hence, the marine works of this Project

were resumed on 24 July 2009 to locate the cable fault and replace the cable. This report presents results of the data from monitoring stations in Zone A for the final stage of cable repair works. Results of the impact monitoring data will therefore be compared against the results of the *Baseline Environmental Monitoring Part A*.

2.2 MARINE CONSTRUCTION WORKS UNDERTAKEN DURING REPORTING WEEK

During the reporting period, cable repair works were continued in Zone A and completed on 11 August 2009. Following this, the cable repair barge "Challenger 1" demobilised on 12 August 2009. A summary of the major works undertaken during the reporting period is shown in *Table 2.1*.

Table 2.1 Summary of Marine Works Undertaken During the Reporting Week

Date	Works Area	Activity
7 August 2009	Zone A	Installation of split pipes and testing of water pump burial machine.
8 August 2009	Zone A	Installation of split pipes. Water jetting (using silt curtain) for re-burial of cable.
10August 2009	Zone A	Water jetting (using silt curtain) for re-burial of cable.
11 August 2009	Zone A	Water jetting (using silt curtain) for re-burial of final section of cable. Completion of cable repair works.
12 August 2009	Zone A	Demobilisation of the cable repair barge.

2.3 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 2.2*.

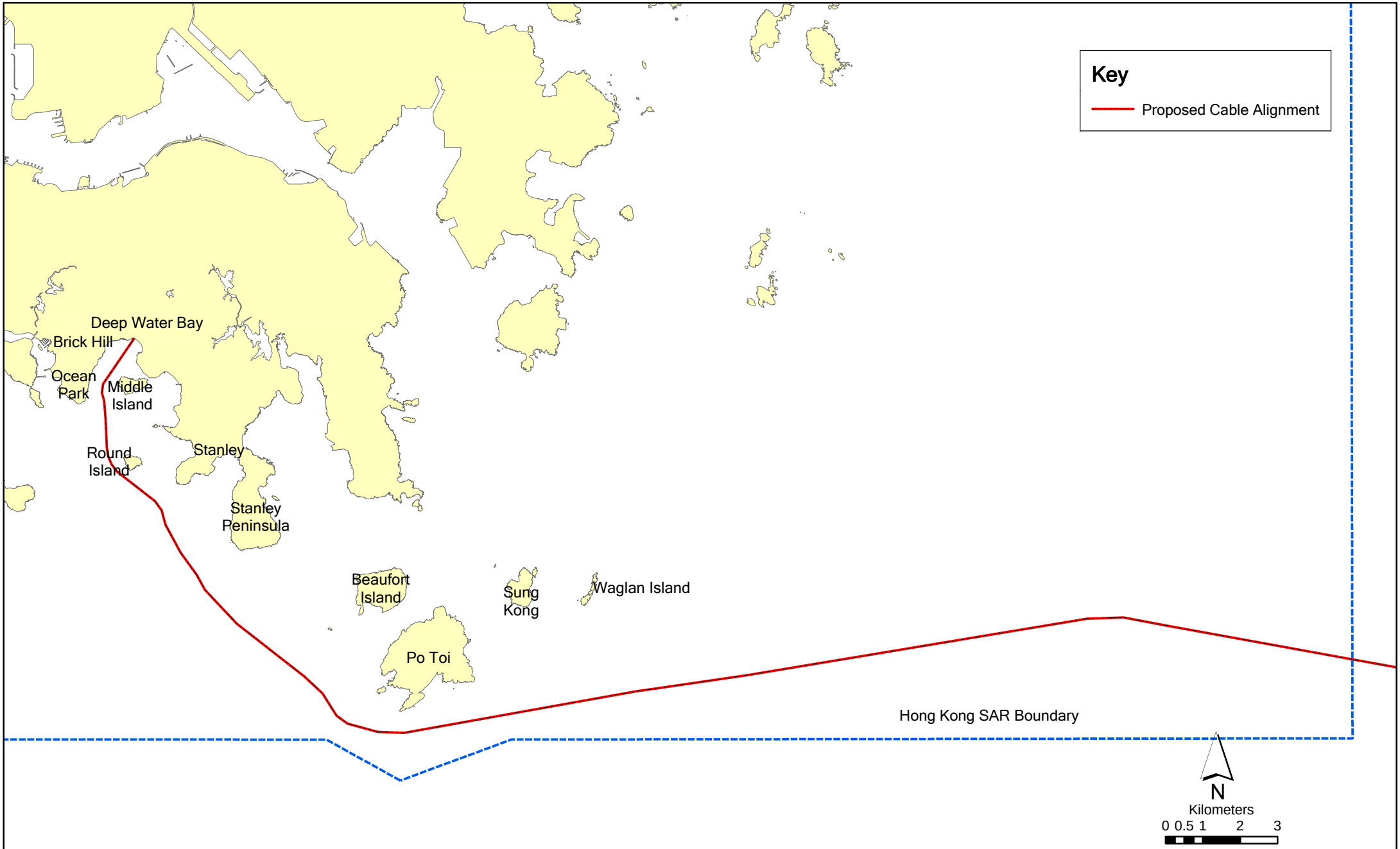

Figure 2.1

The Route of the Proposed Cable System

File: 0096120_The_Cable_Route_2.1.mxd
Date: 21/01/2009

Environmental Resources Management

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Table 2.2 ***Summary of Environmental Licensing, Notification, Permit and Reporting Status***

Permit / Licence / Notification / Report	Reference	Validity Period	Remarks
Environmental Permit	(EP-294/2007)	Throughout the construction period	Granted on 23 November 2008
Further Environmental Permit	(FEP-01/294/2007)	Throughout the construction period	Granted on 9 July 2008
EM&A Manual	-	Throughout the construction period	Approved by EPD on 12 March 2009
Baseline Water Quality Monitoring Report (*Part A*)	-	Throughout the construction period for Zones A and E	Approved by EPD on 1 April 2009
Baseline Water Quality Monitoring Report (*Part B*)	-	Throughout the construction period for Zones B to D	Approved by EPD on 30 April 2009
Pre Installation Geophysical Survey Report	-	Throughout the construction period for the Grout Mattress Installation	Accepted by AFCD and EPD on 7 July 2009

3.1 MONITORING LOCATIONS

In accordance with the *EM&A Manual*, during all marine works relating to the cable, water quality sampling was undertaken at stations situated around the cable works at Deep Water Bay (ie Zone A). This meant water quality sampling was undertaken throughout the reporting period at the following stations.

- S1 and S2, situated at the two Seawater Intake Points in Deep Water Bay. They are within 500 m west/northwest of the cable alignment at Deep Water Bay for monitoring the effect of cable laying works in the area;
- S3, a Sensitive Receiver used to monitor the water quality condition of the Coastal Protection Areas at Middle Island;
- B1, an Impact Station used to monitor the effect of the construction activities on Deep Water Bay Beach;
- R1, a Control Station for S1, S2, S3 and B1 at Deep Water Bay which is not supposed to be influenced by the cable repair works due to its remoteness from the cable construction works;

The co-ordinates of Zone A and the above monitoring stations are listed in *Table.3.1* and *Table 3.2*, respectively.

Table.3.1 Co-ordinates of Starting Points and Ending Points for Zone A (HK Grid)

Zone	Starting Point		Ending Point	
	Easting	Northing	Easting	Northing
A	837029.763	811601.699	836367.572	810545.975

Table 3.2 Co-ordinates of All Monitoring Stations in Zone A (HK Grid)

Station	Nature	Corresponding Control Station	Easting	Northing
S1	Seawater Intakes	R1	836538.669	811528.535
S2	Seawater Intakes	R1	836195.047	810956.409
S3	Coastal Protection Areas	R1	836677.103	810666.744
B1	Gazetted Beach	R1	837241.114	811498.400
R1	Control Station	-	835951.109	809052.535

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) (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 Monitoring at S1, S2, S3, B1 and R1 took place while the cable repair works were undertaken within 500 m (Zone A) of monitoring stations S1, S2, S3 and B1

Impact monitoring was carried out during the barge operating hours, normally covering both mid-flood and mid-ebb tidal conditions, until water quality monitoring was not required.

In-situ and SS data of the control and impact stations within the impact zone were collected daily during mid-flood and mid-ebb tidal states (*Table 3.3*), unless the mid-ebb tide and/or the mid-flood tide were not occurring during the monitoring period. In addition, continuous *in-situ* measurements were taken at the impact monitoring stations, ie B1 & S1-3, at 30- to 60- minute intervals (subject to the weather conditions and travelling time between stations) within Zone A. The monitoring frequency and parameters for Impact Monitoring are summarised in *Table 3.3*.

Table 3.3 Monitoring Frequency and Parameters for Impact Monitoring

Zone	Station Type	Monitoring Station	Monitoring Frequency	Monitoring Parameter	
				Mid-ebb Tide / Mid-flood Tide	30- to 60- Minute Interval
A	Control	R1	Daily when cable installation works undertaken in Zone A	Temperature, Turbidity, Salinity, DO, SS	-
	Impact	S1, S2, S3 and B1			Temperature, Turbidity, Salinity, DO

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 an 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

In-situ and SS data were collected daily at both control and impact stations in Zone A, provided that the monitoring period had covered the mid-flood tide and/or mid-ebb tide. 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. Continuous *In-situ* measurements were taken at 30- to 60- minute intervals (subject to the weather conditions and travelling time between stations) for each impact station within Zone A.

Reference was made to the predicted tides at Waglan Island, 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 Waglan Island, the impact water quality monitoring was conducted following the schedule presented in *Annex A*.

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.

(1) Hong Kong Observatory (2009) http://www.hko.gov.hk/tide/eWLtide.htm

Laboratory Analysis

All laboratory work was carried out by a 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 B*).

3.3.3 Action and Limit Levels

The Action and Limit levels for Zone A, which were established based on the results of *Baseline Environmental Monitoring Part A*, are presented in *Table 3.4*.

Table 3.4 Action and Limit Levels of Water Quality for Zone A

Parameter	Action Level	Limit Level
Dissolved Oxygen (DO) (1)	Surface and Mid-depth (2) 5%-ile of baseline data for surface and middle layer = 6.59 mg L^{-1}	Surface and Mid-depth (2) 1%-ile of baseline data for bottom layer = 6.42 mg L^{-1}
	Bottom 5%-ile of baseline data for bottom layers = 6.58 mg L^{-1}	Bottom 1%-ile of baseline for bottom layer = 6.42 mg L^{-1}
Depth-averaged Suspended Solids (SS) (3) (4)	95%-ile of baseline data = 7.91 mg L^{-1}	99%-ile of baseline data = 8.96 mg L^{-1}
	or 120% of control station's SS at the same tide of the same day	or 130% of control station's SS at the same tide of the same day
Depth-averaged Turbidity (Tby) (3) (4)	95%-ile of baseline data = 5.17 NTU	99%-ile of baseline data = 5.72 NTU
	or 120% of control station's Tby at the same tide of the same day	or 130% of control station's Tby at the same tide of the same day

Notes:

(1) For DO, non-compliance of the water quality limits occurs when monitoring result is lower than the limits.

(2) The Action and Limit Levels for DO for Surface & Middle layer were calculated from the combined pool of baseline surface layer data and baseline middle layer data.

(3) "Depth-averaged" is calculated by taking the arithmetic means of reading of all three depths.

(4) For turbidity and SS, non-compliance of the water quality limits occurs when monitoring result is higher than the limits.

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 3.5*.

Table 3.5 Event Action Plan for Water Quality

Event	Contractor
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, AFCD 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). **Step 5 -** repeat measurements after implementation of mitigation for confirmation of compliance. **Step 6 -** if non compliance continues - increase measures in Step 4 and repeat measurements in Step 5. 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.

For the impact monitoring, four monitoring events were scheduled between 7 August and 11 August 2009. Monitoring events at all designated monitoring stations were performed on schedule, ie the four events took place on 7 August, 8 August, 10 August and 11 August.

4.1 DATA COLLECTED DURING MID-EBB AND/OR MID-FLOOD TIDAL CONDITIONS

Daily monitoring events were scheduled between 7 August and 11 August 2009 at Deep Water Bay (ie Zone A). The monitoring data taken during the mid-ebb and/or mid-flood tidal conditions for Zone A are presented in *Annex C* and compared against the baseline monitoring results in *Figures C1-C4*, *Annex C*. A summary of the exceedances is presented in *Table 4.1.*

Table 4.1 Summary of Exceedances occurring during the Reporting Week

		Exceedance of Action and Limit Levels found at the Impact Monitoring Stations in Zone A:	
Date	**Parameter**	**Mid-Ebb Tide**	**Mid-Flood Tide**
7 August 2009	DO (Bottom)	S1, S2, S3, B1	n/a
	DO (Depth-averaged)	S1, S2, S3, B1	n/a
8 August 2009	DO (Bottom)	S1, S2, S3, B1	n/a
	DO (Depth-averaged)	S1, S2, S3, B1	n/a
	Turbidity (Depth-averaged)	S1*	n/a
	SS (Depth-averaged)	S1	n/a
10 August 2009	DO (Bottom)	S1, S2, S3, B1	S1, S2, S3, B1
	DO (Depth-averaged)	S1, S2, S3, B1	S1, S3, B1
	SS (Depth-averaged)	B1	S1, S3, B1
11 August 2009	DO (Bottom)	S1, S2, S3, B1	S1, S2, S3, B1
	DO (Depth-averaged)	S1, S2, S3, B1	S3, B1
	SS (Depth-averaged)	B1	B1

Note:

* Action Level but not Limit Level exceedance

n/a indicates that no sampling was taken at that tide (due to it falling outside working hours).

4.1.1 Exceedances for Dissolved Oxygen from 7 August to 11 August 2009

Exceedances of the Action and Limit Levels for Dissolved Oxygen (DO) were recorded daily throughout the reporting period for bottom DO (DOB) and for depth averaged DO (*Table 4.1*).

It is observed that DO trends fluctuate widely. Similar to the results of the previous months, DOB concentrations at all the monitoring stations appeared to be lower than the baseline data. Daily exceedances of Action and Limit Levels set from baseline data for DOB were observed not only at the impact monitoring stations but also at the control station, R1 and it should be noted that the DOB levels recorded at all the impact stations were predominantly higher than, if not comparable to the DOB measured at the control station. Similarly depth-averaged DO, although in general lower than the baseline

data, was comparable to the measurements taken at the control station. All this implies that the background levels of DO were also relatively low.

It has been concluded in previous weekly reports that the recent declining trends of dissolved oxygen and daily DO exceedances could be due to seasonal variation such as stratification occurring during the summer. Warmer summer water temperatures 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 during the summer months.

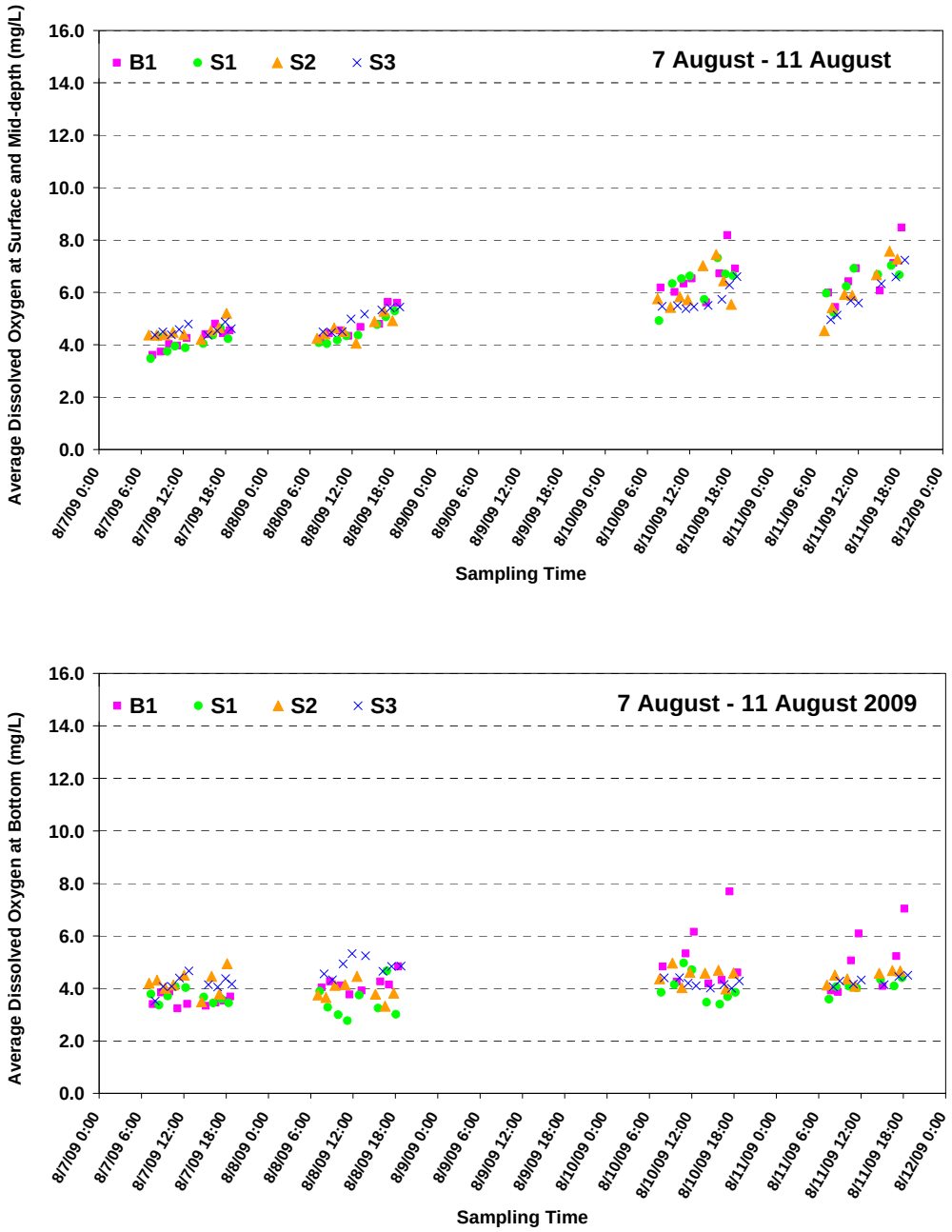
Also, for DO, critical conditions usually occur within the bottom waters during the summer months when the water column is stratified, with a warmer surface layer separated from deeper water by a picnocline, or density gradient. When the density gradient within the picnocline is high, transport of oxygen from the aerated surface waters to the lower waters by mixing is significantly reduced. Dissolved oxygen levels could also decrease in the bottom layer because photosynthesis and contact with the air may be significantly reduced. This phenomenon is supported for the reporting week by the fact that in general DOB concentrations were lower than DO concentrations measured at the surface and mid-depth from 7 August to 11 August 2009.

Continuous *in-situ* measurements were also taken daily at the impact monitoring stations, ie B1, S1, S2 and S3, at 30- to 60- minute intervals. The DO levels at the surface and middle were found to be lower in the morning but higher in the evening (*Figure 4.1*). DOB levels stayed relatively similar throughout the day (*Figure 4.1*). All this implies that DO concentrations at the surface and middle depths increased throughout the day even when the marine works took place, while DOB concentrations did not fluctuate as much. The surface and middle depth fluctuations can be explained by the fact that dissolved oxygen increases during daylight hours when photosynthesis is occurring. DO is being consumed at night when respiration continues but photosynthesis does not. The fact that DOB concentrations did not show this clear change throughout the day re-enforces the presence of the above mentioned picnocline in the waters of Zone A.

It is important that although exceedances of the Action and Limit Levels for DO occurred, no-non-compliances of the Water Quality Objectives (ie not less than 2 mg/L for 90% of samples for bottom DO and not less than 4 mg/L for 90% of samples for depth-averaged DO) were reported.

A review of the monitoring data compared to the works practices similarly concluded that all DO exceedances are unlikely to be caused by the Project due to the fact that the marine works undertaken were diver hand jetting operations inside an enclosed silt curtain and hence these construction activities were not expected to cause decreases in the DO levels.

Figure 4.1 *Continuous Measurements of Dissolved Oxygen of Water Samples Collected at the Impact Monitoring Stations in Zone A*



In view of all of the above, the DO exceedances were considered unlikely to be related to the Project works.

4.1.2 *Exceedance for Turbidity on 8 August 2009*

An exceedance of the Action Level for Depth-averaged turbidity was recorded during the mid-ebb tide on 8 August 2009 at Station S1 (*Table 4.1*). Upon investigation, the exceedance was considered unlikely to be related to the Project works for the following reasons:

- During the mid-ebb tide, the turbidity level measured at Station S1 was slightly higher than the Action Level derived from the control station but it was still below the baseline data derived Action Level.

- At the time of monitoring, there were no marine construction works being carried out. The diver was out of the water and no split-pipe installation was being carried out.

4.1.3 Exceedances for Depth-averaged Suspended Solids on 8, 10 & 11 August 2009

An exceedance of the Action and Limit Levels for Depth-averaged Suspended Solids (SS) was recorded on three days (8, 10 & 11 August 2009) (*Table 4.1*).

A review of the monitoring data and work practices concluded that all SS exceedances, except that at B1 on 11 August mid-flood tide, are unlikely to be caused by the Project due to the following:

- At the time of monitoring, no marine works were being carried out. (Stations S1 on 8 August and B1 on 10 August 2009). Any works that were being carried out at the time of monitoring were unlikely to have caused disturbance to the sea bed; water jetting was conducted inside a silt-curtain.

- The SS level did not show non-compliance during the previous and following mid-ebb tide (Stations S1 and S3 on 10 August, mid-flood tide).

- The Station was upstream of the marine cable works (Station S1 on 8 August 2009, S1 & S3 on 10 August mid-ebb tide, B1 on 11 August mid-ebb tide).

- The exceedance was above the baseline data but well below the 120% of control station measurement (Station B1 on 10 August, mid-ebb tide, Stations B1, S1 & S3 on 10 August mid-flood tide)

It was, therefore, considered that most of the SS exceedances were more likely to be caused by localised factors or temporary tidal influence rather than the Project works.

On 11 August 2009, Station B1 recorded an SS exceedance that was above baseline and control Action and Limit levels. The station was also downstream of the marine works and at the time of monitoring, cable re-burial was being carried out. Therefore, the exceedance could potentially have been caused by the Project works. Results for SS on 11 August were received by ERM on 17 August 2009 and further investigation was not possible at the time as the cable repair barge had already demobilised on 12 August 2009. For any future works ERM will liaise with the contractor and ensure Project works are carried out in an acceptable manner.

4.2 *CONTINUOUS IN-SITU MEASUREMENT DATA*

Continuous *in-situ* measurements were taken at the impact monitoring stations within the required monitoring zone at 30- to 60- minute intervals (subject to the weather conditions and travelling time between stations) and the results and the graphical presentations were included in *Annex D*.

In general, the water quality in the vicinity of the Project works was stable and acceptable throughout each sampling day (7 August to 11 August) with the exception of some fluctuations in depth-averaged turbidity.

5 ENVIRONMENTAL NON-CONFORMANCES

5.1 SUMMARY OF ENVIRONMENTAL EXCEEDANCE

Some exceedances were recorded during the monitoring period (ie 7 August to 11 August 2009) for dissolved oxygen, turbidity and suspended solids at the monitoring stations (*Table 4.1*). These exceedances were examined against the Project works and the results incorporated into the current report (Sections 4.1.1-4.1.3). The investigations indicated that none of the exceedances, aside from one (SS at B1 on 11 August 2009 during mid-flood tide), were attributed to the Project construction works. The exceedance of SS at B1 on 11 August 2009 during mid-flood tide was considered potentially to be due to the Project works but further investigation was not possible since at the time of receiving the SS analysis results (17 August 2009) the cable repair barge had already demobilised (on 12 August 2009). For any future works ERM will liaise with the contractor and ensure Project works are carried out in an acceptable manner.

5.2 SUMMARY OF ENVIRONMENTAL COMPLAINT

No complaints were received during the reporting period.

5.3 SUMMARY OF ENVIRONMENTAL SUMMONS AND PROSECUTION

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

6 FUTURE KEY ISSUES

6.1 KEY ISSUES FOR THE COMING WEEK

As there will be no cable installation works in the following weeks, the impact monitoring will be suspended until the resumption of the marine works.

6.2 MONITORING SCHEDULE FOR THE COMING WEEK

Since no marine works are scheduled to be carried out in the coming week, no monitoring is scheduled to take place.

7 CONCLUSIONS

This Weekly Impact Monitoring Report presents the EM&A work undertaken during the period from 7 August to 13 August 2009 in accordance with the EM&A Manual and the requirements under *FEP-01/294/2007*.

There were daily exceedances of Action and Limit Levels for dissolved oxygen, both bottom layer (on all days) and depth-averaged (also on all days). There were daily exceedances of suspended solids with the exception of 7 August 2009. Such exceedances were recorded at only one station of the four, except during the mid-flood tide on 10 August when they were recorded at three stations. Depth-averaged turbidity was compliant with Action and Limit levels throughout the reporting period, with the exception of one Action Level exceedance at Station S1 on 8 August. Results of detailed investigations have indicated that with the exception of one exceedance (SS at B1 on 11 August 2009 during mid-flood tide), none of the mentioned exceedances were attributed to the Project construction works. The exceedance of SS at B1 on 11 August 2009 during mid-flood tide was considered potentially to be due to the Project works but further investigation was not possible since at the time of receiving the SS analysis results (17 August 2009) the cable repair barge had already demobilised (on 12 August 2009). For any future works ERM will liaise with the contractor and ensure Project works are carried out in an acceptable manner.

No complaints and summons/prosecution were received during the reporting week.

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

Annex A

Impact Monitoring Schedule

VSNL Intra Asia Submarine Cable System - Deep Water Bay
Water Quality Impact Monitoring Schedule - August 2009

Reference Tidal Station: Waglan Island (source: HK Observatory Department) as of 12 August 2009

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
						1-Aug
2-Aug	3-Aug	4-Aug	5-Aug	6-Aug	7-Aug	8-Aug
					Mid-Ebb 13:03 Mid-Flood 20:04 *Zone A* *Impact Monitoring*	Mid-Ebb 13:35 Mid-Flood 20:26 *Zone A* *Impact Monitoring*
9-Aug	10-Aug	11-Aug	12-Aug	13-Aug	14-Aug	15-Aug
	Mid-Ebb 8:21 Mid-Flood 14:40 *Zone A* *Impact Monitoring*	Mid-Ebb 9:07 Mid-Flood 15:14 *Zone A* *Impact Monitoring*				
16-Aug	17-Aug	18-Aug	19-Aug	20-Aug	21-Aug	22-Aug
23-Aug	24-Aug	25-Aug	26-Aug	27-Aug	28-Aug	29-Aug
30-Aug	31-Aug					

The schedule is subject to agreement from the EPD and AFCD 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 B

QA/QC Results for Suspended Solids Testing

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: ERM HONG KONG	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 4		
Contact	: MS JOANNA KWAN	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK0916121		
Address	: 21/F, LINCOLN HOUSE, 979 KING`S ROAD, TAIKOO PLACE, ISLAND EAST, QUARRY BAY, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong				
E-mail	: Joanna.kwan@erm.com	E-mail	: Godfrey.Chan@alsenviro.com				
Telephone	: +852 2271 3000	Telephone	: +852 2610 1044				
Facsimile	: +852 2723 5660	Facsimile	: +852 2610 2021				
Project	: WATER QUALITY MONITORING PROGRAMME DEEP WATER BAY AND PO TOI	Quote number	: ----	Date received	: 08-AUG-2009		
Order number	: ----			Date of issue	: 12-AUG-2009		
C-O-C number	: ----			No. of samples	- Received :	30	
Site	: ----				- Analysed :	30	

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK0916121 supersedes any previous reports with this reference. The completion date of analysis is 11-AUG-2009. 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 HK0916121 : **Sample(s) were received in a chilled condition.**
Water sample(s) analysed and reported on an as received basis.

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

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1065064)								
HK0916121-001	2009/08/07/1215/S1/B/E/ REPL.1	EA025: Suspended Solids (SS)	----	1	mg/L	3	3	0.0
HK0916121-012	2009/08/07/1210/S2/T/E/ REPL.2	EA025: Suspended Solids (SS)	----	1	mg/L	5	5	0.0
EA/ED: Physical and Aggregate Properties (QC Lot: 1065066)								
HK0916121-021	2009/08/07/1231/B1/T/E/ REPL.1	EA025: Suspended Solids (SS)	----	1	mg/L	3	3	0.0

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

Matrix: **WATER**

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
		LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QCLot: 1065064)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	90.5	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 1065066)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	98.5	----	85	115	----	----

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

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: ERM HONG KONG	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 4		
Contact	: MS JOANNA KWAN	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK0916166		
Address	: 21/F, LINCOLN HOUSE, 979 KING`S ROAD, TAIKOO PLACE, ISLAND EAST, QUARRY BAY, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong				
E-mail	: Joanna.kwan@erm.com	E-mail	: Godfrey.Chan@alsenviro.com				
Telephone	: +852 2271 3000	Telephone	: +852 2610 1044				
Facsimile	: +852 2723 5660	Facsimile	: +852 2610 2021				
Project	: WATER QUALITY MONITORING PROGRAMME DEEP WATER BAY AND PO TOI	Quote number	: ----	Date received	: 09-AUG-2009		
Order number	: ----			Date of issue	: 12-AUG-2009		
C-O-C number	: ----			No. of samples	- Received :	30	
Site	: ----				- Analysed :	30	

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK0916166 supersedes any previous reports with this reference. The completion date of analysis is 11-AUG-2009. 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 HK0916166 : **Sample(s) were received in a chilled condition.**
Water sample(s) analysed and reported on an as received basis.

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

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1065079)								
HK0916166-001	2009/08/08/1251/S1/B/E/ REPL.1	EA025: Suspended Solids (SS)	----	1	mg/L	19	18	7.9
HK0916166-011	2009/08/08/1239/S2/M/E/ REPL.2	EA025: Suspended Solids (SS)	----	1	mg/L	4	4	0.0
EA/ED: Physical and Aggregate Properties (QC Lot: 1065080)								
HK0916166-021	2009/08/08/1313/B1/T/E/ REPL.1	EA025: Suspended Solids (SS)	----	1	mg/L	2	2	0.0

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

Matrix: **WATER**

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
		LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QCLot: 1065079)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	104	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 1065080)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	108	----	85	115	----	----

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

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

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Contact	: **MS JOANNA KWAN**	*Contact*	: **Chan Kwok Fai, Godfrey**	*Work Order*	: **HK0916322**		
Address	: **21/F, LINCOLN HOUSE, 979 KING`S ROAD, TAIKOO PLACE, ISLAND EAST, QUARRY BAY, HONG KONG**	*Address*	: **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**				
E-mail	: **Joanna.kwan@erm.com**	*E-mail*	: **Godfrey.Chan@alsenviro.com**				
Telephone	: **+852 2271 3000**	*Telephone*	: **+852 2610 1044**				
Facsimile	: **+852 2723 5660**	*Facsimile*	: **+852 2610 2021**				
Project	: **WATER QUALITY MONITORING PROGRAMME DEEP WATER BAY AND PO TOI**	*Quote number*	: **----**	*Date received*	: **11-AUG-2009**		
Order number	: **----**			*Date of issue*	: **15-AUG-2009**		
C-O-C number	: **----**			*No. of samples*	- *Received* : **30**		
Site	: **----**				- *Analysed* : **30**		

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK0916322 supersedes any previous reports with this reference. The completion date of analysis is 12-AUG-2009. 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 HK0916322 : **Sample(s) were received in a chilled condition.**
Water sample(s) analysed and reported on an as received basis.

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

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1066209)								
HK0916322-001	2009/08/10/0739/S1/B/E/ REPL.1	EA025: Suspended Solids (SS)	----	1	mg/L	11	10	0.0
HK0916322-011	2009/08/10/0732/S2/M/E/ REPL.2	EA025: Suspended Solids (SS)	----	1	mg/L	3	3	0.0
EA/ED: Physical and Aggregate Properties (QC Lot: 1066210)								
HK0916322-021	2009/08/10/0754/B1/T/E/ REPL.1	EA025: Suspended Solids (SS)	----	1	mg/L	5	4	0.0

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

Matrix: **WATER**

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
		LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QCLot: 1066209)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	99.5	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 1066210)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	113	----	85	115	----	----

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

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: **ERM HONG KONG**	*Laboratory*	: **ALS Technichem HK Pty Ltd**	*Page*	: **1 of 4**		
Contact	: **MS JOANNA KWAN**	*Contact*	: **Chan Kwok Fai, Godfrey**	*Work Order*	: **HK0916323**		
Address	: **21/F, LINCOLN HOUSE, 979 KING`S ROAD, TAIKOO PLACE, ISLAND EAST, QUARRY BAY, HONG KONG**	*Address*	: **11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong**				
E-mail	: **Joanna.kwan@erm.com**	*E-mail*	: **Godfrey.Chan@alsenviro.com**				
Telephone	: **+852 2271 3000**	*Telephone*	: **+852 2610 1044**				
Facsimile	: **+852 2723 5660**	*Facsimile*	: **+852 2610 2021**				
Project	: **WATER QUALITY MONITORING PROGRAMME DEEP WATER BAY AND PO TOI**	*Quote number*	: **----**	*Date received*	: **11-AUG-2009**		
Order number	: **----**			*Date of issue*	: **15-AUG-2009**		
C-O-C number	: **----**			*No. of samples*	- *Received* : **30**		
Site	: **----**				- *Analysed* : **30**		

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK0916323 supersedes any previous reports with this reference. The completion date of analysis is 12-AUG-2009. 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 HK0916323 : **Sample(s) were received in a chilled condition.**
Water sample(s) analysed and reported on an as received basis.

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

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1066211)								
HK0916323-001	2009/08/10/1406/S1/B/F/ REPL.1	EA025: Suspended Solids (SS)	----	1	mg/L	15	17	9.8
HK0916323-011	2009/08/10/1359/S2/M/F/ REPL.2	EA025: Suspended Solids (SS)	----	1	mg/L	5	4	0.0
EA/ED: Physical and Aggregate Properties (QC Lot: 1066212)								
HK0916323-021	2009/08/10/1425/B1/T/F/ REPL.1	EA025: Suspended Solids (SS)	----	1	mg/L	6	7	0.0

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

Matrix: **WATER**

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
		LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QCLot: 1066211)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	102	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 1066212)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	108	----	85	115	----	----

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

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

ALS Technichem (HK) Pty Ltd

ALS Laboratory Group
ANALYTICAL CHEMISTRY & TESTING SERVICES

CERTIFICATE OF ANALYSIS

Client	: ERM HONG KONG	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 4		
Contact	: MS FRANCESCA ZINO	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK0916414		
Address	: 21/F, LINCOLN HOUSE, 979 KING`S ROAD, TAIKOO PLACE, ISLAND EAST, QUARRY BAY, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong				
E-mail	: francesca.zino@erm.com	E-mail	: Godfrey.Chan@alsenviro.com				
Telephone	: +852 2271 3000	Telephone	: +852 2610 1044				
Facsimile	: +852 2723 5660	Facsimile	: +852 2610 2021				
Project	: WATER QUALITY MONITORING PROGRAMME DEEP WATER BAY AND PO TOI	Quote number	: ----	Date received	: 12-AUG-2009		
Order number	: ----			Date of issue	: 17-AUG-2009		
C-O-C number	: ----			No. of samples	- Received :	30	
Site	: ----				- Analysed :	30	

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK0916414 supersedes any previous reports with this reference. The completion date of analysis is 14-AUG-2009. 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 HK0916414 : **Sample(s) were received in a chilled condition.**
Water sample(s) analysed and reported on an as received basis.

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

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1068831)								
HK0916414-001	2009/08/11/0828/S1/B/E/ REPL.1	EA025: Suspended Solids (SS)	----	1	mg/L	8	8	0.0
HK0916414-011	2009/08/11/0821/S2/M/E/ REPL.2	EA025: Suspended Solids (SS)	----	1	mg/L	3	4	0.0
EA/ED: Physical and Aggregate Properties (QC Lot: 1068832)								
HK0916414-021	2009/08/11/0844/B1/T/E/ REPL.1	EA025: Suspended Solids (SS)	----	1	mg/L	4	4	0.0

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

Matrix: **WATER**

Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
		LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QCLot: 1068831)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	104	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 1068832)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	108	----	85	115	----	----

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

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

CERTIFICATE OF ANALYSIS

Client	: ERM HONG KONG	Laboratory	: ALS Technichem HK Pty Ltd	Page	: 1 of 4		
Contact	: MS FRANCESCA ZINO	Contact	: Chan Kwok Fai, Godfrey	Work Order	: HK0916423		
Address	: 21/F, LINCOLN HOUSE, 979 KING`S ROAD, TAIKOO PLACE, ISLAND EAST, QUARRY BAY, HONG KONG	Address	: 11/F., Chung Shun Knitting Centre, 1 - 3 Wing Yip Street, Kwai Chung, N.T., Hong Kong				
E-mail	: francesca.zino@erm.com	E-mail	: Godfrey.Chan@alsenviro.com				
Telephone	: +852 2271 3000	Telephone	: +852 2610 1044				
Facsimile	: +852 2723 5660	Facsimile	: +852 2610 2021				
Project	: WATER QUALITY MONITORING PROGRAMME DEEP WATER BAY AND PO TOI	Quote number	: ----	Date received	: 12-AUG-2009		
Order number	: ----			Date of issue	: 17-AUG-2009		
C-O-C number	: ----			No. of samples	- Received :	30	
Site	: ----				- Analysed :	30	

Report Comments

This report for ALS Technichem (HK) Pty Ltd work order reference HK0916423 supersedes any previous reports with this reference. The completion date of analysis is 14-AUG-2009. 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 HK0916423 : **Sample(s) were received in a chilled condition.**
Water sample(s) analysed and reported on an as received basis.

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

Laboratory Duplicate (DUP) Report

Matrix: **WATER**

Laboratory sample ID	Client sample ID	Method: Compound	CAS Number	Laboratory Duplicate (DUP) Report				
				LOR	Unit	Original Result	Duplicate Result	RPD (%)
EA/ED: Physical and Aggregate Properties (QC Lot: 1068834)								
HK0916423-001	2009/08/11/1446/S1/B/F/ REPL.1	EA025: Suspended Solids (SS)	----	1	mg/L	7	6	0.0
HK0916423-011	2009/08/11/1439/S2/M/F/ REPL.2	EA025: Suspended Solids (SS)	----	1	mg/L	6	7	0.0
EA/ED: Physical and Aggregate Properties (QC Lot: 1068835)								
HK0916423-021	2009/08/11/1505/B1/T/F/ REPL.1	EA025: Suspended Solids (SS)	----	1	mg/L	5	6	0.0

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

Matrix: **WATER**

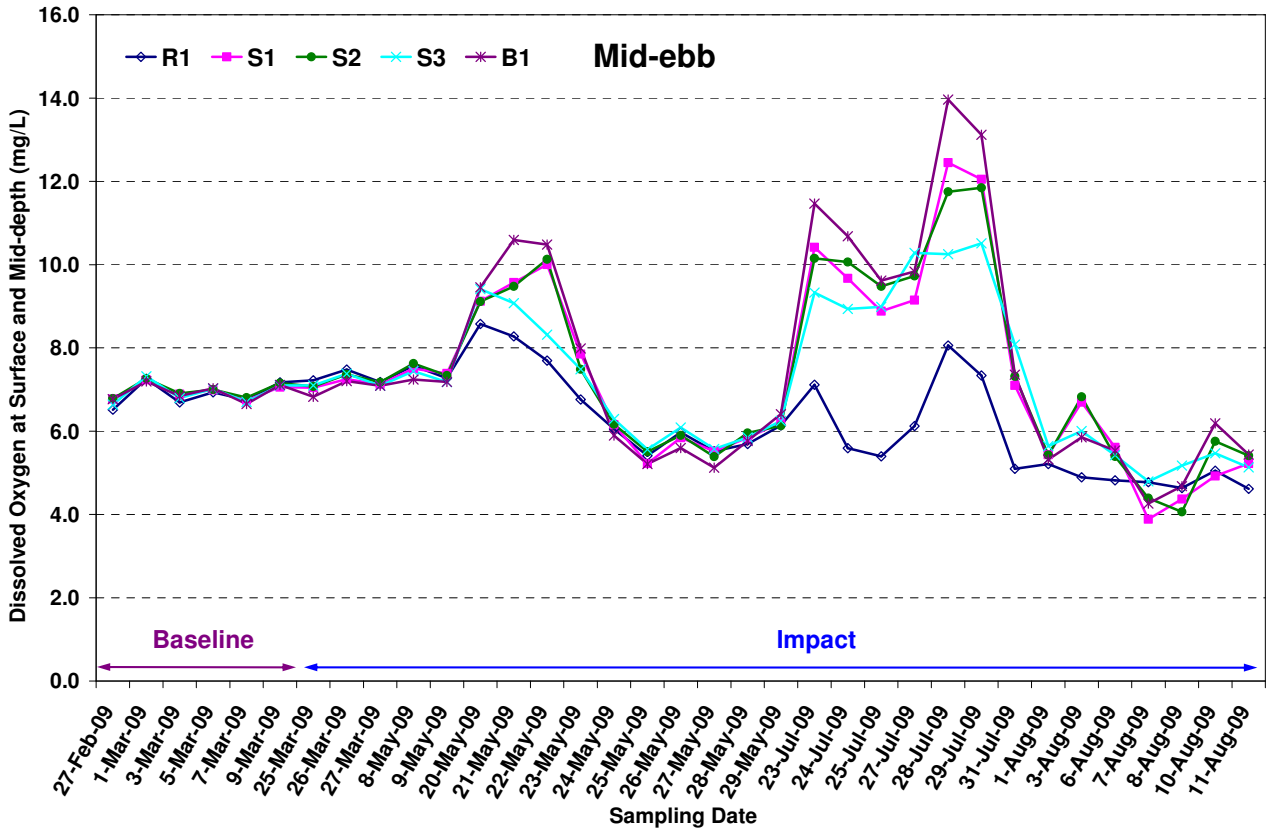
Method: Compound	CAS Number	Method Blank (MB) Report			Laboratory Control Spike (LCS) and Laboratory Control Spike Duplicate (DCS) Report						
					Spike	Spike Recovery (%)		Recovery Limits (%)		RPDs (%)	
		LOR	Unit	Result	Concentration	LCS	DCS	Low	High	Value	Control Limit
EA/ED: Physical and Aggregate Properties (QCLot: 1068834)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	94.5	----	85	115	----	----
EA/ED: Physical and Aggregate Properties (QCLot: 1068835)											
EA025: Suspended Solids (SS)	----	2	mg/L	<2	20 mg/L	93.0	----	85	115	----	----

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

- **No Matrix Spike (MS) or Matrix Spike Duplicate (MSD) Results are required to be reported.**

Annex C

Impact Water Quality Monitoring Results



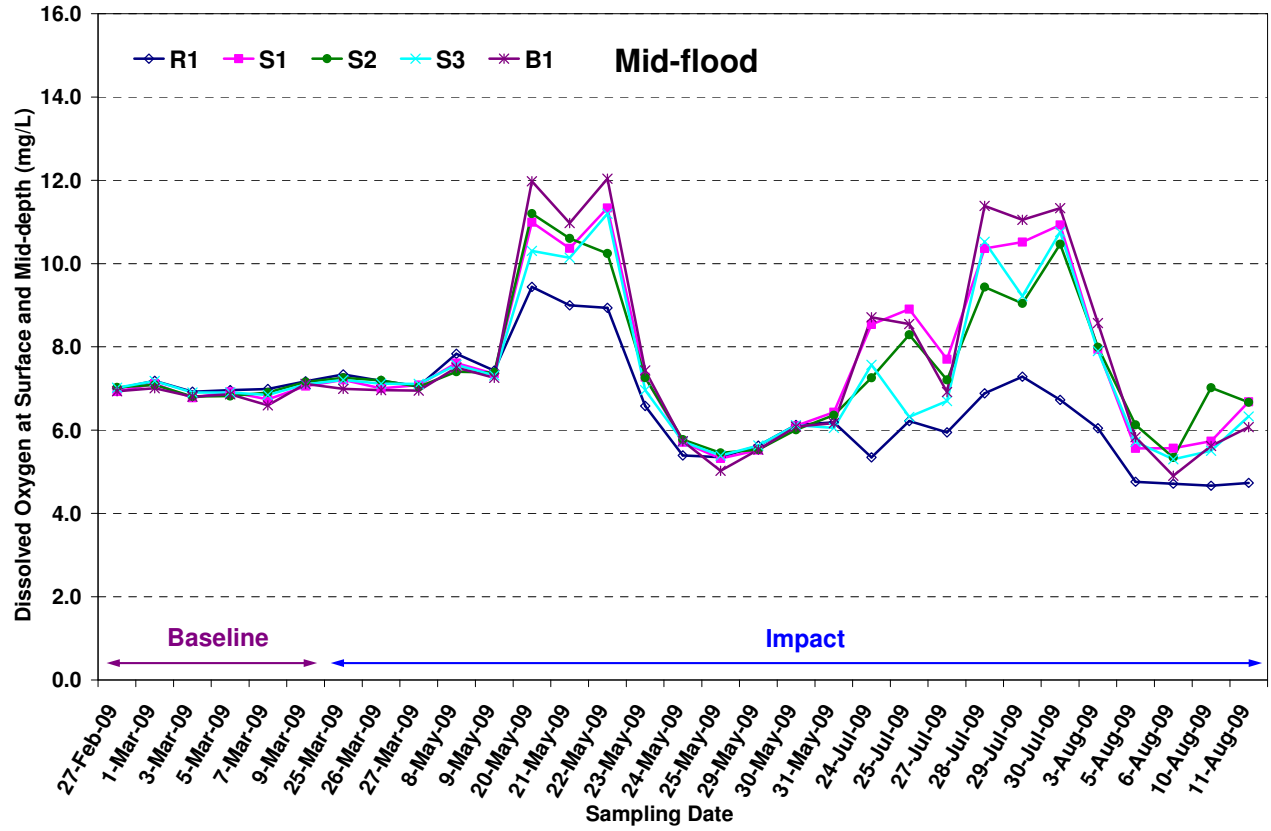
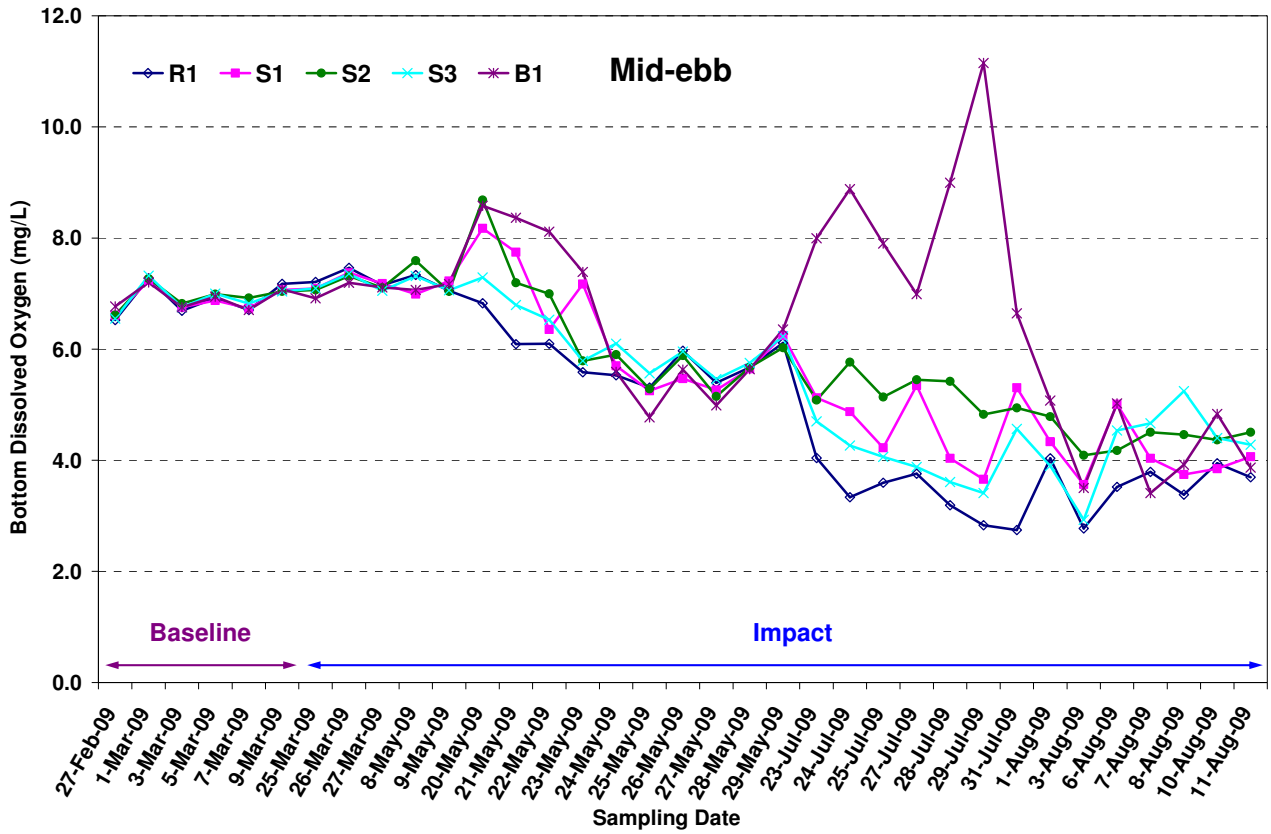


Figure C1 Dissolved Oxygen (mg/L) at the surface and mid-depth of the water column measured during the monitoring period from 27 February to 11 August 2009 for Zone A.

ERM



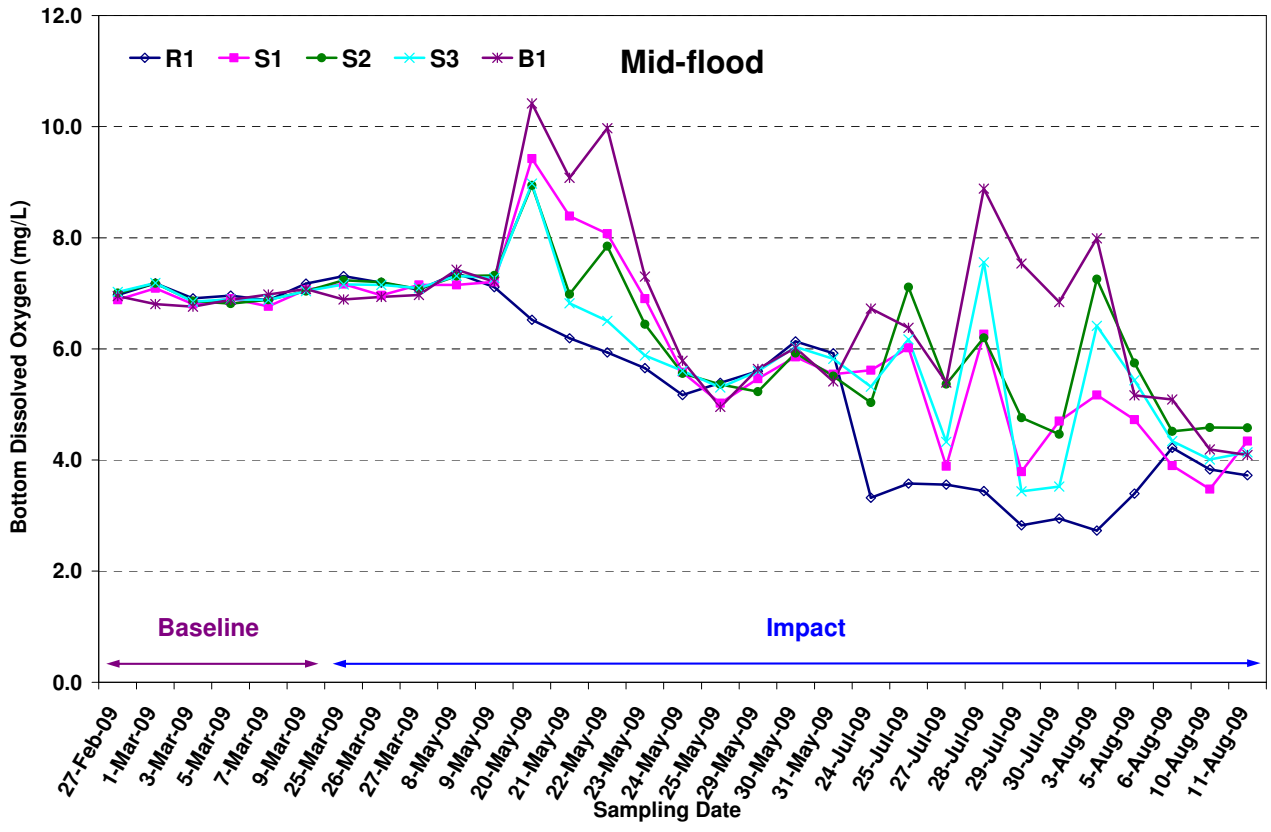
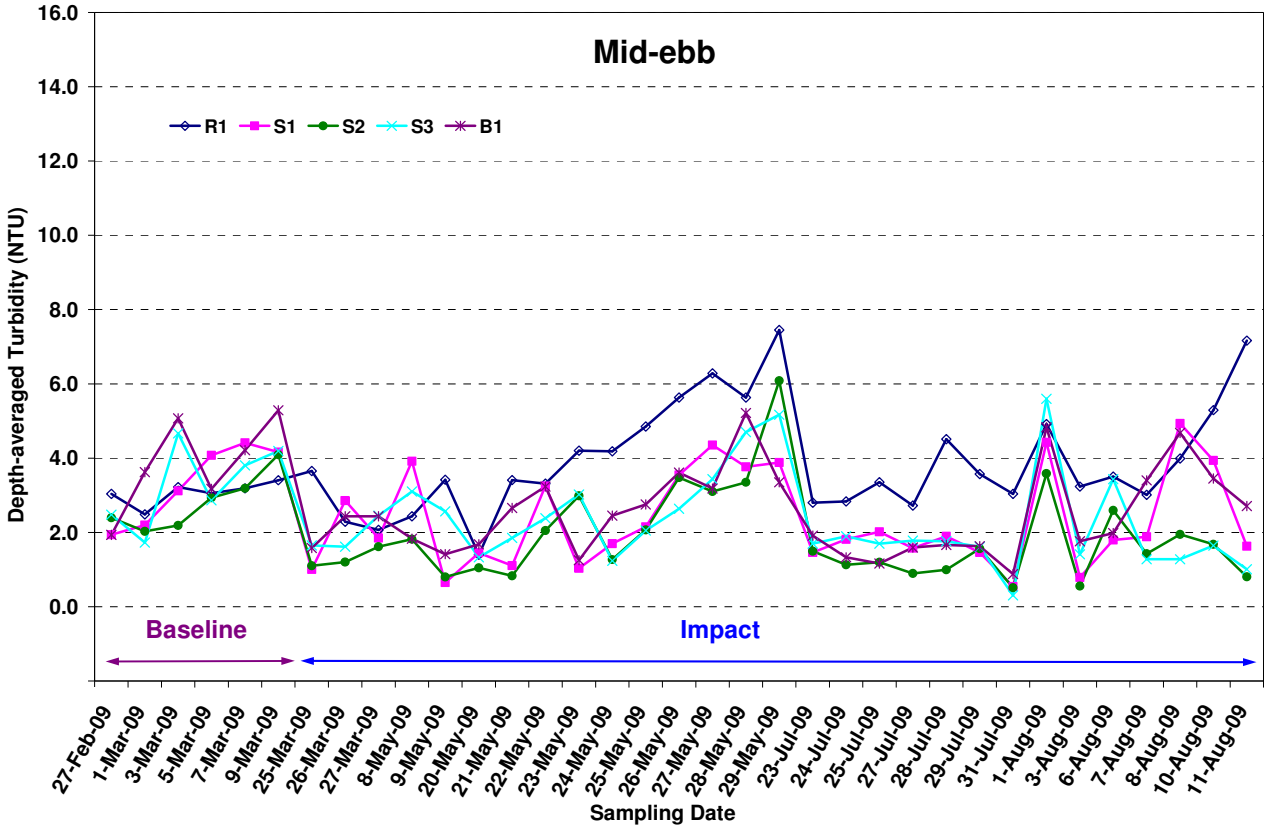


Figure C2 Dissolved Oxygen (mg/L) near the bottom of the water column measured during the monitoring period from 27 February to 11 August 2009 for Zone A.

ERM



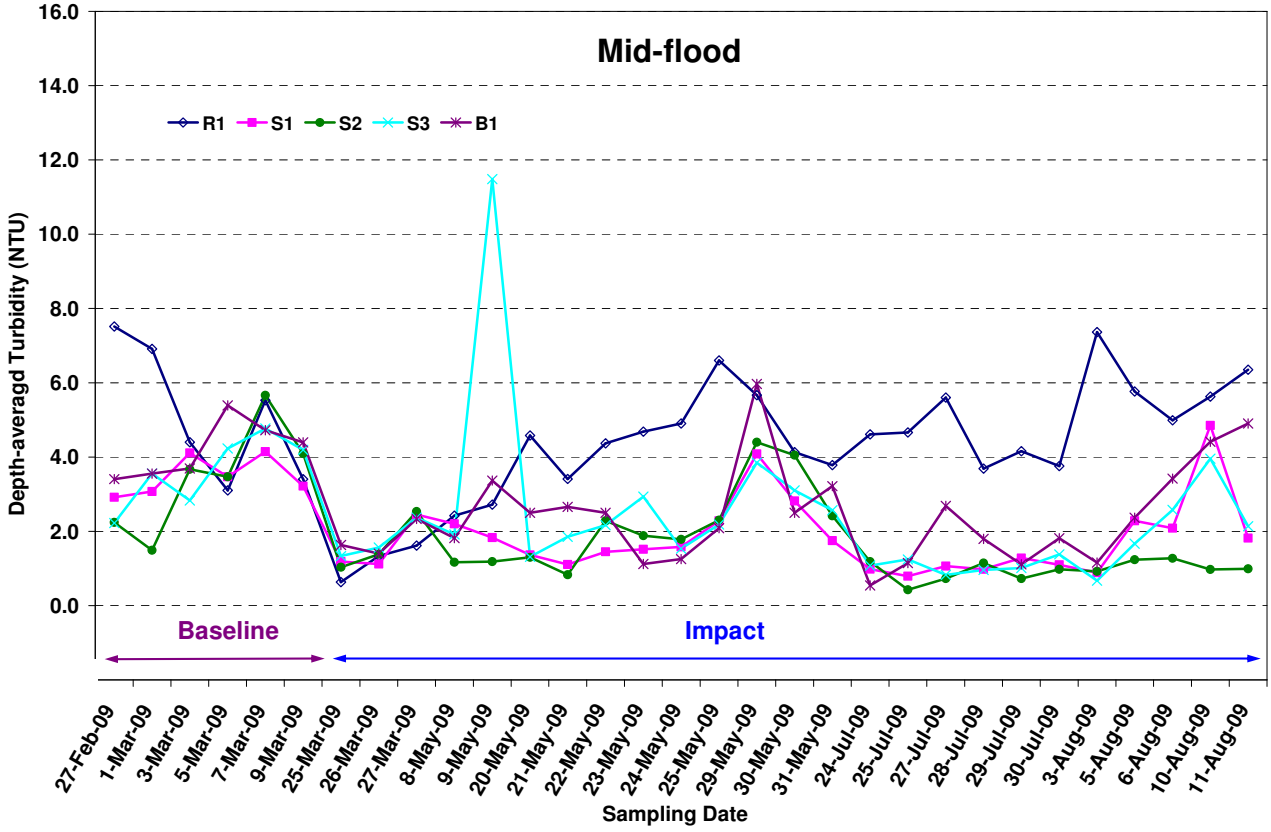
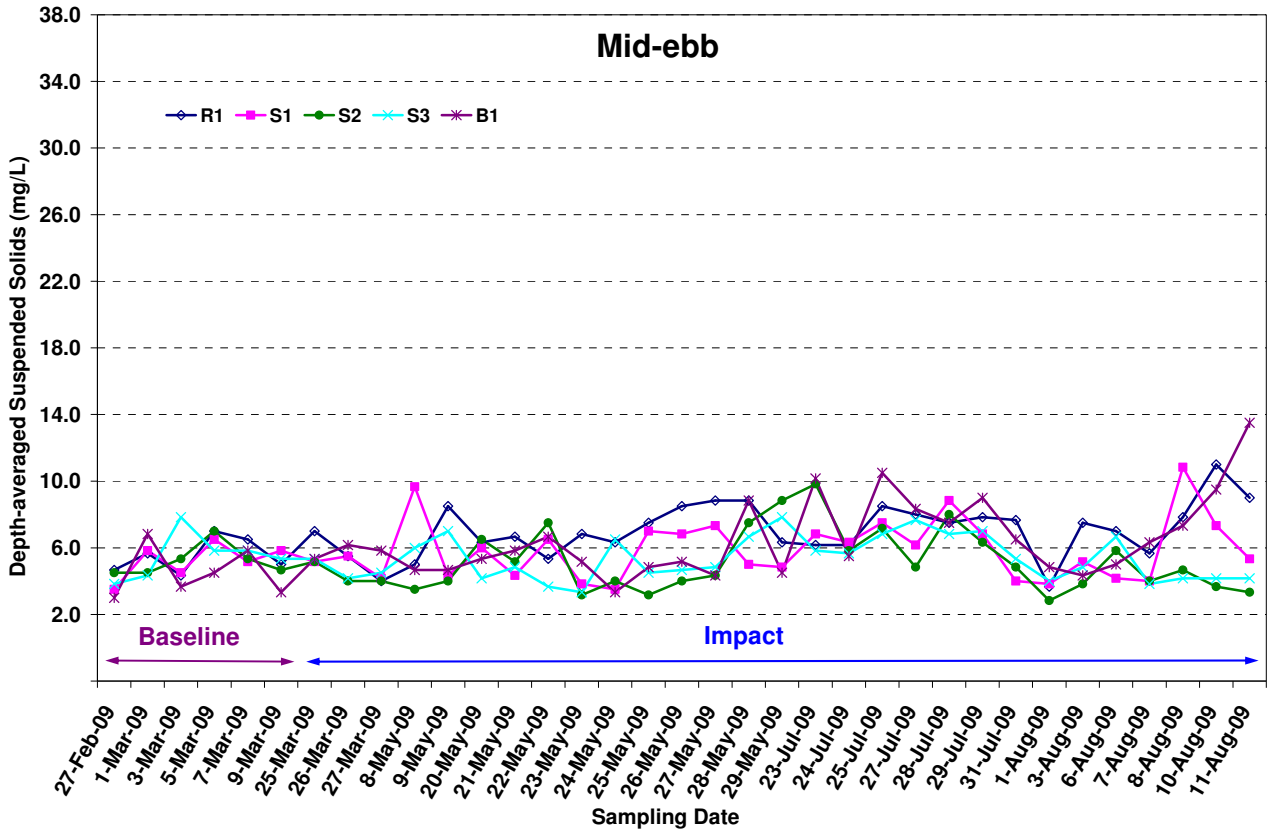


Figure C3 Depth-averaged turbidity (NTU) of water samples measured during the monitoring period from 27 February to 11August 2009 for Zone A.

ERM



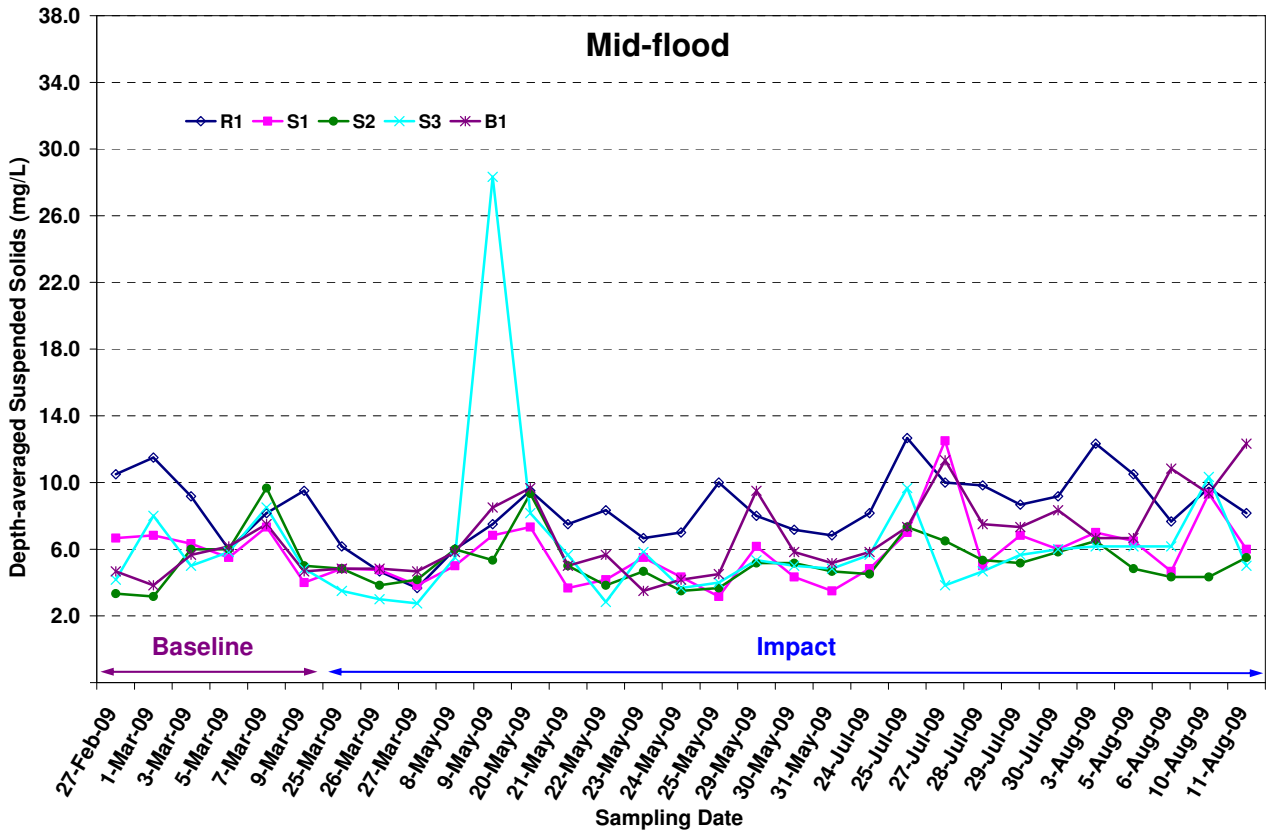


Figure C4 Depth-averaged Suspended Solids (mg/L) of water samples measured during the monitoring period from 27 February to 11 August 2009 for Zone A.

ERM

Impact Water Quality Monitoring Results During Mid-ebb tide for 7 August 2009

Sampling Date	8/7/2009
Weather	Fine

Station	Zone A: R1								
Time (hh:mm)	13:05-13:13								
Water Depth (m)	22.40								
Monitoring Depth (m)	1.60		11.25		21.40				
Tide	Mid-Ebb								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Surface & Middle*	*Bottom*
Water Temperature (℃)	28.0	28.1	27.6	27.9	26.6	26.7	27.49	-	-
Salinity (ppt)	30.0	30.0	31.1	30.7	32.4	32.3	31.09	-	-
D.O. Saturation (%)	73.8	75.8	67.0	71.8	55.4	58.0	66.99	-	-
D.O. (mg/L)	4.89	5.01	4.45	4.75	3.71	3.87	4.45	4.78	3.79
Turbidity (NTU)	1.12	1.33	2.74	1.53	6.18	5.17	3.01	-	-
SS (mg/L)	2.0	4.0	6.0	4.0	8.0	10.0	5.7	-	-
Remarks									

Station	Zone A: S3								
Time (hh:mm)	12:42-12:50								
Water Depth (m)	11.20								
Monitoring Depth (m)	1.35		5.55		10.10				
Tide	Mid-Ebb								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Surface & Middle*	*Bottom*
Water Temperature (℃)	28.5	28.6	27.8	27.7	27.7	27.8	28.02	-	-
Salinity (ppt)	29.8	29.7	30.5	30.4	30.6	30.5	30.25	-	-
D.O. Saturation (%)	75.7	76.5	69.9	68.4	69.8	70.9	71.84	-	-
D.O. (mg/L)	4.98	5.02	4.64	4.54	4.63	4.70	4.75	4.80	4.67
Turbidity (NTU)	1.12	0.82	1.33	1.53	1.43	1.43	1.28	-	-
SS (mg/L)	2.0	4.0	5.0	3.0	3.0	6.0	3.8	-	-
Remarks									

Station	Zone A: S1								
Time (hh:mm)	12:15-12:23								
Water Depth (m)	9.00								
Monitoring Depth (m)	1.30		4.75		7.90				
Tide	Mid-Ebb								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Surface & Middle*	*Bottom*
Water Temperature (℃)	28.0	28.2	27.6	27.6	27.5	27.5	27.73	-	-
Salinity (ppt)	29.8	29.6	30.1	30.1	30.2	30.3	29.99	-	-
D.O. Saturation (%)	61.7	58.4	59.4	54.5	60.8	60.1	59.16	-	-
D.O. (mg/L)	4.09	3.86	3.96	3.63	4.06	4.01	3.94	3.89	4.04
Turbidity (NTU)	2.24	1.33	1.43	2.03	2.03	2.24	1.88	-	-
SS (mg/L)	3.0	3.0	4.0	8.0	3.0	3.0	4.0	-	-
Remarks									

Station	Zone A: B1								
Time (hh:mm)	12:28-12:35								
Water Depth (m)	6.90								
Monitoring Depth (m)	1.45		3.85		5.85				
Tide	Mid-Ebb								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Surface & Middle*	*Bottom*
Water Temperature (℃)	28.9	28.3	27.7	27.6	27.4	27.5	27.91	-	-
Salinity (ppt)	29.5	29.7	30.0	30.0	30.3	30.2	29.95	-	-
D.O. Saturation (%)	69.8	64.0	63.8	60.1	49.7	52.5	59.99	-	-
D.O. (mg/L)	4.57	4.23	4.25	4.00	3.32	3.50	3.98	4.26	3.41
Turbidity (NTU)	2.44	1.53	1.63	2.44	6.39	5.98	3.40	-	-
SS (mg/L)	3.0	7.0	6.0	4.0	8.0	10.0	6.3	-	-
Remarks									

Station	Zone A: S2								
Time (hh:mm)	12:03-12:10								
Water Depth (m)	8.80								
Monitoring Depth (m)	1.15		4.65		7.75				
Tide	Mid-Ebb								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Surface & Middle*	*Bottom*
Water Temperature (℃)	28.3	28.0	27.6	27.8	27.7	27.8	27.86	-	-
Salinity (ppt)	29.3	29.6	30.2	30.3	30.4	30.5	30.04	-	-
D.O. Saturation (%)	71.9	67.2	59.8	65.7	66.7	69.1	66.73	-	-
D.O. (mg/L)	4.76	4.46	3.98	4.36	4.43	4.58	4.43	4.39	4.51
Turbidity (NTU)	0.62	1.53	1.83	1.33	1.73	1.53	1.43	-	-
SS (mg/L)	3.0	5.0	2.0	5.0	6.0	3.0	4.0	-	-
Remarks									

Position	Easting	Northing	Depth	Time	Speed	Direction	Date
R1	835951.51	809050.64	0	131819	0	0	20090807
R1	836110.32	808997.04	0	132308	0.58	108.7	20090807
R1	836287.17	808913.27	0	132846	0.579	115.3	20090807
R1	836463.05	808848.86	0	133401	0.5946	110.1	20090807

Compliance with Action and Limit Level

Parameter	Action Level (baseline data)	Limit Level (baseline data)	Action Level (R1*1.2)	Limit Level (R1*1.3)	S1		S2		S3		B1	
					Exceedance of Action Level	Exceedance of Limit Level	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)	6.58	6.42			Y	Y	Y	Y	Y	Y	Y	Y
DO (Depth-averaged)	6.59	6.42			Y	Y	Y	Y	Y	Y	Y	Y
Turbidity (Depth-averaged)	5.17	5.72	3.6	3.9	N	N	N	N	N	N	N	N
SS (Depth-averaged)	7.91	8.96	6.8	7.4	N	N	N	N	N	N	N	N

Impact Water Quality Monitoring Results During Mid-ebb tide for 8 August 2009

Sampling Date	8/8/2009
Weather	Fine

Station	Zone A: R1								
Time (hh:mm)	14:03-14:11								
Water Depth (m)	21.40								
Monitoring Depth (m)	1.35		11.20		20.60				
Tide	Mid-Ebb								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Surface & Middle*	*Bottom*
Water Temperature (℃)	28.9	28.6	27.4	27.4	26.0	26.0	27.36	-	-
Salinity (ppt)	29.1	29.5	32.2	32.2	33.4	33.4	31.63	-	-
D.O. Saturation (%)	79.1	77.8	60.3	64.0	48.5	52.1	63.61	-	-
D.O. (mg/L)	5.19	5.12	3.99	4.23	3.26	3.50	4.22	4.63	3.38
Turbidity (NTU)	0.82	0.72	3.75	2.94	7.50	8.21	3.99	-	-
SS (mg/L)	3.0	2.0	5.0	7.0	17.0	13.0	7.8	-	-
Remarks									

Station	Zone A: S3								
Time (hh:mm)	13:45-13:51								
Water Depth (m)	10.80								
Monitoring Depth (m)	1.40		5.45		9.85				
Tide	Mid-Ebb								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Surface & Middle*	*Bottom*
Water Temperature (℃)	28.7	28.8	28.3	28.1	28.1	28.2	28.36	-	-
Salinity (ppt)	30.4	30.3	31.0	30.9	31.5	31.5	30.93	-	-
D.O. Saturation (%)	81.6	80.9	80.5	73.0	79.9	80.2	79.37	-	-
D.O. (mg/L)	5.33	5.28	5.28	4.80	5.23	5.26	5.20	5.17	5.25
Turbidity (NTU)	1.22	1.12	1.63	2.34	0.62	0.72	1.28	-	-
SS (mg/L)	4.0	1.0	4.0	5.0	7.0	4.0	4.2	-	-
Remarks									

Station	Zone A: S1								
Time (hh:mm)	12:51-13:03								
Water Depth (m)	8.60								
Monitoring Depth (m)	1.45		4.70		7.75				
Tide	Mid-Ebb								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Surface & Middle*	*Bottom*
Water Temperature (℃)	28.8	28.4	27.7	27.7	27.8	27.7	28.01	-	-
Salinity (ppt)	29.8	30.0	30.3	30.3	31.0	31.2	30.42	-	-
D.O. Saturation (%)	75.8	73.9	58.0	57.0	54.7	58.5	62.97	-	-
D.O. (mg/L)	4.96	4.87	3.85	3.79	3.62	3.87	4.16	4.37	3.75
Turbidity (NTU)	1.63	0.72	2.03	2.84	8.81	13.57	4.93	-	-
SS (mg/L)	2.0	6.0	12.0	10.0	19.0	16.0	10.8	-	-
Remarks									

Station	Zone A: B1								
Time (hh:mm)	13:11-13:37								
Water Depth (m)	6.20								
Monitoring Depth (m)	1.40		3.50		5.45				
Tide	Mid-Ebb								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Surface & Middle*	*Bottom*
Water Temperature (℃)	29.4	28.8	28.3	27.9	27.9	27.9	28.36	-	-
Salinity (ppt)	29.5	29.9	30.1	30.5	30.6	31.1	30.26	-	-
D.O. Saturation (%)	82.7	76.6	65.2	61.1	58.3	60.4	67.38	-	-
D.O. (mg/L)	5.37	5.01	4.30	4.04	3.86	3.98	4.43	4.68	3.92
Turbidity (NTU)	0.82	1.43	2.84	2.94	5.37	14.68	4.68	-	-
SS (mg/L)	2.0	2.0	5.0	7.0	15.0	13.0	7.3	-	-
Remarks									

Station	Zone A: S2								
Time (hh:mm)	12:33-12:40								
Water Depth (m)	8.80								
Monitoring Depth (m)	1.25		4.55		7.75				
Tide	Mid-Ebb								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Surface & Middle*	*Bottom*
Water Temperature (℃)	28.8	28.8	27.6	27.7	28.1	27.9	28.14	-	-
Salinity (ppt)	30.0	29.9	30.5	30.4	30.9	30.8	30.41	-	-
D.O. Saturation (%)	71.9	72.9	48.1	53.8	73.0	62.5	63.69	-	-
D.O. (mg/L)	4.70	4.77	3.20	3.57	4.80	4.12	4.19	4.06	4.46
Turbidity (NTU)	0.82	0.62	3.55	2.03	1.22	3.45	1.95	-	-
SS (mg/L)	4.0	2.0	7.0	4.0	4.0	7.0	4.7	-	-
Remarks									

Position	Easting	Northing	Depth	Time	Speed	Direction	Date
R1	835948.31	809051.3	0	141426	0	0	20090808
R1	836157.85	808994.29	0	141935	0.7028	105.2	20090808
R1	836340.2	808924.66	0	142426	0.6708	110.9	20090808
R1	836551.84	808867.54	0	143014	0.6299	105.1	20090808

Compliance with Action and Limit Level

Parameter	Action Level (baseline data)	Limit Level (baseline data)	Action Level (R1*1.2)	Limit Level (R1*1.3)	S1		S2		S3		B1	
					Exceedance of Action Level	Exceedance of Limit Level	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)	6.58	6.42			Y	Y	Y	Y	Y	Y	Y	Y
DO (Depth-averaged)	6.59	6.42			Y	Y	Y	Y	Y	Y	Y	Y
Turbidity (Depth-averaged)	5.17	5.72	4.8	5.2	Y	N	N	N	N	N	N	N
SS (Depth-averaged)	7.91	8.96	9.4	10.2	Y	Y	N	N	N	N	N	N

Impact Water Quality Monitoring Results During Mid-ebb tide for 10 August 2009

Sampling Date	8/10/2009
Weather	Fine

Station	Zone A: R1								
Time (hh:mm)	08:25-08:33								
Water Depth (m)	21.80								
Monitoring Depth (m)	1.80		11.60		21.05				
Tide	Mid-Ebb								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Surface & Middle*	*Bottom*
Water Temperature (℃)	28.5	28.6	27.9	27.8	25.1	25.1	27.16	-	-
Salinity (ppt)	28.8	28.8	31.1	31.1	33.7	33.7	31.23	-	-
D.O. Saturation (%)	80.6	84.8	70.8	69.8	57.3	58.6	70.32	-	-
D.O. (mg/L)	5.33	5.59	4.67	4.61	3.90	3.99	4.68	5.05	3.95
Turbidity (NTU)	0.82	0.62	1.02	1.33	14.79	13.17	5.29	-	-
SS (mg/L)	4.0	2.0	4.0	2.0	27.0	27.0	11.0	-	-
Remarks									

Station	Zone A: S3								
Time (hh:mm)	08:05-08:12								
Water Depth (m)	11.40								
Monitoring Depth (m)	1.60		5.85		10.35				
Tide	Mid-Ebb								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Surface & Middle*	*Bottom*
Water Temperature (℃)	28.6	28.7	28.5	28.5	27.9	27.9	28.36	-	-
Salinity (ppt)	29.6	29.4	30.2	30.2	31.1	31.0	30.25	-	-
D.O. Saturation (%)	86.5	86.9	80.3	79.5	66.9	66.6	77.78	-	-
D.O. (mg/L)	5.68	5.71	5.27	5.21	4.41	4.39	5.11	5.47	4.40
Turbidity (NTU)	1.22	0.72	1.33	1.22	2.64	2.74	1.65	-	-
SS (mg/L)	2.0	3.0	5.0	4.0	6.0	5.0	4.2	-	-
Remarks									

Station	Zone A: S1								
Time (hh:mm)	07:39-07:45								
Water Depth (m)	8.60								
Monitoring Depth (m)	1.80		4.95		7.60				
Tide	Mid-Ebb								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Surface & Middle*	*Bottom*
Water Temperature (℃)	28.7	28.6	28.0	28.1	27.7	27.7	28.14	-	-
Salinity (ppt)	29.3	29.2	31.0	30.9	31.3	31.4	30.50	-	-
D.O. Saturation (%)	86.7	84.6	64.2	63.6	57.1	59.5	69.28	-	-
D.O. (mg/L)	5.70	5.57	4.23	4.19	3.77	3.93	4.57	4.92	3.85
Turbidity (NTU)	1.02	0.72	4.16	3.75	6.59	7.40	3.94	-	-
SS (mg/L)	4.0	4.0	8.0	8.0	11.0	9.0	7.3	-	-
Remarks									

Station	Zone A: B1								
Time (hh:mm)	07:52-07:58								
Water Depth (m)	6.30								
Monitoring Depth (m)	1.85		4.10		5.50				
Tide	Mid-Ebb								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Surface & Middle*	*Bottom*
Water Temperature (℃)	28.8	28.9	29.0	28.9	28.6	27.9	28.66	-	-
Salinity (ppt)	29.3	29.4	29.6	29.6	30.2	31.3	29.90	-	-
D.O. Saturation (%)	91.6	95.1	97.2	94.3	78.4	68.8	87.56	-	-
D.O. (mg/L)	6.01	6.23	6.35	6.16	5.14	4.53	5.74	6.19	4.84
Turbidity (NTU)	1.33	1.22	1.53	1.73	7.40	7.50	3.45	-	-
SS (mg/L)	5.0	5.0	8.0	6.0	16.0	17.0	9.5	-	-
Remarks									

Station	Zone A: S2								
Time (hh:mm)	07:27-07:33								
Water Depth (m)	8.20								
Monitoring Depth (m)	1.75		5.00		8.10				
Tide	Mid-Ebb								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Surface & Middle*	*Bottom*
Water Temperature (℃)	28.7	28.6	28.8	28.8	27.7	27.7	28.37	-	-
Salinity (ppt)	29.4	29.4	30.1	30.0	31.5	31.4	30.29	-	-
D.O. Saturation (%)	86.8	87.3	86.1	91.0	66.5	65.7	80.57	-	-
D.O. (mg/L)	5.71	5.74	5.63	5.95	4.39	4.34	5.29	5.76	4.37
Turbidity (NTU)	0.72	0.72	1.63	1.73	2.14	3.15	1.68	-	-
SS (mg/L)	2.0	3.0	2.0	3.0	6.0	6.0	3.7	-	-
Remarks									

Position	Easting	Northing	Depth	Time	Speed	Direction	Date
R1	835950.48	809051.43	0	83751	0	0	20090810
R1	835951.87	809113.09	0	84219	0.2301	1.3	20090810
R1	835925.62	809201.5	0	84927	0.2155	343.5	20090810
R1	835932.64	809252.71	0	85547	0.136	7.8	20090810

Compliance with Action and Limit Level

Parameter	Action Level (baseline data)	Limit Level (baseline data)	Action Level (R1*1.2)	Limit Level (R1*1.3)	S1		S2		S3		B1	
					Exceedance of Action Level	Exceedance of Limit Level	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)	6.58	6.42			Y	Y	Y	Y	Y	Y	Y	Y
DO (Depth-averaged)	6.59	6.42			Y	Y	Y	Y	Y	Y	Y	Y
Turbidity (Depth-averaged)	5.17	5.72	6.4	6.9	N	N	N	N	N	N	N	N
SS (Depth-averaged)	7.91	8.96	13.2	14.3	N	N	N	N	N	N	Y	Y

Impact Water Quality Monitoring Results During Mid-flood tide for 10 August 2009

Sampling Date	8/10/2009
Weather	Fine

Station	Zone A: R1								
Time (hh:mm)	14:58-15:07								
Water Depth (m)	22.20								
Monitoring Depth (m)	1.40		11.40		21.25				
Tide	Mid-Flood								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Surface & Middle*	*Bottom*
Water Temperature (℃)	28.4	28.7	27.0	26.6	25.0	25.0	26.78	-	-
Salinity (ppt)	29.5	29.5	32.1	32.6	33.8	33.8	31.89	-	-
D.O. Saturation (%)	78.4	80.7	62.0	60.6	55.9	56.5	65.70	-	-
D.O. (mg/L)	5.17	5.30	4.13	4.05	3.81	3.85	4.39	4.66	3.83
Turbidity (NTU)	1.22	1.12	3.55	3.96	12.36	11.55	5.63	-	-
SS (mg/L)	6.0	3.0	7.0	10.0	18.0	14.0	9.7	-	-
Remarks									

Station	Zone A: S3								
Time (hh:mm)	14:38-14:46								
Water Depth (m)	9.60								
Monitoring Depth (m)	1.40		5.25		8.40				
Tide	Mid-Flood								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Surface & Middle*	*Bottom*
Water Temperature (℃)	28.7	28.8	28.3	28.3	26.8	26.8	27.95	-	-
Salinity (ppt)	30.0	29.9	30.5	30.6	32.4	32.4	30.97	-	-
D.O. Saturation (%)	91.2	95.1	75.0	74.3	60.2	60.2	76.01	-	-
D.O. (mg/L)	5.97	6.22	4.93	4.89	4.01	4.01	5.01	5.50	4.01
Turbidity (NTU)	1.53	1.73	1.93	1.83	8.41	8.31	3.96	-	-
SS (mg/L)	2.0	3.0	6.0	7.0	22.0	22.0	10.3	-	-
Remarks									

Station	Zone A: S1								
Time (hh:mm)	14:06-14:15								
Water Depth (m)	7.80								
Monitoring Depth (m)	1.45		4.35		6.90				
Tide	Mid-Flood								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Surface & Middle*	*Bottom*
Water Temperature (℃)	28.9	29.2	28.2	28.1	27.5	27.5	28.22	-	-
Salinity (ppt)	29.3	29.7	30.6	30.8	31.7	31.8	30.65	-	-
D.O. Saturation (%)	98.3	127.2	62.4	62.5	51.8	53.2	75.91	-	-
D.O. (mg/L)	6.44	8.28	4.10	4.11	3.43	3.52	4.98	5.73	3.48
Turbidity (NTU)	0.72	1.22	3.86	2.64	11.85	8.81	4.85	-	-
SS (mg/L)	6.0	6.0	6.0	8.0	15.0	15.0	9.3	-	-
Remarks									

Station	Zone A: B1								
Time (hh:mm)	14:21-14:29								
Water Depth (m)	6.30								
Monitoring Depth (m)	1.45		3.20		5.30				
Tide	Mid-Flood								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Surface & Middle*	*Bottom*
Water Temperature (℃)	29.0	29.1	28.5	28.3	27.5	27.5	28.30	-	-
Salinity (ppt)	29.8	29.6	30.3	30.6	31.6	31.7	30.60	-	-
D.O. Saturation (%)	106.2	95.1	75.3	66.9	62.2	64.6	78.37	-	-
D.O. (mg/L)	6.93	6.20	4.94	4.40	4.11	4.27	5.14	5.62	4.19
Turbidity (NTU)	2.34	3.96	6.49	5.68	4.36	3.65	4.41	-	-
SS (mg/L)	6.0	6.0	13.0	14.0	9.0	8.0	9.3	-	-
Remarks									

Station	Zone A: S2								
Time (hh:mm)	13:53-14:00								
Water Depth (m)	7.80								
Monitoring Depth (m)	1.30		4.35		6.90				
Tide	Mid-Flood								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Surface & Middle*	*Bottom*
Water Temperature (℃)	29.1	29.2	29.0	29.0	28.0	28.0	28.71	-	-
Salinity (ppt)	29.2	29.2	29.8	29.8	30.8	30.9	29.97	-	-
D.O. Saturation (%)	106.1	109.0	105.6	109.6	70.1	69.0	94.88	-	-
D.O. (mg/L)	6.93	7.11	6.89	7.14	4.62	4.55	6.21	7.02	4.59
Turbidity (NTU)	0.92	0.82	1.02	1.02	1.02	1.02	0.97	-	-
SS (mg/L)	3.0	4.0	3.0	5.0	6.0	5.0	4.3	-	-
Remarks									

Position	Easting	Northing	Depth	Time	Speed	Direction	Date
R1	835948.64	809053.56	0	151057	0.0089	175.4	20090810
R1	836087.79	808982.13	0	151704	0.4262	117.2	20090810
R1	836213.94	808943.28	0	152211	0.43	107.1	20090810
R1	836353.76	808887.58	0	152809	0.4204	111.7	20090810

Compliance with Action and Limit Level

Parameter	Action Level (baseline data)	Limit Level (baseline data)	Action Level (R1*1.2)	Limit Level (R1*1.3)	S1		S2		S3		B1	
					Exceedance of Action Level	Exceedance of Limit Level	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)	6.58	6.42			Y	Y	Y	Y	Y	Y	Y	Y
DO (Depth-averaged)	6.59	6.42			Y	Y	N	N	Y	Y	Y	Y
Turbidity (Depth-averaged)	5.17	5.72	6.8	7.3	N	N	N	N	N	N	N	N
SS (Depth-averaged)	7.91	8.96	11.6	12.6	Y	Y	N	N	Y	Y	Y	Y

Impact Water Quality Monitoring Results During Mid-flood tide for 11 August 2009

Sampling Date	8/11/2009
Weather	Fine

Station	Zone A: R1								
Time (hh:mm)	15:35-15:42								
Water Depth (m)	21.80								
Monitoring Depth (m)	1.40		11.25		20.90				
Tide	Mid-Flood								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Surface & Middle*	*Bottom*
Water Temperature (℃)	28.5	28.6	26.7	26.5	24.9	24.9	26.68	-	-
Salinity (ppt)	29.0	29.0	32.9	32.9	33.8	33.7	31.87	-	-
D.O. Saturation (%)	84.4	84.8	58.1	58.0	53.4	55.6	65.73	-	-
D.O. (mg/L)	5.58	5.60	3.87	3.88	3.65	3.80	4.40	4.73	3.73
Turbidity (NTU)	1.02	1.02	2.74	3.25	14.58	15.49	6.35	-	-
SS (mg/L)	6.0	6.0	3.0	3.0	15.0	16.0	8.2	-	-
Remarks									

Station	Zone A: S3								
Time (hh:mm)	15:16-15:23								
Water Depth (m)	10.00								
Monitoring Depth (m)	1.25		4.95		8.90				
Tide	Mid-Flood								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Surface & Middle*	*Bottom*
Water Temperature (℃)	28.9	28.9	28.4	28.4	26.5	26.5	27.91	-	-
Salinity (ppt)	28.8	28.8	30.2	30.3	32.6	32.6	30.53	-	-
D.O. Saturation (%)	113.9	114.3	78.5	78.4	62.4	61.2	84.78	-	-
D.O. (mg/L)	7.49	7.51	5.16	5.15	4.18	4.10	5.60	6.33	4.14
Turbidity (NTU)	0.82	0.82	0.92	1.02	4.97	4.26	2.14	-	-
SS (mg/L)	5.0	3.0	4.0	5.0	7.0	6.0	5.0	-	-
Remarks									

Station	Zone A: S1								
Time (hh:mm)	14:46-14:54								
Water Depth (m)	7.90								
Monitoring Depth (m)	1.50		3.90		6.85				
Tide	Mid-Flood								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Surface & Middle*	*Bottom*
Water Temperature (℃)	28.7	28.7	28.6	29.0	27.6	27.6	28.38	-	-
Salinity (ppt)	28.8	28.7	30.0	29.4	31.4	31.4	29.95	-	-
D.O. Saturation (%)	111.2	114.8	79.8	101.0	64.4	66.8	89.64	-	-
D.O. (mg/L)	7.32	7.57	5.23	6.60	4.26	4.42	5.90	6.68	4.34
Turbidity (NTU)	0.62	0.62	1.33	1.53	3.15	3.65	1.82	-	-
SS (mg/L)	4.0	5.0	7.0	6.0	7.0	7.0	6.0	-	-
Remarks									

Station	Zone A: B1								
Time (hh:mm)	15:03-15:09								
Water Depth (m)	5.30								
Monitoring Depth (m)	1.40		3.20		4.40				
Tide	Mid-Flood								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Surface & Middle*	*Bottom*
Water Temperature (℃)	28.8	28.9	28.3	28.3	28.1	28.1	28.42	-	-
Salinity (ppt)	28.7	28.2	30.5	30.5	30.7	30.7	29.88	-	-
D.O. Saturation (%)	112.7	124.4	66.8	65.0	59.6	64.7	82.20	-	-
D.O. (mg/L)	7.42	8.20	4.39	4.27	3.92	4.26	5.41	6.07	4.09
Turbidity (NTU)	2.03	1.22	5.37	6.18	7.40	7.20	4.90	-	-
SS (mg/L)	5.0	5.0	10.0	12.0	22.0	20.0	12.3	-	-
Remarks									

Station	Zone A: S2								
Time (hh:mm)	14:34-14:40								
Water Depth (m)	8.70								
Monitoring Depth (m)	1.30		4.55		7.80				
Tide	Mid-Flood								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Surface & Middle*	*Bottom*
Water Temperature (℃)	29.0	29.1	28.8	28.8	28.0	28.0	28.60	-	-
Salinity (ppt)	28.3	28.3	29.5	29.7	30.9	30.9	29.59	-	-
D.O. Saturation (%)	108.5	108.7	91.5	97.9	69.6	69.3	90.92	-	-
D.O. (mg/L)	7.13	7.14	6.00	6.41	4.59	4.57	5.97	6.67	4.58
Turbidity (NTU)	0.52	0.52	0.62	0.72	2.03	1.53	0.99	-	-
SS (mg/L)	6.0	4.0	6.0	6.0	5.0	6.0	5.5	-	-
Remarks									

Position	Easting	Northing	Depth	Time	Speed	Direction	Date
R1	835947.33	809050.75	0	154700	0.0096	175.8	20090811
R1	836052.53	808979.49	0	155341	0.3169	124.1	20090811
R1	836130.3	808914.56	0	155834	0.3458	129.9	20090811
R1	836238.68	808828.38	0	160536	0.3281	128.5	20090811

Compliance with Action and Limit Level

Parameter	Action Level (baseline data)	Limit Level (baseline data)	Action Level (R1*1.2)	Limit Level (R1*1.3)	S1		S2		S3		B1	
					Exceedance of Action Level	Exceedance of Limit Level	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)	6.58	6.42			Y	Y	Y	Y	Y	Y	Y	Y
DO (Depth-averaged)	6.59	6.42			N	N	N	N	Y	Y	Y	Y
Turbidity (Depth-averaged)	5.17	5.72	7.6	8.3	N	N	N	N	N	N	N	N
SS (Depth-averaged)	7.91	8.96	9.8	10.6	N	N	N	N	N	N	Y	Y

Impact Water Quality Monitoring Results During Mid-ebb tide for 11 August 2009

Sampling Date	8/11/2009
Weather	Fine

Station	Zone A: R1								
Time (hh:mm)	09:18-09:26								
Water Depth (m)	22.60								
Monitoring Depth (m)	1.70		11.65		21.40				
Tide	Mid-Ebb								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Surface & Middle*	*Bottom*
Water Temperature (℃)	28.2	28.2	27.7	27.8	24.8	24.9	26.94	-	-
Salinity (ppt)	28.4	28.5	31.2	31.2	33.8	33.8	31.14	-	-
D.O. Saturation (%)	74.4	71.0	66.5	66.3	54.0	54.2	64.41	-	-
D.O. (mg/L)	4.96	4.73	4.39	4.38	3.69	3.70	4.31	4.62	3.70
Turbidity (NTU)	1.53	1.73	1.83	1.93	17.52	18.43	7.16	-	-
SS (mg/L)	2.0	2.0	4.0	4.0	18.0	24.0	9.0	-	-
Remarks									

Station	Zone A: S3								
Time (hh:mm)	08:58-09:04								
Water Depth (m)	11.10								
Monitoring Depth (m)	1.25		5.70		10.05				
Tide	Mid-Ebb								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Surface & Middle*	*Bottom*
Water Temperature (℃)	28.6	28.5	28.2	28.4	27.7	27.8	28.21	-	-
Salinity (ppt)	29.5	29.4	30.5	30.2	31.4	31.2	30.35	-	-
D.O. Saturation (%)	84.7	85.9	68.9	72.3	64.7	64.9	73.57	-	-
D.O. (mg/L)	5.57	5.66	4.54	4.75	4.27	4.29	4.85	5.13	4.28
Turbidity (NTU)	0.62	0.62	1.02	0.72	1.63	1.43	1.01	-	-
SS (mg/L)	4.0	3.0	4.0	5.0	5.0	4.0	4.2	-	-
Remarks									

Station	Zone A: S1								
Time (hh:mm)	08:28-08:35								
Water Depth (m)	9.00								
Monitoring Depth (m)	1.05		4.40		8.05				
Tide	Mid-Ebb								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Surface & Middle*	*Bottom*
Water Temperature (℃)	28.8	28.8	28.2	28.4	27.9	27.9	28.33	-	-
Salinity (ppt)	29.1	29.2	30.6	30.3	31.1	31.1	30.21	-	-
D.O. Saturation (%)	92.4	91.7	63.8	70.1	61.3	62.0	73.54	-	-
D.O. (mg/L)	6.07	6.02	4.20	4.61	4.04	4.09	4.84	5.23	4.07
Turbidity (NTU)	0.52	0.52	1.43	1.22	3.75	2.34	1.63	-	-
SS (mg/L)	3.0	3.0	6.0	4.0	8.0	8.0	5.3	-	-
Remarks									

Station	Zone A: B1								
Time (hh:mm)	08:42-08:49								
Water Depth (m)	7.00								
Monitoring Depth (m)	1.10		3.45		5.85				
Tide	Mid-Ebb								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Surface & Middle*	*Bottom*
Water Temperature (℃)	28.9	28.9	28.5	28.7	28.0	28.1	28.53	-	-
Salinity (ppt)	29.4	29.5	30.2	29.9	30.9	30.8	30.12	-	-
D.O. Saturation (%)	93.3	91.1	72.2	75.4	60.4	57.1	74.94	-	-
D.O. (mg/L)	6.11	5.96	4.74	4.94	3.98	3.76	4.92	5.44	3.87
Turbidity (NTU)	1.12	1.12	3.25	3.25	3.65	3.86	2.71	-	-
SS (mg/L)	4.0	6.0	27.0	22.0	9.0	13.0	13.5	-	-
Remarks									

Station	Zone A: S2								
Time (hh:mm)	08:17-08:22								
Water Depth (m)	8.90								
Monitoring Depth (m)	1.05		4.55		8.05				
Tide	Mid-Ebb								
Trial	Trial 1	Trial 2	Trial 1	Trial 2	Trial 1	Trial 2	*Depth-averaged*	*Surface & Middle*	*Bottom*
Water Temperature (℃)	28.5	28.5	28.5	28.7	28.3	28.3	28.44	-	-
Salinity (ppt)	28.6	28.7	29.8	29.8	30.4	30.4	29.63	-	-
D.O. Saturation (%)	87.1	85.7	76.2	79.3	67.7	69.2	77.53	-	-
D.O. (mg/L)	5.77	5.67	5.01	5.20	4.46	4.55	5.11	5.41	4.51
Turbidity (NTU)	0.41	0.41	0.72	0.62	1.33	1.33	0.80	-	-
SS (mg/L)	2.0	2.0	3.0	3.0	4.0	6.0	3.3	-	-
Remarks									

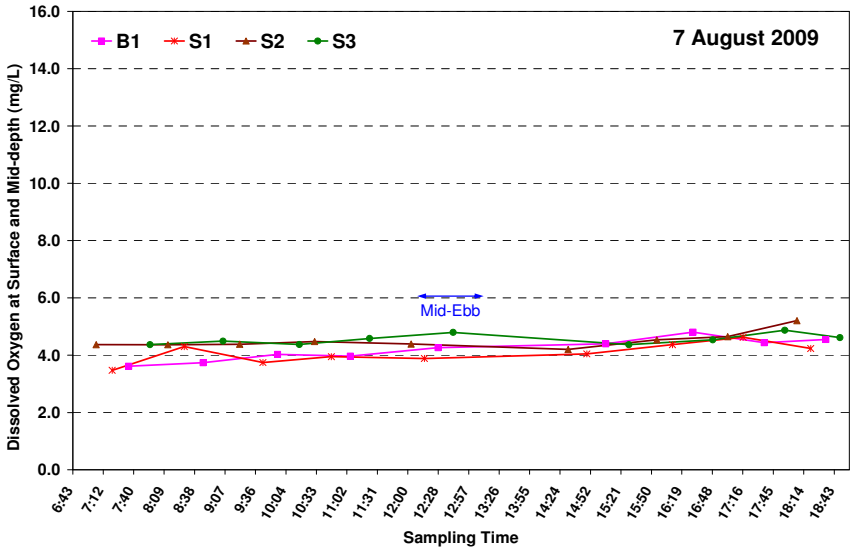
Position	Easting	Northing	Depth	Time	Speed	Direction	Date
R1	835956.44	809057.04	0	92823	0	0	20090811
R1	835947.11	809116.77	0	93433	0.1634	351.1	20090811
R1	835944.26	809185.4	0	94038	0.1882	357.6	20090811
R1	835932.13	809256.94	0	94708	0.1861	350.4	20090811

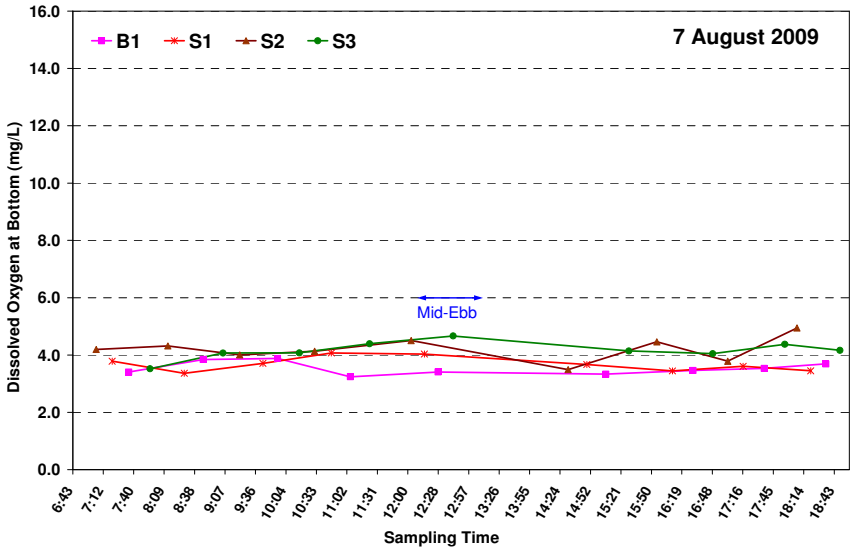
Compliance with Action and Limit Level

Parameter	Action Level (baseline data)	Limit Level (baseline data)	Action Level (R1*1.2)	Limit Level (R1*1.3)	S1		S2		S3		B1	
					Exceedance of Action Level	Exceedance of Limit Level	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)	6.58	6.42			Y	Y	Y	Y	Y	Y	Y	Y
DO (Depth-averaged)	6.59	6.42			Y	Y	Y	Y	Y	Y	Y	Y
Turbidity (Depth-averaged)	5.17	5.72	8.6	9.3	N	N	N	N	N	N	N	N
SS (Depth-averaged)	7.91	8.96	10.8	11.7	N	N	N	N	N	N	Y	Y

Annex D

Continuous *In-situ* Measurement Data





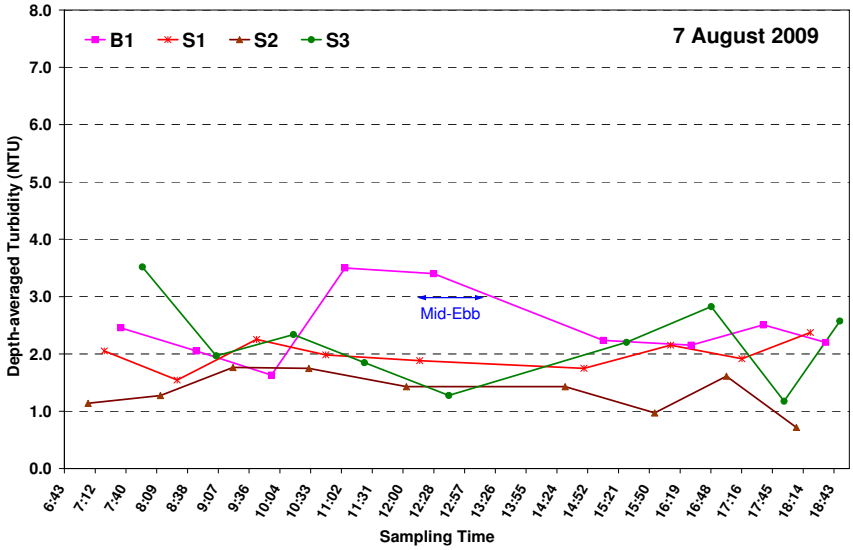
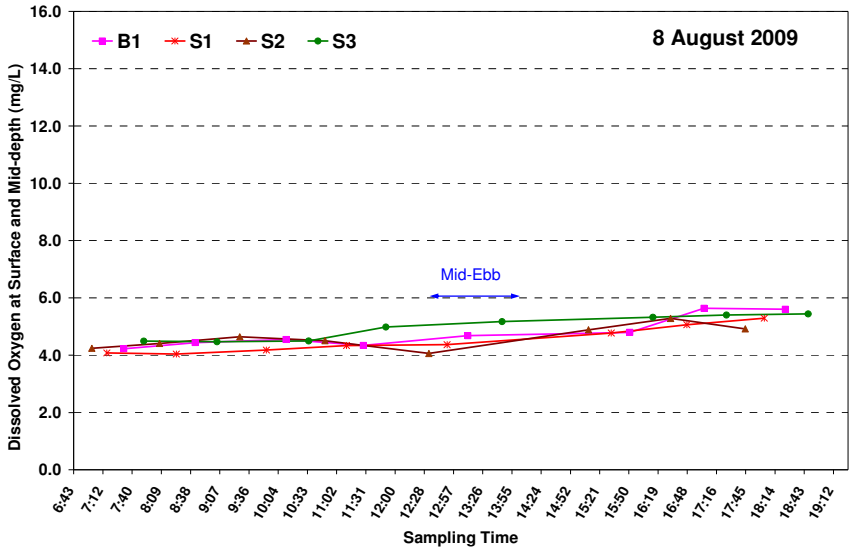
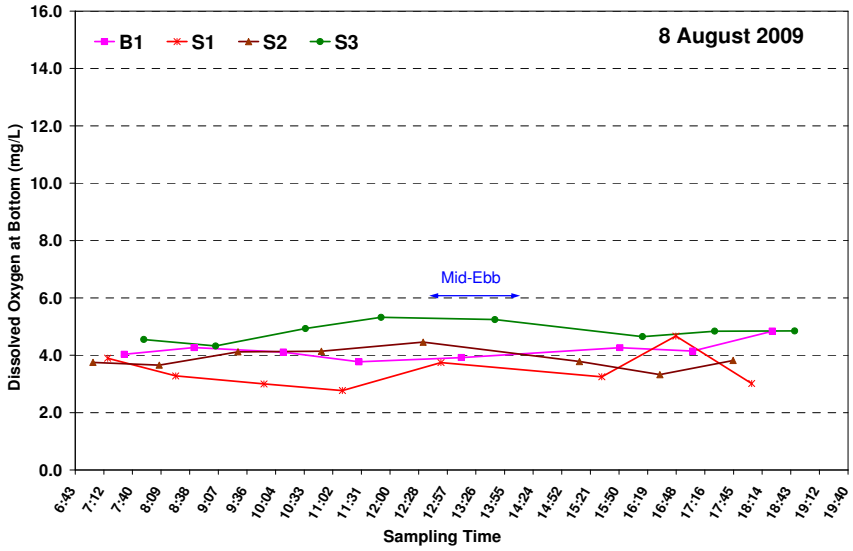


Figure D1 Dissolved Oxygen (mg/L) at the surface and mid-depth, dissolved oxygen (mg/L) near the bottom and depth-averaged turbidity (NTU) of water samples measured at all the impact monitoring stations within Zone A on 7 August 2009.





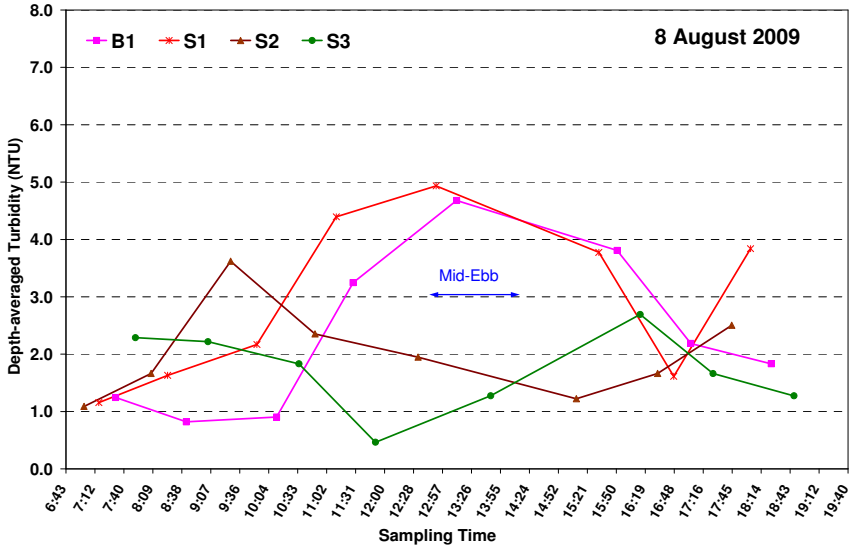
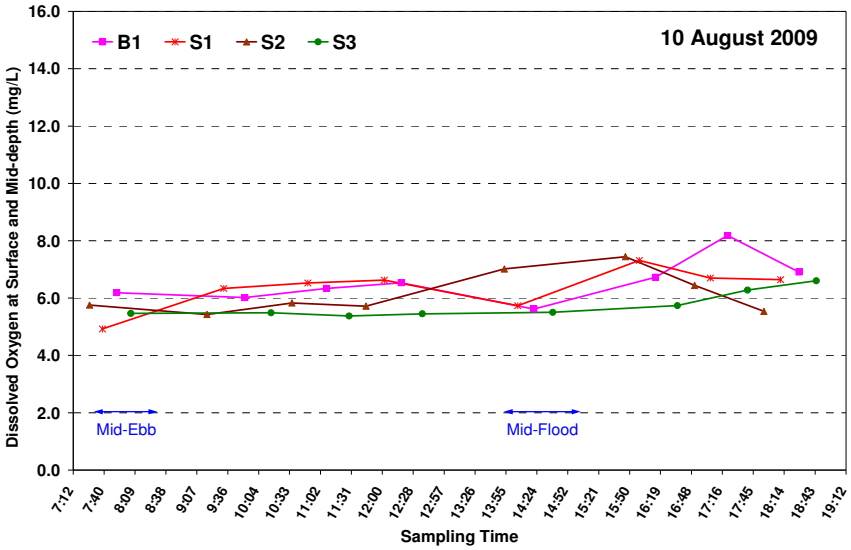
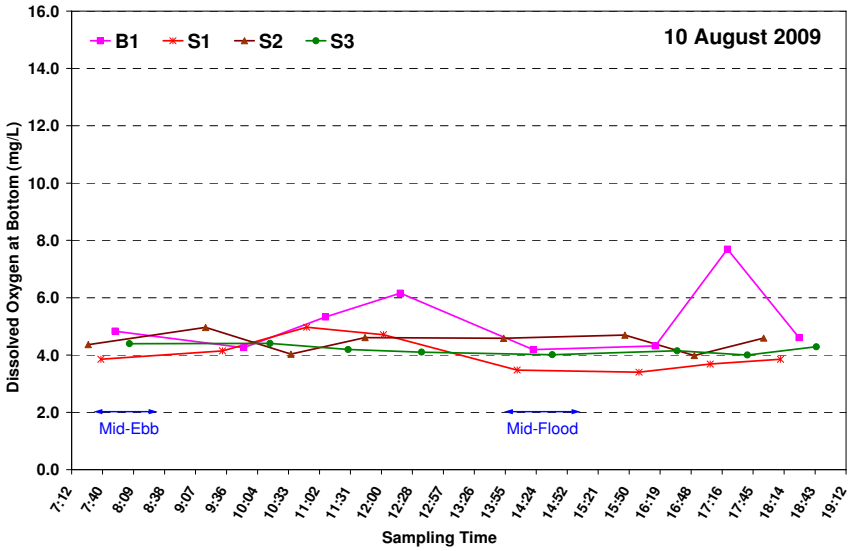


Figure D2 Dissolved Oxygen (mg/L) at the surface and mid-depth, dissolved oxygen (mg/L) near the bottom and depth-averaged turbidity (NTU) of water samples measured at all the impact monitoring stations in Zones A on 8 August 2009.

Ref: 0096120_Annex D_continuous graphs_week8.doc

ERM





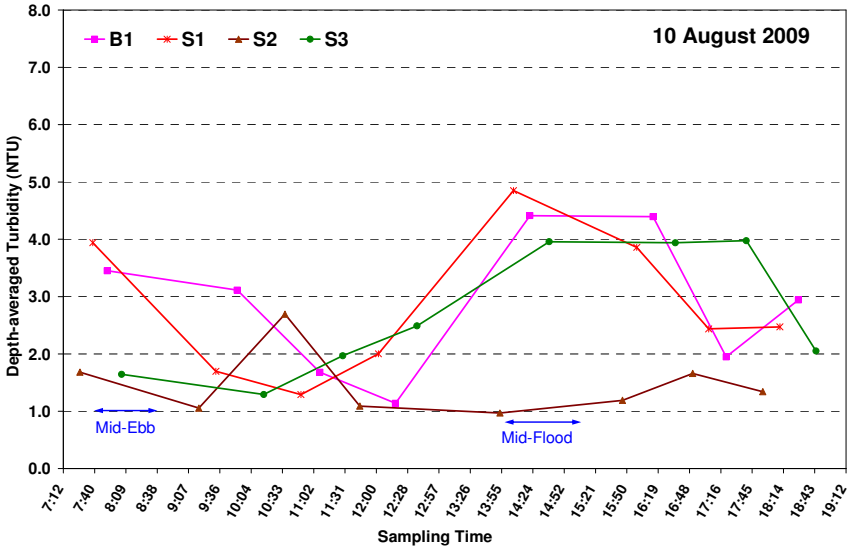
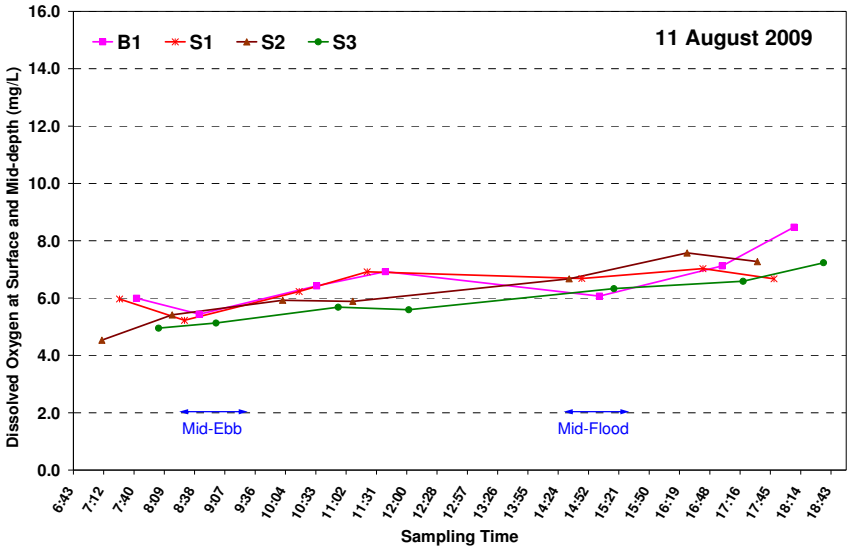
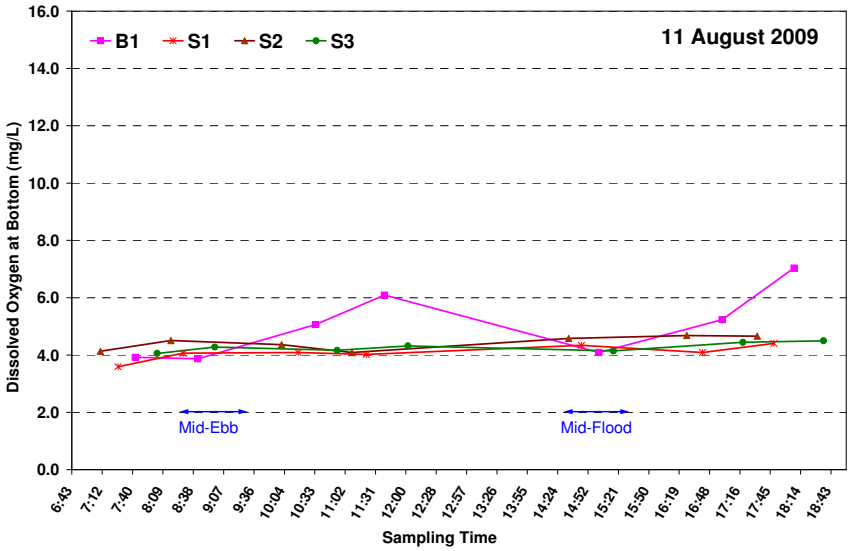


Figure D3 Dissolved Oxygen (mg/L) at the surface and mid-depth, dissolved oxygen (mg/L) near the bottom and depth-averaged turbidity (NTU) of water samples measured at all the impact monitoring stations in Zones B to D on 10 August 2009.





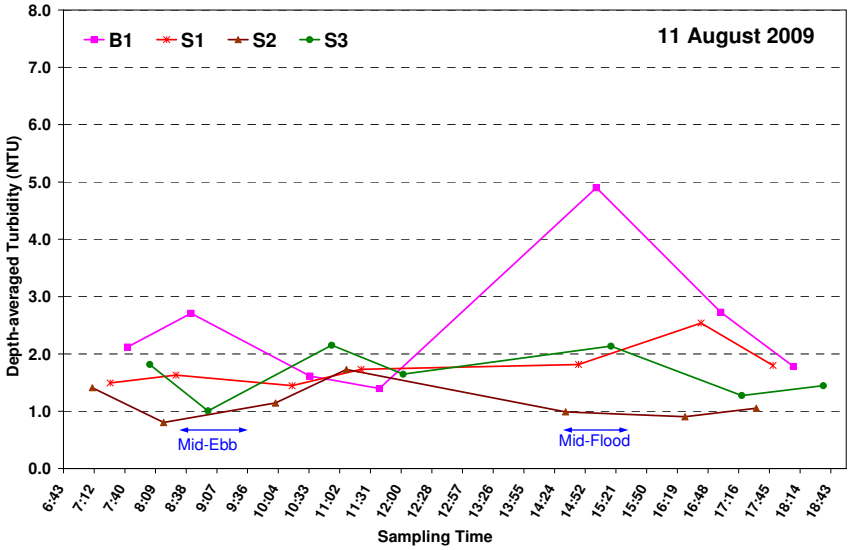


Figure D4 Dissolved Oxygen (mg/L) at the surface and mid-depth, dissolved oxygen (mg/L) near the bottom and depth-averaged turbidity (NTU) of water samples measured at all the impact monitoring stations within Zone A on 11 August 2009.

Annex D Continuous *In-situ* Measurement Data

Zone	Station	Sampling Date	Time	Depth (m)	Depth	Water Temp (°C)	Salinity (ppt)	D.O. Saturation (%)	D.O. (mg/L)	Turbidity (NTU)
A	S2	7/8/2009	7:05:19	7.8	B	27.62	30.03	64.5	4.30	1.2
A	S2	7/8/2009	7:06:12	7.8	B	27.55	30.02	61.3	4.09	1.5
A	S2	7/8/2009	7:07:24	5.5	M	27.67	30.01	64.0	4.26	1.2
A	S2	7/8/2009	7:08:25	5.5	M	27.72	30.05	65.2	4.34	1.1
A	S2	7/8/2009	7:09:21	0.8	S	27.63	29.62	66.1	4.42	0.9
A	S2	7/8/2009	7:10:16	0.8	S	27.58	29.50	66.7	4.46	0.8
A	S1	7/8/2009	7:20:31	7.9	B	27.48	30.16	58.4	3.90	2.3
A	S1	7/8/2009	7:21:25	7.9	B	27.45	30.14	55.0	3.67	2.5
A	S1	7/8/2009	7:22:48	4.0	M	27.54	29.92	48.0	3.21	2.5
A	S1	7/8/2009	7:23:46	4.0	M	27.56	29.86	50.1	3.35	2.2
A	S1	7/8/2009	7:25:11	1.1	S	27.52	29.51	55.7	3.73	1.2
A	S1	7/8/2009	7:26:07	1.1	S	27.55	29.59	53.9	3.60	1.4
A	B1	7/8/2009	7:36:01	5.9	B	27.45	30.08	53.0	3.54	2.7
A	B1	7/8/2009	7:37:15	5.9	B	27.45	30.09	48.9	3.27	2.9
A	B1	7/8/2009	7:38:50	3.7	M	27.45	30.07	52.8	3.53	2.4
A	B1	7/8/2009	7:39:47	3.7	M	27.45	30.07	52.8	3.52	2.5
A	B1	7/8/2009	7:41:23	1.2	S	27.55	29.78	54.1	3.61	2.1
A	B1	7/8/2009	7:42:18	1.2	S	27.58	29.67	56.7	3.79	1.9
A	S3	7/8/2009	7:56:11	10.1	B	27.39	30.64	53.3	3.55	7.6
A	S3	7/8/2009	7:57:14	10.1	B	27.39	30.66	52.4	3.49	7.4
A	S3	7/8/2009	8:00:46	5.3	M	27.63	30.31	64.4	4.28	2.0
A	S3	7/8/2009	8:01:29	5.3	M	27.67	30.30	64.4	4.28	1.7
A	S3	7/8/2009	8:02:21	1.2	S	27.61	29.88	65.2	4.35	1.3
A	S3	7/8/2009	8:03:11	1.2	S	27.61	29.52	68.2	4.56	1.0
A	S2	7/8/2009	8:13:05	8.1	B	27.65	30.34	65.4	4.35	1.5
A	S2	7/8/2009	8:14:12	8.0	B	27.64	30.33	64.3	4.28	1.6
A	S2	7/8/2009	8:15:21	4.4	M	27.72	30.25	65.9	4.38	1.3
A	S2	7/8/2009	8:16:12	4.4	M	27.73	30.25	66.3	4.40	1.2
A	S2	7/8/2009	8:17:33	1.2	S	27.60	29.78	64.3	4.29	1.0
A	S2	7/8/2009	8:18:21	1.2	S	27.59	29.69	65.8	4.39	0.9
A	S1	7/8/2009	8:28:38	8.0	B	27.42	30.13	50.9	3.40	2.8
A	S1	7/8/2009	8:29:37	8.0	B	27.43	30.13	49.8	3.33	2.7
A	S1	7/8/2009	8:31:15	4.3	M	27.58	29.93	63.0	4.20	1.1
A	S1	7/8/2009	8:32:11	4.3	M	27.55	29.93	61.8	4.13	1.2
A	S1	7/8/2009	8:35:11	1.0	S	27.43	29.21	66.2	4.45	0.7
A	S1	7/8/2009	8:36:12	1.0	S	27.40	29.09	65.8	4.43	0.6
A	B1	7/8/2009	8:46:28	6.0	B	27.46	30.08	60.3	4.03	2.3
A	B1	7/8/2009	8:47:22	5.9	B	27.46	30.08	54.8	3.66	2.5
A	B1	7/8/2009	8:48:29	3.5	M	27.54	29.93	52.7	3.52	2.1
A	B1	7/8/2009	8:49:17	3.5	M	27.55	29.92	54.4	3.63	2.0
A	B1	7/8/2009	8:50:25	1.1	S	27.61	29.72	58.2	3.88	1.6
A	B1	7/8/2009	8:51:12	1.1	S	27.62	29.70	58.7	3.92	1.6
A	S3	7/8/2009	9:05:15	10.0	B	27.55	30.67	61.7	4.10	3.7
A	S3	7/8/2009	9:06:12	10.0	B	27.55	30.68	60.9	4.04	3.3
A	S3	7/8/2009	9:07:22	5.4	M	27.68	30.21	65.0	4.32	1.5
A	S3	7/8/2009	9:08:13	5.4	M	27.69	30.23	65.0	4.32	1.4
A	S3	7/8/2009	9:11:09	1.1	S	27.67	29.64	70.3	4.69	0.9
A	S3	7/8/2009	9:12:11	1.1	S	27.66	29.70	69.5	4.64	1.0
A	S2	7/8/2009	9:21:00	7.6	B	27.49	30.40	61.2	4.08	2.7
A	S2	7/8/2009	9:22:11	7.6	B	27.48	30.42	59.0	3.93	2.8
A	S2	7/8/2009	9:23:36	4.7	M	27.69	30.25	63.5	4.22	1.6
A	S2	7/8/2009	9:24:22	4.7	M	27.66	30.22	62.3	4.14	1.6
A	S2	7/8/2009	9:26:38	1.0	S	27.73	29.69	69.1	4.61	0.9
A	S2	7/8/2009	9:27:30	1.0	S	27.73	29.69	68.4	4.56	0.8
A	S1	7/8/2009	9:43:03	7.8	B	27.42	30.26	57.6	3.85	2.5
A	S1	7/8/2009	9:44:11	7.8	B	27.40	30.29	53.4	3.57	3.9

Annex D Continuous *In-situ* Measurement Data

Zone	Station	Sampling Date	Time	Depth (m)	Depth	Water Temp (°C)	Salinity (ppt)	D.O. Saturation (%)	D.O. (mg/L)	Turbidity (NTU)
A	S1	7/8/2009	9:45:22	4.7	M	27.44	30.17	54.2	3.62	2.7
A	S1	7/8/2009	9:46:16	4.7	M	27.45	30.12	52.0	3.47	2.5
A	S1	7/8/2009	9:47:20	1.0	S	27.59	29.66	58.0	3.88	1.0
A	S1	7/8/2009	9:48:13	1.0	S	27.59	29.45	59.9	4.01	0.8
A	B1	7/8/2009	9:56:55	6.0	B	27.58	29.90	59.6	3.98	1.8
A	B1	7/8/2009	9:57:44	6.0	B	27.57	29.89	56.7	3.78	1.7
A	B1	7/8/2009	9:58:50	3.6	M	27.58	29.86	58.5	3.90	1.6
A	B1	7/8/2009	9:59:38	3.6	M	27.60	29.84	58.6	3.91	1.6
A	B1	7/8/2009	10:00:42	0.9	S	27.77	29.59	62.2	4.14	1.5
A	B1	7/8/2009	10:01:25	0.9	S	27.77	29.61	62.4	4.16	1.4
A	S3	7/8/2009	10:17:27	9.8	B	27.55	30.71	61.8	4.11	3.7
A	S3	7/8/2009	10:18:14	9.8	B	27.55	30.71	60.8	4.04	3.9
A	S3	7/8/2009	10:19:28	5.6	M	27.56	30.44	62.1	4.13	2.1
A	S3	7/8/2009	10:20:13	5.6	M	27.57	30.36	61.0	4.06	2.3
A	S3	7/8/2009	10:21:22	0.8	S	28.02	29.64	70.1	4.65	1.0
A	S3	7/8/2009	10:22:04	0.8	S	28.03	29.64	70.5	4.67	1.0
A	S2	7/8/2009	10:31:52	8.0	B	27.62	30.53	63.6	4.23	2.6
A	S2	7/8/2009	10:32:39	8.0	B	27.53	30.49	60.5	4.03	2.9
A	S2	7/8/2009	10:34:04	4.6	M	27.70	30.26	62.9	4.18	1.8
A	S2	7/8/2009	10:35:02	4.6	M	27.70	30.26	62.7	4.17	1.7
A	S2	7/8/2009	10:37:29	1.0	S	28.11	29.06	73.3	4.87	0.7
A	S2	7/8/2009	10:38:13	1.0	S	28.00	29.29	70.5	4.69	0.6
A	S1	7/8/2009	10:47:42	8.0	B	27.48	30.24	61.2	4.08	2.0
A	S1	7/8/2009	10:48:29	8.0	B	27.48	30.25	60.9	4.06	2.1
A	S1	7/8/2009	10:50:16	4.6	M	27.52	30.03	53.5	3.57	2.0
A	S1	7/8/2009	10:51:01	4.6	M	27.50	30.07	56.1	3.74	1.9
A	S1	7/8/2009	10:53:49	1.0	S	28.07	29.27	65.0	4.32	1.3
A	S1	7/8/2009	10:54:30	1.0	S	27.81	29.67	62.5	4.16	2.4
A	B1	7/8/2009	11:05:43	5.8	B	27.43	30.20	48.8	3.26	7.0
A	B1	7/8/2009	11:06:27	5.8	B	27.43	30.22	48.2	3.22	6.6
A	B1	7/8/2009	11:07:40	3.7	M	27.61	29.97	57.1	3.81	2.0
A	B1	7/8/2009	11:08:25	3.7	M	27.61	29.97	57.4	3.82	1.9
A	B1	7/8/2009	11:09:23	0.8	S	28.38	29.30	61.9	4.09	1.7
A	B1	7/8/2009	11:10:05	0.8	S	28.16	29.50	62.5	4.14	1.7
A	S3	7/8/2009	11:23:51	9.9	B	27.67	30.63	66.4	4.41	2.1
A	S3	7/8/2009	11:24:31	9.9	B	27.66	30.64	66.0	4.38	2.2
A	S3	7/8/2009	11:25:30	5.6	M	27.66	30.43	65.4	4.34	1.6
A	S3	7/8/2009	11:26:13	5.6	M	27.65	30.44	64.9	4.31	1.7
A	S3	7/8/2009	11:27:24	0.8	S	28.32	29.75	71.3	4.70	2.7
A	S3	7/8/2009	11:28:06	0.8	S	28.38	29.74	72.4	4.77	1.4
A	S3	7/8/2009	11:29:02	0.9	S	28.38	29.73	72.9	4.81	1.0
A	S2	7/8/2009	12:03:10	7.7	B	27.72	30.43	66.7	4.43	1.7
A	S2	7/8/2009	12:04:13	4.6	M	27.63	30.16	59.8	3.98	1.8
A	S2	7/8/2009	12:05:19	0.9	S	28.25	29.31	71.9	4.76	0.6
A	S2	7/8/2009	12:07:15	7.8	B	27.79	30.46	69.1	4.58	1.5
A	S2	7/8/2009	12:08:06	4.7	M	27.76	30.28	65.7	4.36	1.3
A	S2	7/8/2009	12:10:09	1.4	S	27.98	29.62	67.2	4.46	1.5
A	S1	7/8/2009	12:15:39	8.0	B	27.48	30.24	60.8	4.06	2.0
A	S1	7/8/2009	12:16:37	4.8	M	27.62	30.06	59.4	3.96	1.4
A	S1	7/8/2009	12:20:12	1.5	S	28.01	29.76	61.7	4.09	2.2
A	S1	7/8/2009	12:21:23	7.8	B	27.48	30.26	60.1	4.01	2.2
A	S1	7/8/2009	12:22:12	4.7	M	27.57	30.05	54.5	3.63	2.0
A	S1	7/8/2009	12:23:06	1.1	S	28.24	29.58	58.4	3.86	1.3
A	B1	7/8/2009	12:28:34	5.9	B	27.43	30.27	49.7	3.32	6.4
A	B1	7/8/2009	12:30:13	3.8	M	27.72	30.01	63.8	4.25	1.6
A	B1	7/8/2009	12:31:21	1.4	S	28.92	29.49	69.8	4.57	2.4

Annex D Continuous *In-situ* Measurement Data

Zone	Station	Sampling Date	Time	Depth (m)	Depth	Water Temp (°C)	Salinity (ppt)	D.O. Saturation (%)	D.O. (mg/L)	Turbidity (NTU)
A	B1	7/8/2009	12:33:17	5.8	B	27.45	30.23	52.5	3.50	6.0
A	B1	7/8/2009	12:34:20	3.9	M	27.64	30.01	60.1	4.00	2.4
A	B1	7/8/2009	12:35:33	1.5	S	28.29	29.71	64.0	4.23	1.5
A	S3	7/8/2009	12:42:52	10.2	B	27.74	30.57	69.8	4.63	1.4
A	S3	7/8/2009	12:43:47	5.6	M	27.78	30.47	69.9	4.64	1.3
A	S3	7/8/2009	12:45:15	1.5	S	28.47	29.79	75.7	4.98	1.1
A	S3	7/8/2009	12:47:46	10.0	B	27.77	30.54	70.9	4.70	1.4
A	S3	7/8/2009	12:48:42	5.5	M	27.72	30.39	68.4	4.54	1.5
A	S3	7/8/2009	12:50:11	1.2	S	28.64	29.72	76.5	5.02	0.8
A	S2	7/8/2009	14:31:39	6.9	B	27.57	30.35	53.7	3.57	2.2
A	S2	7/8/2009	14:32:34	6.9	B	27.56	30.35	51.2	3.41	2.5
A	S2	7/8/2009	14:36:29	4.0	M	27.81	30.17	61.7	4.09	1.1
A	S2	7/8/2009	14:37:17	4.0	M	27.73	30.11	54.1	3.60	1.3
A	S2	7/8/2009	14:38:13	1.0	S	28.64	29.70	68.7	4.51	0.7
A	S2	7/8/2009	14:39:10	1.0	S	28.60	29.70	70.2	4.61	0.6
A	S1	7/8/2009	14:49:18	6.9	B	27.50	30.29	57.5	3.83	2.1
A	S1	7/8/2009	14:50:10	7.0	B	27.49	30.30	52.6	3.51	3.1
A	S1	7/8/2009	14:51:09	4.0	M	27.68	30.06	54.9	3.65	1.8
A	S1	7/8/2009	14:52:11	4.0	M	27.69	30.06	55.6	3.70	1.7
A	S1	7/8/2009	14:55:16	1.2	S	28.77	29.55	67.6	4.43	0.8
A	S1	7/8/2009	14:56:11	1.2	S	28.75	29.56	67.0	4.40	0.9
A	B1	7/8/2009	15:07:17	4.9	B	27.52	30.22	52.5	3.50	3.7
A	B1	7/8/2009	15:08:11	4.8	B	27.50	30.22	47.5	3.17	3.9
A	B1	7/8/2009	15:09:22	3.0	M	28.64	29.75	64.4	4.23	1.6
A	B1	7/8/2009	15:10:11	2.8	M	28.67	29.68	66.1	4.33	1.5
A	B1	7/8/2009	15:11:20	1.2	S	29.59	29.32	69.4	4.49	1.2
A	B1	7/8/2009	15:12:21	1.2	S	29.53	29.27	70.1	4.55	1.5
A	S3	7/8/2009	15:29:04	9.0	B	27.65	30.67	62.9	4.18	3.6
A	S3	7/8/2009	15:29:53	9.3	B	27.68	30.62	61.8	4.10	3.4
A	S3	7/8/2009	15:32:04	5.0	M	27.80	30.36	64.6	4.28	1.4
A	S3	7/8/2009	15:33:13	5.0	M	27.80	30.33	64.2	4.26	1.5
A	S3	7/8/2009	15:37:46	1.1	S	28.26	30.01	69.8	4.60	1.8
A	S3	7/8/2009	15:38:27	1.1	S	27.92	30.18	65.3	4.33	1.5
A	S2	7/8/2009	15:55:30	7.0	B	27.86	30.20	67.6	4.48	1.1
A	S2	7/8/2009	15:56:03	7.0	B	27.86	30.20	66.9	4.44	1.1
A	S2	7/8/2009	15:57:45	4.1	M	27.89	30.15	66.0	4.38	1.1
A	S2	7/8/2009	15:58:13	4.1	M	27.91	30.13	65.7	4.36	1.3
A	S2	7/8/2009	15:59:14	1.3	S	28.69	29.80	71.4	4.68	0.5
A	S2	7/8/2009	16:00:02	1.3	S	28.75	29.78	72.2	4.73	0.6
A	S1	7/8/2009	16:10:20	6.9	B	27.48	30.42	54.2	3.61	3.2
A	S1	7/8/2009	16:11:02	6.9	B	27.46	30.50	49.2	3.28	5.2
A	S1	7/8/2009	16:12:07	4.1	M	27.81	30.02	59.5	3.95	1.4
A	S1	7/8/2009	16:13:02	4.0	M	27.85	30.00	57.1	3.79	1.5
A	S1	7/8/2009	16:16:11	1.3	S	28.87	29.64	74.8	4.89	0.9
A	S1	7/8/2009	16:17:02	1.3	S	28.79	29.64	73.9	4.84	0.7
A	B1	7/8/2009	16:29:39	4.5	B	27.55	30.21	52.3	3.48	3.8
A	B1	7/8/2009	16:30:16	4.5	B	27.55	30.19	51.6	3.44	4.1
A	B1	7/8/2009	16:31:51	2.8	M	28.89	29.68	72.0	4.71	1.0
A	B1	7/8/2009	16:32:25	2.8	M	28.98	29.68	72.1	4.71	1.1
A	B1	7/8/2009	16:35:22	1.4	S	29.89	29.01	76.6	4.94	1.5
A	B1	7/8/2009	16:36:05	1.4	S	29.61	29.17	75.0	4.86	1.4
A	S3	7/8/2009	16:48:22	9.0	B	27.62	30.81	61.9	4.11	6.1
A	S3	7/8/2009	16:49:04	9.0	B	27.61	30.82	60.2	3.99	6.1
A	S3	7/8/2009	16:50:22	5.0	M	27.69	30.36	64.3	4.27	1.5
A	S3	7/8/2009	16:51:05	5.0	M	27.56	30.31	61.0	4.06	1.5
A	S3	7/8/2009	16:52:43	1.5	S	28.63	29.93	75.0	4.92	0.9

Annex D Continuous *In-situ* Measurement Data

Zone	Station	Sampling Date	Time	Depth (m)	Depth	Water Temp (°C)	Salinity (ppt)	D.O. Saturation (%)	D.O. (mg/L)	Turbidity (NTU)
A	S3	7/8/2009	16:53:10	1.5	S	28.53	29.94	74.5	4.89	0.8
A	S2	7/8/2009	17:02:33	7.0	B	27.66	30.47	56.4	3.75	2.7
A	S2	7/8/2009	17:03:22	7.0	B	27.66	30.48	57.5	3.82	2.7
A	S2	7/8/2009	17:04:17	3.9	M	27.84	30.20	67.1	4.45	1.3
A	S2	7/8/2009	17:05:19	3.9	M	27.84	30.20	68.0	4.51	1.1
A	S2	7/8/2009	17:06:27	1.4	S	28.11	30.06	72.5	4.79	0.9
A	S2	7/8/2009	17:07:08	1.4	S	28.28	29.99	73.5	4.84	0.8
A	S1	7/8/2009	17:17:05	7.1	B	27.48	30.45	54.6	3.64	3.4
A	S1	7/8/2009	17:18:07	7.1	B	27.48	30.44	53.6	3.57	3.7
A	S1	7/8/2009	17:19:16	4.1	M	27.77	30.04	61.1	4.06	1.4
A	S1	7/8/2009	17:24:39	4.1	M	27.79	30.03	64.7	4.30	1.6
A	S1	7/8/2009	17:25:45	1.4	S	28.85	29.67	78.0	5.10	0.7
A	S1	7/8/2009	17:26:25	1.5	S	28.77	29.66	76.9	5.04	0.7
A	B1	7/8/2009	17:37:04	5.0	B	27.65	30.16	55.1	3.67	4.0
A	B1	7/8/2009	17:38:39	5.0	B	27.66	30.14	51.1	3.40	4.2
A	B1	7/8/2009	17:39:36	3.2	M	28.01	29.96	57.3	3.79	2.2
A	B1	7/8/2009	17:40:45	3.2	M	27.99	29.98	59.6	3.95	2.0
A	B1	7/8/2009	17:41:46	1.2	S	29.49	29.30	76.7	4.97	1.3
A	B1	7/8/2009	17:42:29	1.2	S	29.38	29.43	77.5	5.03	1.3
A	S3	7/8/2009	17:56:28	9.0	B	27.64	30.31	66.7	4.43	1.3
A	S3	7/8/2009	17:57:20	9.0	B	27.66	30.40	65.0	4.32	1.4
A	S3	7/8/2009	17:58:12	5.0	M	27.89	30.27	69.5	4.61	1.3
A	S3	7/8/2009	17:59:11	5.0	M	27.89	30.26	70.1	4.65	1.1
A	S3	7/8/2009	18:00:12	1.5	S	28.52	29.96	77.1	5.06	1.0
A	S3	7/8/2009	18:01:14	1.5	S	28.63	29.93	78.7	5.16	0.8
A	S2	7/8/2009	18:08:01	7.0	B	28.17	30.04	75.4	4.98	1.0
A	S2	7/8/2009	18:09:11	7.0	B	28.17	30.04	74.4	4.91	0.9
A	S2	7/8/2009	18:10:50	4.2	M	28.24	30.00	76.5	5.05	0.7
A	S2	7/8/2009	18:11:34	4.1	M	28.24	30.00	76.9	5.07	0.7
A	S2	7/8/2009	18:13:14	1.4	S	28.72	29.87	81.4	5.33	0.6
A	S2	7/8/2009	18:14:11	1.4	S	28.76	29.85	82.0	5.37	0.3
A	S1	7/8/2009	18:21:04	7.1	B	27.47	30.42	54.2	3.61	4.9
A	S1	7/8/2009	18:22:14	7.1	B	27.45	30.46	49.4	3.29	4.9
A	S1	7/8/2009	18:24:01	4.3	M	27.62	30.22	49.0	3.26	1.7
A	S1	7/8/2009	18:24:52	4.3	M	27.63	30.17	48.1	3.20	1.6
A	S1	7/8/2009	18:26:01	1.5	S	28.99	29.65	79.7	5.21	0.6
A	S1	7/8/2009	18:27:14	1.5	S	29.13	29.57	80.8	5.27	0.5
A	B1	7/8/2009	18:35:20	5.2	B	27.72	30.10	55.0	3.66	3.8
A	B1	7/8/2009	18:36:02	5.2	B	27.72	30.10	55.9	3.72	3.3
A	B1	7/8/2009	18:37:33	3.3	M	27.88	30.01	62.7	4.16	2.0
A	B1	7/8/2009	18:38:03	3.3	M	27.92	30.00	65.0	4.31	1.7
A	B1	7/8/2009	18:39:27	1.6	S	28.74	29.72	69.8	4.57	1.3
A	B1	7/8/2009	18:40:12	1.6	S	28.83	29.72	78.7	5.15	1.1
A	S3	7/8/2009	18:48:39	9.0	B	27.58	30.85	63.2	4.19	5.1
A	S3	7/8/2009	18:49:15	9.0	B	27.59	30.82	62.4	4.14	4.9
A	S3	7/8/2009	18:50:20	5.3	M	27.60	30.28	64.3	4.28	1.9
A	S3	7/8/2009	18:51:04	5.3	M	27.61	30.28	64.8	4.32	1.6
A	S3	7/8/2009	18:52:02	1.4	S	28.19	30.03	75.0	4.95	1.0
A	S3	7/8/2009	18:53:04	1.5	S	28.13	30.03	74.1	4.90	0.9
A	S2	8/8/2009	7:01:07	8.3	B	27.72	30.33	57.2	3.80	1.4
A	S2	8/8/2009	7:02:02	8.4	B	27.70	30.34	55.7	3.70	1.6
A	S2	8/8/2009	7:04:42	4.7	M	27.90	30.27	62.7	4.15	1.0
A	S2	8/8/2009	7:05:14	4.8	M	27.90	30.27	62.2	4.12	1.0
A	S2	8/8/2009	7:06:14	1.4	S	28.14	30.08	65.8	4.34	0.7
A	S2	8/8/2009	7:07:02	1.4	S	28.17	30.04	66.0	4.36	0.7
A	S1	8/8/2009	7:15:54	8.0	B	27.75	30.25	59.0	3.92	1.4

Annex D Continuous *In-situ* Measurement Data

Zone	Station	Sampling Date	Time	Depth (m)	Depth	Water Temp (°C)	Salinity (ppt)	D.O. Saturation (%)	D.O. (mg/L)	Turbidity (NTU)
A	S1	8/8/2009	7:16:38	8.0	B	27.75	30.25	58.3	3.87	1.3
A	S1	8/8/2009	7:17:36	4.3	M	27.87	30.13	60.7	4.02	1.1
A	S1	8/8/2009	7:18:18	4.3	M	27.87	30.13	59.6	3.95	1.2
A	S1	8/8/2009	7:21:17	1.1	S	28.06	30.01	62.7	4.15	1.0
A	S1	8/8/2009	7:22:02	1.1	S	28.08	30.01	63.3	4.19	0.8
A	B1	8/8/2009	7:32:38	5.8	B	27.85	30.24	61.3	4.07	1.3
A	B1	8/8/2009	7:33:26	5.8	B	27.85	30.24	60.4	4.00	1.3
A	B1	8/8/2009	7:34:31	3.4	M	27.97	30.08	59.6	3.94	1.9
A	B1	8/8/2009	7:35:14	3.4	M	27.99	30.08	61.5	4.07	1.7
A	B1	8/8/2009	7:36:20	0.9	S	28.30	29.51	67.2	4.44	0.5
A	B1	8/8/2009	7:37:03	1.0	S	28.32	29.47	67.5	4.46	0.6
A	S3	8/8/2009	7:52:16	10.1	B	28.09	30.94	69.3	4.56	5.2
A	S3	8/8/2009	7:53:02	10.1	B	28.07	30.96	69.1	4.54	5.9
A	S3	8/8/2009	7:54:21	5.3	M	28.03	30.30	66.2	4.38	0.7
A	S3	8/8/2009	7:55:06	5.2	M	28.03	30.27	66.1	4.37	0.8
A	S3	8/8/2009	7:56:14	1.1	S	28.24	29.96	69.9	4.61	0.6
A	S3	8/8/2009	7:57:03	1.1	S	28.26	29.93	69.9	4.61	0.5
A	S2	8/8/2009	8:07:50	7.8	B	27.65	30.46	54.9	3.65	3.4
A	S2	8/8/2009	8:08:35	7.8	B	27.68	30.44	55.0	3.66	2.7
A	S2	8/8/2009	8:09:41	4.4	M	28.06	30.38	65.5	4.32	1.4
A	S2	8/8/2009	8:10:19	4.4	M	28.09	30.35	65.8	4.34	1.1
A	S2	8/8/2009	8:13:13	1.1	S	28.23	30.03	69.5	4.58	0.6
A	S2	8/8/2009	8:14:02	1.1	S	28.21	29.99	66.7	4.40	0.7
A	S1	8/8/2009	8:24:19	8.1	B	27.54	30.40	49.4	3.29	3.1
A	S1	8/8/2009	8:25:08	8.0	B	27.55	30.39	49.1	3.27	2.7
A	S1	8/8/2009	8:28:26	4.5	M	27.81	30.25	61.1	4.06	1.0
A	S1	8/8/2009	8:29:12	4.5	M	27.72	30.30	56.1	3.72	1.5
A	S1	8/8/2009	8:30:49	1.0	S	28.22	29.95	63.6	4.20	0.6
A	S1	8/8/2009	8:31:31	1.0	S	28.19	29.96	63.3	4.18	0.8
A	B1	8/8/2009	8:42:55	5.9	B	27.94	30.21	65.0	4.30	0.9
A	B1	8/8/2009	8:43:22	5.9	B	27.93	30.21	64.0	4.24	1.1
A	B1	8/8/2009	8:44:27	3.6	M	28.17	30.01	66.3	4.38	0.8
A	B1	8/8/2009	8:45:15	3.5	M	28.12	30.04	66.4	4.39	0.8
A	B1	8/8/2009	8:46:12	1.0	S	28.43	29.46	68.9	4.54	0.5
A	B1	8/8/2009	8:47:02	0.9	S	28.39	29.42	67.3	4.44	0.7
A	S3	8/8/2009	9:04:29	10.0	B	27.89	30.98	65.9	4.35	4.6
A	S3	8/8/2009	9:05:14	10.0	B	27.88	30.99	65.2	4.30	4.5
A	S3	8/8/2009	9:08:22	5.5	M	27.95	30.46	64.3	4.25	1.5
A	S3	8/8/2009	9:09:09	5.5	M	27.96	30.45	63.9	4.23	1.6
A	S3	8/8/2009	9:10:14	1.2	S	28.33	30.18	69.5	4.57	0.7
A	S3	8/8/2009	9:11:02	1.2	S	28.34	30.16	73.3	4.82	0.4
A	S2	8/8/2009	9:26:56	8.0	B	27.86	30.96	63.3	4.18	8.8
A	S2	8/8/2009	9:27:46	8.0	B	27.84	30.95	61.5	4.06	9.5
A	S2	8/8/2009	9:29:08	4.7	M	28.11	30.26	66.8	4.41	1.3
A	S2	8/8/2009	9:30:11	4.7	M	28.15	30.22	64.9	4.28	1.0
A	S2	8/8/2009	9:32:35	1.2	S	28.33	30.22	76.7	5.04	0.5
A	S2	8/8/2009	9:33:25	1.2	S	28.34	30.21	73.7	4.85	0.5
A	S1	8/8/2009	9:53:07	6.8	B	27.54	30.40	45.1	3.01	4.5
A	S1	8/8/2009	9:54:11	6.8	B	27.54	30.39	44.9	2.99	5.1
A	S1	8/8/2009	9:59:10	4.0	M	27.98	30.11	61.6	4.08	1.1
A	S1	8/8/2009	10:00:10	4.0	M	27.96	30.11	61.8	4.10	1.1
A	S1	8/8/2009	10:01:02	1.1	S	28.42	29.89	64.6	4.25	0.6
A	S1	8/8/2009	10:02:02	1.1	S	28.43	29.88	65.0	4.28	0.6
A	B1	8/8/2009	10:12:37	5.8	B	27.90	30.25	63.6	4.22	1.2
A	B1	8/8/2009	10:13:20	5.8	B	27.88	30.26	60.4	4.00	1.1
A	B1	8/8/2009	10:14:09	3.9	M	28.12	30.10	65.2	4.31	0.8

Annex D Continuous *In-situ* Measurement Data

Zone	Station	Sampling Date	Time	Depth (m)	Depth	Water Temp (°C)	Salinity (ppt)	D.O. Saturation (%)	D.O. (mg/L)	Turbidity (NTU)
A	B1	8/8/2009	10:15:03	3.9	M	28.07	30.13	64.4	4.26	0.9
A	B1	8/8/2009	10:17:15	1.3	S	28.53	29.60	74.6	4.91	0.7
A	B1	8/8/2009	10:17:59	1.3	S	28.56	29.56	71.6	4.71	0.6
A	S3	8/8/2009	10:34:54	10.1	B	28.04	31.25	74.4	4.89	1.4
A	S3	8/8/2009	10:35:45	10.1	B	28.09	31.24	75.8	4.98	1.1
A	S3	8/8/2009	10:37:05	5.6	M	27.97	30.82	66.2	4.37	3.4
A	S3	8/8/2009	10:38:03	5.6	M	27.97	30.82	65.5	4.32	3.7
A	S3	8/8/2009	10:39:02	0.9	S	28.40	30.10	70.7	4.65	0.7
A	S3	8/8/2009	10:40:01	0.9	S	28.40	30.10	70.9	4.66	0.7
A	S2	8/8/2009	10:50:54	7.6	B	27.89	30.87	63.7	4.20	5.3
A	S2	8/8/2009	10:51:44	7.6	B	27.86	30.84	61.8	4.08	5.4
A	S2	8/8/2009	10:52:46	4.7	M	28.11	30.26	64.5	4.26	1.1
A	S2	8/8/2009	10:53:33	4.7	M	28.07	30.23	63.6	4.20	1.0
A	S2	8/8/2009	10:57:49	1.2	S	28.41	30.20	73.3	4.81	0.7
A	S2	8/8/2009	10:58:32	1.2	S	28.49	30.13	72.5	4.76	0.6
A	S1	8/8/2009	11:12:03	7.2	B	27.53	30.53	41.8	2.78	10.0
A	S1	8/8/2009	11:12:47	7.2	B	27.52	30.52	41.5	2.76	10.8
A	S1	8/8/2009	11:14:14	4.5	M	27.71	30.26	57.2	3.80	1.5
A	S1	8/8/2009	11:15:02	4.5	M	27.73	30.23	57.0	3.79	1.7
A	S1	8/8/2009	11:16:09	1.0	S	28.59	29.44	73.8	4.86	1.1
A	S1	8/8/2009	11:17:02	1.0	S	28.58	29.48	74.5	4.90	1.1
A	B1	8/8/2009	11:28:45	5.5	B	27.83	30.63	57.2	3.78	7.7
A	B1	8/8/2009	11:29:32	5.5	B	27.83	30.57	56.9	3.76	6.5
A	B1	8/8/2009	11:30:56	3.6	M	27.83	30.29	58.7	3.89	1.9
A	B1	8/8/2009	11:31:40	3.7	M	27.84	30.35	60.5	4.01	1.4
A	B1	8/8/2009	11:32:41	1.2	S	28.58	29.60	71.6	4.71	1.0
A	B1	8/8/2009	11:33:26	1.2	S	28.64	29.50	72.4	4.76	0.9
A	S3	8/8/2009	11:50:56	9.8	B	28.29	31.18	81.8	5.35	0.2
A	S3	8/8/2009	11:53:39	9.3	B	28.28	31.17	80.9	5.30	0.3
A	S3	8/8/2009	11:55:00	5.4	M	28.24	31.01	78.7	5.16	0.3
A	S3	8/8/2009	11:55:42	5.4	M	28.25	31.02	78.6	5.15	0.5
A	S3	8/8/2009	11:56:56	1.2	S	28.48	30.04	73.3	4.82	0.7
A	S3	8/8/2009	11:57:42	1.3	S	28.47	30.05	73.0	4.80	0.7
A	S2	8/8/2009	12:33:19	7.8	B	28.10	30.90	73.0	4.80	1.2
A	S2	8/8/2009	12:34:48	4.5	M	27.58	30.49	48.1	3.20	3.6
A	S2	8/8/2009	12:35:53	1.3	S	28.76	29.98	71.9	4.70	0.8
A	S2	8/8/2009	12:38:25	7.7	B	27.94	30.79	62.5	4.12	3.5
A	S2	8/8/2009	12:39:31	4.6	M	27.73	30.39	53.8	3.57	2.0
A	S2	8/8/2009	12:40:50	1.2	S	28.75	29.92	72.9	4.77	0.6
A	S1	8/8/2009	12:51:15	7.6	B	27.79	31.03	54.7	3.62	8.8
A	S1	8/8/2009	12:52:20	4.6	M	27.73	30.27	58.0	3.85	2.0
A	S1	8/8/2009	12:53:31	1.4	S	28.81	29.76	75.8	4.96	1.6
A	S1	8/8/2009	13:01:10	7.9	B	27.71	31.15	58.5	3.87	13.6
A	S1	8/8/2009	13:02:20	4.8	M	27.66	30.31	57.0	3.79	2.8
A	S1	8/8/2009	13:03:30	1.5	S	28.37	29.97	73.9	4.87	0.7
A	B1	8/8/2009	13:11:43	5.2	B	27.87	30.55	58.3	3.86	5.4
A	B1	8/8/2009	13:12:38	3.6	M	28.31	30.06	65.2	4.30	2.8
A	B1	8/8/2009	13:13:40	1.3	S	29.37	29.53	82.7	5.37	0.8
A	B1	8/8/2009	13:35:51	5.7	B	27.85	31.05	60.4	3.98	14.7
A	B1	8/8/2009	13:36:52	3.4	M	27.94	30.48	61.1	4.04	2.9
A	B1	8/8/2009	13:37:47	1.5	S	28.79	29.89	76.6	5.01	1.4
A	S3	8/8/2009	13:45:29	9.8	B	28.13	31.51	79.9	5.23	0.6
A	S3	8/8/2009	13:46:28	5.4	M	28.30	30.96	80.5	5.28	1.6
A	S3	8/8/2009	13:47:30	1.3	S	28.70	30.40	81.6	5.33	1.2
A	S3	8/8/2009	13:49:09	9.9	B	28.15	31.49	80.2	5.26	0.7
A	S3	8/8/2009	13:50:26	5.5	M	28.14	30.89	73.0	4.80	2.3

Annex D Continuous *In-situ* Measurement Data

Zone	Station	Sampling Date	Time	Depth (m)	Depth	Water Temp (°C)	Salinity (ppt)	D.O. Saturation (%)	D.O. (mg/L)	Turbidity (NTU)
A	S3	8/8/2009	13:51:19	1.5	S	28.76	30.32	80.9	5.28	1.1
A	S2	8/8/2009	15:10:40	7.0	B	27.75	30.50	57.4	3.81	1.9
A	S2	8/8/2009	15:11:21	7.0	B	27.75	30.47	56.5	3.75	1.8
A	S2	8/8/2009	15:12:23	3.9	M	27.94	30.26	67.3	4.45	1.1
A	S2	8/8/2009	15:13:06	3.9	M	27.94	30.27	67.8	4.49	1.0
A	S2	8/8/2009	15:20:30	1.3	S	29.21	29.96	83.9	5.45	0.5
A	S2	8/8/2009	15:21:10	1.3	S	28.64	30.15	78.7	5.15	0.9
A	S1	8/8/2009	15:33:02	6.4	B	27.71	30.74	49.5	3.28	8.9
A	S1	8/8/2009	15:34:02	6.4	B	27.70	30.73	48.6	3.22	9.0
A	S1	8/8/2009	15:37:47	3.6	M	27.82	30.32	63.7	4.22	1.7
A	S1	8/8/2009	15:38:27	3.6	M	27.84	30.31	61.6	4.08	1.7
A	S1	8/8/2009	15:39:31	1.2	S	28.97	29.94	82.5	5.38	0.6
A	S1	8/8/2009	15:40:03	1.2	S	28.81	29.98	82.7	5.41	0.6
A	B1	8/8/2009	15:51:15	4.8	B	27.94	30.94	64.1	4.23	7.5
A	B1	8/8/2009	15:52:02	4.8	B	27.94	30.95	65.2	4.30	6.4
A	B1	8/8/2009	15:53:08	3.1	M	28.02	30.31	62.9	4.16	2.6
A	B1	8/8/2009	15:54:02	3.1	M	27.98	30.35	62.7	4.15	2.1
A	B1	8/8/2009	15:56:30	1.2	S	29.12	29.37	84.8	5.54	2.1
A	B1	8/8/2009	15:57:16	1.2	S	28.94	29.58	81.7	5.34	2.0
A	S3	8/8/2009	16:14:05	9.1	B	27.97	31.34	71.3	4.69	5.0
A	S3	8/8/2009	16:15:04	9.1	B	27.75	31.39	69.9	4.61	6.3
A	S3	8/8/2009	16:16:16	5.1	M	28.20	30.76	73.9	4.85	1.8
A	S3	8/8/2009	16:17:02	5.1	M	28.23	30.76	74.8	4.91	1.7
A	S3	8/8/2009	16:20:33	1.4	S	29.06	30.13	88.9	5.78	0.6
A	S3	8/8/2009	16:21:11	1.4	S	29.06	30.14	88.6	5.76	0.7
A	S2	8/8/2009	16:31:34	6.9	B	27.73	30.61	50.5	3.35	3.5
A	S2	8/8/2009	16:32:17	7.1	B	27.76	30.67	49.8	3.30	3.6
A	S2	8/8/2009	16:34:50	4.2	M	28.15	30.31	76.5	5.04	0.8
A	S2	8/8/2009	16:35:23	4.2	M	28.15	30.32	75.2	4.96	0.7
A	S2	8/8/2009	16:36:37	1.2	S	29.05	30.05	85.4	5.56	0.7
A	S2	8/8/2009	16:37:11	1.2	S	29.00	30.05	85.5	5.57	0.7
A	S1	8/8/2009	16:47:35	7.2	B	27.94	31.10	72.0	4.74	2.6
A	S1	8/8/2009	16:48:18	7.2	B	27.90	31.12	69.7	4.60	3.1
A	S1	8/8/2009	16:49:19	4.1	M	27.96	30.27	66.6	4.41	1.3
A	S1	8/8/2009	16:50:05	4.1	M	28.08	30.25	67.3	4.45	1.2
A	S1	8/8/2009	16:51:06	1.0	S	29.11	29.96	87.0	5.66	0.7
A	S1	8/8/2009	16:52:02	1.0	S	29.01	29.97	88.1	5.74	0.7
A	B1	8/8/2009	17:04:28	5.1	B	28.00	30.15	62.7	4.15	3.2
A	B1	8/8/2009	17:05:10	5.1	B	28.05	30.14	62.7	4.14	2.7
A	B1	8/8/2009	17:06:21	3.3	M	28.77	29.96	85.3	5.58	1.5
A	B1	8/8/2009	17:07:03	3.3	M	28.52	30.06	77.1	5.06	1.5
A	B1	8/8/2009	17:08:12	1.3	S	29.44	29.21	92.2	5.99	2.2
A	B1	8/8/2009	17:09:02	1.3	S	29.29	29.44	91.0	5.92	1.9
A	S3	8/8/2009	17:26:37	9.2	B	28.14	30.89	74.8	4.92	1.8
A	S3	8/8/2009	17:27:02	9.2	B	28.08	30.87	72.3	4.76	2.8
A	S3	8/8/2009	17:28:14	5.3	M	28.33	30.55	78.0	5.12	1.6
A	S3	8/8/2009	17:29:02	5.3	M	28.36	30.53	78.5	5.15	1.3
A	S3	8/8/2009	17:31:52	1.3	S	28.74	30.29	86.4	5.65	1.2
A	S3	8/8/2009	17:32:15	1.3	S	28.77	30.26	87.2	5.69	1.1
A	S2	8/8/2009	17:45:10	6.5	B	27.84	30.91	56.8	3.75	4.4
A	S2	8/8/2009	17:46:15	6.5	B	27.85	30.92	58.8	3.89	4.7
A	S2	8/8/2009	17:49:31	4.3	M	28.06	30.80	72.2	4.76	1.8
A	S2	8/8/2009	17:50:21	4.3	M	28.07	30.75	72.1	4.75	1.7
A	S2	8/8/2009	17:51:46	1.3	S	28.38	30.25	76.8	5.05	1.2
A	S2	8/8/2009	17:52:29	1.3	S	28.46	30.14	77.8	5.11	1.2
A	S1	8/8/2009	18:03:52	6.5	B	27.70	30.62	45.9	3.05	9.4

Annex D Continuous *In-situ* Measurement Data

Zone	Station	Sampling Date	Time	Depth (m)	Depth	Water Temp (°C)	Salinity (ppt)	D.O. Saturation (%)	D.O. (mg/L)	Turbidity (NTU)
A	S1	8/8/2009	18:04:53	6.5	B	27.73	30.69	45.0	2.98	9.4
A	S1	8/8/2009	18:06:43	4.4	M	27.94	30.29	64.4	4.26	1.5
A	S1	8/8/2009	18:07:27	4.4	M	28.07	30.25	69.5	4.59	1.2
A	S1	8/8/2009	18:11:33	1.4	S	28.97	30.00	94.7	6.17	0.7
A	S1	8/8/2009	18:12:14	1.4	S	28.98	30.00	94.1	6.14	0.7
A	B1	8/8/2009	18:24:37	4.8	B	28.21	30.22	73.5	4.84	1.7
A	B1	8/8/2009	18:25:21	4.7	B	28.24	30.19	73.4	4.84	1.5
A	B1	8/8/2009	18:26:28	3.3	M	28.66	30.01	80.6	5.28	1.2
A	B1	8/8/2009	18:27:11	3.3	M	28.66	30.01	81.5	5.34	1.4
A	B1	8/8/2009	18:31:00	1.1	S	29.12	29.60	88.6	5.78	2.4
A	B1	8/8/2009	18:32:03	1.1	S	29.30	29.42	92.4	6.01	2.6
A	S3	8/8/2009	18:47:09	9.3	B	28.09	30.77	74.9	4.93	1.8
A	S3	8/8/2009	18:48:05	9.2	B	28.08	30.78	72.4	4.77	1.9
A	S3	8/8/2009	18:49:02	5.3	M	28.27	30.60	78.3	5.15	0.9
A	S3	8/8/2009	18:50:02	5.3	M	28.28	30.59	78.7	5.17	1.0
A	S3	8/8/2009	18:51:10	1.1	S	28.63	30.26	86.9	5.69	0.9
A	S3	8/8/2009	18:52:01	1.1	S	28.64	30.26	87.9	5.75	1.0
A	S2	10/8/2009	7:27:21	8.0	B	27.68	31.47	66.5	4.39	2.1
A	S2	10/8/2009	7:28:18	5.0	M	28.75	30.08	86.1	5.63	1.6
A	S2	10/8/2009	7:29:08	1.7	S	28.65	29.37	86.8	5.71	0.7
A	S2	10/8/2009	7:30:54	8.2	B	27.70	31.43	65.7	4.34	3.2
A	S2	10/8/2009	7:32:19	5.0	M	28.80	30.04	91.0	5.95	1.7
A	S2	10/8/2009	7:33:06	1.8	S	28.64	29.36	87.3	5.74	0.7
A	S1	10/8/2009	7:39:11	7.6	B	27.74	31.33	57.1	3.77	6.6
A	S1	10/8/2009	7:40:17	4.9	M	28.04	30.96	64.2	4.23	4.2
A	S1	10/8/2009	7:41:20	1.7	S	28.69	29.26	86.7	5.70	1.0
A	S1	10/8/2009	7:42:51	7.6	B	27.72	31.37	59.5	3.93	7.4
A	S1	10/8/2009	7:44:15	5.0	M	28.06	30.89	63.6	4.19	3.8
A	S1	10/8/2009	7:45:14	1.9	S	28.57	29.20	84.6	5.57	0.7
A	B1	10/8/2009	7:52:28	5.3	B	28.60	30.22	78.4	5.14	7.4
A	B1	10/8/2009	7:53:32	4.1	M	28.95	29.59	97.2	6.35	1.5
A	B1	10/8/2009	7:54:33	1.9	S	28.76	29.34	91.6	6.01	1.3
A	B1	10/8/2009	7:56:05	5.7	B	27.87	31.26	68.8	4.53	7.5
A	B1	10/8/2009	7:57:13	4.1	M	28.93	29.62	94.3	6.16	1.7
A	B1	10/8/2009	7:58:04	1.8	S	28.85	29.36	95.1	6.23	1.2
A	S3	10/8/2009	8:05:40	10.3	B	27.89	31.12	66.9	4.41	2.6
A	S3	10/8/2009	8:07:17	5.8	M	28.50	30.18	80.3	5.27	1.3
A	S3	10/8/2009	8:08:10	1.6	S	28.64	29.61	86.5	5.68	1.2
A	S3	10/8/2009	8:10:23	10.4	B	27.94	31.03	66.6	4.39	2.7
A	S3	10/8/2009	8:11:16	5.9	M	28.52	30.16	79.5	5.21	1.2
A	S3	10/8/2009	8:12:13	1.6	S	28.67	29.42	86.9	5.71	0.7
A	S2	10/8/2009	9:16:36	8.2	B	28.24	30.50	78.5	5.17	1.9
A	S2	10/8/2009	9:17:26	8.2	B	28.25	30.45	72.4	4.76	1.4
A	S2	10/8/2009	9:18:43	4.5	M	28.46	30.03	78.3	5.15	1.0
A	S2	10/8/2009	9:19:28	4.5	M	28.49	29.99	80.8	5.31	1.0
A	S2	10/8/2009	9:20:21	1.1	S	28.72	29.29	85.2	5.60	0.5
A	S2	10/8/2009	9:21:05	1.1	S	28.72	29.29	86.0	5.65	0.4
A	S1	10/8/2009	9:32:18	7.9	B	28.00	30.98	64.8	4.27	2.7
A	S1	10/8/2009	9:33:03	7.9	B	27.97	31.03	61.0	4.02	2.9
A	S1	10/8/2009	9:34:07	4.2	M	29.13	29.94	100.8	6.56	1.4
A	S1	10/8/2009	9:35:01	4.2	M	29.14	29.93	107.2	6.97	1.3
A	S1	10/8/2009	9:39:25	1.5	S	28.82	29.34	90.5	5.93	0.8
A	S1	10/8/2009	9:40:13	1.5	S	28.87	29.28	89.7	5.88	0.9
A	B1	10/8/2009	9:51:58	6.2	B	28.33	30.55	67.6	4.44	7.4
A	B1	10/8/2009	9:52:56	6.3	B	28.24	30.69	61.9	4.07	7.8
A	B1	10/8/2009	9:54:23	3.5	M	28.75	29.36	87.4	5.74	0.7

Annex D Continuous *In-situ* Measurement Data

Zone	Station	Sampling Date	Time	Depth (m)	Depth	Water Temp (°C)	Salinity (ppt)	D.O. Saturation (%)	D.O. (mg/L)	Turbidity (NTU)
A	B1	10/8/2009	9:55:05	3.5	M	28.73	29.34	87.9	5.77	0.7
A	B1	10/8/2009	9:57:54	1.4	S	28.80	29.32	95.2	6.25	1.0
A	B1	10/8/2009	9:58:34	1.4	S	28.81	29.32	96.2	6.31	1.0
A	S3	10/8/2009	10:16:21	10.4	B	27.78	31.35	68.5	4.52	2.1
A	S3	10/8/2009	10:17:06	10.4	B	27.79	31.34	65.0	4.29	2.3
A	S3	10/8/2009	10:18:06	5.0	M	28.40	29.90	81.4	5.36	1.0
A	S3	10/8/2009	10:19:01	5.0	M	28.43	29.70	80.9	5.33	0.8
A	S3	10/8/2009	10:22:58	1.1	S	28.62	29.44	88.6	5.83	0.8
A	S3	10/8/2009	10:24:01	1.1	S	28.48	29.54	82.5	5.44	0.6
A	S2	10/8/2009	10:35:53	7.7	B	27.52	31.69	61.6	4.07	6.5
A	S2	10/8/2009	10:36:42	7.7	B	27.52	31.68	60.3	3.99	6.7
A	S2	10/8/2009	10:37:40	4.3	M	28.60	29.84	84.3	5.53	1.1
A	S2	10/8/2009	10:38:36	4.3	M	28.61	29.82	87.0	5.71	0.8
A	S2	10/8/2009	10:39:22	1.3	S	28.85	29.28	91.6	6.01	0.5
A	S2	10/8/2009	10:40:09	1.3	S	28.85	29.27	92.6	6.07	0.5
A	S1	10/8/2009	10:50:32	7.8	B	28.46	30.29	76.1	4.99	1.9
A	S1	10/8/2009	10:51:18	7.8	B	28.47	30.29	75.5	4.95	1.8
A	S1	10/8/2009	10:52:13	4.3	M	29.11	29.95	103.0	6.70	1.3
A	S1	10/8/2009	10:53:01	4.3	M	29.13	29.93	108.7	7.07	1.2
A	S1	10/8/2009	10:56:26	1.3	S	28.82	29.16	96.1	6.31	0.6
A	S1	10/8/2009	10:57:20	1.3	S	28.84	29.17	91.8	6.02	0.8
A	B1	10/8/2009	11:08:01	5.8	B	28.60	30.19	82.4	5.40	2.5
A	B1	10/8/2009	11:08:51	5.8	B	28.57	30.20	80.3	5.26	2.4
A	B1	10/8/2009	11:09:40	3.3	M	28.89	29.75	94.8	6.20	1.6
A	B1	10/8/2009	11:10:28	3.3	M	28.95	29.63	100.0	6.53	1.3
A	B1	10/8/2009	11:11:18	1.2	S	28.80	29.24	96.4	6.33	1.0
A	B1	10/8/2009	11:12:04	1.2	S	28.80	29.25	95.9	6.29	1.1
A	S3	10/8/2009	11:29:03	10.4	B	27.65	31.51	63.7	4.21	4.7
A	S3	10/8/2009	11:30:01	10.4	B	27.44	31.80	63.2	4.18	4.0
A	S3	10/8/2009	11:31:02	5.2	M	28.22	30.26	73.0	4.81	0.9
A	S3	10/8/2009	11:32:01	5.2	M	28.18	30.40	73.7	4.85	0.7
A	S3	10/8/2009	11:33:03	1.2	S	28.75	29.35	89.9	5.90	0.8
A	S3	10/8/2009	11:34:01	1.2	S	28.74	29.32	90.6	5.95	0.7
A	S2	10/8/2009	11:44:45	8.1	B	28.04	30.85	71.1	4.68	1.6
A	S2	10/8/2009	11:45:26	8.1	B	28.02	30.89	68.9	4.54	1.6
A	S2	10/8/2009	11:46:20	4.2	M	28.51	29.98	79.1	5.19	0.9
A	S2	10/8/2009	11:47:06	4.2	M	28.51	30.00	80.1	5.26	0.9
A	S2	10/8/2009	11:49:57	1.4	S	28.83	29.34	94.4	6.19	0.7
A	S2	10/8/2009	11:50:43	1.4	S	28.84	29.33	95.0	6.23	0.7
A	S1	10/8/2009	12:01:53	7.9	B	28.14	30.81	79.1	5.20	4.0
A	S1	10/8/2009	12:02:40	8.0	B	28.12	30.83	64.1	4.22	4.0
A	S1	10/8/2009	12:03:43	4.2	M	29.01	29.93	101.1	6.59	1.4
A	S1	10/8/2009	12:04:25	4.2	M	29.08	29.93	109.3	7.11	1.2
A	S1	10/8/2009	12:05:17	1.2	S	28.86	29.17	97.8	6.42	0.7
A	S1	10/8/2009	12:06:03	1.2	S	28.85	29.17	97.3	6.39	0.7
A	B1	10/8/2009	12:17:33	6.0	B	28.82	30.00	95.0	6.21	1.2
A	B1	10/8/2009	12:18:14	6.0	B	28.80	30.01	93.4	6.11	1.4
A	B1	10/8/2009	12:19:26	3.3	M	28.87	29.66	98.2	6.42	1.2
A	B1	10/8/2009	12:20:10	3.3	M	28.86	29.70	98.1	6.41	1.1
A	B1	10/8/2009	12:21:10	0.9	S	28.84	29.26	100.2	6.57	1.0
A	B1	10/8/2009	12:22:02	0.9	S	28.88	29.20	102.6	6.73	0.8
A	S3	10/8/2009	12:37:20	10.3	B	27.29	31.93	62.1	4.12	4.3
A	S3	10/8/2009	12:38:02	10.3	B	27.31	31.89	61.5	4.08	4.4
A	S3	10/8/2009	12:40:55	5.6	M	27.80	31.25	69.1	4.56	1.5
A	S3	10/8/2009	12:41:38	5.6	M	27.79	31.27	68.6	4.53	1.4
A	S3	10/8/2009	12:42:43	1.3	S	28.83	29.69	97.8	6.40	1.7

Annex D Continuous *In-situ* Measurement Data

Zone	Station	Sampling Date	Time	Depth (m)	Depth	Water Temp (°C)	Salinity (ppt)	D.O. Saturation (%)	D.O. (mg/L)	Turbidity (NTU)
A	S3	10/8/2009	12:43:26	1.3	S	28.72	29.85	96.4	6.31	1.6
A	S2	10/8/2009	13:53:41	6.8	B	28.02	30.84	70.1	4.62	1.0
A	S2	10/8/2009	13:54:35	4.3	M	28.98	29.80	105.6	6.89	1.0
A	S2	10/8/2009	13:55:25	1.3	S	29.07	29.20	106.1	6.93	0.9
A	S2	10/8/2009	13:58:05	7.0	B	27.99	30.91	69.0	4.55	1.0
A	S2	10/8/2009	13:59:02	4.4	M	29.03	29.83	109.6	7.14	1.0
A	S2	10/8/2009	14:00:02	1.3	S	29.15	29.24	109.0	7.11	0.8
A	S1	10/8/2009	14:06:10	6.7	B	27.48	31.69	51.8	3.43	11.9
A	S1	10/8/2009	14:07:23	4.3	M	28.24	30.64	62.4	4.10	3.9
A	S1	10/8/2009	14:08:30	1.3	S	28.86	29.33	98.3	6.44	0.7
A	S1	10/8/2009	14:13:24	7.1	B	27.45	31.76	53.2	3.52	8.8
A	S1	10/8/2009	14:14:16	4.4	M	28.10	30.80	62.5	4.11	2.6
A	S1	10/8/2009	14:15:21	1.6	S	29.19	29.69	127.2	8.28	1.2
A	B1	10/8/2009	14:21:14	5.3	B	27.50	31.64	62.2	4.11	4.4
A	B1	10/8/2009	14:24:12	3.1	M	28.48	30.33	75.3	4.94	6.5
A	B1	10/8/2009	14:25:18	1.4	S	28.99	29.81	106.2	6.93	2.3
A	B1	10/8/2009	14:27:04	5.3	B	27.49	31.67	64.6	4.27	3.7
A	B1	10/8/2009	14:28:02	3.3	M	28.25	30.58	66.9	4.40	5.7
A	B1	10/8/2009	14:29:29	1.5	S	29.08	29.59	95.1	6.20	4.0
A	S3	10/8/2009	14:38:52	8.6	B	26.78	32.44	60.2	4.01	8.4
A	S3	10/8/2009	14:39:51	5.1	M	28.31	30.49	75.0	4.93	1.9
A	S3	10/8/2009	14:41:07	1.4	S	28.71	29.99	91.2	5.97	1.5
A	S3	10/8/2009	14:44:14	8.2	B	26.82	32.38	60.2	4.01	8.3
A	S3	10/8/2009	14:45:43	5.4	M	28.26	30.55	74.3	4.89	1.8
A	S3	10/8/2009	14:46:35	1.4	S	28.79	29.94	95.1	6.22	1.7
A	S2	10/8/2009	15:46:25	6.9	B	28.17	30.73	73.5	4.83	1.6
A	S2	10/8/2009	15:47:16	6.8	B	28.24	30.60	69.4	4.56	1.6
A	S2	10/8/2009	15:48:10	4.2	M	29.03	29.88	110.0	7.17	1.1
A	S2	10/8/2009	15:49:01	4.2	M	29.04	29.88	118.3	7.71	1.1
A	S2	10/8/2009	15:50:01	1.1	S	29.05	29.49	112.0	7.31	0.7
A	S2	10/8/2009	15:51:01	1.1	S	29.03	29.37	116.1	7.59	0.9
A	S1	10/8/2009	15:59:29	7.3	B	27.50	31.73	51.8	3.42	9.1
A	S1	10/8/2009	16:00:14	7.3	B	27.48	31.75	51.2	3.38	9.7
A	S1	10/8/2009	16:01:27	4.2	M	28.95	29.98	113.8	7.42	1.4
A	S1	10/8/2009	16:02:15	4.2	M	28.87	30.04	115.2	7.52	1.4
A	S1	10/8/2009	16:04:41	1.3	S	29.37	29.36	107.8	7.00	0.7
A	S1	10/8/2009	16:05:24	1.3	S	29.27	29.36	112.5	7.32	0.7
A	B1	10/8/2009	16:14:33	5.2	B	28.25	30.62	67.9	4.46	6.5
A	B1	10/8/2009	16:15:13	5.2	B	28.15	30.77	63.6	4.18	6.4
A	B1	10/8/2009	16:17:00	3.0	M	28.88	29.93	97.2	6.35	3.4
A	B1	10/8/2009	16:17:47	3.0	M	28.65	30.19	82.8	5.42	5.2
A	B1	10/8/2009	16:18:58	1.3	S	29.36	29.31	127.4	8.28	2.0
A	B1	10/8/2009	16:19:45	1.3	S	29.38	29.41	105.5	6.85	2.9
A	S3	10/8/2009	16:34:59	9.2	B	27.04	32.13	62.5	4.16	9.6
A	S3	10/8/2009	16:36:01	9.2	B	27.19	31.94	62.4	4.14	8.4
A	S3	10/8/2009	16:37:16	5.1	M	28.25	30.57	73.2	4.81	1.7
A	S3	10/8/2009	16:38:02	5.1	M	28.19	30.68	72.1	4.74	1.8
A	S3	10/8/2009	16:39:02	1.2	S	28.84	29.78	101.8	6.66	1.1
A	S3	10/8/2009	16:40:01	1.2	S	28.90	29.58	103.0	6.74	0.9
A	S2	10/8/2009	16:50:56	6.7	B	27.71	31.46	60.6	4.00	2.7
A	S2	10/8/2009	16:52:00	6.7	B	27.72	31.44	60.0	3.96	2.8
A	S2	10/8/2009	16:53:01	4.2	M	28.43	30.23	78.6	5.16	1.0
A	S2	10/8/2009	16:53:50	4.2	M	28.49	30.23	81.0	5.31	1.2
A	S2	10/8/2009	16:54:41	1.0	S	29.01	29.50	114.1	7.46	1.0
A	S2	10/8/2009	16:55:30	1.1	S	29.00	29.52	119.9	7.83	1.1
A	S1	10/8/2009	17:05:42	7.0	B	27.66	31.52	56.1	3.71	5.4

Annex D Continuous *In-situ* Measurement Data

Zone	Station	Sampling Date	Time	Depth (m)	Depth	Water Temp (°C)	Salinity (ppt)	D.O. Saturation (%)	D.O. (mg/L)	Turbidity (NTU)
A	S1	10/8/2009	17:06:28	7.0	B	27.66	31.51	55.4	3.66	5.3
A	S1	10/8/2009	17:08:09	4.2	M	28.56	30.19	83.1	5.45	1.2
A	S1	10/8/2009	17:09:01	4.1	M	28.56	30.19	84.0	5.50	1.2
A	S1	10/8/2009	17:10:00	1.1	S	29.47	29.15	121.4	7.88	0.8
A	S1	10/8/2009	17:11:02	1.1	S	29.43	29.20	122.7	7.97	0.7
A	B1	10/8/2009	17:21:46	4.9	B	29.02	29.75	117.0	7.63	2.1
A	B1	10/8/2009	17:22:29	4.8	B	29.02	29.78	119.0	7.76	2.0
A	B1	10/8/2009	17:23:31	3.3	M	29.07	29.52	121.6	7.93	2.0
A	B1	10/8/2009	17:24:14	3.3	M	29.06	29.55	120.7	7.87	1.9
A	B1	10/8/2009	17:25:12	1.1	S	29.51	29.19	133.6	8.67	1.6
A	B1	10/8/2009	17:26:01	1.1	S	29.38	29.27	127.2	8.27	1.9
A	S3	10/8/2009	17:40:15	9.2	B	26.91	32.29	60.6	4.03	9.2
A	S3	10/8/2009	17:41:00	9.1	B	26.84	32.39	59.7	3.97	10.1
A	S3	10/8/2009	17:43:37	5.1	M	28.56	30.20	88.6	5.81	1.4
A	S3	10/8/2009	17:44:23	5.1	M	28.49	30.28	86.1	5.65	1.8
A	S3	10/8/2009	17:45:15	1.2	S	29.04	29.22	103.3	6.75	0.6
A	S3	10/8/2009	17:46:11	1.2	S	29.10	29.20	105.8	6.91	0.6
A	S2	10/8/2009	17:55:26	7.0	B	27.93	31.07	70.8	4.66	1.7
A	S2	10/8/2009	17:56:14	7.1	B	27.92	31.08	68.6	4.52	1.7
A	S2	10/8/2009	17:57:14	4.2	M	28.08	30.83	74.1	4.88	1.5
A	S2	10/8/2009	17:58:08	4.2	M	28.10	30.79	75.2	4.95	1.2
A	S2	10/8/2009	17:59:06	1.2	S	28.65	29.87	92.7	6.08	0.9
A	S2	10/8/2009	18:00:03	1.2	S	28.66	29.86	95.2	6.24	0.9
A	S1	10/8/2009	18:11:07	7.0	B	27.71	31.45	59.7	3.94	4.8
A	S1	10/8/2009	18:12:03	7.0	B	27.69	31.47	57.0	3.76	5.0
A	S1	10/8/2009	18:13:19	4.4	M	28.52	30.31	80.1	5.25	1.9
A	S1	10/8/2009	18:14:06	4.4	M	28.63	30.22	84.3	5.52	1.5
A	S1	10/8/2009	18:15:19	1.5	S	29.33	29.30	121.3	7.89	0.8
A	S1	10/8/2009	18:16:03	1.5	S	29.30	29.36	121.6	7.91	0.8
A	B1	10/8/2009	18:28:14	5.1	B	28.24	30.61	70.3	4.62	4.6
A	B1	10/8/2009	18:29:03	5.1	B	28.22	30.62	69.8	4.59	4.3
A	B1	10/8/2009	18:30:09	3.5	M	28.80	30.05	91.8	6.00	2.7
A	B1	10/8/2009	18:31:02	3.5	M	28.71	30.12	88.6	5.80	2.9
A	B1	10/8/2009	18:32:14	1.5	S	29.09	29.41	119.5	7.80	1.4
A	B1	10/8/2009	18:33:02	1.5	S	29.20	29.36	123.3	8.04	1.7
A	S3	10/8/2009	18:44:19	9.0	B	27.29	31.94	64.9	4.30	3.9
A	S3	10/8/2009	18:45:03	9.0	B	27.29	31.96	64.4	4.27	3.6
A	S3	10/8/2009	18:46:08	5.2	M	28.27	30.57	79.1	5.20	1.7
A	S3	10/8/2009	18:47:02	5.2	M	28.43	30.30	84.5	5.55	1.6
A	S3	10/8/2009	18:49:41	1.5	S	29.09	29.26	119.1	7.78	0.8
A	S3	10/8/2009	18:50:08	1.5	S	29.09	29.27	120.6	7.88	0.7
A	S2	11/8/2009	7:10:19	7.9	B	27.85	31.04	63.2	4.17	1.9
A	S2	11/8/2009	7:11:14	7.9	B	27.85	31.06	61.9	4.09	1.9
A	S2	11/8/2009	7:12:18	4.5	M	28.05	30.70	63.9	4.21	1.5
A	S2	11/8/2009	7:13:04	4.5	M	28.02	30.78	63.1	4.16	1.7
A	S2	11/8/2009	7:14:10	1.1	S	28.54	29.52	73.5	4.84	0.7
A	S2	11/8/2009	7:15:02	1.1	S	28.56	29.66	74.9	4.92	0.6
A	S1	11/8/2009	7:27:02	8.1	B	27.81	31.20	54.4	3.59	2.8
A	S1	11/8/2009	7:27:45	8.1	B	27.84	31.15	54.4	3.59	2.6
A	S1	11/8/2009	7:28:38	4.6	M	28.43	30.03	71.6	4.71	0.9
A	S1	11/8/2009	7:29:24	4.6	M	28.48	30.01	74.4	4.89	0.8
A	S1	11/8/2009	7:30:22	1.3	S	29.04	29.65	107.1	6.99	0.9
A	S1	11/8/2009	7:31:15	1.3	S	29.10	29.65	111.8	7.28	0.8
A	B1	11/8/2009	7:43:18	6.1	B	28.12	30.72	59.2	3.90	4.9
A	B1	11/8/2009	7:44:05	6.1	B	28.11	30.73	59.8	3.94	4.3
A	B1	11/8/2009	7:46:56	3.3	M	28.88	29.56	88.1	5.76	0.7

Annex D Continuous *In-situ* Measurement Data

Zone	Station	Sampling Date	Time	Depth (m)	Depth	Water Temp (°C)	Salinity (ppt)	D.O. Saturation (%)	D.O. (mg/L)	Turbidity (NTU)
A	B1	11/8/2009	7:47:38	3.4	M	28.91	29.65	85.6	5.59	1.2
A	B1	11/8/2009	7:48:34	1.2	S	28.99	29.31	97.0	6.35	0.7
A	B1	11/8/2009	7:49:25	1.2	S	28.92	29.20	95.7	6.27	0.9
A	S3	11/8/2009	8:04:11	9.9	B	27.47	31.60	61.4	4.07	3.2
A	S3	11/8/2009	8:05:07	9.9	B	27.51	31.56	61.0	4.04	3.1
A	S3	11/8/2009	8:06:22	5.4	M	28.36	30.29	67.1	4.41	1.4
A	S3	11/8/2009	8:07:08	5.4	M	28.40	30.26	69.1	4.54	1.6
A	S3	11/8/2009	8:09:44	1.1	S	28.59	29.73	82.7	5.43	0.7
A	S3	11/8/2009	8:10:38	1.1	S	28.62	29.53	82.7	5.43	0.9
A	S2	11/8/2009	8:17:09	7.9	B	28.25	30.41	67.7	4.46	1.3
A	S2	11/8/2009	8:18:05	4.7	M	28.52	29.83	76.2	5.01	0.7
A	S2	11/8/2009	8:19:02	1.0	S	28.47	28.61	87.1	5.77	0.4
A	S2	11/8/2009	8:20:47	8.2	B	28.26	30.41	69.2	4.55	1.3
A	S2	11/8/2009	8:21:53	4.4	M	28.66	29.83	79.3	5.20	0.6
A	S2	11/8/2009	8:22:46	1.1	S	28.47	28.68	85.7	5.67	0.4
A	S1	11/8/2009	8:28:49	8.0	B	27.87	31.06	61.3	4.04	3.8
A	S1	11/8/2009	8:29:50	4.4	M	28.19	30.55	63.8	4.20	1.4
A	S1	11/8/2009	8:30:50	1.0	S	28.82	29.11	92.4	6.07	0.5
A	S1	11/8/2009	8:33:10	8.1	B	27.87	31.08	62.0	4.09	2.3
A	S1	11/8/2009	8:34:05	4.4	M	28.41	30.28	70.1	4.61	1.2
A	S1	11/8/2009	8:35:02	1.1	S	28.80	29.15	91.7	6.02	0.5
A	B1	11/8/2009	8:42:51	6.0	B	28.02	30.85	60.4	3.98	3.7
A	B1	11/8/2009	8:43:51	3.5	M	28.53	30.22	72.2	4.74	3.3
A	B1	11/8/2009	8:44:51	1.1	S	28.90	29.39	93.3	6.11	1.1
A	B1	11/8/2009	8:47:32	5.7	B	28.06	30.82	57.1	3.76	3.9
A	B1	11/8/2009	8:48:17	3.4	M	28.74	29.92	75.4	4.94	3.3
A	B1	11/8/2009	8:49:12	1.1	S	28.91	29.49	91.1	5.96	1.1
A	S3	11/8/2009	8:58:47	10.0	B	27.70	31.35	64.7	4.27	1.6
A	S3	11/8/2009	8:59:46	5.8	M	28.18	30.54	68.9	4.54	1.0
A	S3	11/8/2009	9:00:52	1.2	S	28.63	29.50	84.7	5.57	0.6
A	S3	11/8/2009	9:02:43	10.1	B	27.82	31.21	64.9	4.29	1.4
A	S3	11/8/2009	9:03:31	5.6	M	28.38	30.15	72.3	4.75	0.7
A	S3	11/8/2009	9:04:19	1.3	S	28.54	29.37	85.9	5.66	0.6
A	S2	11/8/2009	10:02:11	8.3	B	28.10	30.58	62.3	4.11	3.1
A	S2	11/8/2009	10:03:04	8.0	B	28.44	30.02	70.1	4.61	1.4
A	S2	11/8/2009	10:04:07	4.6	M	28.45	28.59	87.9	5.82	0.5
A	S2	11/8/2009	10:05:02	4.6	M	28.47	28.79	86.8	5.74	0.5
A	S2	11/8/2009	10:07:34	1.3	S	28.43	28.38	91.1	6.05	0.6
A	S2	11/8/2009	10:08:11	1.4	S	28.43	28.30	91.5	6.08	0.7
A	S1	11/8/2009	10:17:48	8.3	B	27.83	31.14	62.5	4.12	2.9
A	S1	11/8/2009	10:18:31	8.3	B	27.84	31.13	61.4	4.05	3.1
A	S1	11/8/2009	10:19:31	4.6	M	28.60	29.75	86.4	5.68	0.6
A	S1	11/8/2009	10:20:13	4.6	M	28.52	29.77	82.3	5.41	0.6
A	S1	11/8/2009	10:22:50	1.6	S	28.87	29.55	103.1	6.75	0.7
A	S1	11/8/2009	10:23:31	1.6	S	28.87	29.31	108.1	7.08	0.7
A	B1	11/8/2009	10:34:30	6.3	B	28.66	30.03	77.4	5.07	3.2
A	B1	11/8/2009	10:35:12	6.3	B	28.67	30.02	77.2	5.06	3.3
A	B1	11/8/2009	10:36:50	3.6	M	28.92	29.77	99.3	6.48	0.9
A	B1	11/8/2009	10:37:26	3.6	M	28.92	29.73	99.0	6.47	0.9
A	B1	11/8/2009	10:38:46	1.4	S	28.89	29.47	97.9	6.41	0.7
A	B1	11/8/2009	10:39:15	1.4	S	28.89	29.47	96.9	6.34	0.7
A	S3	11/8/2009	10:54:52	10.4	B	27.60	31.46	64.2	4.25	4.8
A	S3	11/8/2009	10:55:41	10.4	B	27.53	31.53	61.6	4.08	5.3
A	S3	11/8/2009	10:56:52	5.4	M	28.60	29.87	81.8	5.37	0.6
A	S3	11/8/2009	10:57:37	5.4	M	28.64	29.65	84.5	5.55	0.7
A	S3	11/8/2009	10:58:29	1.3	S	28.53	28.83	88.8	5.87	0.7

Annex D Continuous *In-situ* Measurement Data

Zone	Station	Sampling Date	Time	Depth (m)	Depth	Water Temp (°C)	Salinity (ppt)	D.O. Saturation (%)	D.O. (mg/L)	Turbidity (NTU)
A	S3	11/8/2009	10:59:13	1.3	S	28.53	28.86	89.7	5.93	0.8
A	S2	11/8/2009	11:08:44	8.1	B	27.87	31.08	61.4	4.05	3.8
A	S2	11/8/2009	11:09:26	8.1	B	27.83	31.15	62.4	4.12	2.9
A	S2	11/8/2009	11:10:31	4.5	M	28.64	29.84	85.7	5.62	0.9
A	S2	11/8/2009	11:11:15	4.4	M	28.37	30.23	85.6	5.63	0.9
A	S2	11/8/2009	11:12:17	1.2	S	28.45	28.01	92.1	6.12	0.9
A	S2	11/8/2009	11:13:02	1.2	S	28.45	27.97	92.9	6.18	0.9
A	S1	11/8/2009	11:22:25	8.3	B	28.02	30.88	61.5	4.05	3.8
A	S1	11/8/2009	11:23:08	8.3	B	28.03	30.86	60.5	3.99	3.7
A	S1	11/8/2009	11:25:30	4.5	M	29.05	29.58	114.7	7.48	0.9
A	S1	11/8/2009	11:26:13	4.5	M	28.96	29.49	111.4	7.28	0.7
A	S1	11/8/2009	11:27:11	1.0	S	28.56	28.46	97.4	6.45	0.6
A	S1	11/8/2009	11:28:02	1.0	S	28.55	28.40	97.3	6.45	0.7
A	B1	11/8/2009	11:39:41	5.9	B	28.91	29.71	92.8	6.06	1.5
A	B1	11/8/2009	11:40:25	5.9	B	28.92	29.66	93.6	6.12	1.3
A	B1	11/8/2009	11:41:50	3.7	M	28.95	29.29	106.2	6.95	1.5
A	B1	11/8/2009	11:42:37	3.7	M	28.96	29.33	107.1	7.01	1.2
A	B1	11/8/2009	11:43:37	1.0	S	28.86	28.86	104.5	6.87	1.3
A	B1	11/8/2009	11:44:21	1.0	S	28.83	28.68	104.4	6.87	1.4
A	S3	11/8/2009	12:01:56	9.9	B	27.95	30.91	63.1	4.16	4.5
A	S3	11/8/2009	12:04:12	9.2	B	28.19	30.52	68.0	4.48	2.1
A	S3	11/8/2009	12:05:25	5.1	M	28.41	30.22	75.9	4.99	1.0
A	S3	11/8/2009	12:06:13	5.1	M	28.42	30.21	76.6	5.03	0.7
A	S3	11/8/2009	12:07:13	1.2	S	28.56	28.88	92.5	6.11	0.8
A	S3	11/8/2009	12:08:02	1.2	S	28.58	28.78	94.5	6.24	0.7
A	S2	11/8/2009	14:34:24	7.7	B	27.96	30.89	69.6	4.59	2.0
A	S2	11/8/2009	14:35:30	4.5	M	28.79	29.51	91.5	6.00	0.6
A	S2	11/8/2009	14:36:22	1.3	S	28.99	28.34	108.5	7.13	0.5
A	S2	11/8/2009	14:38:27	7.9	B	27.97	30.90	69.3	4.57	1.5
A	S2	11/8/2009	14:39:32	4.6	M	28.82	29.65	97.9	6.41	0.7
A	S2	11/8/2009	14:40:33	1.3	S	29.08	28.25	108.7	7.14	0.5
A	S1	11/8/2009	14:46:27	6.8	B	27.59	31.42	64.4	4.26	3.2
A	S1	11/8/2009	14:47:26	4.2	M	28.59	30.02	79.8	5.23	1.3
A	S1	11/8/2009	14:48:21	1.4	S	28.73	28.77	111.2	7.32	0.6
A	S1	11/8/2009	14:49:52	6.9	B	27.62	31.39	66.8	4.42	3.7
A	S1	11/8/2009	14:52:59	3.6	M	29.00	29.41	101.0	6.60	1.5
A	S1	11/8/2009	14:54:02	1.6	S	28.72	28.68	114.8	7.57	0.6
A	B1	11/8/2009	15:03:09	4.3	B	28.11	30.71	59.6	3.92	7.4
A	B1	11/8/2009	15:04:23	3.3	M	28.29	30.49	66.8	4.39	5.4
A	B1	11/8/2009	15:05:35	1.5	S	28.84	28.68	112.7	7.42	2.0
A	B1	11/8/2009	15:07:03	4.5	B	28.13	30.69	64.7	4.26	7.2
A	B1	11/8/2009	15:08:30	3.1	M	28.28	30.50	65.0	4.27	6.2
A	B1	11/8/2009	15:09:17	1.3	S	28.88	28.22	124.4	8.20	1.2
A	S3	11/8/2009	15:16:52	8.9	B	26.48	32.56	62.4	4.18	5.0
A	S3	11/8/2009	15:17:51	4.9	M	28.36	30.24	78.5	5.16	0.9
A	S3	11/8/2009	15:18:45	1.3	S	28.88	28.76	113.9	7.49	0.8
A	S3	11/8/2009	15:21:21	8.9	B	26.50	32.56	61.2	4.10	4.3
A	S3	11/8/2009	15:22:25	5.0	M	28.35	30.28	78.4	5.15	1.0
A	S3	11/8/2009	15:23:18	1.2	S	28.89	28.75	114.3	7.51	0.8
A	S2	11/8/2009	16:26:25	7.0	B	27.69	31.28	72.1	4.77	1.2
A	S2	11/8/2009	16:27:10	7.0	B	27.66	31.29	69.4	4.59	1.3
A	S2	11/8/2009	16:28:01	4.2	M	28.71	29.19	102.1	6.71	0.6
A	S2	11/8/2009	16:29:01	4.2	M	28.73	29.23	105.7	6.94	0.7
A	S2	11/8/2009	16:30:02	1.3	S	29.08	28.43	126.7	8.31	0.8
A	S2	11/8/2009	16:31:01	1.3	S	29.07	28.41	127.1	8.34	0.7
A	S1	11/8/2009	16:41:30	6.6	B	27.71	31.28	62.7	4.14	5.2

Annex D Continuous *In-situ* Measurement Data

Zone	Station	Sampling Date	Time	Depth (m)	Depth	Water Temp (°C)	Salinity (ppt)	D.O. Saturation (%)	D.O. (mg/L)	Turbidity (NTU)
A	S1	11/8/2009	16:42:31	6.6	B	27.79	31.17	61.3	4.04	5.3
A	S1	11/8/2009	16:43:56	4.0	M	28.57	30.06	82.5	5.41	1.8
A	S1	11/8/2009	16:44:44	4.0	M	28.77	29.69	93.3	6.11	1.3
A	S1	11/8/2009	16:47:23	1.3	S	28.98	28.74	125.5	8.24	0.8
A	S1	11/8/2009	16:48:09	1.3	S	29.03	28.64	127.3	8.35	0.8
A	B1	11/8/2009	16:59:54	4.9	B	28.61	30.08	79.4	5.20	4.1
A	B1	11/8/2009	17:00:42	4.8	B	28.62	30.06	80.2	5.26	4.3
A	B1	11/8/2009	17:01:37	3.3	M	28.75	29.81	92.7	6.07	2.5
A	B1	11/8/2009	17:02:21	3.3	M	28.72	29.88	91.6	6.00	2.5
A	B1	11/8/2009	17:03:22	1.1	S	29.12	28.53	125.5	8.23	1.5
A	B1	11/8/2009	17:04:14	1.1	S	29.07	28.65	124.9	8.19	1.4
A	S3	11/8/2009	17:19:38	9.0	B	27.25	31.96	67.5	4.48	2.0
A	S3	11/8/2009	17:20:28	9.0	B	27.16	32.04	66.4	4.41	2.1
A	S3	11/8/2009	17:21:30	5.2	M	28.21	30.51	71.6	4.71	0.8
A	S3	11/8/2009	17:22:19	5.1	M	28.20	30.53	72.1	4.75	0.8
A	S3	11/8/2009	17:23:22	1.2	S	29.01	28.77	128.3	8.41	0.9
A	S3	11/8/2009	17:24:23	1.2	S	29.01	28.78	129.1	8.47	0.9
A	S2	11/8/2009	17:33:16	7.1	B	27.77	31.19	71.6	4.73	1.2
A	S2	11/8/2009	17:34:20	7.0	B	27.82	31.14	69.6	4.59	1.2
A	S2	11/8/2009	17:35:34	4.1	M	28.52	30.07	78.9	5.18	1.2
A	S2	11/8/2009	17:36:40	4.1	M	28.80	29.81	105.1	6.87	1.0
A	S2	11/8/2009	17:37:57	1.1	S	29.02	28.55	134.0	8.80	0.9
A	S2	11/8/2009	17:38:43	1.1	S	29.02	28.76	125.6	8.24	0.7
A	S1	11/8/2009	17:49:02	6.7	B	27.69	31.32	67.6	4.47	2.4
A	S1	11/8/2009	17:50:10	6.7	B	27.67	31.33	65.7	4.34	2.6
A	S1	11/8/2009	17:52:13	3.8	M	28.53	30.15	79.8	5.24	1.9
A	S1	11/8/2009	17:53:10	3.8	M	28.48	30.21	76.1	5.00	2.1
A	S1	11/8/2009	17:54:16	1.3	S	29.10	28.49	125.1	8.20	0.8
A	S1	11/8/2009	17:55:02	1.3	S	29.10	28.49	125.6	8.24	0.8
A	B1	11/8/2009	18:08:10	5.1	B	28.87	29.40	109.2	7.15	2.5
A	B1	11/8/2009	18:09:38	5.1	B	28.86	29.42	105.6	6.92	2.8
A	B1	11/8/2009	18:11:50	3.3	M	28.91	29.15	121.0	7.93	1.5
A	B1	11/8/2009	18:12:39	3.3	M	28.95	29.03	123.6	8.10	1.6
A	B1	11/8/2009	18:14:39	1.1	S	29.08	28.58	135.4	8.88	1.1
A	B1	11/8/2009	18:15:31	1.1	S	29.06	28.57	137.0	8.99	1.0
A	S3	11/8/2009	18:36:07	8.9	B	27.27	31.94	69.1	4.58	1.7
A	S3	11/8/2009	18:37:00	8.9	B	27.26	31.94	66.6	4.42	2.3
A	S3	11/8/2009	18:38:49	5.1	M	28.36	30.35	73.2	4.81	1.5
A	S3	11/8/2009	18:40:02	5.1	M	28.49	30.12	85.0	5.58	1.3
A	S3	11/8/2009	18:42:02	0.9	S	29.05	28.71	141.0	9.24	0.8
A	S3	11/8/2009	18:44:02	0.9	S	29.05	28.71	141.9	9.30	0.9

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ERM's Hong Kong Office

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