

**Environmental Monitoring and Audit
for Contaminated Mud Pits to the
South of The Brothers and at East
Sha Chau (2012-2017) – Investigation
Agreement No. CE 23/2012(EP)**

**16th Monthly Progress Report for Contaminated
Mud Pits to the South of The Brothers and at
East Sha Chau – December 2013**

Revision 0

20 January 2014

Environmental Resources Management
16/F, DCH Commercial Centre
25 Westlands Road
Quarry Bay, Hong Kong
Telephone (852) 2271 3000
Facsimile (852) 2723 5660
www.erm.com



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Telephone: (852) 2271 3000
Facsimile: (852) 2723 5660
E-mail: post.hk@erm.com
http://www.erm.com

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Client: Civil Engineering and Development Department (CEDD)		Project No: 0175086			
Summary: This document presents the 16 th monthly progress report for Contaminated Mud Pits at the South of The Brothers and at East Sha Chau.		Date: 20 January 2014			
		Approved by:  Craig A. Reid Partner			
v0	16 th Monthly Progress Report for CMP V and SB CMPs	YL	JT	CAR	20/1/14
Revision	Description	By	Checked	Approved	Date
<p>This report has been prepared by Environmental Resources Management the trading name of 'ERM Hong-Kong, Limited', with all reasonable skill, care and diligence within the terms of the Contract with the client, incorporating our General Terms and Conditions of Business and taking account of the resources devoted to it by agreement with the client.</p> <p>We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.</p> <p>This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.</p>		<p>Distribution</p> <p><input type="checkbox"/> Internal</p> <p><input checked="" type="checkbox"/> Public</p> <p><input type="checkbox"/> Confidential</p>			
		 			



**Dredging, Management and Capping of Contaminated Sediment Disposal
Facility to the South of The Brothers**

**Environmental Certification Sheet
EP-427/2011/A**

Reference Document/Plan

Document/ Plan to be Certified/ Verified:	16 th Monthly Progress Report for Contaminated Mud Pits to the South of The Brothers and at East Sha Chau - December 2013
Date of Report:	20 January 2014
Date prepared by ET:	20 January 2014
Date received by IA:	20 January 2014

Reference EP Condition

Environmental Permit Condition:	Condition No.: 4.4
4 hard copies and 1 electronic copy of monthly EM&A Report shall be submitted to the Director within 2 weeks after the end of the reporting month. The EM&A Reports shall include a summary of all non-compliance (exceedances) of the environmental quality performance limits (Action and Limit Levels). The submissions shall be certified by the ET Leader and verified by the Independent Auditor. Additional copies of the submission shall be provided to the Director upon request by the Director.	

ET Certification

I hereby certify that the above referenced document/ plan complies with the above referenced condition of EP-427/2011/A	
Craig A. Reid, Environmental Team Leader:	 Date: 20/1/2014

IA Verification

I hereby verify that the above referenced document/ plan complies with the above referenced condition of EP-427/2011/A	
Dr Wang Wen Xiong, Independent Auditor:	 Date: 20/1/2014

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Agreement No. CE 23/2012 (EP)
Environmental Monitoring and Audit
for Contaminated Mud Pits at the South of The Brothers and at East Sha
Chau (2012-2017) - Investigation

14TH MONTHLY PROGRESS REPORT FOR DECEMBER 2013

1.1 BACKGROUND

1.1.1 Since early 1990s, contaminated sediment ⁽¹⁾ arising from various construction works (e.g. dredging and reclamation projects) in Hong Kong has been disposed of at a series of seabed pits at East of Sha Chau (ESC). In late 2008, a review indicated that the existing and planned facilities at ESC would not be able to meet the disposal demand after 2012. In order to meet this demand, the Hong Kong Special Administrative Region Government (HKSARG) decided to implement a new contained aquatic disposal (CAD) ⁽²⁾ facility at the South of The Brothers (SB CMPs) which had been under consideration for a number of years.

1.1.2 The environmental acceptability of the construction and operation of the Project had been confirmed by findings of the associated Environmental Impact Assessment (EIA) study completed in 2005 under *Agreement No. CE 12/2002(EP)* ⁽³⁾. The Director of Environmental Protection (DEP) approved this EIA report under the *Environmental Impact Assessment Ordinance (Cap. 499) (EIAO)* in September 2005 (*EIA Register No.: AEIAR-089/2005*).

1.1.3 In accordance with the EIA recommendation, prior to commencement of construction works for the SB CMPs, the Civil Engineering and Development Department (CEDD) undertook a detailed review and update of the EIA findings for the SB site ⁽⁴⁾. Findings of the EIA review undertaken in 2009/2010 confirmed that the construction and operation of the SB site had been predicted to be environmentally acceptable.

(1) According to the Management Framework of Dredged/ Excavated Sediment of ETWB TC(W) No. 34/2002, contaminated sediment in general shall mean those sediment requiring Type 2 – Confined Marine Disposal as determined according to this TC(W).

(2) CAD options may involve use of excavated borrow pits, or may involve purpose-built excavated pits. CAD sites are those which involve filling a seabed pit with contaminated mud and capping it with uncontaminated material such that the original seabed level is restored and the contaminated material is isolated from the surrounding marine environment.

(3) Detailed Site Selection Study for a Proposed Contaminated Mud Disposal Facility within the Airport East/ East of Sha Chau Area (*Agreement No. CE 12/2002(EP)*)

(4) Under the CEDD study *Contaminated Sediment Disposal Facility to the South of The Brothers (Agreement No. FM 2/2009)*

1.1.4 *Environmental Permits (EPs) (EP-312/2008/A and EP-427/2011A)* were issued by the Environmental Protection Department (EPD) to the CEDD, the Permit Holder, on 28 November 2008 for East of Sha Chau (ESC) CMP V and on 23 December 2011 for SB CMPs, respectively. Under the requirements of the *EPs*, an Environmental Monitoring and Audit (EM&A) programme as set out in the EM&A Manuals ⁽¹⁾ ⁽²⁾ is required to be implemented for the CMPs.

1.1.5 The present EM&A programme undertaken under *Agreement No. CE 23/2012 (EP)* covers the dredging, disposal and capping operations of the SB CMPs as well as CMPs at East of Sha Chau (ESC). In December 2013, the following works were being undertaken at the CMPs:

- Capping was being undertaken at CMP IVc and CMP Va;
- Disposal of contaminated mud was taking place at SB CMP 1; and
- Dredging operations were taking place at SB CMP 2.

1.2 **REPORTING PERIOD**

1.2.1 This Monthly Progress Report covers the EM&A activities for the reporting month of December 2013.

1.3 **DETAILS OF SAMPLING AND LABORATORY TESTING ACTIVITIES**

1.3.1 The following monitoring activities have been undertaken for CMP IV and V in the monitoring month of December 2013:

- *Water Quality Monitoring during Capping* was carried out for CMP IVc and CMP Va on 3 December 2013; and
- *Benthic Recolonisation Studies* for CMP IV was conducted on 12 December 2013.

1.3.2 The following monitoring activities have been undertaken for SB CMPs in December 2013:

- *Impact Water Quality Monitoring during Dredging Operations* was undertaken for CMP 2 three times per week (2, 4, 6, 9, 11, 13, 16, 18, 20, 23, 27, 29 and 31 December 2013);
- *Water Column Profiling* for CMP 1 was undertaken on 5 December 2013;

(1) ERM (2012) Environmental Monitoring and Audit (EM&A) Manual. Final First Review. Environmental Monitoring and Audit for Contaminated Mud Pits to the South of the Brothers and at East Sha Chau (2012-2017) - Investigation. Agreement No. CE 23/2012(EP). Submitted to EPD in November 2012.

(2) ERM (2010) Environmental Monitoring and Audit (EM&A) Manual. Final Second Review. Environmental Monitoring and Audit for Contaminated Mud Pit at Sha Chau (2009-2013) - Investigation. Agreement No. CE 4/2009(EP). Submitted to EPD in November 2010.

- *Cumulative Impact Sediment Chemistry* was conducted for CMP 1 on 10 December 2013; and
- *Pit Specific Sediment Chemistry* was conducted for CMP 1 on 17 December 2013.

1.4 DETAILS OF OUTSTANDING SAMPLING AND/OR ANALYSIS

1.4.1 No outstanding sampling remained for December 2013. The following laboratory analyses were still in progress during the preparation of this monthly report and hence were not included in this monthly report:

- Laboratory analyses of sediment samples collected for *Pit Specific Sediment Chemistry of CMP 1* in November and December 2013;
- Laboratory analyses of sediment samples collected for *Cumulative Impact Sediment Chemistry of CMP 1* in December 2013; and
- Laboratory analyses of Suspended Solids (SS) samples collected for *Water Quality Monitoring during Dredging Operations of CMP 2* from 11 to 31 December 2013.

1.4.2 A summary of field activities conducted are presented in *Annex A*.

1.5 BRIEF DISCUSSION OF THE MONITORING RESULTS FOR SB CMPS

1.5.1 Brief discussion of the monitoring results of the following activities is presented in this *16th Monthly Report*. Detailed discussion will be presented in the corresponding *Quarterly Report*.

- *Impact Water Quality Monitoring during Dredging Operations of CMP 2* conducted from 18 November to 9 December 2013;
- *Water Column Profiling of CMP 1* conducted in December 2013;
- *Routine Water Quality Monitoring of CMP 1* undertaken from 17 October to 30 November 2013; and
- *Pit Specific Sediment Chemistry of CMP 1* conducted in October 2013.

1.5.2 Impact Water Quality Monitoring during Dredging Operations of CMP 2 - 18 November to 9 December 2013

1.5.3 Monitoring data collected for CMP 2 from 18 November to 9 December 2013 are presented in this monthly report. Detailed discussion will be presented in the corresponding *Quarterly Report*.

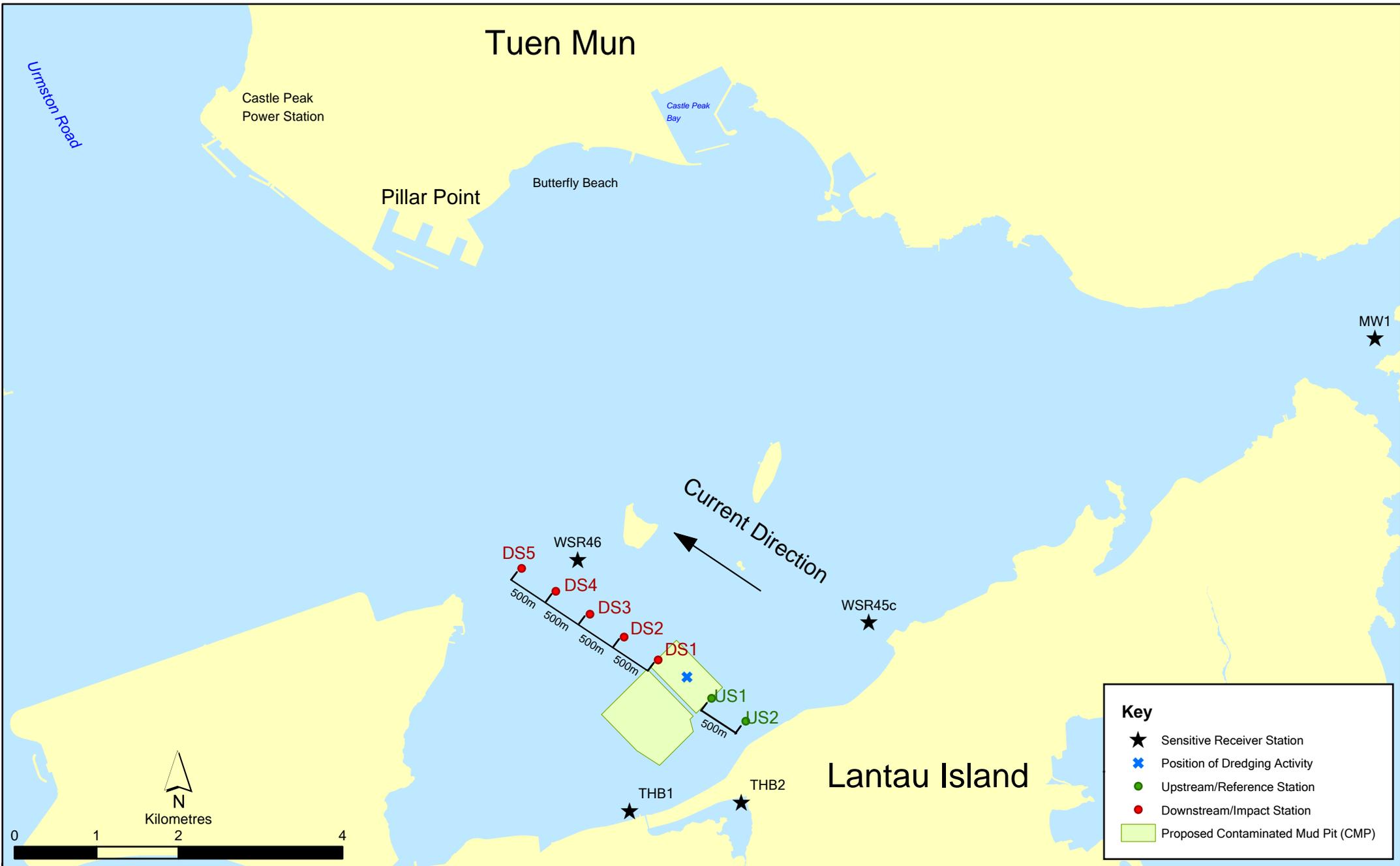
1.5.4 *Impact Water Quality Monitoring during Dredging Operations of CMP 2* (i.e. from 18 November to 9 December 2013) was conducted three times per week for a total of nine (9) sampling days. On each survey day, sampling was conducted during both mid-ebb and mid-flood tides at two Reference (Upstream) stations upstream and five Impact (Downstream) stations downstream of the dredging operations at CMP 2. Monitoring was also conducted at five Sensitive Receiver Stations (Ma Wan, Shum Shui Kok, Tai Mo To and Tai Ho Bay). A total of twelve stations were monitored and locations of the sampling stations are shown in *Figure 1.1*.

1.5.5 Monitoring results from 18 November to 9 December 2013 are presented in *Table C1 of Annex C*. Levels of Dissolved Oxygen (DO), Turbidity and SS generally complied with the Action and Limit Levels (see *Table C2 of Annex C* for details) set in the Baseline Monitoring Report ⁽¹⁾, except for the following occasions of exceedances shown in *Table 1.1* below.

Table 1.1 *Details of exceedances recorded at SB CMP 2 in November/ December 2013*

Date	Tide	Parameter	Station	Type
18 November 2013	Mid-Ebb	SS	DS1	Action
		SS	DS2	Action
20 November 2013	Mid-Flood	SS	DS2	Action
		SS	DS4	Action
		SS	DS5	Action
22 November 2013	Mid-Ebb	SS	WSR46	Action
	Mid-Flood	SS	DS4	Action
		SS	DS5	Action
25 November 2013	Mid-Ebb	SS	DS1	Action
	Mid-Flood	Turbidity	DS1	Limit
		SS	DS1	Limit
29 November 2013	Mid-Flood	SS	DS2	Action
		Turbidity	DS1	Limit
		SS	DS1	Limit
2 December 2013	Mid-Flood	SS	DS1	Action
6 December 2013	Mid-Flood	SS	WSR45C	Action

(1) ERM (2012) Baseline Monitoring Report. Environmental Monitoring and Audit for Contaminated Mud Pits to the South of the Brothers and at East Sha Chau (2012-2017) - Investigation. Agreement No. CE 23/2012(EP). Submitted to EPD in October 2012.



- 1.5.6 Exceedances at DS1 and other stations were detected during the same tidal period on 18 (mid-ebb) and 25 November 2013 (mid-flood). Exceedances at DS1 only were also recorded on 25 November (mid-ebb), 29 November (mid-flood) and 2 December 2013 (mid-flood) whilst no exceedances at other stations were detected during the same tidal period on the same day. These exceedances did not indicate any trend of increasing SS or Turbidity levels toward the dredging operations or any evidence of unacceptable water quality impact as a result of the dredging operations at the CMP 2.
- 1.5.7 It should be noted that the exceedances on 20 November (mid-flood tide), 22 November (mid-ebb and mid-flood tides) and 6 December 2013 (mid-flood tide) were recorded at stations which are located further away from the works area when compared to station DS1 at which the levels of SS, Turbidity and DO did not exceed the Action and Limit Levels during the same tidal period on the same day. As such, these recorded exceedances are not likely to be caused by the dredging works at CMP 2.
- 1.5.8 Instead, high levels of Turbidity and SS and low levels of DO were occasionally recorded during baseline monitoring which are considered to be sporadic events and characteristic of water quality in this area of Hong Kong. Therefore, the Action and Limit Level exceedances may be caused by natural background variation in water quality of the area.
- 1.5.9 Overall, the results indicated that the dredging operations at CMP 2 did not appear to cause any unacceptable deterioration in water quality during this reporting period. Therefore, no further mitigation measures, except for those recommended in the Environmental Permit (EP-427/2011/A), are considered necessary for the dredging operations.

1.5.10 Water Column Profiling for CMP 1 – December 2013

In-situ Measurements

- 1.5.11 *Water Column Profiling* was undertaken at a total of two sampling stations (Upstream and Downstream stations) in December 2013. The water quality monitoring results for December 2013 have been assessed for compliance with the Water Quality Objectives (WQOs) set by EPD. This consists of a review of the EPD routine water quality monitoring data for the dry season period (November to March) of 2003-2012 from stations in the Northwestern Water Control Zone, where the CMPs are located. For Salinity, the average value obtained from the Upstream station was used for the basis as the WQO. Graphical presentation of the monitoring results is provided in *Annex B*.
- 1.5.12 Analyses of results for December 2013 indicated that levels of Salinity, pH and DO complied with the WQOs at both Upstream and Downstream stations (*Figures 1-3 of Annex B*). DO and Turbidity complied with the Action and Limit Levels set in the *EM&A Manual* ⁽¹⁾.

(1) ERM (2009). Draft Second Review of the EM&A Manual. Prepared for CEDD for EM&A for Contaminated Mud Pit at Sha Chau (2009-2013) – Investigation Agreement No. CE 4/2009 (EP).

Laboratory Measurements for Suspended Solids (SS)

1.5.13 Analyses of data obtained in December 2013 indicated that the SS levels at Downstream and Upstream stations complied with the WQO (*Figure 4 of Annex B*). In addition, SS levels at all stations complied with the Action and Limit Levels set in the *EM&A Manual*.

1.5.14 Overall, the results indicated that the mud disposal operation at CMP 1 did not appear to cause any deterioration in water quality during this reporting period.

1.5.15 *Routine Water Quality Monitoring for SB CMP 1 - October/November 2013*

1.5.16 The results for the *Routine Water Quality Monitoring* conducted on 17, 19, 22, 24, 26, 29 and 31 October 2013 in the wet season and those undertaken on 2, 4, 6, 8, 12, 14, 16, 19, 21, 23, 26, 28 and 30 November 2013 in the dry season have been assessed for compliance with the WQOs set by EPD. This consists of a review of the EPD routine water quality monitoring data for the wet season period (April to October) of 2003-2012 and the dry season period (November to March) of 2003-2012 from stations in the Northwestern Water Control Zone, where the CMPs are located.

1.5.17 For Salinity, the average value obtained from the Upstream Station was used for the basis as the WQO. Daily *in-situ* monitoring and daily laboratory results are shown in *Tables C3 and C4 of Annex C*. Monthly averaged *in-situ* measurement and laboratory analyses results for October and November 2013 are illustrated in *Table C5 and C6 of Annex C*, with graphical presentation provided in *Annex B*. Locations of monitoring stations were presented in *Figure 1.2 and 1.3*.

In-situ Measurements

1.5.18 Analysis of results indicated that for all the stations (Impact, Intermediate, Reference and Ma Wan), both daily and monthly average levels of pH, DO and Salinity complied with the WQOs (*Tables C3 and C5 of Annex C*).

1.5.19 Daily and monthly average levels of DO and Turbidity in October and November 2013 complied with the Action and Limit Levels set in the *EM&A Manual* ⁽¹⁾ (*Tables C3 and C5 of Annex C*).

Laboratory Measurements

(1) ERM (2009). Draft Second Review of the EM&A Manual. Prepared for CEDD for EM&A for Contaminated Mud Pit at Sha Chau (2009-2013) – Investigation Agreement No. CE 4/2009 (EP).

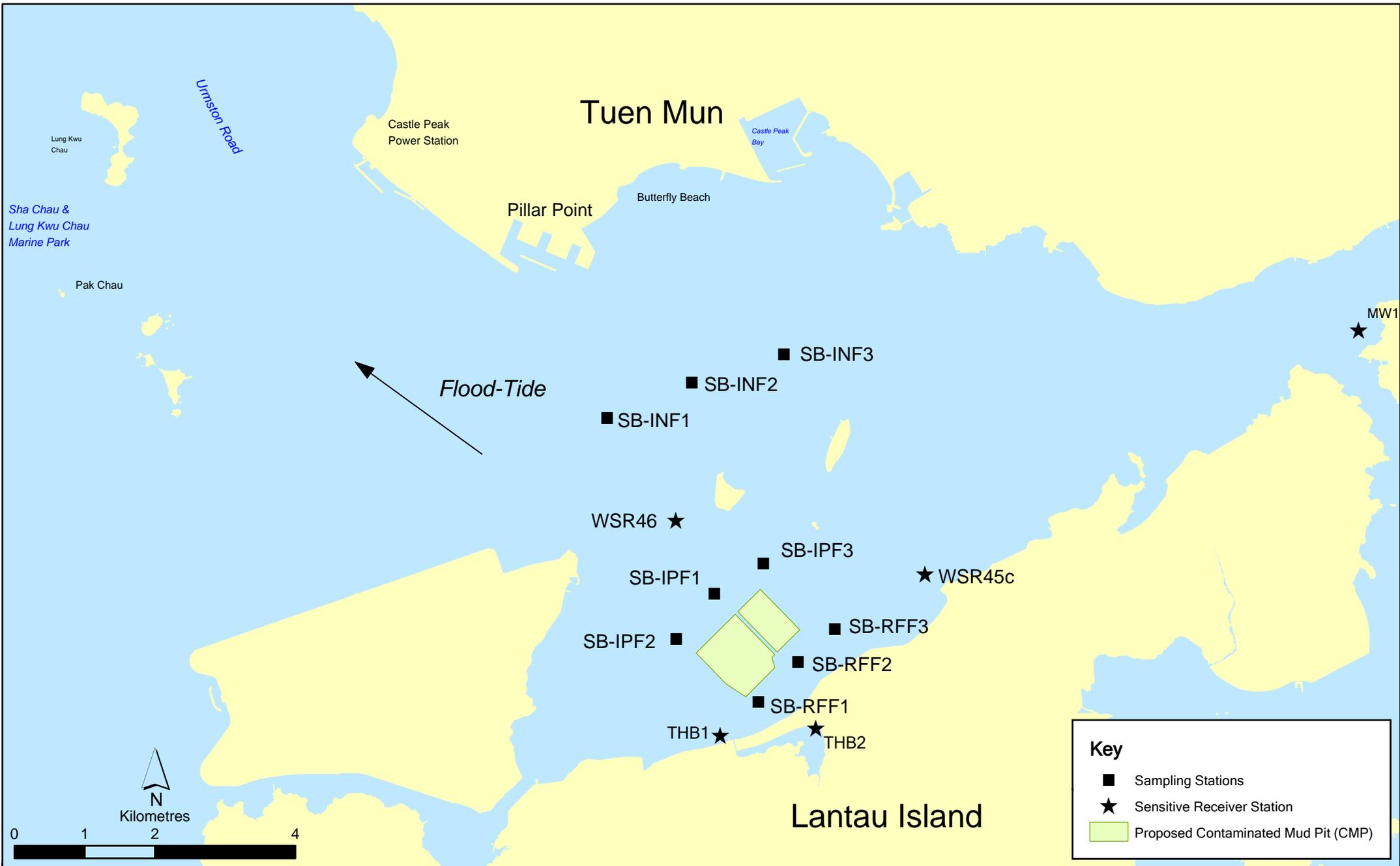


Figure 1.2

Routine Water Quality Sampling Stations (Flood-Tide) for South Brothers Facility

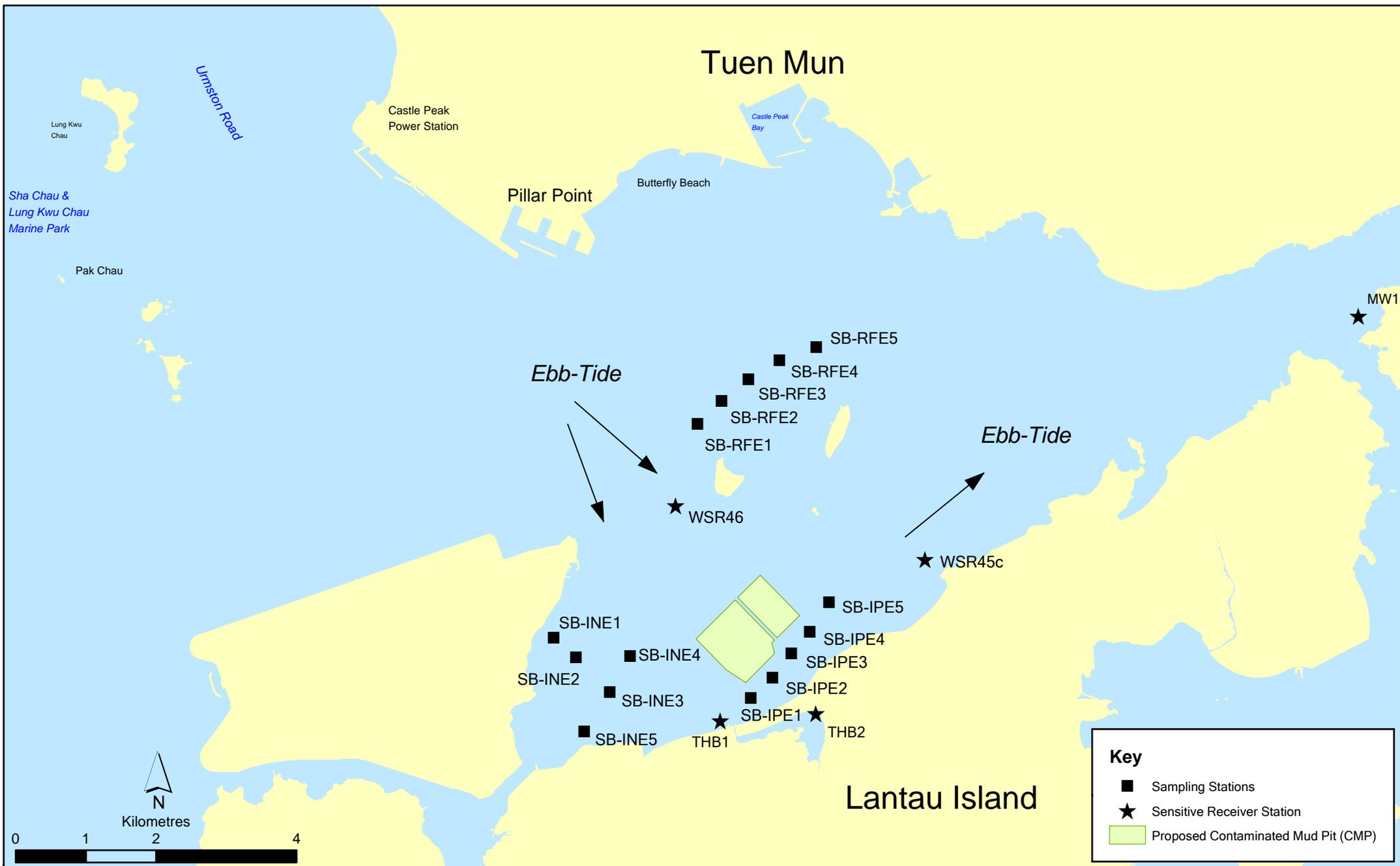


Figure 1.3

Routine Water Quality Sampling Stations (Ebb-Tide) for South Brothers Facility

- 1.5.20 Monthly averaged concentrations of metals and nutrients are presented in *Figures 10-13* and *Figures 20-23* of *Annex B*. Graphical presentations of monitoring results on individual monitoring days are presented in *Figures 31-42* and *Figures 50-61* of *Annex B*.
- 1.5.21 Monthly average concentration of Zinc was slightly higher at Ma Wan station in October 2013 (*Figure 10* of *Annex B*) whilst the monthly average concentrations of other metals were similar amongst stations in October and November 2013 (*Figures 10, 11, 20 and 21*). Monthly average levels of 5-day Biochemical Oxygen Demand (BOD₅), Total Inorganic Nitrogen (TIN) and Ammoniacal-Nitrogen (NH₃-N) in October and November 2013 were similar amongst station (*Figures 12, 13, 22 and 23* of *Annex B*).
- 1.5.22 Occasional exceedances of WQO (0.50 mg/L) in TIN levels were recorded in October and November 2013 with no consistent trend of increasing TIN concentration with proximity to the pit or with time (*Table C4*). The monthly average concentration of TIN did not show any exceedance with the WQO in both October and November 2013 (*Table C6*). As such, these isolated exceedances did not appear to indicate any evidence of unacceptable water quality impacts due to the mud disposal activities.
- 1.5.23 Exceedances of SS WQOs (12.0 mg/L for wet season and 14.4 mg/L for dry season) were occasionally recorded in October and November 2013 for individual monitoring days (*Table C4*), however, further investigation of the monthly average SS levels showed that the exceedances of WQO were recorded at the Impact, Intermediate, Reference and other sensitive receiver stations in October and at Intermediate station only in November 2013 (*Table C6*). Therefore, the WQO exceedances may be caused by natural background variation in water quality of the area rather than indicating any unacceptable impacts from the mud disposal operations.
- 1.5.24 Overall, the results indicated that the disposal operation at CMP 1 did not appear to cause any unacceptable deterioration in water quality during monitoring period of October and November 2013.
- 1.5.25 ***Pit Specific Sediment Chemistry of CMP 1 - October 2013***
- 1.5.26 Monitoring locations for *Pit Specific Sediment Chemistry for CMP 1* are shown in *Figure 1.4*. A total of six monitoring stations were sampled in October 2013.
- 1.5.27 The concentrations of all the metals except Arsenic complied with the LCEL at all stations in October 2013 (*Figures 63 and 64* of *Annex B*). Concentrations of Arsenic exceeded the LCEL at all stations except Active Pit station SB-NPAB.

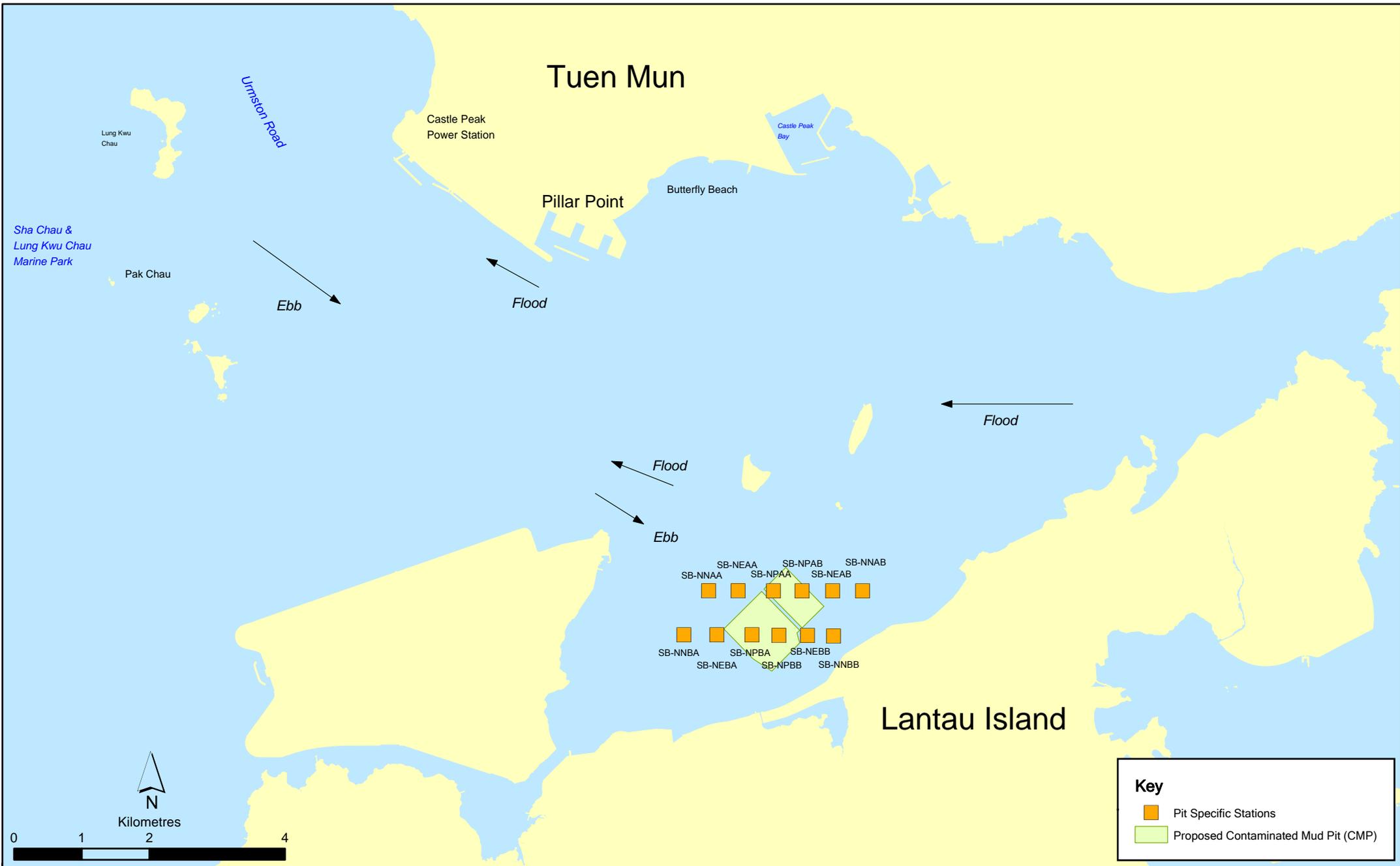


Figure 1.4

Pit Specific Sediment Quality Monitoring Stations for South Brothers Facility

- 1.5.28 Whilst the average concentration of Arsenic in the Earth's crust is generally ~2mg/kg, significantly higher Arsenic concentrations (median = 14 mg/kg) have been recorded in Hong Kong's onshore sediments ⁽¹⁾. It is presumed that the natural concentrations of Arsenic are similar in onshore and offshore sediments ⁽²⁾, and relatively high Arsenic levels may thus occur throughout Hong Kong. Therefore, the LCEL exceedances of Arsenic are unlikely to be caused by the disposal operations at CMP Va but rather as a result of naturally occurring deposits. The slight exceedances of the LCEL for the Arsenic do not necessarily indicate any unacceptable impacts to sediment quality caused by disposal operation at CMP 1.
- 1.5.29 TOC concentration indicated variations amongst the stations in October 2013 (*Figure 65 of Annex B*). TBT concentrations were found to be higher at Near Pit Station SB-NNAB (*Figure 66 of Annex B*) in October 2013.
- 1.5.30 Low and High MW PAHs concentrations as well as Total DDT, 4,4'-DDE and Total PCBs concentrations were recorded below the limit of reporting at all stations in October 2013.
- 1.5.31 Overall, there is no evidence indicating any unacceptable environmental impacts to sediment quality as a result of the contaminated mud disposal operations at CMP 1 during this monthly period.

1.6 ACTIVITIES SCHEDULED FOR THE NEXT MONTH

- 1.6.1 *Pit Specific Sediment Chemistry, Demersal Trawling, Routine Water Quality Monitoring and Water Column Profiling for CMP 1 as well as Impact Water Quality Monitoring during Dredging Operations for CMP 2 will be conducted in the next monthly period of January 2014.*
- 1.6.2 No monitoring activities will be conducted for CMP IV and CMP V in the next monthly period of January 2014.
- 1.6.3 The sampling schedule is presented in *Annex A*.

1.7 STUDY PROGRAMME

- 1.7.1 A summary of the Study programme is presented in *Annex E*.

(1) Sewell RJ (1999) Geochemical Atlas of Hong Kong. Geotechnical Engineering Office, Government of the Hong Kong Special Administrative Region

(2) Whiteside PGD (2000) Natural geochemistry and contamination of marine sediments in Hong Kong. In: The Urban Geology of Hong Kong (ed Page A & Reels SJ). Geological Society of Hong Kong Bulletin No. 6, p109-121

Annex A

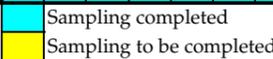
Sampling Schedule

Annex A1 - East of Sha Chau Environmental Monitoring and Audit Sampling Schedule for CMP IV (January 2012 - December 2013)

		2012												2013											
Tissue/ Whole Body Sampling		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Near-Pit Stations	INA		*																						
	INB		*																						
	Reference North		*																						
	TNA		*																						
	TNB		*																						
Reference South	TSA		*																						
	TSB		*																						
Demersal Trawling		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Near Pit Stations	INA 1-5		*	*																					
	INB 1-5		*	*																					
Reference North	TNA 1-5		*	*																					
	TNB 1-5		*	*																					
Reference South	TSA 1-5		*	*																					
	TSB 1-5		*	*																					
Capping		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
<i>Ebb Tide</i>																									
Impact Station Downcurrent	IPE1		*				*	*				*	*		*				*	*			*	*	*
	IPE2		*				*	*				*	*		*				*	*			*	*	*
	IPE3		*				*	*				*	*		*				*	*			*	*	*
	IPE4		*				*	*				*	*		*				*	*			*	*	*
	PFC1		*				*	*				*	*		*				*	*			*	*	*
Intermediate Station Downcurrent	INE1		*				*	*				*	*		*				*	*			*	*	*
	INE2		*				*	*				*	*		*				*	*			*	*	*
	INE3		*				*	*				*	*		*				*	*			*	*	*
	INE4		*				*	*				*	*		*				*	*			*	*	*
	INE5		*				*	*				*	*		*				*	*			*	*	*
Reference Station Upcurrent	RFE1		*				*	*				*	*		*				*	*			*	*	*
	RFE2		*				*	*				*	*		*				*	*			*	*	*
	RFE3		*				*	*				*	*		*				*	*			*	*	*
	RFE4		*				*	*				*	*		*				*	*			*	*	*
	RFE5		*				*	*				*	*		*				*	*			*	*	*
<i>Flood Tide</i>																									
Impact Station Downcurrent	INF1		*				*	*				*	*		*				*	*			*	*	*
	PFC2		*				*	*				*	*		*				*	*			*	*	*
	INF3		*				*	*				*	*		*				*	*			*	*	*
Intermediate Station Downcurrent	IPF1		*				*	*				*	*		*				*	*			*	*	*
	IPF2		*				*	*				*	*		*				*	*			*	*	*
	IPF3		*				*	*				*	*		*				*	*			*	*	*
Reference Station Upcurrent	RFF1		*				*	*				*	*		*				*	*			*	*	*
	RFF2		*				*	*				*	*		*				*	*			*	*	*
	RFF3		*				*	*				*	*		*				*	*			*	*	*
Water Column Profiling		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Plume Stations	WCP1		*																						
	WCP2		*																						
Benthic Recolonisation Studies		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D
Capped Contaminated Mud Pits III																									
CPA	1 grab per station							*																	
CPB	1 grab per station							*																	
CPC	1 grab per station							*																	
Reference Stations																									
RBA	1 grab per station							*																	
RBB	1 grab per station							*																	
RBC	1 grab per station							*																	

*n = Number of replicates depends on field catch or parameters

Sampling completed
 Sampling to be completed

		2012												2013												2014	
Routine Water Quality Monitoring		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F
<i>Ebb Tide</i>																											
Impact Station	ESC-IPE1		*		*	*		*	*		*	*		*	*		*	*		*	*		*	*		*	*
	ESC-IPE2		*		*	*		*	*		*	*		*	*		*	*		*	*		*	*		*	*
	ESC-IPE3		*		*	*		*	*		*	*		*	*		*	*		*	*		*	*		*	*
	ESC-IPE4		*		*	*		*	*		*	*		*	*		*	*		*	*		*	*		*	*
	ESC-IPE5		*		*	*		*	*		*	*		*	*		*	*		*	*		*	*		*	*
Intermediate Station	ESC-INE1		*		*	*		*	*		*	*		*	*		*	*		*	*		*	*		*	*
	ESC-INE2		*		*	*		*	*		*	*		*	*		*	*		*	*		*	*		*	*
	ESC-INE3		*		*	*		*	*		*	*		*	*		*	*		*	*		*	*		*	*
	ESC-INE4		*		*	*		*	*		*	*		*	*		*	*		*	*		*	*		*	*
	ESC-INE5		*		*	*		*	*		*	*		*	*		*	*		*	*		*	*		*	*
Reference Station	ESC-RFE1		*		*	*		*	*		*	*		*	*		*	*		*	*		*	*		*	*
	ESC-RFE2		*		*	*		*	*		*	*		*	*		*	*		*	*		*	*		*	*
	ESC-RFE3		*		*	*		*	*		*	*		*	*		*	*		*	*		*	*		*	*
	ESC-RFE4		*		*	*		*	*		*	*		*	*		*	*		*	*		*	*		*	*
	ESC-RFE5		*		*	*		*	*		*	*		*	*		*	*		*	*		*	*		*	*
Ma Wan Station	MW1		*		*	*		*	*		*	*		*	*		*	*		*	*		*	*		*	*
<i>Flood Tide</i>																											
Impact Station	ESC-IPF1		*		*	*		*	*		*	*		*	*		*	*		*	*		*	*		*	*
	ESC-IPF2		*		*	*		*	*		*	*		*	*		*	*		*	*		*	*		*	*
	ESC-IPF3		*		*	*		*	*		*	*		*	*		*	*		*	*		*	*		*	*
Intermediate Station	ESC-INF1		*		*	*		*	*		*	*		*	*		*	*		*	*		*	*		*	*
	ESC-INF2		*		*	*		*	*		*	*		*	*		*	*		*	*		*	*		*	*
	ESC-INF3		*		*	*		*	*		*	*		*	*		*	*		*	*		*	*		*	*
Reference Station	ESC-RFF1		*		*	*		*	*		*	*		*	*		*	*		*	*		*	*		*	*
	ESC-RFF2		*		*	*		*	*		*	*		*	*		*	*		*	*		*	*		*	*
	ESC-RFF3		*		*	*		*	*		*	*		*	*		*	*		*	*		*	*		*	*
Ma Wan Station	MW1		*		*	*		*	*		*	*		*	*		*	*		*	*		*	*		*	*
Water Column Profiling		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F
Plume Stations	WCP1		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	WCP2		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Benthic Recolonisation Studies		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F
Capped Contaminated Mud Pits IVa-c																											
Reference Stations	ESC-CPA								*				*						*				*			*	
	ESC-CPB								*				*						*				*			*	
	ESC-CPC								*				*						*				*			*	
	ESC-RBA								*				*						*				*			*	
	ESC-RBB								*				*						*				*			*	
	ESC-RBC								*				*						*				*			*	
Impact Monitoring for Dredging		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F
Upstream/Reference Stations	US1		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	US2		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Downstream/Impact Stations	DS1		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	DS2		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	DS3		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	DS4		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
	DS5		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Ma Wan Station	MW1		*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
																											

Annex B

Graphs of Monitoring Results

Water Column Profiling for CMP 1 - December 2013

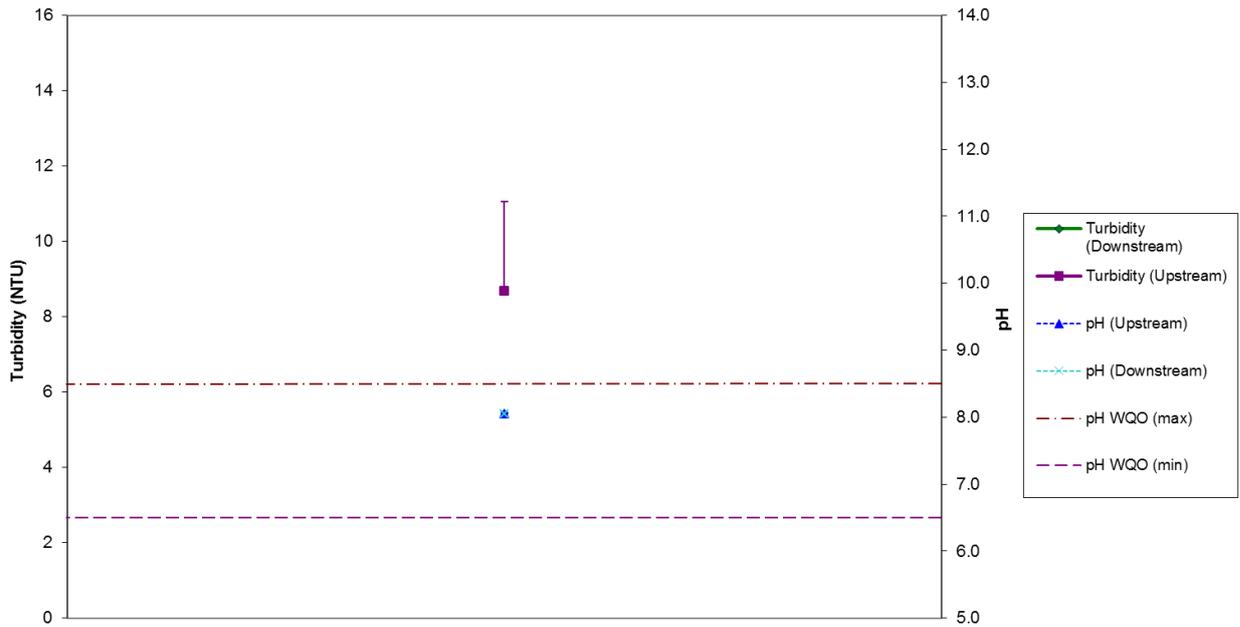


Figure 1: Turbidity and pH (mean + SD) recorded during *Water Column Profiling* for disposal operations at CMP 1 in December 2013.

Water Column Profiling for CMP 1 - December 2013

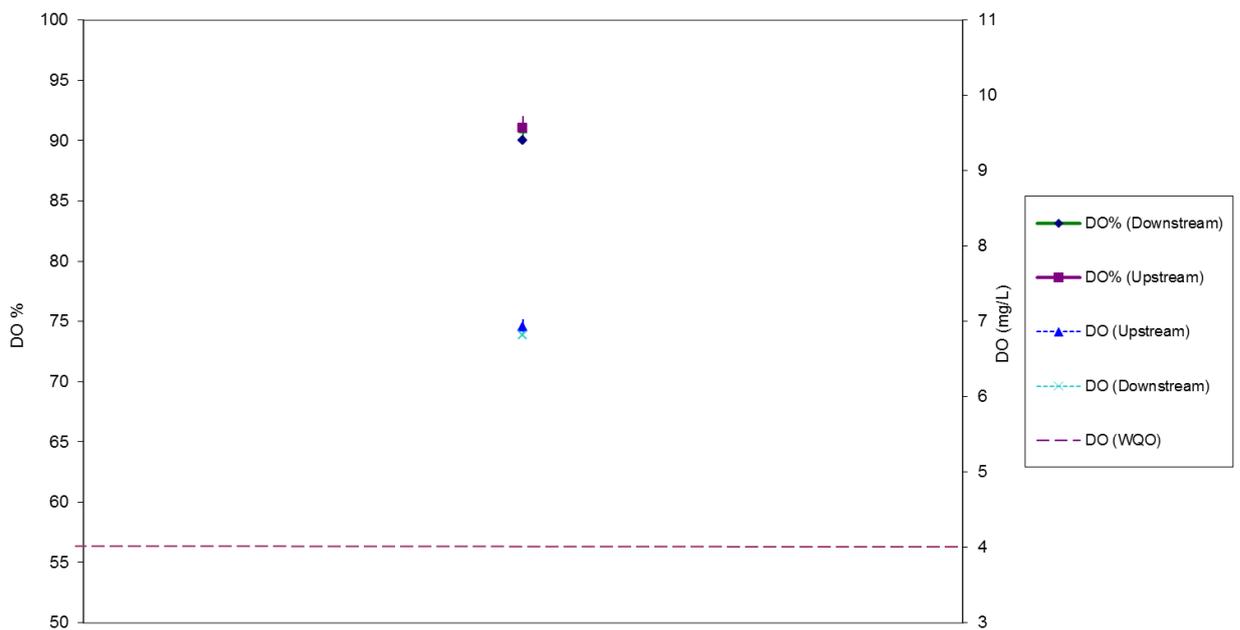


Figure 2: Dissolved Oxygen (mean + SD) recorded during *Water Column Profiling* for disposal operations at CMP 1 in December 2013.

Water Column Profiling for CMP 1 - December 2013

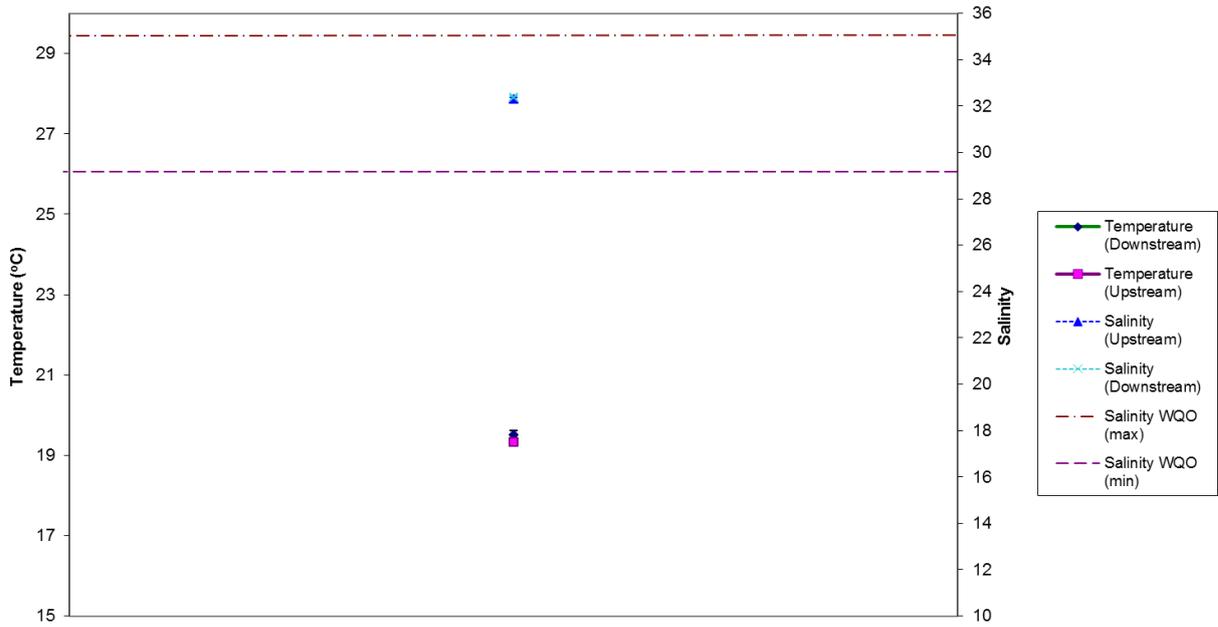


Figure 3: Salinity and Temperature (mean + SD) recorded during *Water Column Profiling* for disposal operations at CMP 1 in December 2013.

Water Column Profiling for CMP 1 - December 2013

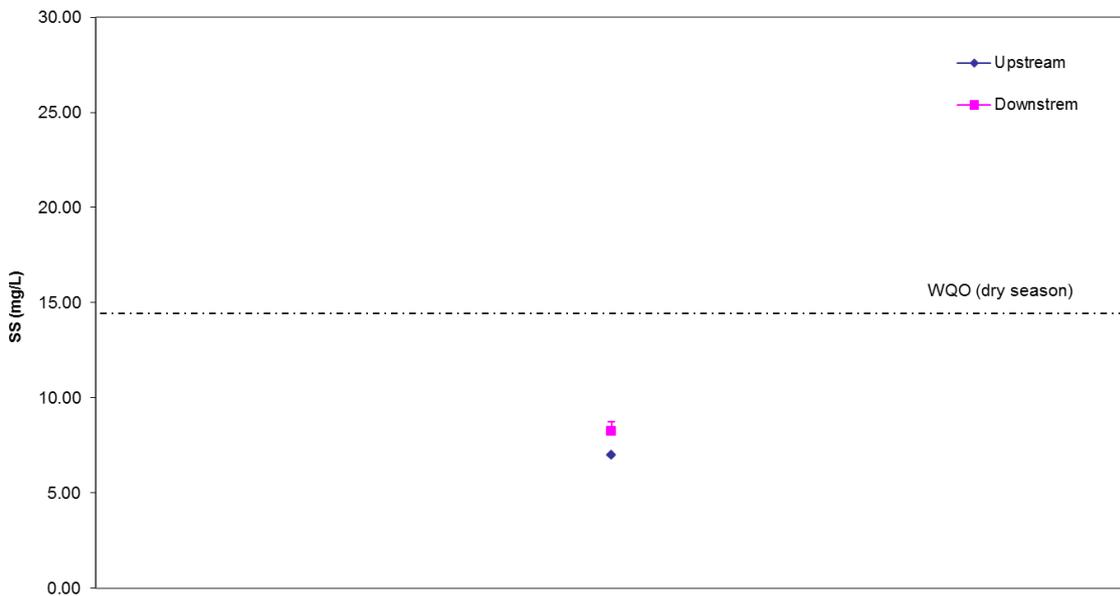


Figure 4: Suspended Solids (mean + SD) recorded during *Water Column Profiling* for disposal operations at CMP 1 in December 2013.

Routine Water Quality Monitoring for CMP 1 - Monthly Average in October 2013

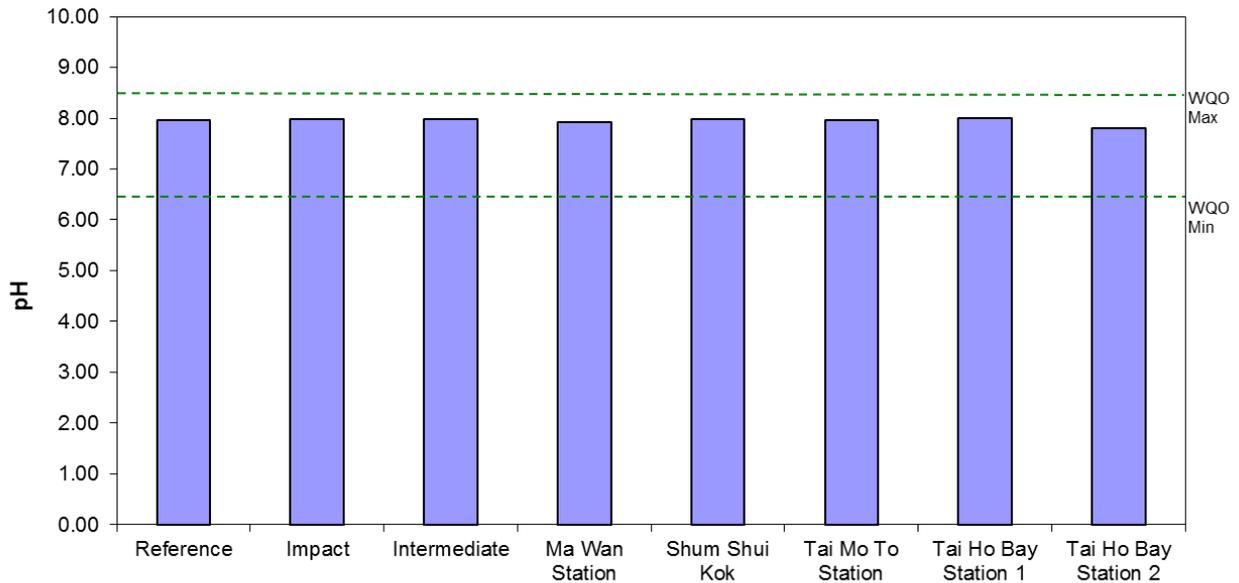


Figure 5: Monthly averaged level of pH (mean + SD) recorded during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in October 2013.

Routine Water Quality Monitoring for CMP 1 - Monthly Average in October 2013

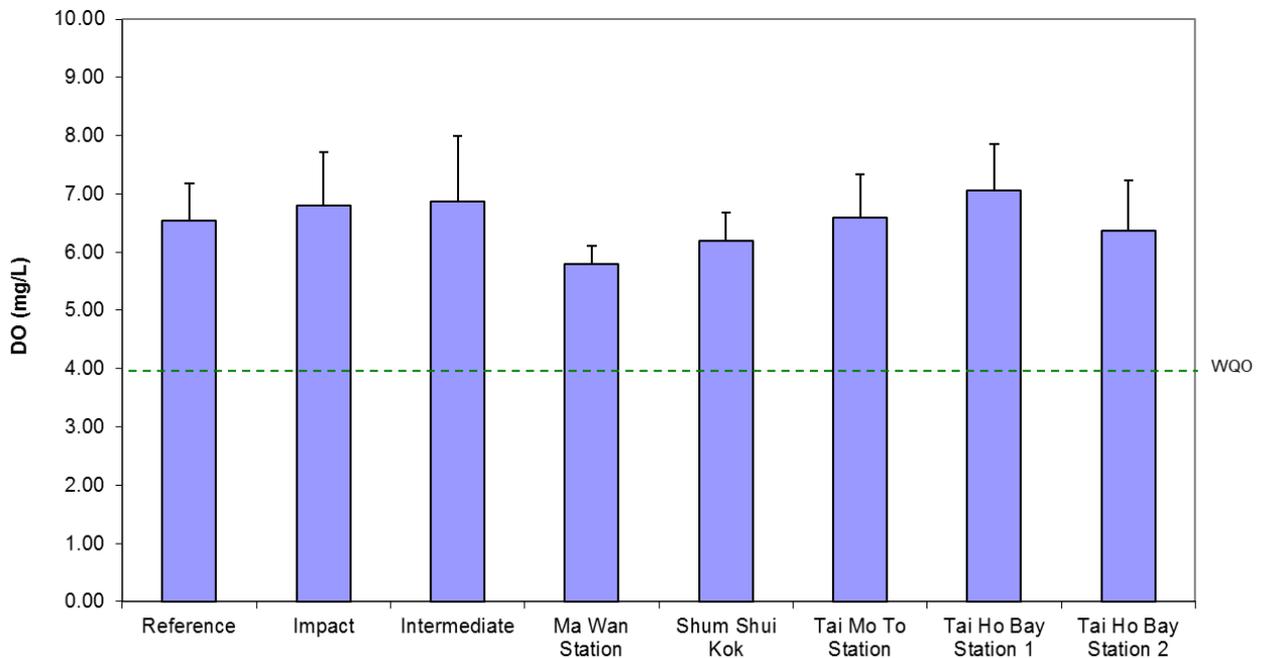


Figure 6: Monthly averaged concentration of Dissolved Oxygen (mg/L; mean + SD) recorded during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in October 2013.

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Routine Water Quality Monitoring for CMP 1 - Monthly Average in October 2013

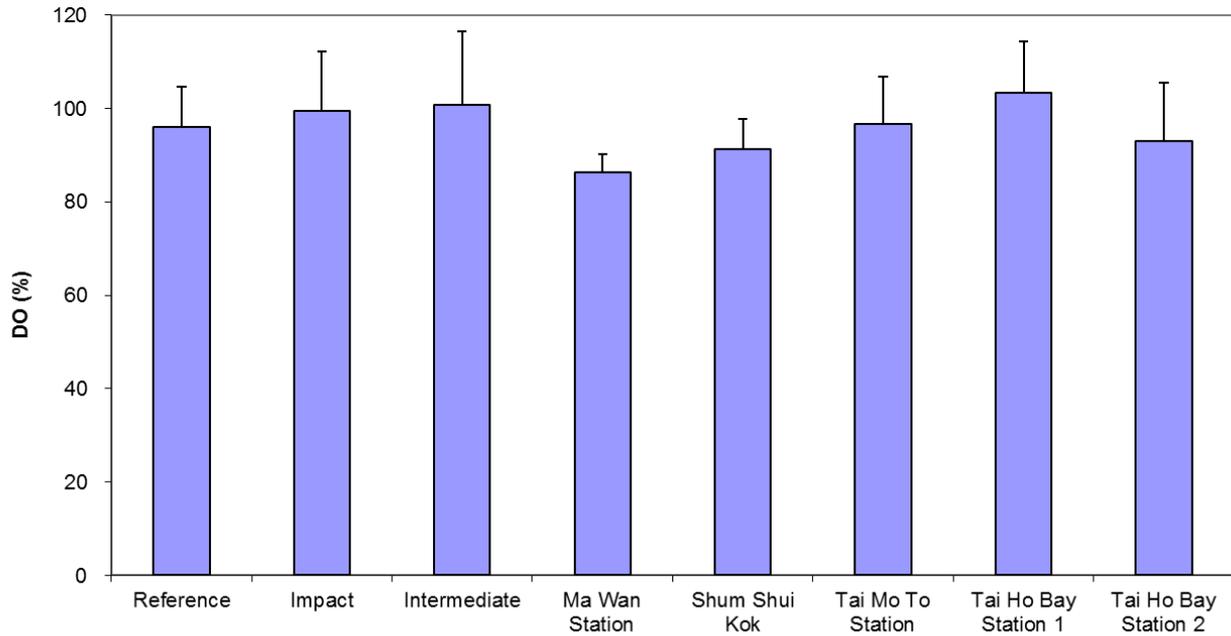


Figure 7: Monthly averaged level of Dissolved Oxygen (% saturation; mean + SD) recorded during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in October 2013.

Routine Water Quality Monitoring for CMP 1 - Monthly Average in October 2013

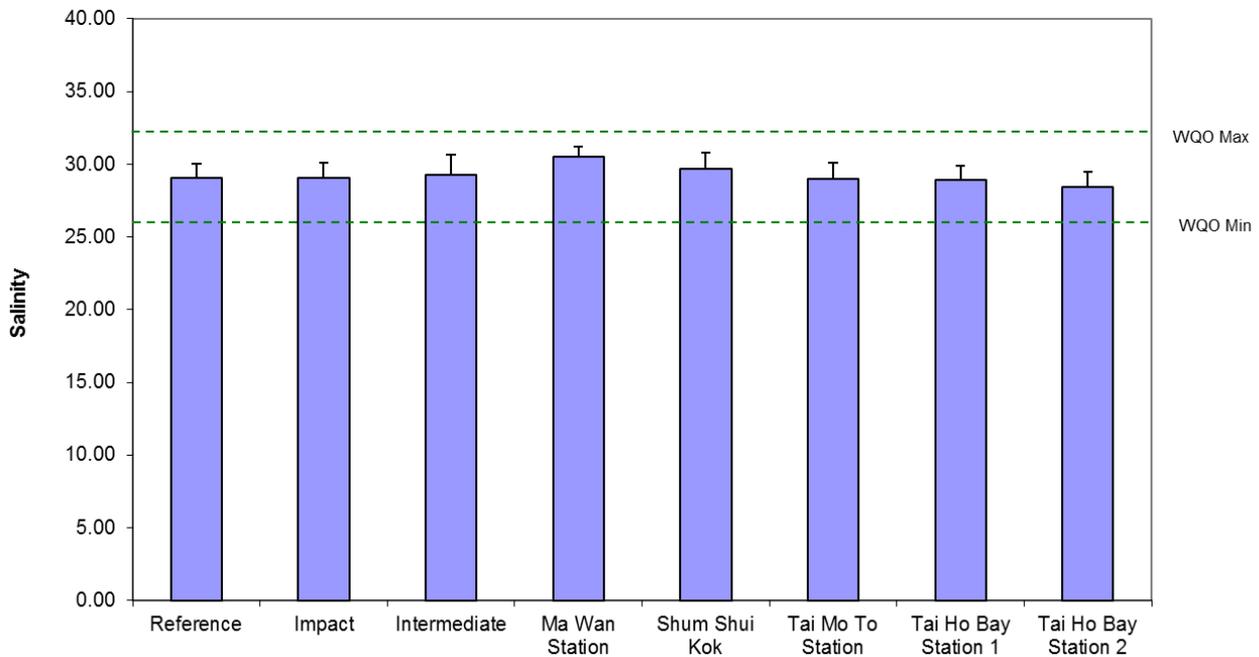


Figure 8: Monthly averaged level of Salinity (mean + SD) recorded during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in October 2013.

Routine Water Quality Monitoring for CMP 1 - Monthly Average in October 2013

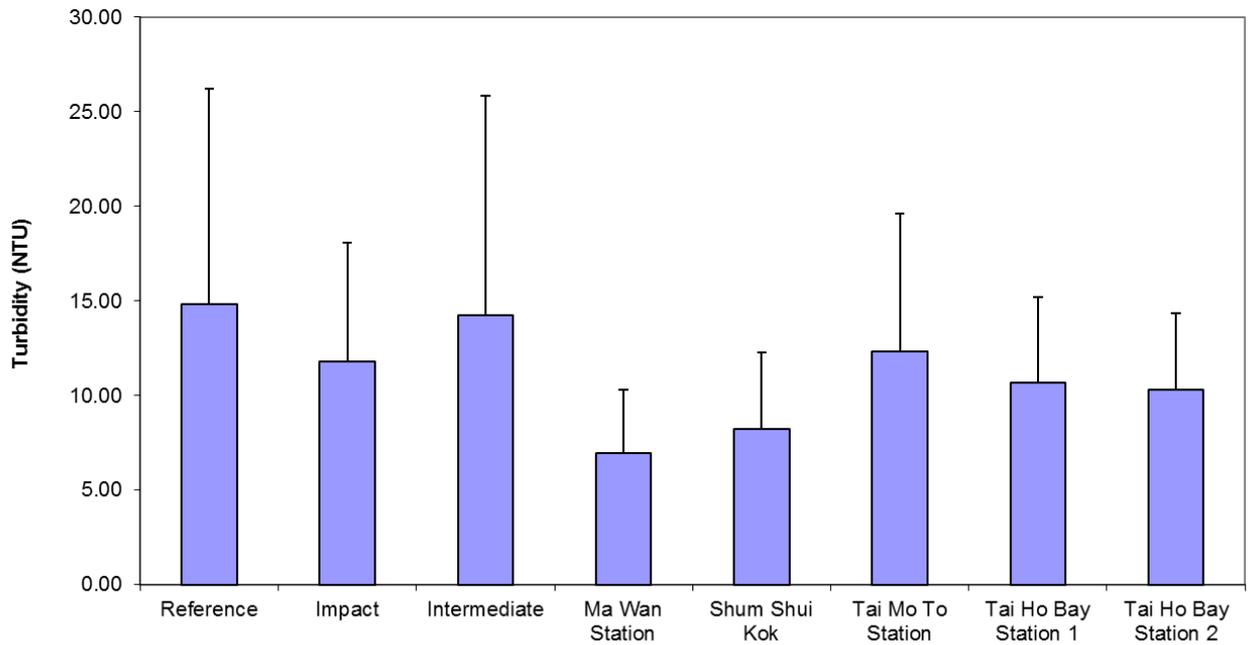


Figure 9: Monthly averaged level of Turbidity (NTU; mean + SD) recorded during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in October 2013.

**Routine Water Quality Monitoring Results for Metals
Monthly Average in October 2013**

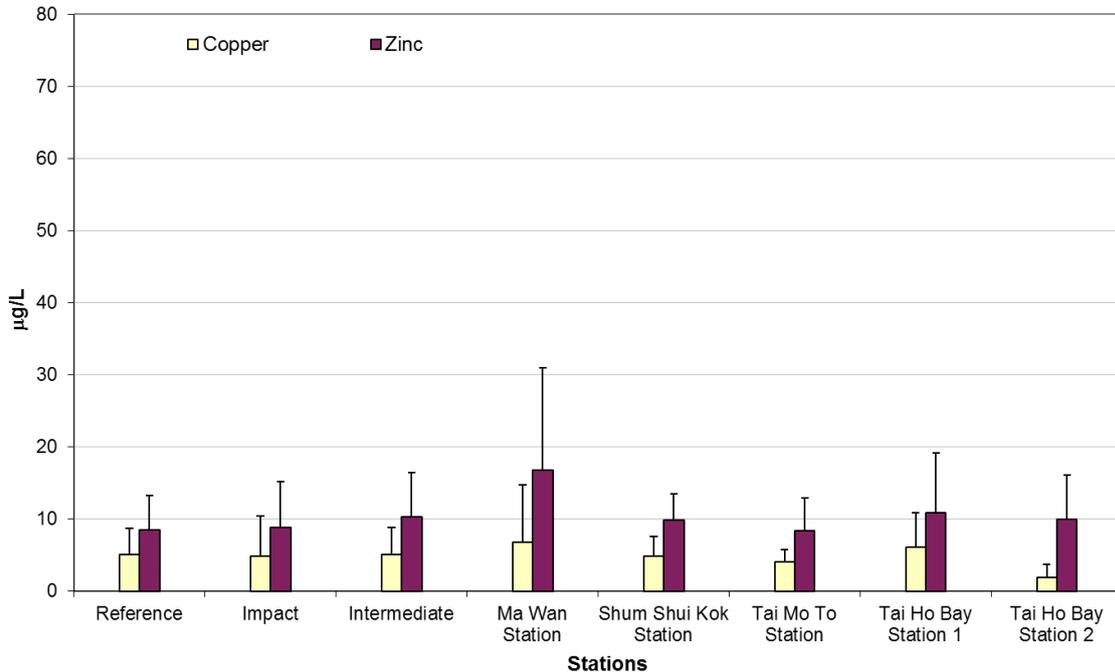


Figure 10: Monthly averaged concentration of Copper and Zinc (mean + SD) in water samples collected from *Routine Water Quality Monitoring* for disposal operations at CMP 1 in October 2013.

Routine Water Quality Monitoring Results for Metals
Monthly Average in October 2013

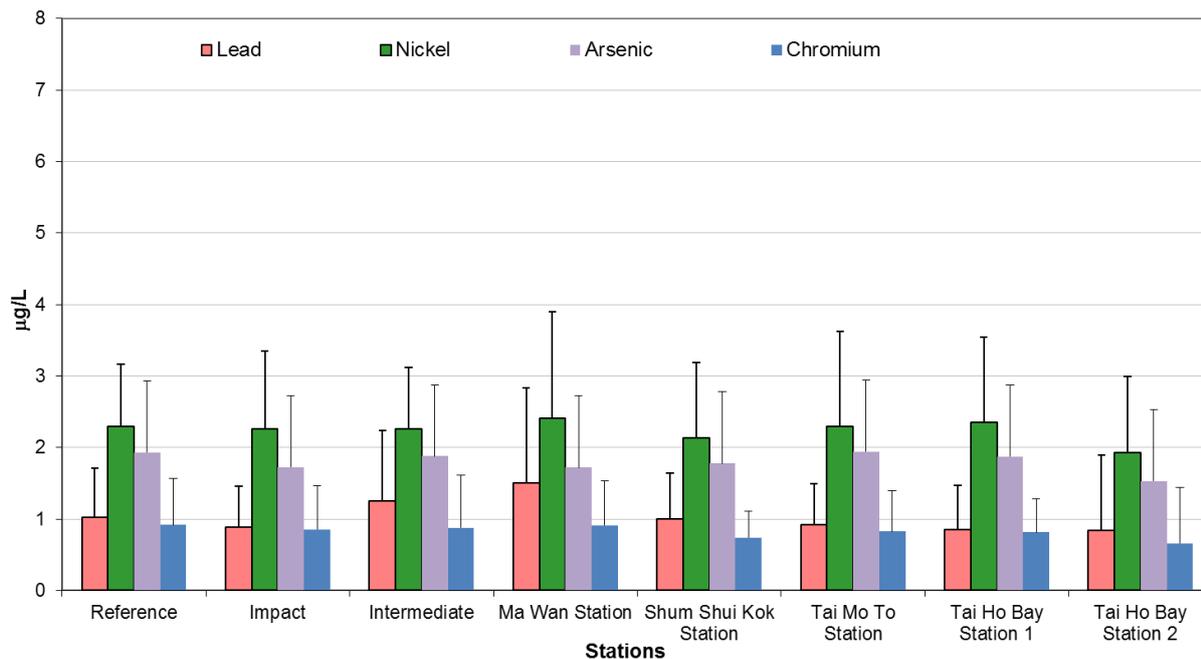


Figure 11: Monthly averaged concentration of Lead, Nickel, Arsenic and Chromium (mean + SD) in water samples collected from *Routine Water Quality Monitoring* for disposal operations at CMP 1 in October 2013.

Routine Water Quality Monitoring Results for Biochemical Oxygen Demand (BOD₅)
Monthly Average in October 2013

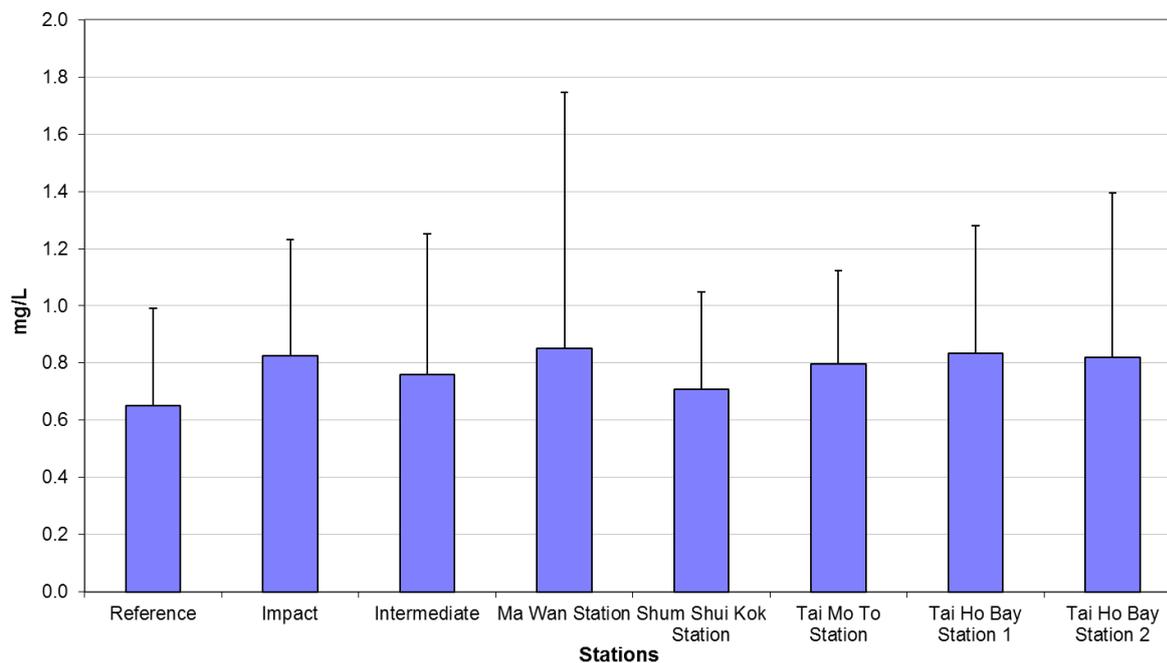


Figure 12: Monthly averaged level of Biochemical Oxygen Demand (BOD₅; mean + SD) in water samples collected from *Routine Water Quality Monitoring* for disposal operations at CMP 1 in October 2013.

Source: H:\Team\EM\GMS Projects\0175086 CEDD EM&A for South Brothers\02 Deliverable\07 CMP Monthly Report\16th (December 2013)

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Routine Water Quality Monitoring Results for Nutrients
Monthly Average in October 2013

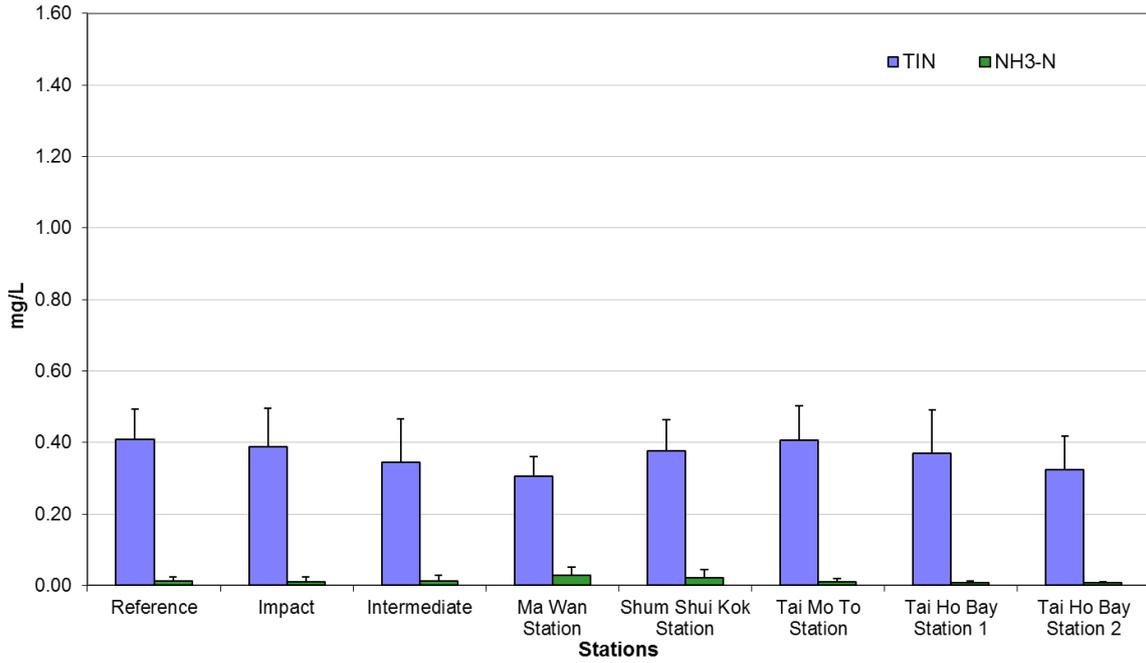


Figure 13: Monthly averaged concentration of Total Inorganic Nitrogen and NH₃-N (mean + SD) in water samples collected from Routine Water Quality Monitoring for disposal operations at CMP 1 in October 2013.

Routine Water Quality Monitoring for Suspended Solids
Monthly Average in October 2013

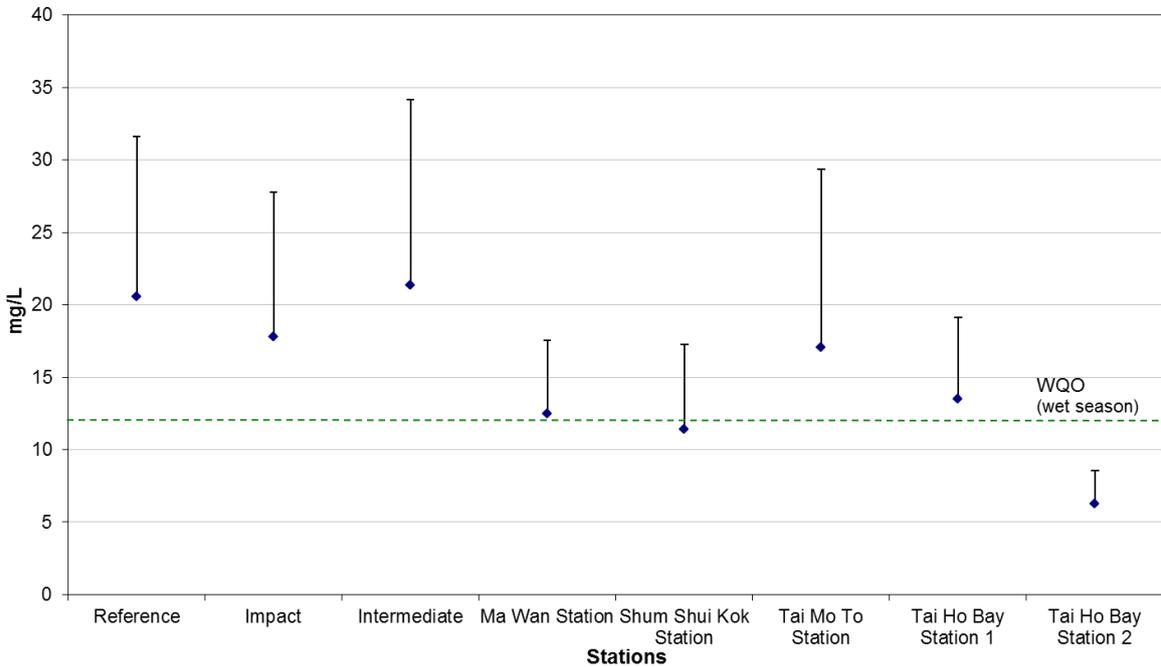


Figure 14: Monthly averaged concentration of Suspended Solids (mean + SD) in water samples collected from Routine Water Quality Monitoring for disposal operations at CMP 1 in October 2013.

Routine Water Quality Monitoring for CMP 1 - Monthly Average in November 2013

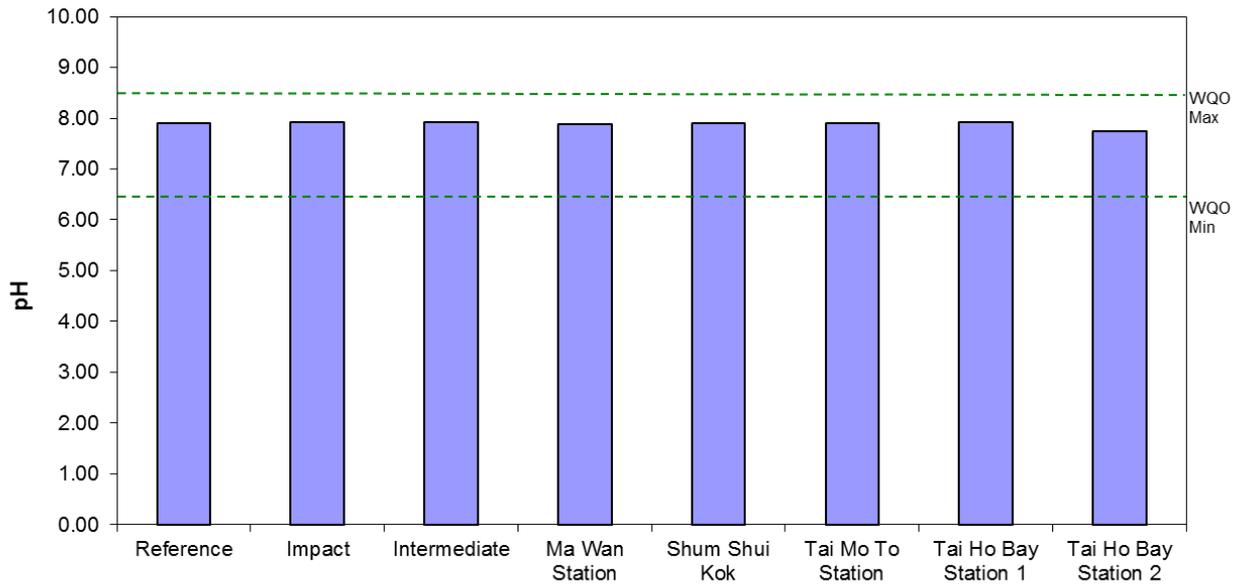


Figure 15: Monthly averaged level of pH (mean + SD) recorded during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in November 2013.

Routine Water Quality Monitoring for CMP 1 - Monthly Average in November 2013

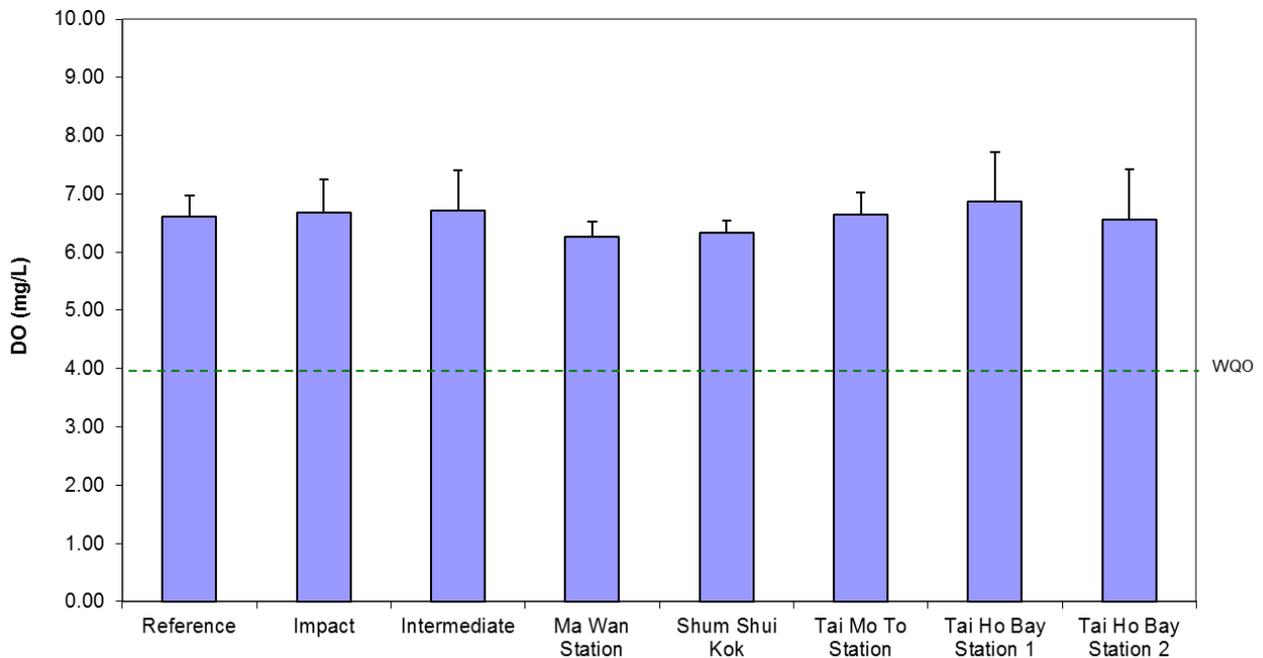


Figure 16: Monthly averaged concentration of Dissolved Oxygen (mg/L; mean + SD) recorded during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in November 2013.

Routine Water Quality Monitoring for CMP 1 - Monthly Average in November 2013

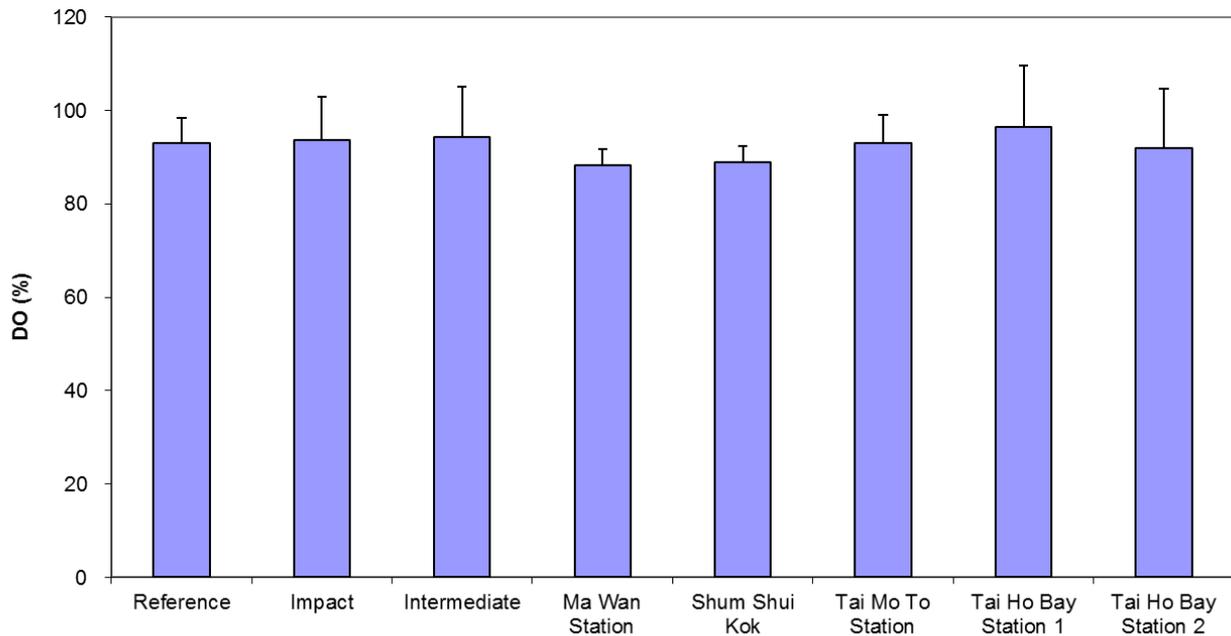


Figure 17: Monthly averaged level of Dissolved Oxygen (% saturation; mean + SD) recorded during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in November 2013.

Routine Water Quality Monitoring for CMP 1 - Monthly Average in November 2013

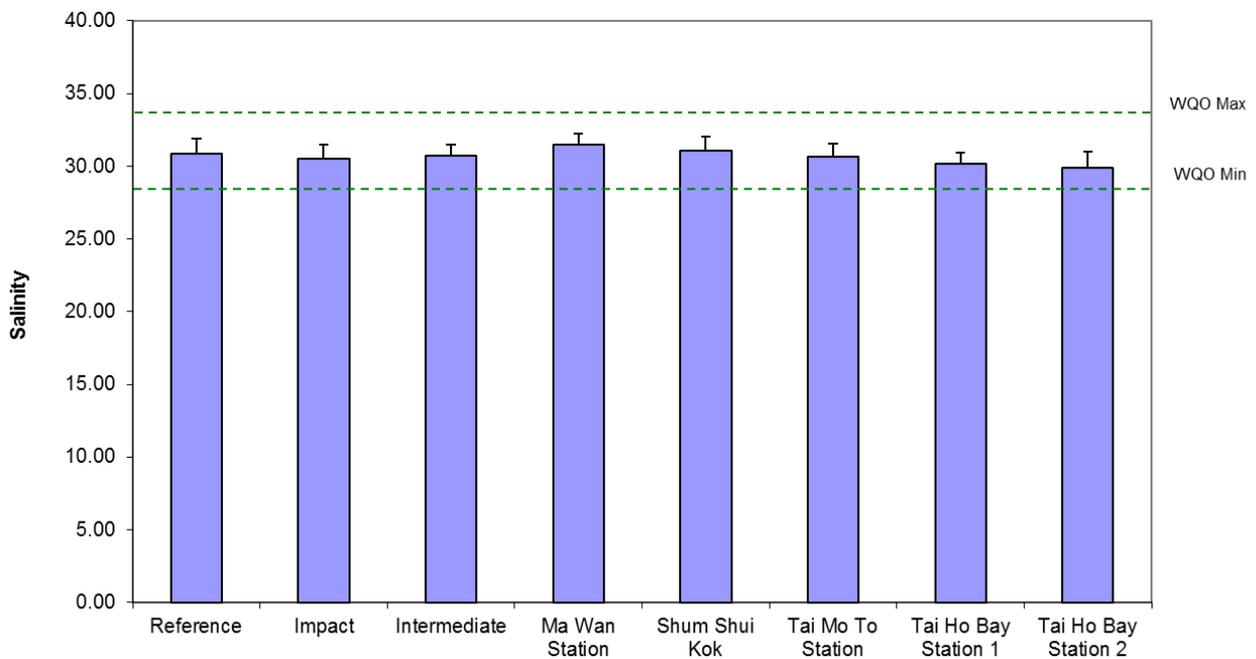


Figure 18: Monthly averaged level of Salinity (mean + SD) recorded during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in November 2013.

Routine Water Quality Monitoring for CMP 1 - Monthly Average in November 2013

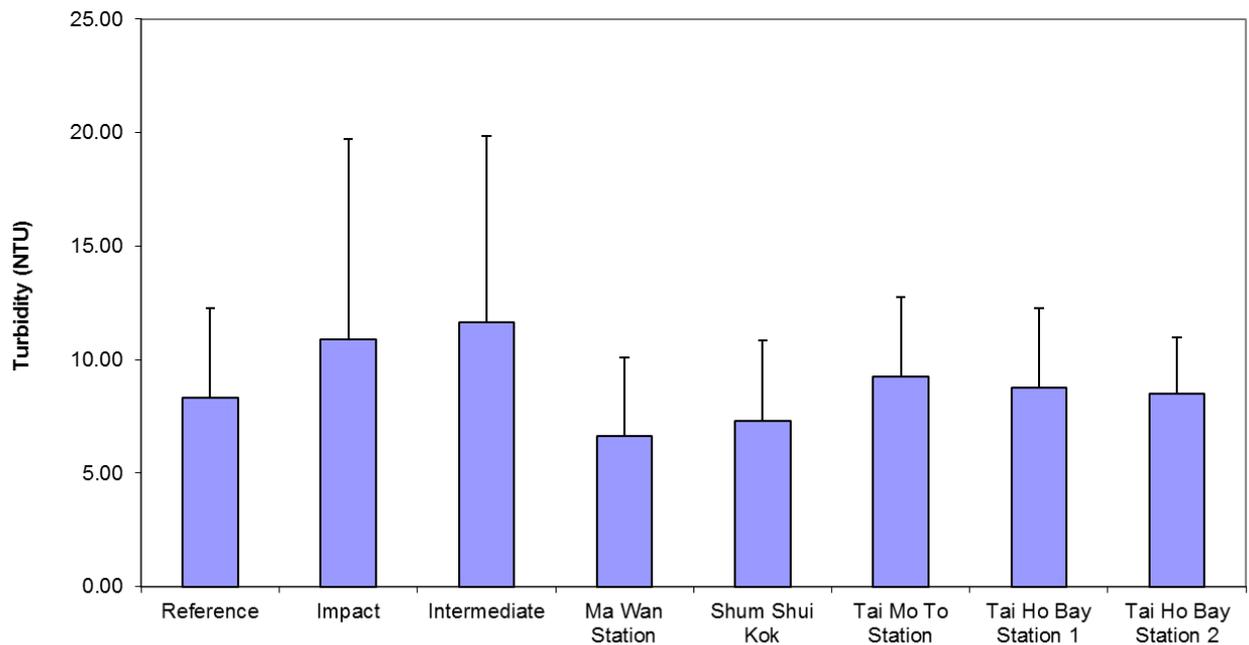


Figure 19: Monthly averaged level of Turbidity (NTU; mean + SD) recorded during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in November 2013.

**Routine Water Quality Monitoring Results for Metals
Monthly Average in November 2013**

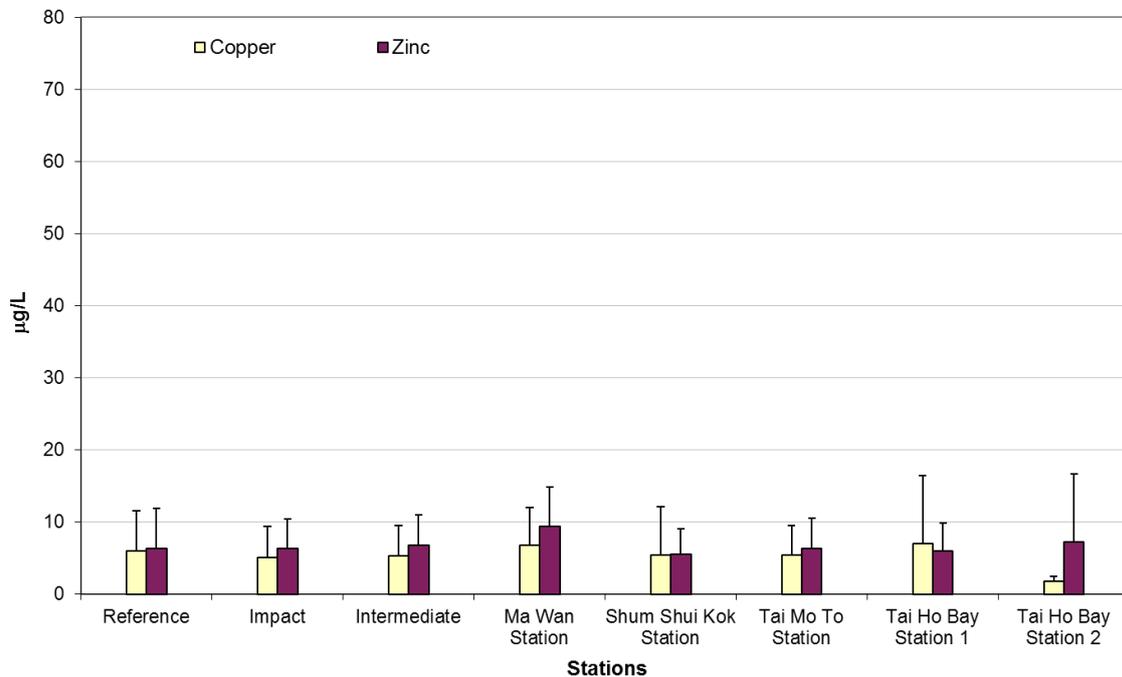


Figure 20: Monthly averaged concentration of Copper and Zinc (mean + SD) in water samples collected from *Routine Water Quality Monitoring* for disposal operations at CMP 1 in November 2013.

**Routine Water Quality Monitoring Results for Metals
Monthly Average in November 2013**

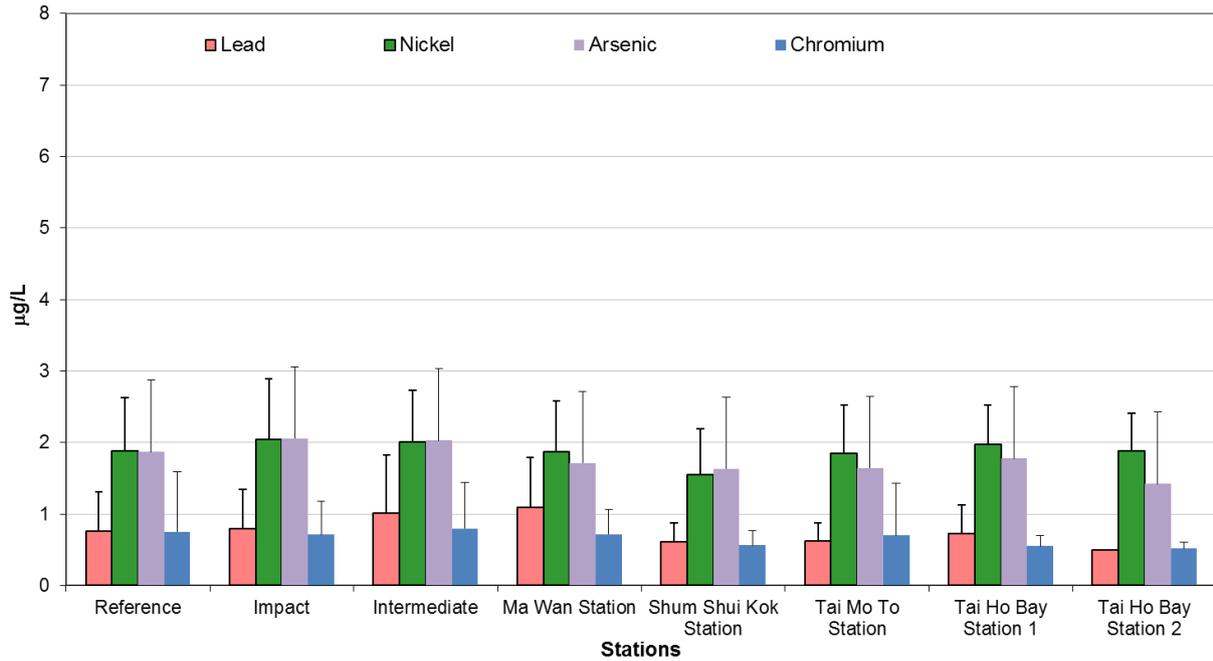


Figure 21: Monthly averaged concentration of Lead, Nickel, Arsenic and Chromium (mean + SD) in water samples collected from *Routine Water Quality Monitoring* for disposal operations at CMP 1 in November 2013.

**Routine Water Quality Monitoring Results for Biochemical Oxygen Demand (BOD₅)
Monthly Average in November 2013**

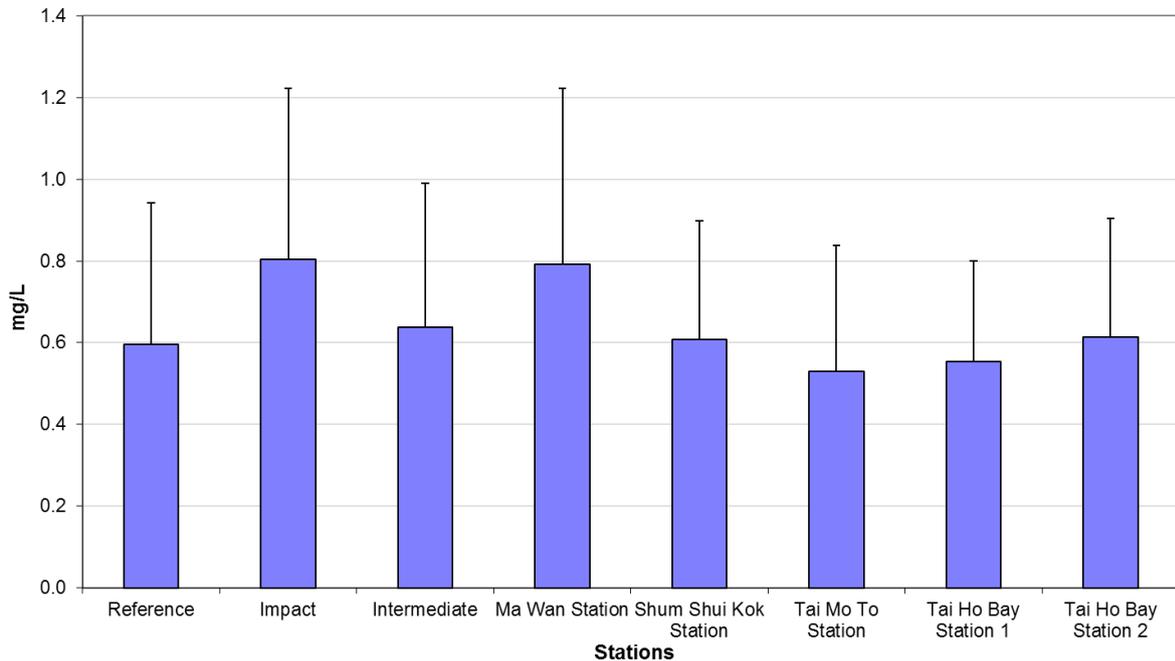


Figure 22: Monthly averaged level of Biochemical Oxygen Demand (BOD₅; mean + SD) in water samples collected from *Routine Water Quality Monitoring* for disposal operations at CMP 1 in November 2013.

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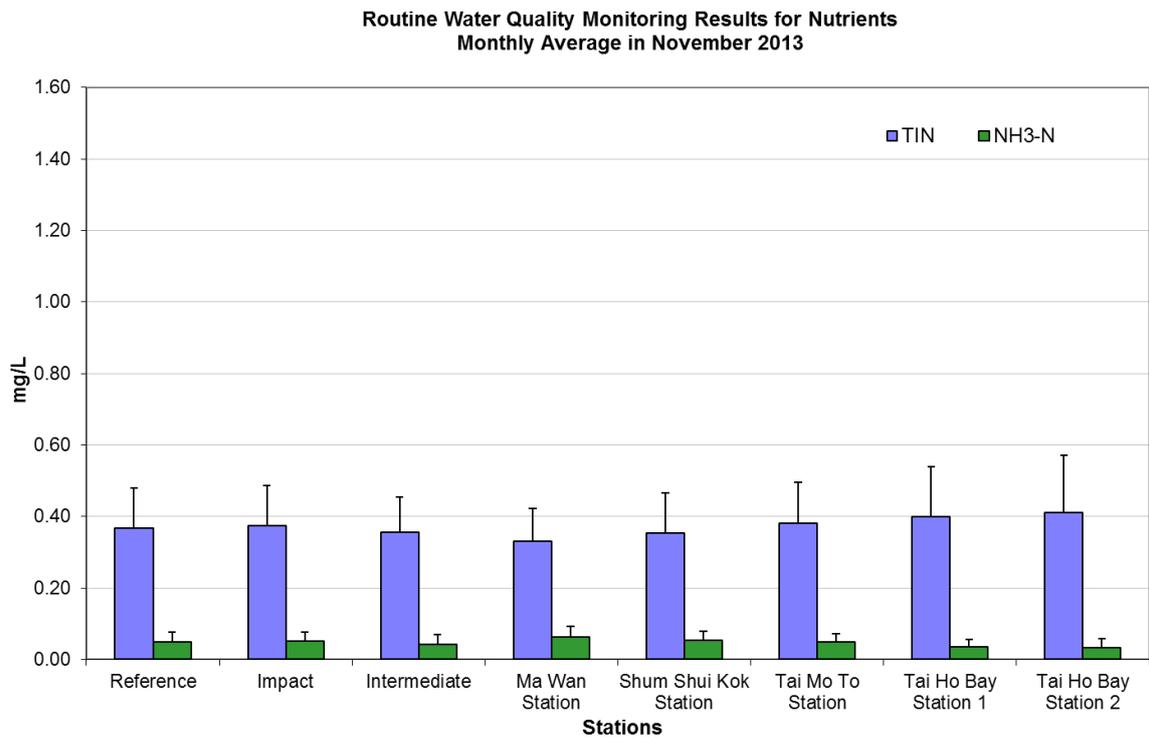


Figure 23: Monthly averaged concentration of Total Inorganic Nitrogen and NH₃-N (mean + SD) in water samples collected from *Routine Water Quality Monitoring* for disposal operations at CMP 1 in November 2013.

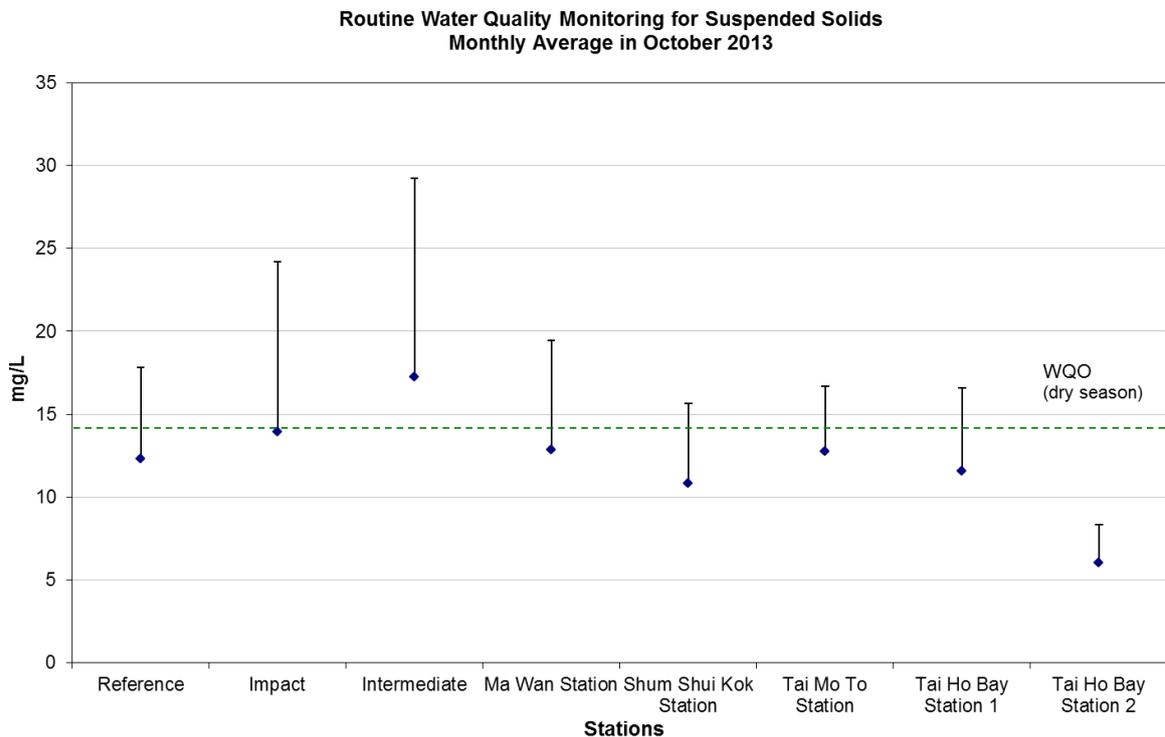


Figure 24: Monthly averaged concentration of Suspended Solids (mean + SD) in water samples collected from *Routine Water Quality Monitoring* for disposal operations at CMP 1 in November 2013.

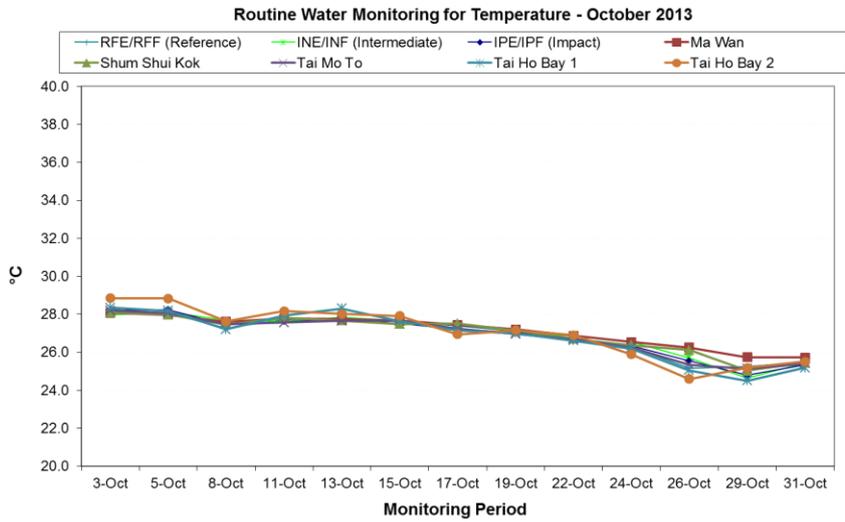


Figure 25: Daily levels of Temperature during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in October 2013.

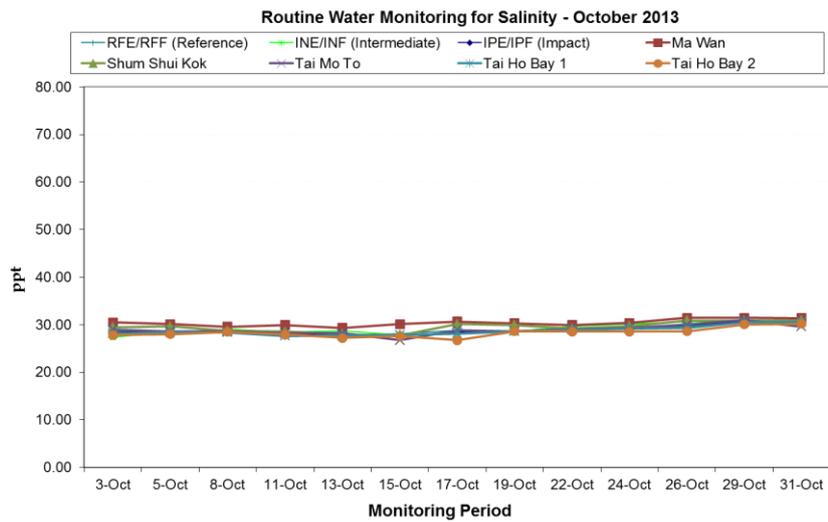


Figure 26: Daily levels of Salinity during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in October 2013.

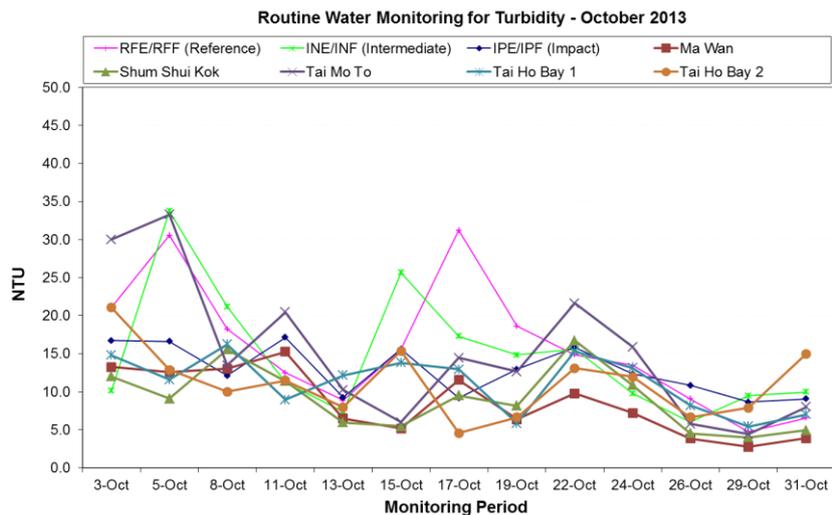


Figure 27: Daily levels of Turbidity during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in October 2013.

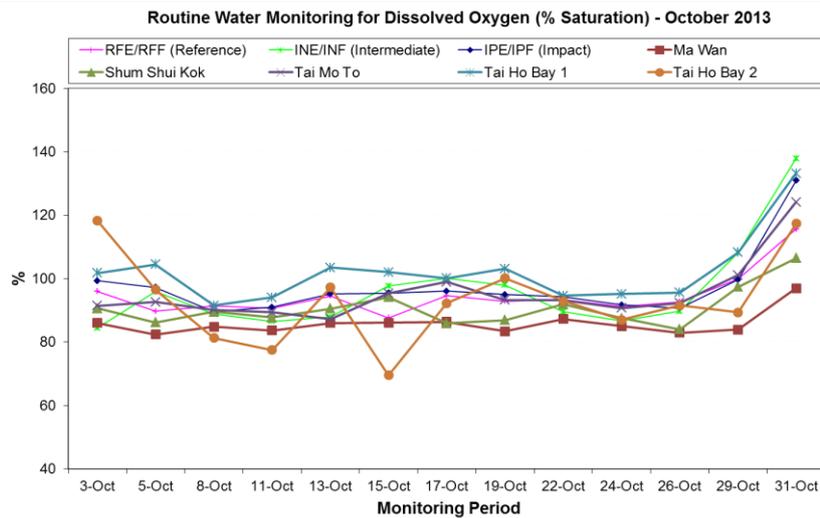


Figure 28: Daily levels of Dissolved Oxygen (%) during Routine Water Quality Monitoring for disposal operations at CMP 1 in October 2013.

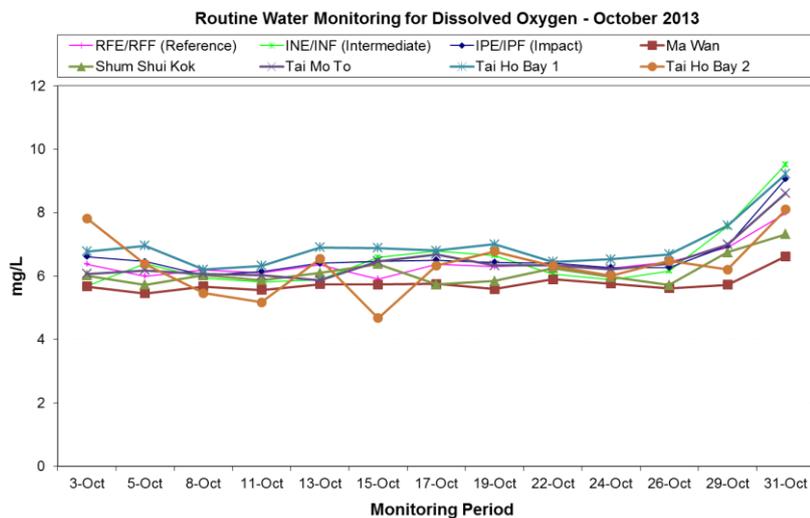


Figure 29: Daily levels of Dissolved Oxygen (mg/L) during Routine Water Quality Monitoring for disposal operations at CMP 1 in October 2013.

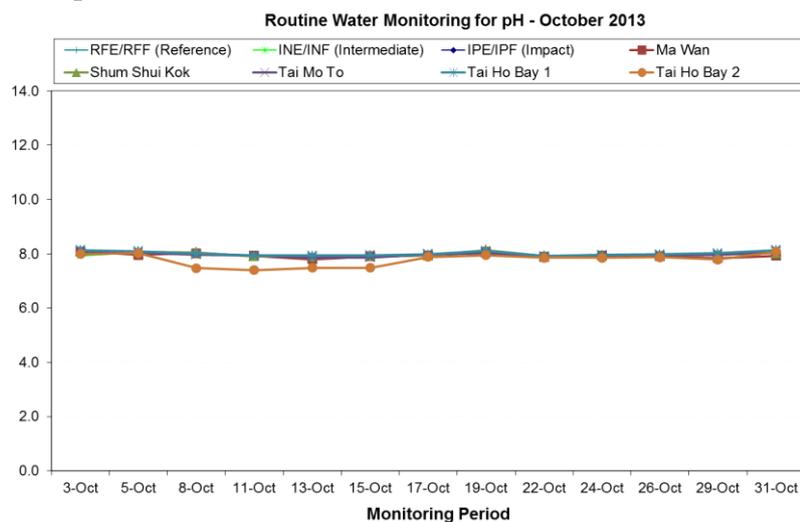


Figure 30: Daily levels of pH during Routine Water Quality Monitoring for disposal operations at CMP 1 in October 2013.

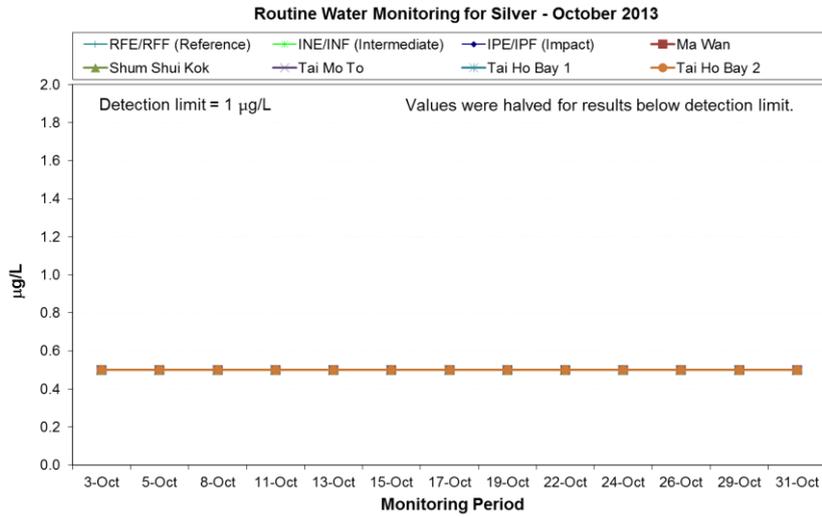


Figure 31: Daily levels of Silver during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in October 2013.

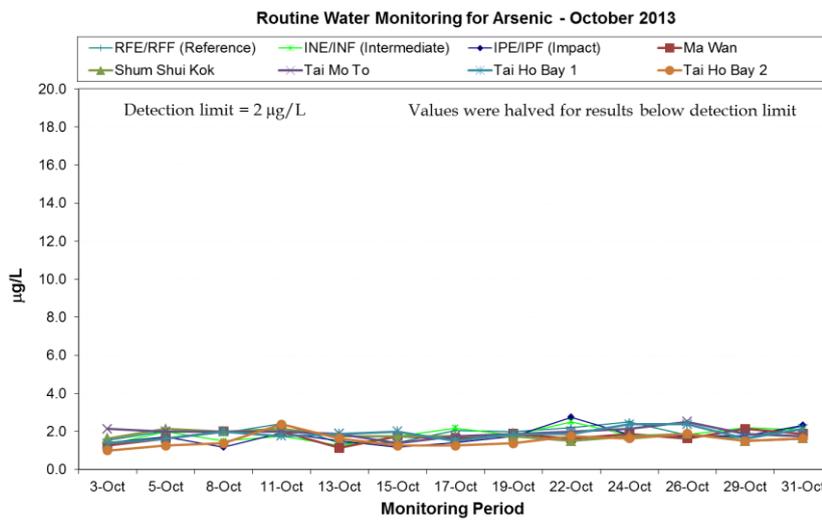


Figure 32: Daily levels of Arsenic during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in October 2013.

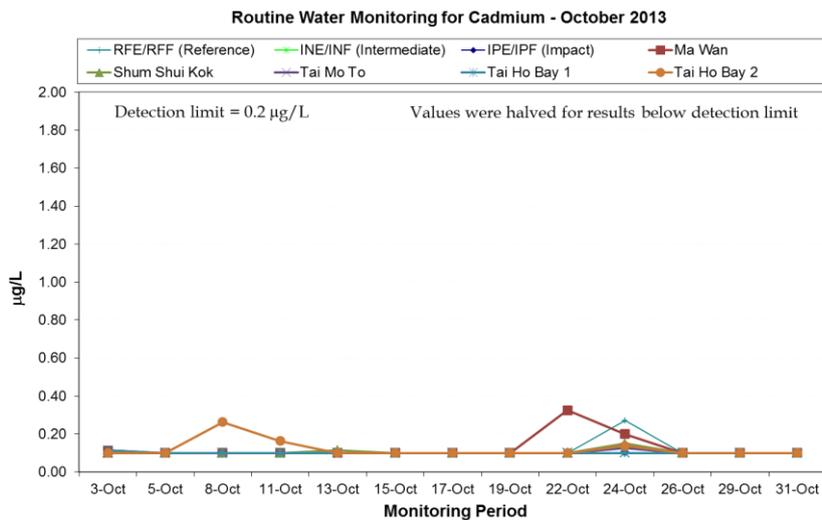


Figure 33: Daily levels of Cadmium during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in October 2013.

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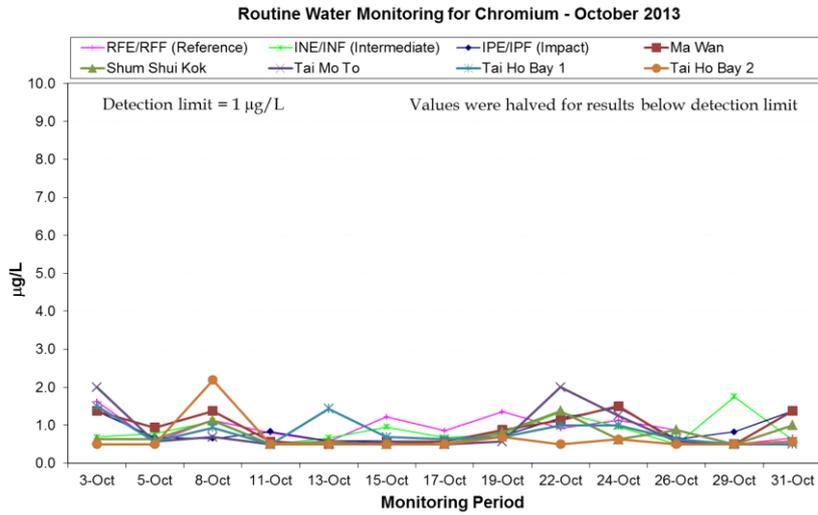


Figure 34: Daily levels of Chromium during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in October

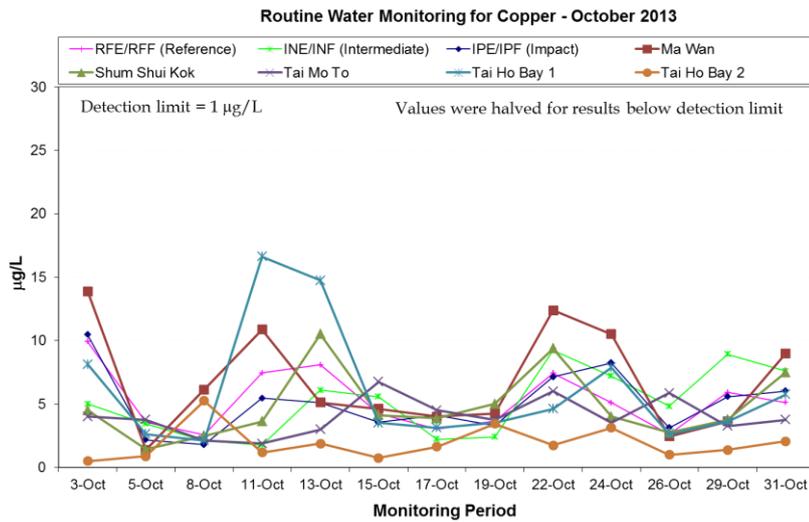


Figure 35: Daily levels of Copper during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in October 2013.

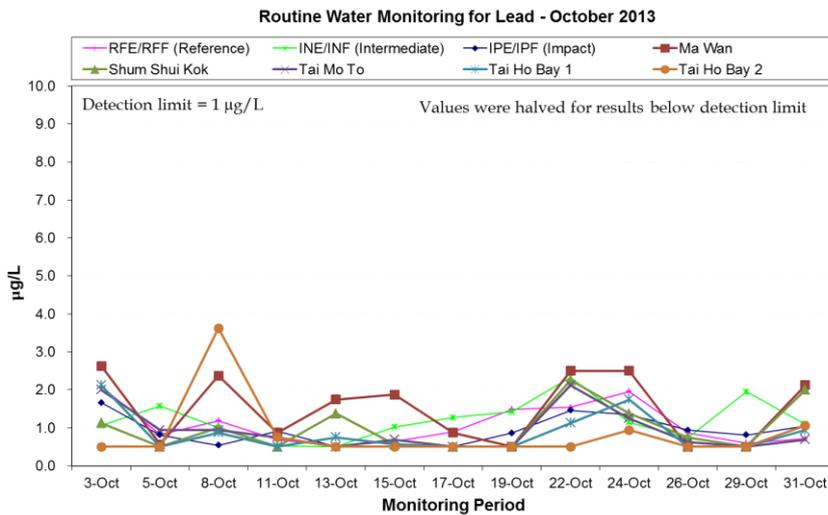


Figure 36: Daily levels of Lead during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in October 2013.

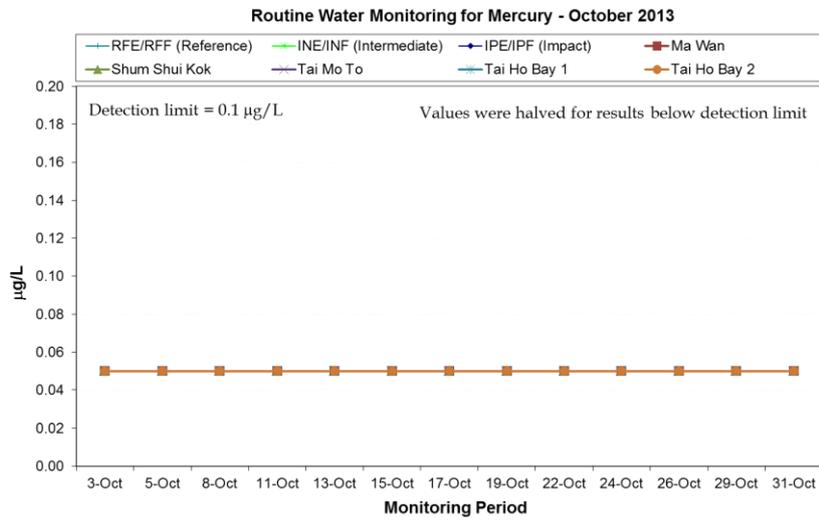


Figure 37: Daily levels of Mercury during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in October 2013.

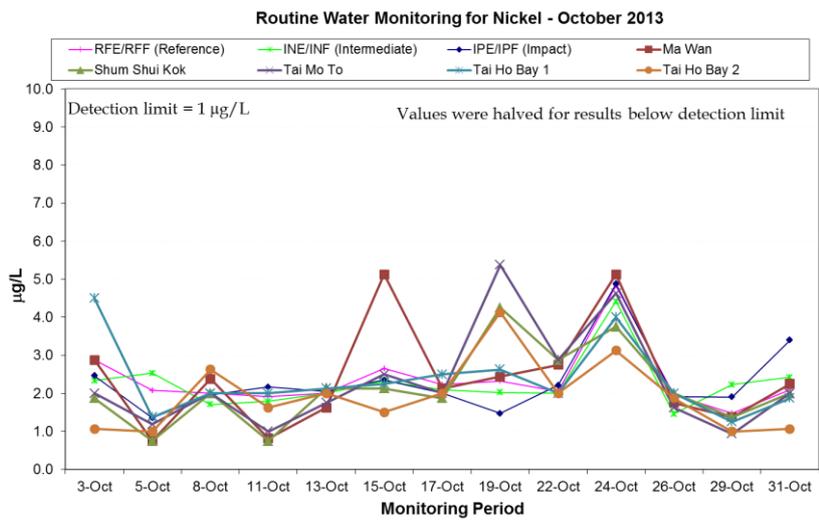


Figure 38: Daily levels of Nickel during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in October 2013.

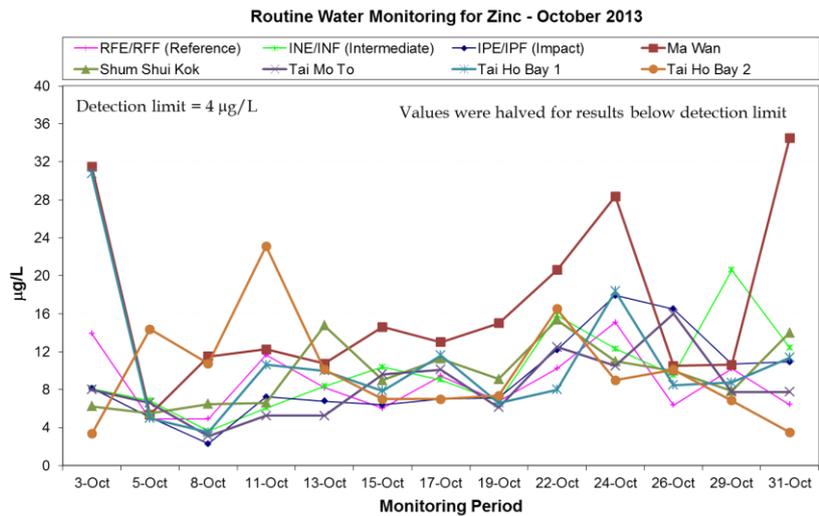


Figure 39: Daily levels of Zinc during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in October 2013.

Source: H:\Team\EM\GMS Projects\0175086 CEDD EM&A for South Brothers\02 Deliverable\07 CMP Monthly Report\16th (December 2013)

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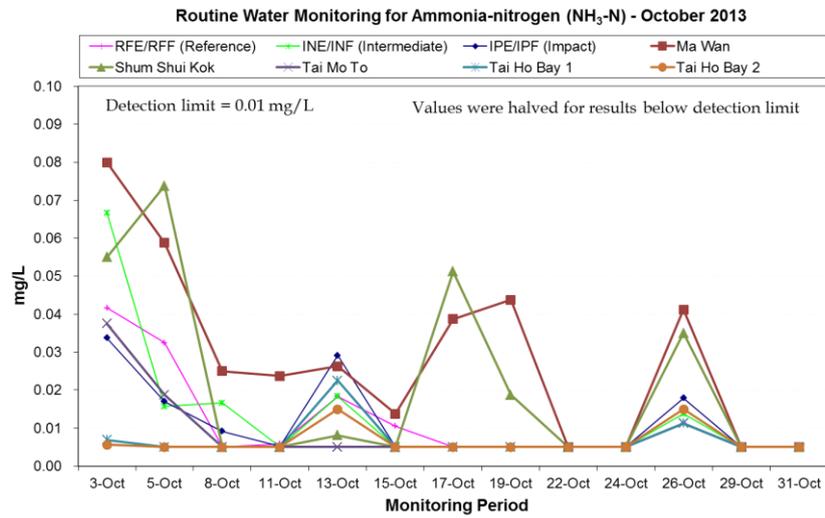


Figure 40: Daily levels of Ammonia-Nitrogen during *Routine Water Quality Monitoring* for for disposal operations at CMP 1 in October 2013.

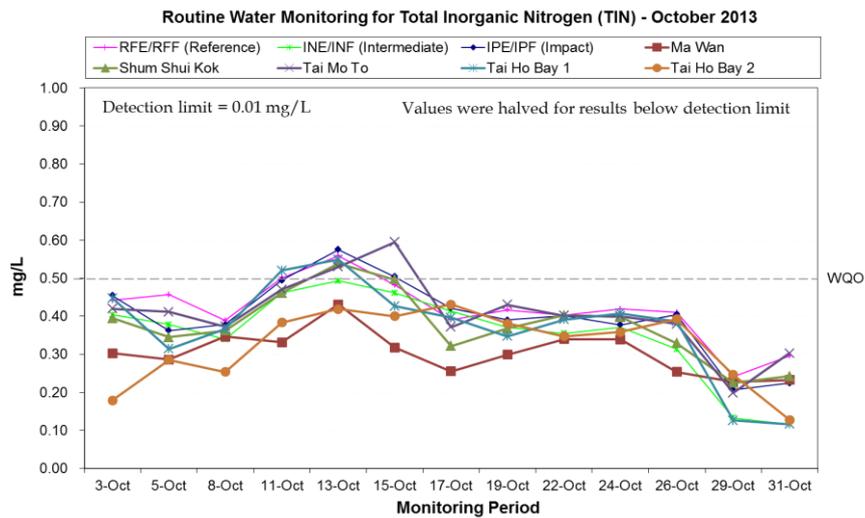


Figure 41: Daily levels of Total Inorganic Nitrogen during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in October 2013.

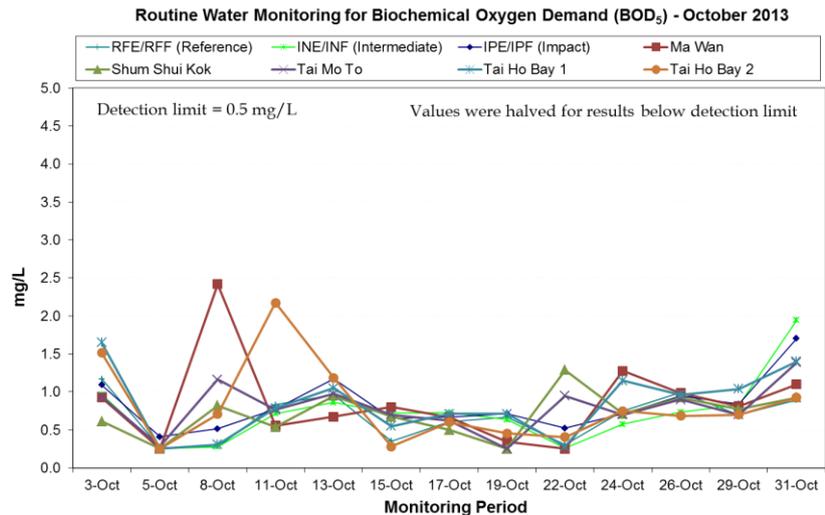


Figure 42: Daily levels of Biochemical Oxygen Demand during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in October 2013.

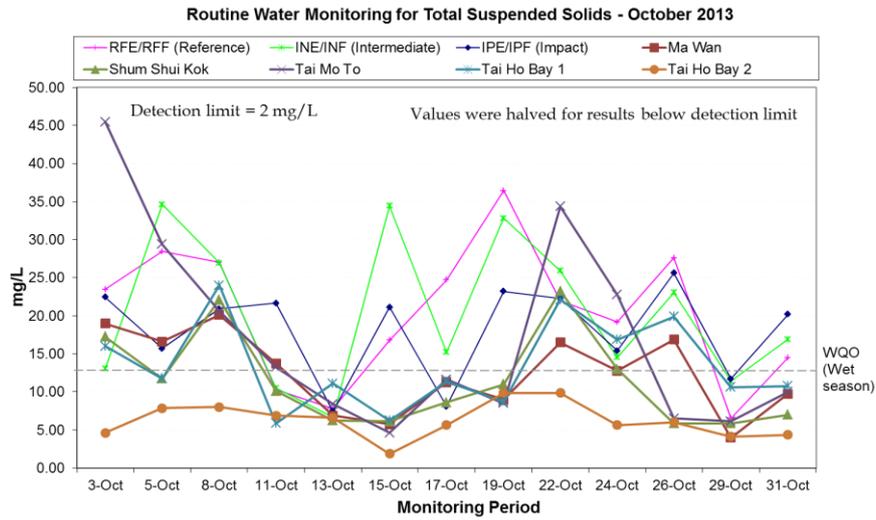


Figure 43: Daily levels of Total Suspended Solids during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in October 2013.

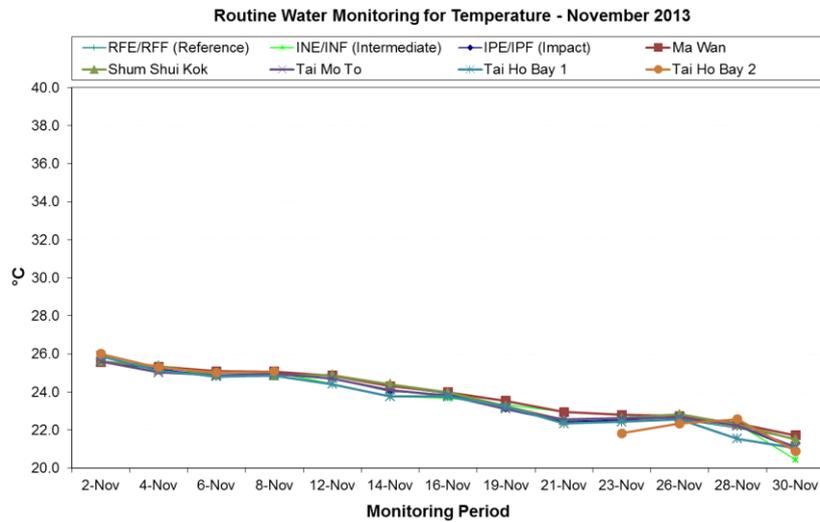


Figure 44: Daily levels of Temperature during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in November 2013.

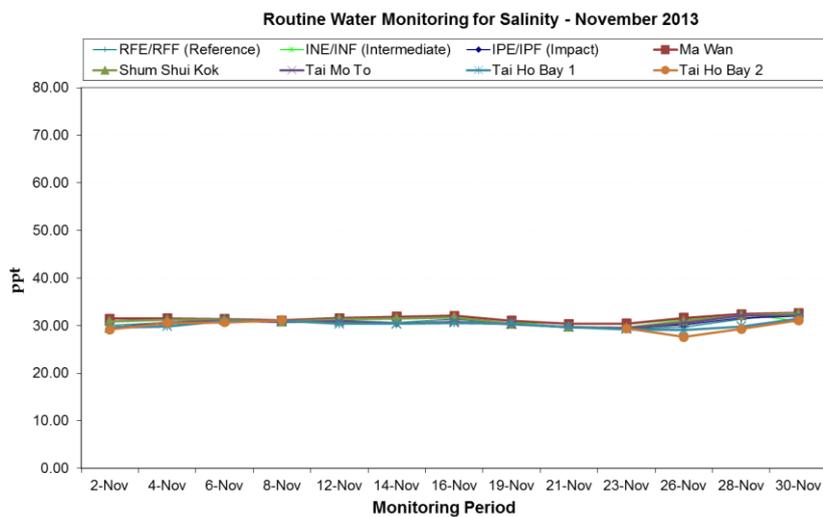


Figure 45: Daily levels of Salinity during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in November 2013.

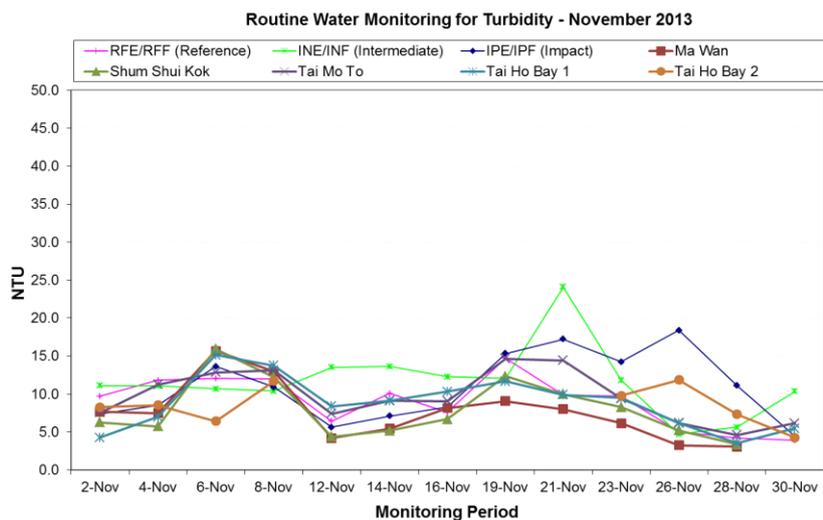


Figure 46: Daily levels of Turbidity during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in November 2013.

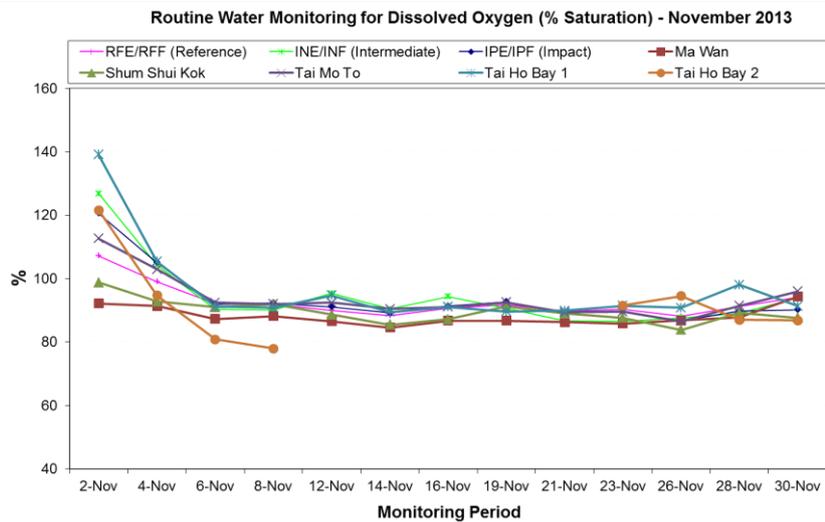


Figure 47: Daily levels of Dissolved Oxygen (%) during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in November 2013.

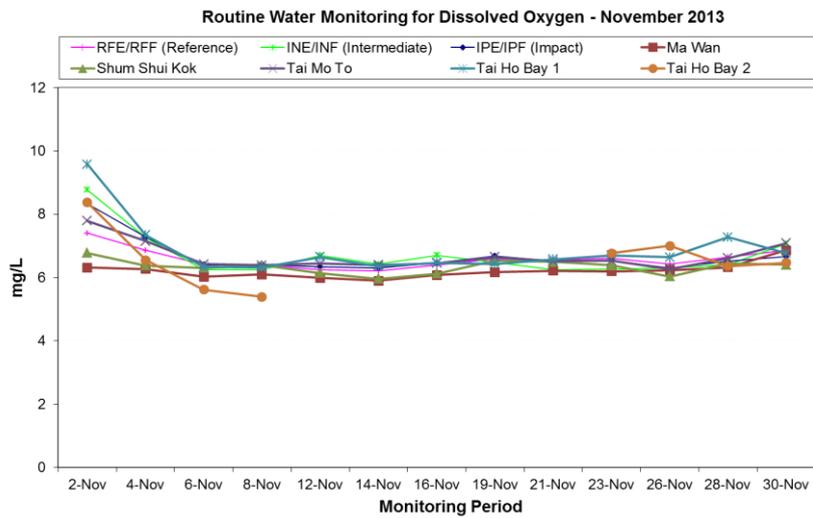


Figure 48: Daily levels of Dissolved Oxygen (mg/L) during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in November 2013.

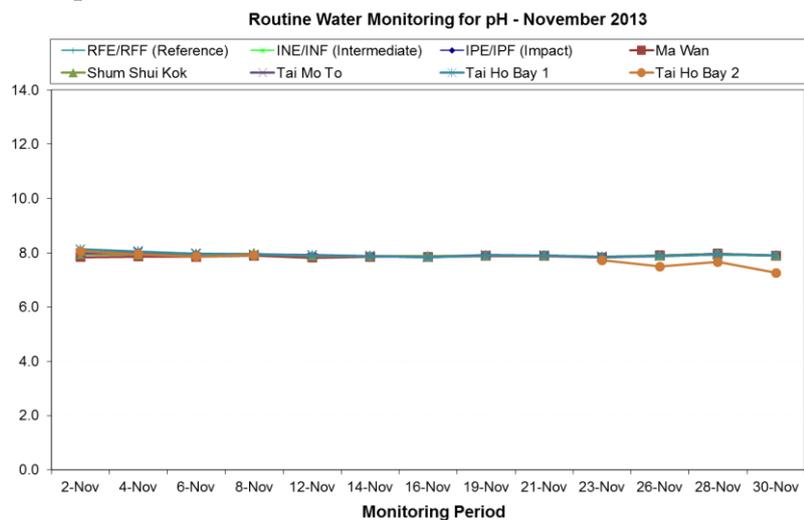


Figure 49: Daily levels of pH during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in November 2013.

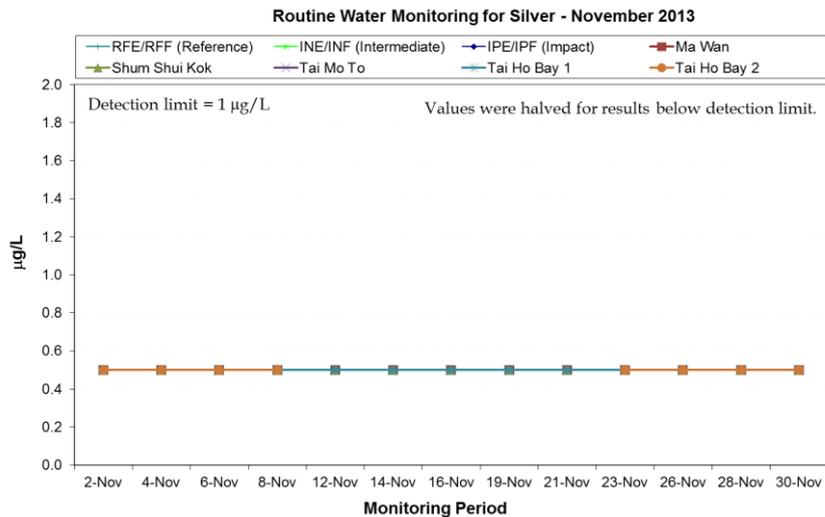


Figure 50: Daily levels of Silver during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in November 2013.

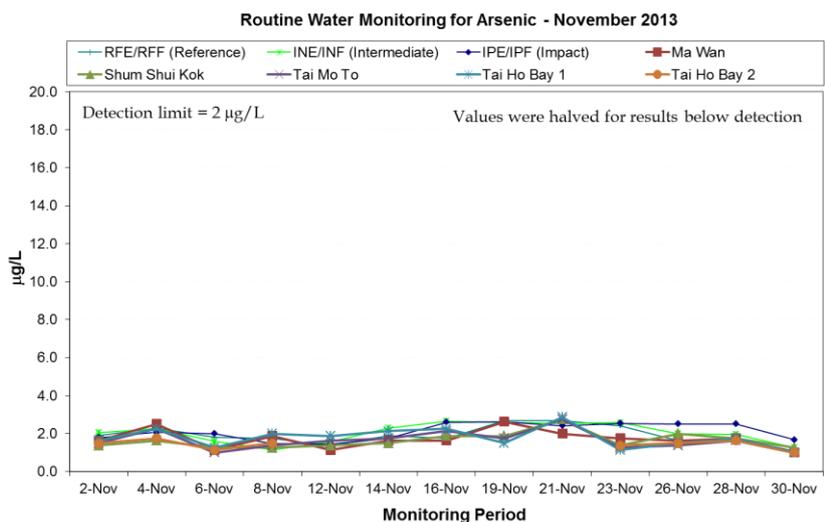


Figure 51: Daily levels of Arsenic during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in November 2013.

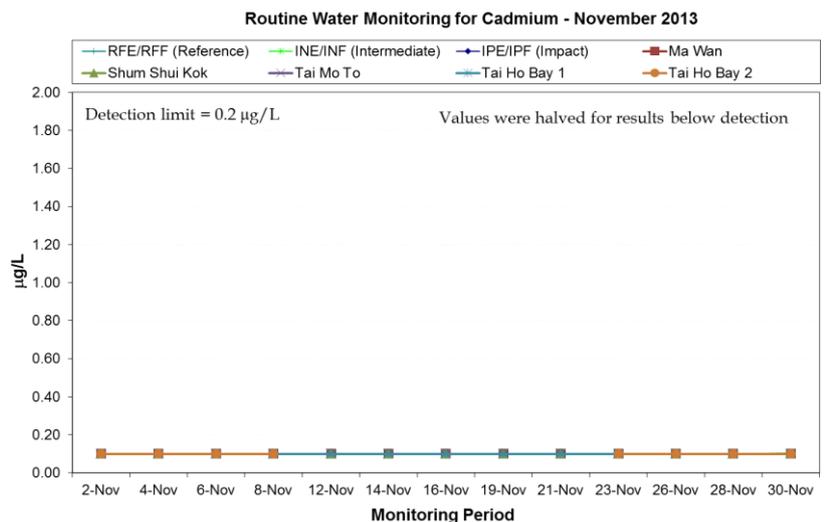


Figure 52: Daily levels of Cadmium during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in November 2013.

Source: H:\Team\EM\GMS Projects\0175086 CEDD EM&A for South Brothers\02 Deliverable\07 CMP Monthly Report\16th (December 2013)

Date: 6/1/14

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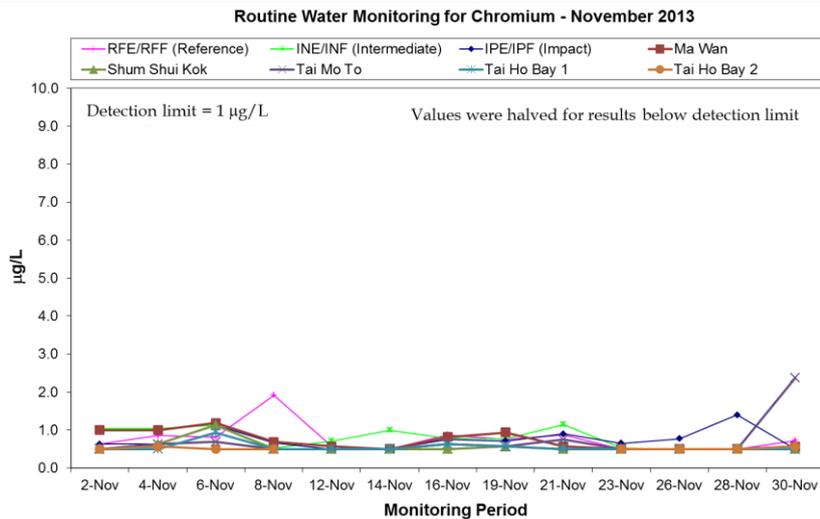


Figure 53: Daily levels of Chromium during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in November 2013.

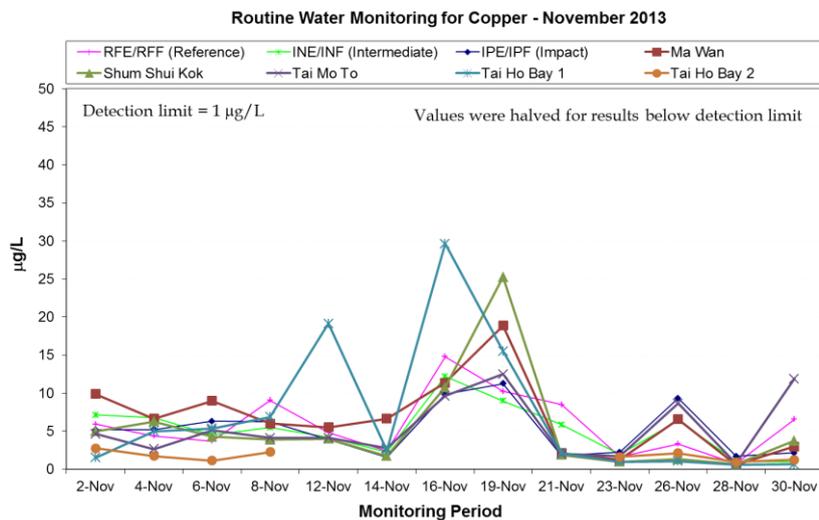


Figure 54: Daily levels of Copper during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in November 2013.

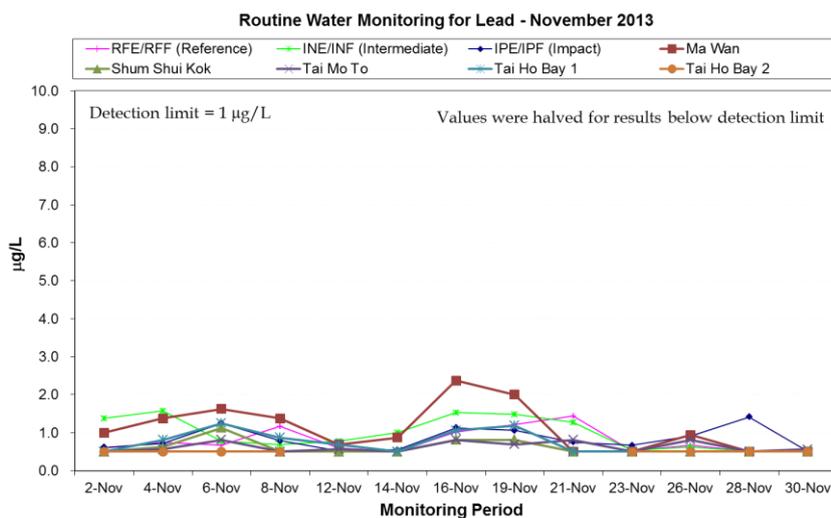


Figure 55: Daily levels of Lead during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in November 2013.

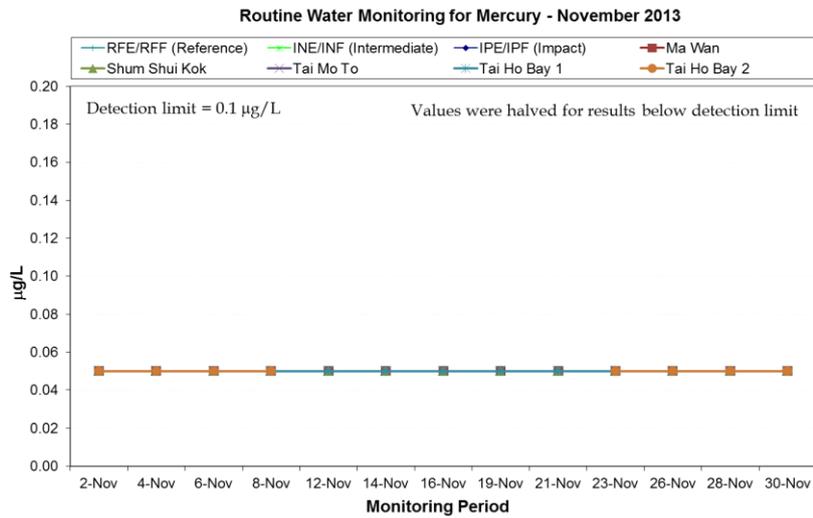


Figure 56: Daily levels of Mercury during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in November 2013.

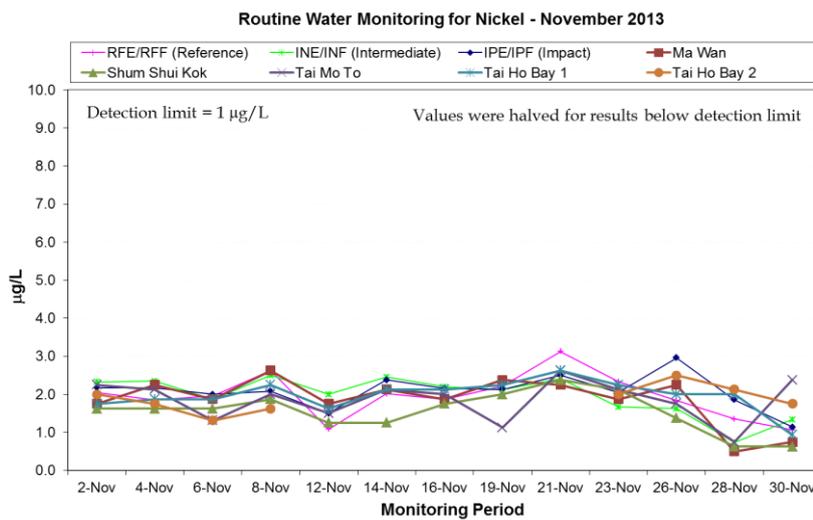


Figure 57: Daily levels of Nickel during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in November 2013.

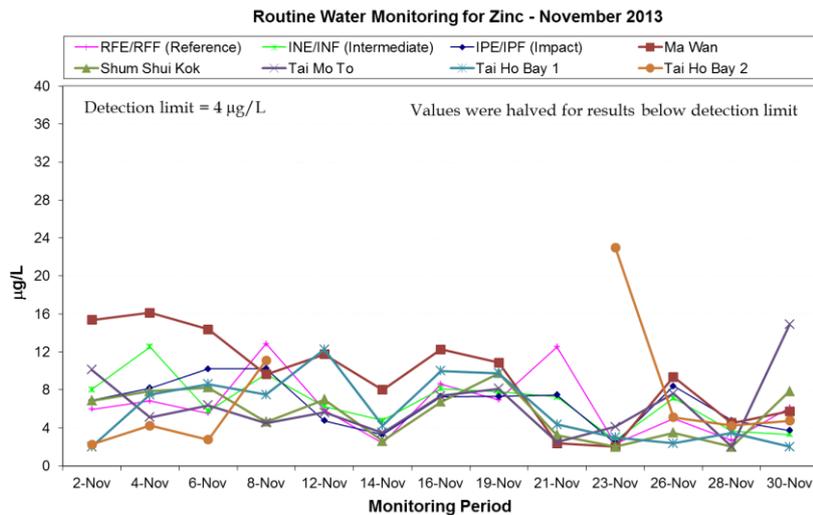


Figure 58: Daily levels of Zinc during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in November 2013.

Source: H:\Team\EM\GMS Projects\0175086 CEDD EM&A for South Brothers\02 Deliverable\07 CMP Monthly Report\16th (December 2013)

Date: 6/1/14

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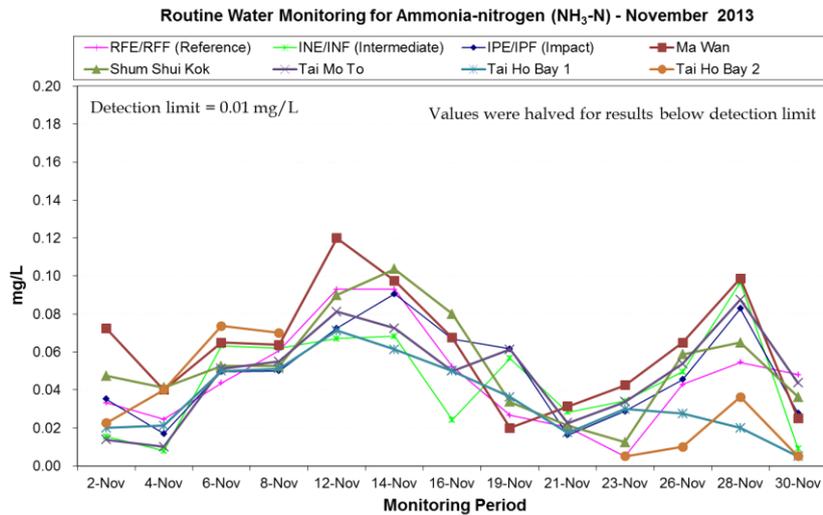


Figure 59: Daily levels of Ammonia-Nitrogen during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in November 2013.

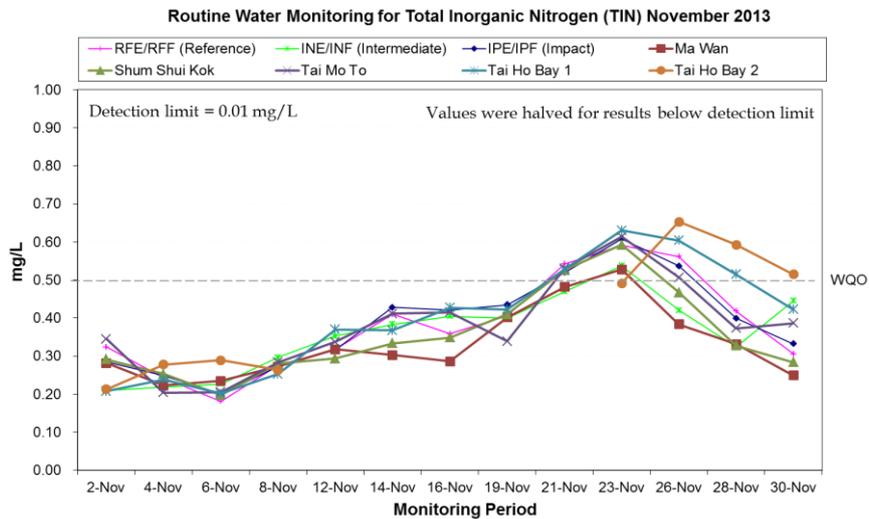


Figure 60: Daily levels of Total Inorganic Nitrogen during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in November 2013.

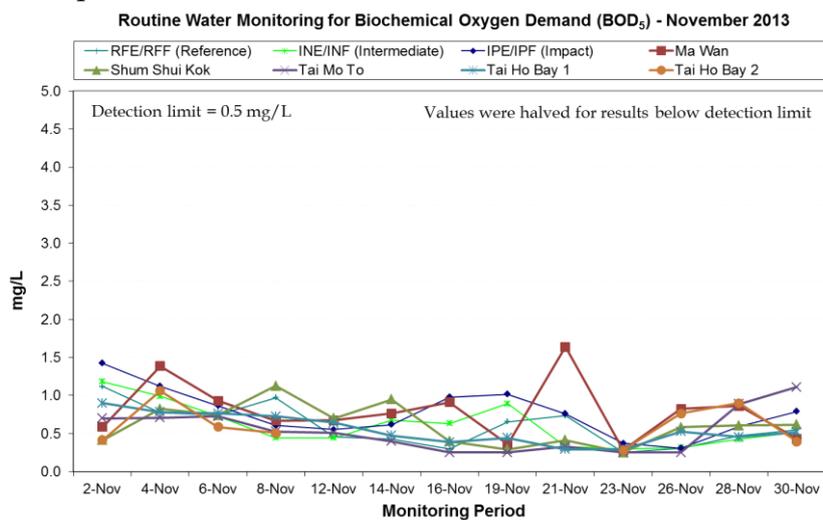


Figure 61: Daily levels of Biochemical Oxygen Demand during *Routine Water Quality Monitoring* for disposal operations at CMP 1 in November 2013.

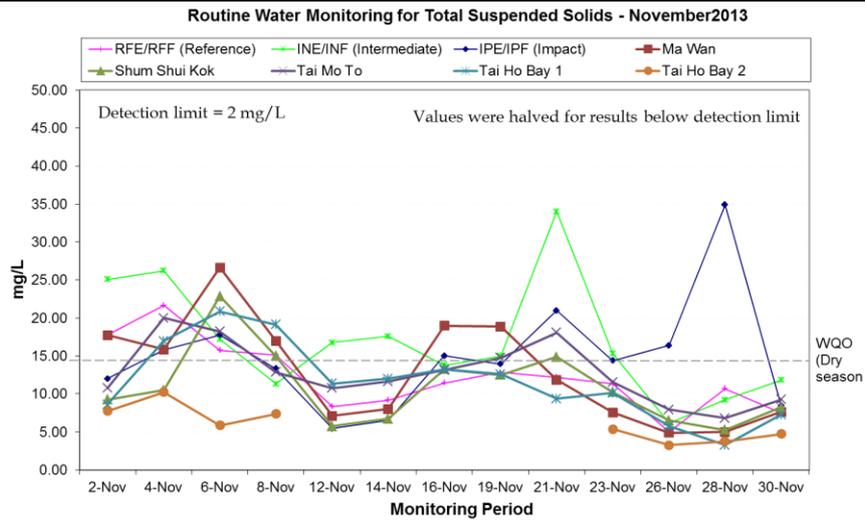


Figure 62: Daily levels of Total Suspended Solids during Routine Water Quality Monitoring for disposal operations at CMP 1 in November 2013.

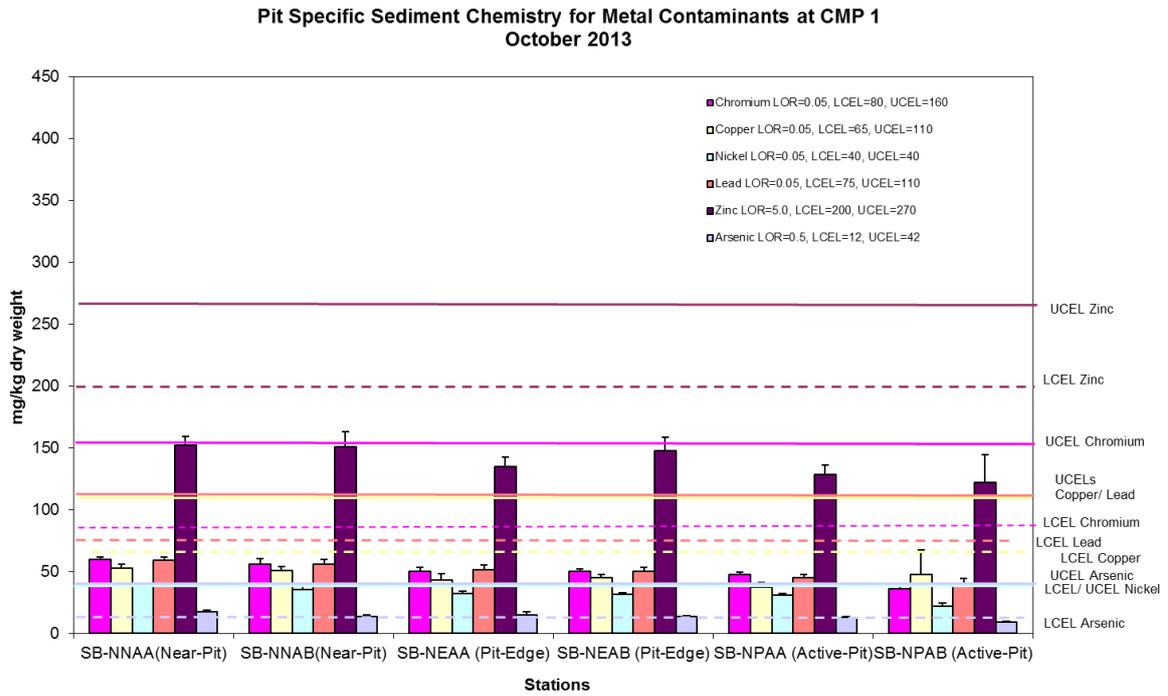


Figure 63: Concentration of Metals (Cr, Cu, Ni, Pb, Zn, As; mean +SD) in sediment samples collected from *Pit Specific Sediment Chemistry Monitoring* for CMP 1 in October 2013.

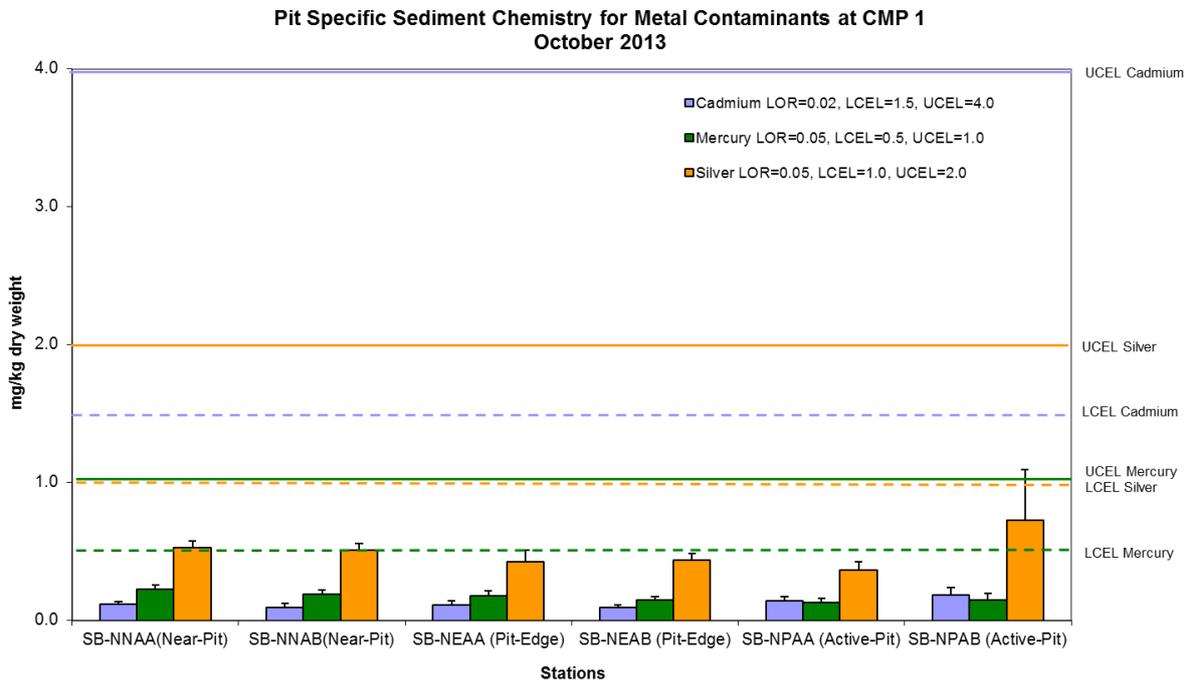


Figure 64: Concentration of Metals (Cd, Hg, Ag; mean +SD) in sediment samples collected from *Pit Specific Sediment Chemistry Monitoring* for CMP 1 in October 2013.

**Pit Specific Sediment Chemistry for Total Organic Carbon (TOC) at CMP 1
October 2013**

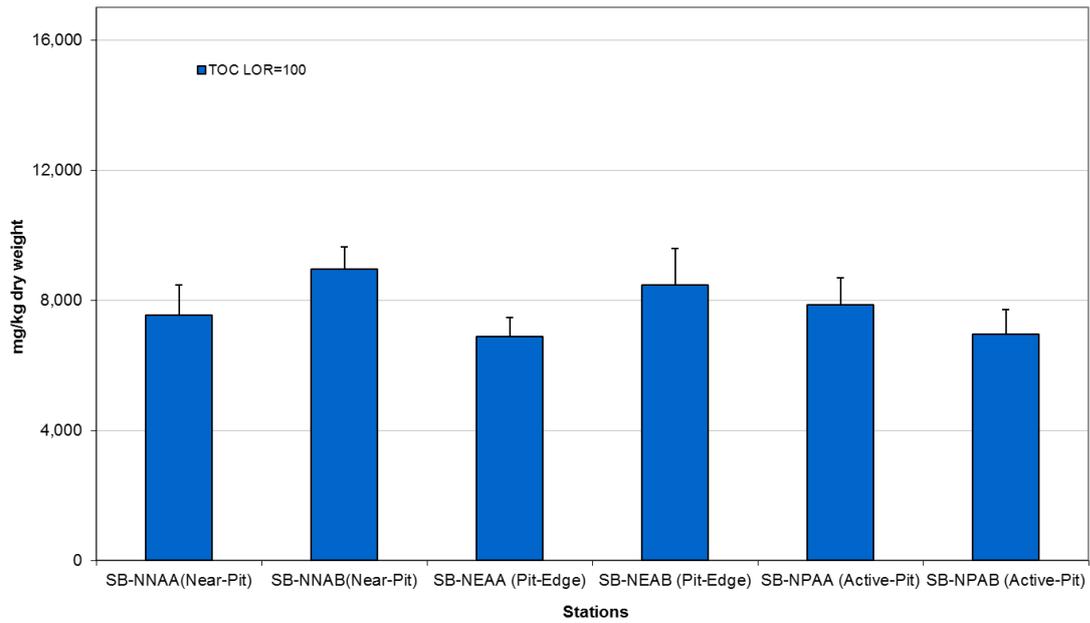


Figure 65: Concentration of Total Organic Carbon (mg/kg dry weight; mean +SD) in sediment samples collected from *Pit Specific Sediment Chemistry Monitoring* for CMP 1 in October 2013.

Pit Specific Sediment Chemistry for Tributyltin (TBT) at CMP 1 in October 2013

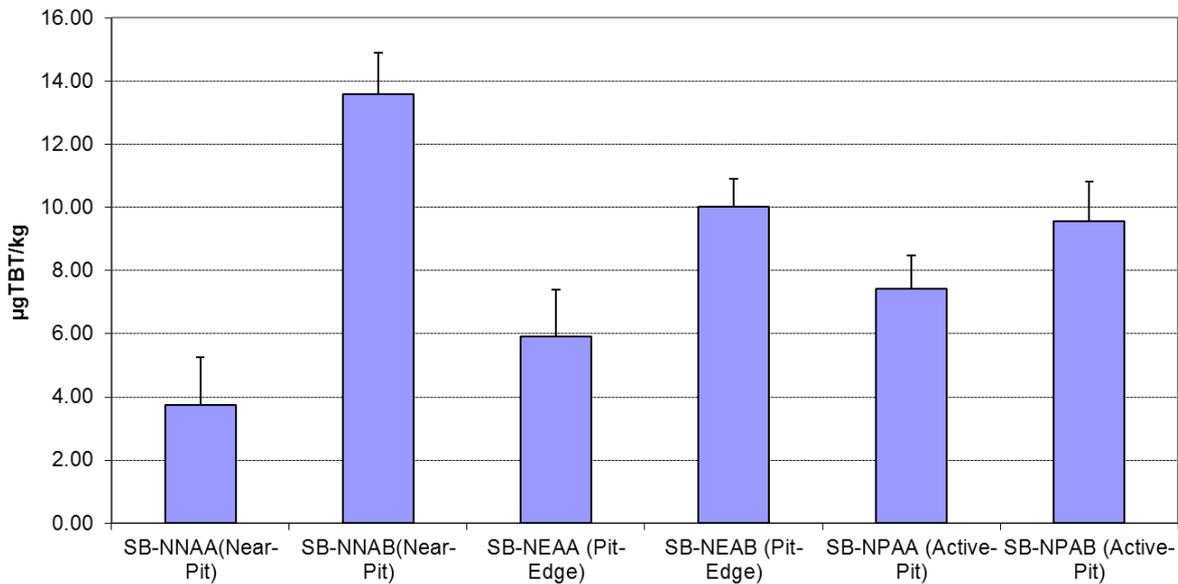


Figure 66: Concentration of Tributyltin (µg TBT/kg; mean +SD) in sediment samples collected from *Pit Specific Sediment Chemistry Monitoring* of CMP 1 in October 2013.

Annex C

Results of Impact
Monitoring during
Dredging Operations of
CMP 2 in November/
December 2013 and Routine
Water Quality Monitoring
for CMP 1 in October/
November 2013

Table C1 *Summary Table of DO, Turbidity and SS Levels Recorded in November/ December 2013*

Sampling Date	Tidal Period	Station	Average DO Levels (mg/L)		Average Turbidity Level (NTU)	Average SS Level (mg/L)
			Bottom	Surface and Mid Depth		
2013/11/18	Mid-Ebb	DS1	6.41	6.54	22.19	33.11
		DS2	6.32	6.59	15.49	28.44
		DS3	6.16	6.51	12.55	16.89
		DS4	6.16	6.43	8.58	12.56
		DS5	6.14	6.43	9.10	12.78
		US1	6.95	6.99	10.50	12.83
		US2	6.70	6.70	23.27	29.56
		MW1	6.15	6.23	6.53	10.33
		THB1	6.80	6.87	7.50	8.67
		THB2	-	6.73	7.65	9.33
		WSR45C	6.16	6.34	7.50	9.56
		WSR46	6.47	6.54	14.85	22.22
	Mid-Flood	DS1	6.38	6.37	8.26	10.67
		DS2	6.52	6.52	7.63	10.17
		DS3	6.55	6.54	9.51	14.33
		DS4	6.50	6.50	9.88	15.22
		DS5	6.49	6.48	11.16	15.33
		US1	6.45	6.43	13.60	19.83
		US2	6.35	6.33	14.63	19.56
		MW1	6.08	6.12	8.96	11.67
		THB1	6.36	6.35	14.20	19.67
		THB2	-	6.08	6.95	6.33
		WSR45C	6.30	6.33	15.66	21.33
		WSR46	6.46	6.45	19.06	22.67
2013/11/20	Mid-Ebb	DS1	6.36	6.49	13.72	21.50
		DS2	6.33	6.54	8.60	9.78
		DS3	6.10	6.38	7.83	10.22
		DS4	6.15	6.37	7.13	8.78
		DS5	6.12	6.33	8.03	9.89
		US1	6.72	6.73	14.05	19.83
		US2	6.70	6.69	17.70	22.89
		MW1	6.15	6.16	6.94	8.00
		THB1	6.64	6.61	7.30	9.00
		THB2	-	6.60	7.58	6.33
		WSR45C	6.16	6.34	9.59	11.44
		WSR46	6.52	6.57	17.83	29.00
	Mid-Flood	DS1	6.49	6.54	9.02	19.83
		DS2	6.63	6.63	11.73	30.17
		DS3	6.63	6.64	12.54	24.78
		DS4	6.65	6.65	17.35	34.00
		DS5	6.64	6.63	22.14	34.33
		US1	6.56	6.55	10.34	21.50
		US2	6.45	6.46	13.53	27.00
		MW1	6.08	6.15	9.72	22.11
		THB1	6.46	6.44	10.43	24.83
		THB2	-	6.04	5.65	15.00
		WSR45C	6.44	6.42	14.23	27.33

Sampling Date	Tidal Period	Station	Average DO Levels (mg/L)		Average Turbidity Level (NTU)	Average SS Level (mg/L)
			Bottom	Surface and Mid Depth		
		WSR46	6.49	6.50	12.93	18.78
2013/11/22	Mid-Ebb	DS1	6.59	6.61	12.93	21.83
		DS2	6.23	6.41	8.84	11.11
		DS3	6.22	6.40	8.05	8.56
		DS4	6.21	6.45	8.05	7.56
		DS5	6.19	6.39	6.56	9.67
		US1	6.83	6.86	39.04	16.83
		US2	6.90	6.96	11.58	21.56
		MW1	6.16	6.22	4.68	7.11
		THB1	6.68	6.67	7.48	9.00
		THB2	-	6.78	6.45	9.33
	WSR45C	6.14	6.29	6.08	12.44	
	Mid-Flood	WSR46	6.32	6.49	13.98	29.44
		DS1	6.64	6.63	10.26	20.00
		DS2	6.64	6.65	12.40	26.67
		DS3	6.69	6.71	11.39	21.44
		DS4	6.63	6.62	20.05	33.00
		DS5	6.59	6.60	18.97	29.50
		US1	6.51	6.53	9.30	20.67
		US2	6.31	6.38	12.42	24.33
		MW1	6.70	6.75	6.95	23.44
THB1		7.10	7.17	11.78	23.50	
THB2	-	6.54	5.35	19.00		
WSR45C	6.95	7.04	8.70	24.78		
WSR46	7.04	7.08	10.69	19.44		
2013/11/25	Mid-Ebb	DS1	6.55	6.94	19.15	27.67
		DS2	6.75	6.88	13.11	14.50
		DS3	6.17	6.80	6.94	8.00
		DS4	6.15	6.60	5.45	7.00
		DS5	6.50	6.91	3.68	5.22
		US1	7.12	7.32	16.01	32.83
		US2	7.12	7.40	11.15	12.33
		MW1	6.35	6.34	3.49	5.44
		THB1	7.20	7.26	4.51	6.00
		THB2	-	7.42	7.96	12.00
	WSR45C	6.23	6.71	3.95	5.78	
	Mid-Flood	WSR46	6.28	6.61	8.02	8.78
		DS1	6.96	6.97	63.28	97.33
		DS2	7.00	7.00	21.66	29.33
		DS3	7.01	7.04	8.63	10.33
		DS4	7.07	7.08	9.28	10.33
		DS5	7.02	7.12	7.48	10.11
		US1	6.84	7.02	4.82	6.00
		US2	6.63	6.89	4.46	4.33
		MW1	6.11	6.21	4.91	8.11
THB1		7.03	6.97	5.99	7.67	
THB2	-	7.15	7.72	7.33		
WSR45C	6.16	6.49	6.57	9.44		
WSR46	6.16	6.50	11.94	10.44		
2013/11/27	Mid-Ebb	DS1	6.72	6.70	10.88	13.33
		DS2	6.59	6.59	4.25	4.83

Sampling Date	Tidal Period	Station	Average DO Levels (mg/L)		Average Turbidity Level (NTU)	Average SS Level (mg/L)
			Bottom	Surface and Mid Depth		
		DS3	6.16	6.40	4.16	5.44
		DS4	6.39	6.45	3.81	5.22
		DS5	6.18	6.35	3.59	5.78
		US1	6.73	6.70	5.81	7.00
		US2	6.58	6.58	5.30	6.33
		MW1	6.33	6.33	2.25	4.78
		THB1	6.36	6.34	7.00	8.33
		THB2	-	6.44	3.85	4.67
		WSR45C	6.10	6.40	3.48	5.11
		WSR46	6.47	6.58	6.10	5.67
	Mid-Flood	DS1	5.95	6.05	11.98	16.17
		DS2	6.55	6.82	5.38	6.33
		DS3	6.74	7.04	4.70	4.83
		DS4	6.90	6.95	4.58	5.17
		DS5	6.93	7.10	4.40	6.11
		US1	6.64	6.71	4.71	7.00
		US2	6.37	6.45	4.56	5.67
		MW1	6.32	6.42	4.30	7.78
		THB1	6.16	6.88	6.72	6.67
		THB2	-	7.19	8.09	6.00
		WSR45C	6.27	6.55	3.31	5.56
		WSR46	6.63	6.82	8.12	9.00
2013/11/29	Mid-Ebb	DS1	7.20	7.04	4.53	6.00
		DS2	6.80	6.82	3.80	4.89
		DS3	6.61	6.70	3.81	4.56
		DS4	6.70	6.75	3.86	5.89
		DS5	6.74	6.74	3.88	7.00
		US1	7.50	7.42	8.13	11.17
		US2	7.40	7.48	8.53	11.50
		MW1	6.53	6.52	3.48	5.67
		THB1	7.04	7.06	3.49	7.17
		THB2	-	6.90	4.41	5.33
		WSR45C	6.53	6.53	3.00	6.11
		WSR46	6.46	6.55	4.40	5.67
	Mid-Flood	DS1	7.06	7.10	50.46	76.00
		DS2	7.24	7.38	17.81	19.17
		DS3	7.44	7.44	7.18	8.67
		DS4	7.65	7.69	5.53	8.50
		DS5	7.02	7.52	10.10	15.89
		US1	7.31	7.19	4.26	5.00
		US2	7.26	7.22	3.24	6.56
		MW1	6.59	6.57	4.02	8.22
		THB1	7.44	7.54	5.02	8.50
		THB2	-	7.30	7.05	9.33
		WSR45C	6.59	6.66	2.99	6.22
		WSR46	6.68	6.68	6.25	8.78
2013/12/2	Mid-Ebb	DS1	6.94	6.95	11.83	9.50
		DS2	6.81	6.89	6.68	5.17
		DS3	6.78	6.85	5.80	6.11
		DS4	6.74	6.79	5.67	4.22
		DS5	6.68	6.72	6.28	5.78

Sampling Date	Tidal Period	Station	Average DO Levels (mg/L)		Average Turbidity Level (NTU)	Average SS Level (mg/L)
			Bottom	Surface and Mid Depth		
		US1	7.44	7.52	6.18	4.50
		US2	7.34	7.42	6.43	5.83
		MW1	6.55	6.56	4.92	4.89
		THB1	7.46	7.45	7.58	6.50
		THB2	-	7.93	4.91	2.33
		WSR45C	6.61	6.68	4.34	3.44
		WSR46	6.97	7.13	6.25	4.56
	Mid-Flood	DS1	7.26	7.32	22.50	27.00
		DS2	7.49	7.61	13.75	18.00
		DS3	7.60	7.64	7.33	6.50
		DS4	7.75	7.78	7.46	7.00
		DS5	7.64	7.87	6.28	5.11
		US1	7.50	7.39	10.00	10.17
		US2	7.48	7.46	11.10	10.00
		MW1	6.59	6.58	7.43	4.78
		THB1	7.79	7.91	5.08	3.33
		THB2	-	8.32	8.32	2.00
		WSR45C	6.92	7.00	6.84	5.22
		WSR46	7.08	7.15	8.88	6.44
2013/12/4	Mid-Ebb	DS1	7.04	7.05	12.15	13.50
		DS2	6.99	7.04	9.23	8.33
		DS3	6.85	6.95	6.44	6.67
		DS4	6.83	6.86	7.10	6.33
		DS5	6.79	6.80	6.59	6.44
		US1	7.80	7.72	6.15	6.00
		US2	7.56	7.57	6.76	10.50
		MW1	6.53	6.56	7.85	6.44
		THB1	7.27	7.38	8.02	6.00
		THB2	-	8.15	7.52	5.67
		WSR45C	6.76	6.91	8.04	8.89
		WSR46	6.97	7.00	23.64	20.67
	Mid-Flood	DS1	7.30	7.31	12.36	13.33
		DS2	7.28	7.26	11.08	11.00
		DS3	7.24	7.29	9.65	11.33
		DS4	7.32	7.40	14.45	17.00
		DS5	7.20	7.24	10.12	11.67
		US1	6.85	7.26	11.53	11.33
		US2	7.16	7.21	8.43	8.83
		MW1	6.76	6.85	25.09	26.56
		THB1	6.97	7.13	11.88	14.33
		THB2	-	7.32	5.91	4.33
		WSR45C	7.04	7.02	15.45	15.44
		WSR46	6.94	6.94	20.28	20.56
2013/12/6	Mid-Ebb	DS1	7.05	7.00	7.96	6.67
		DS2	6.76	6.84	9.38	11.17
		DS3	6.76	6.81	7.79	7.44
		DS4	6.85	6.86	6.55	6.00
		DS5	6.81	6.90	8.25	7.33
		US1	7.27	7.22	13.68	15.67
		US2	7.34	7.43	8.26	9.83
		MW1	6.74	6.76	6.95	7.89

Sampling Date	Tidal Period	Station	Average DO Levels (mg/L)		Average Turbidity Level (NTU)	Average SS Level (mg/L)
			Bottom	Surface and Mid Depth		
		THB1	7.21	7.29	6.66	6.00
		THB2	-	7.95	7.18	5.00
		WSR45C	6.73	6.92	9.48	10.89
		WSR46	7.01	7.03	10.97	11.44
	Mid-Flood	DS1	7.15	7.12	15.25	17.83
		DS2	7.08	7.07	10.16	10.50
		DS3	7.12	7.06	14.88	17.67
		DS4	7.01	7.12	15.01	16.00
		DS5	7.16	7.05	10.72	13.22
		US1	7.05	7.15	10.76	11.67
		US2	6.65	7.06	10.35	10.17
		MW1	6.92	6.67	21.91	28.67
		THB1	6.73	6.92	10.42	12.00
		THB2	-	7.47	6.98	5.00
		WSR45C	6.90	6.91	21.43	24.78
		WSR46	6.96	6.92	12.68	11.11
2013/12/9	Mid-Ebb	DS1	6.72	6.67	15.51	16.17
		DS2	6.42	6.47	6.66	6.44
		DS3	6.45	6.53	5.35	5.22
		DS4	6.27	6.43	5.96	5.11
		DS5	6.20	6.40	6.17	5.44
		US1	6.74	6.81	5.88	4.67
		US2	6.81	6.80	5.46	4.17
		MW1	6.74	6.74	3.75	3.22
		THB1	7.25	7.26	3.73	3.33
		THB2	-	7.40	7.59	6.00
		WSR45C	6.68	6.94	5.79	5.33
		WSR46	6.94	7.00	7.34	8.00
	Mid-Flood	DS1	6.58	6.62	6.91	6.67
		DS2	6.54	6.61	7.86	13.00
		DS3	6.59	6.53	23.11	21.33
		DS4	6.58	6.58	13.88	12.83
		DS5	6.71	6.64	8.68	8.00
		US1	6.59	6.74	5.46	6.83
		US2	6.69	6.62	5.23	5.67
		MW1	7.03	6.70	6.50	6.56
		THB1	6.68	7.11	5.91	4.83
		THB2	-	7.68	7.18	6.67
		WSR45C	6.83	6.95	7.26	6.33
		WSR46	6.90	6.96	10.87	9.00

Notes:

1. Please refer to Table B2 below for the Action and Limit Levels for dredging activities.
2. Cell shaded yellow indicated value exceeding the Action Level criteria.
3. Cell shaded red indicated value exceeding the Limit Level criteria.
4. Only mid-depth water was sampled at Station THB2 because water depth was less than 3m.

Table C2 *Action and Limit Levels of Water Quality for Dredging, Backfilling and Capping Activities*

Parameter	Action Level	Limit Level
Dissolved Oxygen (DO) ⁽¹⁾	<u>Surface and Mid-depth</u> ⁽²⁾ The average of the impact, WSR 45C and WSR 46 station readings are < 5%-ile of baseline data for surface and middle layer = 4.32 mg L⁻¹ and Significantly less than the reference stations mean DO (at the same tide of the same day)	<u>Surface and Mid-depth</u> ⁽²⁾ The average of the impact, WSR 45C and WSR 46 station readings are < 4 mg L⁻¹ and Significantly less than the reference stations mean DO (at the same tide of the same day)
	<u>Bottom</u> The average of the impact, WSR 45C and WSR 46 station readings are < 5%-ile of baseline data for bottom layers = 3.12 mg L⁻¹ and Significantly less than the reference stations mean DO (at the same tide of the same day)	<u>Bottom</u> The average of the impact station, WSR 45C and WSR 46 readings are < 2 mg L⁻¹ and Significantly less than the reference stations mean DO (at the same tide of the same day)
	Depth-averaged Suspended Solids (SS) ^{(3) (4)}	The average of the impact, WSR 45C and WSR 46 station readings are > 95%-ile of baseline data for depth average = 21.60 mg L⁻¹ and 120% of control station's SS at the same tide of the same day
Depth-averaged Turbidity (Tby) ^{(3) (4)}	The average of the impact, WSR 45C and WSR 46 station readings are > 95%-ile of baseline data = 25.04 NTU and 120% of control station's Tby at the same tide of the same day	The average of the impact, WSR 45C and WSR 46 station readings are > 99%-ile of baseline data = 32.68 NTU and 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 layers 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.

Table C3

In-situ Monitoring Results for Routine Water Quality Monitoring of CMP 1 in October/November 2013

Sampling Date	Stations	Temp (°C)	Salinity (ppt)	Turbidity (NTU)	Dissolved Oxygen		pH (mg L ⁻¹)
					(%)	(mg L ⁻¹)	
2013/10/17	RFF (Reference)	27.38	28.79	31.19	94.61	6.38	7.95
	IPF (Impact)	27.20	28.45	9.18	96.08	6.51	7.95
	INF (Intermediate)	27.18	28.27	17.27	100.17	6.79	7.97
	Ma Wan Station	27.44	30.67	11.54	86.34	5.75	7.94
	Shum Shui Kok Station	27.50	30.14	9.52	85.91	5.73	7.93
	Tai Mo To Station	27.23	28.84	14.46	98.94	6.68	7.99
	Tai Ho Bay Station 1	27.14	28.12	12.96	100.17	6.81	7.98
	Tai Ho Bay Station 2	26.94	26.78	4.58	92.23	6.33	7.88
	WQO	N/A	25.91-31.67#	N/A	N/A	>4	6.5-8.5
2013/10/19	RFF (Reference)	27.12	28.55	18.60	92.85	6.29	8.01
	IPF (Impact)	27.06	28.70	12.96	94.95	6.43	8.09
	INF (Intermediate)	27.00	28.65	14.83	97.96	6.65	8.07
	Ma Wan Station	27.20	30.33	6.39	83.39	5.59	8.08
	Shum Shui Kok Station	27.16	29.93	8.17	86.94	5.84	8.13
	Tai Mo To Station	26.95	28.64	12.65	93.29	6.34	8.03
	Tai Ho Bay Station 1	27.01	28.59	5.87	103.15	7.00	8.10
	Tai Ho Bay Station 2	27.15	28.64	6.63	100.11	6.78	7.95
	WQO	N/A	25.69-31.40#	N/A	N/A	>4	6.5-8.5
2013/10/22	RFF (Reference)	26.65	29.01	14.87	93.36	6.36	7.92
	IPF (Impact)	26.70	29.14	15.81	94.21	6.41	7.90
	INF (Intermediate)	26.84	29.71	15.58	89.54	6.06	7.84
	Ma Wan Station	26.87	29.94	9.76	87.31	5.89	7.88
	Shum Shui Kok Station	26.70	29.19	16.73	91.89	6.25	7.93
	Tai Mo To Station	26.70	29.13	21.63	93.19	6.34	7.87
	Tai Ho Bay Station 1	26.61	28.98	15.33	94.65	6.45	7.91
	Tai Ho Bay Station 2	26.89	28.56	13.08	92.96	6.32	7.86
	WQO	N/A	26.10-31.91#	N/A	N/A	>4	6.5-8.5
2013/10/24	RFF (Reference)	26.27	29.23	13.48	91.14	6.24	7.95
	IPF (Impact)	26.35	29.38	12.35	91.73	6.27	7.95
	INF (Intermediate)	26.53	30.11	9.78	86.71	5.88	7.93
	Ma Wan Station	26.53	30.38	7.21	85.00	5.76	7.92
	Shum Shui Kok Station	26.36	29.71	10.86	87.58	5.97	7.94
	Tai Mo To Station	26.24	29.30	15.90	90.74	6.22	7.94
	Tai Ho Bay Station 1	26.18	29.15	13.14	95.13	6.53	7.96
	Tai Ho Bay Station 2	25.89	28.58	11.97	86.98	6.02	7.86
	WQO	N/A	26.31-32.16#	N/A	N/A	>4	6.5-8.5
2013/10/26	RFF (Reference)	25.16	29.72	9.07	92.69	6.45	7.97
	IPF (Impact)	25.54	29.94	10.84	90.68	6.26	7.95
	INF (Intermediate)	25.71	30.62	6.05	89.75	6.16	7.95
	Ma Wan Station	26.26	31.45	3.86	82.96	5.61	7.91
	Shum Shui Kok Station	26.11	30.92	4.52	84.04	5.72	7.95
	Tai Mo To Station	25.35	29.99	5.76	92.32	6.40	7.95
	Tai Ho Bay Station 1	25.05	29.35	8.17	95.62	6.68	7.98

Sampling Date	Stations	Temp	Salinity	Turbidity	Dissolved Oxygen		pH
		(°C)	(ppt)	(NTU)	(%)	(mg L ⁻¹)	(mg L ⁻¹)
	Tai Ho Bay Station 2	24.59	28.61	6.64	91.51	6.47	7.87
	WQO	N/A	26.75-32.69#	N/A	N/A	>4	6.5-8.5
2013/10/29	RFF (Reference)	25.24	30.67	4.74	99.86	6.90	7.94
	IPF (Impact)	24.79	30.71	8.66	99.68	6.94	7.97
	INF (Intermediate)	24.63	30.66	9.47	108.18	7.56	8.01
	Ma Wan Station	25.74	31.46	2.75	83.89	5.73	7.84
	Shum Shui Kok Station	25.02	30.88	4.01	97.40	6.75	7.97
	Tai Mo To Station	25.14	31.05	4.42	101.16	6.99	7.96
	Tai Ho Bay Station 1	24.49	30.58	5.45	108.32	7.59	8.02
	Tai Ho Bay Station 2	25.17	30.04	7.88	89.36	6.21	7.79
	WQO	N/A	25.30-30.92#	N/A	N/A	>4	6.5-8.5
2013/10/31	RFF (Reference)	25.49	29.98	6.55	115.60	7.99	8.02
	IPF (Impact)	25.33	30.08	9.08	130.91	9.06	8.12
	INF (Intermediate)	25.41	30.38	9.95	137.91	9.52	8.15
	Ma Wan Station	25.72	31.41	3.90	97.00	6.62	7.92
	Shum Shui Kok Station	25.45	30.93	4.94	106.46	7.32	8.02
	Tai Mo To Station	25.40	29.62	7.98	124.17	8.61	8.07
	Tai Ho Bay Station 1	25.18	30.60	7.01	133.19	9.22	8.14
	Tai Ho Bay Station 2	25.52	30.18	14.97	117.34	8.10	8.07
	WQO	N/A	26.98-32.98#	N/A	N/A	>4	6.5-8.5
2013/11/2	RFF (Reference)	25.60	30.02	9.71	107.24	7.40	7.94
	IPF (Impact)	25.63	29.66	7.40	120.61	8.33	8.04
	INF (Intermediate)	25.67	29.57	11.08	126.90	8.76	8.08
	Ma Wan Station	25.57	31.43	7.65	92.17	6.31	7.84
	Shum Shui Kok Station	25.62	30.92	6.26	98.78	6.77	7.95
	Tai Mo To Station	25.60	29.43	7.55	112.60	7.79	7.98
	Tai Ho Bay Station 1	25.89	29.53	4.26	139.11	9.57	8.12
	Tai Ho Bay Station 2	26.01	29.16	8.27	121.61	8.37	8.06
	WQO	N/A	27.01-33.02#	N/A	N/A	>4	6.5-8.5
2013/11/4	RFF (Reference)	25.18	30.63	11.81	99.08	6.86	8.00
	IPF (Impact)	25.22	30.22	8.49	105.00	7.28	8.03
	INF (Intermediate)	25.04	29.95	11.05	104.28	7.26	8.06
	Ma Wan Station	25.32	31.53	7.47	91.32	6.27	7.87
	Shum Shui Kok Station	25.37	31.24	5.74	92.78	6.38	7.94
	Tai Mo To Station	25.03	30.60	11.25	102.93	7.14	8.02
	Tai Ho Bay Station 1	25.14	29.82	6.98	105.39	7.33	8.05
	Tai Ho Bay Station 2	25.29	30.52	8.51	94.70	6.55	7.95
	WQO	N/A	27.57-33.70#	N/A	N/A	>4	6.5-8.5
2013/11/6	RFF (Reference)	24.76	31.11	12.03	92.12	6.40	7.97
	IPF (Impact)	24.83	31.09	13.61	92.03	6.39	7.97
	INF (Intermediate)	25.04	31.19	10.67	90.31	6.25	7.94
	Ma Wan Station	25.09	31.38	15.66	87.24	6.02	7.85
	Shum Shui Kok Station	24.89	31.24	15.91	90.98	6.31	7.95
	Tai Mo To Station	24.87	31.02	12.84	92.48	6.42	7.97
	Tai Ho Bay Station 1	24.82	31.01	15.15	91.14	6.34	7.96
	Tai Ho Bay Station 2	25.02	30.69	6.41	80.87	5.61	7.86

Sampling Date	Stations	Temp	Salinity	Turbidity	Dissolved Oxygen		pH
		(°C)	(ppt)	(NTU)	(%)	(mg L ⁻¹)	(mg L ⁻¹)
	WQO	N/A	28.00-34.22#	N/A	N/A	>4	6.5-8.5
2013/11/8	RFF (Reference)	24.89	30.86	12.00	91.92	6.39	7.95
	IPF (Impact)	24.91	30.84	10.92	92.33	6.41	7.95
	INF (Intermediate)	25.04	30.82	10.36	90.18	6.25	7.92
	Ma Wan Station	25.07	31.10	12.96	88.16	6.10	7.89
	Shum Shui Kok Station	24.87	30.83	12.23	91.90	6.39	7.97
	Tai Mo To Station	24.97	30.76	13.08	91.99	6.39	7.94
	Tai Ho Bay Station 1	24.86	30.94	13.74	90.80	6.31	7.94
	Tai Ho Bay Station 2	25.08	31.15	11.71	77.92	5.39	7.91
	WQO	N/A	27.78-33.95#	N/A	N/A	>4	6.5-8.5
2013/11/12	RFF (Reference)	24.86	31.17	6.41	89.95	6.24	7.91
	IPF (Impact)	24.71	31.04	5.63	91.07	6.34	7.89
	INF (Intermediate)	24.42	30.43	13.49	95.33	6.69	7.90
	Ma Wan Station	24.86	31.55	4.19	86.53	5.99	7.81
	Shum Shui Kok Station	24.89	31.41	4.36	88.62	6.14	7.88
	Tai Mo To Station	24.70	30.86	7.41	92.40	6.44	7.91
	Tai Ho Bay Station 1	24.41	30.38	8.36	94.66	6.65	7.90
	Tai Ho Bay Station 2	-	-	-	-	-	-
	WQO	N/A	28.05-34.29#	N/A	N/A	>4	6.5-8.5
2013/11/14	RFF (Reference)	24.30	30.65	10.07	88.39	6.21	7.87
	IPF (Impact)	24.03	30.38	7.09	89.20	6.31	7.88
	INF (Intermediate)	23.76	30.33	13.61	90.41	6.42	7.87
	Ma Wan Station	24.30	31.85	5.44	84.53	5.90	7.85
	Shum Shui Kok Station	24.41	31.52	5.18	85.43	5.96	7.88
	Tai Mo To Station	24.11	30.36	9.12	90.48	6.39	7.87
	Tai Ho Bay Station 1	23.76	30.37	9.08	89.41	6.35	7.88
	Tai Ho Bay Station 2	-	-	-	-	-	-
	WQO	N/A	27.59-33.72#	N/A	N/A	>4	6.5-8.5
2013/11/16	RFF (Reference)	23.93	31.35	7.60	90.66	6.39	7.84
	IPF (Impact)	23.87	30.84	8.31	91.32	6.46	7.85
	INF (Intermediate)	23.67	30.53	12.27	94.32	6.70	7.84
	Ma Wan Station	23.98	32.03	8.15	86.69	6.08	7.86
	Shum Shui Kok Station	23.98	31.77	6.67	87.18	6.12	7.87
	Tai Mo To Station	23.80	30.79	9.05	91.09	6.45	7.83
	Tai Ho Bay Station 1	23.76	30.52	10.31	91.07	6.46	7.83
	Tai Ho Bay Station 2	-	-	-	-	-	-
	WQO	N/A	28.21-34.48#	N/A	N/A	>4	6.5-8.5
2013/11/19	RFF (Reference)	23.12	30.27	14.73	91.71	6.59	7.91
	IPF (Impact)	23.07	30.24	15.34	92.70	6.67	7.91
	INF (Intermediate)	23.35	30.62	12.05	90.65	6.48	7.90
	Ma Wan Station	23.54	31.04	9.06	86.75	6.16	7.88
	Shum Shui Kok Station	23.25	30.38	12.33	91.17	6.53	7.90
	Tai Mo To Station	23.11	30.26	14.65	92.49	6.65	7.91
	Tai Ho Bay Station 1	23.21	30.40	11.67	89.66	6.43	7.89
	Tai Ho Bay Station 2	-	-	-	-	-	-

Sampling Date	Stations	Temp (°C)	Salinity (ppt)	Turbidity (NTU)	Dissolved Oxygen (%) (mg L ⁻¹)		pH (mg L ⁻¹)
	WQO	N/A	27.24-33.29#	N/A	N/A	>4	6.5-8.5
2013/11/21	RFF (Reference)	22.45	29.52	9.88	89.75	6.56	7.90
	IPF (Impact)	22.45	29.73	17.19	89.35	6.52	7.89
	INF (Intermediate)	22.95	30.37	24.07	86.72	6.25	7.88
	Ma Wan Station	22.95	30.35	8.00	86.25	6.22	7.88
	Shum Shui Kok Station	22.52	29.69	9.95	89.03	6.49	7.91
	Tai Mo To Station	22.55	29.71	14.41	89.39	6.51	7.89
	Tai Ho Bay Station 1	22.34	29.72	9.90	89.89	6.57	7.90
	Tai Ho Bay Station 2	22.45	29.52	9.88	89.75	6.56	7.90
	WQO	N/A	26.57-32.48#	N/A	N/A	>4	6.5-8.5
2013/11/23	RFF (Reference)	22.48	29.28	9.71	90.26	6.60	7.86
	IPF (Impact)	22.53	29.40	14.21	89.50	6.54	7.85
	INF (Intermediate)	22.82	30.26	11.82	86.58	6.26	7.84
	Ma Wan Station	22.80	30.44	6.16	85.82	6.20	7.83
	Shum Shui Kok Station	22.61	29.53	8.27	87.60	6.38	7.85
	Tai Mo To Station	22.62	29.40	9.41	89.55	6.53	7.85
	Tai Ho Bay Station 1	22.44	29.20	9.47	91.48	6.70	7.86
	Tai Ho Bay Station 2	21.83	29.39	9.79	91.57	6.77	7.73
	WQO	N/A	26.35-32.21#	N/A	N/A	>4	6.5-8.5
2013/11/26	RFF (Reference)	22.55	29.69	5.04	88.09	6.42	7.89
	IPF (Impact)	22.68	30.09	18.39	86.76	6.29	7.88
	INF (Intermediate)	22.70	31.33	4.73	87.61	6.31	7.89
	Ma Wan Station	22.73	31.64	3.26	86.80	6.23	7.91
	Shum Shui Kok Station	22.82	30.94	5.19	83.82	6.04	7.89
	Tai Mo To Station	22.66	30.51	6.21	86.56	6.26	7.88
	Tai Ho Bay Station 1	22.55	29.02	6.14	90.82	6.64	7.88
	Tai Ho Bay Station 2	22.34	27.56	11.84	94.56	7.00	7.49
	WQO	N/A	26.72-32.65#	N/A	N/A	>4	6.5-8.5
2013/11/28	RFF (Reference)	22.09	31.35	4.22	91.19	6.63	7.95
	IPF (Impact)	22.21	31.65	11.11	89.82	6.51	7.93
	INF (Intermediate)	22.32	32.39	5.61	88.99	6.41	7.92
	Ma Wan Station	22.36	32.42	3.07	87.78	6.32	7.96
	Shum Shui Kok Station	22.30	32.14	3.34	89.29	6.44	7.97
	Tai Mo To Station	22.22	32.08	4.60	91.45	6.61	7.93
	Tai Ho Bay Station 1	21.53	29.83	3.56	98.09	7.27	7.95
	Tai Ho Bay Station 2	22.57	29.28	7.32	87.01	6.35	7.66
	WQO	N/A	28.22-34.49#	N/A	N/A	>4	6.5-8.5
2013/11/30	RFF (Reference)	21.55	32.47	3.89	94.12	6.87	7.90
	IPF (Impact)	20.99	32.01	4.43	90.17	6.67	7.91
	INF (Intermediate)	20.44	31.01	10.34	94.01	7.06	7.89
	Ma Wan Station	21.71	32.66	3.81	94.32	6.86	7.90
	Shum Shui Kok Station	21.51	32.56	4.67	87.65	6.40	7.90
	Tai Mo To Station	21.12	32.05	6.14	96.01	7.08	7.89
	Tai Ho Bay Station 1	21.04	31.54	5.46	91.36	6.77	7.89
	Tai Ho Bay Station 2	20.89	31.11	4.27	86.86	6.47	7.26

Sampling Date	Stations	Temp (°C)	Salinity (ppt)	Turbidity (NTU)	Dissolved Oxygen (%)	pH (mg L ⁻¹)
	WQO	N/A	29.23-35.72 [#]	N/A	N/A	>4 6.5-8.5

Note: [#]Not exceeding 10% of natural ambient level which is the result obtained from the Reference Station.

Note:

Sampling at THB2 was cancelled due to adverse weather condition on 12, 14, 16, 19 and 21 November 2013.

Table C4 *Laboratory Results for Routine Water Quality Monitoring of CMP 1 in October/November 2013*

Date	Stations	As (µg/L)	Cd (µg/L)	Cr (µg/L)	Cu (µg/L)	Pb (µg/L)	Hg (µg/L)	Ni (µg/L)	Ag (µg/L)	Zn (µg/L)	NH ₃ (mg/L)	TIN (mg/L)	BOD ₅ (mg/L)	SS (mg/L)
10/17	RFF	2.05	<LOR	0.85	3.03	0.90	<LOR	2.23	<LOR	9.46	0.01	0.39	0.61	24.73
	IPF	1.43	<LOR	<LOR	4.10	0.51	<LOR	2.00	<LOR	7.00	0.01	0.42	0.67	8.10
	INF	2.18	<LOR	0.68	2.23	1.28	<LOR	2.10	<LOR	9.03	0.01	0.41	0.73	15.23
	Ma Wan Station	1.63	<LOR	0.56	4.00	0.88	<LOR	2.13	<LOR	13.00	0.04	0.26	0.67	11.25
	Shum Shui Kok Station	1.75	<LOR	<LOR	3.88	<LOR	<LOR	1.88	<LOR	11.25	0.05	0.32	0.50	8.63
	Tai Mo To Station	1.75	<LOR	<LOR	4.50	<LOR	<LOR	2.00	<LOR	10.13	0.01	0.37	0.63	11.63
	Tai Ho Bay Station 1	1.50	<LOR	0.63	3.13	<LOR	<LOR	2.50	<LOR	11.63	0.01	0.40	0.71	11.38
	Tai Ho Bay Station 2	1.25	<LOR	<LOR	1.63	<LOR	<LOR	2.00	<LOR	7.00	0.01	0.43	0.60	5.63
10/19	RFF	2.00	<LOR	1.35	3.65	1.49	<LOR	2.33	<LOR	6.78	0.01	0.42	0.67	36.43
	IPF	1.75	<LOR	0.73	3.30	0.86	<LOR	1.48	<LOR	7.13	0.01	0.39	0.71	23.20
	INF	1.80	<LOR	0.75	2.40	1.43	<LOR	2.03	<LOR	6.78	0.01	0.37	0.64	32.83
	Ma Wan Station	1.88	<LOR	0.88	4.25	<LOR	<LOR	2.44	<LOR	15.00	0.04	0.30	0.34	9.00
	Shum Shui Kok Station	1.75	<LOR	0.81	5.00	<LOR	<LOR	4.25	<LOR	9.13	0.02	0.37	0.25	11.00
	Tai Mo To Station	1.88	<LOR	0.56	3.75	<LOR	<LOR	5.38	<LOR	6.13	0.01	0.43	0.25	8.50
	Tai Ho Bay Station 1	1.88	<LOR	0.69	3.50	<LOR	<LOR	2.63	<LOR	6.63	0.01	0.35	0.71	8.75
	Tai Ho Bay Station 2	1.38	<LOR	0.69	3.44	<LOR	<LOR	4.13	<LOR	7.38	0.01	0.38	0.46	9.88
10/22	RFF	2.21	<LOR	0.92	7.42	1.54	<LOR	2.04	<LOR	10.25	0.01	0.40	0.31	22.00
	IPF	2.75	<LOR	1.19	7.13	1.46	<LOR	2.21	<LOR	12.21	0.01	0.40	0.52	22.29
	INF	2.50	<LOR	1.33	9.21	2.33	<LOR	2.00	<LOR	15.83	0.01	0.35	0.26	25.92
	Ma Wan Station	1.63	0.33	1.13	12.38	2.50	<LOR	2.75	<LOR	20.63	0.01	0.34	0.25	16.50
	Shum Shui Kok Station	1.50	<LOR	1.38	9.38	2.25	<LOR	2.88	<LOR	15.38	0.01	0.40	1.29	23.25
	Tai Mo To Station	2.00	<LOR	2.00	6.00	2.13	<LOR	2.88	<LOR	12.50	0.01	0.40	0.95	34.38
	Tai Ho Bay Station 1	1.88	<LOR	1.00	4.63	1.13	<LOR	2.00	<LOR	8.00	0.01	0.39	0.28	22.13
	Tai Ho Bay Station 2	1.75	<LOR	0.50	1.75	0.50	<LOR	2.00	<LOR	16.50	0.01	0.35	0.41	9.88
10/24	RFF	2.50	0.27	1.13	5.08	1.96	<LOR	4.83	<LOR	15.08	0.01	0.42	0.75	19.17
	IPF	1.83	0.10	1.46	8.25	1.35	<LOR	4.88	<LOR	17.92	0.01	0.38	0.71	15.42
	INF	1.79	0.10	0.96	7.21	1.15	<LOR	4.42	<LOR	12.33	0.01	0.37	0.58	14.54
	Ma Wan Station	1.88	0.20	1.50	10.50	2.50	<LOR	5.13	<LOR	28.38	0.01	0.34	1.28	12.75
	Shum Shui Kok Station	1.75	0.15	0.63	4.00	1.38	<LOR	3.75	<LOR	11.00	0.01	0.40	0.71	13.00
	Tai Mo To Station	2.13	0.13	1.25	3.50	1.25	<LOR	4.63	<LOR	10.50	0.01	0.40	0.70	22.75

Date	Stations	As (µg/L)	Cd (µg/L)	Cr (µg/L)	Cu (µg/L)	Pb (µg/L)	Hg (µg/L)	Ni (µg/L)	Ag (µg/L)	Zn (µg/L)	NH ₃ (mg/L)	TIN (mg/L)	BOD ₅ (mg/L)	SS (mg/L)
	Tai Ho Bay Station 1	2.38	<LOR	1.00	7.88	1.75	<LOR	4.00	<LOR	18.38	0.01	0.41	1.15	16.88
	Tai Ho Bay Station 2	1.63	0.14	0.63	3.13	0.94	<LOR	3.13	<LOR	9.00	0.01	0.36	0.75	5.63
10/26	RFF	1.79	<LOR	0.88	2.63	0.88	<LOR	1.96	<LOR	6.38	0.01	0.41	0.99	27.63
	IPF	1.75	<LOR	0.63	3.13	0.94	<LOR	1.92	<LOR	16.50	0.02	0.40	0.95	25.63
	INF	1.83	<LOR	<LOR	4.83	0.73	<LOR	1.46	<LOR	9.54	0.01	0.31	0.73	23.04
	Ma Wan Station	1.63	<LOR	0.56	2.44	<LOR	<LOR	1.75	<LOR	10.50	0.04	0.25	0.99	16.88
	Shum Shui Kok Station	1.88	<LOR	0.88	2.75	0.75	<LOR	2.00	<LOR	10.00	0.04	0.33	0.93	5.88
	Tai Mo To Station	2.50	<LOR	0.56	5.88	0.63	<LOR	1.63	<LOR	16.00	0.01	0.38	0.90	6.50
	Tai Ho Bay Station 1	2.38	<LOR	0.63	2.63	<LOR	<LOR	2.00	<LOR	8.50	0.01	0.39	0.96	19.88
	Tai Ho Bay Station 2	1.88	<LOR	<LOR	1.00	<LOR	<LOR	1.88	<LOR	10.13	0.02	0.39	0.69	6.00
10/29	RFF	1.65	<LOR	<LOR	5.90	0.60	<LOR	1.48	<LOR	10.20	0.01	0.24	0.70	6.55
	IPF	1.78	<LOR	0.83	5.58	0.81	<LOR	1.90	<LOR	10.73	0.01	0.21	0.84	11.70
	INF	2.20	<LOR	1.75	8.93	1.95	<LOR	2.23	<LOR	20.60	0.01	0.13	0.83	11.40
	Ma Wan Station	2.13	<LOR	<LOR	3.63	<LOR	<LOR	1.38	<LOR	10.63	0.01	0.23	0.81	4.00
	Shum Shui Kok Station	1.50	<LOR	<LOR	3.75	<LOR	<LOR	1.38	<LOR	7.88	0.01	0.23	0.77	5.88
	Tai Mo To Station	1.88	<LOR	<LOR	3.25	<LOR	<LOR	0.94	<LOR	7.75	0.01	0.20	0.70	6.13
	Tai Ho Bay Station 1	1.63	<LOR	<LOR	3.63	<LOR	<LOR	1.25	<LOR	8.75	0.01	0.13	1.04	10.63
	Tai Ho Bay Station 2	1.50	<LOR	<LOR	1.38	<LOR	<LOR	1.00	<LOR	6.88	0.01	0.25	0.70	4.13
10/31	RFF	2.30	<LOR	0.66	5.13	0.71	<LOR	2.10	<LOR	6.45	0.01	0.30	0.89	14.50
	IPF	2.33	<LOR	1.36	6.03	1.05	<LOR	3.40	<LOR	10.93	0.01	0.22	1.70	20.20
	INF	2.08	<LOR	0.61	7.58	1.10	<LOR	2.43	<LOR	12.43	0.01	0.12	1.95	16.93
	Ma Wan Station	1.88	<LOR	1.38	9.00	2.13	<LOR	2.25	<LOR	34.50	0.01	0.23	1.10	9.75
	Shum Shui Kok Station	1.63	<LOR	1.00	7.50	2.00	<LOR	2.00	<LOR	14.00	0.01	0.24	0.93	7.00
	Tai Mo To Station	1.75	<LOR	0.56	3.75	0.69	<LOR	2.00	<LOR	7.75	0.01	0.30	1.39	10.00
	Tai Ho Bay Station 1	2.13	<LOR	<LOR	5.75	0.94	<LOR	1.88	<LOR	11.38	0.01	0.12	1.40	10.75
	Tai Ho Bay Station 2	1.63	<LOR	0.56	2.06	1.06	<LOR	1.06	<LOR	3.50	0.01	0.13	0.93	4.38
11/2	RFF	1.90	<LOR	0.64	5.93	0.60	<LOR	2.05	<LOR	5.95	0.03	0.32	1.12	17.73
	IPF	1.78	<LOR	0.63	5.18	0.61	<LOR	2.18	<LOR	6.90	0.04	0.28	1.43	12.00
	INF	2.05	<LOR	1.04	7.13	1.38	<LOR	2.33	<LOR	8.05	0.02	0.21	1.18	25.10
	Ma Wan Station	1.63	<LOR	1.00	9.88	1.00	<LOR	1.75	<LOR	15.38	0.07	0.28	0.59	17.75
	Shum Shui Kok Station	1.38	<LOR	<LOR	5.00	<LOR	<LOR	1.63	<LOR	6.88	0.05	0.29	0.41	9.25
	Tai Mo To Station	1.50	<LOR	<LOR	4.63	<LOR	<LOR	2.25	<LOR	10.13	0.01	0.35	0.70	10.75
	Tai Ho Bay Station 1	1.63	<LOR	<LOR	1.50	<LOR	<LOR	1.75	<LOR	<LOR	0.02	0.21	0.90	8.63
	Tai Ho Bay Station 2	1.50	<LOR	<LOR	2.75	<LOR	<LOR	2.00	<LOR	2.25	0.02	0.21	0.41	7.75
11/4	RFF	2.28	<LOR	0.85	4.38	0.75	<LOR	1.85	<LOR	6.83	0.02	0.24	0.77	21.68
	IPF	2.08	<LOR	0.64	5.23	0.71	<LOR	2.18	<LOR	8.20	0.02	0.25	1.12	15.80
	INF	2.25	<LOR	1.04	6.80	1.58	<LOR	2.35	<LOR	12.53	0.01	0.22	0.99	26.23
	Ma Wan Station	2.50	<LOR	1.00	6.63	1.38	<LOR	2.25	<LOR	16.13	0.04	0.22	1.39	15.88

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	Shum Shui Kok Station	1.63	<LOR	0.63	6.25	0.63	<LOR	1.63	<LOR	7.88	0.04	0.25	0.83	10.50
	Tai Mo To Station	2.25	<LOR	0.63	2.63	0.56	<LOR	2.13	<LOR	5.13	0.01	0.20	0.71	20.00
	Tai Ho Bay Station 1	2.25	<LOR	<LOR	5.00	0.81	<LOR	1.88	<LOR	7.50	0.02	0.24	0.78	17.00
	Tai Ho Bay Station 2	1.75	<LOR	0.56	1.75	<LOR	<LOR	1.75	<LOR	4.25	0.04	0.28	1.06	10.25
11/6	RFF	1.79	<LOR	0.81	3.71	0.67	<LOR	1.96	<LOR	5.54	0.04	0.18	0.74	15.75
	IPF	2.00	<LOR	1.13	6.29	1.25	<LOR	2.00	<LOR	10.21	0.05	0.20	0.87	17.79
	INF	1.58	<LOR	1.13	4.50	0.77	<LOR	1.88	<LOR	5.79	0.06	0.23	0.73	17.21
	Ma Wan Station	1.13	<LOR	1.19	9.00	1.63	<LOR	1.88	<LOR	14.38	0.07	0.24	0.93	26.63
	Shum Shui Kok Station	1.25	<LOR	1.13	4.25	1.13	<LOR	1.63	<LOR	8.25	0.05	0.20	0.74	22.88
	Tai Mo To Station	1.00	<LOR	0.69	5.13	0.81	<LOR	1.31	<LOR	6.38	0.05	0.21	0.73	18.25
	Tai Ho Bay Station 1	1.25	<LOR	0.94	5.38	1.25	<LOR	1.88	<LOR	8.63	0.05	0.20	0.76	20.88
	Tai Ho Bay Station 2	1.13	<LOR	<LOR	1.13	<LOR	<LOR	1.31	<LOR	2.75	0.07	0.29	0.59	5.88
11/8	RFF	1.75	<LOR	1.92	9.04	1.17	<LOR	2.63	<LOR	12.88	0.06	0.28	0.97	15.13
	IPF	1.46	<LOR	0.67	6.21	0.79	<LOR	2.08	<LOR	10.25	0.05	0.27	0.60	13.33
	INF	1.13	<LOR	0.52	5.46	0.69	<LOR	2.50	<LOR	9.71	0.06	0.30	0.44	11.33
	Ma Wan Station	1.88	<LOR	0.69	6.00	1.38	<LOR	2.63	<LOR	9.63	0.06	0.27	0.67	17.00
	Shum Shui Kok Station	1.25	<LOR	<LOR	3.88	<LOR	<LOR	1.88	<LOR	4.63	0.05	0.28	1.13	15.00
	Tai Mo To Station	1.38	<LOR	<LOR	4.13	<LOR	<LOR	<LOR	<LOR	4.50	0.06	0.28	0.53	12.88
	Tai Ho Bay Station 1	2.00	<LOR	<LOR	6.88	0.88	<LOR	2.25	<LOR	7.50	0.05	0.25	0.73	19.13
	Tai Ho Bay Station 2	1.50	<LOR	<LOR	2.25	<LOR	<LOR	1.63	<LOR	11.13	0.07	0.26	0.51	7.38
11/12	RFF	1.35	<LOR	0.58	4.83	0.60	<LOR	1.09	<LOR	5.90	0.09	0.32	0.46	8.35
	IPF	1.45	<LOR	<LOR	3.90	0.53	<LOR	1.50	<LOR	4.75	0.07	0.32	0.55	5.45
	INF	1.55	<LOR	0.71	4.18	0.78	<LOR	2.00	<LOR	6.28	0.07	0.35	0.44	16.75
	Ma Wan Station	1.13	<LOR	0.56	5.50	0.69	<LOR	1.75	<LOR	11.75	0.12	0.32	0.68	7.13
	Shum Shui Kok Station	1.38	<LOR	<LOR	4.00	<LOR	<LOR	1.25	<LOR	7.00	0.09	0.29	0.70	5.75
	Tai Mo To Station	1.63	<LOR	<LOR	4.13	0.56	<LOR	1.50	<LOR	5.63	0.08	0.34	0.51	10.75
	Tai Ho Bay Station 1	1.88	<LOR	<LOR	19.13	0.69	<LOR	1.63	<LOR	12.25	0.07	0.37	0.64	11.38
	Tai Ho Bay Station 2	-	-	-	-	-	-	-	-	-	-	-	-	-
11/14	RFF	1.90	<LOR	<LOR	2.40	0.51	<LOR	2.01	<LOR	2.40	0.09	0.41	0.42	9.18
	IPF	1.75	<LOR	<LOR	1.60	0.55	<LOR	2.38	<LOR	3.28	0.09	0.43	0.62	6.50
	INF	2.30	<LOR	1.00	2.23	1.00	<LOR	2.45	<LOR	4.78	0.07	0.38	0.67	17.58
	Ma Wan Station	1.63	<LOR	<LOR	6.63	0.88	<LOR	2.13	<LOR	8.00	0.10	0.30	0.76	8.00
	Shum Shui Kok Station	1.50	<LOR	<LOR	1.75	<LOR	<LOR	1.25	<LOR	2.63	0.10	0.33	0.95	6.75
	Tai Mo To Station	1.75	<LOR	<LOR	2.75	<LOR	<LOR	2.13	<LOR	3.50	0.07	0.41	0.40	11.63
	Tai Ho Bay Station 1	2.13	<LOR	<LOR	2.50	<LOR	<LOR	2.13	<LOR	4.25	0.06	0.37	0.48	12.00
	Tai Ho Bay Station 2	-	-	-	-	-	-	-	-	-	-	-	-	-
11/16	RFF	1.75	<LOR	0.88	14.80	1.01	<LOR	1.88	<LOR	8.63	0.05	0.36	0.30	11.45
	IPF	2.60	<LOR	0.75	9.85	1.13	<LOR	2.15	<LOR	7.28	0.07	0.42	0.98	15.03

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	INF	2.65	<LOR	0.78	12.20	1.53	<LOR	2.20	<LOR	8.13	0.02	0.40	0.63	13.80
	Ma Wan Station	1.63	<LOR	0.81	11.38	2.38	<LOR	1.88	<LOR	12.25	0.07	0.29	0.91	19.00
	Shum Shui Kok Station	1.88	<LOR	<LOR	10.75	0.81	<LOR	1.75	<LOR	6.75	0.08	0.35	0.40	13.25
	Tai Mo To Station	2.13	<LOR	0.63	9.63	0.81	<LOR	2.00	<LOR	7.38	0.05	0.42	0.25	13.13
	Tai Ho Bay Station 1	2.25	<LOR	0.63	29.63	1.06	<LOR	2.13	<LOR	10.00	0.05	0.43	0.39	13.25
	Tai Ho Bay Station 2	-	-	-	-	-	-	-	-	-	-	-	-	-
11/19	RFF	2.67	<LOR	0.75	10.21	1.21	<LOR	2.21	<LOR	6.96	0.03	0.41	0.65	12.83
	IPF	2.63	<LOR	0.71	11.25	1.06	<LOR	2.13	<LOR	7.30	0.06	0.43	1.02	13.92
	INF	2.58	<LOR	0.77	9.00	1.48	<LOR	2.13	<LOR	7.79	0.06	0.40	0.89	15.00
	Ma Wan Station	2.63	<LOR	0.94	18.88	2.00	<LOR	2.38	<LOR	10.88	0.02	0.40	0.36	18.88
	Shum Shui Kok Station	1.88	<LOR	0.56	25.25	0.81	<LOR	2.00	<LOR	9.75	0.03	0.41	0.29	12.50
	Tai Mo To Station	1.75	<LOR	0.56	12.50	0.69	<LOR	1.13	<LOR	8.13	0.06	0.34	0.25	14.75
	Tai Ho Bay Station 1	1.50	<LOR	0.56	15.50	1.19	<LOR	2.25	<LOR	9.75	0.04	0.42	0.44	12.63
	Tai Ho Bay Station 2	-	-	-	-	-	-	-	-	-	-	-	-	-
11/21	RFF	2.67	<LOR	0.88	8.50	1.44	<LOR	3.13	<LOR	12.54	0.02	0.54	0.73	12.19
	IPF	2.42	<LOR	0.90	1.81	0.75	<LOR	2.50	<LOR	7.46	0.02	0.52	0.76	20.98
	INF	2.54	<LOR	1.15	5.83	1.27	<LOR	2.42	<LOR	7.25	0.03	0.47	0.33	34.04
	Ma Wan Station	2.00	<LOR	0.56	2.13	<LOR	<LOR	2.25	<LOR	2.38	0.03	0.48	1.64	11.88
	Shum Shui Kok Station	2.75	<LOR	<LOR	1.88	<LOR	<LOR	2.38	<LOR	3.25	0.02	0.53	0.41	14.88
	Tai Mo To Station	2.75	<LOR	0.75	2.00	0.81	<LOR	2.63	<LOR	2.50	0.02	0.53	0.33	18.06
	Tai Ho Bay Station 1	2.88	<LOR	<LOR	2.13	<LOR	<LOR	2.63	<LOR	4.38	0.02	0.53	0.29	9.38
	Tai Ho Bay Station 2	-	-	-	-	-	-	-	-	-	-	-	-	-
11/23	RFF	2.42	<LOR	<LOR	1.60	0.52	<LOR	2.33	<LOR	2.33	0.01	0.59	0.25	11.35
	IPF	2.54	<LOR	0.65	2.21	0.67	<LOR	2.04	<LOR	2.42	0.03	0.61	0.37	14.40
	INF	2.58	<LOR	0.52	1.92	0.54	<LOR	1.67	<LOR	2.71	0.03	0.54	0.30	15.31
	Ma Wan Station	1.75	<LOR	<LOR	1.25	<LOR	<LOR	1.88	<LOR	<LOR	0.04	0.53	0.28	7.56
	Shum Shui Kok Station	1.38	<LOR	<LOR	1.00	<LOR	<LOR	2.13	<LOR	<LOR	0.01	0.59	0.25	10.25
	Tai Mo To Station	1.25	<LOR	<LOR	1.75	<LOR	<LOR	2.13	<LOR	4.13	0.03	0.61	0.25	11.56
	Tai Ho Bay Station 1	1.13	<LOR	<LOR	1.00	<LOR	<LOR	2.25	<LOR	3.00	0.03	0.63	0.29	10.13
	Tai Ho Bay Station 2	1.38	<LOR	<LOR	1.63	<LOR	<LOR	2.00	<LOR	23.00	0.01	0.49	0.28	5.38
11/26	RFF	1.63	<LOR	<LOR	3.33	0.67	<LOR	1.83	<LOR	4.96	0.04	0.56	0.31	5.04
	IPF	2.50	<LOR	0.77	9.33	0.92	<LOR	2.96	<LOR	8.42	0.05	0.54	0.31	16.40
	INF	2.00	<LOR	<LOR	6.42	0.63	<LOR	1.63	<LOR	7.13	0.05	0.42	0.32	6.17
	Ma Wan Station	1.63	<LOR	<LOR	6.56	0.94	<LOR	2.25	<LOR	9.38	0.07	0.38	0.83	4.88
	Shum Shui Kok Station	2.00	<LOR	<LOR	1.31	<LOR	<LOR	1.38	<LOR	3.50	0.06	0.47	0.58	6.50
	Tai Mo To Station	1.38	<LOR	<LOR	8.63	0.81	<LOR	1.75	<LOR	7.63	0.05	0.51	0.25	7.94
	Tai Ho Bay Station 1	1.50	<LOR	<LOR	1.06	<LOR	<LOR	2.00	<LOR	2.38	0.03	0.60	0.53	5.75
	Tai Ho Bay Station 2	1.50	<LOR	<LOR	2.13	<LOR	<LOR	2.50	<LOR	5.13	0.01	0.65	0.76	3.25

Date	Stations	As (µg/L)	Cd (µg/L)	Cr (µg/L)	Cu (µg/L)	Pb (µg/L)	Hg (µg/L)	Ni (µg/L)	Ag (µg/L)	Zn (µg/L)	NH ₃ (mg/L)	TIN (mg/L)	BOD ₅ (mg/L)	SS (mg/L)
11/28	RFF	1.75	<LOR	<LOR	0.73	<LOR	<LOR	1.35	<LOR	2.67	0.05	0.42	0.47	10.71
	IPF	2.50	<LOR	1.40	1.71	1.42	<LOR	1.85	<LOR	4.79	0.08	0.40	0.59	34.90
	INF	1.96	<LOR	<LOR	1.04	<LOR	<LOR	0.73	<LOR	3.67	0.10	0.32	0.43	9.21
	Ma Wan Station	1.75	<LOR	<LOR	0.56	<LOR	<LOR	<LOR	<LOR	4.50	0.10	0.33	0.86	5.00
	Shum Shui Kok Station	1.75	<LOR	<LOR	0.63	<LOR	<LOR	0.63	<LOR	<LOR	0.07	0.33	0.61	5.25
	Tai Mo To Station	1.63	<LOR	<LOR	0.75	<LOR	<LOR	0.75	<LOR	<LOR	0.09	0.37	0.89	6.81
	Tai Ho Bay Station 1	1.75	<LOR	<LOR	0.56	<LOR	<LOR	2.00	<LOR	3.50	0.02	0.52	0.46	3.25
	Tai Ho Bay Station 2	1.63	<LOR	<LOR	0.94	<LOR	<LOR	2.13	<LOR	4.25	0.04	0.59	0.90	3.75
11/30	RFF	1.08	<LOR	0.73	6.55	0.55	<LOR	1.06	<LOR	6.15	0.05	0.31	0.55	7.50
	IPF	1.68	<LOR	<LOR	2.15	0.51	<LOR	1.14	<LOR	3.73	0.03	0.33	0.79	8.46
	INF	1.28	0.11	<LOR	0.99	0.56	<LOR	1.34	<LOR	3.30	0.01	0.45	0.52	11.83
	Ma Wan Station	<LOR	<LOR	0.56	3.00	<LOR	<LOR	0.75	<LOR	5.75	0.03	0.25	0.43	7.63
	Shum Shui Kok Station	1.25	<LOR	<LOR	3.75	<LOR	<LOR	0.63	<LOR	7.88	0.04	0.28	0.62	8.25
	Tai Mo To Station	<LOR	<LOR	2.38	11.88	0.56	<LOR	2.38	<LOR	14.88	0.04	0.39	1.11	9.25
	Tai Ho Bay Station 1	<LOR	<LOR	<LOR	0.63	<LOR	<LOR	0.94	<LOR	<LOR	0.01	0.42	0.52	7.25
	Tai Ho Bay Station 2	<LOR	<LOR	0.56	1.25	<LOR	<LOR	1.75	<LOR	4.75	0.01	0.52	0.39	4.75
Wet Season WQO of SS: 12.0 mg/L Dry Season WQO of SS: 14.4 mg/L														

Note:

Sampling at THB2 was cancelled due to adverse weather condition on 12, 14, 16, 19 and 21 November 2013.

Table C5 *Monthly Averaged In-situ Monitoring Results for Routine Water Quality Monitoring of CMP 1 in October/November 2013*

Sampling Period	Stations	Temp (°C)	Salinity (ppt)	Turbidity (NTU)	Dissolved Oxygen		pH (mg L ⁻¹)
					(%)	(mg L ⁻¹)	
2013/10	RFF (Reference)	26.65	29.07	14.80	96.02	6.54	7.95
	IPF (Impact)	26.57	29.05	11.79	99.56	6.80	7.99
	INF (Intermediate)	26.62	29.27	14.24	100.74	6.87	7.98
	Ma Wan Station	26.89	30.52	6.96	86.25	5.80	7.92
	Shum Shui Kok Station	26.73	29.66	8.22	91.34	6.20	7.97
	Tai Mo To Station	26.61	29.01	12.33	96.73	6.60	7.95
	Tai Ho Bay Station 1	26.55	28.90	10.68	103.38	7.06	8.00
	Tai Ho Bay Station 2	26.64	28.42	10.29	93.06	6.36	7.79
	WQO	N/A	26.16-31.97#	N/A	N/A	>4	6.5-8.5
2013/11	RFF (Reference)	23.52	30.83	8.31	93.00	6.62	7.91
	IPF (Impact)	23.45	30.54	10.88	93.61	6.67	7.92
	INF (Intermediate)	23.44	30.69	11.66	94.27	6.72	7.91
	Ma Wan Station	23.50	31.48	6.64	88.23	6.26	7.88
	Shum Shui Kok Station	23.38	31.06	7.31	88.98	6.34	7.91
	Tai Mo To Station	23.25	30.64	9.25	92.91	6.65	7.91
	Tai Ho Bay Station 1	23.52	30.17	8.78	96.38	6.88	7.93
	Tai Ho Bay Station 2	23.63	29.85	8.52	91.89	6.56	7.74

Sampling Period	Stations	Temp (°C)	Salinity (ppt)	Turbidity (NTU)	Dissolved Oxygen (%)	pH (mg L ⁻¹)
	WQO	N/A	27.75-33.92#	N/A	N/A	>4 6.5-8.5

Note: #Not exceeding 10% of natural ambient level which is the result obtained from the Reference Station.

Table C6 *Monthly Averaged Laboratory Results for Routine Water Quality Monitoring of CMP 1 in October/November 2013*

Sampling Period	Stations	As (µg/L)	Cd (µg/L)	Cr (µg/L)	Cu (µg/L)	Pb (µg/L)	Hg (µg/L)	Ni (µg/L)	Ag (µg/L)	Zn (µg/L)	NH ₃ (mg/L)	TIN (mg/L)	BOD ₅ (mg/L)	SS (mg/L)
2013/10	RFF	1.93	0.11	0.92	5.04	1.03	<LOR	2.30	<LOR	8.45	0.01	0.41	0.65	20.57
	IPF	1.72	<LOR	0.85	4.85	0.88	<LOR	2.26	<LOR	8.83	0.01	0.39	0.83	17.80
	INF	1.88	<LOR	0.88	5.09	1.25	<LOR	2.26	<LOR	10.24	0.01	0.34	0.76	21.36
	Ma Wan Station	1.72	0.13	0.91	6.78	1.50	<LOR	2.41	<LOR	16.82	0.03	0.30	0.85	12.48
	Shum Shui Kok Station	1.78	<LOR	0.74	4.84	1.00	<LOR	2.13	<LOR	9.79	0.02	0.38	0.71	11.40
	Tai Mo To Station	1.94	<LOR	0.83	4.01	0.92	<LOR	2.30	<LOR	8.36	0.01	0.41	0.80	17.05
	Tai Ho Bay Station 1	1.88	<LOR	0.81	6.07	0.86	<LOR	2.35	<LOR	10.85	0.01	0.37	0.83	13.49
	Tai Ho Bay Station 2	1.53	<LOR	0.66	1.91	0.84	<LOR	1.92	<LOR	9.93	0.01	0.32	0.82	6.26
2013/11	RFF	1.87	<LOR	0.75	6.00	0.76	<LOR	1.88	<LOR	6.33	0.05	0.37	0.60	12.32
	IPF	2.05	<LOR	0.71	5.02	0.80	<LOR	2.04	<LOR	6.33	0.05	0.37	0.80	13.95
	INF	2.03	<LOR	0.80	5.30	1.01	<LOR	2.00	<LOR	6.81	0.04	0.35	0.64	17.28
	Ma Wan Station	1.71	<LOR	0.72	6.72	1.10	<LOR	1.87	<LOR	9.41	0.06	0.33	0.79	12.86
	Shum Shui Kok Station	1.63	<LOR	0.56	5.36	0.61	<LOR	1.55	<LOR	5.57	0.05	0.35	0.61	10.85
	Tai Mo To Station	1.64	<LOR	0.70	5.42	0.63	<LOR	1.85	<LOR	6.30	0.05	0.38	0.53	12.75
	Tai Ho Bay Station 1	1.78	<LOR	0.55	6.99	0.72	<LOR	1.98	<LOR	5.93	0.04	0.40	0.55	11.59
	Tai Ho Bay Station 2	1.42	<LOR	0.52	1.73	<LOR	<LOR	1.88	<LOR	7.19	0.03	0.41	0.61	6.05

Wet Season WQO of SS: 12.0 mg/L
Dry Season WQO of SS: 14.4 mg/L

Annex D

Dredging Record for CMP 2 in December 2013

Table D1 Dredging Record at SB CMP 2 in December 2013

Date	Daily Dredging Volume (m³)	Weekly Dredging Volume (m3)
01-Dec-2013	9,750	35,100
02-Dec-2013	11,050	33,800
03-Dec-2013	4,550	29,900
04-Dec-2013	7,150	33,150
05-Dec-2013	0	33,800
06-Dec-2013	0	37,050
07-Dec-2013	2,600	43,550
08-Dec-2013	8,450	47,450
09-Dec-2013	7,150	44,850
10-Dec-2013	7,800	42,900
11-Dec-2013	7,800	40,950
12-Dec-2013	3,250	-
13-Dec-2013	6,500	-
14-Dec-2013	6,500	-
15-Dec-2013	5,850	-
16-Dec-2013	5,200	-
17-Dec-2013	5,850	-

Note: Daily Dredging Volume is unavailable during the preparation of this monthly report hence the Weekly dredging Volume are not calculated from 12 December 2013.

Annex E

Study Programme

