MATERIALAB CONSULTANTS LIMITED
Fugro Development Centre,
5 Lok Yi Street,
17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com.hk

Report No.: 0394/13/ED/0291A

Quarterly EM&A Report

May 2015 - July 2015

Client : China International Water & Electric Corporation

Project: Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel – CV/2013/04

Report No.: 0394/13/ED/0291A

Project Proponent:

Civil Engineering & Development Department
101 Princess Margaret Road,
Homantin,
Kowloon, Hong Kong.

Prepared by: Cyrus Lai

Reviewed by: Vincent Chan

Certified by: _____
Colin Yung
Environmental Team Leader for
MateriaLab Consultants Limited

RAMBOLL ENVIRON

Ref.: CEDDWKTBEM00_0_0211L.15

25 September 2015
By Post and Fax (2419 6218)

Mott MacDonald Hong Kong Ltd.
20/F, AIA Kowloon Tower,
Landmark East,
100 How Ming Street,
Kwun Tong, Kowloon

Attention: Ir Chau T C, Felix, Engineer's Representative

Dear Ir Chau,

Re: Agreement No. CE 63/2008 (CE)
Dredging Works in Kwai Tsing Container Basin and its Approach Channel – Investigation, Design and Construction)

Contract No. CV/2013/04
Dredging Works in Kwai Tsing Container Basin and its Approach Channel
Verification of Quarterly EM&A Report for May 2015 to July 2015

Reference is made to the Environmental Team's submission of the Quarterly Environmental Monitoring & Audit Report for May 2015 to July 2015 (ET's Report. No. 0394/13/ED/0291A) received by e-mail on 24 September 2015.

We write to verify the captioned report in accordance with Section 12.4 iii of EM&A Manual (AEIAR-156/2010).

Thank you very much for your kind attention and please do not hesitate to contact our Ms Laraine Chau or the undersigned should you have any queries.

Yours faithfully,
For and on behalf of
Ramboll Environ Hong Kong Limited

Y H Hui
Independent Environmental Checker

Cc:	MMHK	Mr. C M Howley	2827 1823 (by fax)
	MateriaLab	Mr. Colin Yung	2450 6138 (by fax)
	CIWE	Mr. K.O. Leung and Mr. Lam Wai-hung	2419 6028 (by fax)

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Ramboll Environ Hong Kong Limited 英環香港有限公司
Room 2403, 24/F., Jubilee Centre, 18 Fenwick Street, Wanchai, Hong Kong Tel: 852.3465 2888 Fax: 852.3465 2899
www.Ramboll-Environ.com

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TABLE OF CONTENTS

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TABLES:

FIGURES:

APPENDICES:

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EXECUTIVE SUMMARY

i. This is the Fifth Quarterly Environmental Monitoring Audit (EM&A) Report – May 2015 - July 2015 for Contract No. CV/2013/04 – Dredging Works in Kwai Tsing and its Approach Channel (CE63/2008 – Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel). The dredging works commenced on 23 April 2014. This report presents the environmental monitoring and audit works conducted from 23 April 2015 to 22 July 2015.

ii. Construction Activities for the Reporting Period
During this reporting period, the principal work activities included:

May 2015	June 2015	July 2015
• Dredging at Portion A / Zone 1B, Zone 2C1, 2C2, 2C3, 2C4 and Zone 4A and 4B in EP • Dredging at Portion B / Zone 5B, Zone 6B, 6C, 6D and Zone 8 in EP • Dredging at Portion C / Zone 10 and Zone 12 in EP	• Dredging at Portion A / Zone 1B, Zone 2A2, 2C1, 2C2, 2C3, Zone 3A and Zone 4B in EP • Dredging at Portion B / Zone 5A, Zone 6A, 6B, 6C and Zone 8 in EP • Dredging at Portion C / Zone 10 in EP	• Dredging at Portion A / Zone 1B and Zone 2A1, 2A2, 2A3, 2C1 and 2C2 in EP • Dredging at Portion B / Zone 6A and 6B in EP • Dredging at Portion C / Zone 10 in EP

iii. Water Quality Monitoring
Routine impact water quality monitoring at 22 designated monitoring stations namely C1, C2, C3, G1, G2, G3, G4, G5, G6, SR1, SR2, SR3, SR4, SR5, SR6, SR7, SR8, SR9, SR10, SR11, SR12 and SR13 were conducted during the reporting period. Exceedances of DO (S&M), DO (B), TIN (in-situ & lab) and Suspended Solids were recorded at various monitoring stations, detail of exceedance are summarized in **Table I and II**. However, investigation indicated these exceedances were not related to the Project works.

Table I Summary of Water Quality Exceedances – Routine Impact Monitoring (In-situ)

Station	Exceedance Level	DO (S&M)		DO (B)		Turbidity		NH3-N		UIA		TIN		Total	
		E	F	E	F	E	F	E	F	E	F	E	F	E	F
SR1	Action	0	0	0	0	0	0	0	0	0	0	-	-	0	0
	Limit	0	0	0	0	0	0	0	0	0	0	-	-	0	0
SR2	Action	0	0	0	0	0	0	0	0	0	0	-	-	0	0
	Limit	0	0	0	0	0	0	0	0	0	0	-	-	0	0
SR3	Action	0	0	0	0	0	0	0	0	0	0	-	-	0	0
	Limit	1	1	1	1	0	0	0	0	0	0	-	-	2	2
SR4	Action	0	0	0	0	0	0	0	0	0	0	-	-	0	0
	Limit	0	0	0	0	0	0	0	0	0	0	-	-	0	0
SR5	Action	0	0	0	0	0	0	-	-	-	-	2	2	2	2
	Limit	0	0	3	3	0	0	-	-	-	-	31	32	34	35
SR6	Action	0	0	1	0	0	0	-	-	-	-	-	-	1	0
	Limit	2	3	3	4	0	0	-	-	-	-	-	-	5	7
SR7	Action	0	0	0	0	0	0	-	-	-	-	-	-	0	0
	Limit	4	4	10	10	0	0	-	-	-	-	-	-	14	14
SR8	Action	0	0	0	0	0	0	-	-	-	-	-	-	0	0
	Limit	2	2	2	2	0	0	-	-	-	-	-	-	4	4
SR9	Action	0	0	0	1	0	0	-	-	-	-	6	5	6	6

Station	Exceedance Level	DO (S&M)		DO (B)		Turbidity		NH3-N		UIA		TIN		Total	
	Limit	0	0	6	6	0	0	-	-	-	-	16	16	22	22
SR10	Action	0	0	0	0	0	0	-	-	-	-	10	10	10	10
	Limit	0	0	8	8	0	0	-	-	-	-	15	15	23	23
SR11	Action	0	0	0	0	0	0	-	-	-	-	12	12	12	12
	Limit	0	0	6	6	0	0	-	-	-	-	8	7	14	13
SR12	Action	0	0	0	0	0	0	0	0	0	0	-	-	0	0
	Limit	0	0	0	0	0	0	0	0	0	0	-	-	0	0
SR13	Action	0	0	0	0	0	0	-	-	-	-	-	-	0	0
	Limit	0	0	0	0	0	0	-	-	-	-	-	-	0	0
Total	Action	0	0	1	1	0	0	0	0	0	0	30	29	61	
	Limit	9	10	39	40	0	0	0	0	0	0	70	70	238	

Table II Summary of Water Quality Exceedances – Routine Impact Monitoring (Laboratory Analysis)

Station	Exceedance Level	Suspended Solids		BOD_5		*E. coli*		NH_3-N		UIA		Synthetic Detergent		TIN		Total	
		E	F	E	F	E	F	E	F	E	F	E	F	E	F	E	F
SR1	Action	0	0	0	0	0	0	0	0	0	0	0	0	-	-	0	0
	Limit	0	0	0	0	0	0	0	0	0	0	0	0	-	-	0	0
SR2	Action	0	0	-	-	-	-	0	0	0	0	-	-	-	-	0	0
	Limit	0	0	-	-	-	-	0	0	0	0	-	-	-	-	0	0
SR3	Action	0	0	-	-	-	-	0	0	0	0	-	-	-	-	0	0
	Limit	0	0	-	-	-	-	0	0	0	0	-	-	-	-	0	0
SR4	Action	0	0	0	0	0	0	0	0	0	0	0	0	-	-	0	0
	Limit	0	1	0	0	0	0	0	0	0	0	0	0	-	-	0	1
SR5	Action	0	0	-	-	-	-	-	-	-	-	-	-	3	2	3	2
	Limit	0	1	-	-	-	-	-	-	-	-	-	-	30	32	30	33
SR6	Action	0	0	-	-	-	-	-	-	-	-	-	-	-	-	0	0
	Limit	0	0	-	-	-	-	-	-	-	-	-	-	-	-	0	0
SR7	Action	0	0	-	-	-	-	-	-	-	-	-	-	-	-	0	0
	Limit	0	0	-	-	-	-	-	-	-	-	-	-	-	-	0	0
SR8	Action	0	0	-	-	-	-	-	-	-	-	-	-	-	-	0	0
	Limit	0	0	-	-	-	-	-	-	-	-	-	-	-	-	0	0
SR9	Action	0	0	-	-	-	-	-	-	-	-	-	-	7	5	7	5
	Limit	0	0	-	-	-	-	-	-	-	-	-	-	16	16	16	16
SR10	Action	0	0	-	-	-	-	-	-	-	-	-	-	9	10	9	10
	Limit	0	0	-	-	-	-	-	-	-	-	-	-	16	15	16	15
SR11	Action	0	0	-	-	-	-	-	-	-	-	-	-	12	12	12	12
	Limit	0	0	-	-	-	-	-	-	-	-	-	-	8	7	8	7
SR12	Action	0	0	0	0	0	0	0	0	0	0	0	0	-	-	0	0
	Limit	0	1	0	0	0	0	0	0	0	0	0	0	-	-	0	1
SR13	Action	0	0	-	-	-	-	-	-	-	-	-	-	-	-	0	0
	Limit	0	0	-	-	-	-	-	-	-	-	-	-	-	-	0	0
Total	Action	0	0	0	0	0	0	0	0	0	0	0	0	31	29	60	
	Limit	0	3	0	0	0	0	0	0	0	0	0	0	70	70	143	

Among the 22 monitoring stations, supplementary 24-hr water quality monitoring was also conducted at 7 of the stations, which are SR4, SR5, SR9, SR10, SR11, SR12 and SR13. One (1) exceedance of Turbidity was recorded, detail of exceedance is summarized in **Table III**. However, investigation indicated the exceedance was not related to the Project works.

Table III Summary of the Exceedances Recorded in Reporting Quarter – 24-hr Monitoring

Station	Exceedance Level	Turbidity	DO	NH_3-N	Total
SR4	Action	0	0	0	0
	Limit	1	0	0	1
SR5	Action	0	0	-	0
	Limit	0	0	-	0
SR9	Action	0	0	-	0
	Limit	0	0	-	0
SR10	Action	0	0	-	0
	Limit	0	0	-	0
SR11	Action	0	0	-	0
	Limit	0	0	-	0
SR12	Action	0	0	0	0
	Limit	0	0	0	0
SR13	Action	0	0	-	0
	Limit	0	0	-	0
Total	Action	0	0	0	0
	Limit	1	0	0	1

iii. Waste Management

iv. There was marine sediment (Type 1 – Open Sea Disposal and Type 2 – Confined Marine Disposal) disposed to East Sha Chau Pit IVc or Va and South of Brothers CMP1 or CMP2. No inert or non-inert C&D material related to dredging works and a small amount of general refuse were disposed off site in the reporting period.

v. Non-Compliance, Complaints, Notifications of Summons and Successful Prosecutions
No complaint, notification of prosecutions or summons was received in the reporting period.

vi. Site Inspections and Audit
The Environmental Team conducted 13 site inspections in the reporting period. The Contractor was reminded to maintain and repair the silt curtain at good condition, to tightly close the dredger during transportation and to improve the housekeeping of deck of the dredger. Also, the Contractor was reminded to shut the opening of the drip tray when using for storage

Other general housekeeping shall be maintained, such as to keep clean in the two side of drainage area in Portion F by weeding regularly, to remove the stagnant water in the drip tray in the storage area and to store the chemical/ mechanical fuel properly.

According to Contractor, no archaeological deposit was found during reporting period.

vii. Compliance with Specific EP conditions
Implementation of contractor's mitigation for dredging work and the associated dredging records were checked. It was concluded that the dredging is conducted orderly in compliance with the EP requirements on site mitigation measures in general.

viii. Construction Activities for the Coming Reporting Period

During the coming reporting period, the principal work activities include:

- Dredging at Portion A / Zone 1B in EP
- Dredging at Portion B / Zone 6A and 6B in EP
- Dredging at Portion C / Zone 10 in EP

Future Key Issues include:

- Regular inspection on silt curtain deployment
- Regular inspection on silt screen deployment
- Implementation of EM&A Programme
- Maintain dredging below allowable dredging rate in EP.
- Cleaning of excess material from the decks and exposed fittings of barges and dredgers before the vessel is moved.
- Barge loading shall be monitored to ensure material is not lost during transportation.
- Conditions in dumping permit shall be followed strictly.

1. INTRODUCTION

1.1 Background

1.1.1 The Project objective is to dredge approximately 4.0 million cubic metres of sediment from the seabed of Kwai Tsing Container Basin, as well as portions of Northern Fairway and Western Fairway, to provide sufficient depth of container basin and approach channel to Kwai Tsing Container Terminal (KTCT) for the safe navigation of Ultra Large Container Ships (ULCS).

1.1.2 The environmental monitoring and audit works of this Project is governed by Environmental Permit (EP) No. EP-426/2011/A, EM&A Manual (AEIAR-156/2010) and EM&A TIN (EPD Letter Ref: (34) in Ax(1) to EP2/N3/C/57Pt.7)).

1.1.3 The project proponent was the Civil Engineering & Development Department, HKSAR (CEDD). The Project General Layout is shown in **Figure 1**.

1.1.4 Mott MacDonald Hong Kong Ltd. (MMHK) was commissioned by CEDD as the Engineer for the Project. Ramboll Environ Hong Kong Limited (REHK) was employed as the Independent Environmental Checker (IEC) in the Project.

1.1.5 China International Water & Electric Corporation Limited (CIW&E) was appointed as the main contractor for the dredging works.

1.1.6 MateriaLab Consultants Limited (MCL) was appointed as the Environmental Team (ET) to implement the Environmental Monitoring and Audit (EM&A) programme for the Project.

1.1.7 The construction phase of the Project under the EP was commenced on 23 April 2014.The impact EM&A programme of the Project commenced on 23 April 2014.

1.2 Purpose of the Report

1.2.1 This Fifth Quarterly EM&A Report is prepared by MCL. This report presents a summary of the environmental monitoring and audit works, list of activities and mitigation measures proposed by the ET for the Project in 23 April 2015 to 22 July 2015.

1.3 Structure of the Report

1.3.1 The structure of this report is as follows:

Section 1: Introduction, including background, purpose and structure of the report
Section 2: Basic Project Information – summaries background and scope of the Contract, site description, project organization and contract details, construction programme, the construction works undertaken and the status of Environmental Permits/Licenses during the reporting period.
Section 3: Routine Impact Water Quality Monitoring – summaries the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency,

monitoring locations, Action and Limit Levels, monitoring results and Event / Action Plans.

Section 4: 24-hr Water Quality Monitoring – summaries the monitoring parameters, monitoring programmes, monitoring methodologies, monitoring frequency, monitoring locations, Action and Limit Levels, monitoring results and Event / Action Plans.

Section 5: Environmental Site Inspection – summaries the audit findings of the weekly site inspections undertaken within the reporting period.

Section 7: Non-Compliance, Complaints, notifications of summons and Prosecution – summaries any environmental complaints, environmental summons and successful prosecutions within the reporting period.

Section 8: Conclusions and Recommendation

2. BASIC PROJECT INFORMATION

2.1 Project Organizations

2.1.1 The Project Organization structure is shown in **Appendix A**. The key personnel contact names and numbers are summarized in **Table 2.1.**

Table 2-1 Key Personnel Contact of the Contract

Party	Position	Name	Telephone	Fax
Engineer's Representative (MMHK)	Senior Resident Engineer	Ir. Felix Chau	2419 6008	2419 6218
Independent Environmental Checker (REHK)	Independent Environmental Checker	Mr. YH Hui	3465 2888	3465 2899
Contractor (CIW&E)	Site Agent	Mr. KO Leung	2419 6008	2419 6218
	Environmental Officer	Mr. WH Lam	2419 6008	2419 6218
Environmental Team (MCL)	Environmental Team Leader	Mr. Colin Yung	3565 4114	3565 4160

2.2 Construction Programme and Synopsis of Work

2.2.1 The construction phase of the Project under the EP commenced on 23 April 2014.

2.2.2 The construction programme of the Project is shown in **Appendix B.**

2.2.3 The environmental mitigation measures implementation schedule is presented in **Appendix F.**

2.3 Works undertaken during the quarter

During the reporting period, according to the Contractor, the principal work activities include:

May 2015	June 2015	July 2015
• Dredging at Portion A / Zone 1B, Zone 2C1, 2C2, 2C3, 2C4 and Zone 4A and 4B in EP • Dredging at Portion B / Zone 5B, Zone 6B, 6C, 6D and Zone 8 in EP • Dredging at Portion C / Zone 10 and Zone 12 in EP	• Dredging at Portion A / Zone 1B, Zone 2A2, 2C1, 2C2, 2C3, Zone 3A and Zone 4B in EP • Dredging at Portion B / Zone 5A, Zone 6A, 6B, 6C and Zone 8 in EP • Dredging at Portion C / Zone 10 in EP	• Dredging at Portion A / Zone 1B and Zone 2A1, 2A2, 2A3, 2C1 and 2C2 in EP • Dredging at Portion B / Zone 6A and 6B in EP • Dredging at Portion C / Zone 10 in EP

Daily dredging quantity in the reporting period is provided in **Table 2.2.**

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Table 2-2 Detail Dredging Quantity

Date	Dredged Quantity (in-situ, m^3)				
	Portion A			Portion B	Portion C
	Zone (Maximum Allowable Daily Dredged Rate)			Max Allowable Daily Dredged Rate=4000	
23/04/2015	2C1: 1015(1550)	0	0	0	3500
24/04/2015	2C1: 535(1550)	1B: 1200(2050)	0	800	3000
25/04/2015	2C2: 2050(2050)	0	0	400	3500
26/04/2015	0	0	0	2400	3000
27/04/2015	0	0	0	1200	3423
28/04/2015	2C3: 3250(4000)	0	0	800	1500
29/04/2015	0	1B: 800(2050)	0	800	3000
30/04/2015	0	0	0	2000	3500
01/05/2015	1B: 800(2050)	0	0	1200	3500
02/05/2015	4B: 800(3440)	0	0	1600	4000
03/05/2015	0	0	0	2800	3500
04/05/2015	0	0	0	2000	2500
05/05/2015	2C4: 2400(2900)	0	0	800	1500
06/05/2015	0	4A: 400(3440)	0	1200	0
07/05/2015	0	0	0	2000	0
08/05/2015	0	0	0	2000	0
09/05/2015	0	0	0	1600	0
10/05/2015	1B: 400(2050)	0	0	800	0
11/05/2015	1B: 400(2050)	0	0	800	0
12/05/2015	4B:400(3440)	0	0	1600	0
13/05/2015	2C1: 1550(1550)	0	0	0	0
14/05/2015	0	0	0	1200	0
15/05/2015	4B: 1200(3440)	0	0	800	0
16/05/2015	1B: 800(2050)	0	0	1200	0
17/05/2015	0	0	0	2400	0
18/05/2015	0	0	0	2000	0
19/05/2015	1B: 1600(2050)	0	0	400	0
20/05/2015	2C1: 800(1550)	4B: 400(3440)	0	400	0
21/05/2015	0	0	0	1600	0
22/05/2015	0	0	0	1200	0

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Date	Dredged Quantity (in-situ, m^3)				
	Portion A			Portion B	Portion C
	Zone (Maximum Allowable Daily Dredged Rate)			Max Allowable Daily Dredged Rate=4000	
23/05/2015	0	0	0	1600	0
24/05/2015	2C1: 800(1550)	0	0	1200	0
25/05/2015	0	0	0	1600	0
26/05/2015	2C1: 1550(1550)	0	0	0	0
27/05/2015	2C1: 800(1550)	2C2: 400(2050)	0	800	0
28/05/2015	1B: 800(2050)	0	0	1200	0
29/05/2015	2C1: 400(1550)	4B: 400(3440)	0	1200	0
30/05/2015	3A: 1600(3440)	4B: 400(3440)	0	400	0
31/05/2015	2C3: 800(4000)	4B: 400(3440)	0	400	0
01/06/2015	2C1: 1200(1550)	0	0	400	0
02/06/2015	2C1: 800(1550)	3A: 400(3440)	0	0	0
03/06/2015	2C1: 800(1550)	0	0	0	0
04/06/2015	0	0	0	0	0
05/06/2015	0	0	0	0	0
06/06/2015	0	0	0	0	0
07/06/2015	2C1: 400(1550)	0	0	0	0
08/06/2015	1B: 400(2050)	2C1: 1200(1550)	0	0	0
09/06/2015	1B: 400(2050)	2A2: 1450(1450)	0	400	0
10/06/2015	2C1: 1200(1550)	0	0	400	400
11/06/2015	0	0	0	0	0
12/06/2015	0	0	0	0	0
13/06/2015	2C2: 800(2050)	0	0	0	400
14/06/2015	2A2: 800(1450)	0	0	0	1600
15/06/2015	2A2: 800(1450)	0	0	0	1200
16/06/2015	1B: 400(2050)	2C2: 800(2050)	0	0	800
17/06/2015	0	0	0	0	2400
18/06/2015	2C2: 800(2050)	0	0	400	400
19/06/2015	2C2: 800(2050)	0	0	800	0
20/06/2015	1B: 400(2050)	0	0	1600	0
21/06/2015	1B: 400(2050)	0	0	800	800
22/06/2015	1B: 400(2050)	0	0	0	1200

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Date	Dredged Quantity (in-situ, m^3)				
	Portion A			Portion B	Portion C
	Zone (Maximum Allowable Daily Dredged Rate)			Max Allowable Daily Dredged Rate=4000	
23/06/2015	1B: 400(2050)	0	0	800	0
24/06/2015	1B: 800(2050)	0	0	0	0
25/06/2015	2A2: 800(1450)	0	0	1600	0
26/06/2015	1B: 400(2050)	0	0	2400	0
27/06/2015	1B: 800(2050)	0	0	0	1200
28/06/2015	1B: 400(2050)	0	0	0	0
29/06/2015	0	0	0	0	0
30/06/2015	1B: 800(2050)	0	0	800	0
01/07/2015	1B: 800(2050)	2A2: 400(1450)	0	0	800
02/07/2015	2C1: 400(1550)	0	0	0	2000
03/07/2015	1B: 800(2050)	0	0	0	1200
04/07/2015	2A3: 400(2900)	0	0	0	1200
05/07/2015	1B: 800(2050)	0	0	0	400
06/07/2015	0	0	0	0	0
07/07/2015	0	0	0	0	0
08/07/2015	0	0	0	0	0
09/07/2015	0	0	0	0	0
10/07/2015	0	0	0	0	0
11/07/2015	0	0	0	0	1200
12/07/2015	2A2: 800(1450)	0	0	0	1600
13/07/2015	0	0	0	0	0
14/07/2015	0	0	0	0	0
15/07/2015	0	0	0	0	0
16/07/2015	0	0	0	0	0
17/07/2015	0	0	0	0	0
18/07/2015	0	0	0	0	0
19/07/2015	1B: 800(2050)	0	0	0	1200
20/07/2015	2A1: 400(2000)	0	0	0	1200
21/07/2015	2C2: 800(2050)	0	0	0	800
22/07/2015	0	0	0	0	800

3. EM&A REQUIREMENTS – ROUTINE IMPACT MONITORING

3.1 Monitoring Parameters

3.1.1 The monitoring parameters and frequency for both in-situ measurement and laboratory analysis are summarised in **Table 3.1**. Parameters for each monitoring station are specified in **Table 3.2**.

Table 3-1 **Monitoring Parameters and Frequency**

Parameters	Monitoring Frequency
In-situ Measurement Turbidity (in NTU), pH, Dissolved Oxygen (in mg/L and %), Temperature (in °C), Salinity (in ppt), [1]Ammonia-N (in mg/L-N and UIA); [2]TIN: Ammonia-N (in mg/L), Nitrite (in mg/L), Nitrate (in mg/L) Laboratory Analysis [1]Ammonia-N (in mg/L-N and UIA), Suspended Solids (SS), [2]BOD_5, [2]*E.coli*, [2]Synthetic Detergent; [2]TIN: Ammonia-N (in mg/L), Nitrite (in mg/L), Nitrate (in mg/L)	3 days per week, at mid-flood and mid-ebb tides (except detergent which shall be taken one day per month, at mid-flood and mid-ebb) 36 hours interval was allowed between subsequent sets of measurement.

Notes:
1. Ammonia measurements and samples were taken at SR1, SR2, SR3, SR4, SR12, C1, C2, C3 only; UIA: In-situ unionized ammonia was calculated from in-situ measurement of NH_3-N, temperature, pH and salinity; Laboratory determined unionized ammonia was calculated from analysed NH_3-N from water samples and in-situ measurement of temperature, pH and salinity;
2. Total Inorganic Nitrogen (TIN) measurements and samples were taken at SR5, SR9, SR10, SR11, G1, G2, G3, G4, G5, G6 only;
3. BOD_5, *E.coli* and Synthetic Detergent samples were taken at SR1, SR4, SR12, C1, C2, C3 only.

Table 3-2 **Water Quality Monitoring Parameters**

ID	In-situ Measurement							Laboratory Analysis					
	pH	Temperature	Salinity	Turbidity	Dissolved Oxygen / Dissolved Oxygen%	NH_3-N / UIA	TIN (NH_3-N, NO_2 & NO_3)	Suspended Solids	BOD_5	*E. coli*	NH_3-N / UIA	Synthetic Detergent	TIN (NH_3-N, NO_2 & NO_3)
SR1	O	O	O	O	O	O		O	O	O	O	O	
SR2	O	O	O	O	O	O		O			O		
SR3	O	O	O	O	O	O		O			O		
SR4	O	O	O	O	O	O		O	O	O	O	O	
SR5	O	O	O	O	O		O	O					O
SR6	O	O	O	O	O			O					
SR7	O	O	O	O	O			O					
SR8	O	O	O	O	O			O					
SR9	O	O	O	O	O		O	O					O
SR10	O	O	O	O	O		O	O					O
SR11	O	O	O	O	O		O	O					O
SR12	O	O	O	O	O	O		O	O	O	O	O	
SR13	O	O	O	O	O			O					
G1	O	O	O	O	O		O	O					O
G2	O	O	O	O	O		O	O					O
G3	O	O	O	O	O		O	O					O
G4	O	O	O	O	O		O	O					O
G5	O	O	O	O	O		O	O					O
G6	O	O	O	O	O		O	O					O
C1	O	O	O	O	O	O		O	O	O	O	O	
C2	O	O	O	O	O	O		O	O	O	O	O	
C3	O	O	O	O	O	O		O	O	O	O	O	

Note:

1. UIA: In-situ unionized ammonia was calculated from in-situ measurement of NH_3-N, temperature, pH and salinity; laboratory determined unionized ammonia was calculated from analysed NH_3-N from water samples taken and in-situ measurement of temperature, pH and salinity.

3.2 Monitoring Locations

3.2.1 Impact water quality monitoring was conducted at 22 locations, including 13 sensitive receivers (SR1-13), 6 gradient stations (G1-6) and 3 control stations (C1-3). The locations of the stations are also shown in **Figure 3**.

3.2.2 Revisions on monitoring locations were proposed in previous submission (MateriaLab Report No. Ref: 0394/13/ED/0103 – WATER QUALITY MONITORING LOCATION) and were agreed among AFCD, EMSD, WSD and EPD.

3.3 Results and Observations

3.3.1 Impact water quality monitoring was conducted at all designated monitoring stations in the reporting quarter. Impact water quality monitoring results graphical presentations are provided in **Appendix D**.

3.3.2 During the reporting period, red tide occurrences were reported in Hong Kong waters. Some adverse weather conditions, including Rainstorm Warnings and Thunderstorm Warning, were also reported. Heavy marine traffic (not associated with the Project) was commonly observed nearby the Project site and its vicinity, that the propeller wash from vessels could lead to potential disturbance of seabed sediment and affect the water quality.

3.3.3 Exceedances were recorded for DO (S&M), DO (B), TIN (in-situ & lab) and Suspended Solids. Number of exceedances recorded in the reporting quarter at each impact station is summarized in **Table 3-5 and 3-6**.

Table 3-3 Summary of Water Quality Exceedance (In-situ Measurement)

Station	Exceedance Level	DO (S&M)		DO (B)		Turbidity		NH3-N		UIA		TIN		Total	
		E	F	E	F	E	F	E	F	E	F	E	F	E	F
SR1	Action	0	0	0	0	0	0	0	0	0	0	-	-	0	0
	Limit	0	0	0	0	0	0	0	0	0	0	-	-	0	0
SR2	Action	0	0	0	0	0	0	0	0	0	0	-	-	0	0
	Limit	0	0	0	0	0	0	0	0	0	0	-	-	0	0
SR3	Action	0	0	0	0	0	0	0	0	0	0	-	-	0	0
	Limit	1	1	1	1	0	0	0	0	0	0	-	-	2	2
SR4	Action	0	0	0	0	0	0	0	0	0	0	-	-	0	0
	Limit	0	0	0	0	0	0	0	0	0	0	-	-	0	0
SR5	Action	0	0	0	0	0	0	-	-	-	-	2	2	2	2
	Limit	0	0	3	3	0	0	-	-	-	-	31	32	34	35
SR6	Action	0	0	1	0	0	0	-	-	-	-	-	-	1	0
	Limit	2	3	3	4	0	0	-	-	-	-	-	-	5	7
SR7	Action	0	0	0	0	0	0	-	-	-	-	-	-	0	0
	Limit	4	4	10	10	0	0	-	-	-	-	-	-	14	14
SR8	Action	0	0	0	0	0	0	-	-	-	-	-	-	0	0
	Limit	2	2	2	2	0	0	-	-	-	-	-	-	4	4
SR9	Action	0	0	0	1	0	0	-	-	-	-	6	5	6	6
	Limit	0	0	6	6	0	0	-	-	-	-	16	16	22	22
SR10	Action	0	0	0	0	0	0	-	-	-	-	10	10	10	10
	Limit	0	0	8	8	0	0	-	-	-	-	15	15	23	23
SR11	Action	0	0	0	0	0	0	-	-	-	-	12	12	12	12
	Limit	0	0	6	6	0	0	-	-	-	-	8	7	14	13
SR12	Action	0	0	0	0	0	0	0	0	0	0	-	-	0	0
	Limit	0	0	0	0	0	0	0	0	0	0	-	-	0	0
SR13	Action	0	0	0	0	0	0	-	-	-	-	-	-	0	0
	Limit	0	0	0	0	0	0	-	-	-	-	-	-	0	0
Total	Action	0	0	1	1	0	0	0	0	0	0	30	29	61	
	Limit	9	10	39	40	0	0	0	0	0	0	70	70	238	

MATERIALAB CONSULTANTS LIMITED
Fugro Development Centre,
5 Lok Yi Street,
17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com.hk

Table 3-4 Summary of Water Quality Exceedance (Laboratory Analysis)

Station	Exceedance Level	Suspended Solids		BOD_5		*E. coli*		NH_3-N		UIA		Synthetic Detergent		TIN		Total	
		E	F	E	F	E	F	E	F	E	F	E	F	E	F	E	F
SR1	Action	0	0	0	0	0	0	0	0	0	0	0	0	-	-	0	0
	Limit	0	0	0	0	0	0	0	0	0	0	0	0	-	-	0	0
SR2	Action	0	0	-	-	-	-	0	0	0	0	-	-	-	-	0	0
	Limit	0	0	-	-	-	-	0	0	0	0	-	-	-	-	0	0
SR3	Action	0	0	-	-	-	-	0	0	0	0	-	-	-	-	0	0
	Limit	0	0	-	-	-	-	0	0	0	0	-	-	-	-	0	0
SR4	Action	0	0	0	0	0	0	0	0	0	0	0	0	-	-	0	0
	Limit	0	1	0	0	0	0	0	0	0	0	0	0	-	-	0	1
SR5	Action	0	0	-	-	-	-	-	-	-	-	-	-	3	2	3	2
	Limit	0	1	-	-	-	-	-	-	-	-	-	-	30	32	30	33
SR6	Action	0	0	-	-	-	-	-	-	-	-	-	-	-	-	0	0
	Limit	0	0	-	-	-	-	-	-	-	-	-	-	-	-	0	0
SR7	Action	0	0	-	-	-	-	-	-	-	-	-	-	-	-	0	0
	Limit	0	0	-	-	-	-	-	-	-	-	-	-	-	-	0	0
SR8	Action	0	0	-	-	-	-	-	-	-	-	-	-	-	-	0	0
	Limit	0	0	-	-	-	-	-	-	-	-	-	-	-	-	0	0
SR9	Action	0	0	-	-	-	-	-	-	-	-	-	-	7	5	7	5
	Limit	0	0	-	-	-	-	-	-	-	-	-	-	16	16	16	16
SR10	Action	0	0	-	-	-	-	-	-	-	-	-	-	9	10	9	10
	Limit	0	0	-	-	-	-	-	-	-	-	-	-	16	15	16	15
SR11	Action	0	0	-	-	-	-	-	-	-	-	-	-	12	12	12	12
	Limit	0	0	-	-	-	-	-	-	-	-	-	-	8	7	8	7
SR12	Action	0	0	0	0	0	0	0	0	0	0	0	0	-	-	0	0
	Limit	0	1	0	0	0	0	0	0	0	0	0	0	-	-	0	1
SR13	Action	0	0	-	-	-	-	-	-	-	-	-	-	-	-	0	0
	Limit	0	0	-	-	-	-	-	-	-	-	-	-	-	-	0	0
Total	Action	0	0	0	0	0	0	0	0	0	0	0	0	31	29	60	
	Limit	0	3	0	0	0	0	0	0	0	0	0	0	70	70	143	

3.3.4 During the reporting period, 19 LL exceedances for DO (S&M), 2 AL and 79 LL exceedances for DO (B), 59 AL and 140 LL exceedances for TIN (in-situ), 3 LL exceedances for Total Suspended Solids, and 60 AL and 140 LL exceedances for TIN (lab) were recorded.

3.3.5 According to the investigations, the exceedances were considered caused by influences in the vicinity of the station or changes in ambient conditions and not related to the Project.

4. EM&A REQUIREMENTS – 24-HR WATER QUALITY MONITORING

4.1 Monitoring Parameters

4.1.1 Dissolved oxygen, temperature and turbidity are recorded every 5 minutes, 24 hours a day 7 days a week during dredging works.

4.1.2 In-situ NH_3-N at WSD Flushing Water Intake is measured every 20 minutes, 24 hours a day 7 days a week during works.

4.1.3 The water quality parameters measured at particular locations are shown in **Table 4.1**.

Table 4-1 24-hr Water Quality Monitoring Parameters

ID	Description	Parameters				
		Temperature	Turbidity	DO (mg/L)	DO%	NH_3-N
SR4	Tsuen Wan, WSD Flushing Water Intake	O	O	O	O	O
SR5	Ma Wan, Fish Culture Zone	O	O	O	O	
SR9	Cheung Sha Wan, Fish Culture Zone	O	O	O	O	
SR10	Lo Tik Wan, Fish Culture Zone	O	O	O	O	
SR11	Sok Kwu Wan, Fish Culture Zone	O	O	O	O	
SR12	Tsing Yi, WSD Flushing Water Intake	O	O	O	O	O
SR13	EMSD Cooling Water Intake for Kwai Chung Hospital	O	O	O	O	

4.2 Monitoring Locations

4.2.1 As shown in Table 4.1, the 24 hours water quality monitoring works are performed at SR4, SR5, SR9, SR10, SR11, SR12 and SR13.

4.2.2 Revisions on monitoring locations were proposed in previous submission (MateriaLab Report No. Ref: 0394/13/ED/0103 – WATER QUALITY MONITORING LOCATION) and were agreed among AFCD, EMSD, WSD and EPD.

4.3 Results and Observations

4.3.1 24-hr water quality monitoring was conducted at all designated monitoring stations in the reporting quarter. Monitoring result graphical presentations are provided in **Appendix E.**

4.3.2 During the reporting period, red tide occurrences were reported in Hong Kong waters. Some adverse weather conditions, including Rainstorm Warnings and Thunderstorm Warning, were also reported. Heavy marine traffic (not associated with the Project) was also commonly observed nearby the Project site and its vicinity, that the propeller wash from vessels could

lead to potential disturbance of seabed sediment and affect the water quality. The above conditions may affect monitoring results. Furthermore, the fish culturing or other activities occurring on the fish rack may cause adverse impact on the receiving water.

4.3.3 Exceedance was recorded for turbidity. Number of exceedances recorded in the reporting period at each impact station is summarized in Table 4.2.

Table 4-2 Summary of Water Quality Exceedance (24-hr Monitoring)

Station	Exceedance Level	Turbidity	DO	NH_3-N	Total
SR4	Action	0	0	0	0
	Limit	1	0	0	1
SR5	Action	0	0	-	0
	Limit	0	0	-	0
SR9	Action	0	0	-	0
	Limit	0	0	-	0
SR10	Action	0	0	-	0
	Limit	0	0	-	0
SR11	Action	0	0	-	0
	Limit	0	0	-	0
SR12	Action	0	0	0	0
	Limit	0	0	0	0
SR13	Action	0	0	-	0
	Limit	0	0	-	0
Total	Action	0	0	0	0
	Limit	1	0	0	1

4.3.4 1 LL exceedance was recorded in the reporting quarter.

4.3.5 According to the investigations, the exceedance was considered caused by influences in the vicinity of the station or changes in ambient conditions and not related to the Project.

5. ENVIRONMENTAL SITE INSPECTION AND AUDIT

5.1 Site Inspections

5.1.1 The Environmental Team conducted 13 site inspections in the reporting period.

5.1.2 The Contractor was reminded to maintain and repair the silt curtain at good condition, to tightly close the dredger during transportation and to improve the housekeeping of deck of the dredger. Also, the Contractor was reminded to shut the opening of the drip tray when using for storage

5.1.3 Other general housekeeping shall be maintained, such as to keep clean in the two side of drainage area in Portion F by weeding regularly, to remove the stagnant water in the drip tray in the storage area and to store the chemical/ mechanical fuel properly.

5.1.4 According to Contractor, no archaeological deposit was found during reporting period.

5.2 Implementation Status of Environmental Mitigation Measures

5.2.1 A summary of the Implementation Schedule of Environmental Mitigation Measures (EMIS) is presented in **Appendix F**. Most of the necessary mitigation measures were implemented properly.

5.2.2 The mitigation measures recommended in the EIA report and required by the EP are considered effective in minimizing environmental impacts. The Contractor has implemented the recommended mitigation measures except those mitigation measures not applicable at this stage. The Contractor should be reminded to keep the mitigation measures implemented effectively, especially the installation and maintenance of silt screen and silt curtain, and to maintain good condition of hopper barge and grab dredger to ensure their intended effects are fully achieved.

5.3 Summary of Action taken

5.3.1 The exceedances recorded were considered not related to the Project, follow-up actions are not required.

5.4 Advice on the Solid and Liquid Waste Management Status

5.4.1 According to the Contractor, $30m^3$ general refuse and $13800m^3$ chemical waste were generated and disposed of in the reporting period. Summary of waste flow table is detailed in **Appendix G**.

5.4.2 There was marine sediment (Type 1, Open Sea Disposal and Type 2, Confined Marine Disposal) disposed to East Sha Chau Pit IVc or Va and South of Brothers – CMP1 or CMP2. The details can be referred to the **Table 5-1.**

Table 5-1 Waste Quantities of Dredging Works

Month	Marine Sediment Type	Quantity Generated in this month (m^3)	Cumulative-to-date (m^3)	Disposal / Dumping Ground
May 2015	Type 1 – Open Sea Disposal	99550	1204630	South of Brothers CMP1 or CMP2
	Type 2 – Confined Marine Disposal	29180	284570	South of Brothers CMP1 or CMP2
	Type 3 – Special Treatment / Disposal	0	0	NA
June 2015	Type 1 – Open Sea Disposal	49460	1254090	South of Brothers CMP1 or CMP2
	Type 2 – Confined Marine Disposal	9360	293930	South of Brothers CMP1 or CMP2
	Type 3 – Special Treatment / Disposal	0	0	NA
July 2015	Type 1 – Open Sea Disposal	30680	1284770	South of Brothers CMP1 or CMP2
	Type 2 – Confined Marine Disposal	5180	299110	South of Brothers CMP1 or CMP2
	Type 3 – Special Treatment / Disposal	0	0	NA

5.5 Review of Action and Limit Level

5.5.1 Referring to the ER Letter ref. (CV/2013/04)/M45/400/1247 dated 19 March 2015, a Revised Baseline Water Quality Monitoring Test Methodology – Review of Action and Limit Levels has been submitted to EPD by ER in March 2015. The Action and Limit Level for the wet season (April – October) was effected and applied to the water quality monitoring data from 1 April 2015. The Action and Limit Level is given in **Appendix C**.

5.6 Quarterly Review of Constructional Impacts on Water Quality

5.6.1 The construction impact on water quality was assessed by comparing the quarterly mean values with the relevant ambient or baseline mean values. Results showed that the quarterly mean values of DO (S&M), DO (B) and TSS at all clusters of monitoring stations, were below

the 1.3 x baseline (higher than 0.7 x baseline for DO) value. Cluster stations with higher quarterly impact data are statistically compared to 1.3 x baseline levels (or 0.7 x baseline levels for DO) or other relevant levels to assess the constructional impacts.

5.6.2 Quarterly means of cluster 1 and cluster 2 stations data of TIN (In-situ) and TIN (Lab) are compared to 1.3 x baseline data respectively. Results show the 1.3 x baseline level is significantly smaller than the quarterly mean ($p<0.05$). As TIN is not detected at Control stations, quarterly mean of impact station is further compared to the quarterly mean of gradient stations (G2, G3 and G4 are gradient stations in vicinity of cluster 1 stations; G5 and G6 are gradient stations in vicinity of cluster 2 stations). Data from ebb tide are compared for cluster 2 while data from flood tide are compared for cluster 1 as according to their relative position to the Project (data analysed for relative tide where clustered monitoring stations situate at downstream position and may be subject to project impact, reference made to Figure 3.). For cluster 1, at flood tide, results show TIN level at gradient is significantly smaller than at the impact stations ($p<0.05$), indicating the trend is not increasing towards the project area and project impact is not significant. For cluster 2, at ebb tide, TIN (In-situ) of impact stations (SR9, SR10 & SR11) is significantly smaller from that of the gradient (G5 & G6) ($p<0.05$), while TIN (Lab) of impact stations (SR9, SR10 & SR11) is not significant different from that of the gradient (G5 & G6) ($p\geq0.05$). In addition, when comparing TIN level of impact stations (SR9, SR10 & SR11) to the gradient stations G1 at the most upstream location at ebb tide, results indicated TIN level at that cluster 2 impact stations is not significantly different from that of G1 ($p\geq0.05$), it indicates the background TIN level is high and the contribution from the project is not significant. The summary of key statistical analysis is provided in Table 5.3. Details of key statistical analysis results are provided in **Appendix H**.

5.6.3 As 24-hr monitoring is to supplement the routine WQM activities (EM&A Manual Section 2.1.10) and there is no baseline value and/or control / gradient value for a meaningful statistical analysis. Thus no statistical analysis was done for 24-hr monitoring. Also, statistical analysis was not performed for some parameters without exceedances (NH_3-N for both in-situ and lab results, UIA for both in-situ and lab results, *E.coli*, BOD_5, and Synthetic Detergent) in the reporting quarter.

MATERIALAB CONSULTANTS LIMITED
Fugro Development Centre,
5 Lok Yi Street,
17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com.hk

Table 5-2 Comparison of Quarterly Mean to Baseline Mean

		DO (S&M)						DO (B)						TIN (In-situ)					
		Baseline	Baseline x 0.7	Average	May - Jul 2015	Average	Smaller than Baseline x 0.7	Baseline	Baseline x 0.7	Average	May - Jul 2015	Average	Smaller than Baseline x 0.7	Wet Season Baseline	Baseline x 1.3	Average	May - Jul 2015	Average	Larger than Baseline x 1.3
Control (Flood)	C1	6.39	4.47	NA	5.62	NA	no	6.32	4.42	NA	4.48	NA	no	NA	NA	NA	NA	NA	NA
	C2	7.51	5.26		6.71		no	7.31	5.12		4.77		yes						
	C3	6.98	4.89		6.56		no	6.89	4.82		4.76		yes						
Control (Ebb)	C1	6.41	4.49	NA	5.69	NA	no	6.32	4.42	NA	4.44	NA	no	NA	NA	NA	NA	NA	NA
	C2	7.27	5.09		6.70		no	7.23	5.06		4.72		yes						
	C3	7.00	4.90		6.53		no	6.94	4.86		4.56		yes						
Gradient (Flood)	G1	6.48	4.54	NA	5.77	NA	no	6.37	4.46	NA	4.58	NA	no	0.59	0.77	NA	0.94	NA	yes
	G2	6.37	4.46		5.79		no	6.34	4.44		4.99		no	0.56	0.73		0.89		yes
	G3	6.30	4.41		5.30		no	6.34	4.44		4.27		yes	0.44	0.57		0.58		yes
	G4	5.84	4.09	NA	5.44	NA	no	5.83	4.08	NA	4.47	NA	no	0.69	0.90		0.59	NA	no
	G5	7.73	5.41		7.09		no	7.61	5.33		5.64		no	0.38	0.49		0.58		yes
	G6	7.15	5.01		6.32		no	7.00	4.90		4.74		yes	0.23	0.30		0.51		yes
Gradient (Ebb)	G1	6.44	4.51	NA	5.82	NA	no	6.33	4.43	NA	4.67	NA	no	0.57	0.74	NA	0.98	NA	yes
	G2	6.32	4.42		5.69		no	6.35	4.45		5.07		no	0.48	0.62		0.80		yes
	G3	6.48	4.54		5.31		no	6.50	4.55		4.33		yes	0.37	0.48		0.58		yes
	G4	5.93	4.15	NA	5.43	NA	no	6.00	4.20	NA	4.45	NA	no	0.66	0.85		0.60	NA	no
	G5	7.74	5.42		7.11		no	7.71	5.40		5.67		no	0.30	0.39		0.57		yes
	G6	7.14	5.00		6.30		no	7.09	4.96		4.67		yes	0.24	0.31		0.51		yes
Cluster 1 (Flood)	SR1	5.43	3.80	3.74	6.00	5.93	no	4.70	3.29	3.28	5.67	5.34	no	NA	NA	0.64	NA	0.98	yes
	SR2	5.11	3.58		5.95			4.46	3.12		5.37			NA	NA		NA		
	SR3	5.66	3.96		5.98			4.97	3.48		5.33			NA	NA		NA		
	SR4	5.46	3.82		6.10			4.85	3.40		5.77			NA	NA		NA		
	SR5	5.12	3.58		6.03			4.42	3.09		5.24			0.49	0.64		0.98		
	SR12	5.32	3.72		5.54			4.72	3.30		4.67			NA	NA		NA		
Cluster 1 (Ebb)	SR1	5.32	3.72	3.73	5.98	5.83	no	4.65	3.26	3.27	5.66	5.31	no	NA	NA	0.67	NA	0.95	yes
	SR2	5.10	3.57		5.76			4.45	3.12		5.28			NA	NA		NA		
	SR3	5.69	3.98		5.78			5.01	3.51		5.31			NA	NA		NA		
	SR4	5.38	3.77		6.03			4.73	3.31		5.58			NA	NA		NA		
	SR5	5.11	3.58		6.01			4.46	3.12		5.23			0.52	0.67		0.95		
	SR12	5.36	3.75		5.41			4.74	3.32		4.78			NA	NA		NA		
Cluster 2 (Flood)	SR6	6.16	4.31	4.31	6.07	6.61	no	5.48	3.84	3.79	5.34	5.35	no	NA	NA	0.35	NA	0.43	yes
	SR7	5.45	3.82		5.76			4.75	3.33		4.68			NA	NA		NA		
	SR8	5.88	4.12		6.60			5.08	3.56		5.69			NA	NA		NA		
	SR9	7.79	5.45		7.41			7.05	4.94		5.40			0.33	0.43		0.47		
	SR10	5.74	4.02		6.77			5.01	3.51		5.38			0.24	0.31		0.45		
	SR11	5.88	4.12		7.03			5.07	3.55		5.62			0.23	0.30		0.38		
Cluster 2 (Ebb)	SR6	6.12	4.28	4.30	6.07	6.63	no	5.43	3.80	3.77	5.25	5.30	no	NA	NA	0.35	NA	0.43	yes
	SR7	5.39	3.77		5.78			4.76	3.33		4.64			NA	NA		NA		
	SR8	5.82	4.07		6.63			5.04	3.53		5.65			NA	NA		NA		
	SR9	7.82	5.47		7.49			6.98	4.89		5.34			0.34	0.44		0.46		
	SR10	5.84	4.09		6.74			5.01	3.51		5.36			0.24	0.31		0.44		
	SR11	5.87	4.11		7.05			5.08	3.56		5.58			0.23	0.30		0.38		
Cluster 3 (Flood)	SR13	4.62	3.23	3.23	5.48	5.48	no	4.02	2.81	2.81	4.69	4.69	no	NA	NA	NA	NA	NA	NA
Cluster 3 (Ebb)	SR13	4.61	3.23	3.23	5.45	5.45	no	4.01	2.81	2.81	4.69	4.69	no	NA	NA	NA	NA	NA	NA

NA: Not Applicable

- Control and Gradient stations are compared on individual stations for reference, no clustering analysis was performed. Impact stations are compared in clusters of stations, or
- Parameter is not monitored at the station.
- With reference to Review of Action and Limit Levels (0394/13/ED/0175C), the baseline results of DO (S&M) and DO (B) in stations of Cluster 1, Cluster 2 and Cluster 3 in dry season are multiplying the relevant wet/dry season ratio to obtain the wet season baseline values.

		TSS						TIN (Lab)					
		Baseline	1.3 x Baseline	Average	May - Jul 2015	Average	Larger than Baseline x 1.3	Wet Season Baseline	1.3 x Baseline	Average	May - Jul 2015	Average	Larger than Baseline x 1.3
Control (Flood)	C1	7	9	NA	4	NA	no	NA	NA	NA	NA	NA	NA
	C2	4	6		3		no						
	C3	4	5		3		no						
Control (Ebb)	C1	6	7	NA	4	NA	no	NA	NA	NA	NA	NA	NA
	C2	5	7		3		no						
	C3	4	5		3		no						
Gradient (Flood)	G1	7	10	NA	4	NA	no	0.42	0.55	NA	0.98	NA	yes
	G2	5	7		3		no	0.39	0.51		0.89		yes
	G3	6	8		3		no	0.31	0.40		0.59		yes
	G4	8	10		4		no	0.43	0.56		0.61		yes
	G5	6	8		4		no	0.22	0.29		0.56		yes
	G6	4	5		3		no	0.14	0.18		0.50		yes
Gradient (Ebb)	G1	5	7	NA	4	NA	no	0.40	0.52	NA	0.98	NA	yes
	G2	5	7		3		no	0.36	0.47		0.82		yes
	G3	5	7		3		no	0.26	0.34		0.59		yes
	G4	7	9		3		no	0.42	0.55		0.61		yes
	G5	5	7		4		no	0.20	0.26		0.57		yes
	G6	4	5		3		no	0.14	0.18		0.50		yes
Cluster 1 (Flood)	SR1	7	9	8.67	4	3.67	no	NA	NA	0.48	NA	0.98	yes
	SR2	5	7		3			NA	NA		NA		
	SR3	5	7		3			NA	NA		NA		
	SR4	7	9		4			NA	NA		NA		
	SR5	6	8		4			0.37	0.48		0.98		
	SR12	9	12		4			NA	NA		NA		
Cluster 1 (Ebb)	SR1	7	9	7.33	4	3.17	no	NA	NA	0.46	NA	0.95	yes
	SR2	5	7		3			NA	NA		NA		
	SR3	5	6		3			NA	NA		NA		
	SR4	5	7		3			NA	NA		NA		
	SR5	5	6		3			0.35	0.46		0.95		
	SR12	7	9		3			NA	NA		NA		
Cluster 2 (Flood)	SR6	5	6	6.17	3	3.00	no	NA	NA	0.20	NA	0.42	yes
	SR7	6	8		3			NA	NA		NA		
	SR8	4	5		3			NA	NA		NA		
	SR9	5	7		3			0.19	0.25		0.46		
	SR10	5	7		3			0.14	0.18		0.44		
	SR11	3	4		3			0.14	0.18		0.37		
Cluster 2 (Ebb)	SR6	4	6	5.83	3	3.00	no	NA	NA	0.20	NA	0.43	yes
	SR7	6	8		3			NA	NA		NA		
	SR8	4	5		3			NA	NA		NA		
	SR9	4	6		3			0.19	0.25		0.46		
	SR10	4	5		3			0.13	0.17		0.44		
	SR11	4	5		3			0.13	0.17		0.38		
Cluster 3 (Flood)	SR13	16	21	21.00	4	4.00	no	NA	NA	NA	NA	NA	NA
Cluster 3 (Ebb)	SR13	10	14	14.00	4	4.00	no	NA	NA	NA	NA	NA	NA

NA: Not Applicable

- Control and Gradient stations are compared on individual stations for reference, no clustering analysis was performed. Impact stations are compared in clusters of stations, or
- Parameter is not monitored at the station.

Table 5-3 Summary of Statistical Analysis

Parameter	Cluster	Compared against	Results and Conclusions
TIN (In-situ)	Cluster 1	Quarterly Mean at Impact Stations against 1.3 x Baseline Level Quarterly Mean at Impact Stations against Quarterly Mean at Gradient Stations	Quarterly mean is significantly higher than 1.3 x Baseline mean ($p<0.05$). Gradient Mean is significantly smaller than Impact Mean ($p<0.05$), meaning Project impact is not significant
	Cluster 2	Quarterly Mean at Impact Stations against 1.3 x Baseline Level Quarterly Mean at Impact Stations against Upstream Gradient Station	Quarterly mean is significantly higher than 1.3 x Baseline mean ($p<0.05$). Impact Mean is significantly smaller than the Gradient Mean (G5 and G6) ($p<0.05$), but no significant difference from that of the Upstream Gradient (G1) Mean ($p\geq0.05$), indicating background TIN level is high, and Project impact is not significant
TIN (Lab)	Cluster 1	Quarterly Mean at Impact Stations against 1.3 x Baseline Level Quarterly Mean at Impact Stations against Quarterly Mean at Gradient Stations	Quarterly mean is significantly higher than 1.3 x Baseline mean ($p<0.05$). Gradient Mean is significantly smaller than Impact Mean ($p<0.05$), meaning Project impact is not significant
	Cluster 2	Quarterly Mean at Impact Stations against 1.3 x Baseline Level Quarterly Mean at Impact Stations against Upstream Gradient Station	Quarterly mean is significantly higher than 1.3 x Baseline mean ($p<0.05$). Impact Mean is not significantly different from of the Gradient Mean (G5 and G6) ($p\geq0.05$), also no significant difference from that of the Upstream Gradient (G1) Mean ($p\geq0.05$), indicating background TIN level is high, and Project impact is not significant

5.6.4 Exceedance are considered to be due to change in ambient conditions or influences in the vicinity of the stations. Mitigation measures for dredging works were implemented in accordance with EP and EIA requirements.

6. NON-COMPLIANCE, COMPLAINTS, NOTIFICATION OF SUMMONS AND PROSECUTION

6.1.1 In this reporting period, no complaint, inspection notice, notification of summons or prosecution was received. Cumulative complaint log, summaries of complaints, notification of summons and successful prosecutions are presented in **Tables 7.1, 7.2 and 7.3.**

Table 6-1 Environmental Complaints Log

Complaint Log No.	Date of Receipt	Received From and Received By	Nature of Complaint	Date Investigated	Outcome	Date of Reply
Nil	-	-	-	-	-	-

Table 6-2 Cumulative Statistics on Complaints

Environmental Parameters	Cumulative No. Brought Forward	No. of Complaints This Period	Cumulative Project-to-Date
Air	0	0	0
Noise	0	0	0
Water	0	0	0
Waste	0	0	0
Total	0	0	0

Table 6-3 Cumulative Statistics on Successful Prosecutions

Environmental Parameters	Cumulative No. Brought Forward	No. of Prosecutions This Period	Cumulative Project-to-Date
Air	0	0	0
Noise	0	0	0
Water	0	0	0
Waste	0	0	0
Total	0	0	0

7. CONCLUSIONS

7.1.1 The dredging works was commenced on 23 April 2014. The EM&A programme was carried out in accordance with the EM&A Manual requirements. As per the EM&A Manual, water quality impact monitoring was conducted during the dredging works.

7.1.2 During the reporting period, exceedances were record for DO (S&M), DO (B), TIN (in-situ & lab) and Suspended Solids in the routine impact monitoring. Exceedance was also recorded in 24-hr monitoring. Investigation found that the exceedances were not project related and were considered caused by influences in the vicinity of the stations or change in ambient conditions.

7.1.3 13 environmental site inspections were carried out weekly in the reporting period.

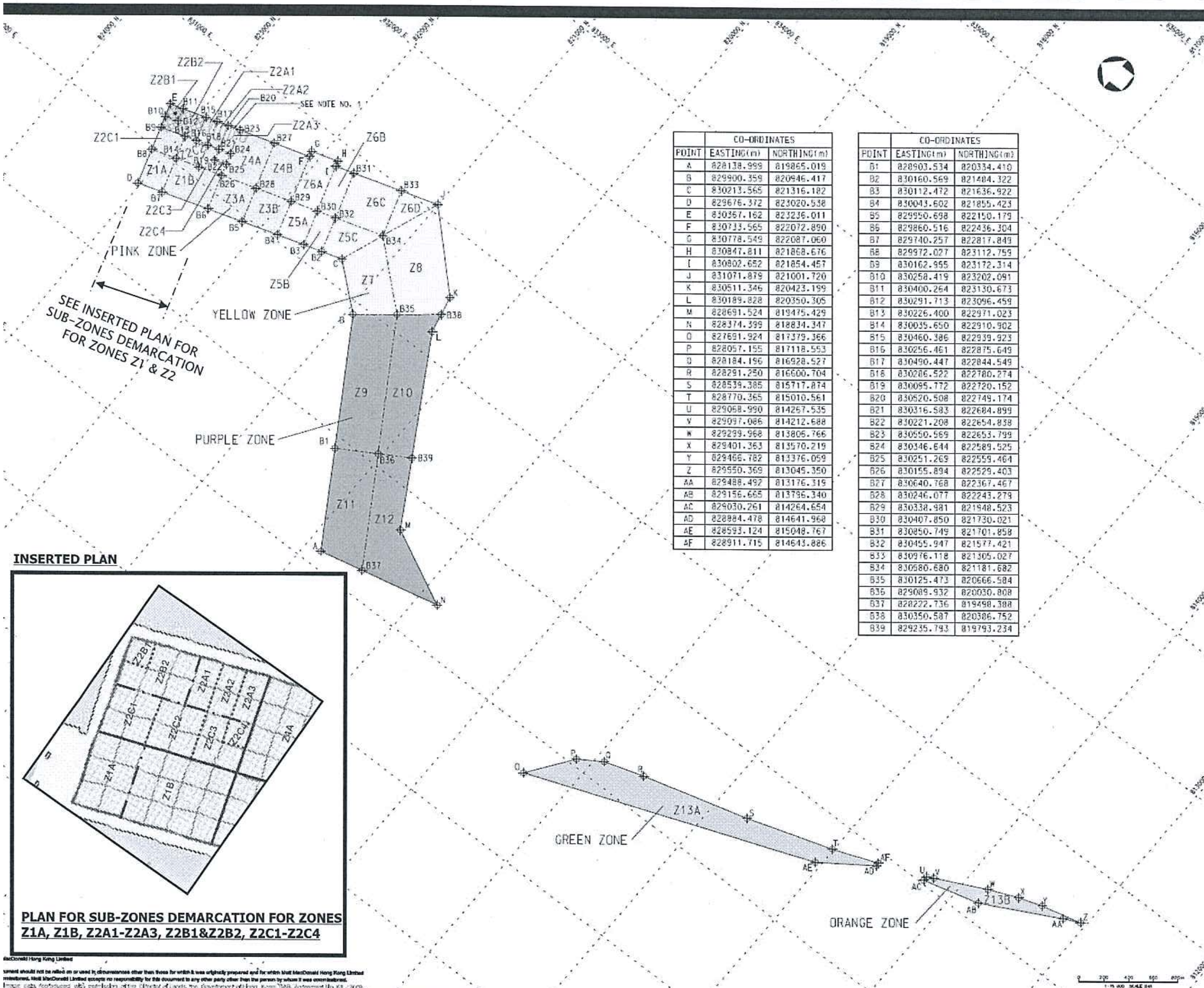
7.1.4 No environmental complaint was received and followed up by Environmental Team in the reporting period.

7.1.5 No notification of summons and prosecution was received in the reporting period.

MATERIALAB CONSULTANTS LIMITED
Fugro Development Centre,
5 Lok Yi Street,
17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com.hk

Figure 1

Project General Layout



	CO-ORDINATES	
POINT	EASTING(m)	NORTHING(m)
A	828138.999	819865.019
B	829900.359	820946.417
C	830213.565	821316.182
D	829676.372	823020.538
E	830367.162	823236.011
F	830733.565	822072.890
G	830778.549	822087.060
H	830847.811	821868.676
I	830802.652	821854.457
J	831071.879	821001.720
K	830511.346	820423.199
L	830189.828	820350.305
M	828691.524	819475.429
N	828374.399	818834.347
O	827691.924	817379.366
P	828057.155	817118.553
Q	828184.196	816928.527
R	828291.250	816600.704
S	828539.385	815717.874
T	828770.365	815010.561
U	829068.990	814267.535
V	829097.086	814212.688
W	829299.968	813805.766
X	829401.363	813570.219
Y	829466.782	813376.059
Z	829550.369	813045.350
AA	829488.492	813176.319
AB	829156.665	813796.340
AC	829030.261	814264.654
AD	828884.478	814641.968
AE	828593.124	815048.767
AF	828911.715	814643.886

	CO-ORDINATES	
POINT	EASTING(m)	NORTHING(m)
B1	828903.534	820334.410
B2	830160.569	821484.322
B3	830112.472	821636.922
B4	830043.602	821855.423
B5	829950.698	822150.179
B6	829860.516	822436.304
B7	829740.257	822817.849
B8	829972.027	823112.759
B9	830162.955	823172.314
B10	830258.419	823202.091
B11	830400.264	823130.673
B12	830291.713	823096.459
B13	830226.400	822971.023
B14	830035.650	822910.902
B15	830460.386	822939.923
B16	830256.461	822875.649
B17	830490.447	822844.549
B18	830286.522	822780.274
B19	830095.772	822720.152
B20	830520.508	822749.174
B21	830316.583	822684.899
B22	830221.208	822654.838
B23	830550.569	822653.799
B24	830346.644	822589.525
B25	830251.269	822559.464
B26	830155.894	822529.403
B27	830640.768	822367.467
B28	830246.077	822243.279
B29	830338.981	821948.523
B30	830407.850	821730.021
B31	830850.749	821701.858
B32	830455.947	821577.421
B33	830976.118	821305.027
B34	830580.680	821181.682
B35	830125.473	820666.584
B36	829089.932	820030.808
B37	828222.736	819498.388
B38	830350.587	820386.752
B39	829235.793	819793.234

LEGEND:

- PROPOSED DREDGING AREA
- ZONAL BOUNDARIES
- DREDGING HOT SPOT AND BUFER AREA
- HARDER MATERIAL (SEE NOTE NO.1)
- * HOT SPOT WITH HIGHER NH_3-N LEVEL

NOTE:

1. HARDER MATERIAL TO BE REMOVED BY CUTTER SUCTION DREDGER.

roject Title: Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

igure 2: Zones and Sub-zone of Dredging Plan Layout (Extracted from Figure 2 of Justification for the Proposed Demarcation of the redging Zones)

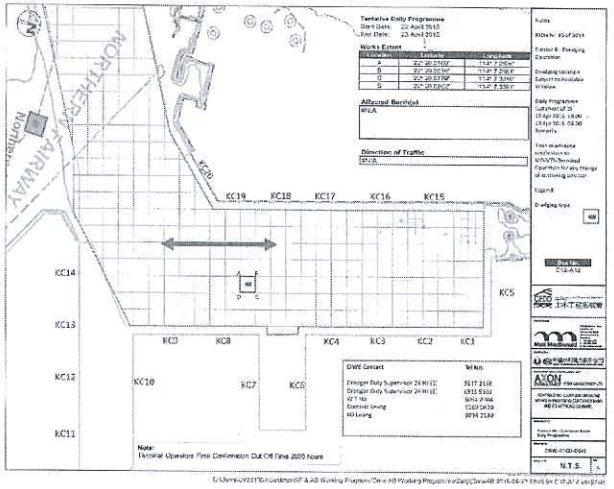
Environmental Permit No.:

EP-426/2011/A

MATERIALAB CONSULTANTS LIMITED
Fugro Development Centre,
5 Lok Yi Street,
17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com.hk

Figure 2

Dredging Work Location during the Reporting Period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End Date: 23 April 2015
Works Extent
Affected Berth(s)
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Direction of Traffic
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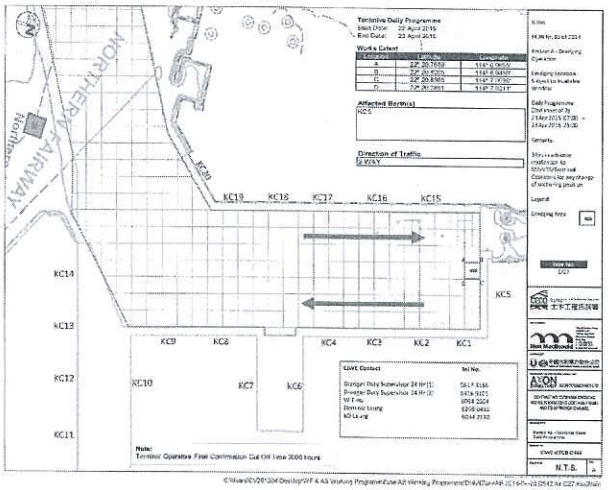
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.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End Date: 23 April 2015
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Affected Berth(s)
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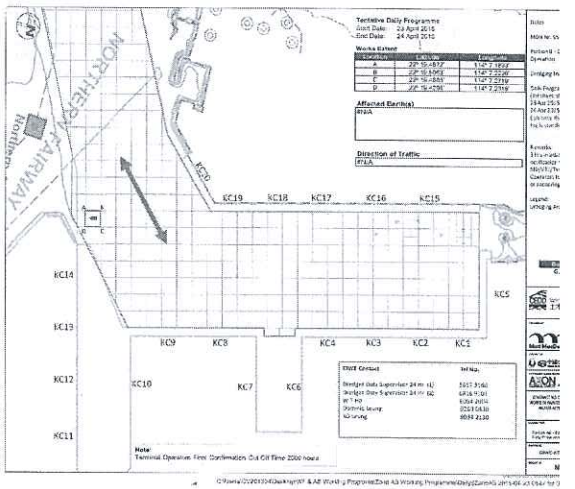
Direction of Traffic
To WAY
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.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Affected Berth(s)
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Direction of Traffic
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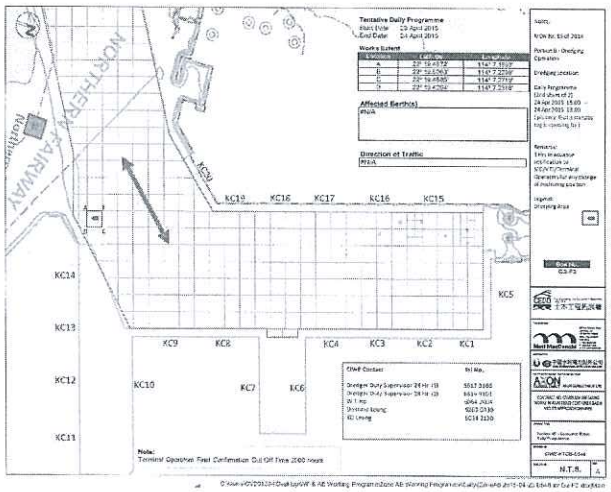
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours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Affected Berth(s)
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Direction of Traffic
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Note:
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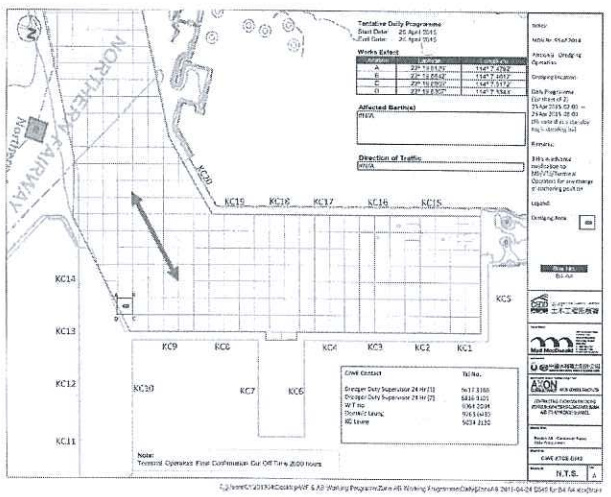
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Affected Berth(s)
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Direction of Traffic
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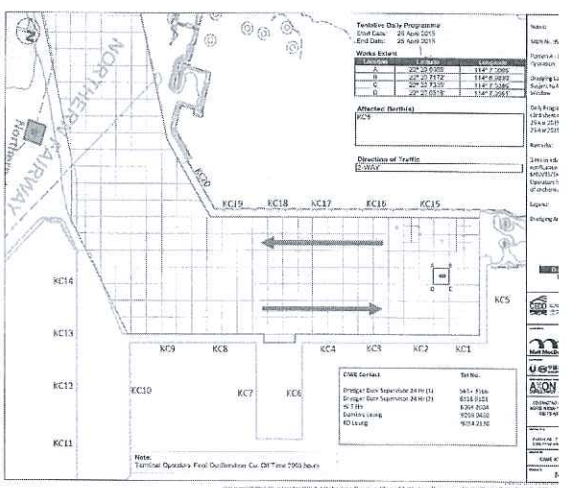
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours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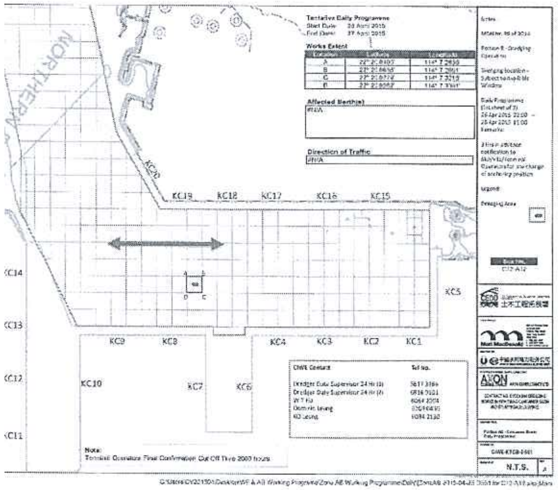
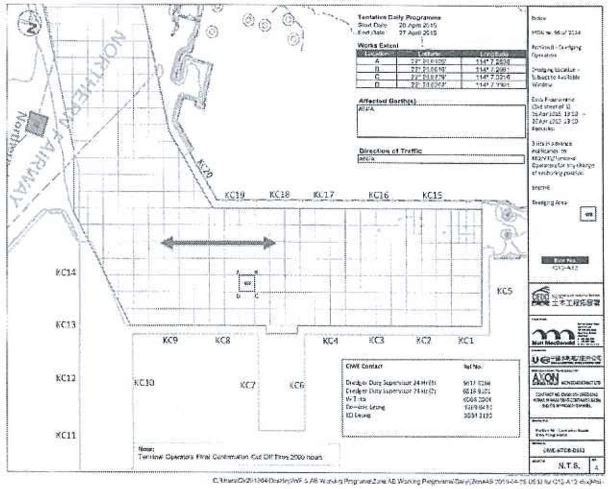
End Date: 25 April 2015
Works Extent
Affected Berth(s)
KC9
Direction of Traffic
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours


Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
KC5
N.T.S.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Works Extent
Affected Berth(s)
Direction of Traffic
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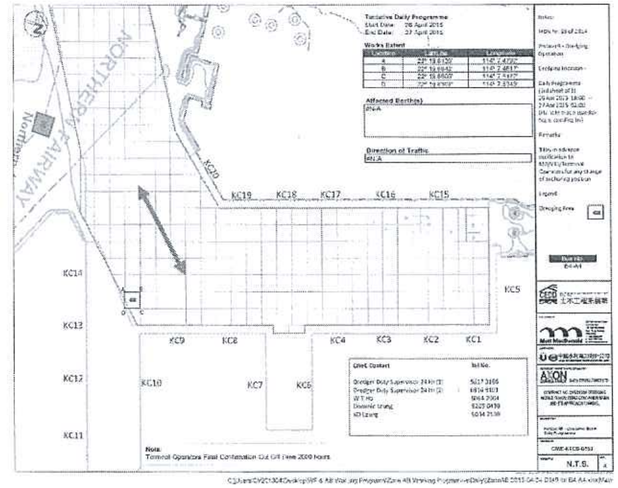
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Tentative Daily Programme
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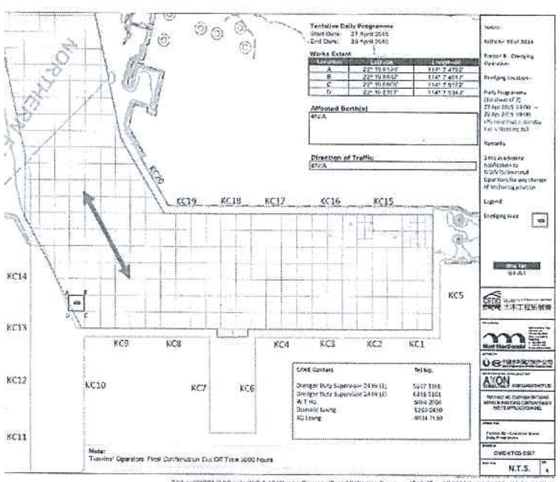

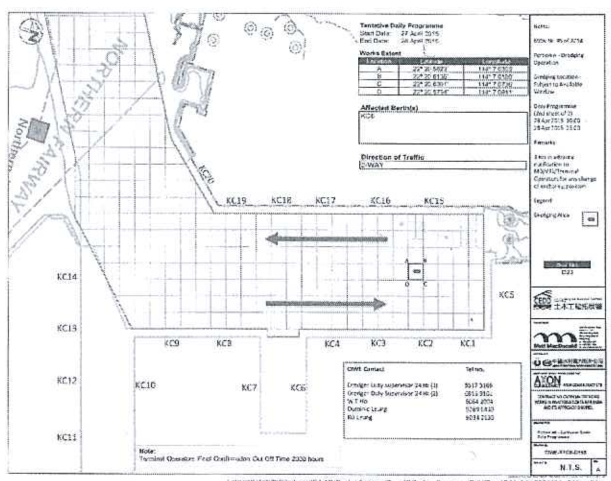
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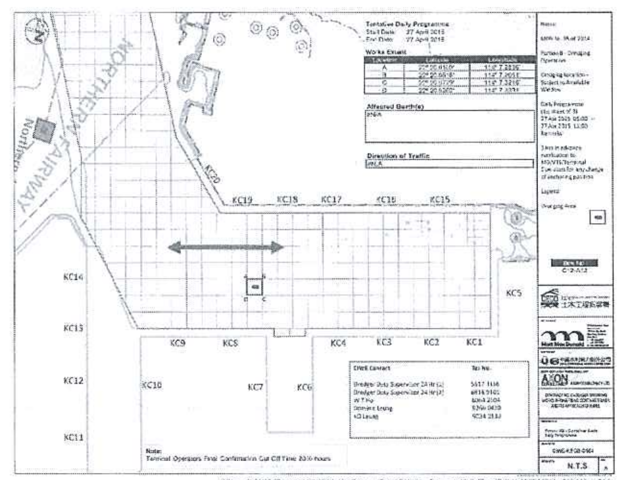
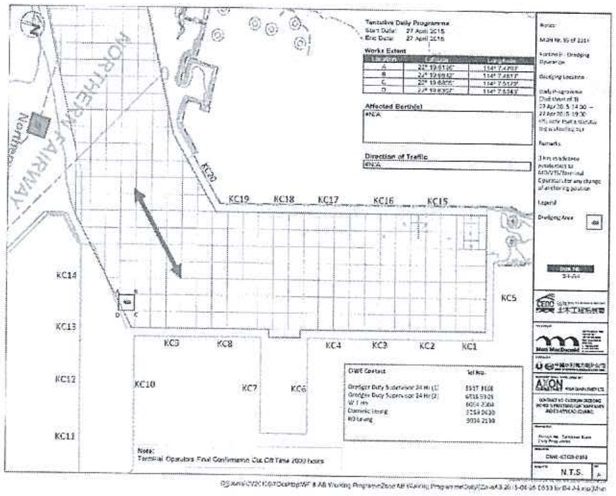
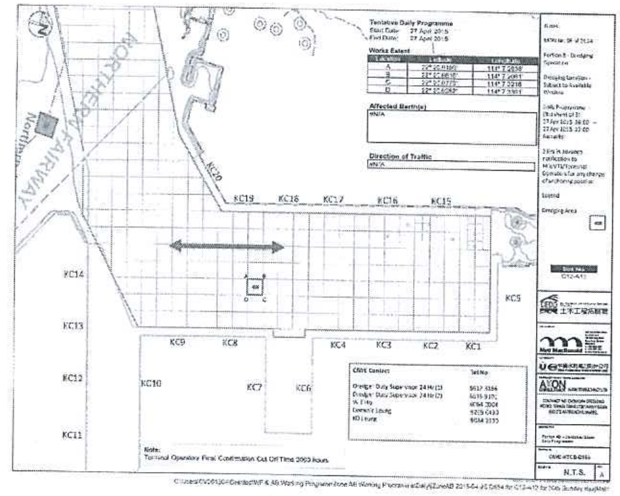
Tentative Daily Programme
N.T.S.




NORTHERN FAIRWAY
Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
KC1
KC2
KC3
KC4
KC5
KC6
KC7
KC8
KC9
KC10
KC11
KC12
KC13
KC14
KC15
KC16
KC17
KC18
KC19
KC20
CWE Contact
Note:
N.T.S.


NORTHERN FAIRWAY
Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
KC1
KC2
KC3
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KC8
KC9
KC10
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KC19
KC20
CWE Contact
Note:
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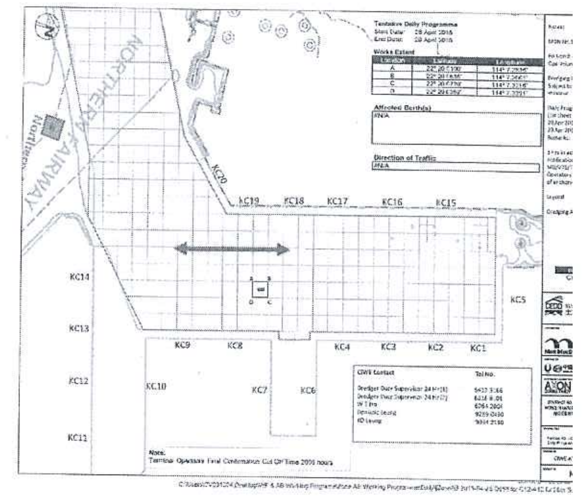
NORTHERN FAIRWAY
Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
KC1
KC2
KC3
KC4
KC5
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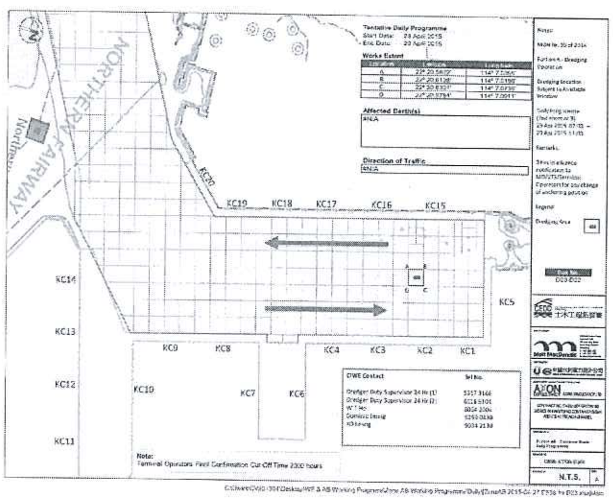
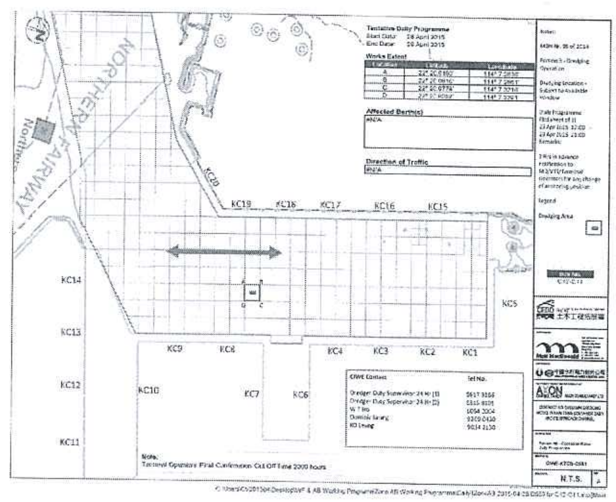
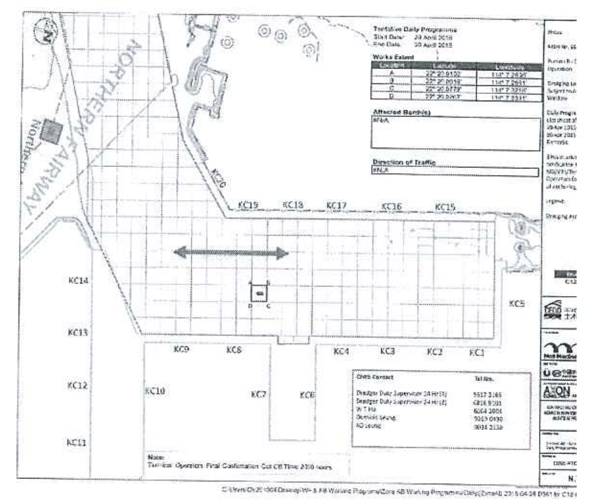
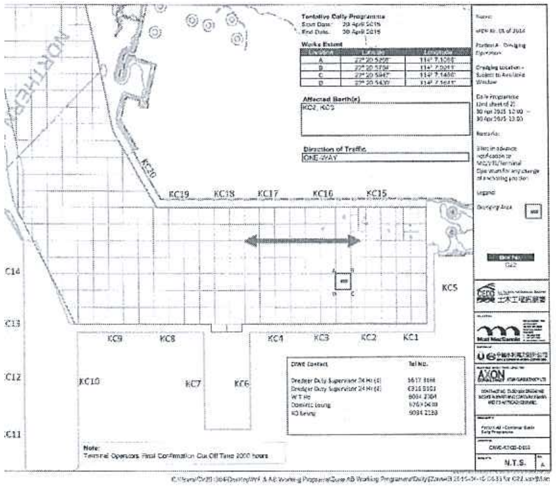
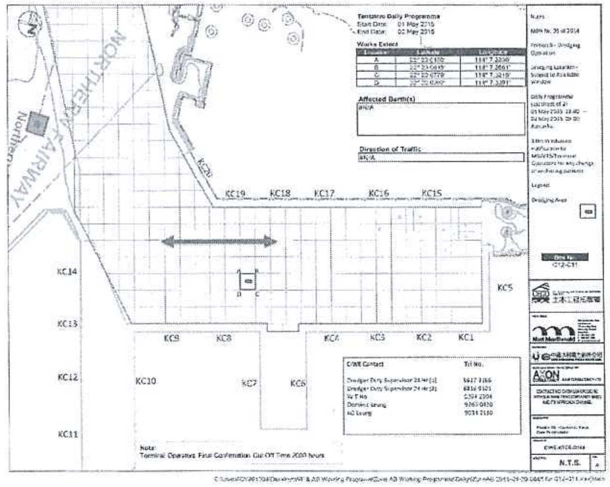
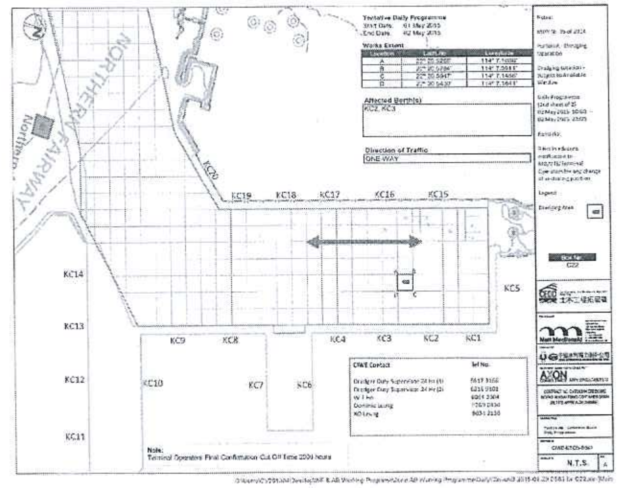
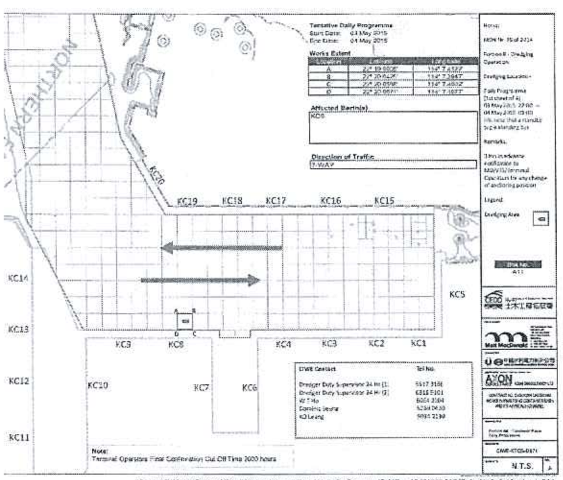
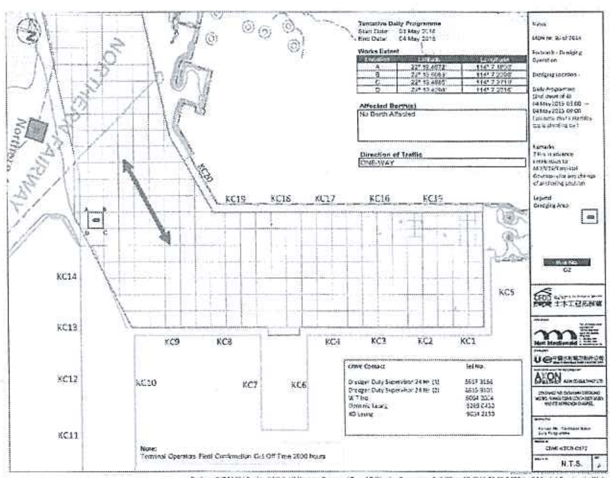
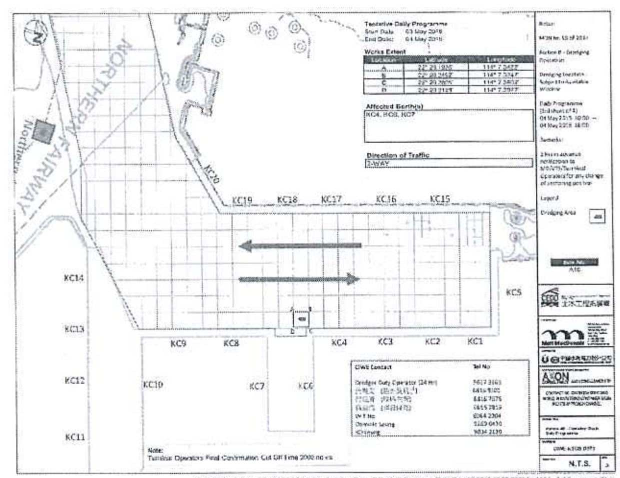
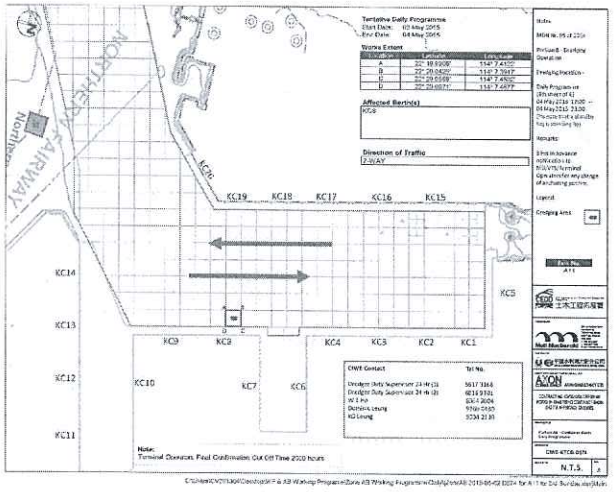
KC8
KC9
KC10
KC11
KC12
KC13
KC14
KC15
KC16
KC17
KC18
KC19
KC20
CWE Contact
Note:

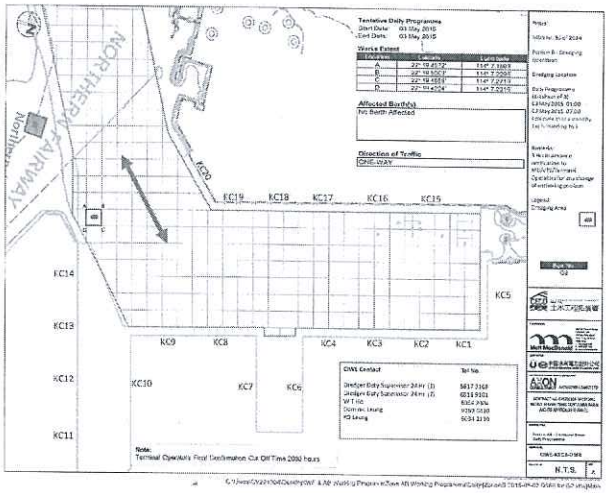

NORTHERN FAIRWAY
Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
KC1
KC2
KC3
KC4
KC5
KC6
KC7
KC8
KC9
KC10
KC11
KC12
KC13
KC14
KC15
KC16
KC17
KC18
KC19
KC20
CWE Contact
Note:
N.T.S.

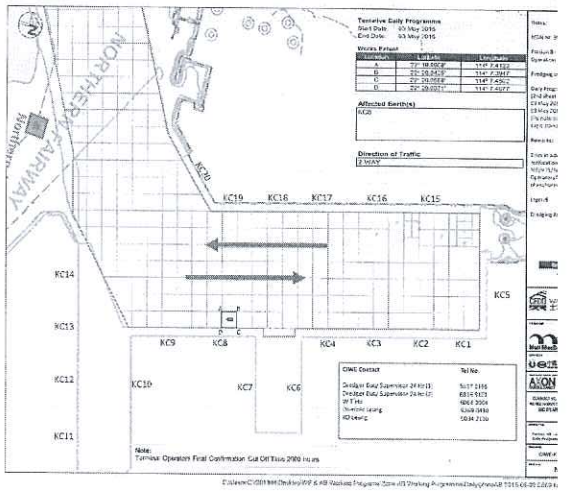

NORTHERN FAIRWAY
Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
KC1
KC2
KC3
KC4
KC5
KC6
KC7
KC8
KC9
KC10
KC11
KC12
KC13
KC14
KC15
KC16
KC17
KC18
KC19
KC20
CWE Contact
Note:
N.T.S.

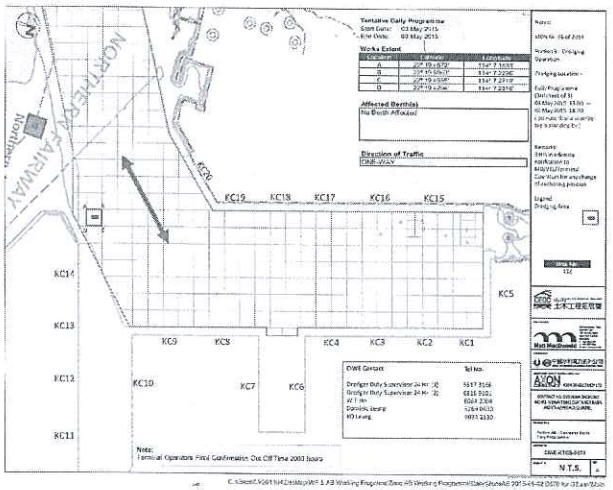

NORTHERN FAIRWAY
Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
KC1
KC2
KC3
KC4
KC5
KC6
KC7
KC8
KC9
KC10
KC11
KC12
KC13
KC14
KC15
KC16
KC17
KC18
KC19
KC20
CWE Contact
Note:

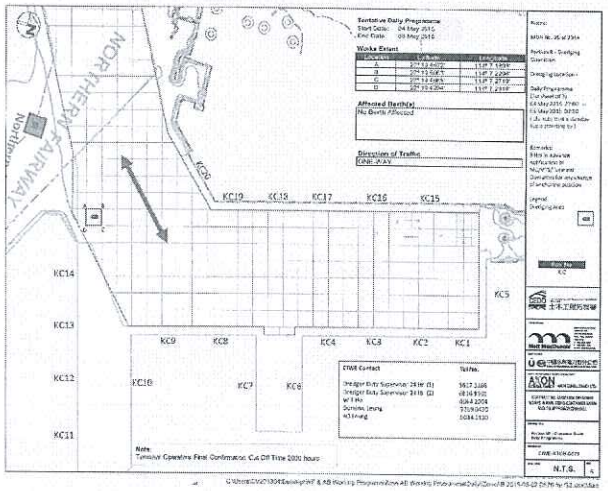

Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
ONE-WAY
KC19 KC18 KC17 KC16 KC15
KC14 KC13 KC12 KC11 KC10 KC9 KC8 KC7 KC6 KC5 KC4 KC3 KC2 KC1 KC20
N.T.S.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours

Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
NORTHERN FAIRWAY
KC19 KC18 KC17 KC16 KC15
KC14 KC13 KC12 KC11 KC10 KC9 KC8 KC7 KC6 KC5 KC4 KC3 KC2 KC1 KC20
N.T.S.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours

Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
ONE-WAY
NORTHERN FAIRWAY
KC19 KC18 KC17 KC16 KC15
KC14 KC13 KC12 KC11 KC10 KC9 KC8 KC7 KC6 KC5 KC4 KC3 KC2 KC1 KC20
N.T.S.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours

Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
2-WAY
KC19 KC18 KC17 KC16 KC15
KC14 KC13 KC12 KC11 KC10 KC9 KC8 KC7 KC6 KC5 KC4 KC3 KC2 KC1 KC20
N.T.S.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours

Tentative Daily Programme
Works Extent
Affected Berth(s)
No Berth Affected
Direction of Traffic
ONE-WAY
NORTHERN FAIRWAY
KC19 KC18 KC17 KC16 KC15
KC14 KC13 KC12 KC11 KC10 KC9 KC8 KC7 KC6 KC5 KC4 KC3 KC2 KC1 KC20
N.T.S.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours

Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
2-WAY
NORTHERN FAIRWAY
KC19 KC18 KC17 KC16 KC15
KC14 KC13 KC12 KC11 KC10 KC9 KC8 KC7 KC6 KC5 KC4 KC3 KC2 KC1 KC20
N.T.S.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours

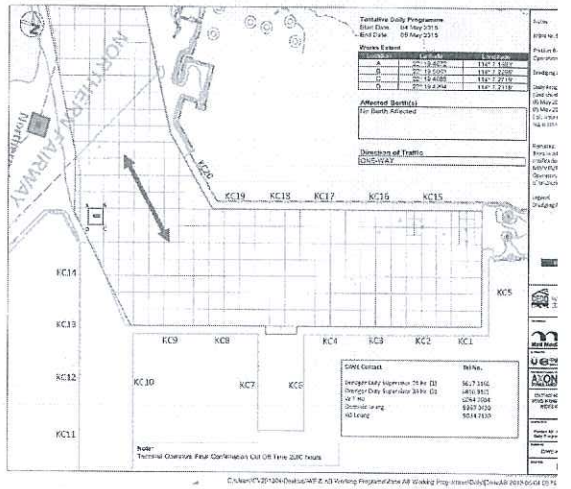

Tentative Daily Programme
Start Date: 03 May 2015
End Date: 04 May 2015
Works Extent
Affected Berth(s)
KC6
Direction of Traffic
2-WAY
KC19 KC18 KC17 KC16 KC15
KC14 KC5
KC13 KC9 KC8 KC4 KC3 KC2 KC1
KC12 KC10 KC7 KC6
KC11
CIWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2100 hours
N.T.S.

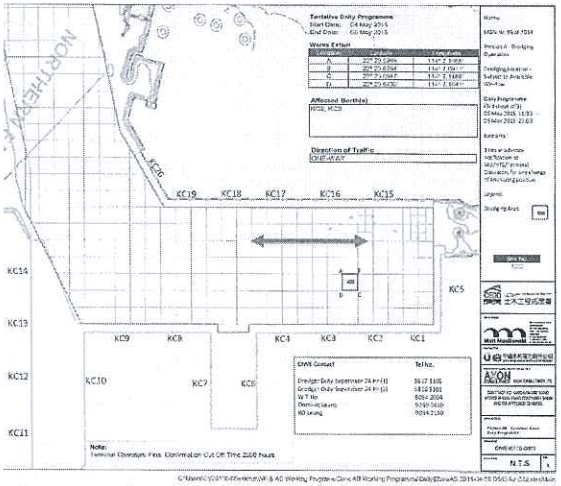

Tentative Daily Programme
Start Date: 03 May 2015
End Date: 03 May 2015
Works Extent
Affected Berth(s)
No Berth Affected
Direction of Traffic
ONE-WAY
KC19 KC18 KC17 KC16 KC15
KC14 KC5
KC13 KC9 KC8 KC4 KC3 KC2 KC1
KC12 KC10 KC7 KC6
KC11
CIWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

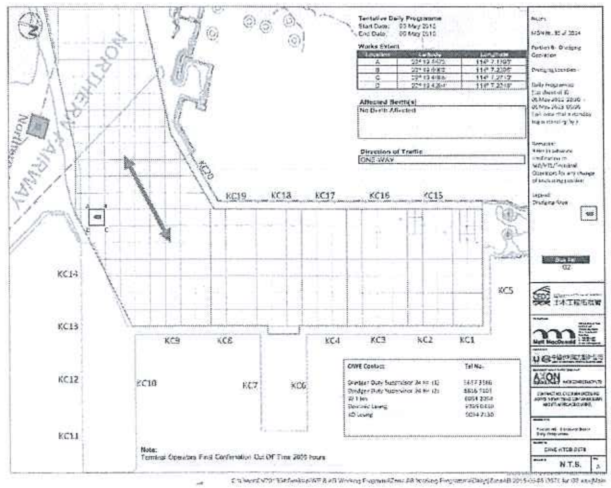

Tentative Daily Programme
Start Date: 03 May 2015
End Date: 03 May 2015
Works Extent
Affected Berth(s)
KC6
Direction of Traffic
2-WAY
KC19 KC18 KC17 KC16 KC15
KC14 KC5
KC13 KC9 KC8 KC4 KC3 KC2 KC1
KC12 KC10 KC7 KC6
KC11
CIWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours

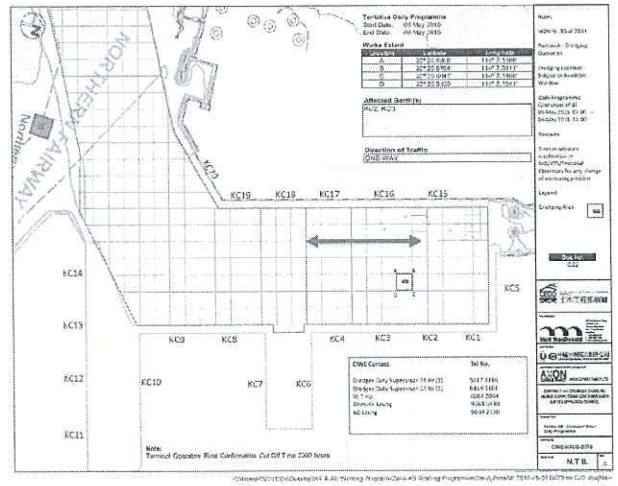

Tentative Daily Programme
Start Date: 03 May 2015
End Date: 03 May 2015
Works Extent
Affected Berth(s)
No Berth Affected
Direction of Traffic
ONE-WAY
KC19 KC18 KC17 KC16 KC15
KC14 KC5
KC13 KC9 KC8 KC4 KC3 KC2 KC1
KC12 KC10 KC7 KC6
KC11
CIWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

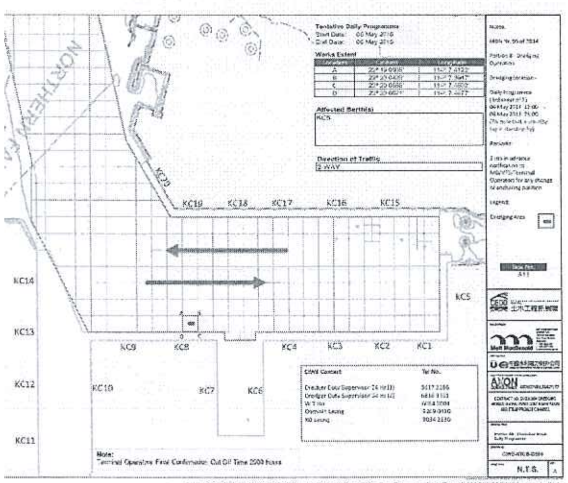

Tentative Daily Programme
Start Date: 04 May 2015
End Date: 04 May 2015
Works Extent
Affected Berth(s)
No Berth Affected
Direction of Traffic
ONE-WAY
KC19 KC18 KC17 KC16 KC15
KC14 KC5
KC13 KC9 KC8 KC4 KC3 KC2 KC1
KC12 KC10 KC7 KC6
KC11
CIWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

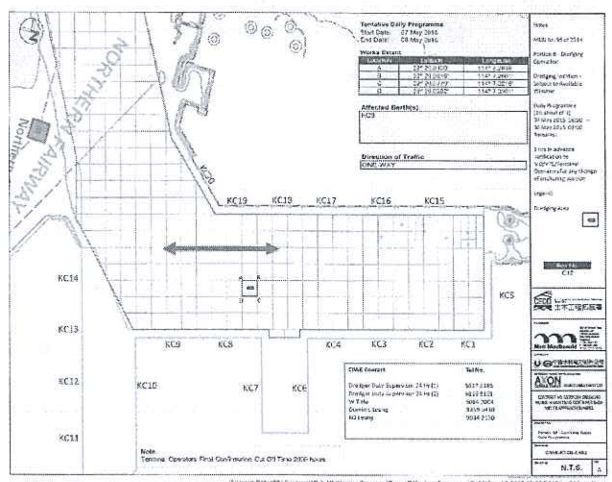

Tentative Daily Programme
Start Date: 04 May 2015
End Date: 04 May 2015
Works Extent
Affected Berth(s)
No Berth Affected
Direction of Traffic
ONE-WAY
KC19 KC18 KC17 KC16 KC15
KC14 KC5
KC13 KC9 KC8 KC4 KC3 KC2 KC1
KC12 KC10 KC7 KC6
KC11
CIWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours

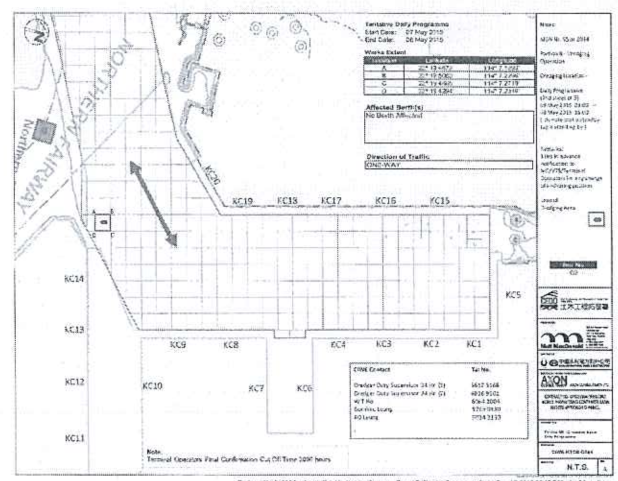

Tentative Daily Programme
NORTHERN FAIRWAY
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours

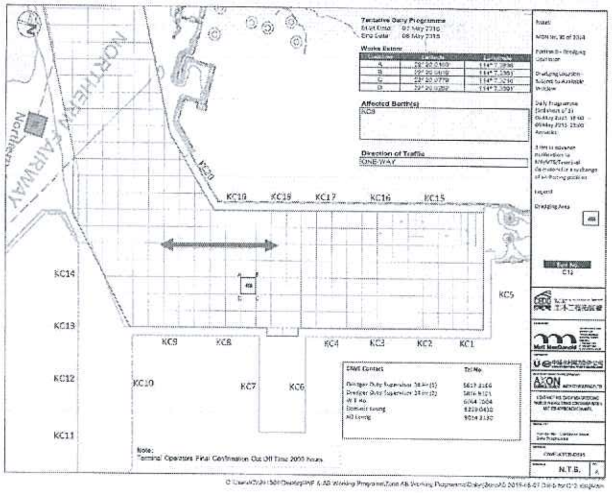

Tentative Daily Programme
NORTHERN FAIRWAY
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours

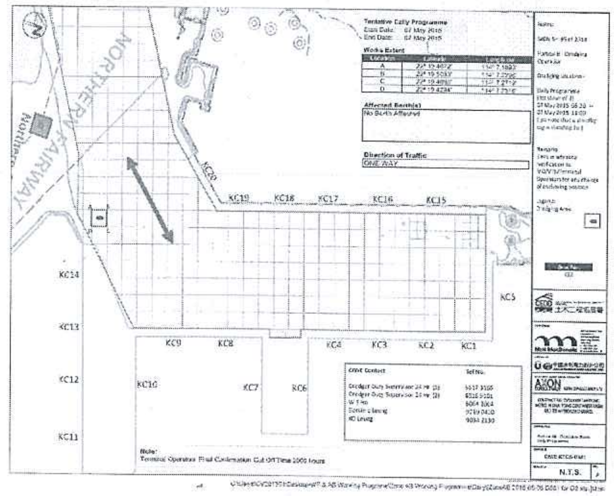

Tentative Daily Programme
NORTHERN FAIRWAY
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours

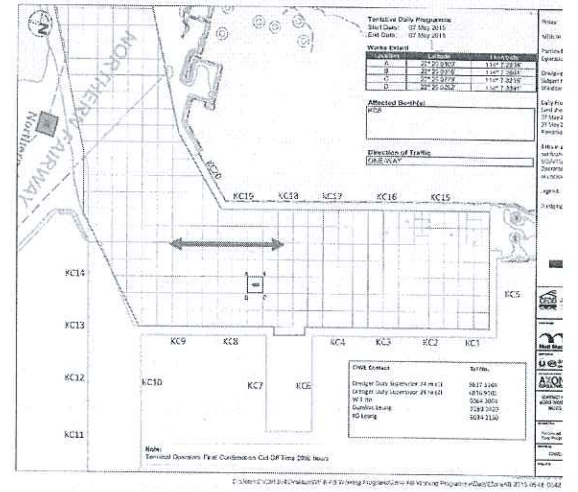

Tentative Daily Programme
NORTHERN FAIRWAY
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours

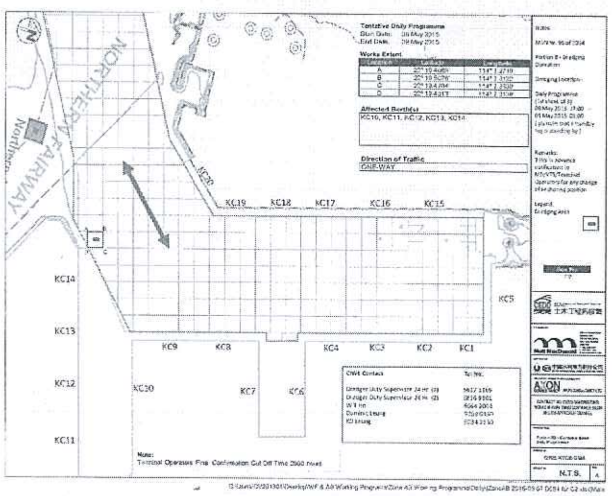

Tentative Daily Programme
NORTHERN FAIRWAY
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours

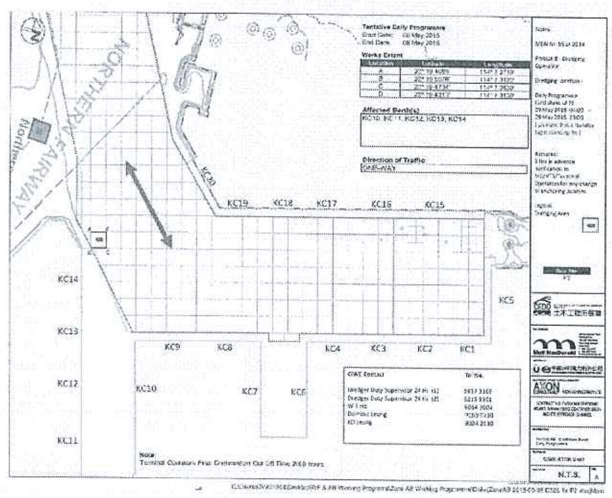

Tentative Daily Programme
NORTHERN FAIRWAY
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours

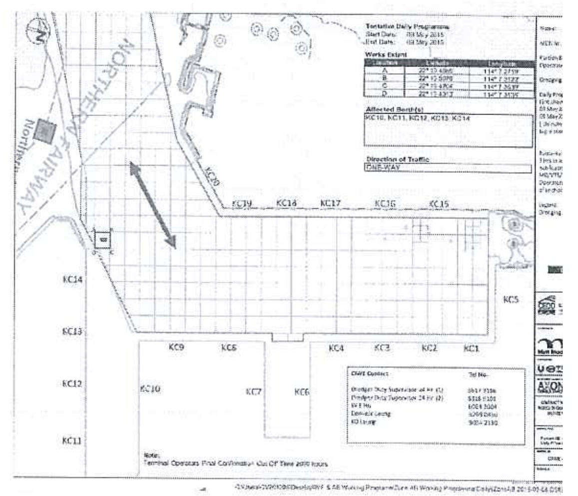

NORTHERN FAIRWAY
Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
ONE-WAY
KC20
KC19
KC18
KC17
KC16
KC15
KC14
KC13
KC12
KC11
KC10
KC9
KC8
KC7
KC6
KC5
KC4
KC3
KC2
KC1
CWE Contact
Tel No.
N.T.S.

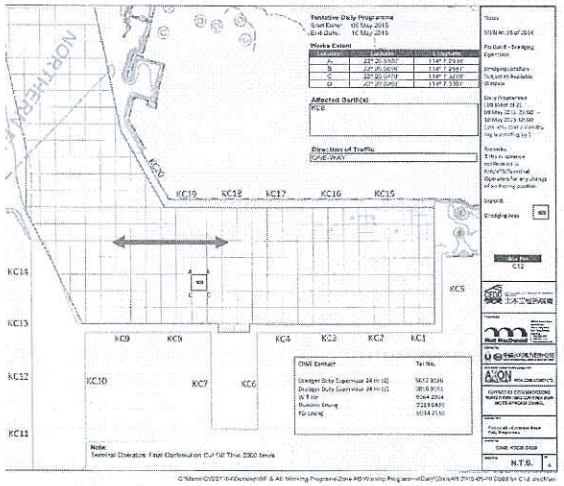

NORTHERN FAIRWAY
Tentative Daily Programme
Works Extent
Affected Berth(s)
No Berth Affected
Direction of Traffic
ONE-WAY
KC20
KC19
KC18
KC17
KC16
KC15
KC14
KC13
KC12
KC11
KC10
KC9
KC8
KC7
KC6
KC5
KC4
KC3
KC2
KC1
CWE Contact
Tel No.
N.T.S.

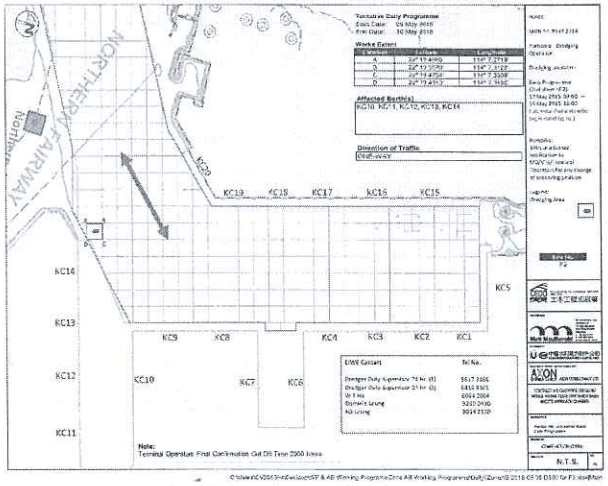

NORTHERN FAIRWAY
Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
ONE-WAY
KC20
KC19
KC18
KC17
KC16
KC15
KC14
KC13
KC12
KC11
KC10
KC9
KC8
KC7
KC6
KC5
KC4
KC3
KC2
KC1
CWE Contact
Tel No.

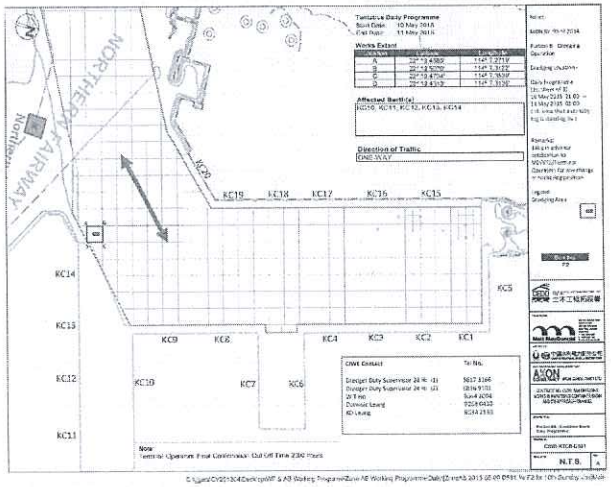

NORTHERN FAIRWAY
Tentative Daily Programme
Works Extent
Affected Berth(s)
KC10, KC11, KC12, KC13, KC14
Direction of Traffic
ONE-WAY
KC20
KC19
KC18
KC17
KC16
KC15
KC14
KC13
KC12
KC11
KC10
KC9
KC8
KC7
KC6
KC5
KC4
KC3
KC2
KC1
CWE Contact
Tel No.
N.T.S.

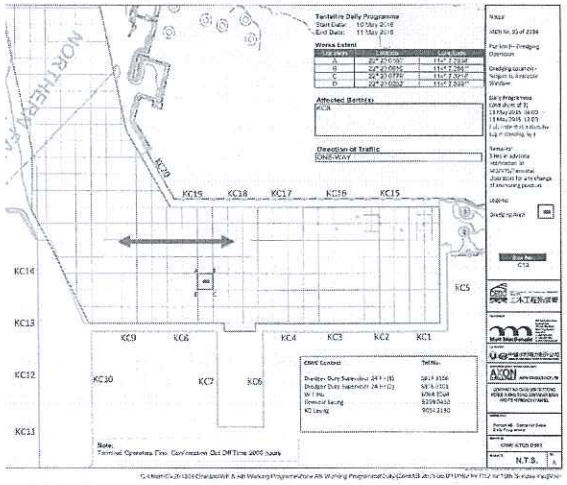

NORTHERN FAIRWAY
Tentative Daily Programme
Works Extent
Affected Berth(s)
KC10, KC11, KC12, KC13, KC14
Direction of Traffic
ONE-WAY
KC20
KC19
KC18
KC17
KC16
KC15
KC14
KC13
KC12
KC11
KC10
KC9
KC8
KC7
KC6
KC5
KC4
KC3
KC2
KC1
CWE Contact
Tel No.
N.T.S.

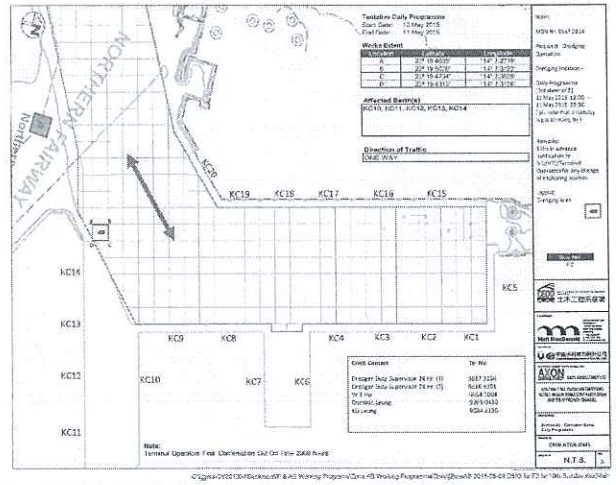

NORTHERN FAIRWAY
Tentative Daily Programme
Works Extent
Affected Berth(s)
KC10, KC11, KC12, KC13, KC14
Direction of Traffic
ONE-WAY
KC20
KC19
KC18
KC17
KC16
KC15
KC14
KC13
KC12
KC11
KC10
KC9
KC8
KC7
KC6
KC5
KC4
KC3
KC2
KC1
CWE Contact
Tel No.

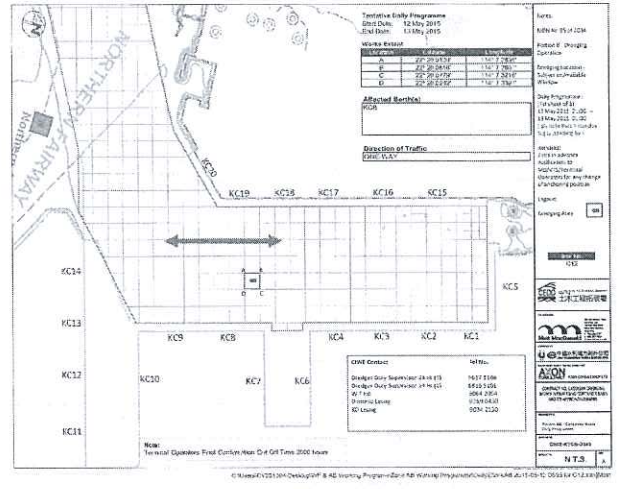

Tentative Daily Programme
Start Date: 05 May 2015
End Date: 14 May 2015
Works Extent
Affected Berth(s)
KC12
Direction of Traffic
ONE-WAY
Civil Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

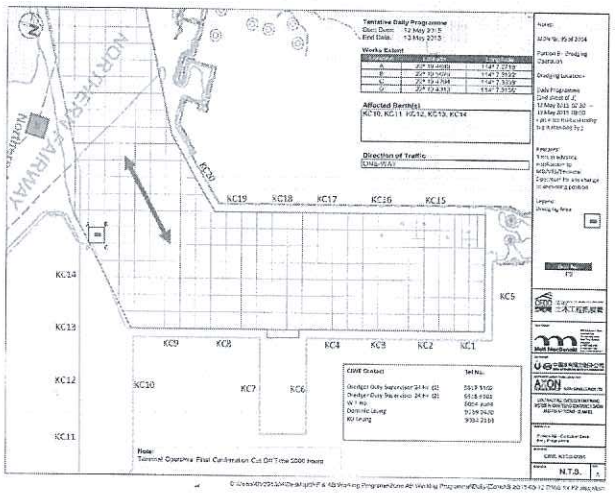

Tentative Daily Programme
Start Date: 06 May 2015
End Date: 10 May 2015
Works Extent
Affected Berth(s)
KC10, KC11, KC12, KC13, KC14
Direction of Traffic
ONE-WAY
Civil Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

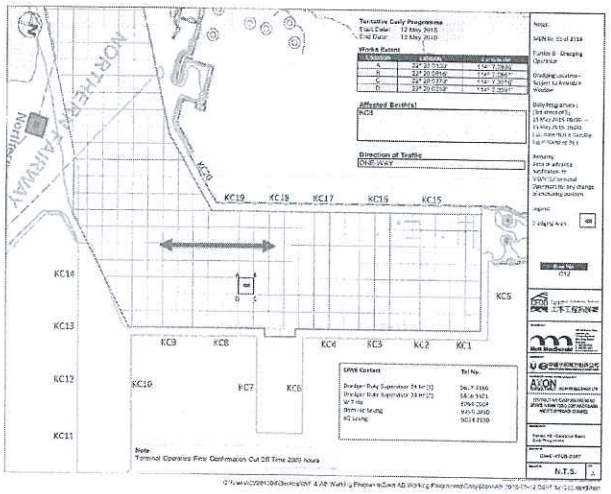

Tentative Daily Programme
Start Date: 10 May 2015
End Date: 11 May 2015
Works Extent
Affected Berth(s)
KC10, KC11, KC12, KC13, KC14
Direction of Traffic
ONE-WAY
Civil Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

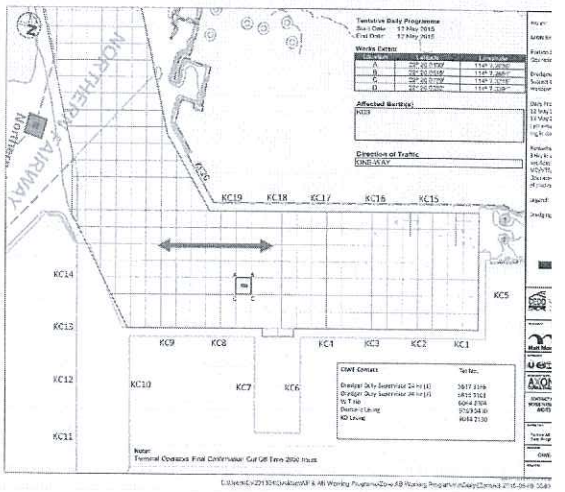

Tentative Daily Programme
Start Date: 10 May 2015
End Date: 11 May 2015
Works Extent
Affected Berth(s)
KC8
Direction of Traffic
ONE-WAY
Civil Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

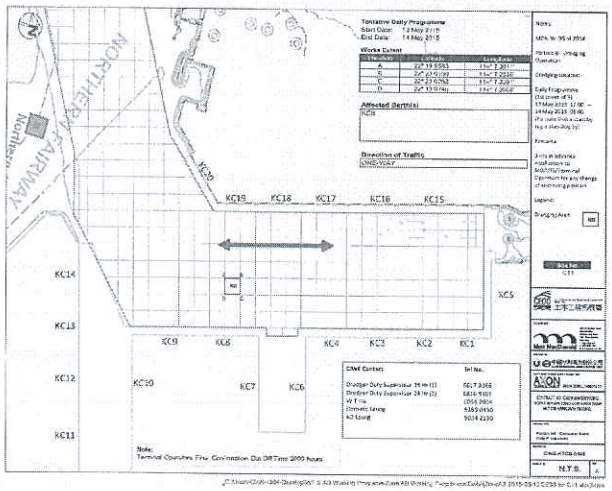

Tentative Daily Programme
Start Date: 12 May 2015
End Date: 13 May 2015
Works Extent
Affected Berth(s)
KC10, KC11, KC12, KC13, KC14
Direction of Traffic
ONE-WAY
Civil Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

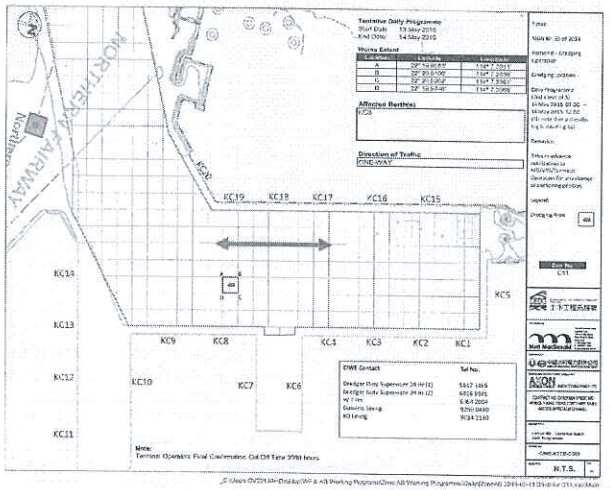

Tentative Daily Programme
Start Date: 12 May 2015
End Date: 13 May 2015
Works Extent
Affected Berth(s)
KC8
Direction of Traffic
ONE-WAY
Civil Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.


Tentative Daily Programme
Start Date: 12 May 2015
End Date: 13 May 2015
Works Extent
Affected Berth(s)
KC10, KC11, KC12, KC13, KC14
Direction of Traffic
ONE-WAY
NORTHERN FAIRWAY
KC20
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC5
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
CIWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2200 hours
N.T.S.

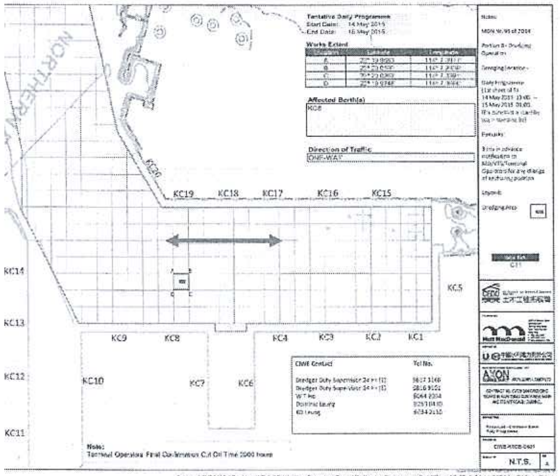

Tentative Daily Programme
Start Date: 12 May 2015
End Date: 13 May 2015
Works Extent
Affected Berth(s)
KC5
Direction of Traffic
ONE-WAY
NORTHERN FAIRWAY
KC20
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC5
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
CIWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2200 hours
N.T.S.

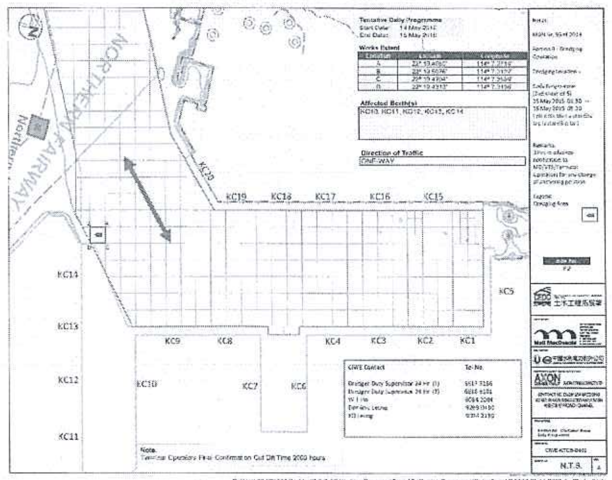

Tentative Daily Programme
Start Date: 12 May 2015
End Date: 13 May 2015
Works Extent
Affected Berth(s)
KC5
Direction of Traffic
ONE-WAY
NORTHERN FAIRWAY
KC20
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC5
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
CIWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2200 hours
N.T.S.

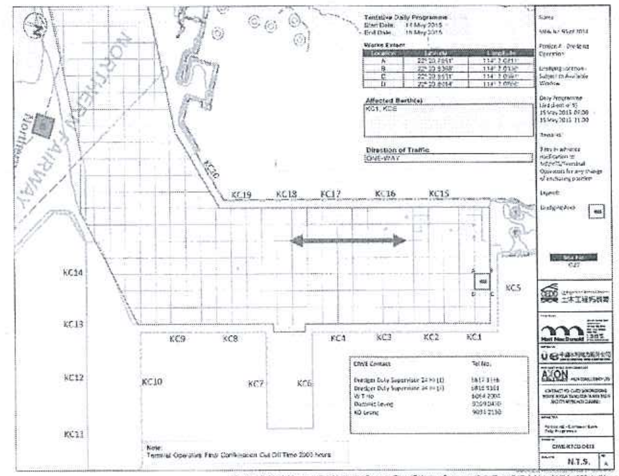

Tentative Daily Programme
Start Date: 13 May 2015
End Date: 14 May 2015
Works Extent
Affected Berth(s)
KC5
Direction of Traffic
ONE-WAY
NORTHERN FAIRWAY
KC20
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC5
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
CIWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

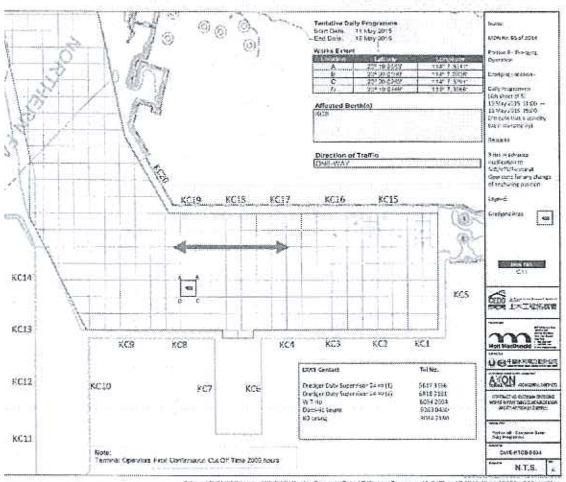

Tentative Daily Programme
Start Date: 13 May 2015
End Date: 14 May 2015
Works Extent
Affected Berth(s)
KC5
Direction of Traffic
ONE-WAY
NORTHERN FAIRWAY
KC20
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC5
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
CIWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

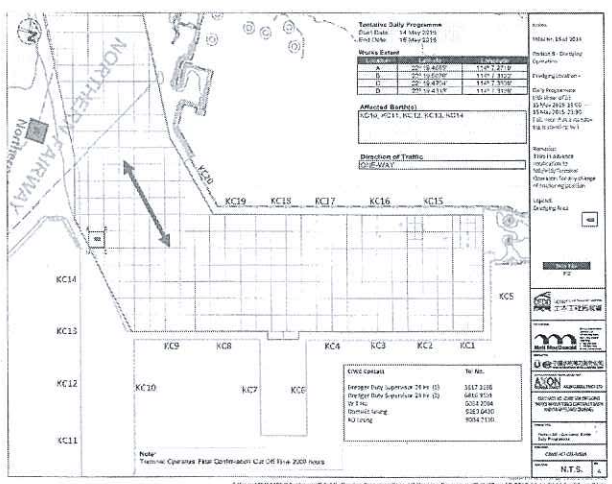

Tentative Daily Programme
Start Date: 13 May 2015
End Date: 14 May 2015
Works Extent
Affected Berth(s)
KC10, KC11, KC12, KC13, KC14
Direction of Traffic
ONE-WAY
NORTHERN FAIRWAY
KC20
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC5
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
CIWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

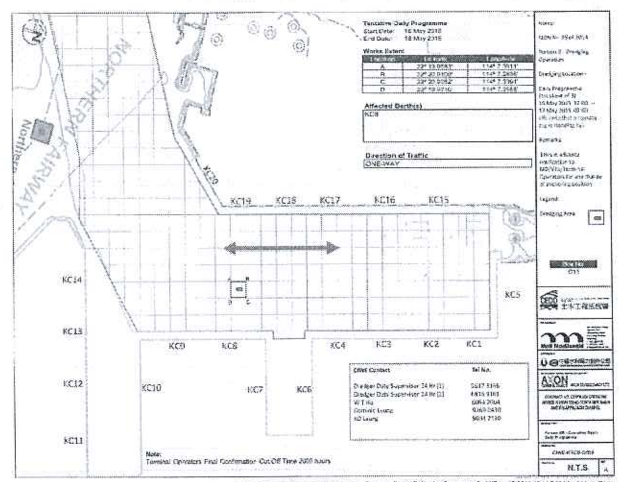

Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
ONE-WAY
NORTHERN FAIRWAY
KC19 KC18 KC17 KC16 KC15
KC14 KC13 KC12 KC11 KC10 KC9 KC8 KC7 KC6 KC5 KC4 KC3 KC2 KC1
CWE Contact
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

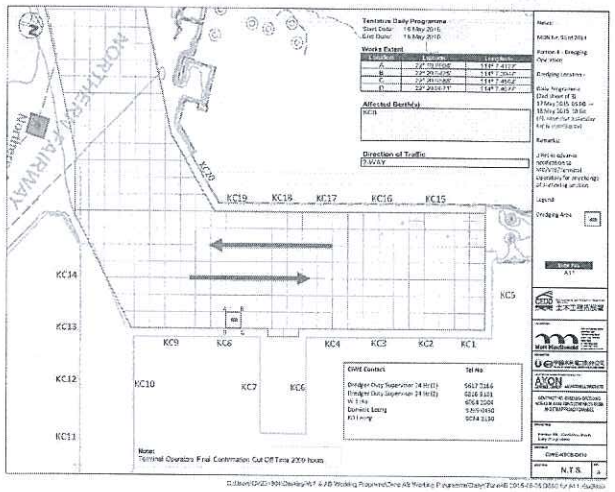

Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
ONE-WAY
NORTHERN FAIRWAY
Northern
KC19 KC18 KC17 KC16 KC15
KC14 KC13 KC12 KC11 KC10 KC9 KC8 KC7 KC6 KC5 KC4 KC3 KC2 KC1
CWE Contact
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

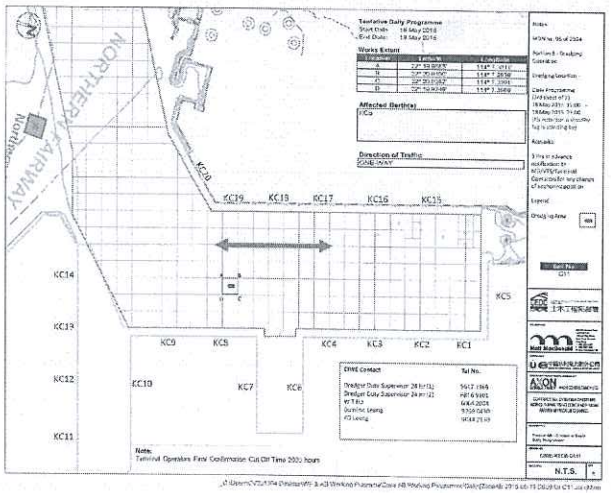

Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
ONE-WAY
NORTHERN FAIRWAY
Northern
KC19 KC18 KC17 KC16 KC15
KC14 KC13 KC12 KC11 KC10 KC9 KC8 KC7 KC6 KC5 KC4 KC3 KC2 KC1
CWE Contact
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

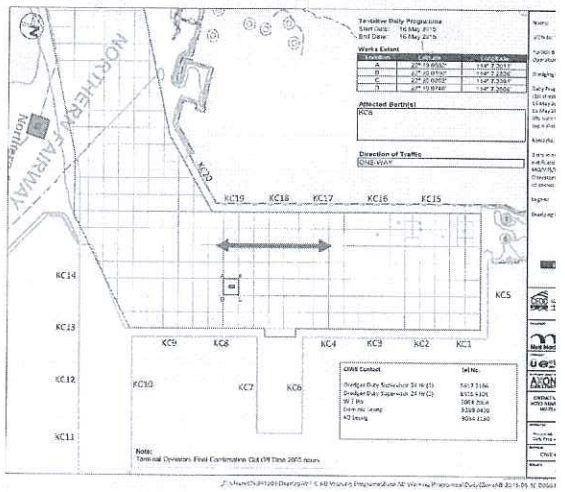

Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
ONE-WAY
NORTHERN FAIRWAY
KC19 KC18 KC17 KC16 KC15
KC14 KC13 KC12 KC11 KC10 KC9 KC8 KC7 KC6 KC5 KC4 KC3 KC2 KC1
CWE Contact
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

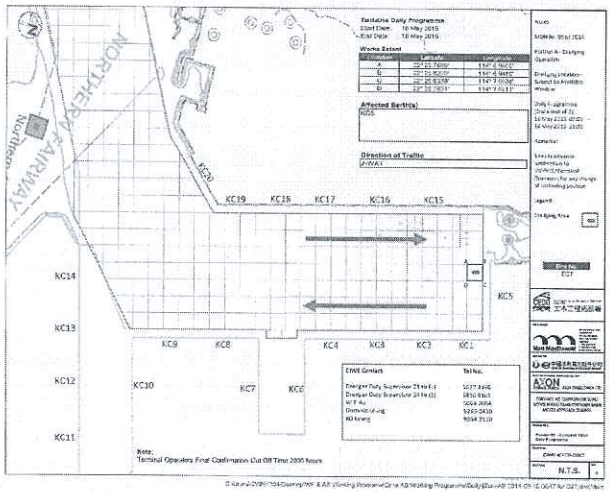

Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
ONE-WAY
NORTHERN FAIRWAY
Northern
KC19 KC18 KC17 KC16 KC15
KC14 KC13 KC12 KC11 KC10 KC9 KC8 KC7 KC6 KC5 KC4 KC3 KC2 KC1
CWE Contact
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

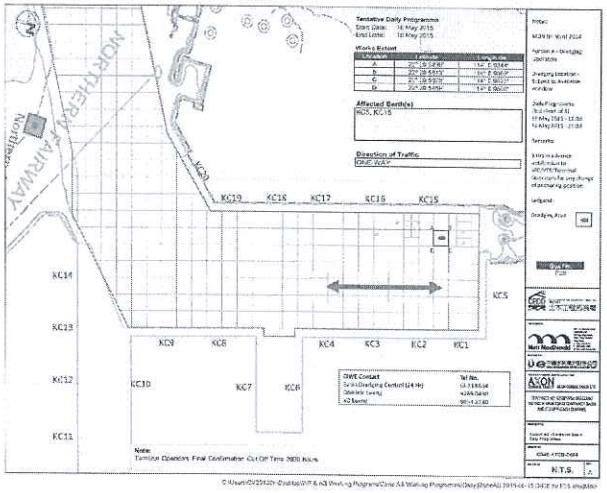

Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
ONE-WAY
NORTHERN FAIRWAY
Northern
KC19 KC18 KC17 KC16 KC15
KC14 KC13 KC12 KC11 KC10 KC9 KC8 KC7 KC6 KC5 KC4 KC3 KC2 KC1
CWE Contact
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

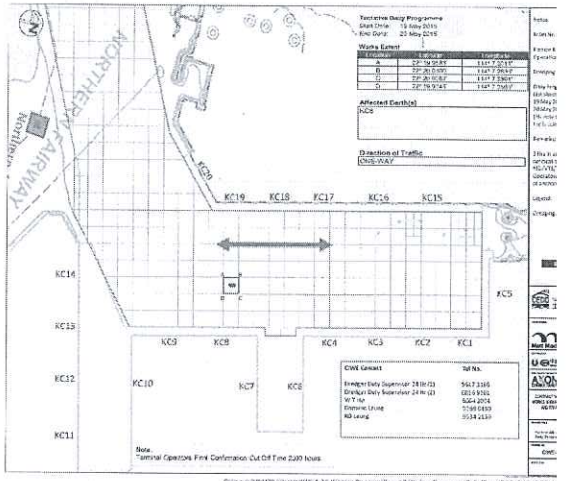

Tentative Daily Programme
Start Date: 16 May 2015
End Date: 16 May 2015
Works Extent
Affected Berth(s)
KC19 KC18 KC17 KC16 KC15
KC14 KC13 KC12 KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
KC5
NORTHERN FAIRWAY
Direction of Traffic
2-WAY
CWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

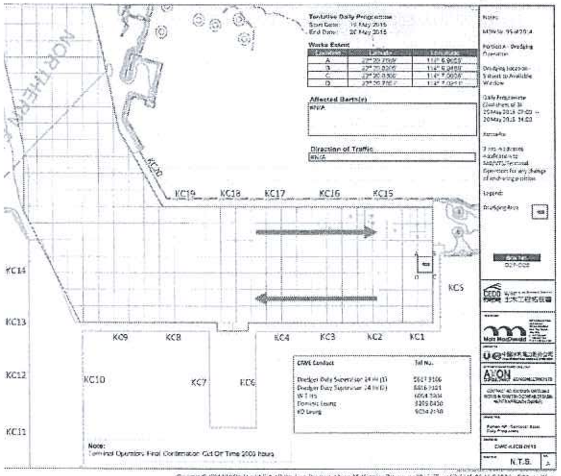

Tentative Daily Programme
Start Date: 16 May 2015
End Date: 16 May 2015
Works Extent
Affected Berth(s)
KC6
Direction of Traffic
ONE-WAY
KC19 KC18 KC17 KC16 KC15
KC14 KC13 KC12 KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
KC5
CWE Contact
Tel No.
Note:
Terminal Operators First Confirmation Cut Off Time 2000 hours
N.T.S.

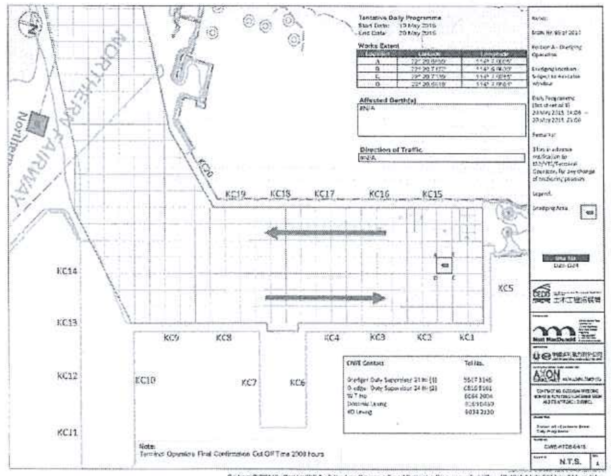

Tentative Daily Programme
Start Date: 16 May 2015
End Date: 16 May 2015
Works Extent
Affected Berth(s)
KC6
Direction of Traffic
ONE-WAY
KC19 KC18 KC17 KC16 KC15
KC14 KC13 KC12 KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
KC5
CWE Contact
Tel No.
Note:
Terminal Operators First Confirmation Cut Off Time 2000 hours

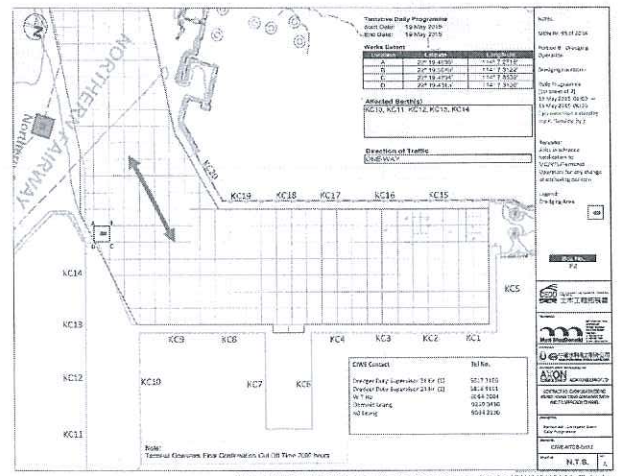

Tentative Daily Programme
Start Date: 16 May 2015
End Date: 16 May 2015
Works Extent
Affected Berth(s)
KC6
Direction of Traffic
2-WAY
KC19 KC18 KC17 KC16 KC15
KC14 KC13 KC12 KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
KC5
CWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

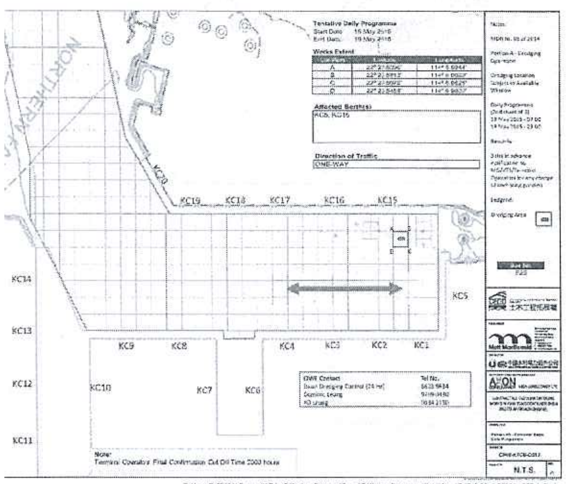

Tentative Daily Programme
Start Date: 16 May 2015
End Date: 16 May 2015
Works Extent
Affected Berth(s)
KC5, KC15
Direction of Traffic
ONE-WAY
KC19 KC18 KC17 KC16 KC15
KC14 KC13 KC12 KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
KC5
CWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

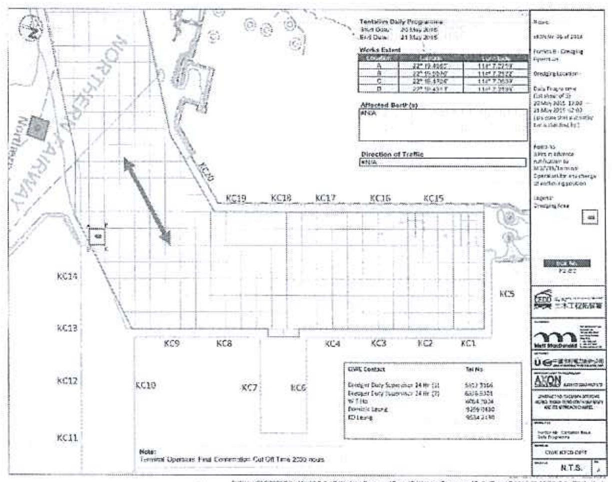

Tentative Daily Programme
Start Date: 16 May 2015
End Date: 20 May 2015
Works Extent
Affected Berth(s)
KC6
Direction of Traffic
ONE-WAY
KC19 KC18 KC17 KC16 KC15
KC14 KC13 KC12 KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
KC5
CWE Contact
Tel No.
Note:
Terminal Operators First Confirmation Cut Off Time 2100 hours

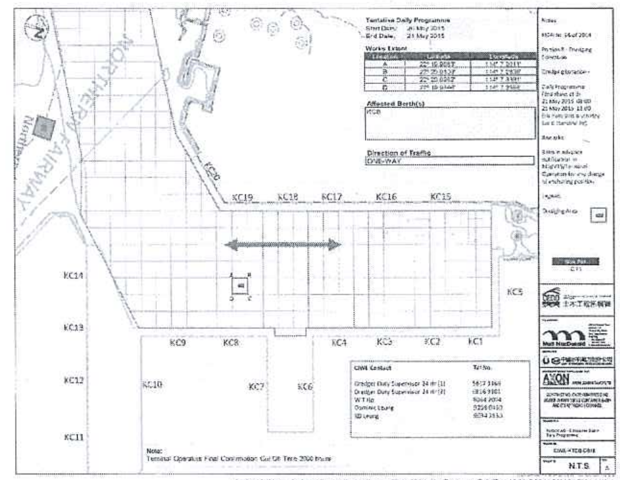

Tentative Daily Programme
Works Extent
Affected Berth(s)
N/A
Direction of Traffic
N/A
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
KC5
CWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

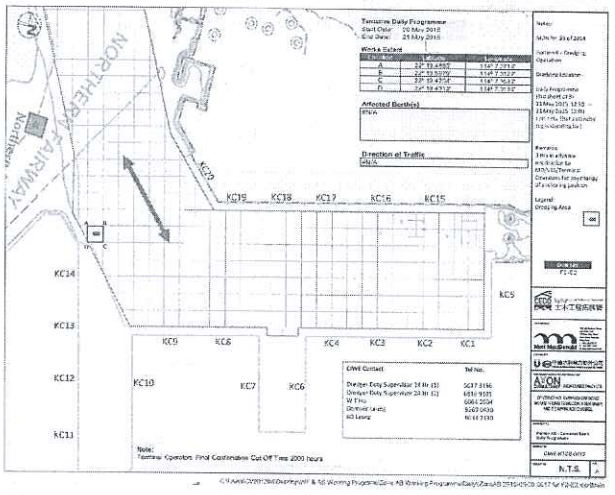

NORTHERN FAIRWAY
Tentative Daily Programme
Works Extent
Affected Berth(s)
N/A
Direction of Traffic
N/A
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
KC5
CWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

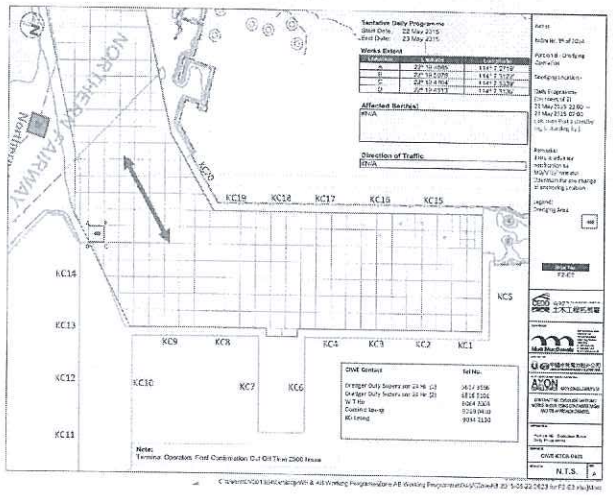

NORTHERN FAIRWAY
Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
ONE-WAY
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
KC5
CWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

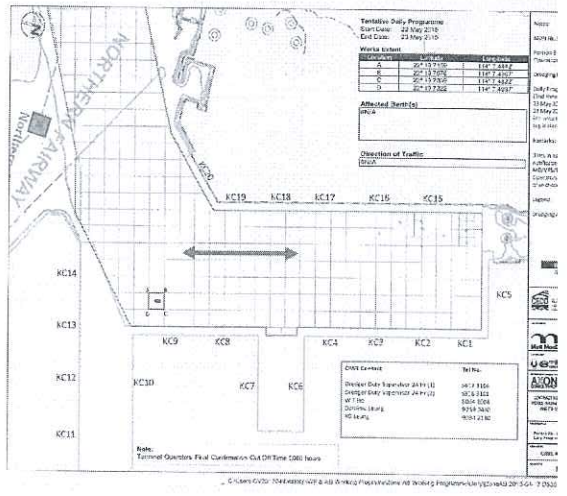

Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
ONE-WAY
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
KC5
CWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

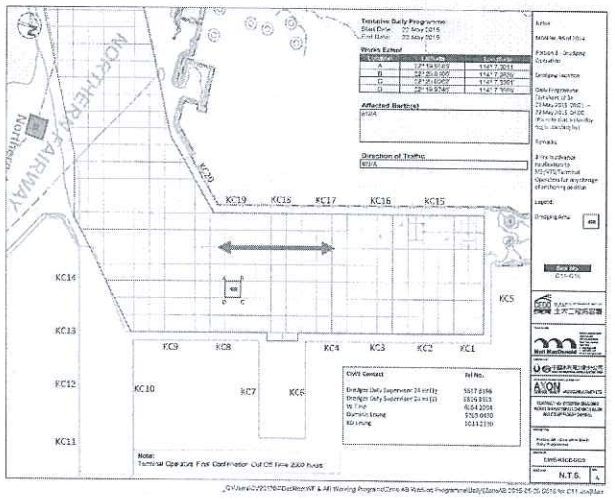

NORTHERN FAIRWAY
Tentative Daily Programme
Works Extent
Affected Berth(s)
N/A
Direction of Traffic
N/A
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
KC5
CWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

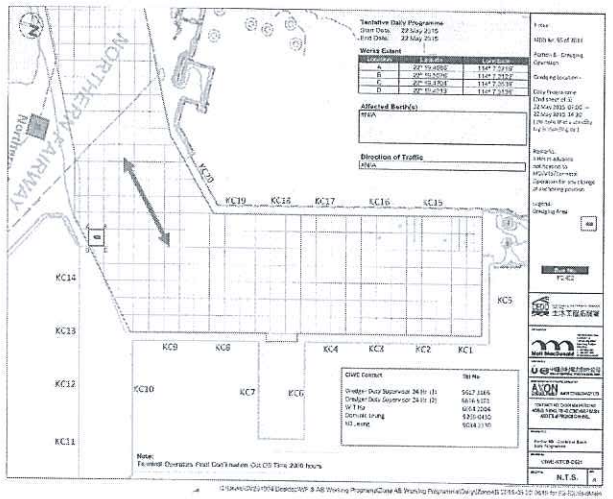

Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
ONE-WAY
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
KC5
CWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

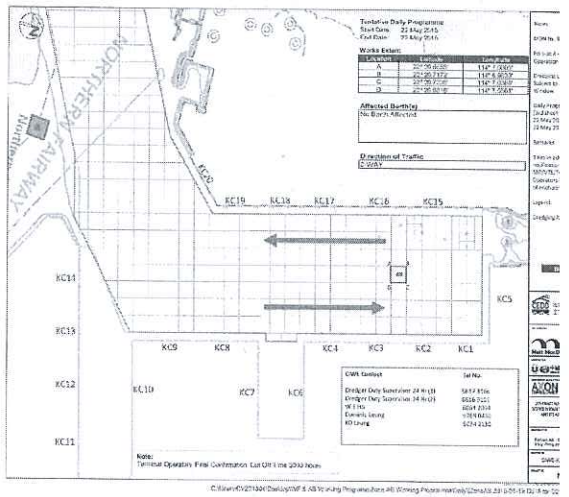

Tentative Daily Programme
Start Date: 20 May 2015
End Date: 25 May 2015
Works Extent
Affected Berth(s)
Direction of Traffic
Remarks:
Legend:
Dredging Area
NORTHERN FAIRWAY
KC20
KC19
KC18
KC17
KC16
KC15
KC14
KC13
KC12
KC11
KC9
KC8
KC4
KC3
KC2
KC1
KC10
KC7
KC6
KC5
DWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

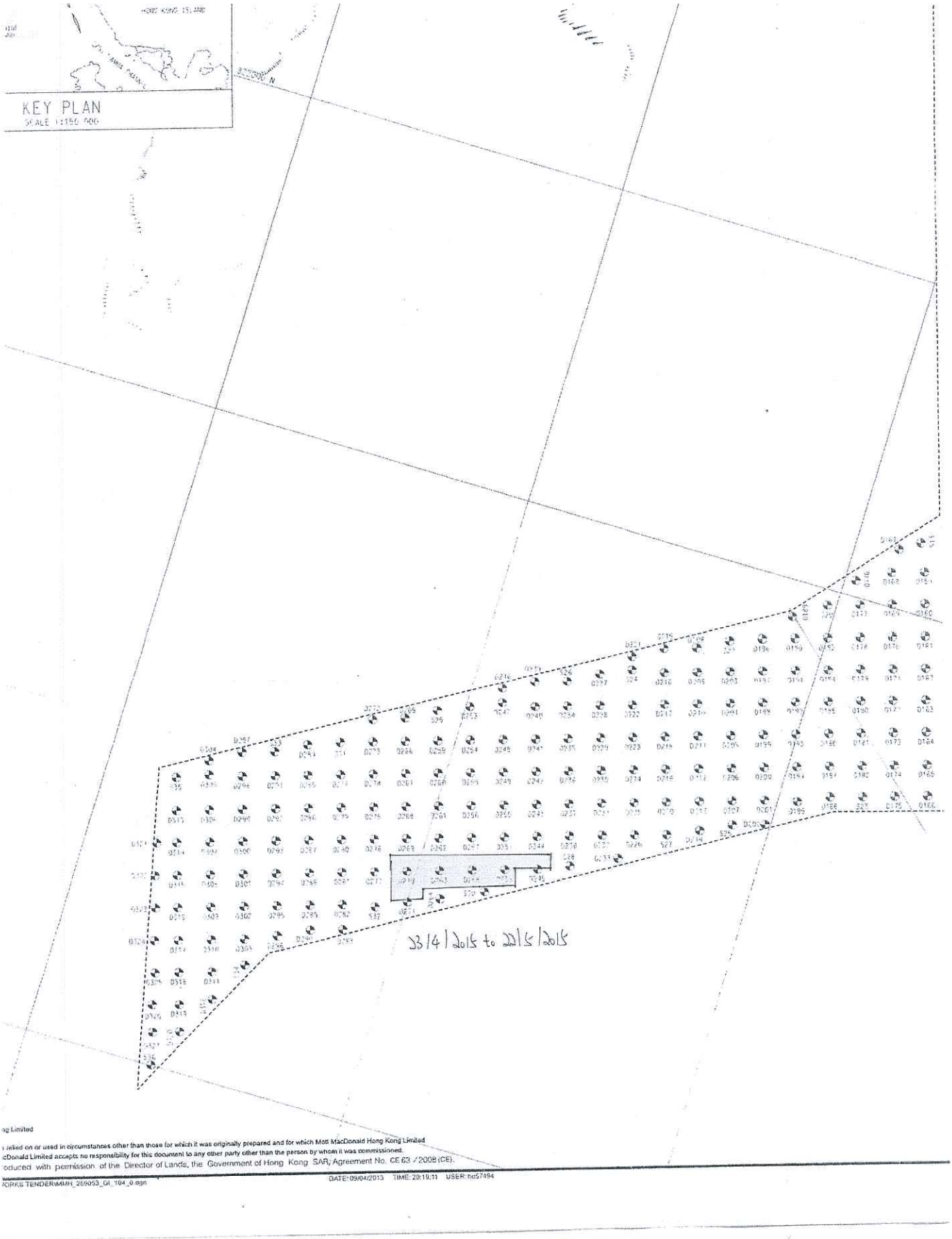

Tentative Daily Programme
Start Date: 22 May 2015
End Date: 23 May 2015
Works Extent
Affected Berth(s)
Direction of Traffic
Remarks:
Legend:
Dredging Area
NORTHERN FAIRWAY
KC20
KC19
KC18
KC17
KC16
KC15
KC14
KC13
KC12
KC11
KC9
KC8
KC4
KC3
KC2
KC1
KC10
KC7
KC6
KC5
DWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2300 hours
N.T.S.

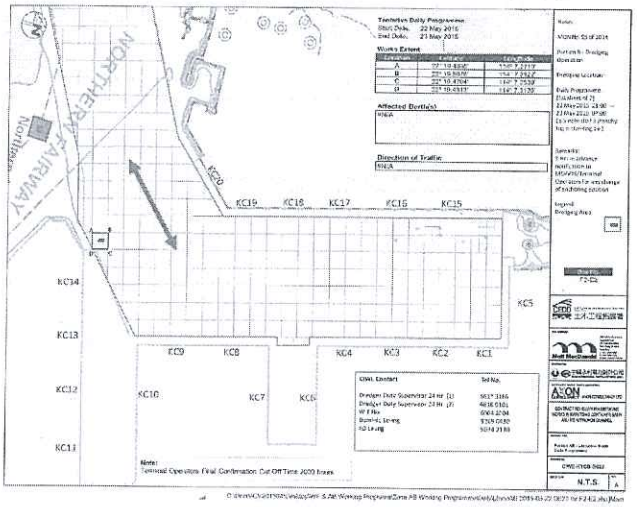

Tentative Daily Programme
Start Date: 22 May 2015
End Date: 23 May 2015
Works Extent
Affected Berth(s)
Direction of Traffic
Remarks:
Legend:
Dredging Area
NORTHERN FAIRWAY
KC20
KC19
KC18
KC17
KC16
KC15
KC14
KC13
KC12
KC11
KC9
KC8
KC4
KC3
KC2
KC1
KC10
KC7
KC6
KC5
DWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 1000 hours

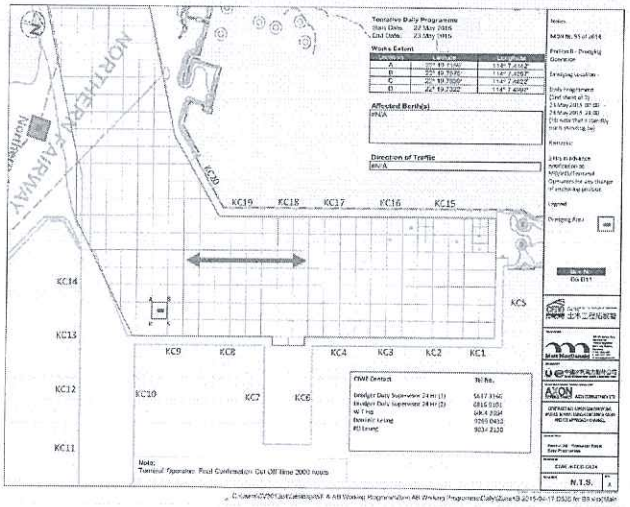

Tentative Daily Programme
Start Date: 22 May 2015
End Date: 23 May 2015
Works Extent
Affected Berth(s)
Direction of Traffic
Remarks:
Legend:
Dredging Area
NORTHERN FAIRWAY
KC20
KC19
KC18
KC17
KC16
KC15
KC14
KC13
KC12
KC11
KC9
KC8
KC4
KC3
KC2
KC1
KC10
KC7
KC6
KC5
DWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2300 hours
N.T.S.

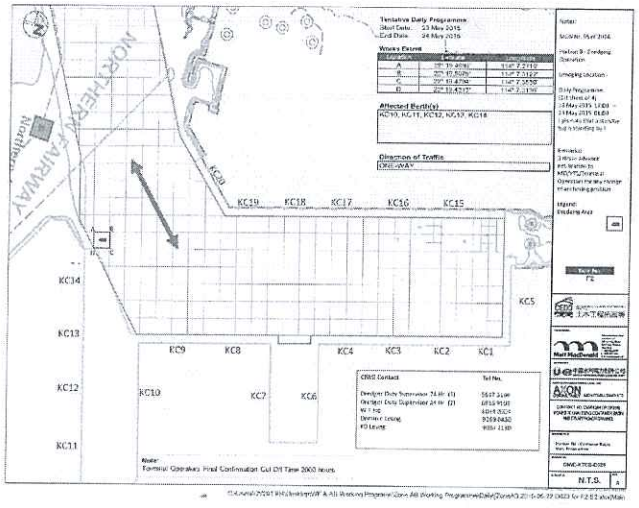

Tentative Daily Programme
Start Date: 22 May 2015
End Date: 23 May 2015
Works Extent
Affected Berth(s)
Direction of Traffic
Remarks:
Legend:
Dredging Area
NORTHERN FAIRWAY
KC20
KC19
KC18
KC17
KC16
KC15
KC14
KC13
KC12
KC11
KC9
KC8
KC4
KC3
KC2
KC1
KC10
KC7
KC6
KC5
DWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

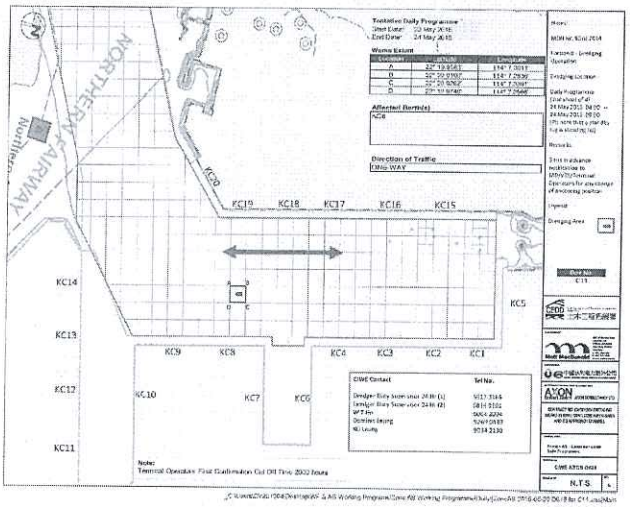

Tentative Daily Programme
Start Date: 22 May 2015
End Date: 23 May 2015
Works Extent:
Affected Berth(s)
No Berth Affected
Direction of Traffic
Remarks:
Legend:
Dredging Area
NORTHERN FAIRWAY
KC20
KC19
KC18
KC17
KC16
KC15
KC14
KC13
KC12
KC11
KC9
KC8
KC4
KC3
KC2
KC1
KC10
KC7
KC6
KC5
DWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2300 hours

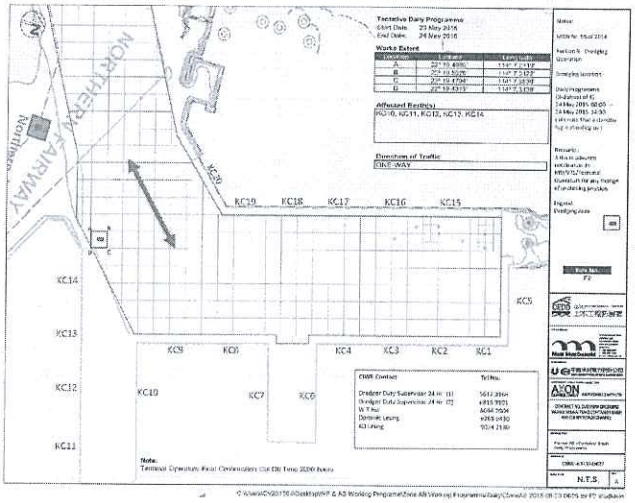


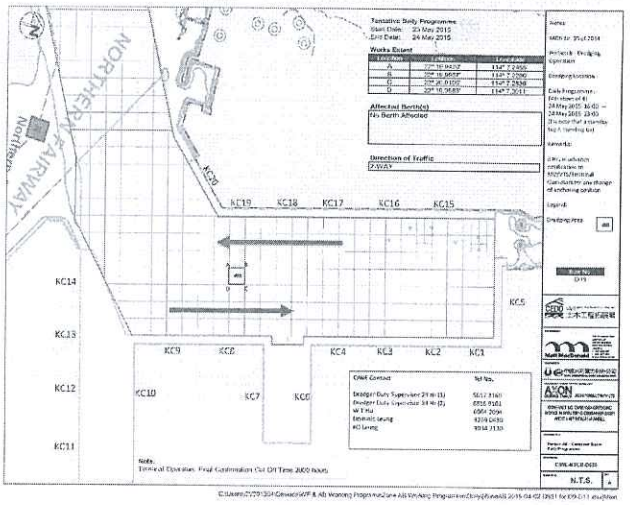

Tentative Daily Programme
Start Date: 22 May 2015
End Date: 23 May 2015
Works Extent
Affected Berth(s)
N/A
Direction of Traffic
N/A
Remarks:
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
CWE Contact
Tel No.
N.T.S.

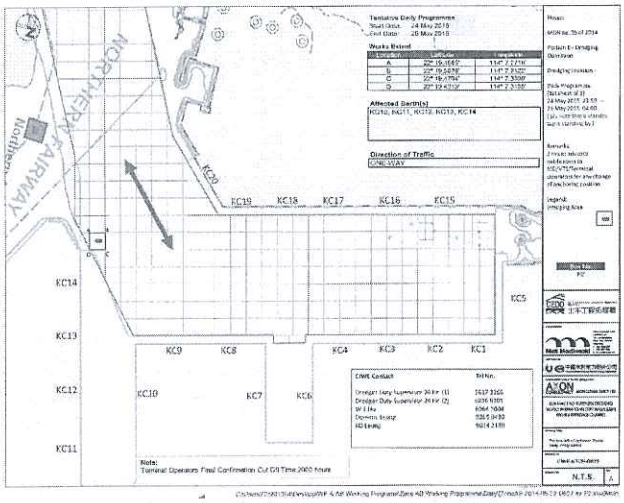

Tentative Daily Programme
Works Extent
Affected Berth(s)
N/A
Direction of Traffic
N/A
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
CWE Contact
Tel No.
N.T.S.

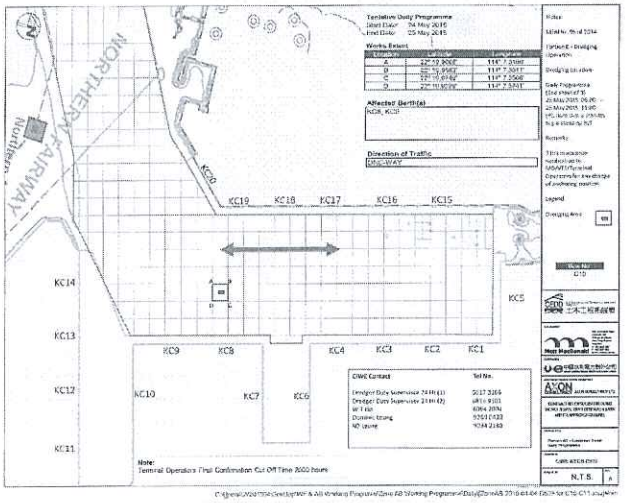

Tentative Daily Programme
Works Extent
Affected Berth(s)
KC10, KC11, KC12, KC13, KC14
Direction of Traffic
ONE-WAY
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
CWE Contact
Tel No.
N.T.S.

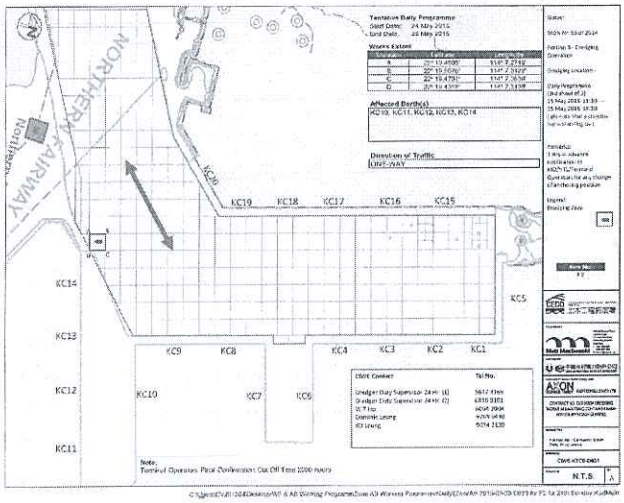

Tentative Daily Programme
Works Extent
Affected Berth(s)
KC8
Direction of Traffic
ONE-WAY
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
CWE Contact
Tel No.
N.T.S.

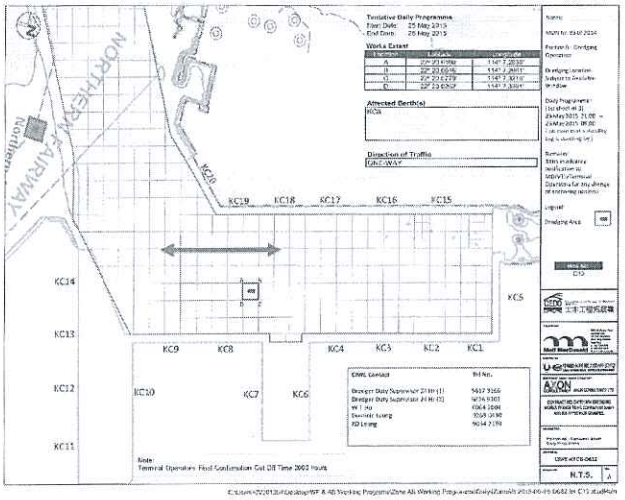

Tentative Daily Programme
Works Extent
Affected Berth(s)
KC10, KC11, KC12, KC13, KC14
Direction of Traffic
ONE-WAY
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
CWE Contact
Tel No.
N.T.S.

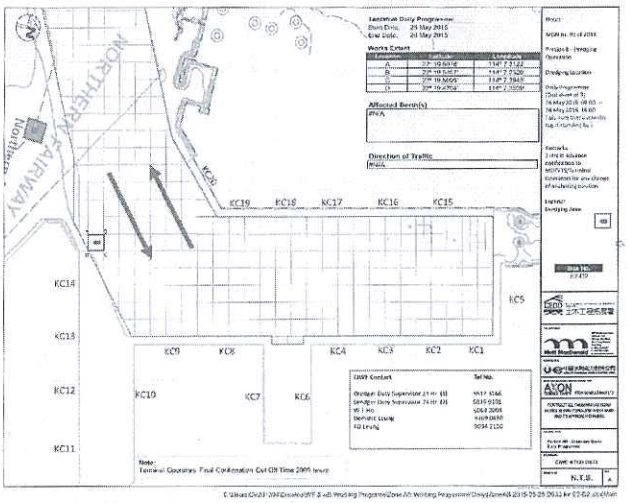

Tentative Daily Programme
Works Extent
Affected Berth(s)
No Berth Affected
Direction of Traffic
2-WAY
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
CWE Contact
Tel No.
N.T.S.

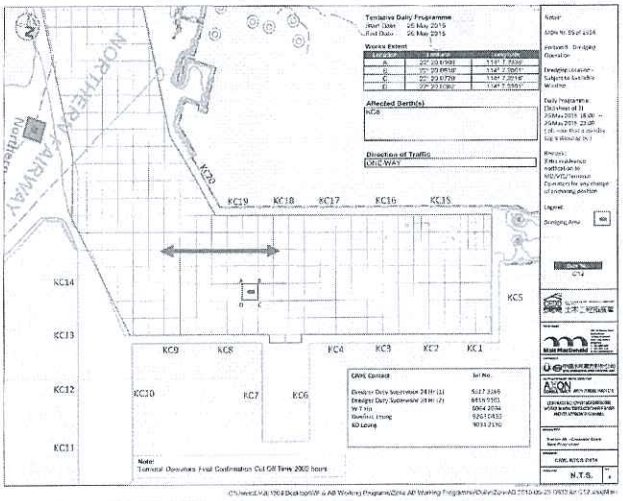

Tentative Daily Programme
Start Date: 24 May 2015
End Date: 26 May 2015
Works Extent
Affected Berth(s)
KC12, KC11, KC10, KC13, KC14
Direction of Traffic
ONE-WAY
Remarks
Legend
Dredging Area
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
CWE Contact
Tel No.
Dredger Duty Supervisor 24 Hr (1)
Dredger Duty Supervisor 24 Hr (2)
W T Ho
Dominic Leung
KD Leung
N.T.S.
NORTHERN FAIRWAY
KC20
KC19
KC18
KC17
KC16
KC15
KC14
KC13
KC12
KC11
KC10
KC9
KC8
KC7
KC6
KC5
KC4
KC3
KC2
KC1

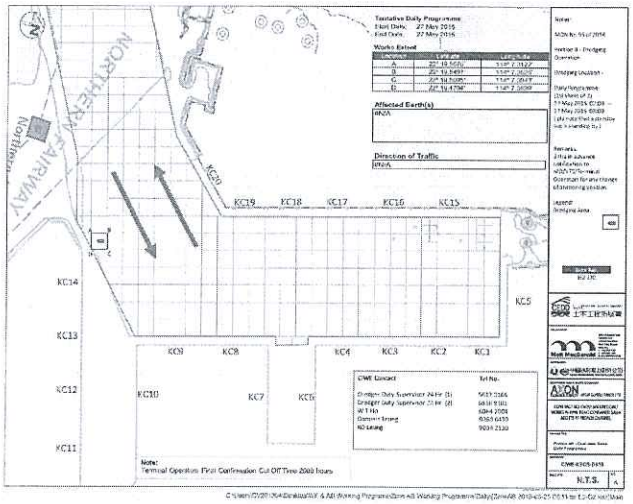

Tentative Daily Programme
Start Date: 24 May 2015
End Date: 25 May 2015
Works Extent
Affected Berth(s)
KC8, KC9
Direction of Traffic
ONE-WAY
Remarks
Legend
Dredging Area
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
CWE Contact
Tel No.
Dredger Duty Supervisor 24 Hr (1)
Dredger Duty Supervisor 24 Hr (2)
W T Ho
Dominic Leung
KD Leung
N.T.S.
NORTHERN FAIRWAY
KC20
KC19
KC18
KC17
KC16
KC15
KC14
KC13
KC12
KC11
KC10
KC9
KC8
KC7
KC6
KC5
KC4
KC3
KC2
KC1

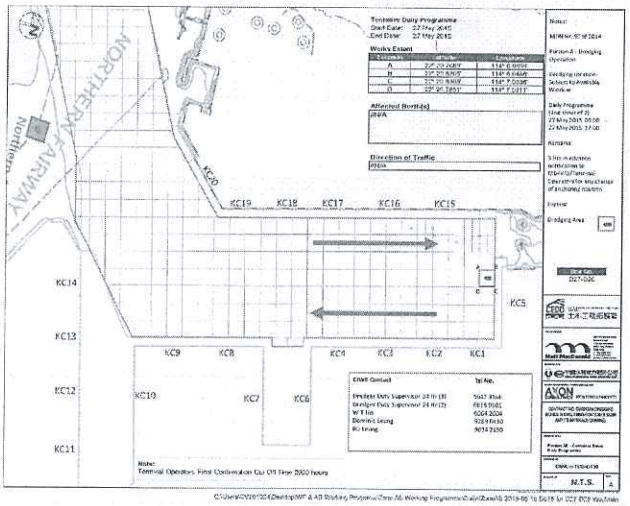

Tentative Daily Programme
Start Date: 24 May 2015
End Date: 26 May 2015
Works Extent
Affected Berth(s)
KC10, KC11, KC12, KC13, KC14
Direction of Traffic
ONE-WAY
Remarks
Legend
Dredging Area
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
CWE Contact
Tel No.
Dredger Duty Supervisor 24 Hr (1)
Dredger Duty Supervisor 24 Hr (2)
W T Ho
Dominic Leung
KD Leung
N.T.S.
NORTHERN FAIRWAY
KC20
KC19
KC18
KC17
KC16
KC15
KC14
KC13
KC12
KC11
KC10
KC9
KC8
KC7
KC6
KC5
KC4
KC3
KC2
KC1

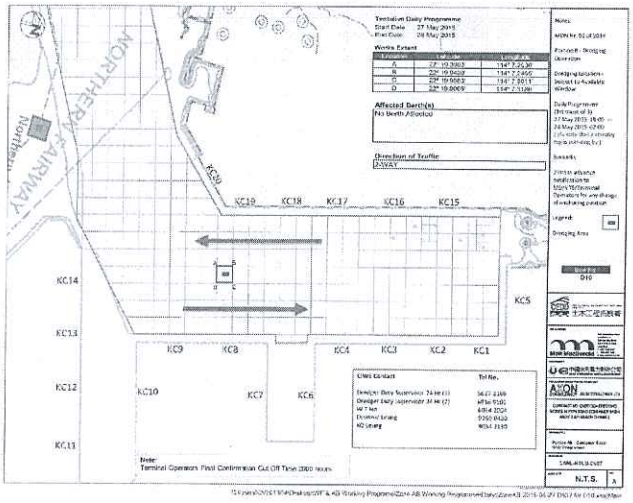

Tentative Daily Programme
Start Date: 25 May 2015
End Date: 26 May 2015
Works Extent
Affected Berth(s)
KC9
Direction of Traffic
ONE-WAY
Remarks
Legend
Dredging Area
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
CWE Contact
Tel No.
Dredger Duty Supervisor 24 Hr (1)
Dredger Duty Supervisor 24 Hr (2)
W T Ho
Dominic Leung
KD Leung
N.T.S.
NORTHERN FAIRWAY
KC20
KC19
KC18
KC17
KC16
KC15
KC14
KC13
KC12
KC11
KC10
KC9
KC8
KC7
KC6
KC5
KC4
KC3
KC2
KC1

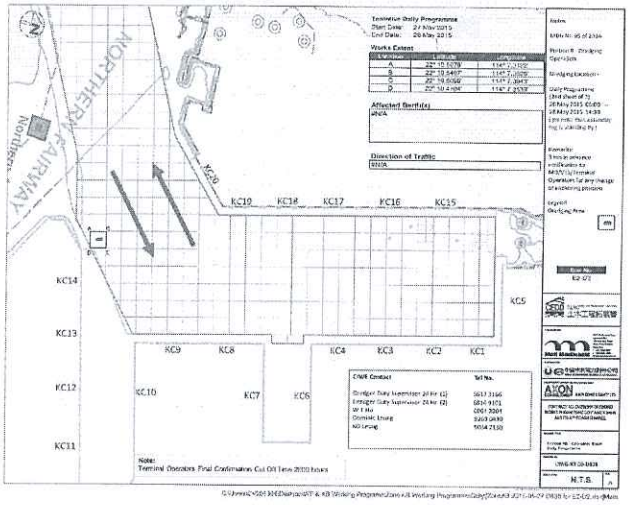

Tentative Daily Programme
Start Date: 25 May 2015
End Date: 26 May 2015
Works Extent
Affected Berth(s)
KC9
Direction of Traffic
ONE-WAY
Remarks
Legend
Dredging Area
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
CWE Contact
Tel No.
Dredger Duty Supervisor 24 Hr (1)
Dredger Duty Supervisor 24 Hr (2)
W T Ho
Dominic Leung
KD Leung
N.T.S.
NORTHERN FAIRWAY
KC20
KC19
KC18
KC17
KC16
KC15
KC14
KC13
KC12
KC11
KC10
KC9
KC8
KC7
KC6
KC5
KC4
KC3
KC2
KC1

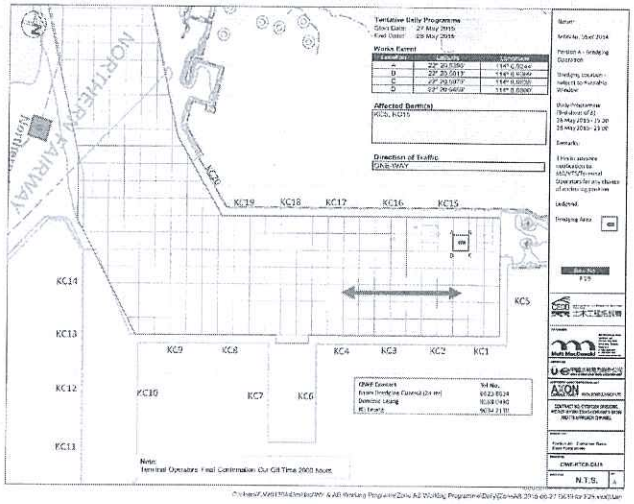

Tentative Daily Programme
Start Date: 26 May 2015
End Date: 26 May 2015
Works Extent
Affected Berth(s)
KC8
Direction of Traffic
ONE-WAY
Remarks
Legend
Dredging Area
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
CWE Contact
Tel No.
Dredger Duty Supervisor 24 Hr (1)
Dredger Duty Supervisor 24 Hr (2)
W T Ho
Dominic Leung
KD Leung
N.T.S.
NORTHERN FAIRWAY
KC20
KC19
KC18
KC17
KC16
KC15
KC14
KC13
KC12
KC11
KC10
KC9
KC8
KC7
KC6
KC5
KC4
KC3
KC2
KC1

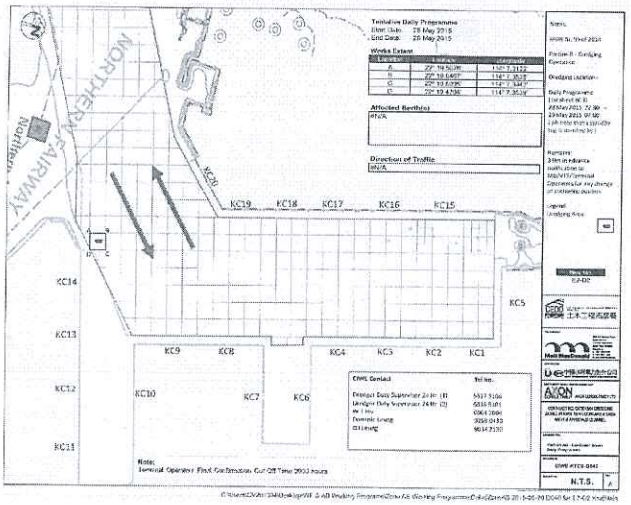

Tentative Daily Programme
Start Date: 27 May 2015
End Date: 27 May 2015
Works Extent
Affected Berth(s)
N/A
Direction of Traffic
N/A
NORTHERN FAIRWAY
KC20
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC5
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
CWE Contact
Tel No.
Dredger Duty Supervisor 24 Hr (1) 5637 3166
Dredger Duty Supervisor 24 Hr (2) 6816 9101
WT Tan 6264 2004
Dominic Leung 9269 0430
KO Leung 9034 2130
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

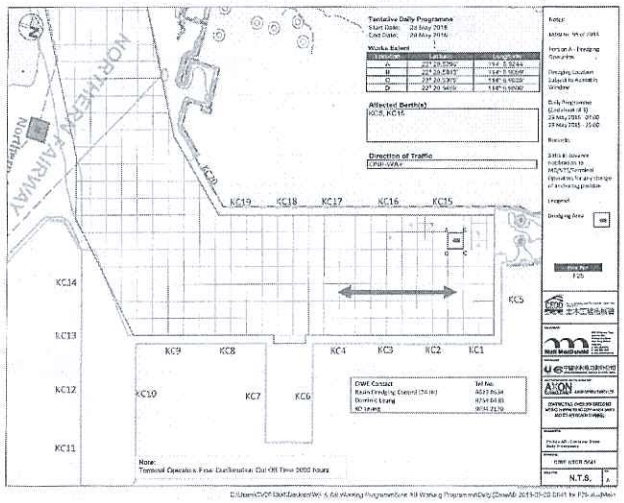

Tentative Daily Programme
Start Date: 27 May 2015
End Date: 27 May 2015
Works Extent
Affected Berth(s)
N/A
Direction of Traffic
N/A
NORTHERN FAIRWAY
KC20
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC5
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
CWE Contact
Tel No.
Dredger Duty Supervisor 24 Hr (1) 5637 3166
Dredger Duty Supervisor 24 Hr (2) 6816 9101
WT Tan 6264 2004
Dominic Leung 9269 0430
KO Leung 9034 2130
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.


Tentative Daily Programme
Start Date: 27 May 2015
End Date: 28 May 2015
Works Extent
Affected Berth(s)
No Berth Affected
Direction of Traffic
2-WAY
NORTHERN FAIRWAY
KC20
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC5
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
CWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.


Tentative Daily Programme
Start Date: 27 May 2015
End Date: 28 May 2015
Works Extent
Affected Berth(s)
N/A
Direction of Traffic
N/A
NORTHERN FAIRWAY
KC20
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC5
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
CWE Contact
Tel No.
Dredger Duty Supervisor 24 Hr (1) 5637 3166
Dredger Duty Supervisor 24 Hr (2) 6816 9101
WT Tan 6264 2004
Dominic Leung 9269 0430
KO Leung 9034 2130
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.


Tentative Daily Programme
Start Date: 27 May 2015
End Date: 28 May 2015
Works Extent
Affected Berth(s)
KC5, KC15
Direction of Traffic
ONE-WAY
NORTHERN FAIRWAY
KC20
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC5
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
CWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.


Tentative Daily Programme
Start Date: 28 May 2015
End Date: 28 May 2015
Works Extent
Affected Berth(s)
N/A
Direction of Traffic
N/A
NORTHERN FAIRWAY
KC20
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC5
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
CWE Contact
Tel No.
Dredger Duty Supervisor 24 Hr (1) 5637 3166
Dredger Duty Supervisor 24 Hr (2) 6816 9101
WT Tan 6264 2004
Dominic Leung 9269 0430
KO Leung 9034 2130
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.


Tentative Daily Programme
Start Date: 28 May 2015
End Date: 29 May 2015
Works Extent
Location
Latitude
Longitude
A
B
C
D
Affected Berth(s)
KC8, KC15
Direction of Traffic
ONE-WAY
Daily Programme
Remarks:
Legend:
Dredging Area
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
CNWL Contact
Tel No.
Dredger Duty Supervisor 24 Hr (1)
Dredger Duty Supervisor 24 Hr (2)
Mr T Ho
Dominic Leung
KO Leung
N.T.S.
NORTHERN FAIRWAY
KC20
KC19
KC18
KC17
KC16
KC15
KC14
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KC8
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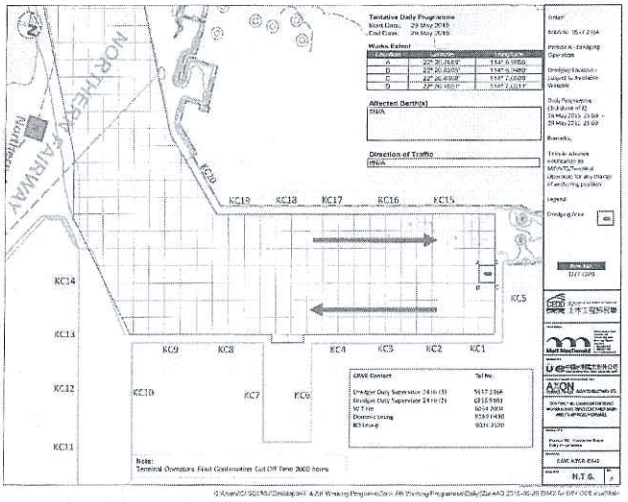
KC6
KC5
KC4
KC3
KC2
KC1


Tentative Daily Programme
Start Date: 29 May 2015
End Date: 29 May 2015
Works Extent
Location
Latitude
Longitude
A
B
C
D
Affected Berth(s)
NIL
Direction of Traffic
N/A
Daily Programme
Remarks:
Legend:
Dredging Area
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
CNWL Contact
Tel No.
Dredger Duty Supervisor 24 Hr (1)
Dredger Duty Supervisor 24 Hr (2)
Mr T Ho
Dominic Leung
KO Leung
N.T.S.
NORTHERN FAIRWAY
KC20
KC19
KC18
KC17
KC16
KC15
KC14
KC13
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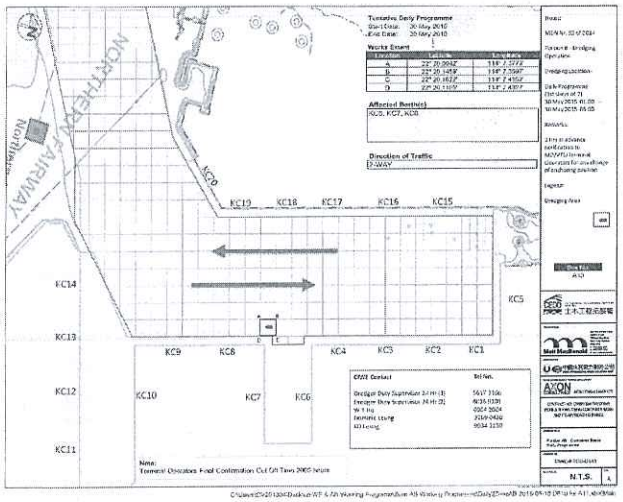
KC9
KC8
KC7
KC6
KC5
KC4
KC3
KC2
KC1


Tentative Daily Programme
Start Date: 30 May 2015
End Date: 30 May 2015
Works Extent
Location
Latitude
Longitude
A
B
C
D
Affected Berth(s)
KC8, KC7, KC6
Direction of Traffic
2-WAY
Daily Programme
Remarks:
Legend:
Dredging Area
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
CNWL Contact
Tel No.
Dredger Duty Supervisor 24 Hr (1)
Dredger Duty Supervisor 24 Hr (2)
Mr T Ho
Dominic Leung
KO Leung
N.T.S.
NORTHERN FAIRWAY
KC20
KC19
KC18
KC17
KC16
KC15
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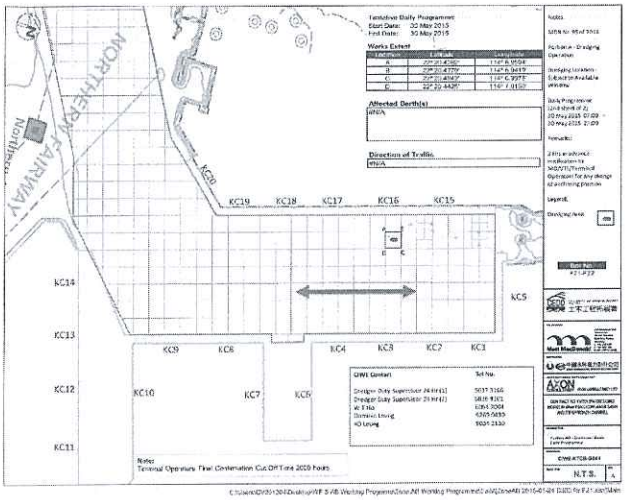
KC5
KC4
KC3
KC2
KC1


Tentative Daily Programme
Start Date: 30 May 2015
End Date: 30 May 2015
Works Extent
Location
Latitude
Longitude
A
B
C
D
Affected Berth(s)
NIL
Direction of Traffic
N/A
Daily Programme
Remarks:
Legend:
Dredging Area
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
CNWL Contact
Tel No.
Dredger Duty Supervisor 24 Hr (1)
Dredger Duty Supervisor 24 Hr (2)
Mr T Ho
Dominic Leung
KO Leung
N.T.S.
NORTHERN FAIRWAY
KC20
KC19
KC18
KC17
KC16
KC15
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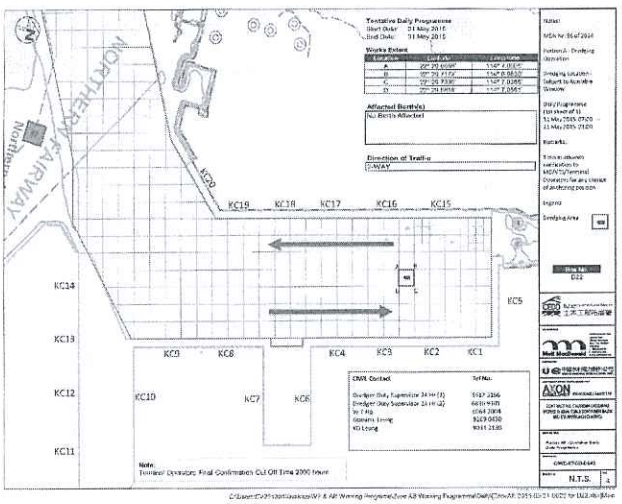
KC4
KC3
KC2
KC1


Tentative Daily Programme
Start Date: 31 May 2015
End Date: 31 May 2015
Works Extent
Location
Latitude
Longitude
A
B
C
D
Affected Berth(s)
NIL Berth Affected
Direction of Traffic
1-WAY
Daily Programme
Remarks:
Legend:
Dredging Area
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
CNWL Contact
Tel No.
Dredger Duty Supervisor 24 Hr (1)
Dredger Duty Supervisor 24 Hr (2)
Mr T Ho
Dominic Leung
KO Leung
N.T.S.
NORTHERN FAIRWAY
KC20
KC19
KC18
KC17
KC16
KC15
KC14
KC13
KC12
KC11
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KC8
KC7
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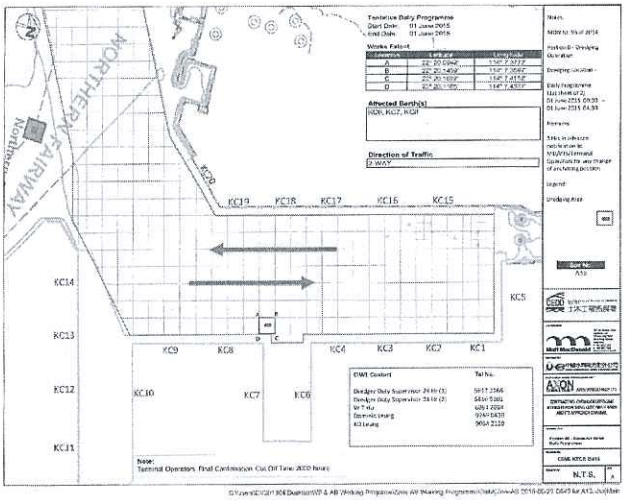
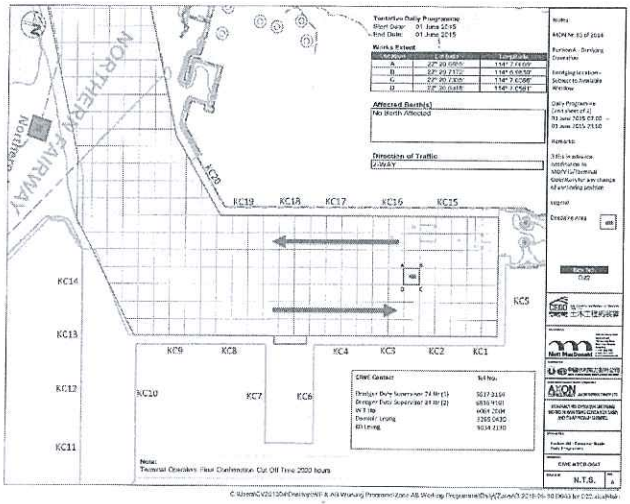
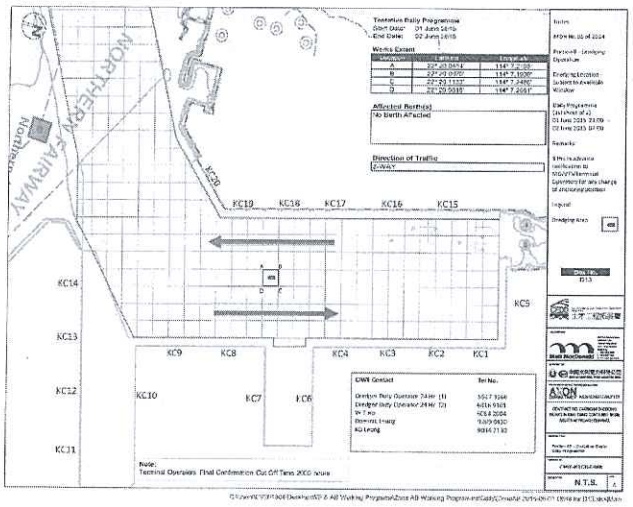
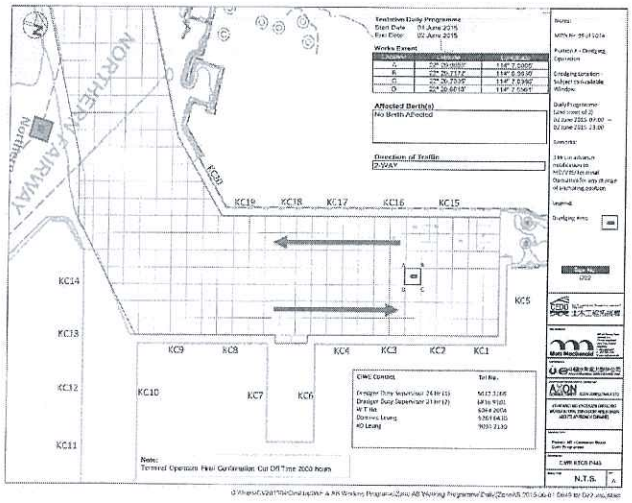
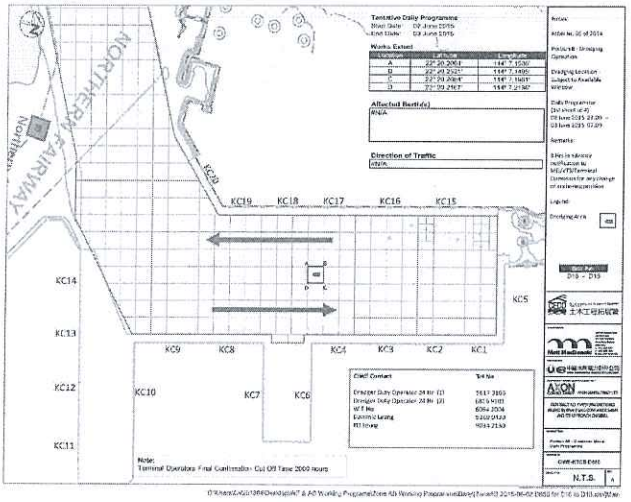
KC5
KC4
KC3
KC2
KC1

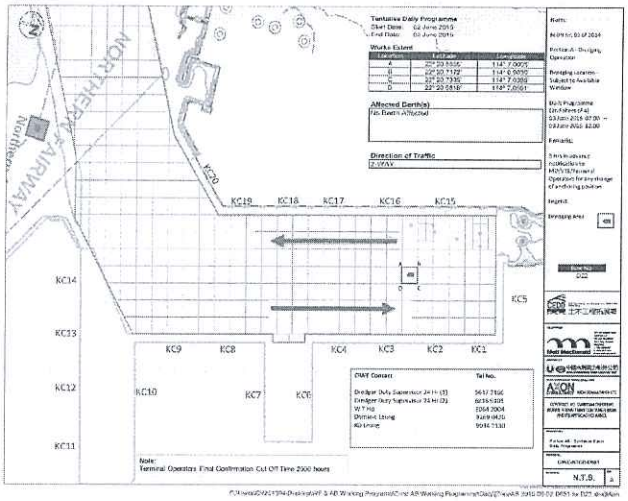

Tentative Daily Programme
Start Date: 01 June 2015
End Date: 01 June 2015
Works Extent
Location
Latitude
Longitude
A
B
C
D
Affected Berth(s)
KC8, KC7, KC6
Direction of Traffic
2-WAY
Daily Programme
Remarks:
Legend:
Dredging Area
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
CNWL Contact
Tel No.
Dredger Duty Supervisor 24 Hr (1)
Dredger Duty Supervisor 24 Hr (2)
Mr T Ho
Dominic Leung
KO Leung
N.T.S.
NORTHERN FAIRWAY
KC20
KC19
KC18
KC17
KC16
KC15
KC14
KC13
KC12
KC11
KC10
KC9
KC8
KC7
KC6
KC5
KC4
KC3
KC2
KC1

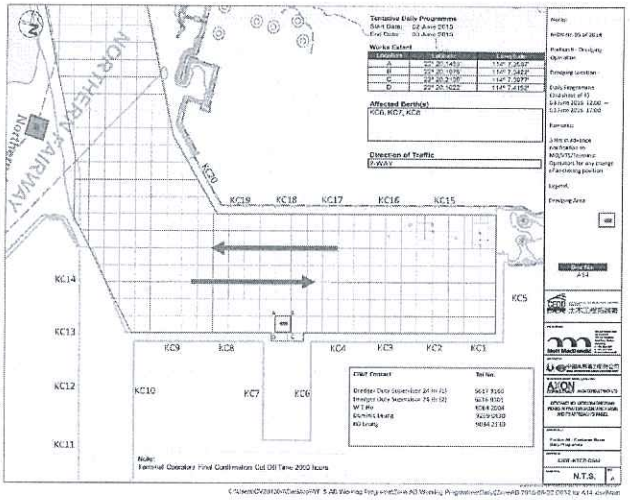

Tentative Daily Programme
Start Date: 01 June 2015
End Date: 01 June 2015
Works Extent
Affected Berth(s)
No Berth Affected
Direction of Traffic
2-WAY
KC20
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC5
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
Chief Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

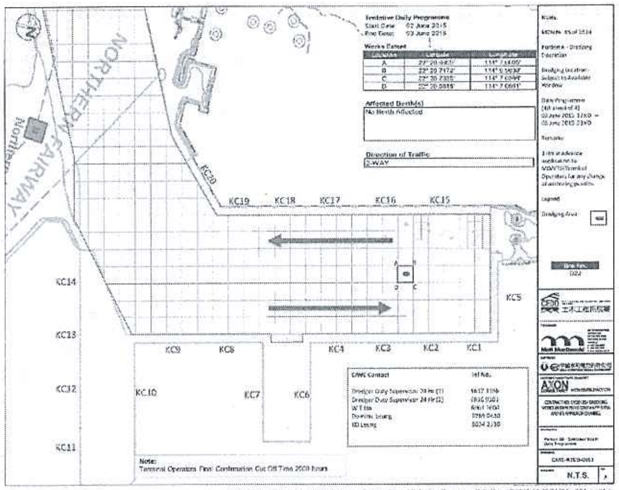

Tentative Daily Programme
Start Date: 01 June 2015
End Date: 02 June 2015
Works Extent
Affected Berth(s)
No Berth Affected
Direction of Traffic
2-WAY
KC20
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC5
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
Chief Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

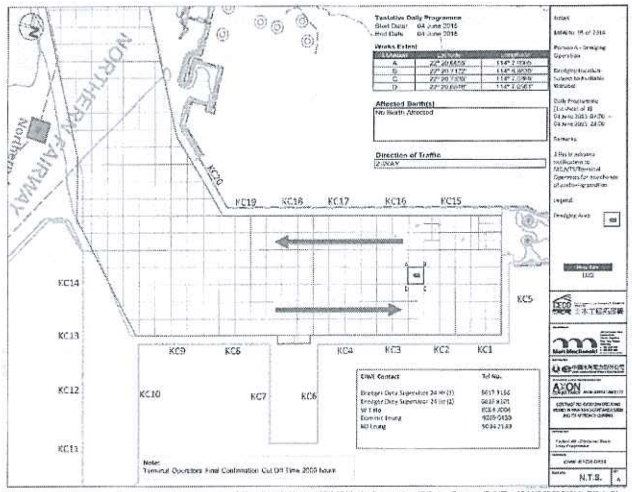

Tentative Daily Programme
Start Date: 01 June 2015
End Date: 02 June 2015
Works Extent
Affected Berth(s)
No Berth Affected
Direction of Traffic
2-WAY
KC20
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC5
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
Chief Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

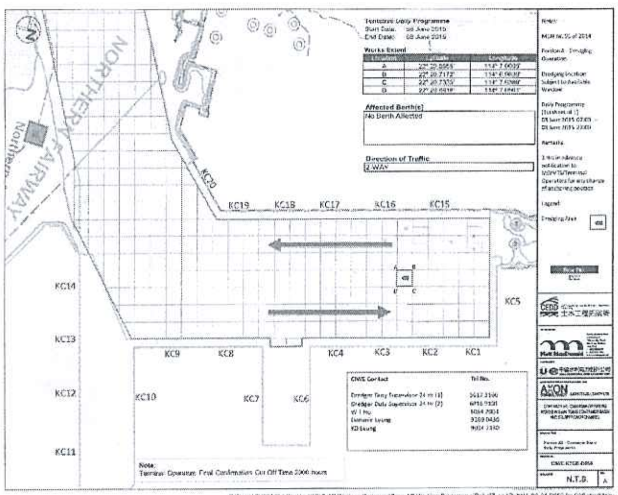

Tentative Daily Programme
Start Date: 02 June 2015
End Date: 03 June 2015
Works Extent
Affected Berth(s)
KC6
Direction of Traffic
2-WAY
KC20
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC5
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
Chief Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

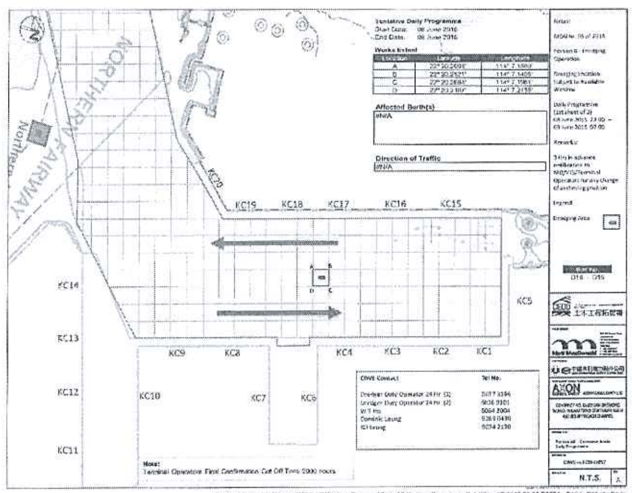

Tentative Daily Programme
Start Date: 02 June 2015
End Date: 02 June 2015
Works Extent
Affected Berth(s)
No Berth Affected
Direction of Traffic
2-WAY
KC20
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC5
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
Chief Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

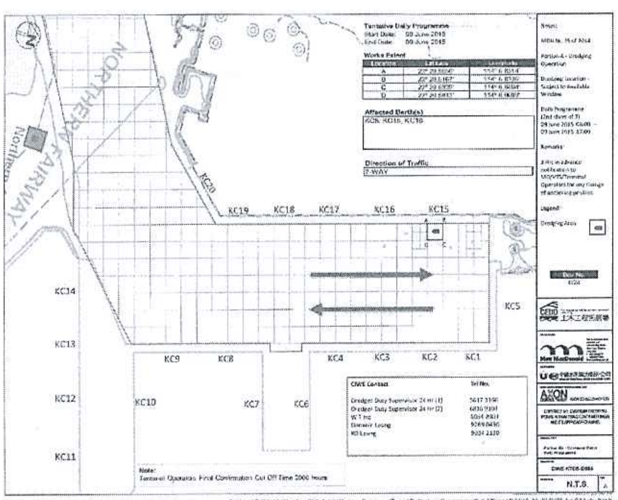

Tentative Daily Programme
Start Date: 02 June 2015
End Date: 03 June 2015
Works Extent
Affected Berth(s)
KC6, KC7, KC8
Direction of Traffic
2-WAY
KC20
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC5
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
Chief Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

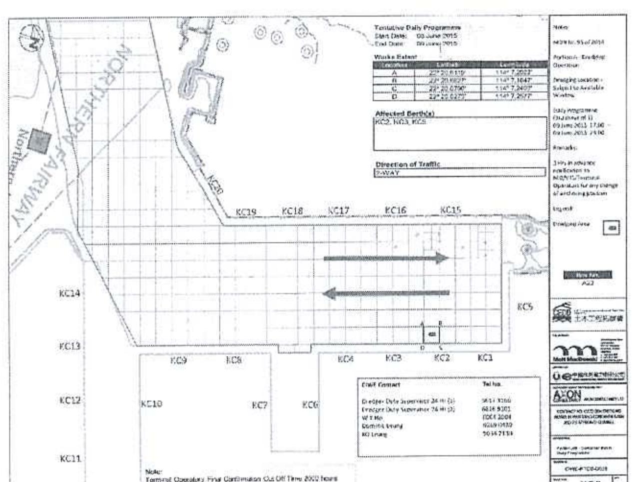

Tentative Daily Programme
Works Extent
Affected Berth(s)
No Berth Affected
Direction of Traffic
2-WAY
NORTHERN FAIRWAY
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
KC5
KC20
CWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

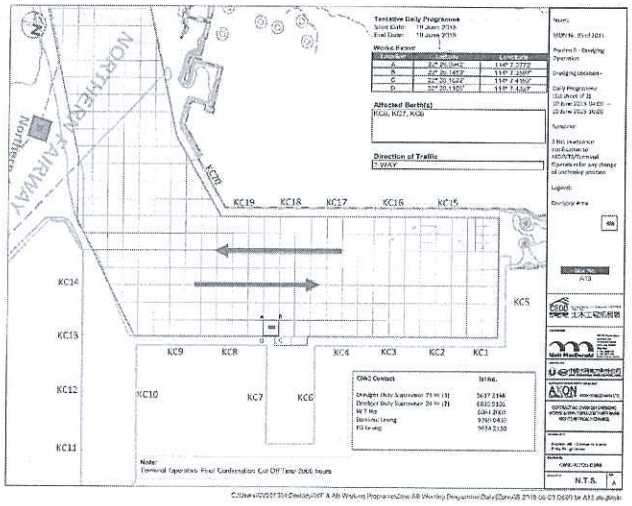

Tentative Daily Programme
Works Extent
Affected Berth(s)
No Berth Affected
Direction of Traffic
2-WAY
NORTHERN FAIRWAY
KC19 KC16 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
KC5
CWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

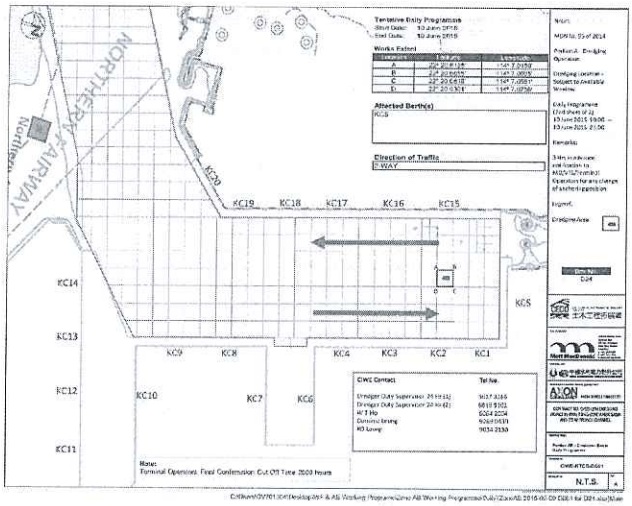

Tentative Daily Programme
Works Extent
Affected Berth(s)
No Berth Affected
Direction of Traffic
2-WAY
NORTHERN FAIRWAY
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
KC5
CWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

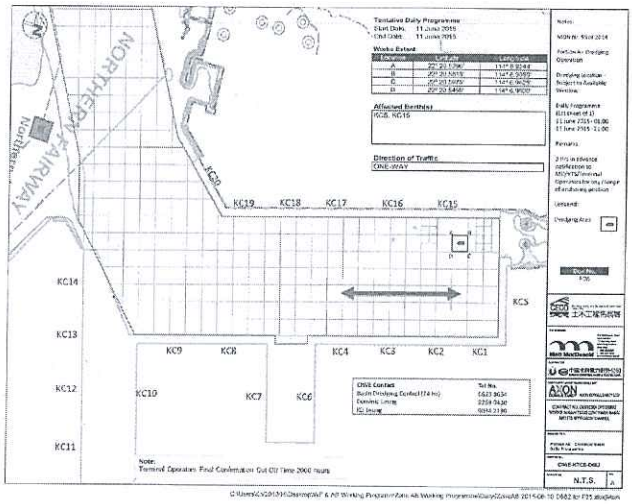

Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
NORTHERN FAIRWAY
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
KC5
CWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

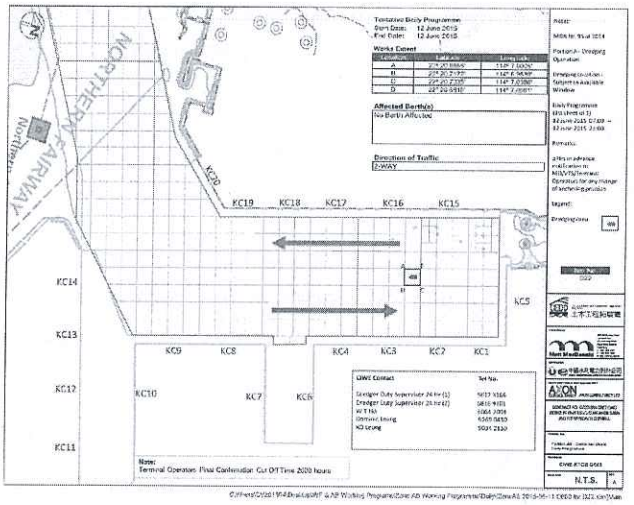

Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
2-WAY
NORTHERN FAIRWAY
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
KC5
CWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

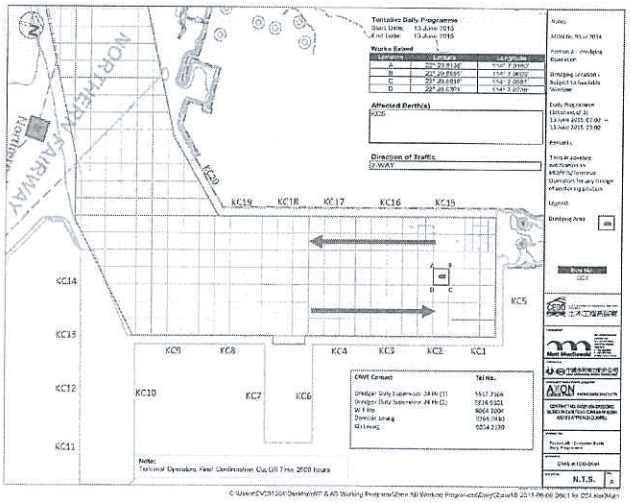

Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
2-WAY
NORTHERN FAIRWAY
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
KC5
CWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

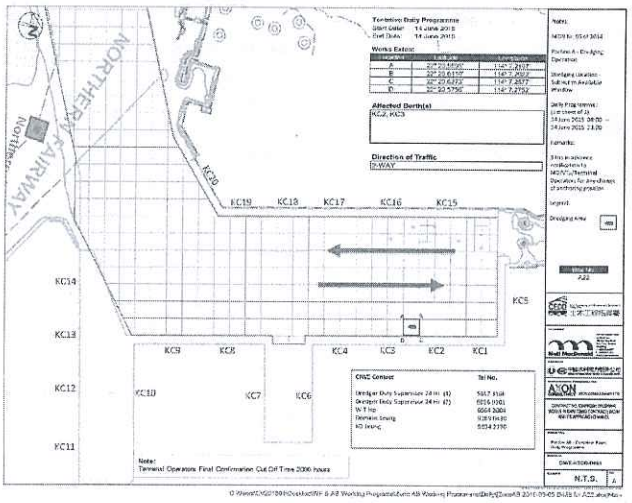

Tentative Daily Programme
Start Date: 10 June 2015
End Date: 10 June 2015
Works Extent
Affected Berth(s)
KC16, KC17, KC18
Direction of Traffic
2-WAY
KC19 KC18 KC17 KC16 KC15
KC14 KC13 KC12 KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6 KC5
CWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

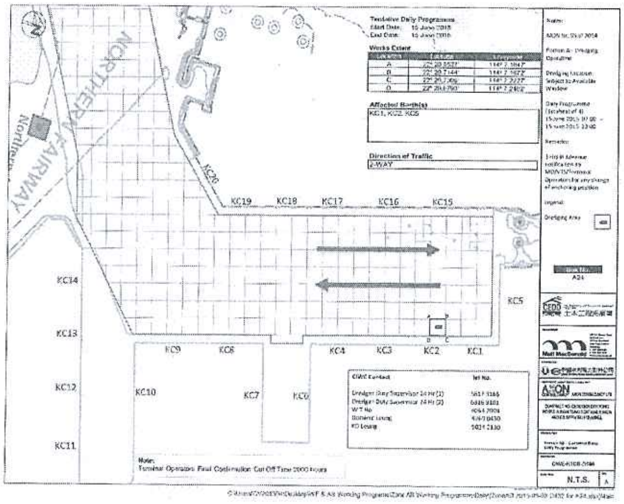

Tentative Daily Programme
Start Date: 10 June 2015
End Date: 10 June 2015
Works Extent
Affected Berth(s)
KC16
Direction of Traffic
2-WAY
KC19 KC18 KC17 KC16 KC15
KC14 KC13 KC12 KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6 KC5
CWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

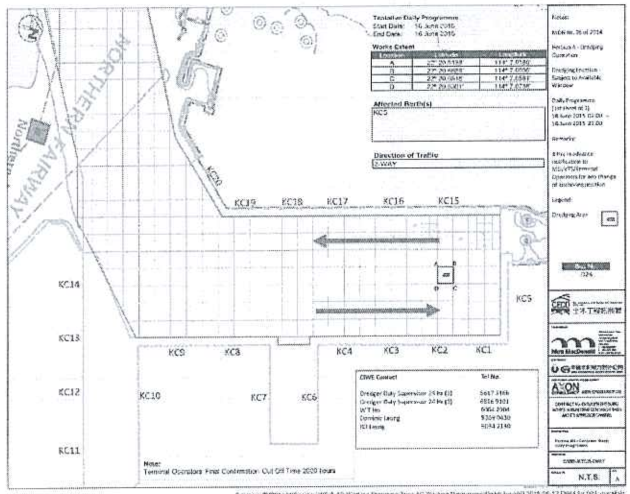

Tentative Daily Programme
Start Date: 11 June 2015
End Date: 11 June 2015
Works Extent
Affected Berth(s)
KC16, KC15
Direction of Traffic
ONE-WAY
KC19 KC18 KC17 KC16 KC15
KC14 KC13 KC12 KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6 KC5
CWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

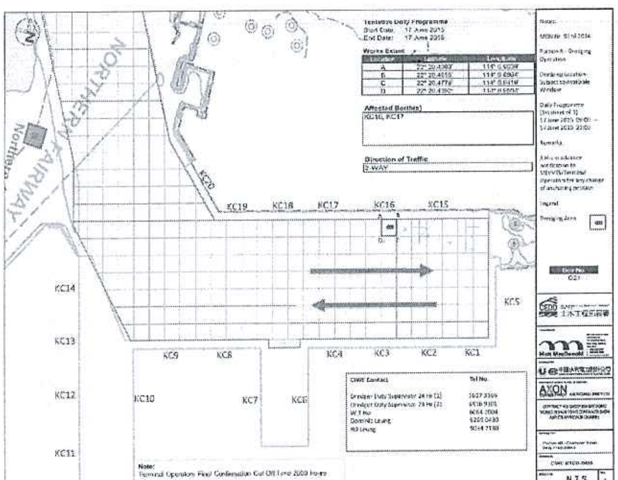

Tentative Daily Programme
Start Date: 12 June 2015
End Date: 12 June 2015
Works Extent
Affected Berth(s)
No Berth Affected
Direction of Traffic
2-WAY
KC19 KC18 KC17 KC16 KC15
KC14 KC13 KC12 KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6 KC5
CWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

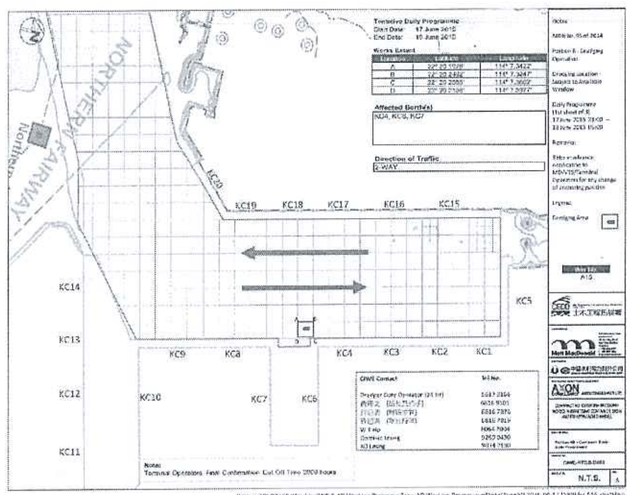

Tentative Daily Programme
Start Date: 13 June 2015
End Date: 13 June 2015
Works Extent
Affected Berth(s)
KC15
Direction of Traffic
2-WAY
KC19 KC18 KC17 KC16 KC15
KC14 KC13 KC12 KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6 KC5
CWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

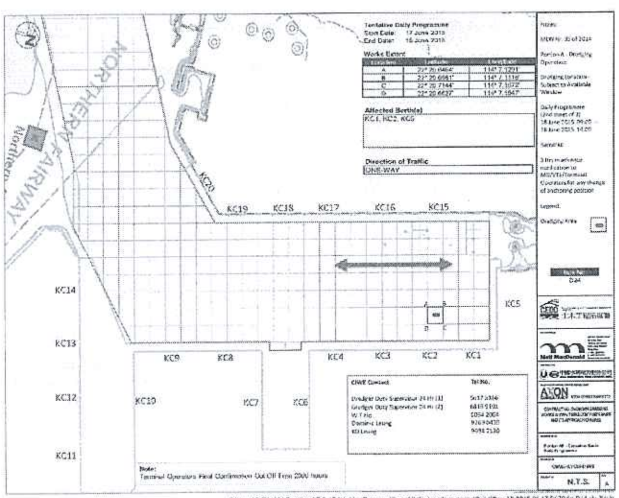

Tentative Daily Programme
Start Date: 14 June 2015
End Date: 14 June 2015
Works Extent
Affected Berth(s)
KC2, KC3
Direction of Traffic
2-WAY
KC19 KC18 KC17 KC16 KC15
KC14 KC13 KC12 KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6 KC5
CWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

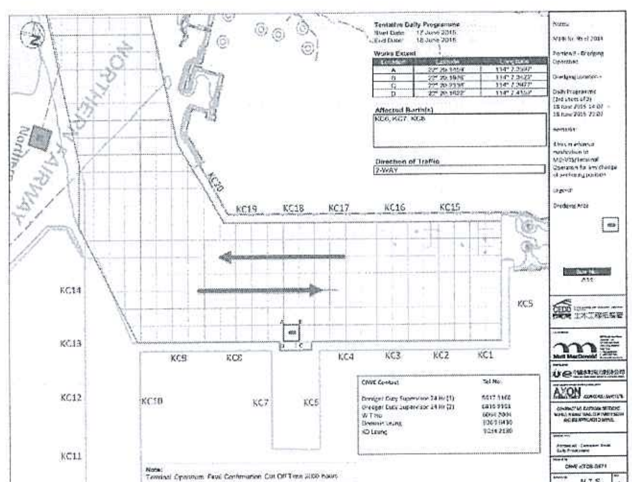

Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
2-WAY
NORTHERN FAIRWAY
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC10
KC9 KC8 KC4 KC3 KC2 KC1
KC7 KC6
KC5
KC20
CWE Contact
Tel No.
Note:
Terminal Operators: Final Confirmation: Cut Off Time 2000 hours
N.T.S.

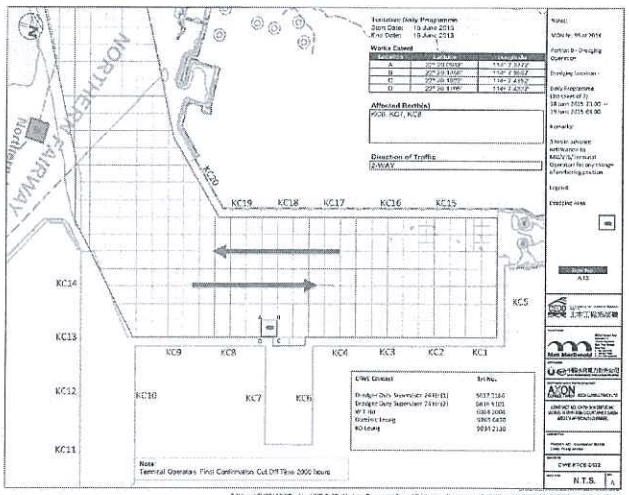

Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
2-WAY
NORTHERN FAIRWAY
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC10
KC9 KC8 KC4 KC3 KC2 KC1
KC7 KC6
KC5
KC20
CWE Contact
Tel No.
Note:
Terminal Operators: Final Confirmation: Cut Off Time 2000 hours
N.T.S.

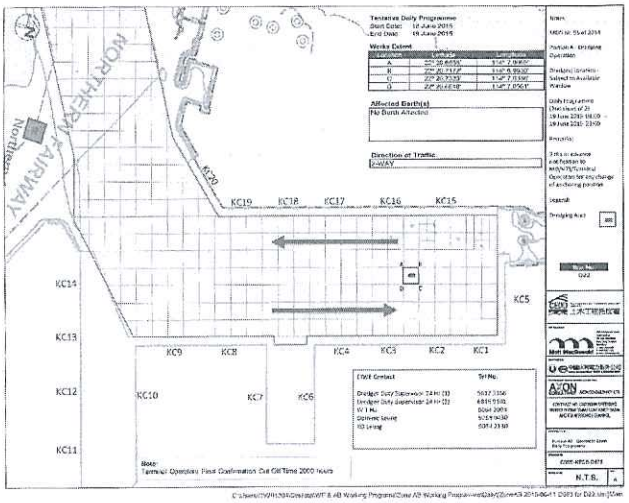

Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
2-WAY
NORTHERN FAIRWAY
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC10
KC9 KC8 KC4 KC3 KC2 KC1
KC7 KC6
KC5
KC20
CWE Contact
Tel No.
Note:
Terminal Operators: Final Confirmation: Cut Off Time 2000 hours
N.T.S.

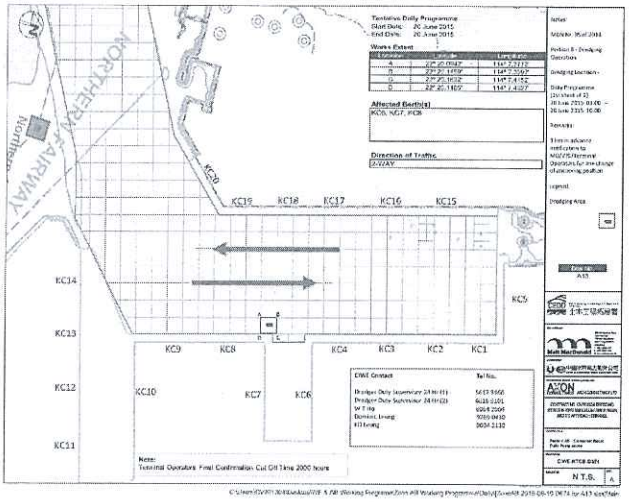

Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
2-WAY
NORTHERN FAIRWAY
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC10
KC9 KC8 KC4 KC3 KC2 KC1
KC7 KC6
KC5
KC20
CWE Contact
Tel No.
Note:
Terminal Operators: Final Confirmation: Cut Off Time 2000 hours
N.T.S.

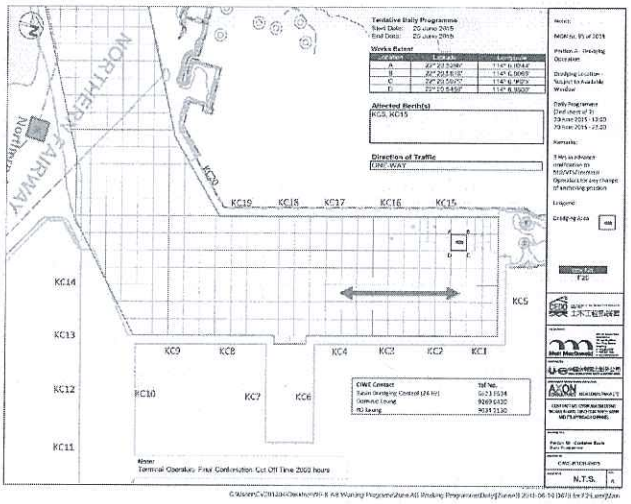

Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
ONE-WAY
NORTHERN FAIRWAY
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC10
KC9 KC8 KC4 KC3 KC2 KC1
KC7 KC6
KC5
KC20
CWE Contact
Tel No.
Note:
Terminal Operators: Final Confirmation: Cut Off Time 2000 hours
N.T.S.

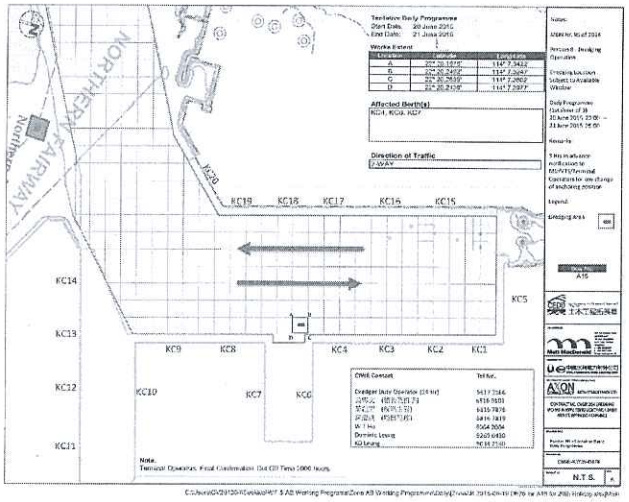

Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
2-WAY
NORTHERN FAIRWAY
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC10
KC9 KC8 KC4 KC3 KC2 KC1
KC7 KC6
KC5
KC20
CWE Contact
Tel No.
Note:
Terminal Operators: Final Confirmation: Cut Off Time 2000 hours
N.T.S.

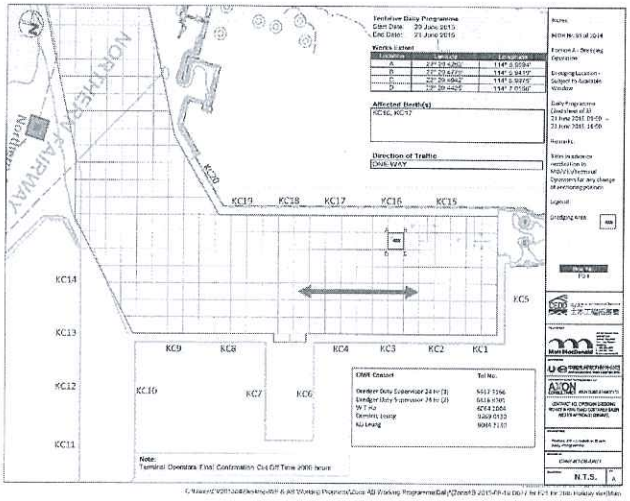

Tentative Daily Programme
Start Date: 19 June 2015
End Date: 19 June 2015
Works Extent
Affected Berth(s)
KC8, KC7, KC6
Direction of Traffic
2-WAY
NORTHERN FAIRWAY
KC20
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
KC5
CWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

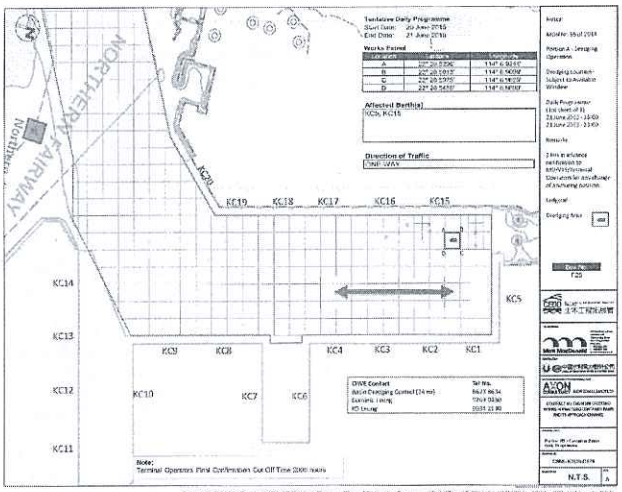

Tentative Daily Programme
Start Date: 19 June 2015
End Date: 19 June 2015
Works Extent
Affected Berth(s)
No Berth Affected
Direction of Traffic
2-WAY
NORTHERN FAIRWAY
KC20
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
KC5
CWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

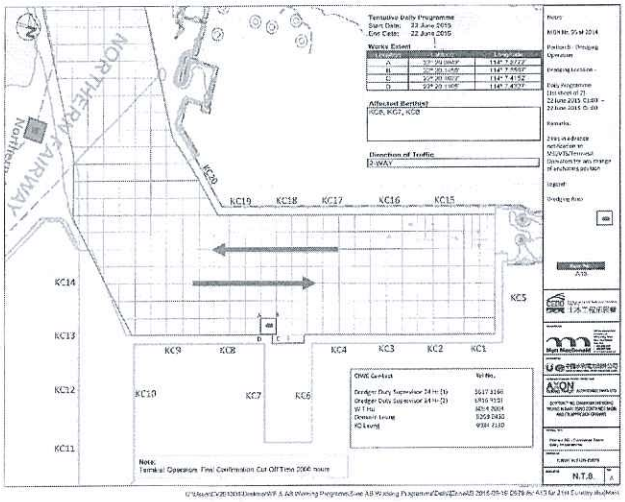

Tentative Daily Programme
Start Date: 20 June 2015
End Date: 20 June 2015
Works Extent
Affected Berth(s)
KC8, KC7, KC6
Direction of Traffic
2-WAY
NORTHERN FAIRWAY
KC20
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
KC5
CWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

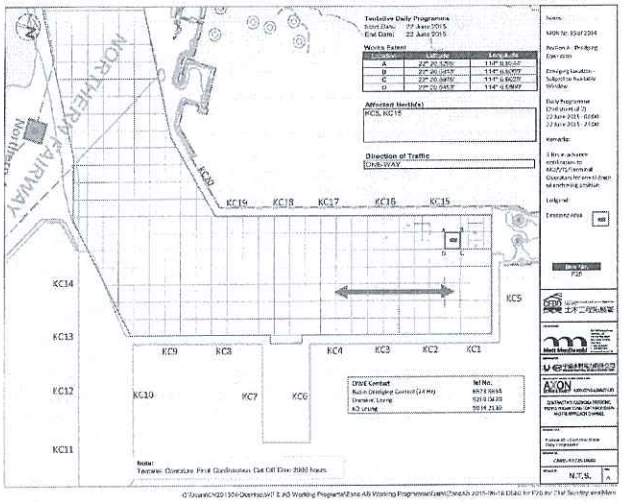

Tentative Daily Programme
Start Date: 20 June 2015
End Date: 20 June 2015
Works Extent
Affected Berth(s)
KC8, KC15
Direction of Traffic
ONE-WAY
NORTHERN FAIRWAY
KC20
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
KC5
CWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

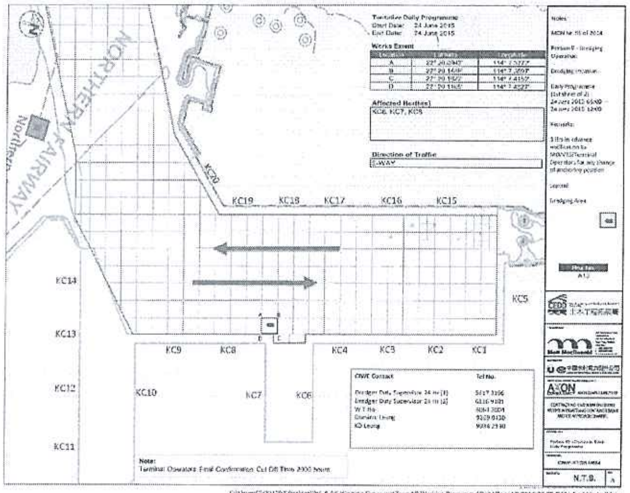

Tentative Daily Programme
Start Date: 20 June 2015
End Date: 21 June 2015
Works Extent
Affected Berth(s)
KC1, KC8, KC7
Direction of Traffic
2-WAY
NORTHERN FAIRWAY
KC20
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
KC5
CWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

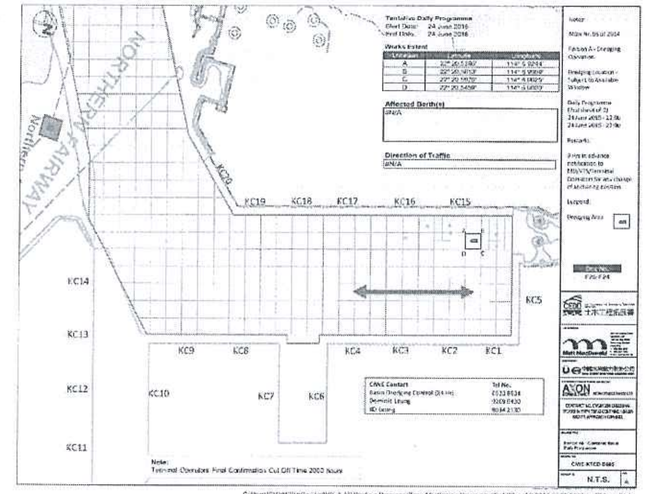

Tentative Daily Programme
Start Date: 20 June 2015
End Date: 21 June 2015
Works Extent
Affected Berth(s)
KC16, KC17
Direction of Traffic
ONE-WAY
NORTHERN FAIRWAY
KC20
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6
KC5
CWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

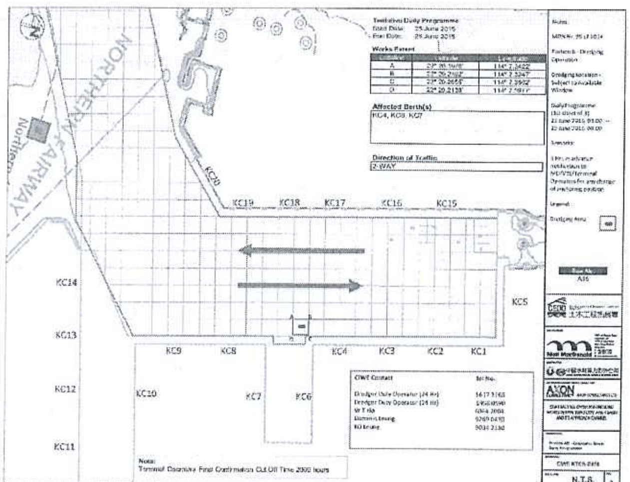

Tentative Daily Programme
Start Date: 20 June 2015
End Date: 21 June 2015
Works Extent
Affected Berth(s)
KC15, KC16
Direction of Traffic
ONE-WAY
KC19 KC18 KC17 KC16 KC15
KC14 KC13 KC12 KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC5 KC10 KC7 KC6
NORTHERN FAIRWAY
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

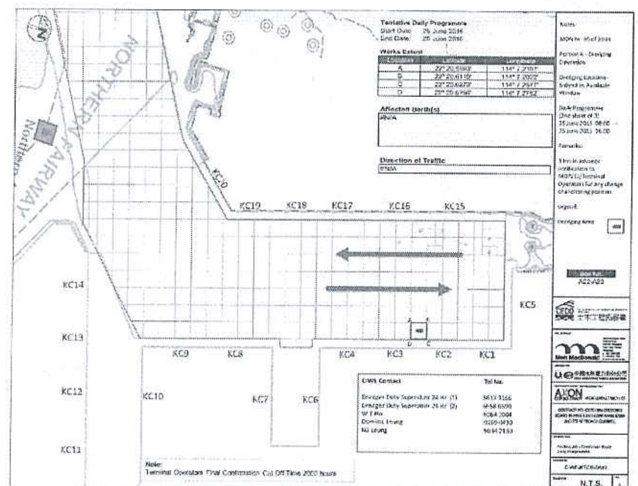

Tentative Daily Programme
Start Date: 23 June 2015
End Date: 22 June 2015
Works Extent
Affected Berth(s)
KC8, KC7, KC6
Direction of Traffic
2-WAY
KC19 KC18 KC17 KC16 KC15
KC14 KC13 KC12 KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC5 KC10 KC7 KC6
NORTHERN FAIRWAY
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

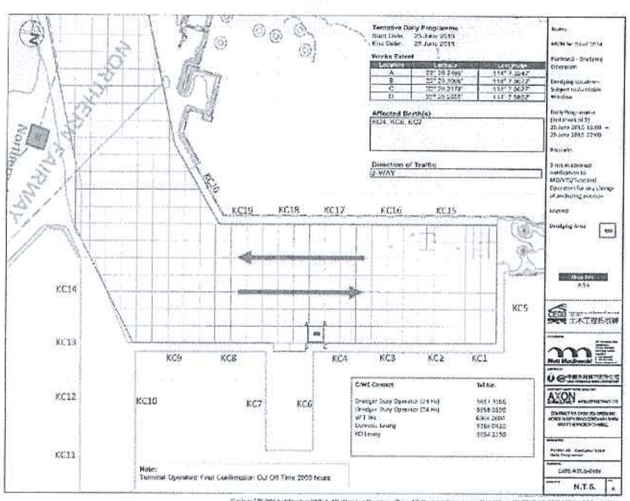

Tentative Daily Programme
Start Date: 22 June 2015
End Date: 22 June 2015
Works Extent
Affected Berth(s)
KC5, KC15
Direction of Traffic
ONE-WAY
KC19 KC18 KC17 KC16 KC15
KC14 KC13 KC12 KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC5 KC10 KC7 KC6
NORTHERN FAIRWAY
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

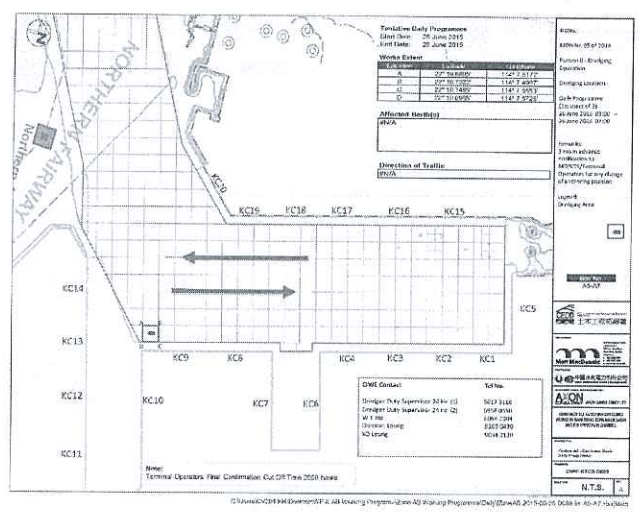

Tentative Daily Programme
Start Date: 24 June 2015
End Date: 24 June 2015
Works Extent
Affected Berth(s)
KC6, KC7, KC8
Direction of Traffic
NORTHERN FAIRWAY
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC10
KC9 KC8 KC7 KC6 KC5 KC4 KC3 KC2 KC1
KC20
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

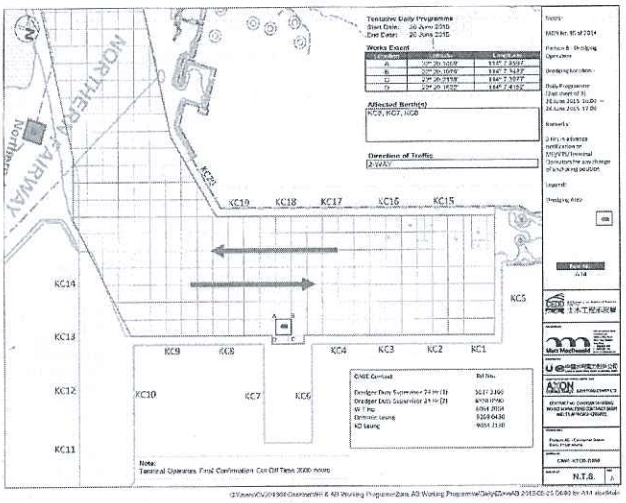

Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
NORTHERN FAIRWAY
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC10
KC9 KC8 KC7 KC6 KC5 KC4 KC3 KC2 KC1
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

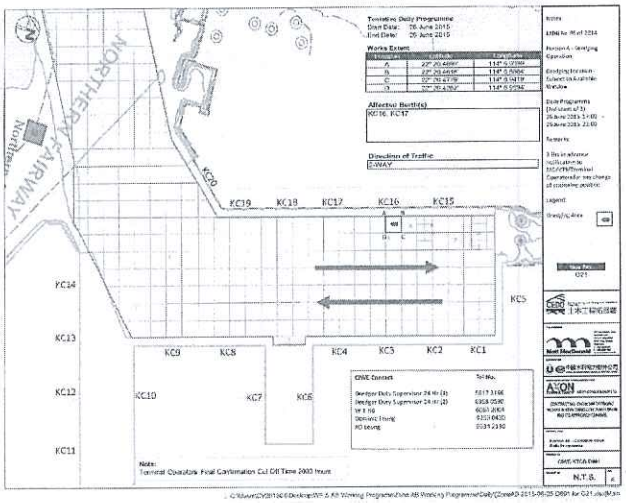

Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
2-WAY
NORTHERN FAIRWAY
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC10
KC9 KC8 KC7 KC6 KC5 KC4 KC3 KC2 KC1
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

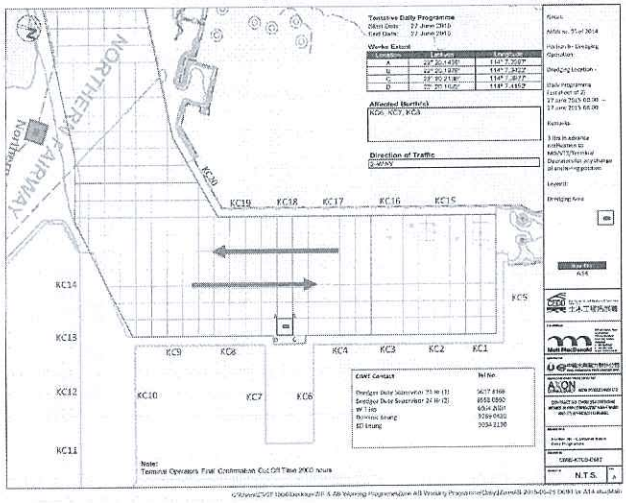

Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
NORTHERN FAIRWAY
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC10
KC9 KC8 KC7 KC6 KC5 KC4 KC3 KC2 KC1
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

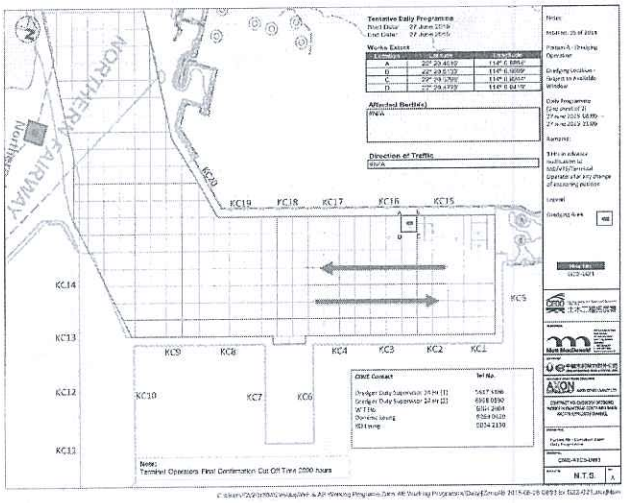

Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
2-WAY
NORTHERN FAIRWAY
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC10
KC9 KC8 KC7 KC6 KC5 KC4 KC3 KC2 KC1
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

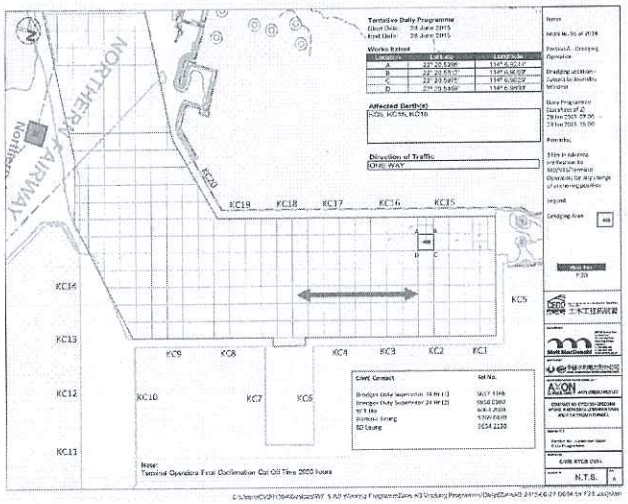

Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
NORTHERN FAIRWAY
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC10
KC9 KC8 KC7 KC6 KC5 KC4 KC3 KC2 KC1
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

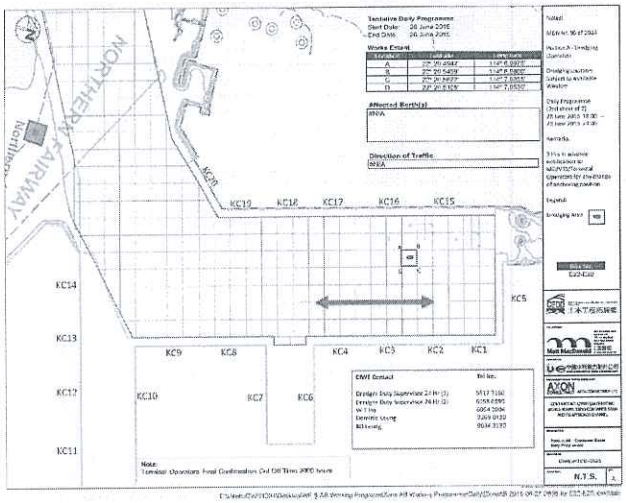

Tentative Daily Programme
Start Date: 26 June 2015
End Date: 26 June 2015
Works Extent
Allocated Berth(s)
KC5, KC7, KC8
Direction of Traffic
2-WAY
Legend:
Dredging Area
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
CWE Contact
Tel No.
N.T.S.

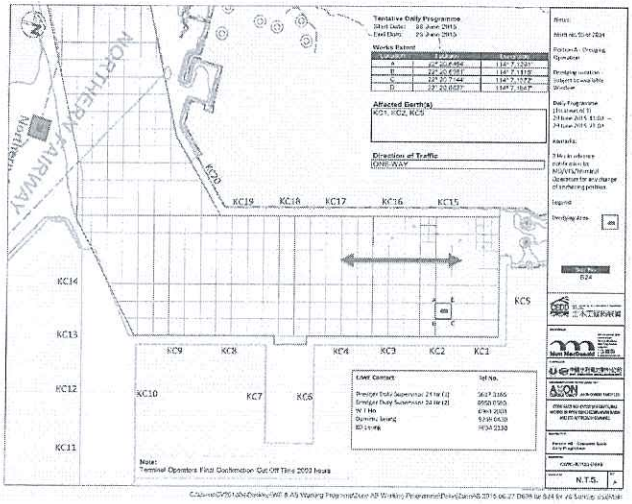

Tentative Daily Programme
Start Date: 26 June 2015
End Date: 26 June 2015
Works Extent
Allocated Berth(s)
KC16, KC17
Direction of Traffic
2-WAY
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
CWE Contact
Tel No.
N.T.S.

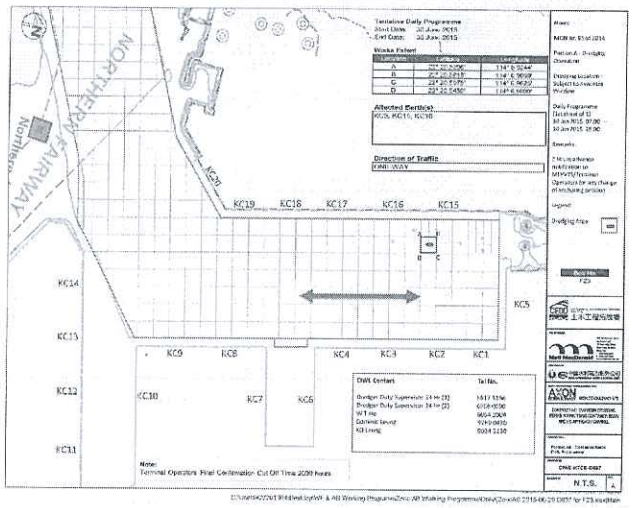

Tentative Daily Programme
Start Date: 27 June 2015
End Date: 27 June 2015
Works Extent
Allocated Berth(s)
KC6, KC7, KC8
Direction of Traffic
2-WAY
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
CWE Contact
Tel No.
N.T.S.

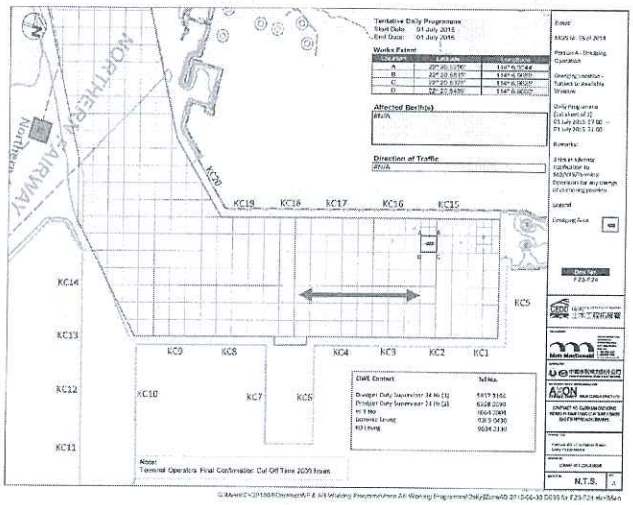

Tentative Daily Programme
Start Date: 27 June 2015
End Date: 27 June 2015
Works Extent
Allocated Berth(s)
N/A
Direction of Traffic
N/A
Note:
Terminal Operators First Confirmation Cut Off Time 2000 hours
CWE Contact
Tel No.
N.T.S.

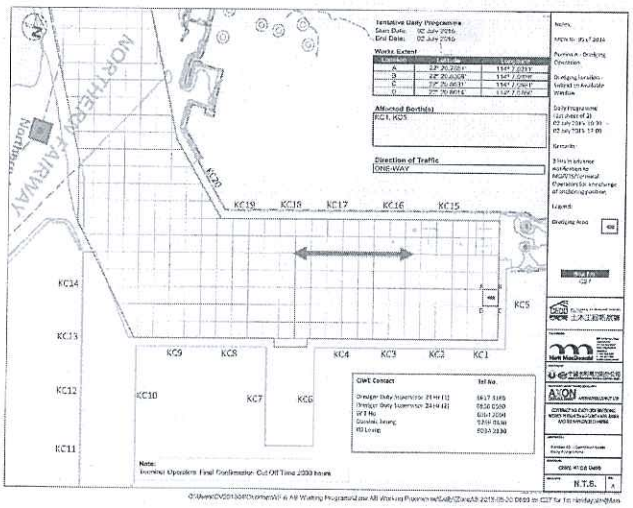

Tentative Daily Programme
Start Date: 28 June 2015
End Date: 28 June 2015
Works Extent
Allocated Berth(s)
KC55, KC56, KC58
Direction of Traffic
ONE-WAY
Note:
Terminal Operators First Confirmation Cut Off Time 2000 hours
CWE Contact
Tel No.
N.T.S.

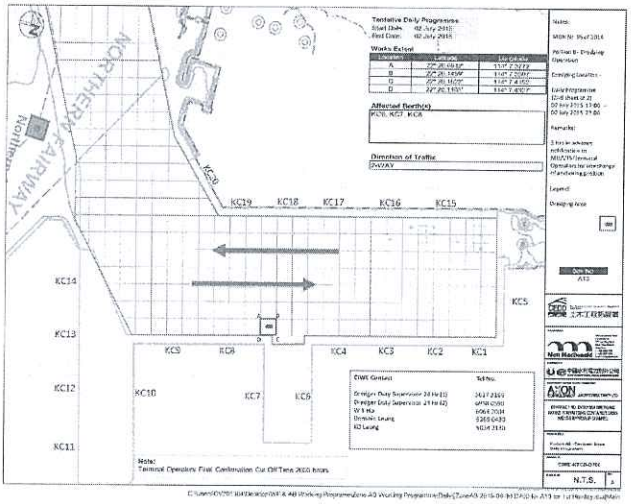

Tentative Daily Programme
Start Date: 28 June 2015
End Date: 28 June 2015
Works Extent
Allocated Berth(s)
N/A
Direction of Traffic
N/A
Note:
Terminal Operators First Confirmation Cut Off Time 2000 hours
CWE Contact
Tel No.
N.T.S.

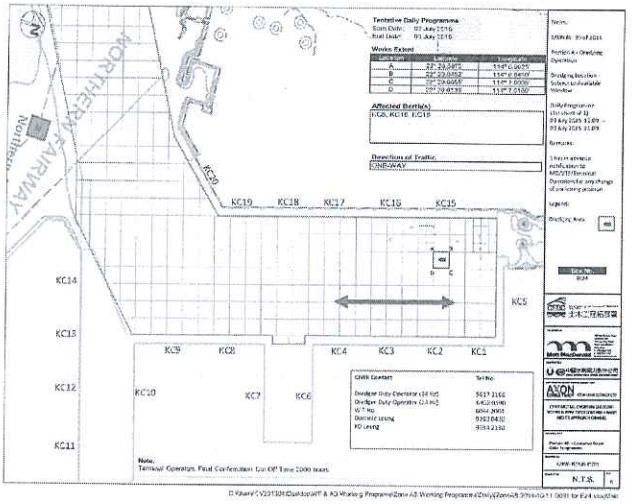

Tentative Daily Programme
Start Date: 18 June 2015
End Date: 25 June 2015
Works Extent
Affected Berth(s)
KC5, KC6, KC7
Direction of Traffic
ONE-WAY
KC19 KC18 KC17 KC16 KC15
KC14 KC13 KC12 KC11 KC10 KC9 KC8 KC7 KC6 KC5 KC4 KC3 KC2 KC1
DWL Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

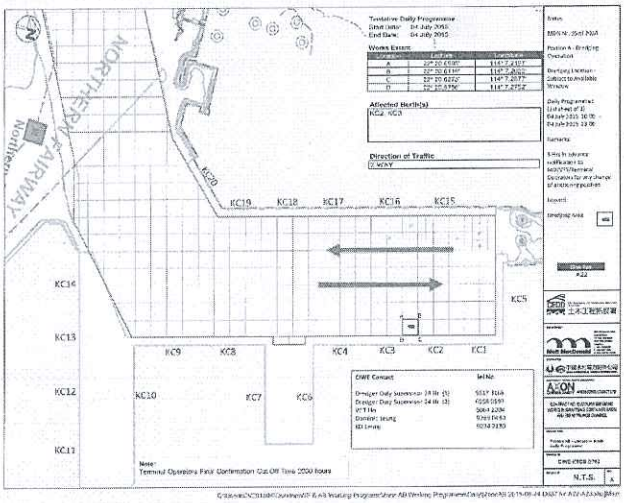

Tentative Daily Programme
Start Date: 30 June 2015
End Date: 30 June 2015
Works Extent
Affected Berth(s)
KC5, KC6, KC7
Direction of Traffic
KC19 KC18 KC17 KC16 KC15
KC14 KC13 KC12 KC11 KC10 KC9 KC8 KC7 KC6 KC5 KC4 KC3 KC2 KC1
DWL Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

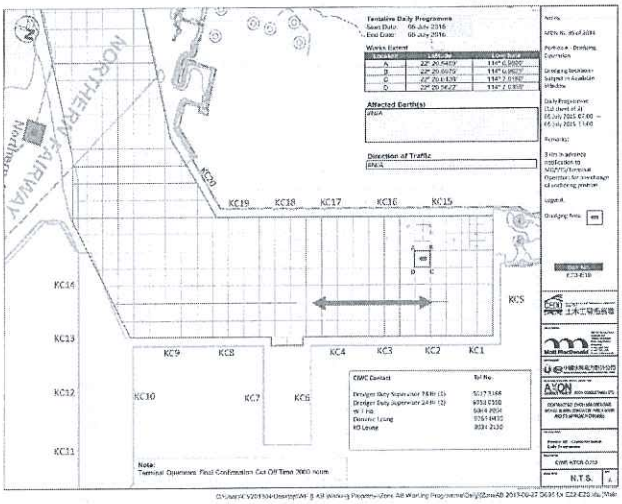

Tentative Daily Programme
Start Date: 01 July 2015
End Date: 01 July 2015
Works Extent
Affected Berth(s)
N/A
Direction of Traffic
N/A
KC19 KC18 KC17 KC16 KC15
KC14 KC13 KC12 KC11 KC10 KC9 KC8 KC7 KC6 KC5 KC4 KC3 KC2 KC1
DWL Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

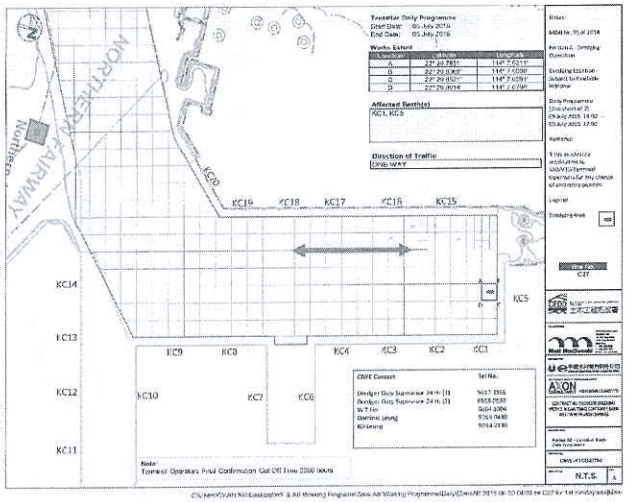

Tentative Daily Programme
Start Date: 02 July 2015
End Date: 02 July 2015
Works Extent
Affected Berth(s)
KC4, KC5
Direction of Traffic
ONE-WAY
KC19 KC18 KC17 KC16 KC15
KC14 KC13 KC12 KC11 KC10 KC9 KC8 KC7 KC6 KC5 KC4 KC3 KC2 KC1
DWL Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

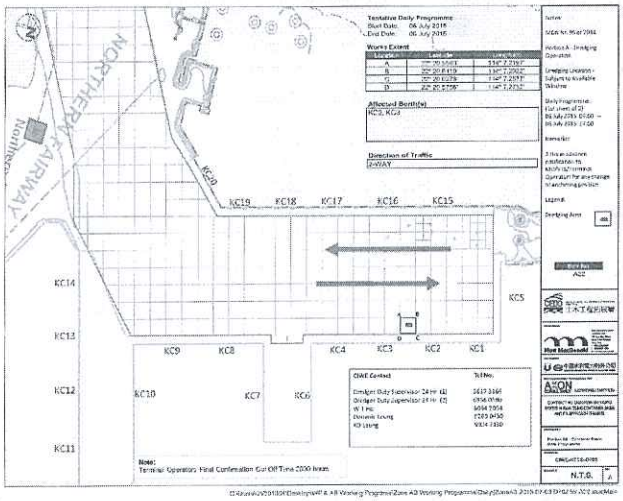

Tentative Daily Programme
Start Date: 02 July 2015
End Date: 02 July 2015
Works Extent
Affected Berth(s)
KC6, KC7, KC8
Direction of Traffic
ONE-WAY
KC19 KC18 KC17 KC16 KC15
KC14 KC13 KC12 KC11 KC10 KC9 KC8 KC7 KC6 KC5 KC4 KC3 KC2 KC1
DWL Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

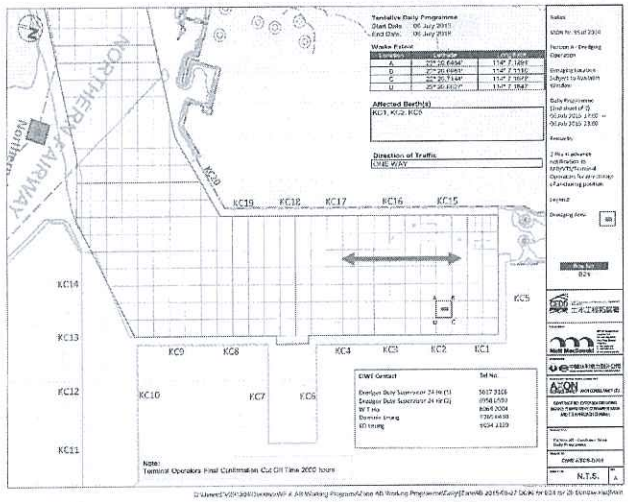

Tentative Daily Programme
Start Date: 03 July 2015
End Date: 03 July 2015
Works Extent
Affected Berth(s)
KC8, KC9, KC10
Direction of Traffic
ONE-WAY
KC19 KC18 KC17 KC16 KC15
KC14 KC13 KC12 KC11 KC10 KC9 KC8 KC7 KC6 KC5 KC4 KC3 KC2 KC1
DWL Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

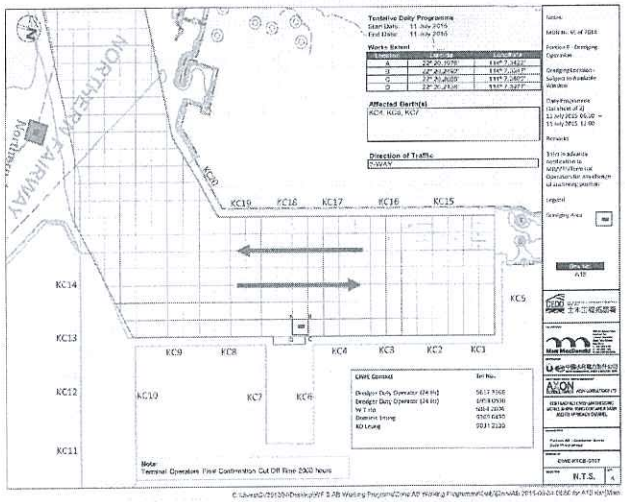

Tentative Daily Programme
Start Date: 04 July 2016
End Date: 04 July 2016
Works Extent
Affected Berth(s)
KC2, KC3
Direction of Traffic
ONE-WAY
Remarks:
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
CIWC Contact
Tel No.
N.T.S.

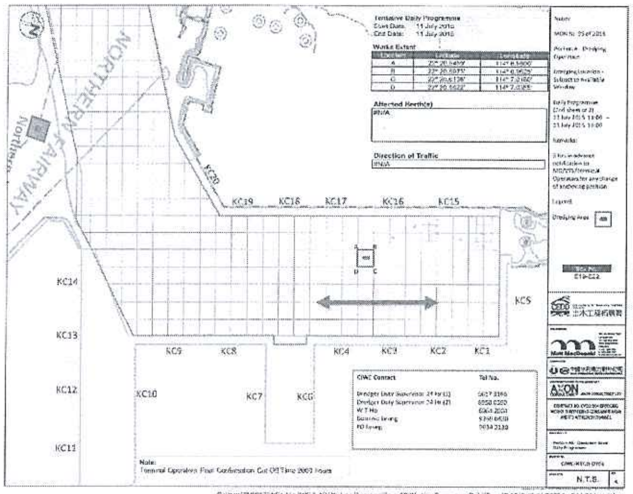

Tentative Daily Programme
Start Date: 06 July 2016
End Date: 06 July 2016
Works Extent
Affected Berth(s)
Direction of Traffic
2-WAY
Remarks:
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
CIWC Contact
Tel No.
N.T.S.

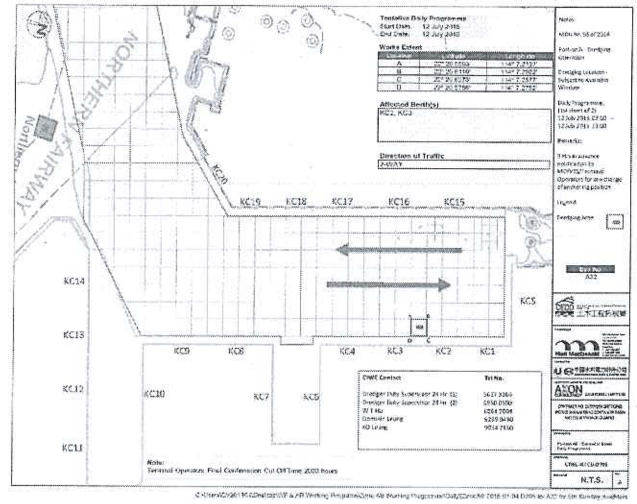

Tentative Daily Programme
Start Date: 05 July 2016
End Date: 05 July 2016
Works Extent
Affected Berth(s)
KC1, KC2
Direction of Traffic
ONE-WAY
Remarks:
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
CIWC Contact
Tel No.
N.T.S.

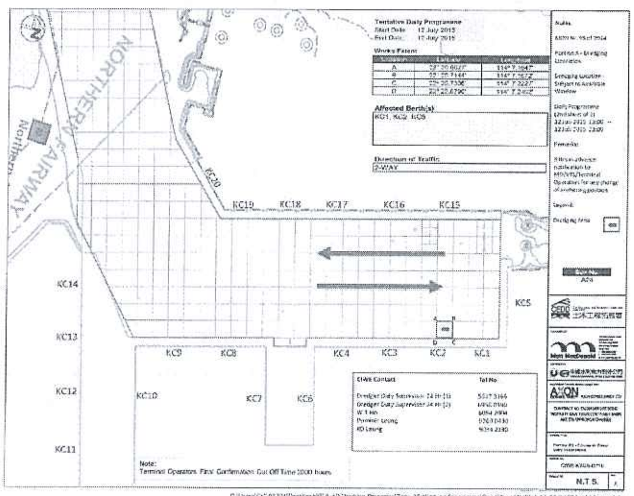

Tentative Daily Programme
Start Date: 06 July 2016
End Date: 06 July 2016
Works Extent
Affected Berth(s)
KC2, KC3
Direction of Traffic
2-WAY
Remarks:
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
CIWC Contact
Tel No.
N.T.S.

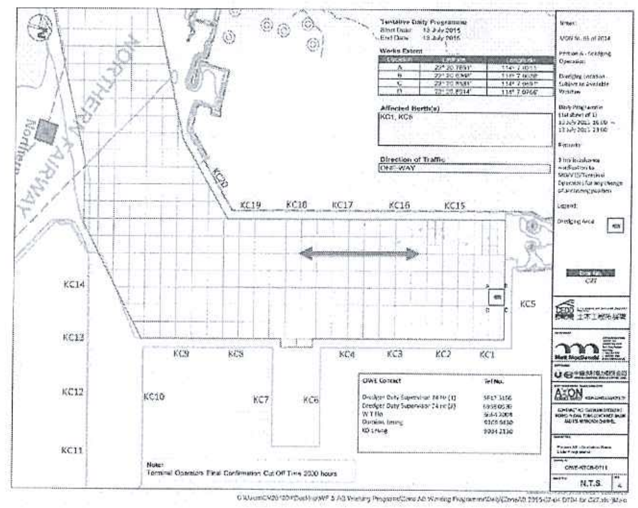

Tentative Daily Programme
Start Date: 06 July 2016
End Date: 06 July 2016
Works Extent
Affected Berth(s)
KC1, KC2, KC3
Direction of Traffic
ONE WAY
Remarks:
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
CIWC Contact
Tel No.
N.T.S.

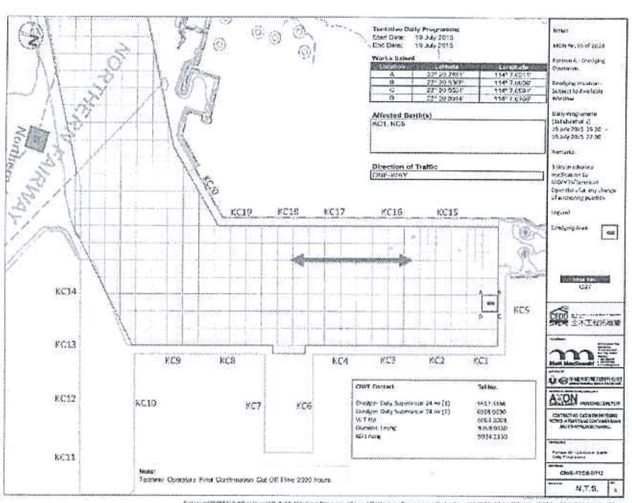

Tentative Daily Programme
Start Date: 11 July 2016
End Date: 11 July 2016
Works Extent
Affected Berth(s)
KC4, KC5, KC6
Direction of Traffic
2-WAY
Remarks:
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
CIWC Contact
Tel No.
N.T.S.

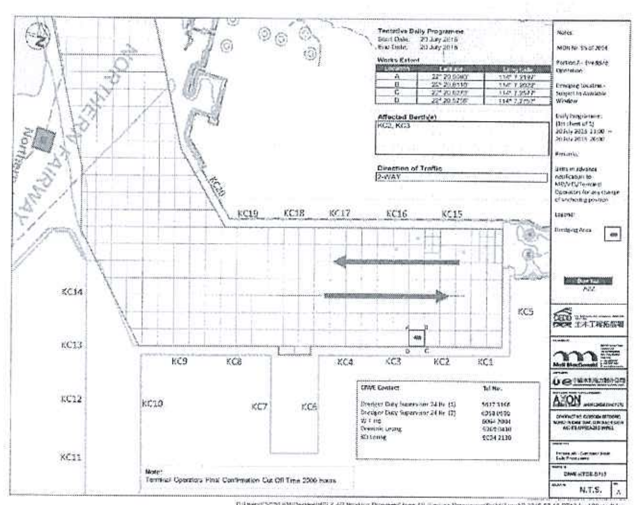

Tentative Daily Programme
Start Date: 11 July 2015
End Date: 11 July 2015
Works Extent
Affected Berth(s)
#N/A
Direction of Traffic
#N/A
NORTHERN FAIRWAY
KC20
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC10
KC9 KC8
KC7 KC6
KC4 KC3 KC2 KC1
KC5
CWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

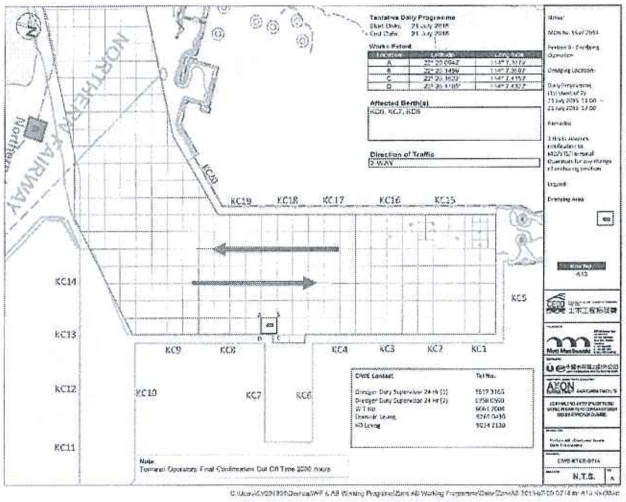

Tentative Daily Programme
Start Date: 12 July 2015
End Date: 12 July 2015
Works Extent
Affected Berth(s)
KC2, KC3
Direction of Traffic
2-WAY
NORTHERN FAIRWAY
KC20
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC10
KC9 KC8
KC7 KC6
KC4 KC3 KC2 KC1
KC5
CWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

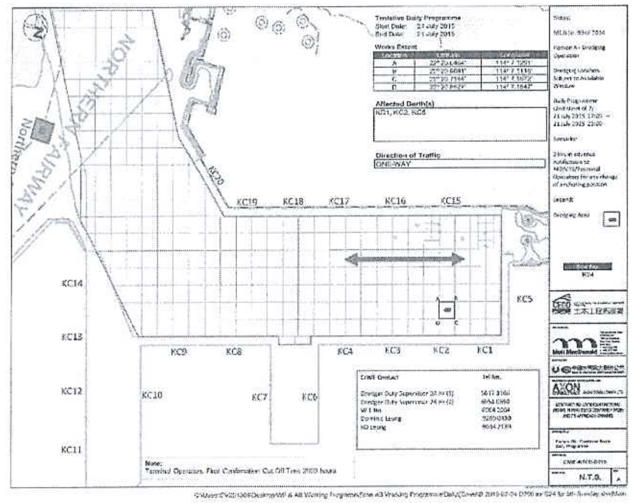

Tentative Daily Programme
Start Date: 12 July 2015
End Date: 12 July 2015
Works Extent
Affected Berth(s)
KC1, KC2, KC5
Direction of Traffic
2-WAY
NORTHERN FAIRWAY
KC20
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC10
KC9 KC8
KC7 KC6
KC4 KC3 KC2 KC1
KC5
CWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

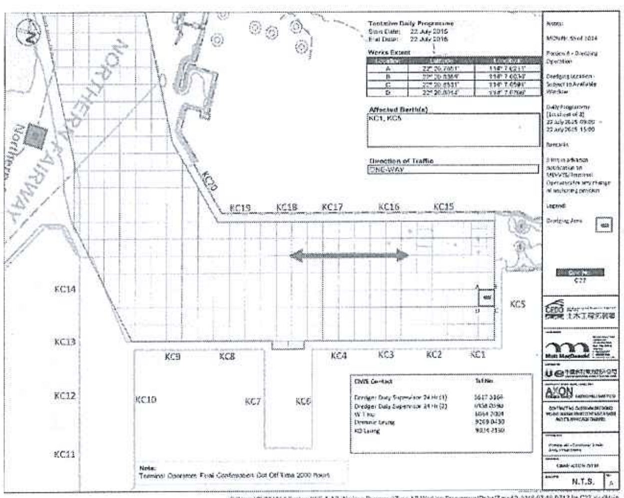

Tentative Daily Programme
Start Date: 13 July 2015
End Date: 13 July 2015
Works Extent
Affected Berth(s)
KC1, KC5
Direction of Traffic
ONE-WAY
NORTHERN FAIRWAY
KC20
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC10
KC9 KC8
KC7 KC6
KC4 KC3 KC2 KC1
KC5
CWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

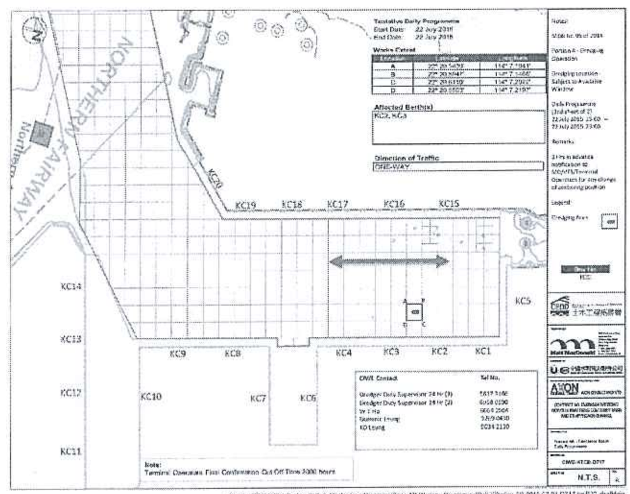

Tentative Daily Programme
Start Date: 19 July 2015
End Date: 19 July 2015
Works Extent
Affected Berth(s)
KC1, KC5
Direction of Traffic
ONE-WAY
NORTHERN FAIRWAY
KC20
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC10
KC9 KC8
KC7 KC6
KC4 KC3 KC2 KC1
KC5
CWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.

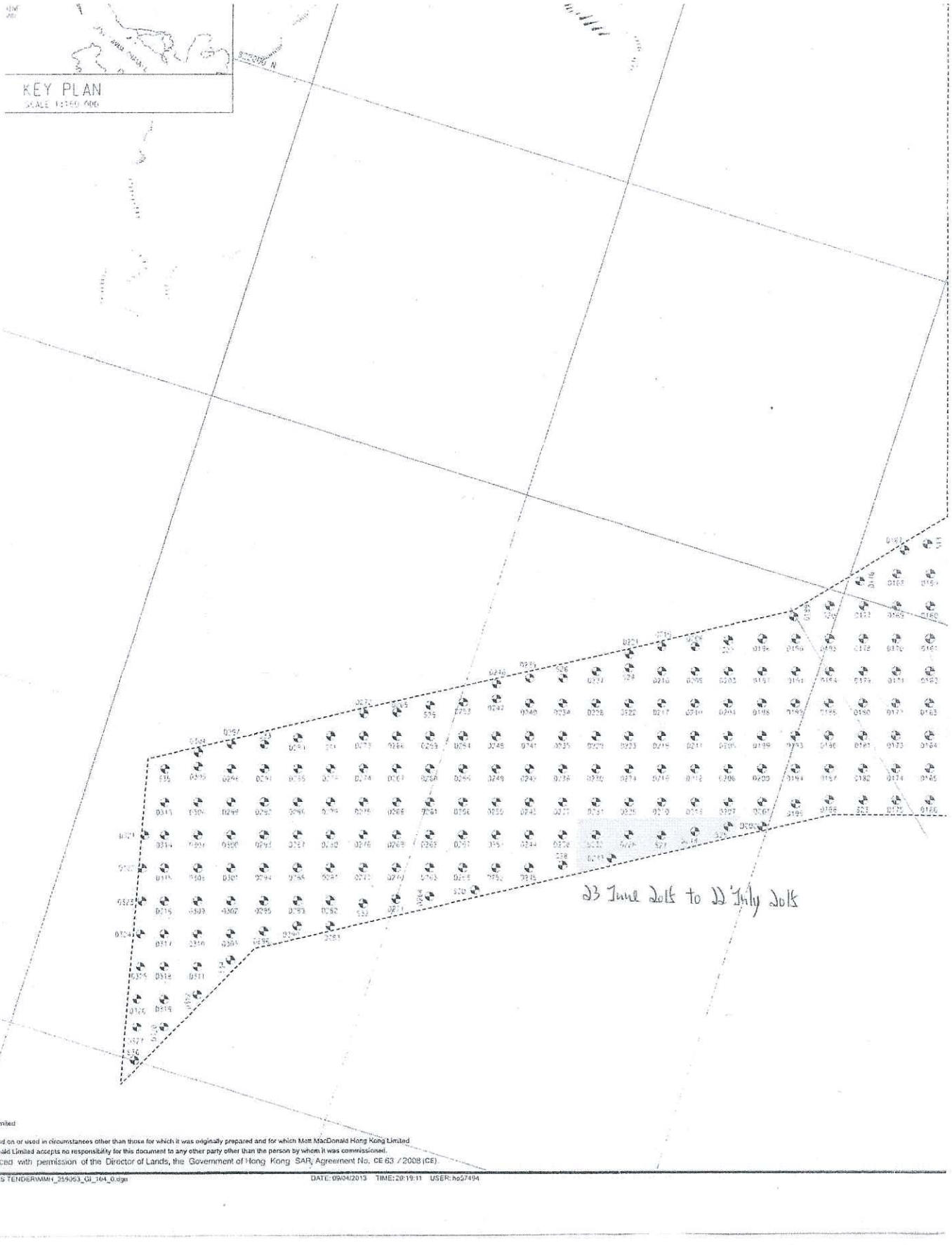

Tentative Daily Programme
Start Date: 20 July 2015
End Date: 20 July 2015
Works Extent
Affected Berth(s)
KC2, KC3
Direction of Traffic
2-WAY
NORTHERN FAIRWAY
KC20
KC19 KC18 KC17 KC16 KC15
KC14
KC13
KC12
KC11
KC10
KC9 KC8
KC7 KC6
KC4 KC3 KC2 KC1
KC5
CWE Contact
Tel No.
Note:
Terminal Operators Final Confirmation Cut Off Time 2000 hours
N.T.S.


NORTHERN FAIRWAY
Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
2-WAY
KC19 KC18 KC17 KC16 KC15
KC14 KC13 KC12 KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6 KC5
CWE Contact
Tel No.
N.T.S.


NORTHERN FAIRWAY
Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
ONE-WAY
KC19 KC18 KC17 KC16 KC15
KC14 KC13 KC12 KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6 KC5
CWE Contact
Tel No.
N.T.S.


NORTHERN FAIRWAY
Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
ONE-WAY
KC19 KC18 KC17 KC16 KC15
KC14 KC13 KC12 KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6 KC5
CWE Contact
Tel No.
N.T.S.

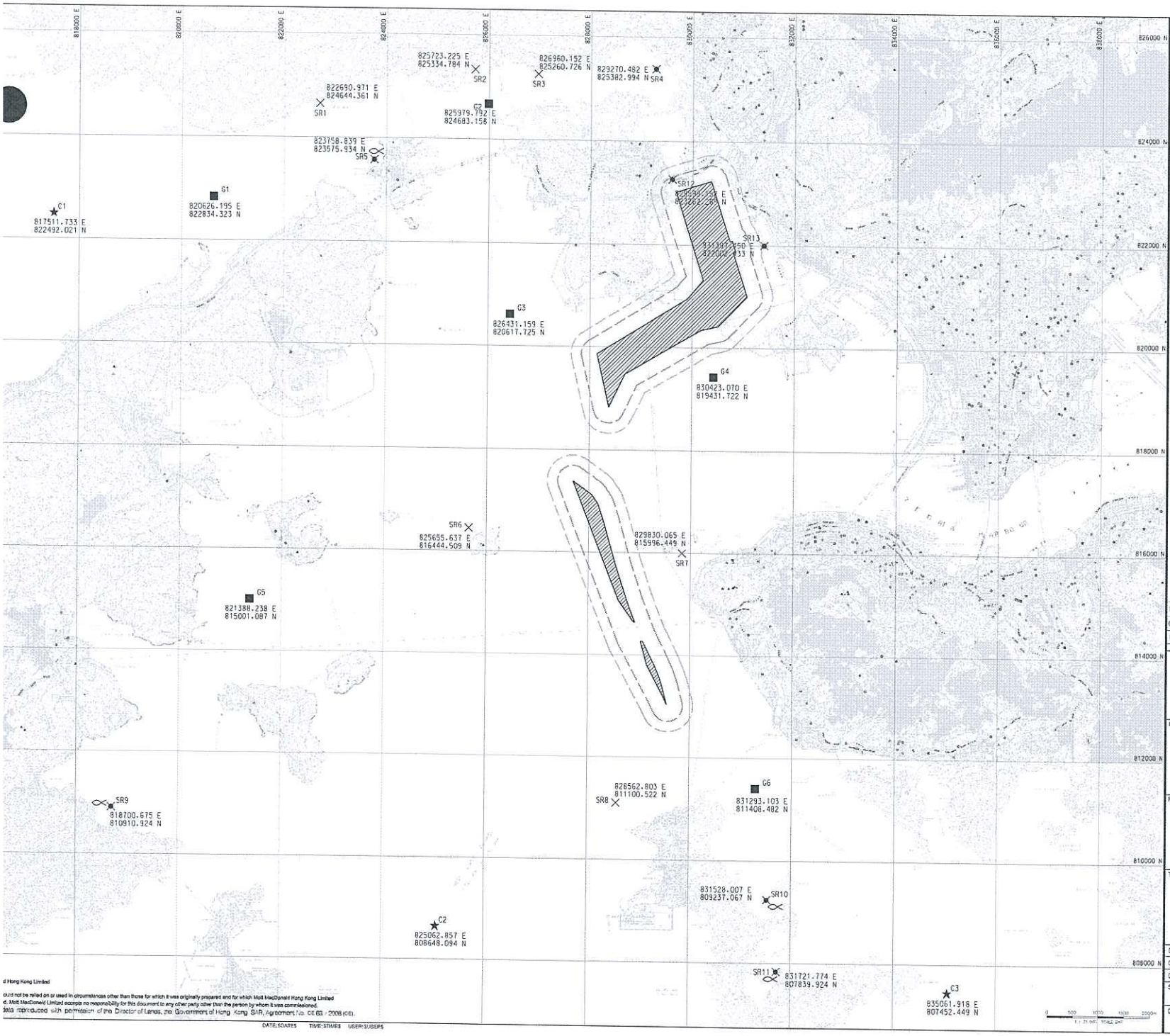

NORTHERN FAIRWAY
Tentative Daily Programme
Works Extent
Affected Berth(s)
Direction of Traffic
ONE-WAY
KC19 KC18 KC17 KC16 KC15
KC14 KC13 KC12 KC11
KC9 KC8 KC4 KC3 KC2 KC1
KC10 KC7 KC6 KC5
CWE Contact
Tel No.
N.T.S.



MATERIALAB CONSULTANTS LIMITED
Fugro Development Centre,
5 Lok Yi Street,
17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com.hk

Figure 3

Locations of Water Quality Monitoring Stations



NOTES:
1. ALL COORDINATES ARE IN HONG KONG METRIC GRID (1980).
2. THE CONTRACTOR SHALL REFER TO RELEVANT SECTION(S) AND APPENDICES OF THE PARTICULAR SPECIFICATION REGARDING THE WATER QUALITY MONITORING.

LEGEND:

- SITE BOUNDARY
- MONITORING STATION
- CONTROL STATION
- GRADIENT STATION
- 24-HRS MONITORING STATION
- FISH CULTURE ZONE

Rev	Date	Drawn	Description	Ch'k'd	App'd
1	APR 13	WH	TENDER ADDENDUM NO. 1	SL	CMH
0	APR 13	WH	TENDER DRAWING	SL	CMH

Mott MacDonald
23/F AIA Kowloon Tower
Landmark East
100 How Ming Street
Kwun Tong, Kowloon
Hong Kong
T +852 2828 5757
F +852 2827 1823
W www.mottmac.com.hk

Client

THE GOVERNMENT OF THE HONG KONG SPECIAL ADMINISTRATIVE REGION CIVIL ENGINEERING AND DEVELOPMENT DEPARTMENT

Project

CONTRACT NO. : CV/2013/04
DREDGING WORKS IN KWAI TSING CONTAINER BASIN AND ITS APPROACH CHANNEL

Title

PROVISIONAL LOCATION OF WATER QUALITY MONITORING STATIONS

Designed	FC		Eng check	SL	
Drawn	WH		Coordination	TF	
Dwg check	FC		Approved	CMH	
Scale at A1	1:35000	Status	TEN	Rev	2

Drawing Number

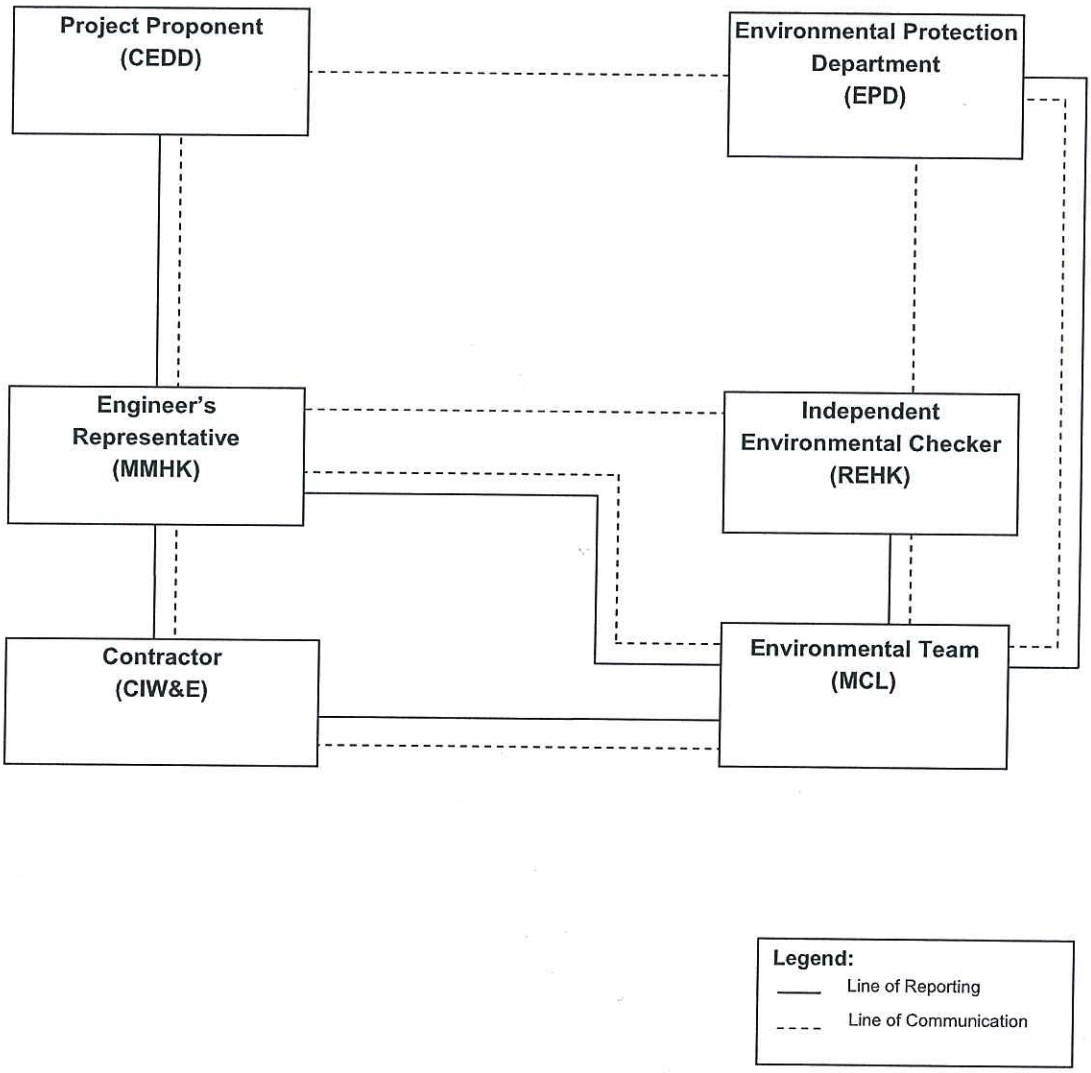
MMH/259053/EM/403

DATE:$DATES TIME:$TIMES USER:$USERPS

MATERIALAB CONSULTANTS LIMITED
Fugro Development Centre,
5 Lok Yi Street,
17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com.hk

Appendix A

Project Organization Chart


Project Proponent
(CEDD)
Environmental Protection
Department
(EPD)
Engineer's
Representative
(MMHK)
Independent
Environmental Checker
(REHK)
Contractor
(CIW&E)
Environmental Team
(MCL)
Legend:
Line of Reporting
Line of Communication

MATERIALAB CONSULTANTS LIMITED
Fugro Development Centre,
5 Lok Yi Street,
17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com.hk

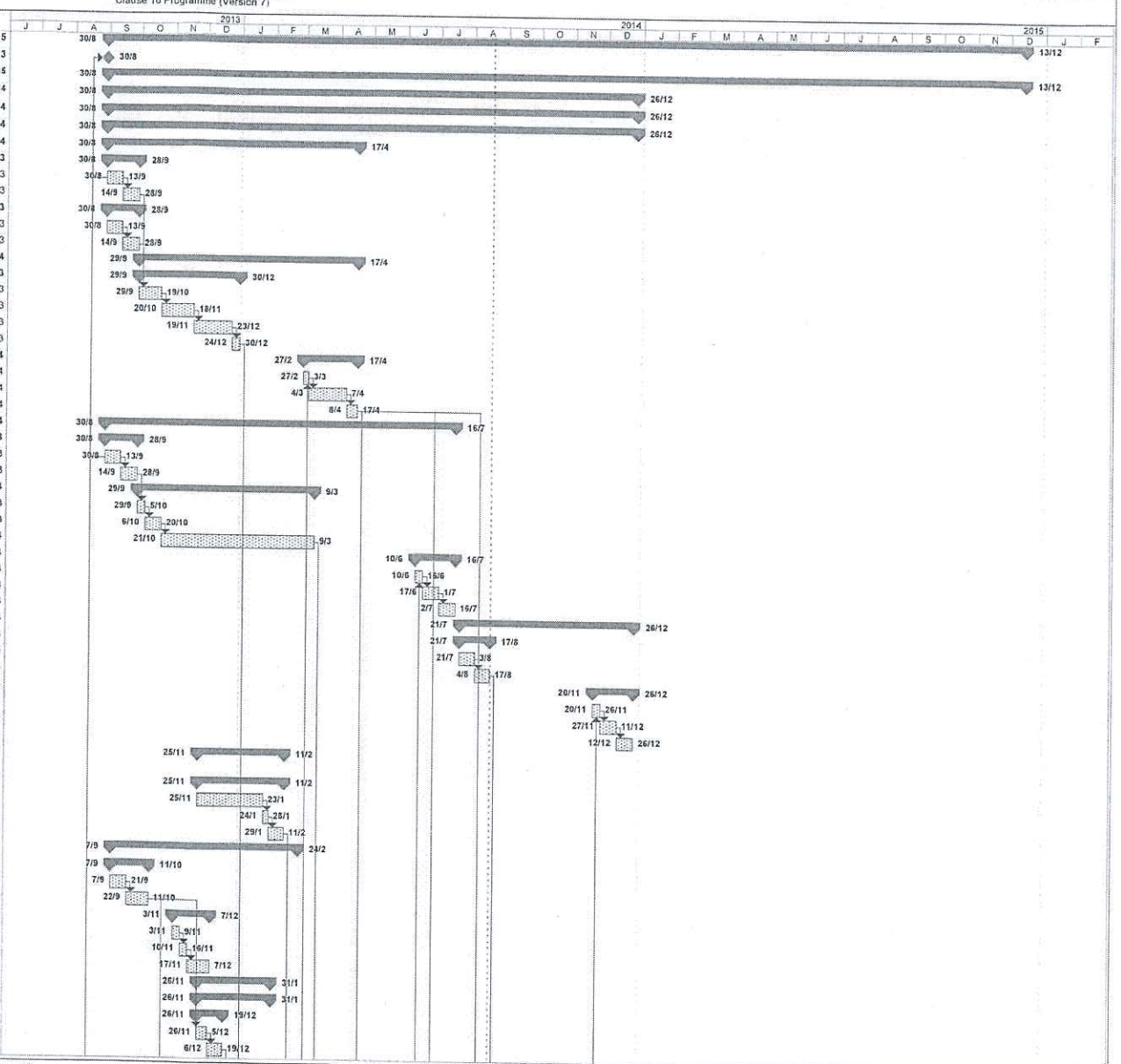
Appendix B

Construction Programme

Contract No. CV/2013/04
Dredging Works in Kwai Tsing Container Basin and its Approach Channel
Clause 16 Programme (Version 7)

Date: 18 August 2014

me	Duration	Start	Finish
act Period	836 days	Fri 30/8/13	Sun 13/12/15
ntract Commencement Date	0 days	Fri 30/8/13	Fri 30/8/13
ction 1	836 days	Fri 30/8/13	Sun 13/12/15
Submission	484 days	Fri 30/8/13	Fri 26/12/14
Routine Monitoring / Temporary Marine Traffic Management	484 days	Fri 30/8/13	Fri 26/12/14
Environmental Management	484 days	Fri 30/8/13	Fri 26/12/14
Baseline monitoring	231 days	Fri 30/8/13	Thu 17/4/14
ETL and relevant site personal	30 days	Fri 30/8/13	Sat 28/9/13
Preparation and submission	15 days	Fri 30/8/13	Fri 13/9/13
Comment and approval	15 days	Sat 14/9/13	Sat 28/9/13
Test Lab	30 days	Fri 30/8/13	Sat 28/9/13
Preparation and submission	15 days	Fri 30/8/13	Fri 13/9/13
Comment and approval	15 days	Sat 14/9/13	Sat 28/9/13
Monitoring (Location see Drg No. EM/401)	201 days	Sun 29/9/13	Thu 17/4/14
Plan	93 days	Sun 29/9/13	Mon 30/12/13
Preparation and submission to Mott and IEC	21 days	Sun 29/9/13	Sat 19/10/13
Comment and resubmission	30 days	Sun 20/10/13	Mon 18/11/13
Approval by Mott and ICE	35 days	Tue 19/11/13	Mon 23/12/13
Approval by EPD	7 days	Tue 24/12/13	Mon 30/12/13
Report	50 days	Thu 27/2/14	Thu 17/4/14
Preparation of report	5 days	Thu 27/2/14	Mon 3/3/14
Approval by Mott and IEC	35 days	Tue 4/3/14	Mon 7/4/14
Approval by EPD	10 days	Tue 8/4/14	Thu 17/4/14
Grab sample (Portions A, B & C)	321 days	Fri 30/8/13	Wed 16/7/14
Grab sample specialist	30 days	Fri 30/8/13	Sat 28/9/13
Preparation and submission	15 days	Fri 30/8/13	Fri 13/9/13
Comment and approval by Mott	15 days	Sat 14/9/13	Sat 28/9/13
Sediment testing and sampling plan	162 days	Sun 29/9/13	Sun 9/3/14
Preparation and submission	7 days	Sun 29/9/13	Sat 5/10/13
Approval by Mott	15 days	Sun 6/10/13	Sun 20/10/13
Approval by EPD	140 days	Mon 21/10/13	Sun 9/3/14
Sediment report	37 days	Tue 10/6/14	Wed 16/7/14
Preparation of report	7 days	Tue 10/6/14	Mon 16/6/14
Approval by Mott	15 days	Tue 17/6/14	Tue 1/7/14
Approval by EPD	15 days	Wed 2/7/14	Wed 16/7/14
Vibro-coring (Portions A, B & C)	159 days	Mon 21/7/14	Fri 26/12/14
Sediment testing and sampling plan	28 days	Mon 21/7/14	Sun 17/8/14
Preparation and submission	14 days	Mon 21/7/14	Sun 3/8/14
Approval by Mott	14 days	Mon 4/8/14	Sun 17/8/14
Sediment report	37 days	Thu 20/11/14	Fri 26/12/14
Preparation of report	7 days	Thu 20/11/14	Wed 26/11/14
Approval by Mott	15 days	Thu 27/11/14	Thu 11/12/14
Approval by EPD	15 days	Fri 12/12/14	Fri 26/12/14
24 Hours monitoring station and TIN Measuring Device (Location see Drg No. EM/401)	79 days	Mon 25/11/13	Tue 11/2/14
Instrumentation	79 days	Mon 25/11/13	Tue 11/2/14
Preparation and submission	60 days	Mon 25/11/13	Thu 23/1/14
Approval by Mott and IEC	5 days	Fri 24/1/14	Tue 28/1/14
Approval by EPD	14 days	Wed 29/1/14	Tue 11/2/14
Survey	171 days	Sat 7/9/13	Mon 24/2/14
Surveyor	35 days	Sat 7/9/13	Fri 11/10/13
Preparation and submission	15 days	Sat 7/9/13	Sat 21/9/13
Approval by Mott	20 days	Sun 22/9/13	Fri 11/10/13
Geophysicist	35 days	Sun 3/11/13	Sat 7/12/13
Preparation and submission	7 days	Sun 3/11/13	Sat 9/11/13
Approval by Mott	7 days	Sun 10/11/13	Sat 16/11/13
Approval by Marine Department	21 days	Sun 17/11/13	Sat 7/12/13
Land Survey (Container Basin & DSD Tsing Yi Plant)	67 days	Tue 26/11/13	Fri 31/1/14
Settlement markers	67 days	Tue 26/11/13	Fri 31/1/14
Method Statement for Installation and Monitoring	24 days	Tue 26/11/13	Thu 19/12/13
Preparation and submission	10 days	Tue 26/11/13	Thu 5/12/13
Approval by Mott	14 days	Fri 6/12/13	Thu 19/12/13



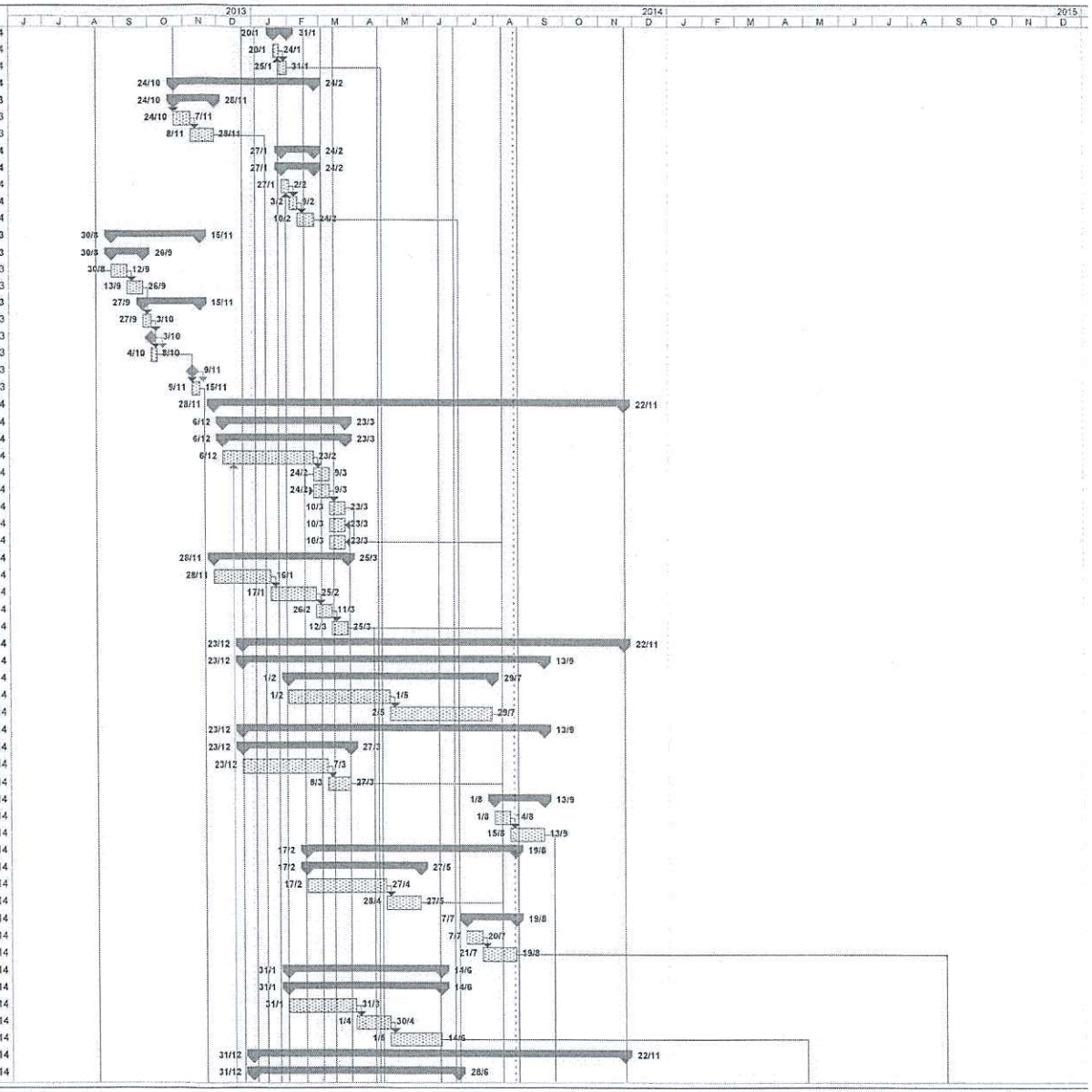
al Water & | Task | Critical Task | Milestone | Summary

ilabity of working windows (ID 199 & 200)

Contract No. CV/2013/04
Dredging Works in Kwai Tsing Container Basin and its Approach Channel
Clause 16 Programme (Version 7)

Date: 18

ID	Task Name	Duration	Start	Finish
62	Initial report	12 days	Mon 20/1/14	Fri 31/1/14
63	Preparation and submission	5 days	Mon 20/1/14	Fri 24/1/14
64	Approval by Mott	7 days	Sat 25/1/14	Fri 31/1/14
65	Hydrographic Survey (Portions A to E)	124 days	Thu 24/10/13	Mon 24/2/14
66	Method Statement	36 days	Thu 24/10/13	Thu 28/11/13
67	Preparation and submission	15 days	Thu 24/10/13	Thu 7/11/13
68	Approval by Mott	21 days	Fri 8/11/13	Thu 28/11/13
69	Initial survey	29 days	Mon 27/1/14	Mon 24/2/14
70	Report	29 days	Mon 27/1/14	Mon 24/2/14
71	Preparation and submission	7 days	Mon 27/1/14	Sun 2/2/14
72	Approval by Mott	7 days	Mon 3/2/14	Sun 9/2/14
73	Approval by Marine Department	15 days	Mon 10/2/14	Mon 24/2/14
74	Temporary Marine Traffic Management (Portions A to E)	78 days	Fri 30/8/13	Fri 15/11/13
75	Consultant, Risk Manager and Marine Traffic Engineer	28 days	Fri 30/8/13	Thu 26/9/13
76	Preparation and submission	14 days	Fri 30/8/13	Thu 12/9/13
77	Approval by Mott	14 days	Fri 13/9/13	Thu 26/9/13
78	Webbase software and Trial Run	50 days	Fri 27/9/13	Fri 15/11/13
79	Preparation and submission of methodology	7 days	Fri 27/9/13	Thu 3/10/13
80	Comment recevied by Mott	0 days	Thu 3/10/13	Thu 3/10/13
81	Rectification	5 days	Fri 4/10/13	Tue 8/10/13
82	Final submission	0 days	Sat 9/11/13	Sat 9/11/13
83	Approval by Mott	7 days	Sat 9/11/13	Fri 15/11/13
84	Dredging Works (Portions A to E)	360 days	Thu 28/11/13	Sat 22/11/14
85	Silt screen (Location see Drg No. EM/401)	108 days	Fri 6/12/13	Sun 23/3/14
86	Method statement	108 days	Fri 6/12/13	Sun 23/3/14
87	Preparation and submission	80 days	Fri 6/12/13	Sun 23/2/14
88	Approval by Mott	14 days	Mon 24/2/14	Sun 9/3/14
89	Approval by IEC	14 days	Mon 24/2/14	Sun 9/3/14
90	Approval by WSD	14 days	Mon 10/3/14	Sun 23/3/14
91	Approval by EMSD	14 days	Mon 10/3/14	Sun 23/3/14
92	Approval by EPD	14 days	Mon 10/3/14	Sun 23/3/14
93	Dredging method statement and silt curtain deployment plan	118 days	Thu 28/11/13	Tue 25/3/14
94	Preparation and submission	50 days	Thu 28/11/13	Thu 16/1/14
95	Approval by Mott	40 days	Fri 17/1/14	Tue 25/2/14
96	Approval by IEC	14 days	Wed 26/2/14	Tue 11/3/14
97	Approval by EPD	14 days	Wed 12/3/14	Tue 25/3/14
98	Dredging Works at Portions A and B	335 days	Mon 23/12/13	Sat 22/11/14
99	General seabed	265 days	Mon 23/12/13	Sat 13/9/14
100	Marine Notice approval by Marine Departemnt	179 days	Sat 1/2/14	Tue 29/7/14
101	Preparation and submission	90 days	Sat 1/2/14	Thu 1/5/14
102	Approval by MD	89 days	Fri 2/5/14	Tue 29/7/14
103	Noise Permit	265 days	Mon 23/12/13	Sat 13/9/14
104	General	95 days	Mon 23/12/13	Thu 27/3/14
105	Preparation and submission	75 days	Mon 23/12/13	Fri 7/3/14
106	Approval by EPD	20 days	Sat 8/3/14	Thu 27/3/14
107	Portion A from 11pm to 7am next day	44 days	Fri 1/8/14	Sat 13/9/14
108	Preparation and submission	14 days	Fri 1/8/14	Thu 14/8/14
109	Approval by EPD	30 days	Fri 15/8/14	Sat 13/9/14
110	Dumping Permit	184 days	Mon 17/2/14	Tue 19/8/14
111	Type 1 and Tpye 2 Sediment	100 days	Mon 17/2/14	Tue 27/5/14
112	Preparation and submission	70 days	Mon 17/2/14	Sun 27/4/14
113	Approval by EPD	30 days	Mon 28/4/14	Tue 27/5/14
114	Type 3 Sediment	44 days	Mon 7/7/14	Tue 19/8/14
115	Preparation and submission	14 days	Mon 7/7/14	Sun 20/7/14
116	Approval by EPD	30 days	Mon 21/7/14	Tue 19/8/14
117	Type 3 Cat Hf Sediment (Portion A)	135 days	Fri 31/1/14	Sat 14/6/14
118	Method statement for disposal	135 days	Fri 31/1/14	Sat 14/6/14
119	Preparation and submission	60 days	Fri 31/1/14	Mon 31/3/14
120	Approval by Mott and IEC	30 days	Tue 1/4/14	Wed 30/4/14
121	Approval by EPD	45 days	Thu 1/5/14	Sat 14/6/14
122	Hot Spot (Portion A)	327 days	Tue 31/12/13	Sat 22/11/14
123	Proposal for field trial at Zone Z2C	180 days	Tue 31/12/13	Sat 28/6/14

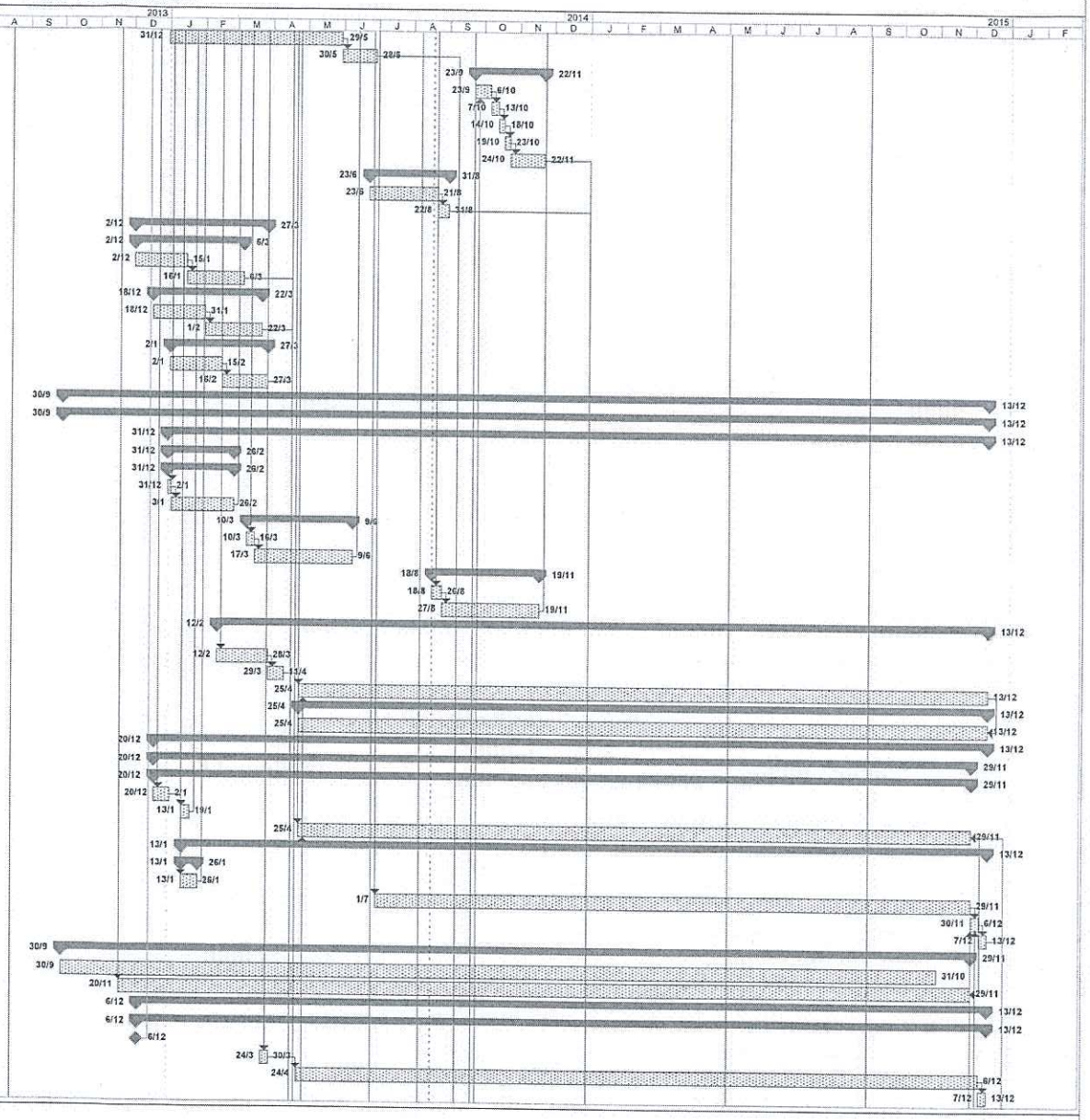


China International Water & Electric Corp.

Task | Critical Task | Milestone | Summary

* Subject to availabity of working windows (ID 199 & 200)

ume	Duration	Start	Finish
Preparation and submission	150 days	Tue 31/12/13	Thu 29/5/14
Approval by MotT	30 days	Fri 30/5/14	Sat 28/6/14
Method statement for dredging works at Zone Z2B	**61 days**	**Tue 23/9/14**	**Sat 22/11/14**
Preparation and submission	14 days	Tue 23/9/14	Mon 6/10/14
Approval by MotT	7 days	Tue 7/10/14	Mon 13/10/14
Endorsed by ETL	5 days	Tue 14/10/14	Sat 18/10/14
Verified by IEC	5 days	Sun 19/10/14	Thu 23/10/14
Approval by EPD	30 days	Fri 24/10/14	Sat 22/11/14
Method staement for dredging hard material	**70 days**	**Mon 23/6/14**	**Sun 31/8/14**
Preparation and submission	60 days	Mon 23/6/14	Thu 21/8/14
Approval by MotT	10 days	Fri 22/8/14	Sun 31/8/14
Dredging Works at Portions C, D and E	**116 days**	**Mon 2/12/13**	**Thu 27/3/14**
Marine Notice approval by Marine Departemnt	**95 days**	**Mon 2/12/13**	**Thu 6/3/14**
Preparation and submission	45 days	Mon 2/12/13	Wed 15/1/14
Approval by MD	50 days	Thu 16/1/14	Thu 6/3/14
Noise Permit	**95 days**	**Wed 18/12/13**	**Sat 22/3/14**
Preparation and submission	45 days	Wed 18/12/13	Fri 31/1/14
Approval by EPD	50 days	Sat 1/2/14	Sat 22/3/14
Dumping Permit	**85 days**	**Thu 2/1/14**	**Thu 27/3/14**
Preparation and submission	45 days	Thu 2/1/14	Sat 15/2/14
Approval by EPD	40 days	Sun 16/2/14	Thu 27/3/14
Works	**805 days**	**Mon 30/9/13**	**Sun 13/12/15**
Routine Monitoring / Temporary Marine Traffic Management	**805 days**	**Mon 30/9/13**	**Sun 13/12/15**
Environmental Management	**713 days**	**Tue 31/12/13**	**Sun 13/12/15**
Baseline monitoring	**58 days**	**Tue 31/12/13**	**Wed 26/2/14**
Monitoring (Location see Drg No. EM/401)	**58 days**	**Tue 31/12/13**	**Wed 26/2/14**
Mobilization	3 days	Tue 31/12/13	Thu 2/1/14
Field works and Lab Test	55 days	Fri 3/1/14	Wed 26/2/14
Grab sample (Portions A, B & C)	**92 days**	**Mon 10/3/14**	**Mon 9/6/14**
Grab sample specialist mobilization	7 days	Mon 10/3/14	Sun 16/3/14
Grab sample (field works) and Lab Test	85 days	Mon 17/3/14	Mon 9/6/14
Vibro-coring (Portions A, B & C)	**94 days**	**Mon 18/8/14**	**Wed 19/11/14**
Vibro-coring specialist mobilization	9 days	Mon 18/8/14	Tue 26/8/14
Vibro-coring (field works) and Lab Test	85 days	Wed 27/8/14	Wed 19/11/14
24 Hours monitoring station and TIN Measuring Device (Location see Drg No. EM/401)	**670 days**	**Wed 12/2/14**	**Sun 13/12/15**
Procurement and delivery	45 days	Wed 12/2/14	Fri 28/3/14
Installation	14 days	Sat 29/3/14	Fri 11/4/14
Monitoring	598 days	Fri 25/4/14	Sun 13/12/15
Impact monitoring (Location see Drg No. EM/401)	**598 days**	**Fri 25/4/14**	**Sun 13/12/15**
Impact monitoring and report submission	598 days	Fri 25/4/14	Sun 13/12/15
Survey	**724 days**	**Fri 20/12/13**	**Sun 13/12/15**
Land Survey (Container Basin & DSD Tsing Yi Plant)	**710 days**	**Fri 20/12/13**	**Sun 29/11/15**
Settlement markers	**710 days**	**Fri 20/12/13**	**Sun 29/11/15**
Installation	14 days	Fri 20/12/13	Thu 2/1/14
Initial survey	7 days	Mon 13/1/14	Sun 19/1/14
Interim monitoring	584 days	Fri 25/4/14	Sun 29/11/15
Hydrographic Survey (Portions A to E)	**700 days**	**Mon 13/1/14**	**Sun 13/12/15**
Initial survey	**14 days**	**Mon 13/1/14**	**Sun 26/1/14**
Field works	14 days	Mon 13/1/14	Sun 26/1/14
Interim survey	517 days	Tue 1/7/14	Sun 29/11/15
Final survey	7 days	Mon 30/11/15	Sun 6/12/15
Final survey report	7 days	Mon 7/12/15	Sun 13/12/15
Temporary Marine Traffic Management (Portions A to E)	**791 days**	**Mon 30/9/13**	**Sun 29/11/15**
Organizing meeting for information collection	762 days	Mon 30/9/13	Sat 31/10/15
Temporary marine traffic management and TMTM meeting	740 days	Wed 20/11/13	Sun 29/11/15
Dredging Works (Portions A to E)	**738 days**	**Fri 6/12/13**	**Sun 13/12/15**
Silt screen (Location see Drg No. EM/401)	**738 days**	**Fri 6/12/13**	**Sun 13/12/15**
Receiving of as-built record of water intake from WSD/EMSD	0 days	Fri 6/12/13	Fri 6/12/13
Installation of silt screen	7 days	Mon 24/3/14	Sun 30/3/14
Maintenance of silt screen	592 days	Thu 24/4/14	Sun 6/12/15
Removal of silt screen	7 days	Mon 7/12/15	Sun 13/12/15



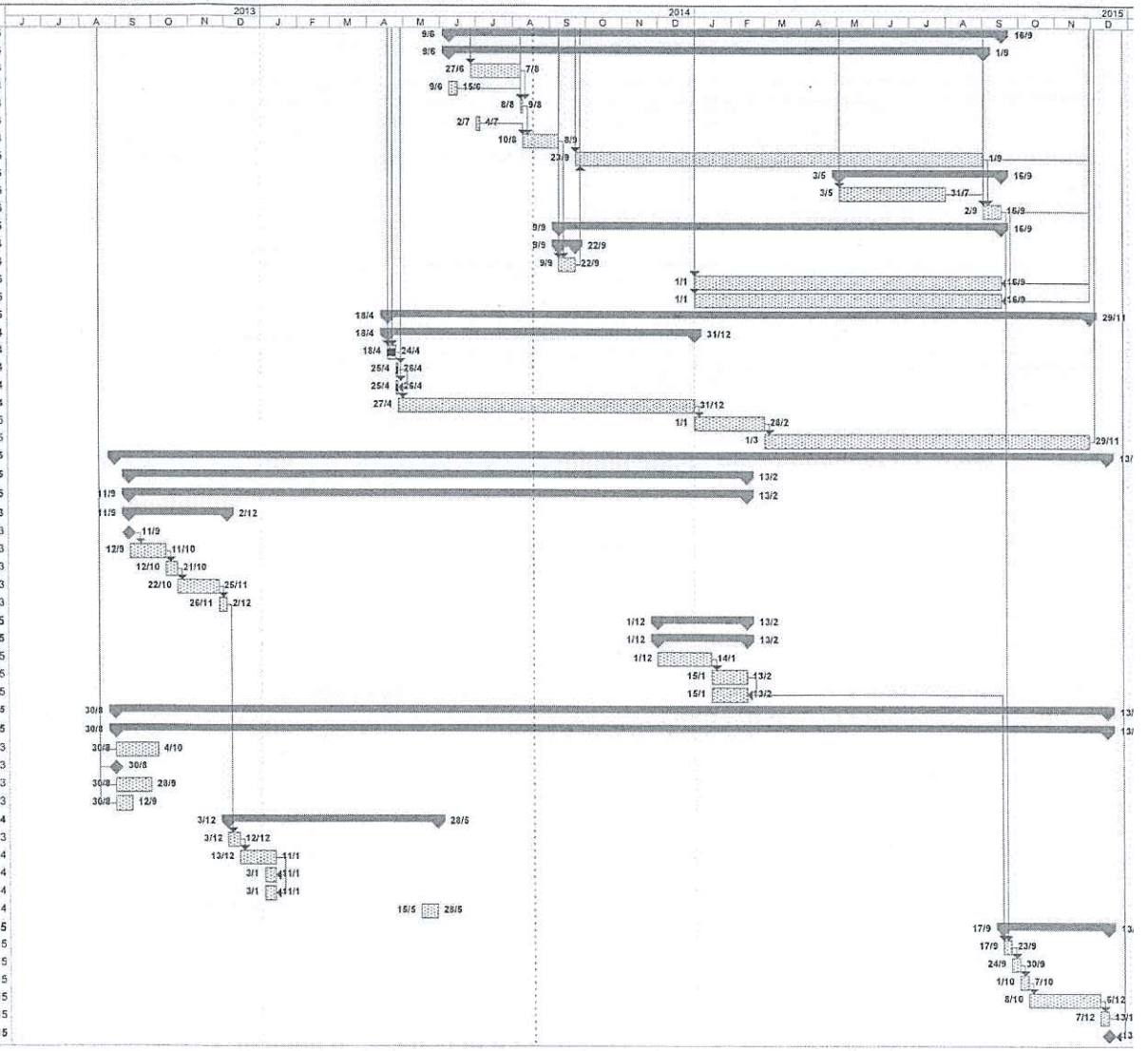
nal Water & | Task | Critical Task | Milestone | Summary

vailabity of working windows (ID 199 & 200)

Contract No. CV/2013/04
Dredging Works in Kwai Tsing Container Basin and its Approach Channel
Clause 16 Programme (Version 7)

Date: 18

ID	Task Name	Duration	Start	Finish
185	**Dredging Works at Portions A and B**	**465 days**	**Mon 9/6/14**	**Wed 16/9/15**
186	**General seabed**	**450 days**	**Mon 9/6/14**	**Tue 1/9/15**
187	Mobilization	42 days	Fri 27/6/14	Thu 7/8/14
188	Fabrication of silt curtain	7 days	Mon 9/6/14	Sun 15/6/14
189	Pilot test for silt curtain	2 days	Fri 8/8/14	Sat 9/8/14
190	Monitoring brief for unidentified sonar contacts & masked areas	3 days	Wed 2/7/14	Fri 4/7/14
191	Dredging works 1 (subject to availability of working windows)	30 days	Sun 10/8/14	Mon 8/9/14
192	Dredging works 2 (subject to availability of working windows)	344 days	Tue 23/9/14	Tue 1/9/15
193	**Type 3 Cat Hf Sediment (Portion A)**	**137 days**	**Sun 3/5/15**	**Wed 16/9/15**
194	Procurement and delivery of Geo-container	90 days	Sun 3/5/15	Fri 31/7/15
195	Dredging works	15 days	Wed 2/9/15	Wed 16/9/15
196	**Hot Spot (Portion A)**	**373 days**	**Tue 9/9/14**	**Wed 16/9/15**
197	**Proposal for field trial at Zone Z2C**	**14 days**	**Tue 9/9/14**	**Mon 22/9/14**
198	Field trial at Zone Z2C	14 days	Tue 9/9/14	Mon 22/9/14
199	Dredging works at Z2B *	259 days	Thu 1/1/15	Wed 16/9/15
200	Dredging of hard material *	259 days	Thu 1/1/15	Wed 16/9/15
201	**Dredging Works for Portions C, D and E**	**591 days**	**Fri 18/4/14**	**Sun 29/11/15**
202	**Dredging Works for Portion D**	**258 days**	**Fri 18/4/14**	**Wed 31/12/14**
203	Mobilization	7 days	Fri 18/4/14	Thu 24/4/14
204	Pilot test of silt curtain	2 days	Fri 25/4/14	Sat 26/4/14
205	Trial dredging	2 days	Fri 25/4/14	Sat 26/4/14
206	Dredging works	249 days	Sun 27/4/14	Wed 31/12/14
207	Dredging Works for Portion E	59 days	Thu 1/1/15	Sat 28/2/15
208	Dredging Works for Portion C	274 days	Sun 1/3/15	Sun 29/11/15
209	Section 2	836 days	Fri 30/8/13	Sun 13/12/15
210	**Submission**	**521 days**	**Wed 11/9/13**	**Fri 13/2/15**
211	**Preliminaries (Portion F)**	**521 days**	**Wed 11/9/13**	**Fri 13/2/15**
212	**Engineer Principal Accommodation**	**83 days**	**Wed 11/9/13**	**Mon 2/12/13**
213	Preparation and submisssion of location and layout	0 days	Wed 11/9/13	Wed 11/9/13
214	Approval of location and layout	30 days	Thu 12/9/13	Fri 11/10/13
215	Preparation of calculation	10 days	Sat 12/10/13	Mon 21/10/13
216	Comment and resubmission of calculation	35 days	Tue 22/10/13	Mon 25/11/13
217	Approval of calculation	7 days	Tue 26/11/13	Mon 2/12/13
218	**Outfall Modification Works (Location see Drg No. S202)**	**75 days**	**Mon 1/12/14**	**Fri 13/2/15**
219	**Method statement**	**75 days**	**Mon 1/12/14**	**Fri 13/2/15**
220	Preparation and submission	45 days	Mon 1/12/14	Wed 14/1/15
221	Approval by Mott	30 days	Thu 15/1/15	Fri 13/2/15
222	Approval by DSD	30 days	Thu 15/1/15	Fri 13/2/15
223	Works	836 days	Fri 30/8/13	Sun 13/12/15
224	**Preliminaries (Portion F)**	**836 days**	**Fri 30/8/13**	**Sun 13/12/15**
225	Contractor's mobilization	36 days	Fri 30/8/13	Fri 4/10/13
226	Security Guard	0 days	Fri 30/8/13	Fri 30/8/13
227	Temporary electricity power supply	30 days	Fri 30/8/13	Sat 28/9/13
228	Engineer's Initial Temporary Accommodation	14 days	Fri 30/8/13	Thu 12/9/13
229	**Engineer Principal Accommodation**	**177 days**	**Tue 3/12/13**	**Wed 28/5/14**
230	Material ordering and delivery	10 days	Tue 3/12/13	Thu 12/12/13
231	Construction	30 days	Fri 13/12/13	Sat 11/1/14
232	Computer installation	9 days	Fri 3/1/14	Sat 11/1/14
233	Furniture and office equipment	9 days	Fri 3/1/14	Sat 11/1/14
234	Car Park	14 days	Thu 15/5/14	Wed 28/5/14
235	**Outfall Modification Works (Location see Drg No. S202)**	**88 days**	**Thu 17/9/15**	**Sun 13/12/15**
236	Dye test	7 days	Thu 17/9/15	Wed 23/9/15
237	Video filming	7 days	Thu 24/9/15	Wed 30/9/15
238	Dredging works	7 days	Thu 1/10/15	Wed 7/10/15
239	Modification works	60 days	Thu 8/10/15	Sun 6/12/15
240	As-built video submission	7 days	Mon 7/12/15	Sun 13/12/15
241	Contract Completion Date	0 days	Sun 13/12/15	Sun 13/12/15



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Task | Critical Task | Milestone | Summary

* Subject to availability of working windows (ID 199 & 200)

MATERIALAB CONSULTANTS LIMITED
Fugro Development Centre,
5 Lok Yi Street,
17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com.hk

Appendix C

Action and Limit Levels

Action and Limit Levels for Routine Water Quality Monitoring (Dry Season)

Monitoring Station	DO (mg/L) Surface & Middle		DO (mg/L) Bottom		Turbidity (NTU) Depth-Averaged		Suspended Solids (mg/L) Depth-averaged		BOD5(mg/L) Depth-averaged		E.coli (CFU /100mL) Depth-averaged		NH3-N (mg/L) Depth-averaged		UIA (mg/L) Depth-averaged		Synthetic Detergent as MBAS (mg/L) Depth- averaged		TIN (mg/L) Depth Averaged	
	AL	LL	AL	LL	AL	LL	AL	LL	AL	LL	AL	LL	AL	LL	AL	LL	AL	LL	AL	LL
Seawater Intake																				
SR1 SR4 SR12	2	2	2	2	<10	<10	<10	<10	<10	<10	<20,000	<20,000	<1	<1	0.021	0.021	<5	<5	NA	NA
Fish Culture Zone																				
SR5	5.45	5.39#	5.43	5.27+	6.7 or 120%C*	10.1 or 130%C^	12 or 120%C*	19 or 130%C^	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.36	0.39
SR9 SR10 SR11	6.11	6.02#	6.11	6.04+	2.9 or 120%C*	4.8 or 130%C^	9 or 120%C*	18 or 130%C^											0.22	0.29
Gazetted Beach																				
SR2 SR3	5.45	5.39#	5.43	5.27+	6.7 or 120%C*	10.1 or 130%C^	12 or 120%C*	19 or 130%C^	NA	NA	NA	NA	0.21 or 120%C*	0.24 or 130%C^	0.021	0.021	NA	NA	NA	NA
Corals																				
SR6 SR7 SR8	6.11	6.02#	6.11	6.04+	2.9 or 120%C*	4.8 or 130%C^	9 or 120%C*	18 or 130%C^	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EMSD Cooling Water Intake																				
SR13	5.31	5.22#	5.29	5.12+	13.1 or 120%C*	15.7 or 130%C^	23 or 120%C*	38 or 130%C^	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Note:
* Or 120% of upstream control station at the same tide of the day
^ Or 130% of upstream control station at the same tide of the day
# According to EM&A Manual, LL of DO (surface & middle) is 5 mg/L or 1 percentile of baseline data in FCZ; 4 mg/L or 1 percentile of baseline data in other impact monitoring stations.
+ According to EM&A Manual, LL of DO (bottom) is 2 mg/L or 1 percentile of baseline data
For DO measurement, non-compliance occurs when monitoring result is lower than the limits;
For TIN, UIA, NH_3-N, SS, BOD_5, E.coli, synthetic detergent and turbidity, non-compliance of water quality results when monitoring results is higher than the limits;
AL/LL of TIN and NH_3-N are determined from laboratory results for better accuracy and reliability. These AL/LL will be applied to both laboratory and in-situ measurements at impact stage.
Dry Season: November to March

Action and Limit Levels for Routine Water Quality Monitoring (Wet Season)

Monitoring Station	DO (mg/L) Surface & Middle		DO (mg/L) Bottom		Turbidity (NTU) Depth-Averaged		Suspended Solids (mg/L) Depth-averaged		BOD5 (mg/L) Depth- averaged		E.coli (CFU /100mL) Depth-averaged		NH3-N (mg/L) Depth-averaged		UIA (mg/L) Depth-averaged		Synthetic Detergent as MBAS (mg/L) Depth-averaged		TIN (mg/L) Depth Averaged	
	AL	LL	AL	LL	AL	LL	AL	LL	AL	LL	AL	LL	AL	LL	AL	LL	AL	LL	AL	LL
Seawater Intake																				
SR1 SR4 SR12	2	2	2	2	<10	<10	<10	<10	<10	<10	<20,000	<20,000	<1	<1	0.021	0.021	<5	<5	NA	NA
Fish Culture Zone																				
SR5	5.00#	5.00#	4.11	4.04+	10.8 or 120%C*	15.0 or 130%C^	12 or 120%C*	19 or 130%C^	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0.45	0.50
SR9 SR10 SR11	5.00	5.00#	4.41	4.25+	4.0 or 120%C*	8.7 or 130%C^	9 or 120%C*	18 or 130%C^											0.37	0.49
Gazetted Beach																				
SR2 SR3	4.68	4.62#	4.11	4.04+	10.8 or 120%C*	15.0 or 130%C^	12 or 120%C*	19 or 130%C^	NA	NA	NA	NA	0.21 or 120%C*	0.24 or 130%C^	0.021	0.021	NA	NA	NA	NA
Corals																				
SR6 SR7 SR8	5.00	4.82#	4.41	4.25+	4.0 or 120%C*	8.7 or 130%C^	9 or 120%C*	18 or 130%C^	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
EMSD Cooling Water Intake																				
SR13	4.24	4.17#	3.70	3.58+	13.1 or 120%C*	15.7 or 130%C^	23 or 120%C*	38 or 130%C^	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Note:

* Or 120% of upstream control station at the same tide of the day

^ Or 130% of upstream control station at the same tide of the day

According to EM&A Manual, LL of DO (surface & middle) is 5 mg/L or 1 percentile of baseline data in FCZ; 4 mg/L or 1 percentile of baseline data in other impact monitoring stations. (5%ile & 1 %ile determined from wet season baseline data for cluster 1 (4.68mg/L & 4.62mg/L) and cluster 2 (5.00mg/L & 4.82mg/L) are 5mg/L or below, thus 5mg/L was adopted as the AL & LL for the SR in FCZ)

+ According to EM&A Manual, LL of DO (bottom) is 2 mg/L or 1 percentile of baseline data

Referring to the ER Letter ref. (CV/2013/04)/M45/400/1247 dated 19 March 2015, a Revised Baseline Water Quality Monitoring Test Methodology – Review of Action and Limit Levels has been submitted to EPD by ER in March 2015. The Action and Limit Level for the wet season (April – October) was effected and applied to the water quality monitoring data from 1 April 2015.

For DO measurement, non-compliance occurs when monitoring result is lower than the limits;

For TIN, UIA, NH_3-N, SS, BOD_5, E.coli, synthetic detergent and turbidity, non-compliance of water quality results when monitoring results is higher than the limits;

AL/LL of TIN and NH_3-N are determined from laboratory results for better accuracy and reliability. These AL/LL will be applied to both laboratory and in-situ measurements at impact stage.

Wet season: April to October

Action and Limit Levels for 24-hr Water Quality Monitoring (Dry Season)

Monitoring Station	DO (mg/L) Surface		Turbidity (NTU) Surface		Ammonia-N (mg/L) Surface	
	AL	LL	AL	LL	AL	LL
WSD Seawater Intake						
SR4	2	2	<10	<10	<1	<1
SR12						
Fish Culture Zone						
SR5	5.46	5.39	6.0	7.9	NA	NA
SR9	6.12	5.97	2.8	4.7		
SR10						
SR11						
EMSD Cooling Water Intake						
SR13	5.28	5.22	11.9	13.3	NA	NA

Note: According to EM&A Manual, LL of DO (surface & middle) is 5 mg/L or 1 percentile of baseline data in FCZ; 4 mg/L or 1 percentile of baseline data in other impact monitoring stations.

Dry Season: November to March.

Action and Limit Levels for 24-hr Water Quality Monitoring (Wet Season)

Monitoring Station	DO (mg/L) Surface		Turbidity (NTU) Surface		Ammonia-N (mg/L) Surface	
	AL	LL	AL	LL	AL	LL
WSD Seawater Intake						
SR4	2	2	<10	<10	<1	<1
SR12						
Fish Culture Zone						
SR5	5.24	5.13	9.7	14.4	NA	NA
SR9	5.13	5.00#	5.9	7.1		
SR10						
SR11						
EMSD Cooling Water Intake						
SR13	4.23	4.17	11.9	13.3	NA	NA

Note: # According to EM&A Manual, LL of DO (surface & middle) is 5 mg/L or 1 percentile of baseline data in FCZ; 4 mg/L or 1 percentile of baseline data in other impact monitoring stations. (1 %ile determined from wet season baseline data for cluster 2 (4.78mg/L) is below 5mg/L, thus 5mg/L was adopted as the DO (surface) LL for the SR in FCZ in cluster 2 stations)

Referring to the ER Letter ref. (CV/2013/04)/M45/400/1247 dated 19 March 2015, a Revised Baseline Water Quality Monitoring Test Methodology – Review of Action and Limit Levels has been submitted to EPD by ER in March 2015. The Action and Limit Level for the wet season (April – October) was effected and applied to the water quality monitoring data from 1 April 2015.

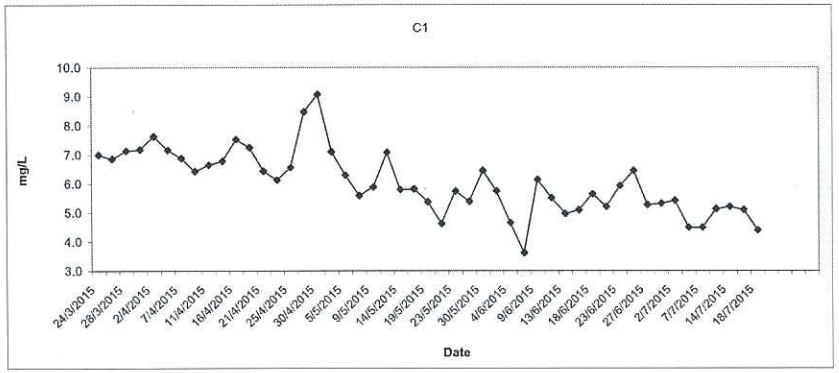
Wet Season: April to October

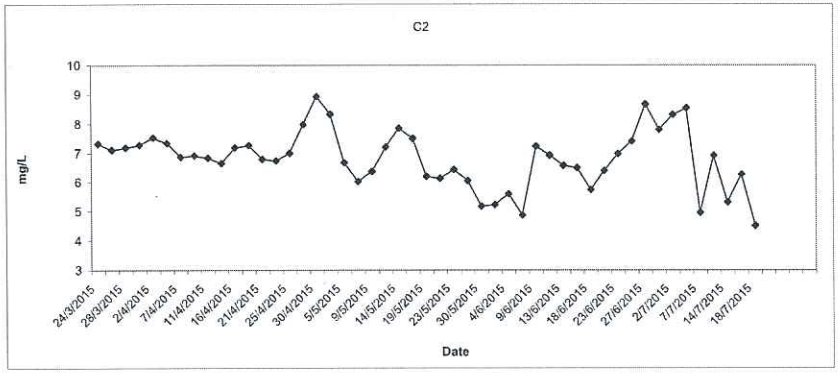
MATERIALAB CONSULTANTS LIMITED
Fugro Development Centre,
5 Lok Yi Street,
17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com.hk

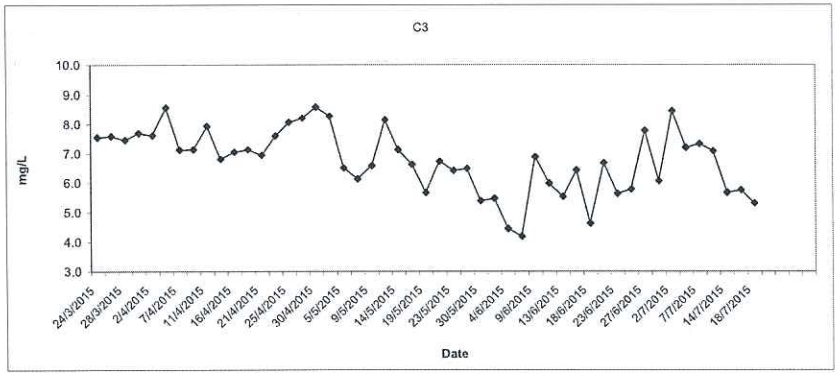
Appendix D

Graphical Presentation – Routine Impact Monitoring Results

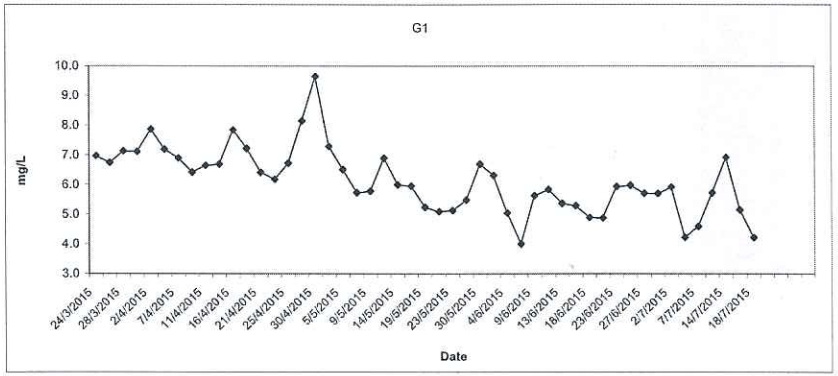
Dissolved Oxygen (Surface and Middle) at Mid-Ebb Tide

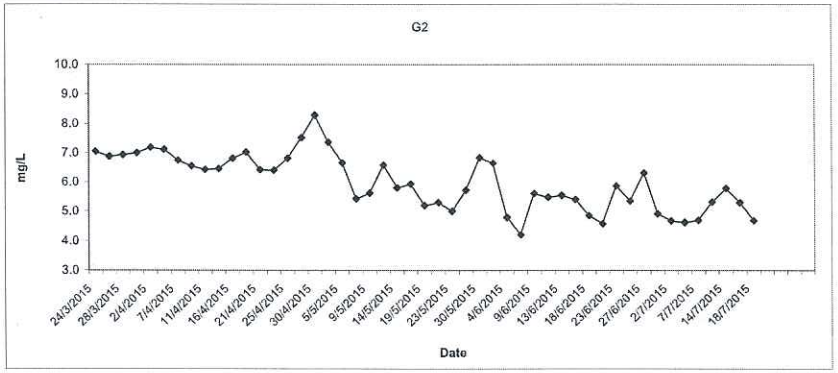


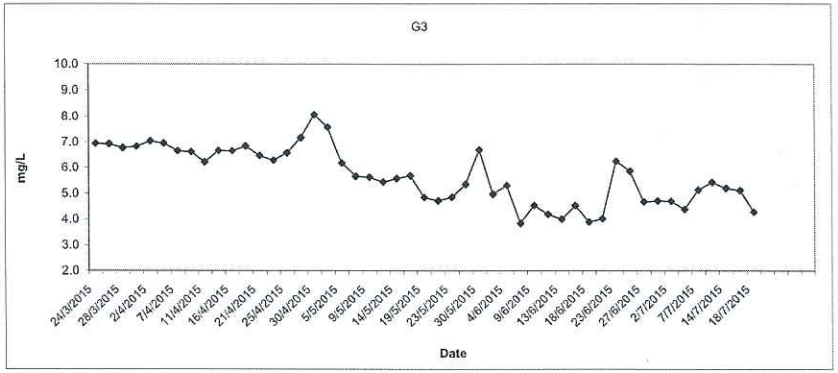




Dissolved Oxygen (Surface and Middle) at Mid-Ebb Tide

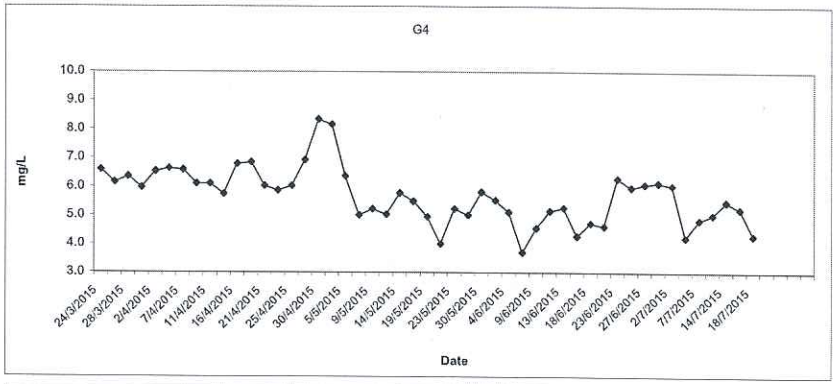


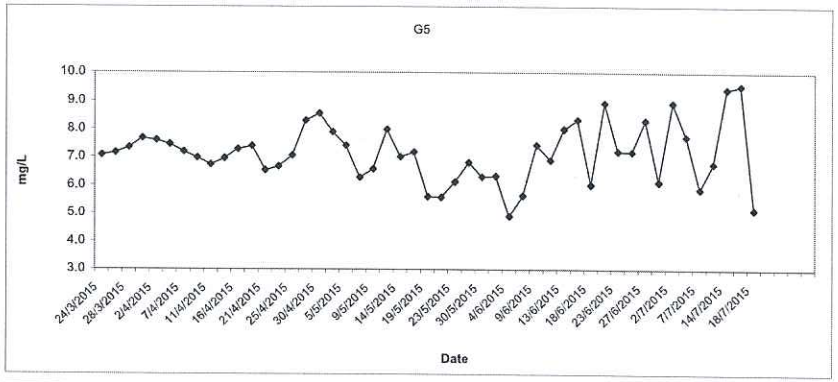


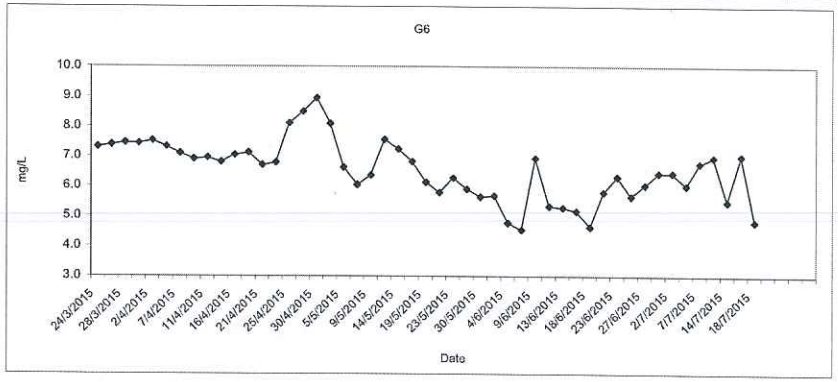


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

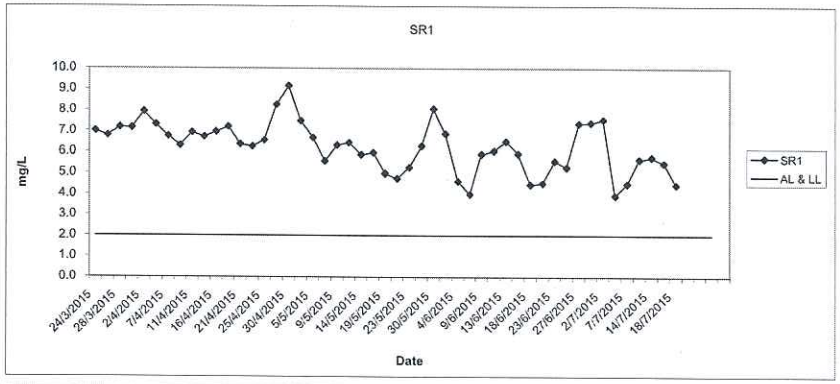
Dissolved Oxygen (Surface and Middle) at Mid-Ebb Tide

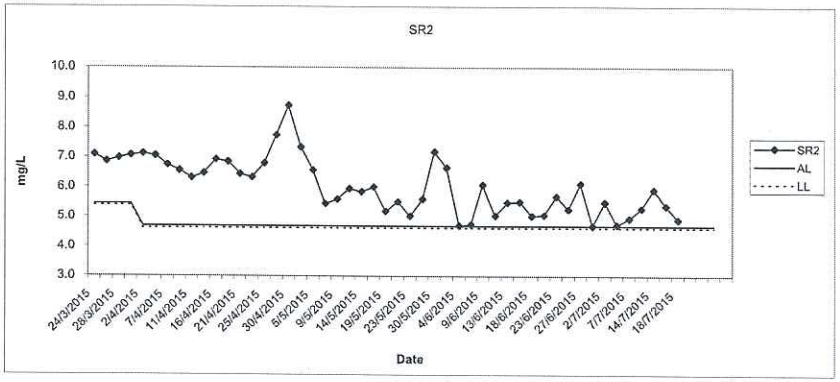


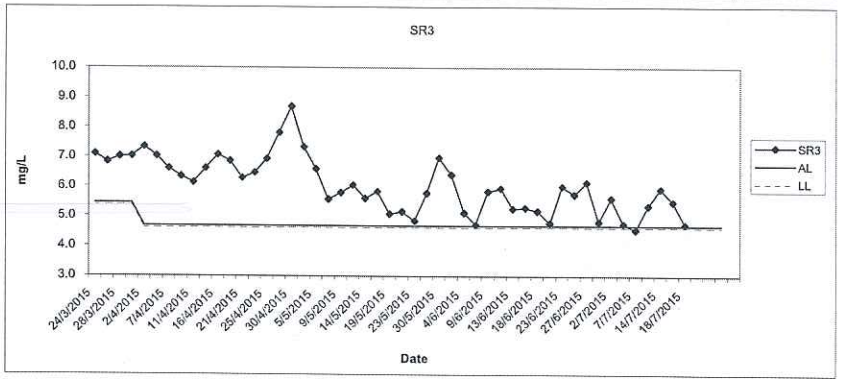




Dissolved Oxygen (Surface and Middle) at Mid-Ebb Tide

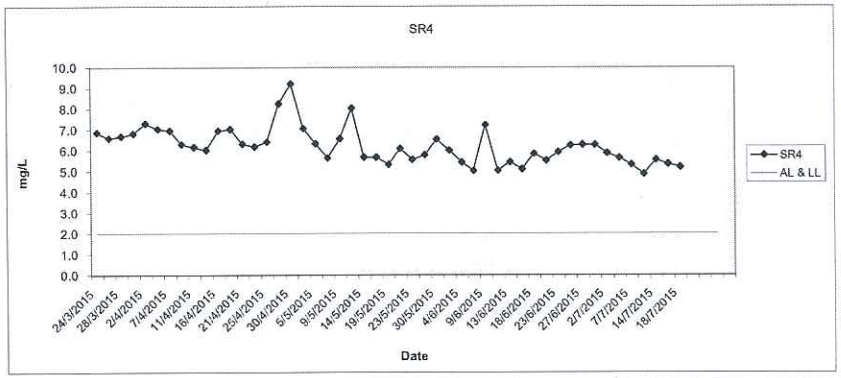


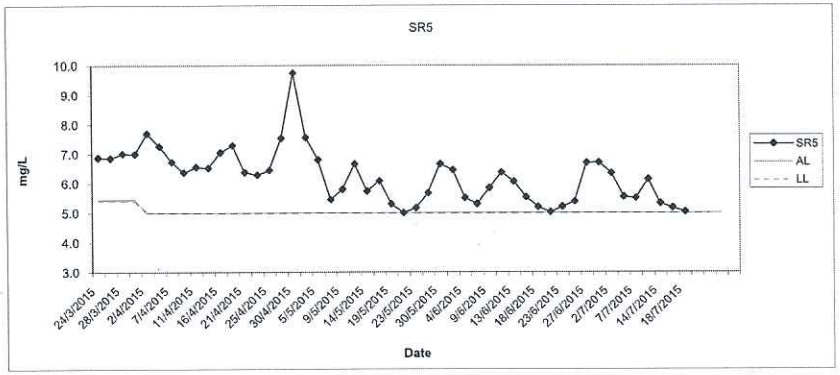


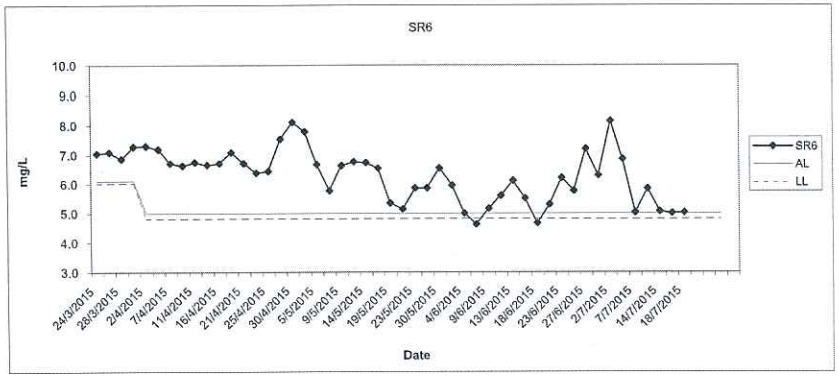


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

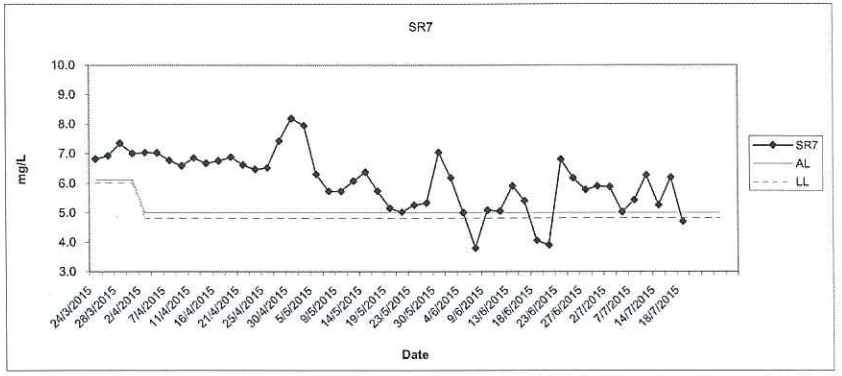
Dissolved Oxygen (Surface and Middle) at Mid-Ebb Tide

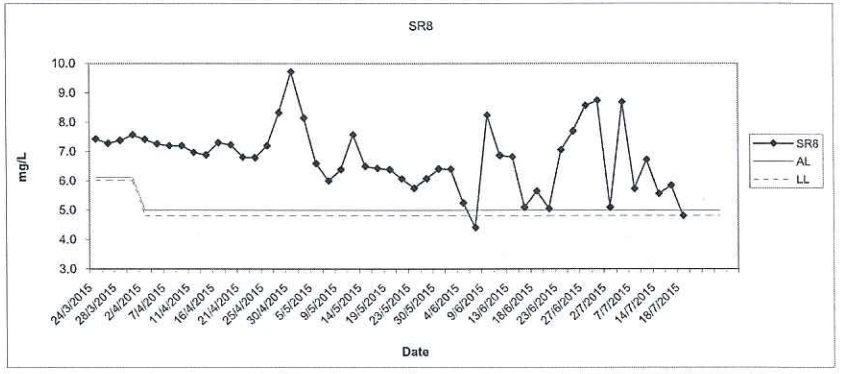


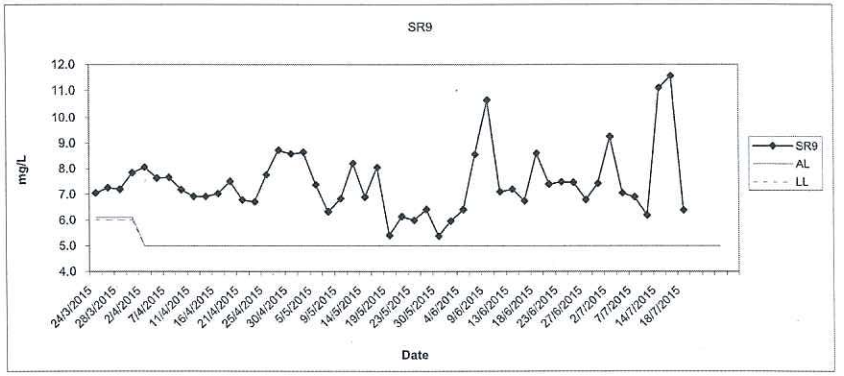




Dissolved Oxygen (Surface and Middle) at Mid-Ebb Tide

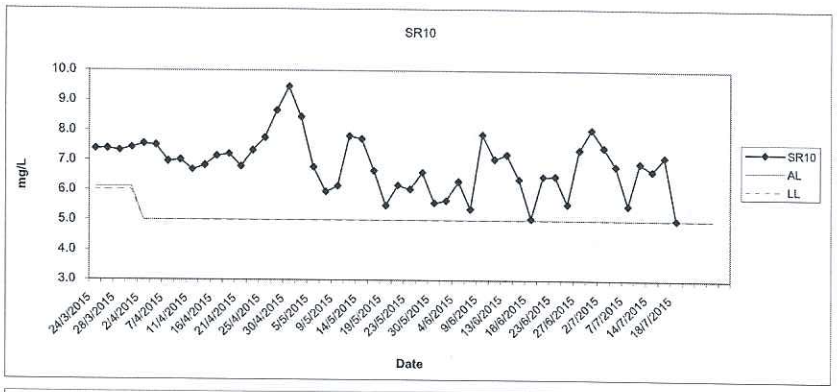


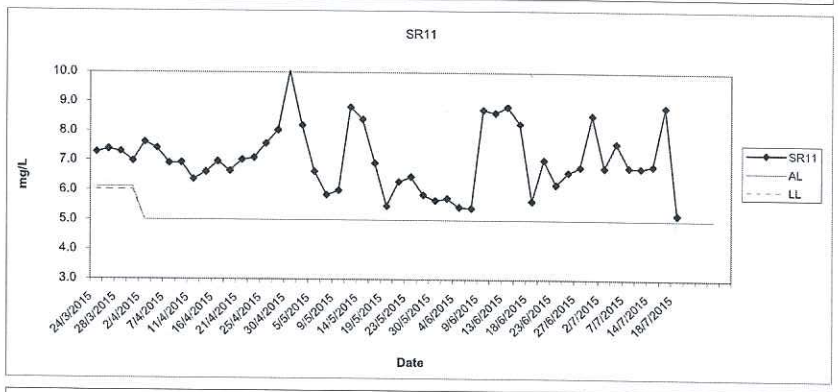


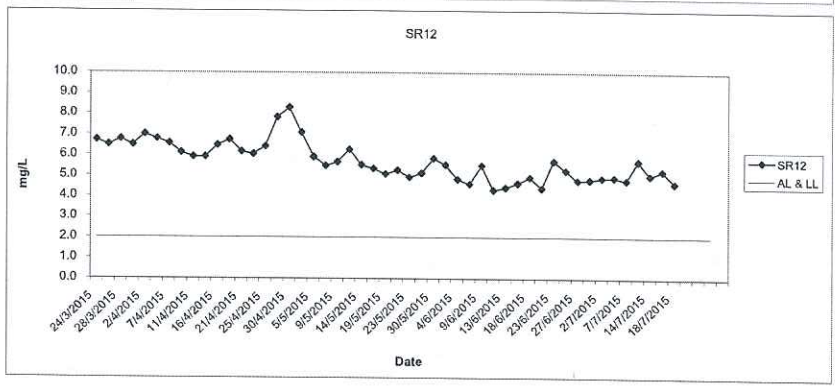


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

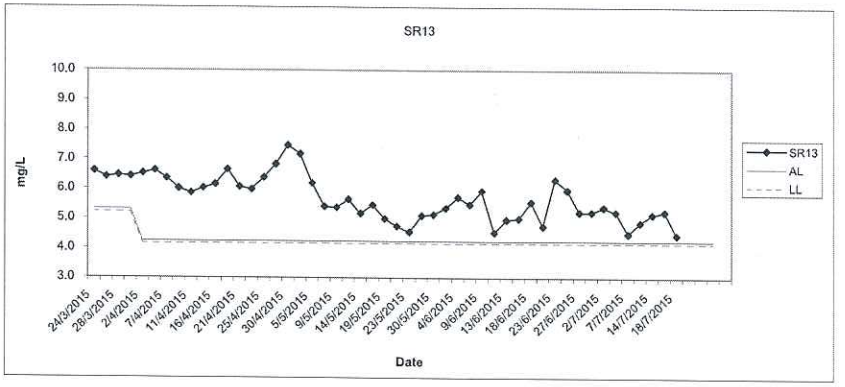
Dissolved Oxygen (Surface and Middle) at Mid-Ebb Tide





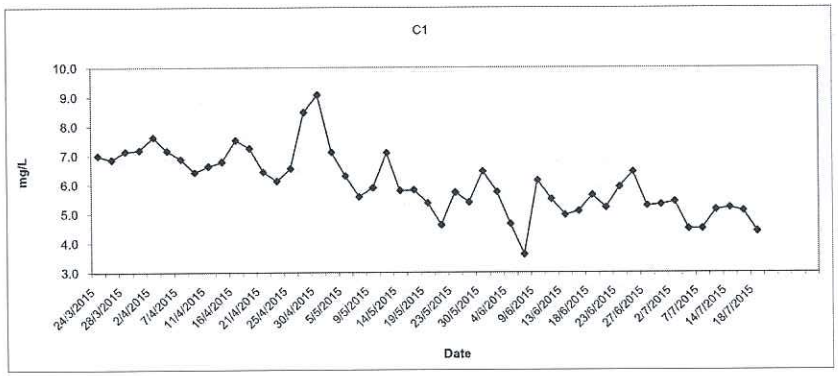


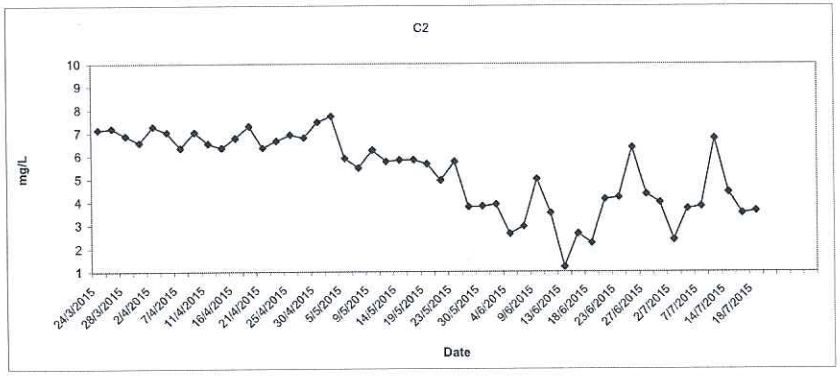
Dissolved Oxygen (Surface and Middle) at Mid-Ebb Tide

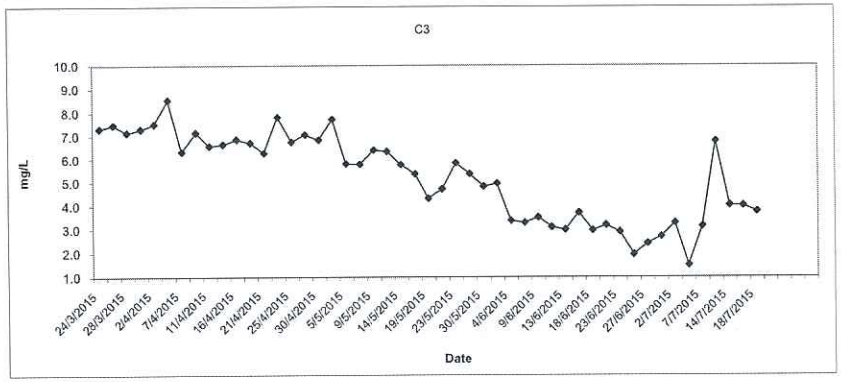


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

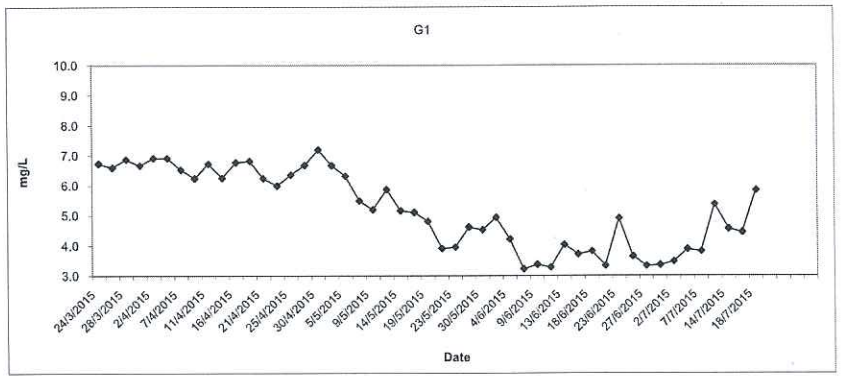
Dissolved Oxygen (Bottom) at Mid-Ebb Tide

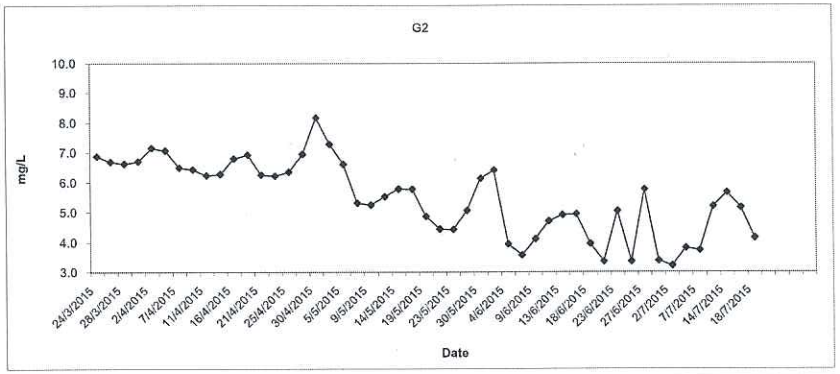


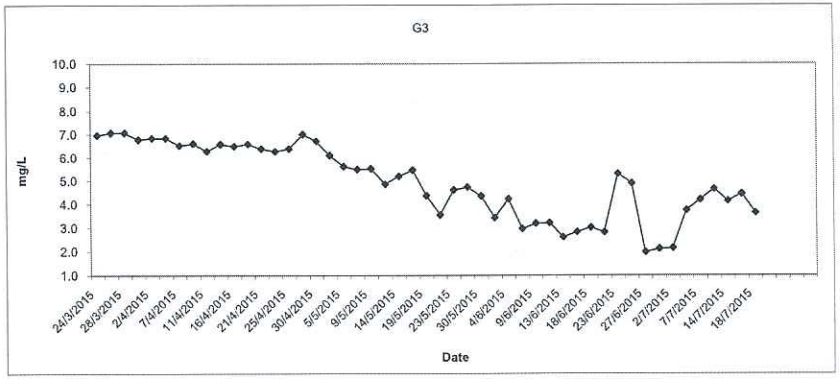




Dissolved Oxygen (Bottom) at Mid-Ebb Tide

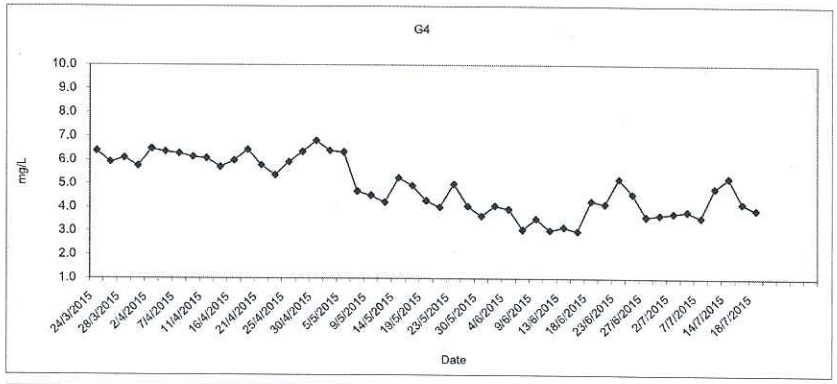


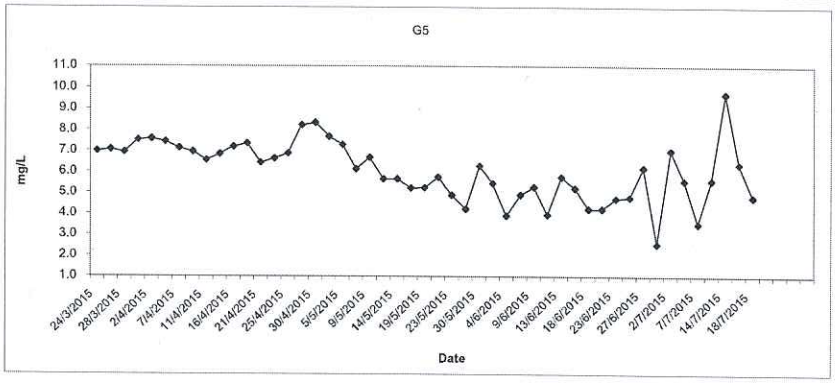


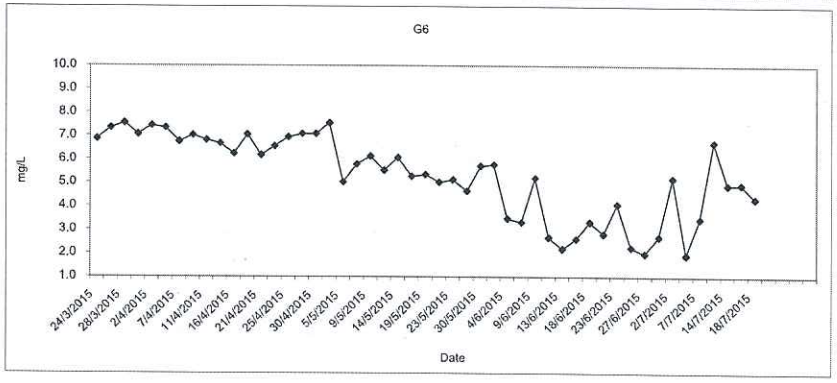


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

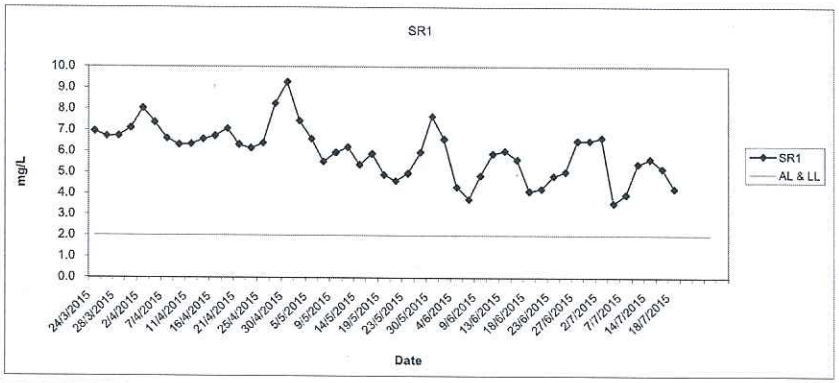
Dissolved Oxygen (Bottom) at Mid-Ebb Tide

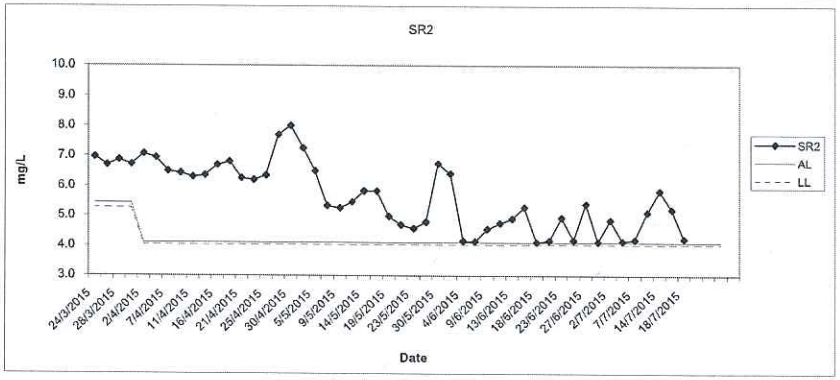


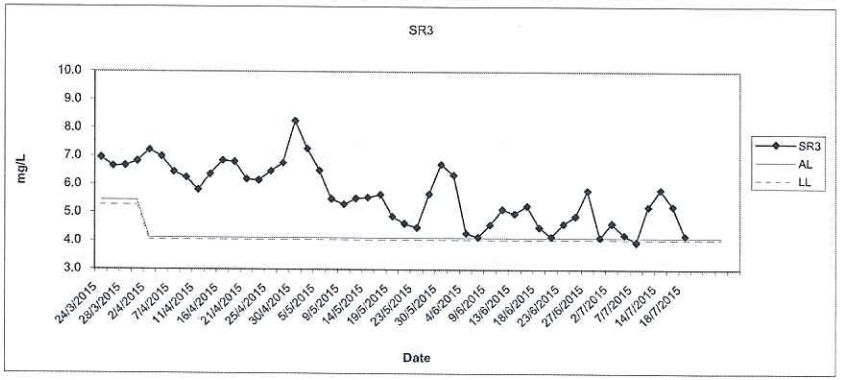




Dissolved Oxygen (Bottom) at Mid-Ebb Tide

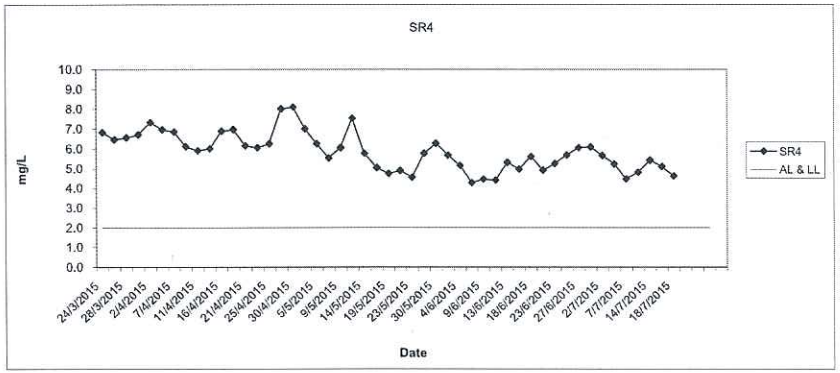


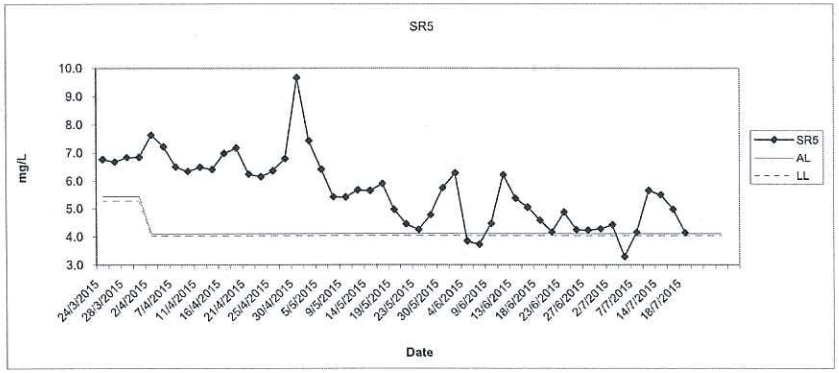


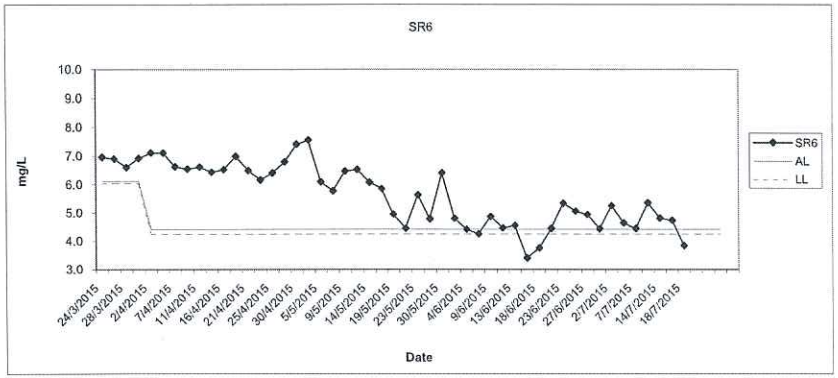


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

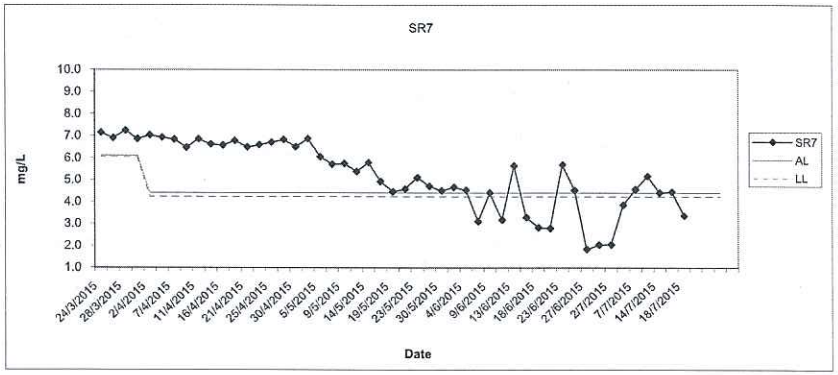
Dissolved Oxygen (Bottom) at Mid-Ebb Tide

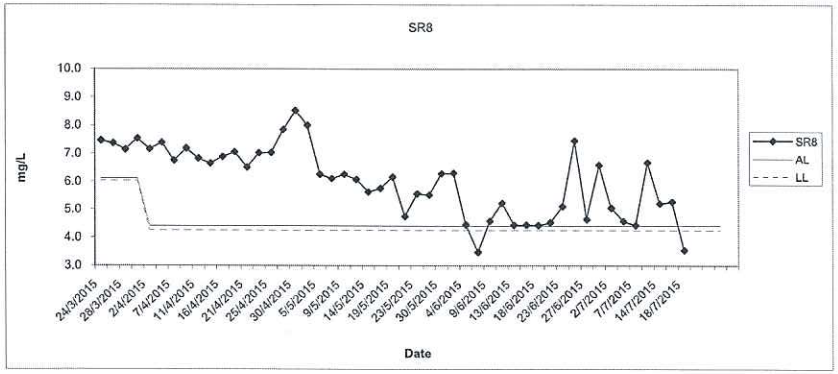


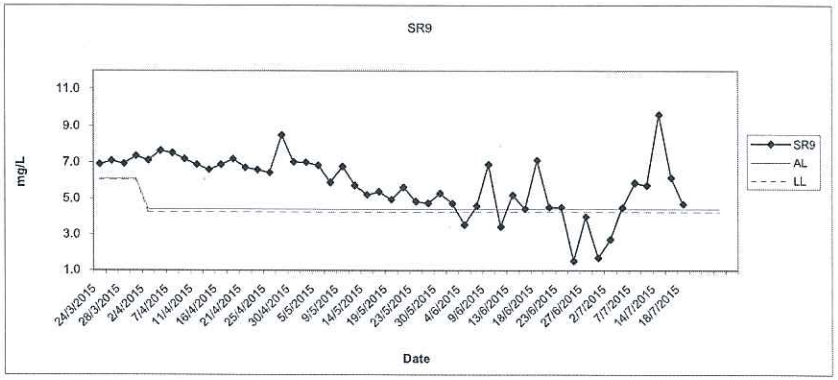




Dissolved Oxygen (Bottom) at Mid-Ebb Tide

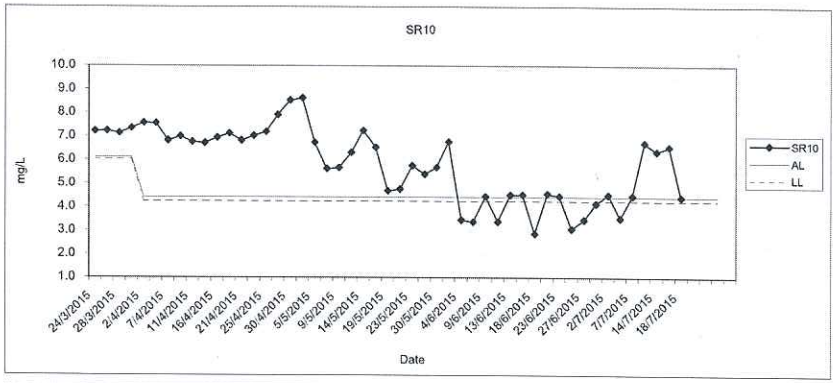


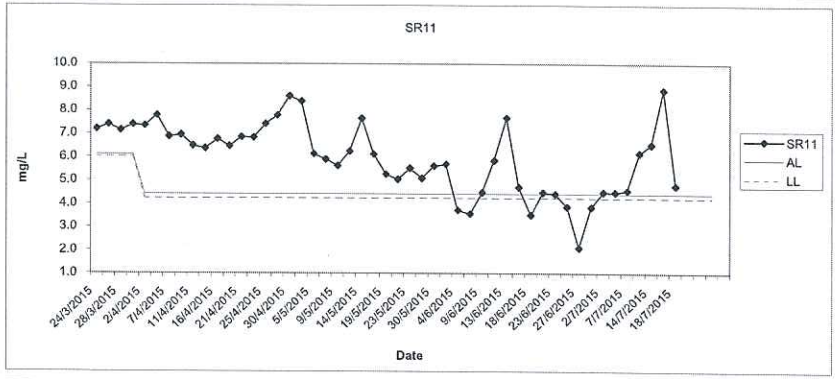


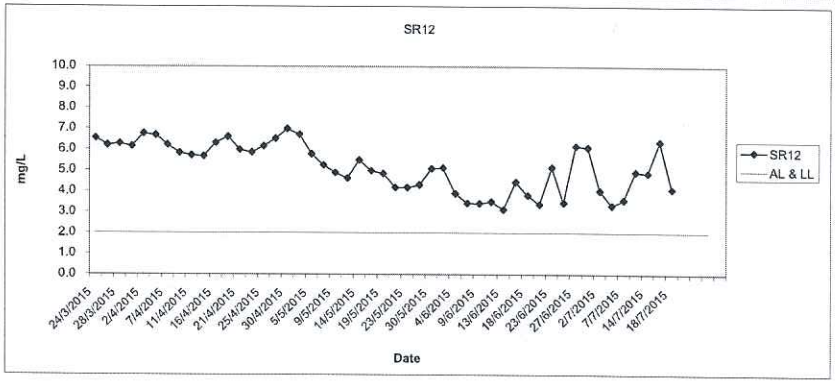


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

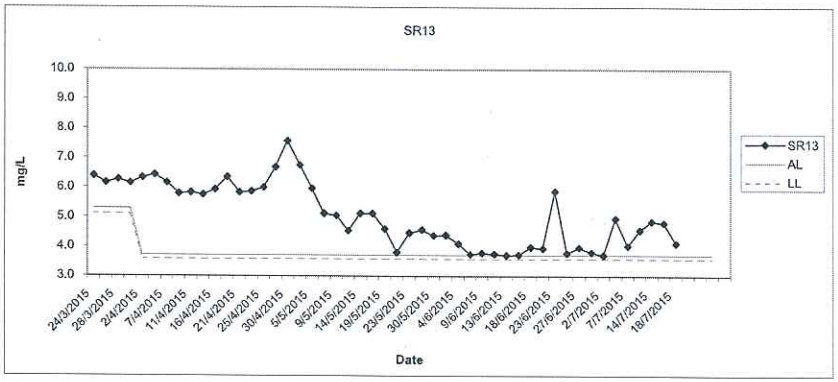
Dissolved Oxygen (Bottom) at Mid-Ebb Tide





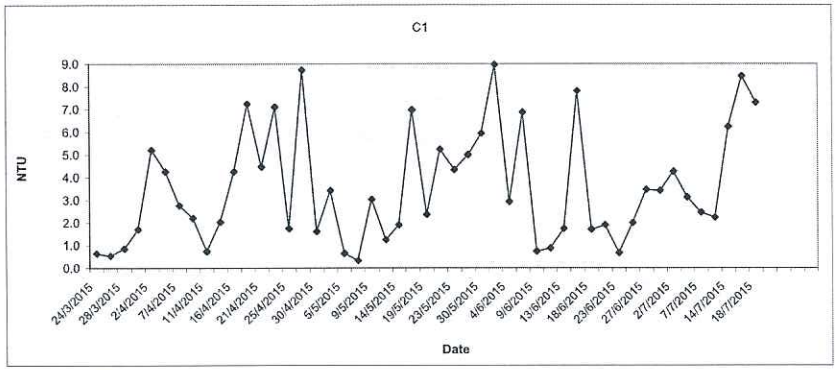


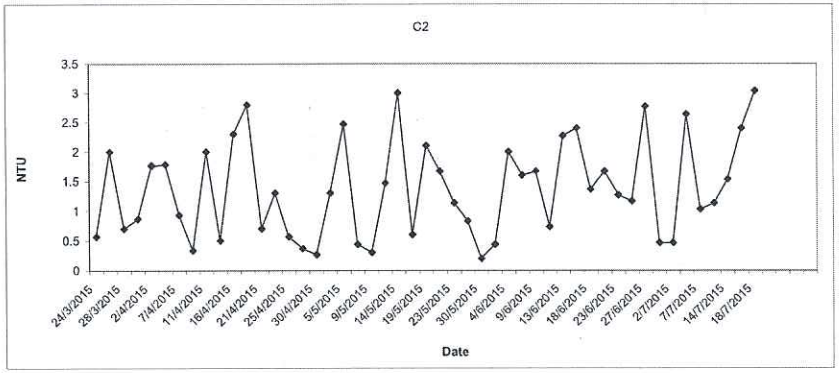
Dissolved Oxygen (Bottom) at Mid-Ebb Tide

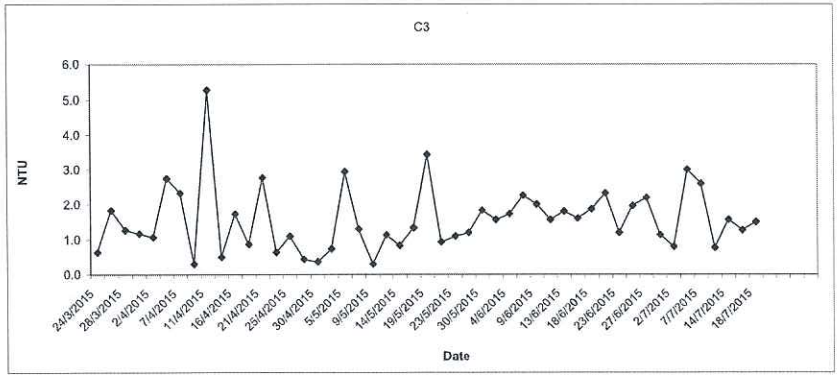


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

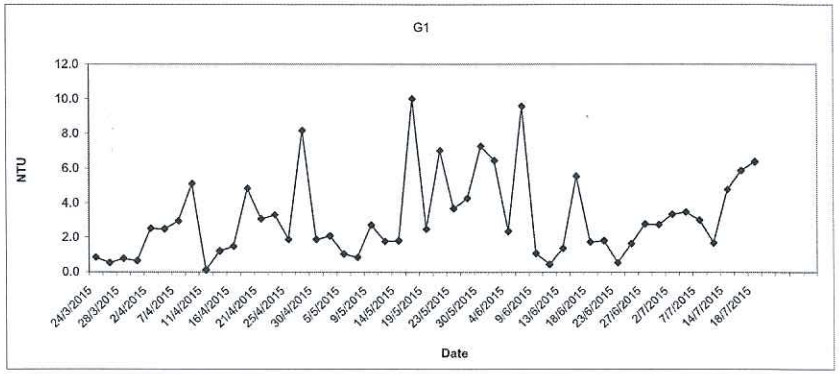
Turbidity (Depth average) at Mid-Ebb Tide

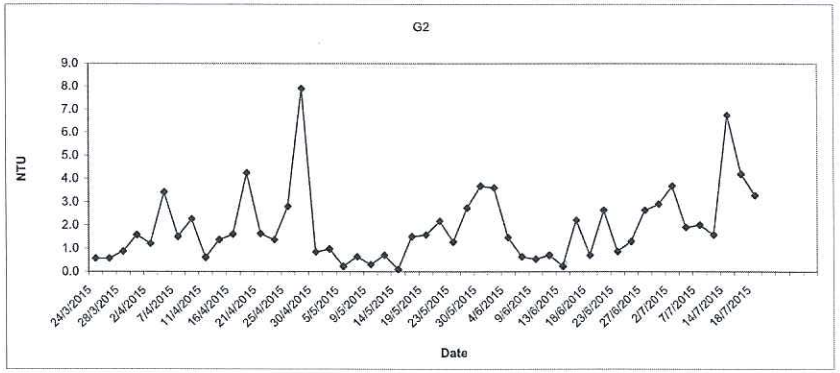


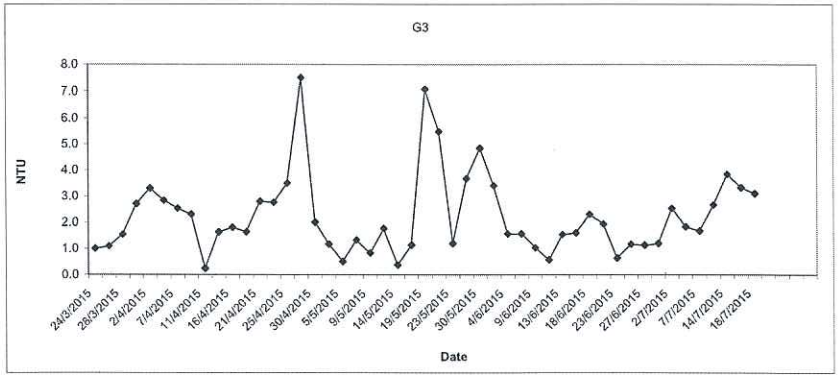




Turbidity (Depth average) at Mid-Ebb Tide

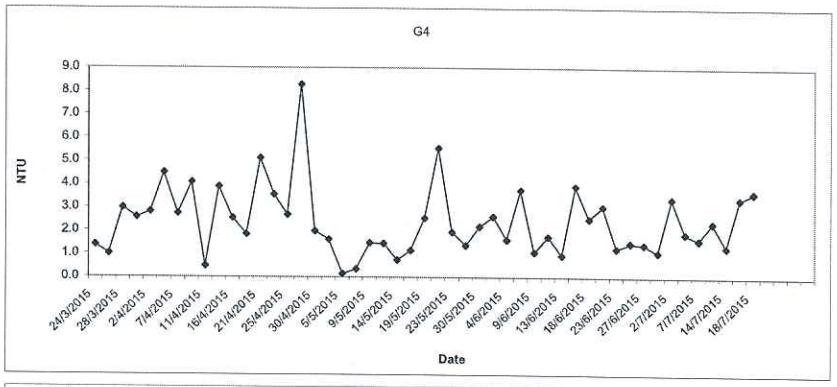


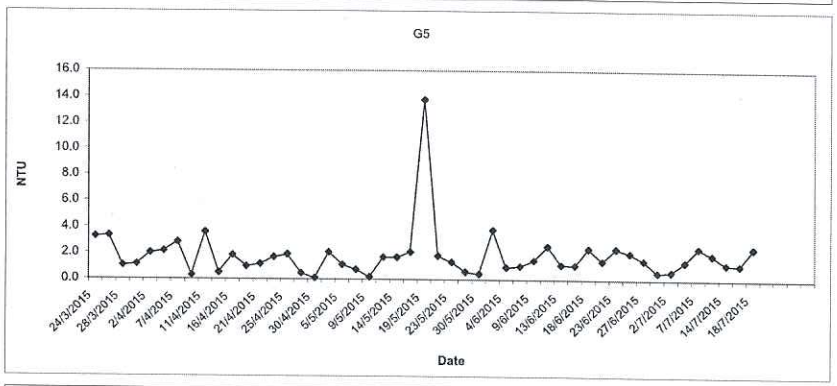


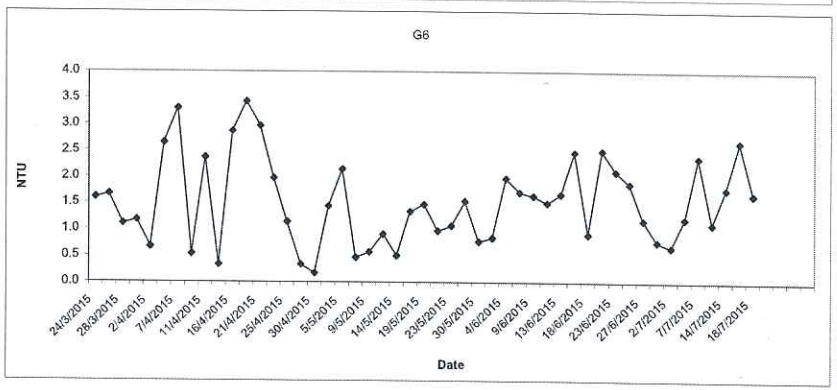


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

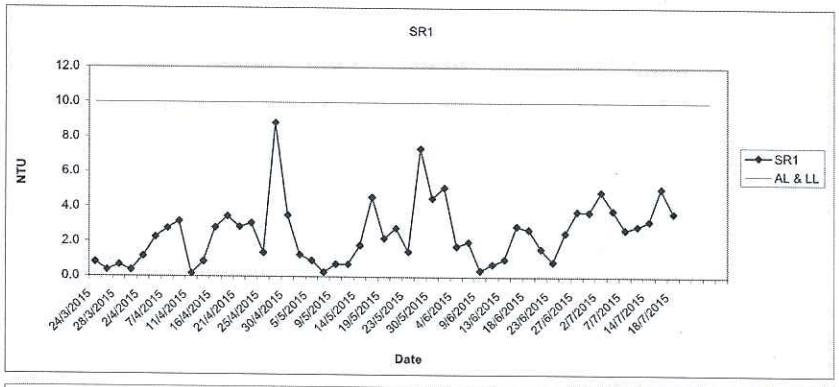
Turbidity (Depth average) at Mid-Ebb Tide

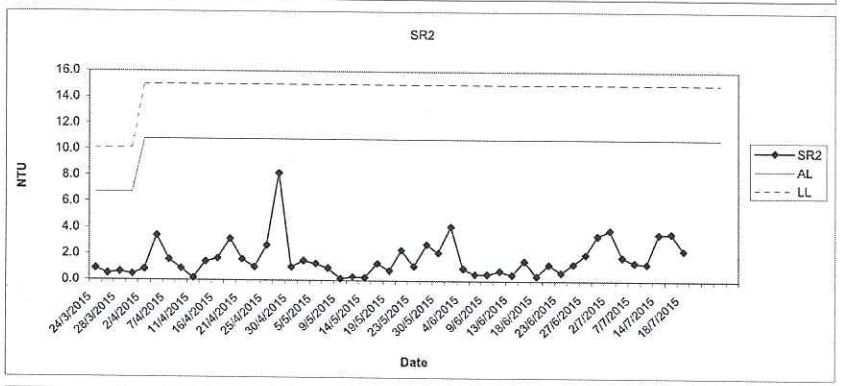


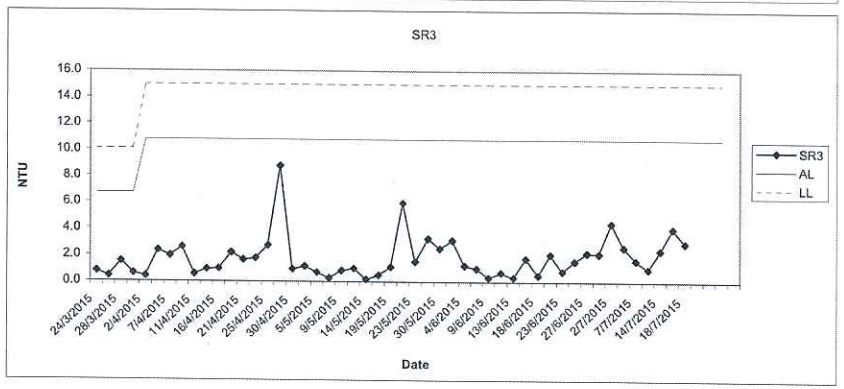




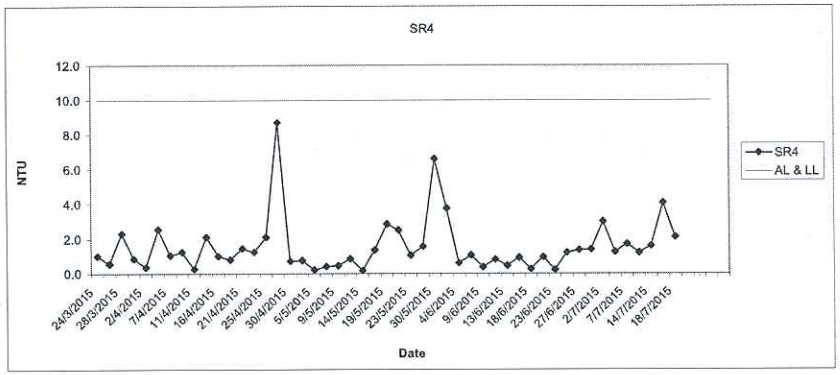
Turbidity (Depth average) at Mid-Ebb Tide

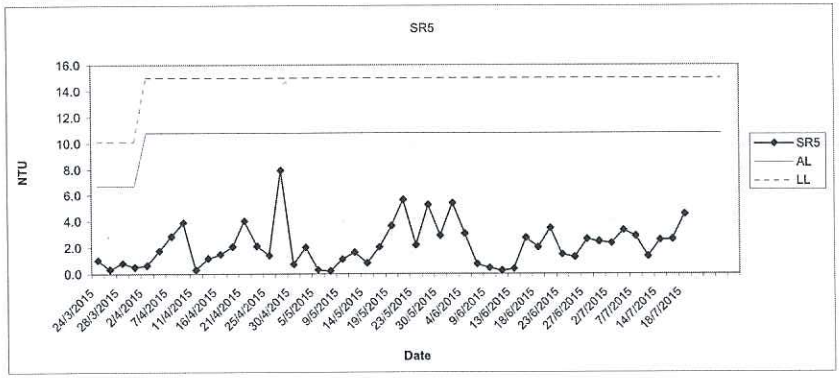


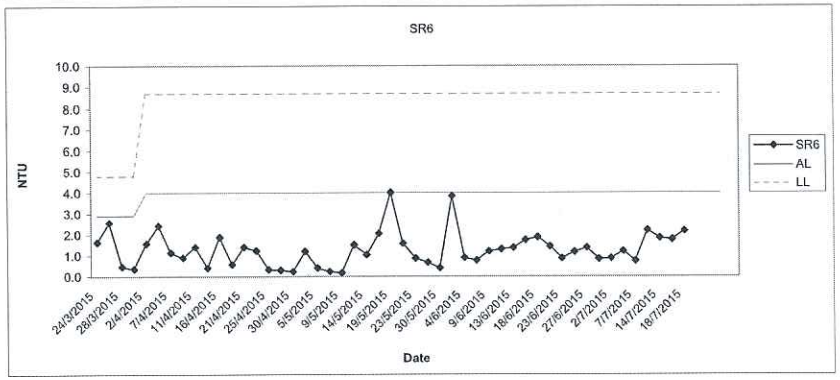




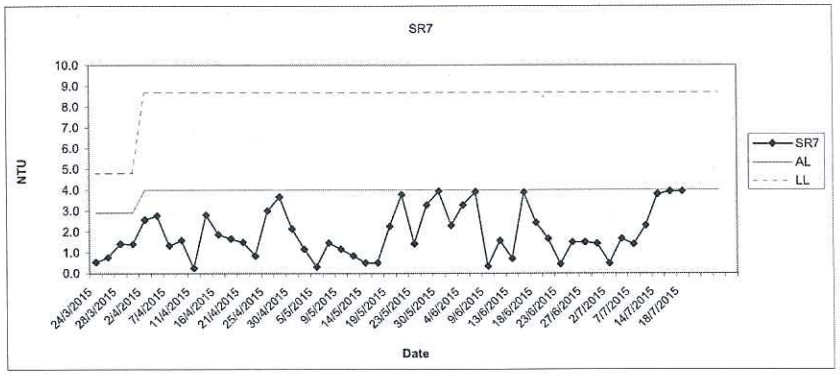
Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

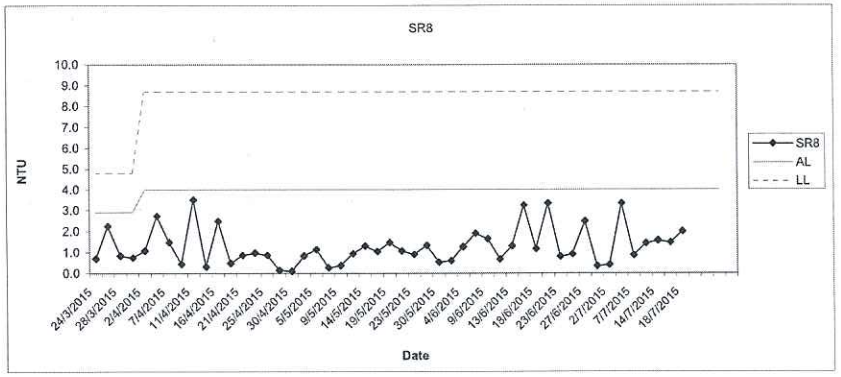


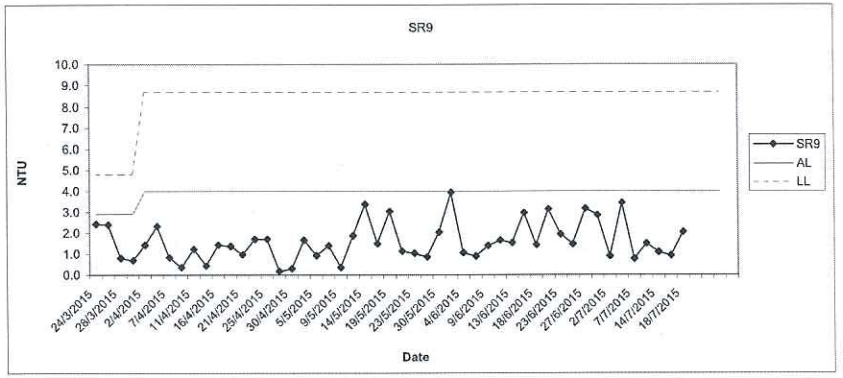




Turbidity (Depth average) at Mid-Ebb Tide

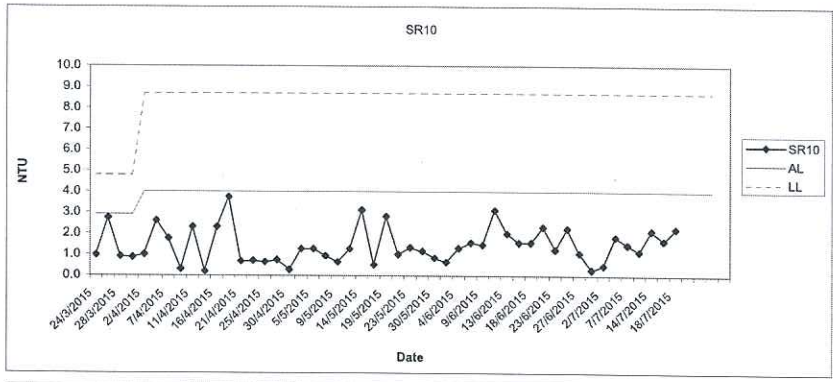


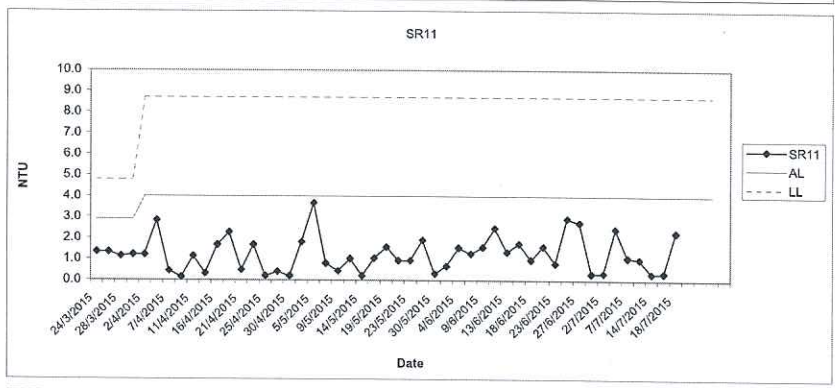


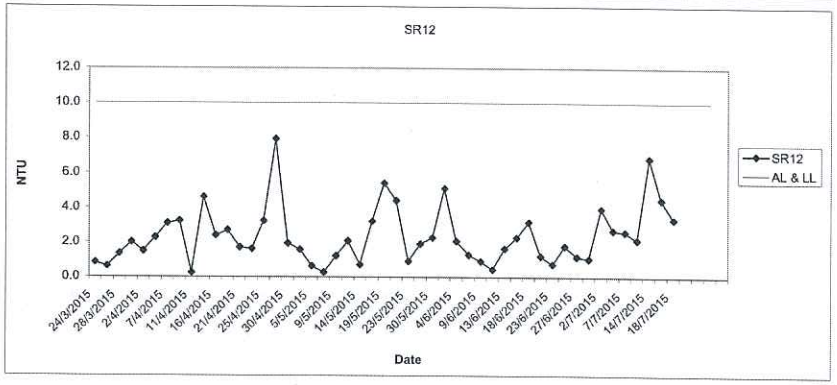


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

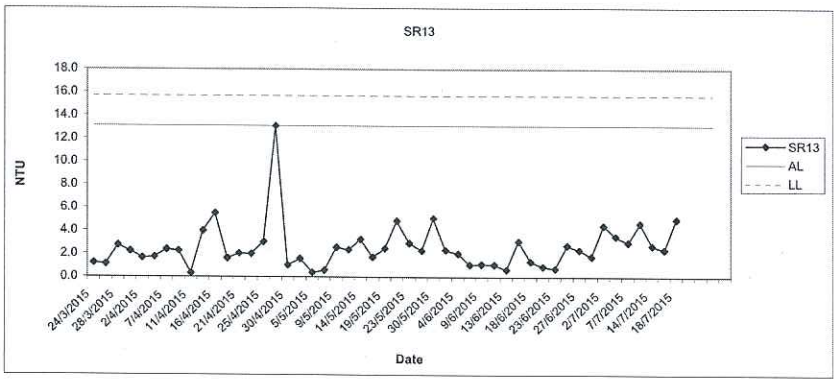
Turbidity (Depth average) at Mid-Ebb Tide





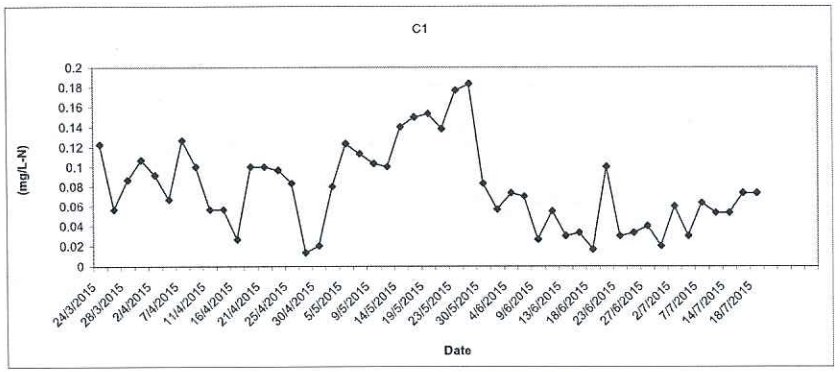


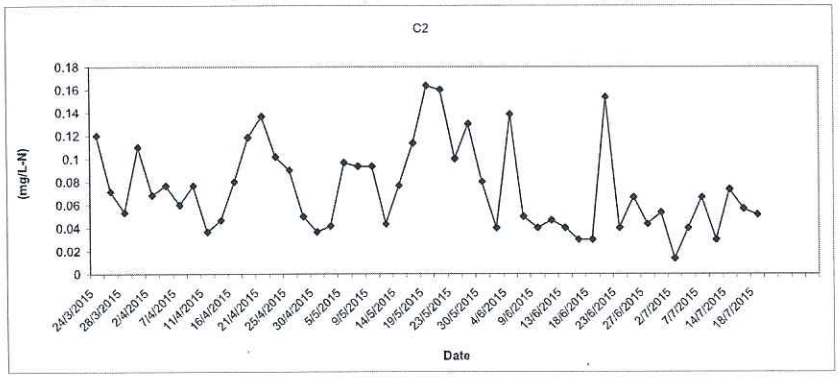
Turbidity (Depth average) at Mid-Ebb Tide

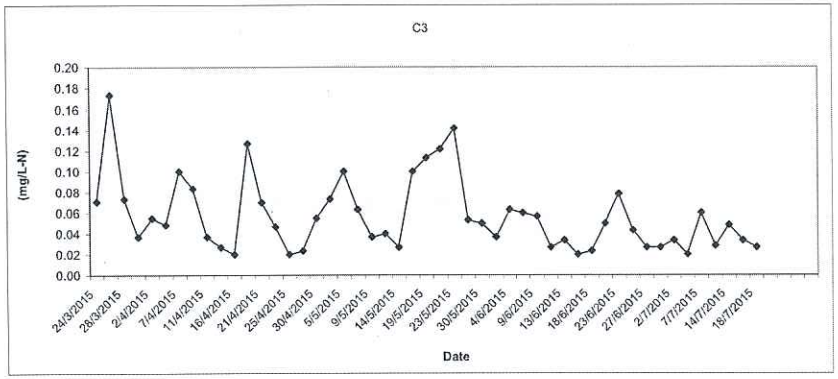


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

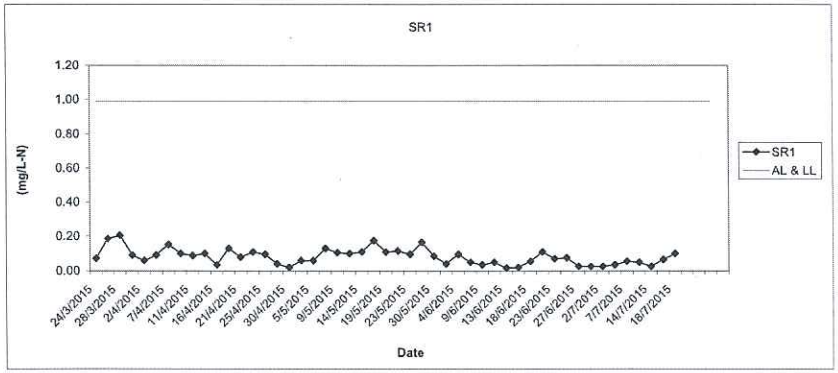
In-situ Ammonia (Depth average) at Mid-Ebb Tide

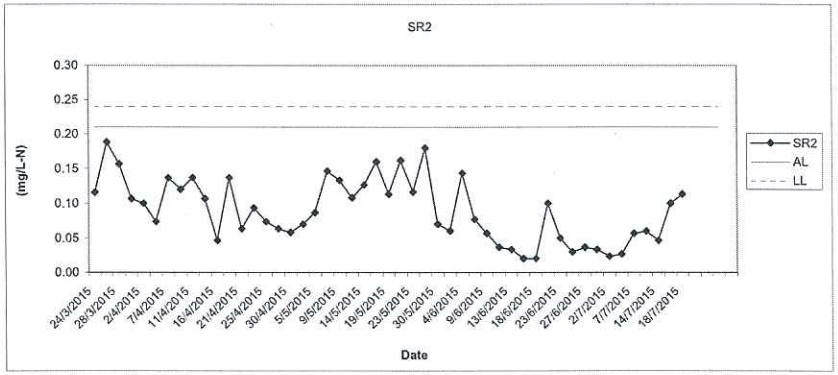


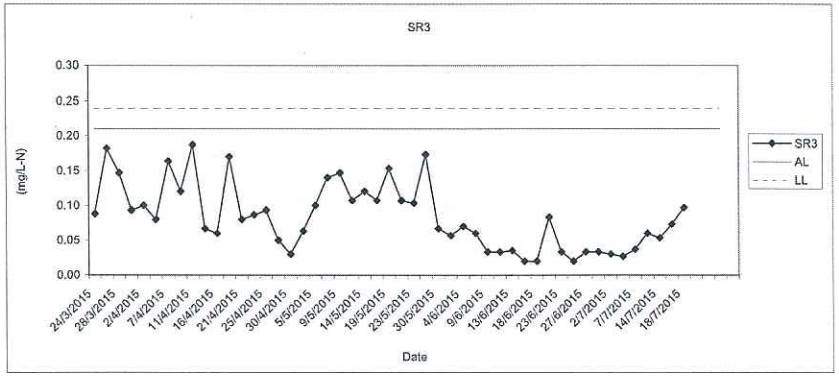




In-situ Ammonia (Depth average) at Mid-Ebb Tide

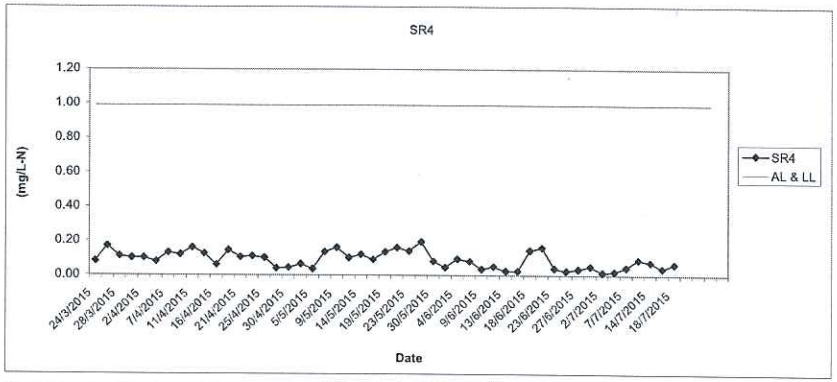


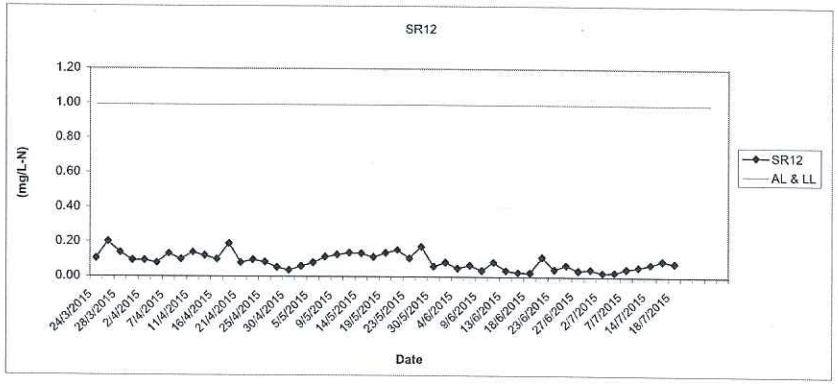




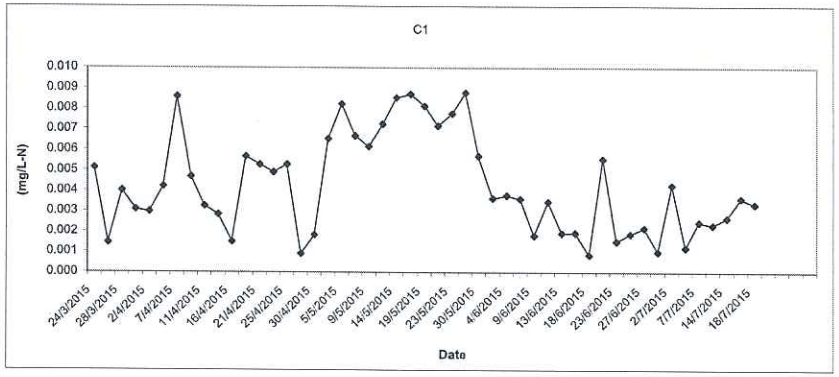
Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

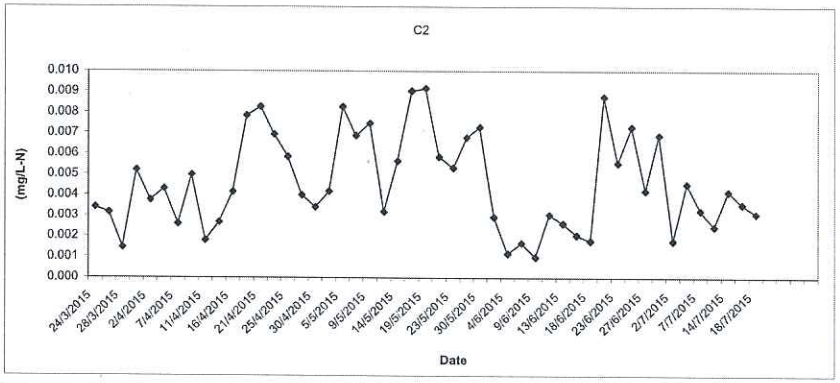
In-situ Ammonia (Depth average) at Mid-Ebb Tide

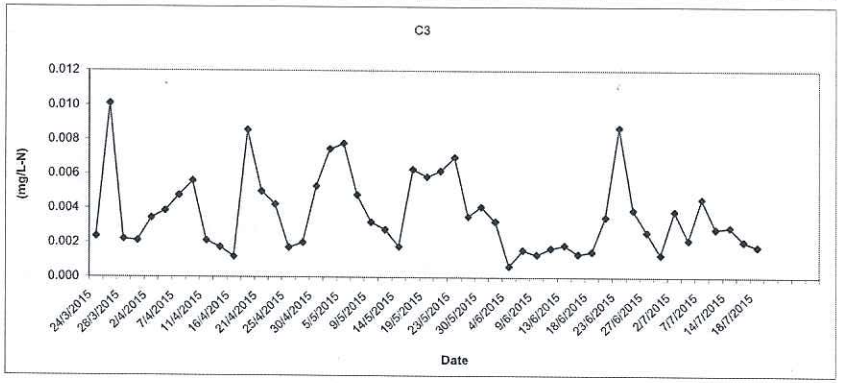




In-situ UIA (Depth average) at Mid-Ebb Tide

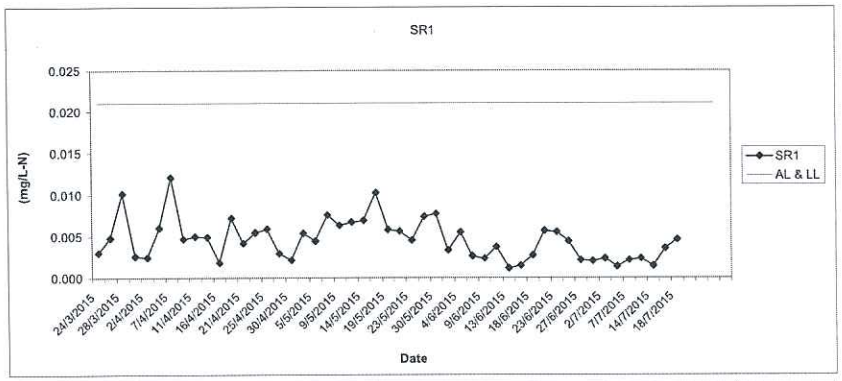


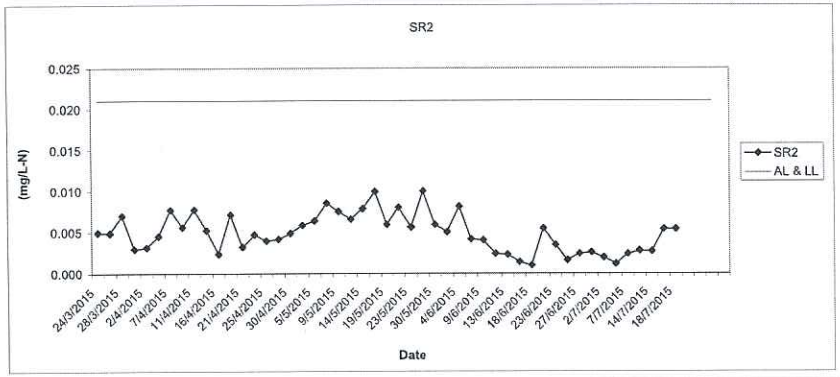


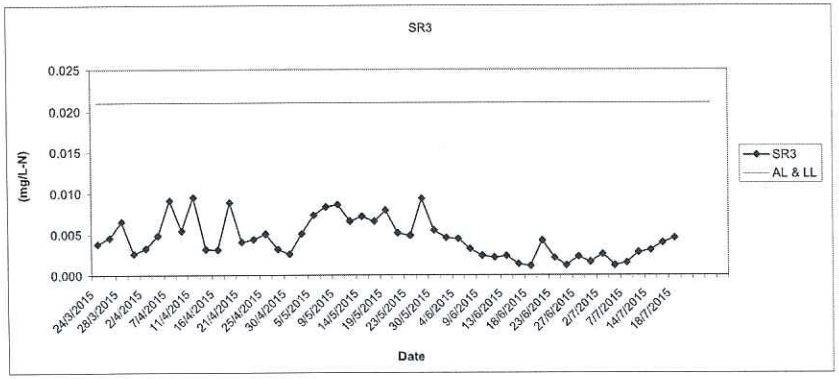


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

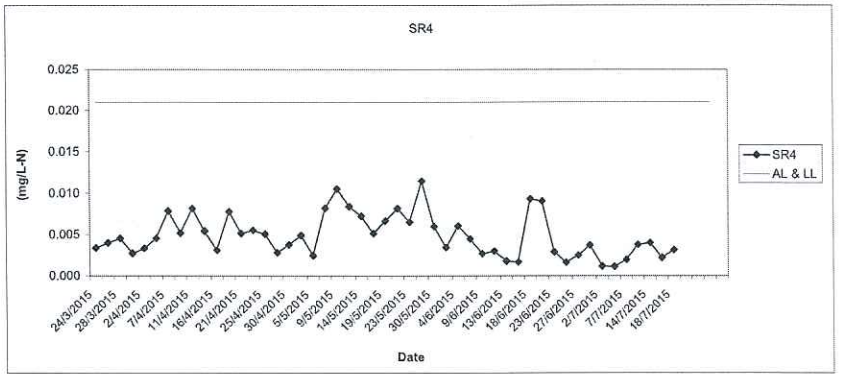
In-situ UIA (Depth average) at Mid-Ebb Tide

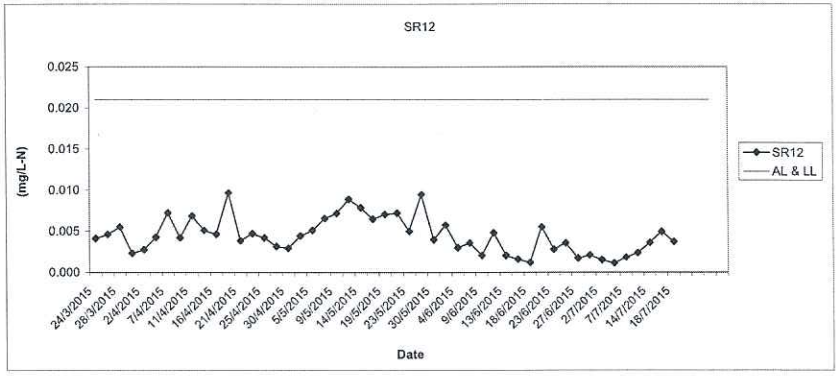






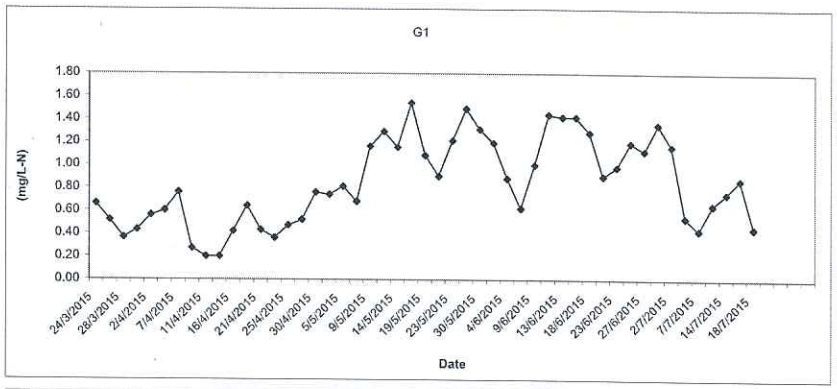
In-situ UIA (Depth average) at Mid-Ebb Tide

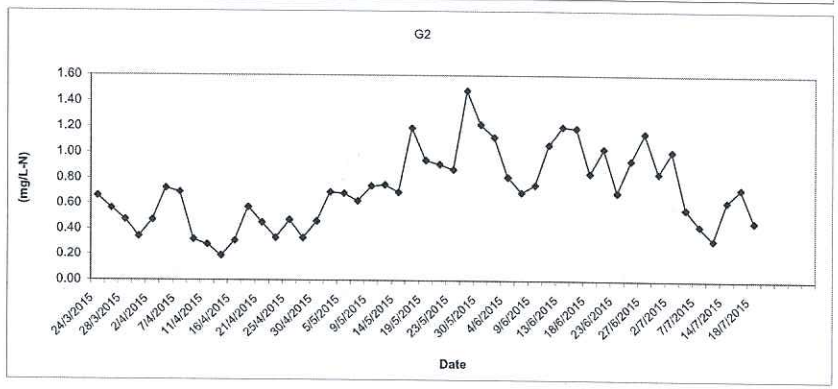


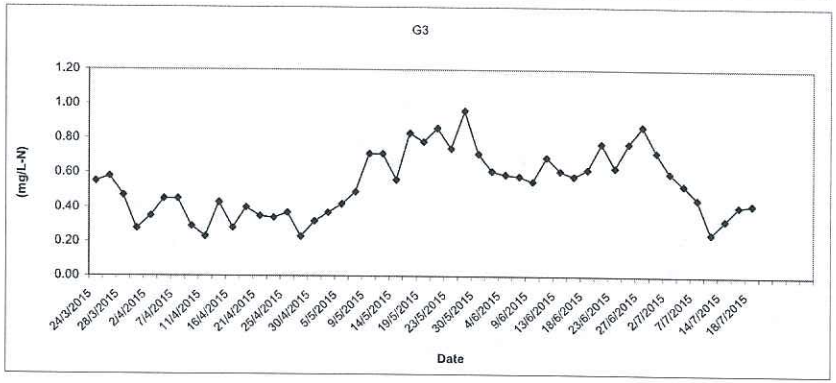


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

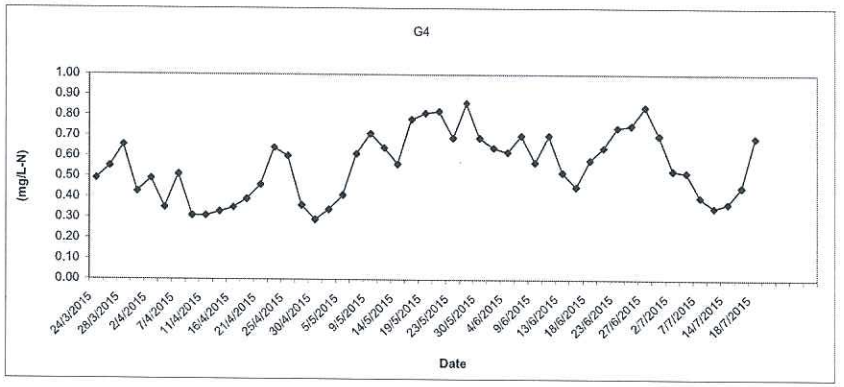
In-situ TIN (Depth average) at Mid-Ebb Tide

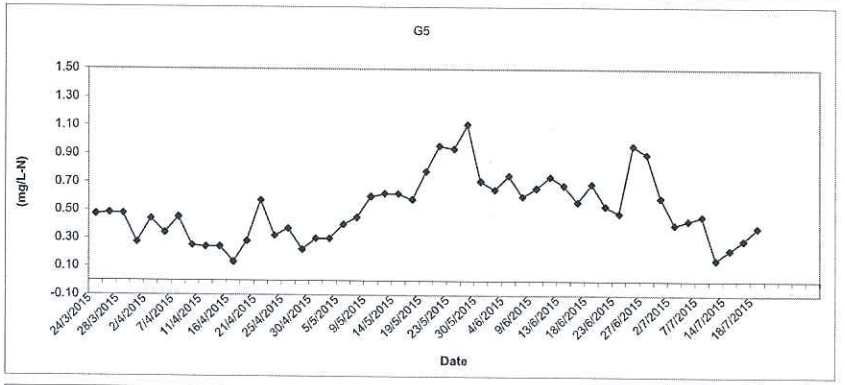


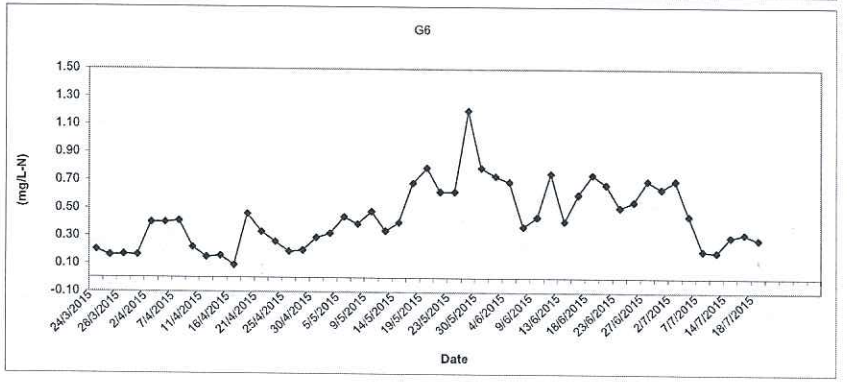




In-situ TIN (Depth average) at Mid-Ebb Tide

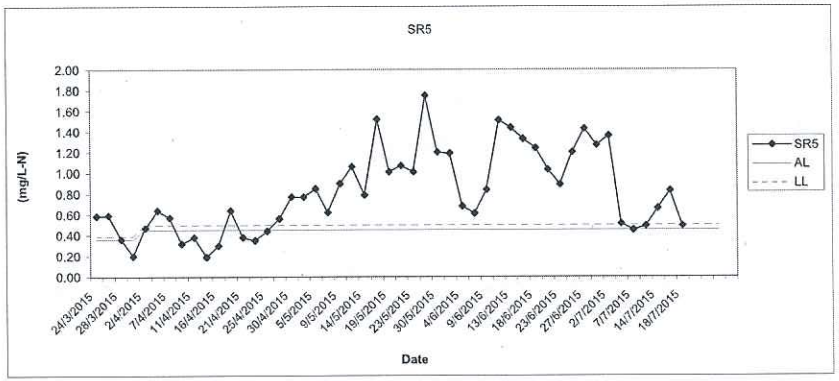


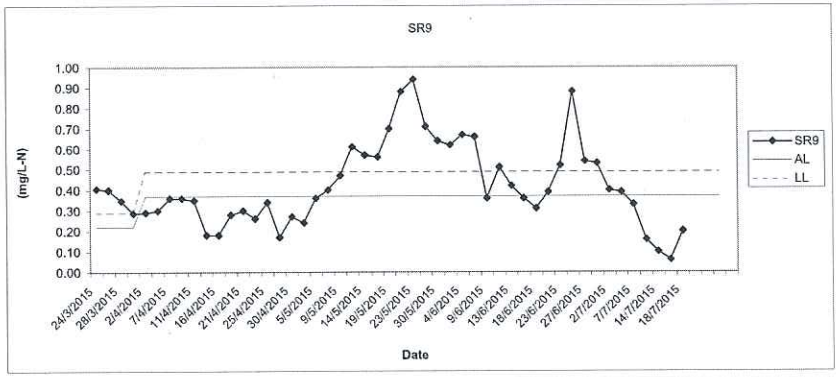


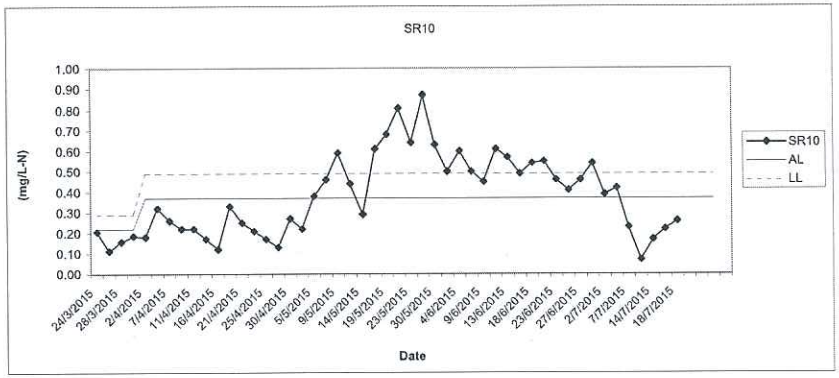


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

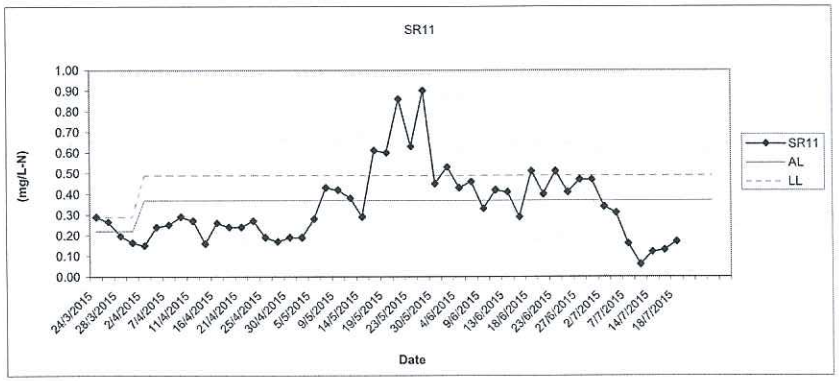
In-situ TIN (Depth average) at Mid-Ebb Tide





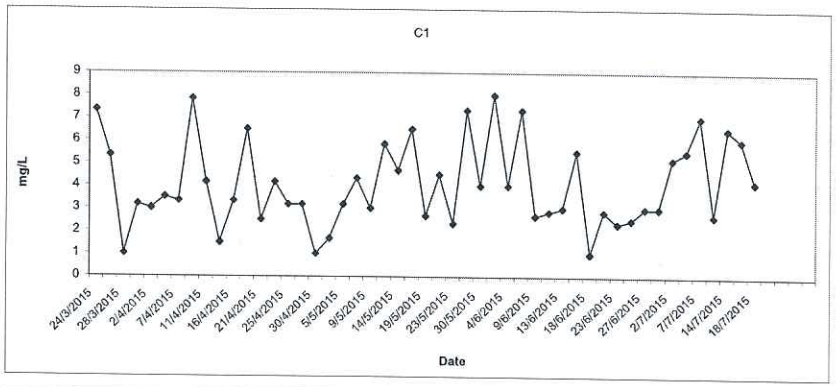


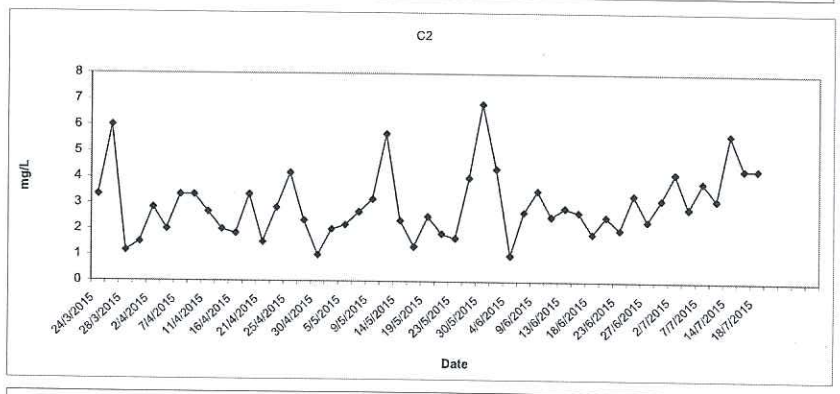
In-situ TIN (Depth average) at Mid-Ebb Tide

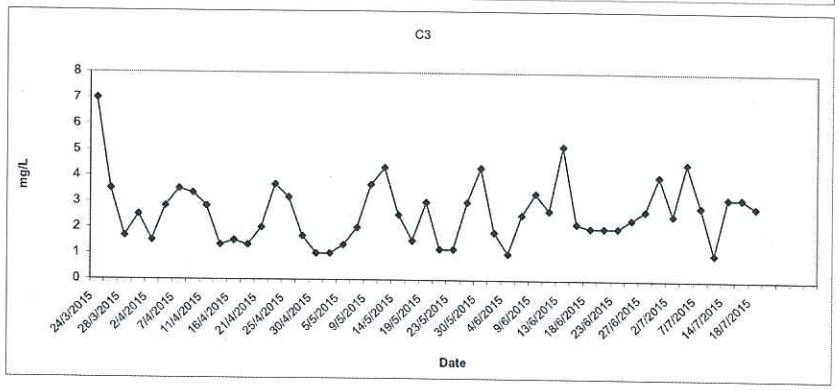


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

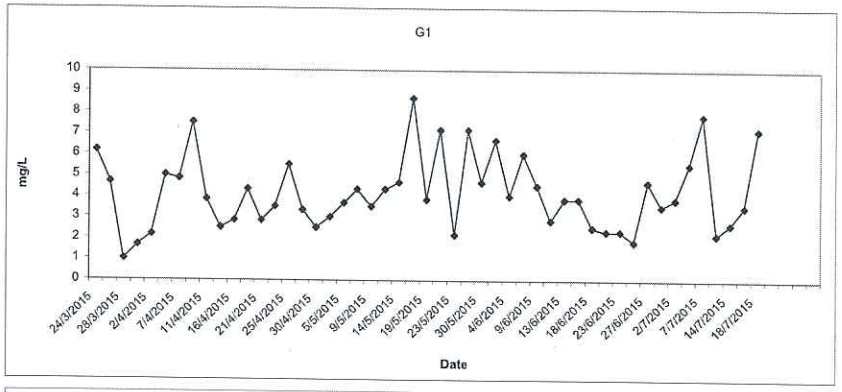
Total Suspended Solids (Depth average) at Mid-Ebb Tide

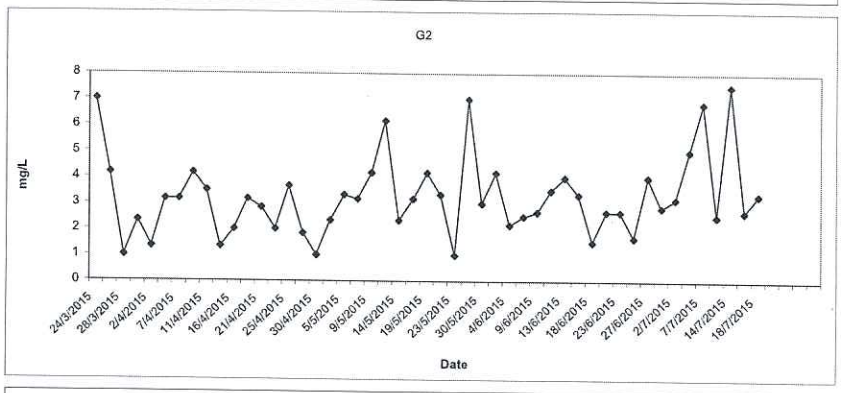


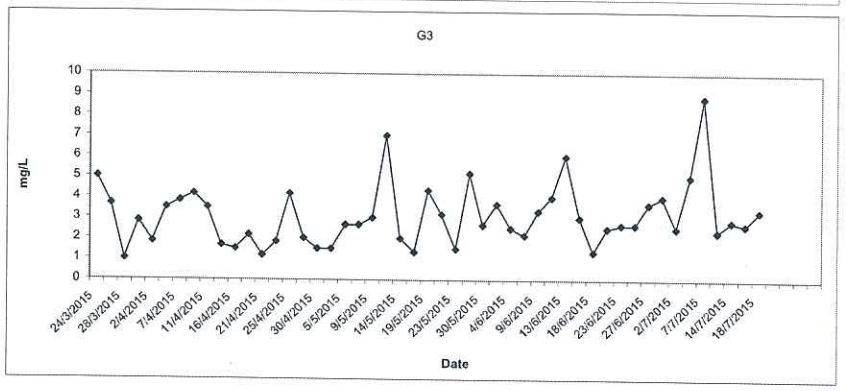




Total Suspended Solids (Depth average) at Mid-Ebb Tide

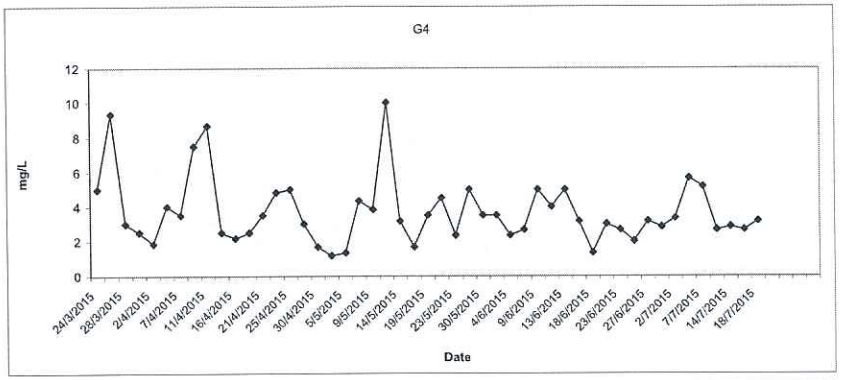


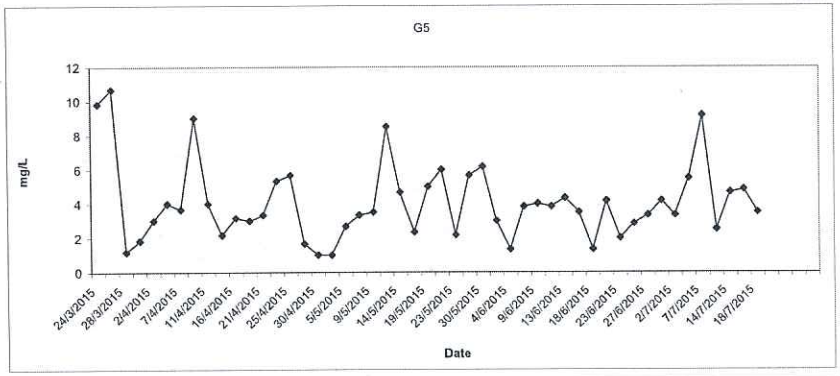


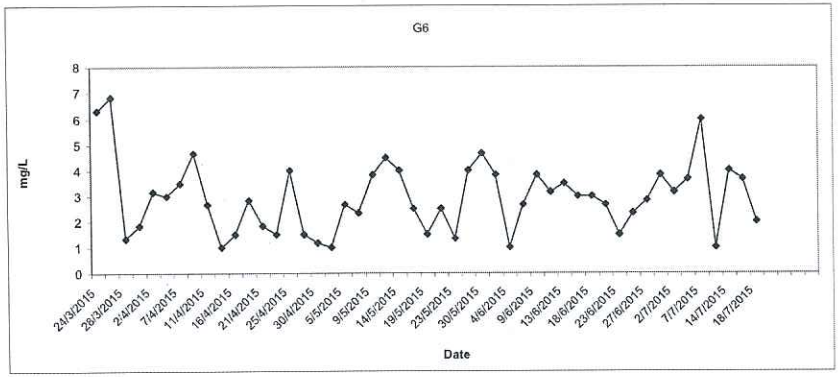


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

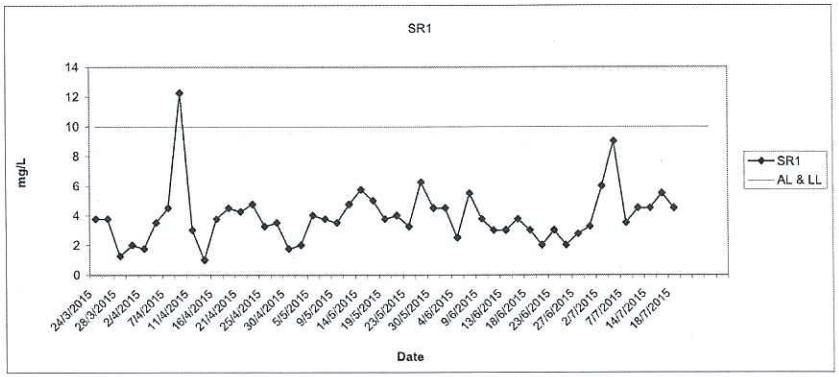
Total Suspended Solids (Depth average) at Mid-Ebb Tide

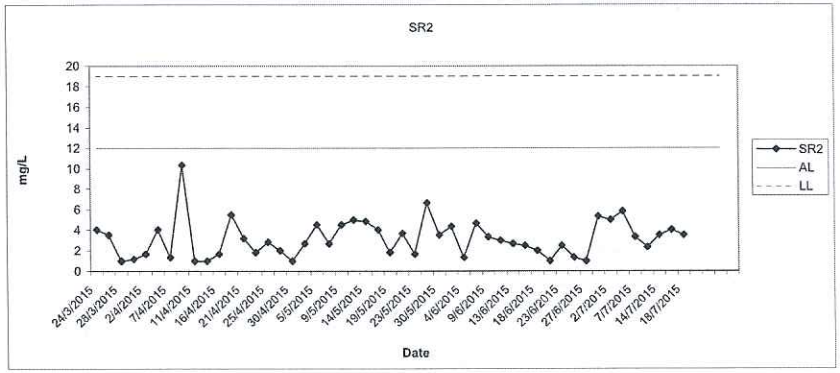


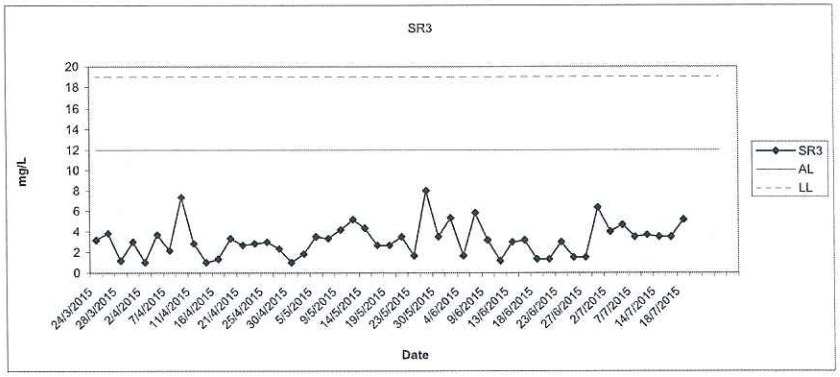




Total Suspended Solids (Depth average) at Mid-Ebb Tide

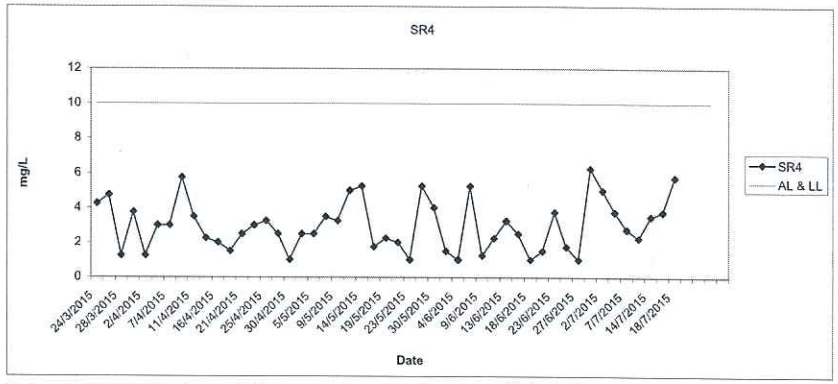


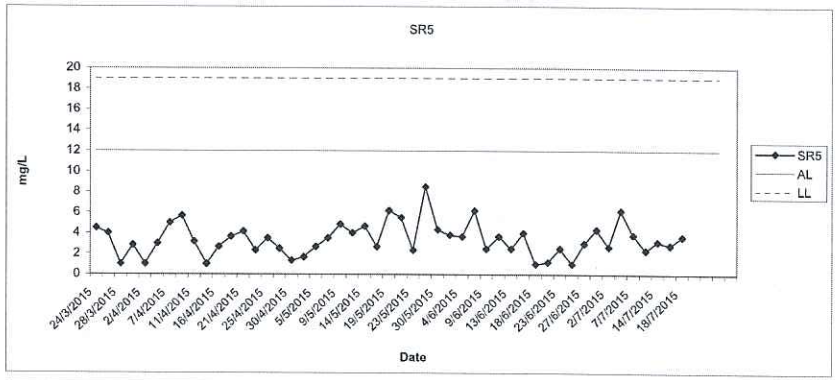


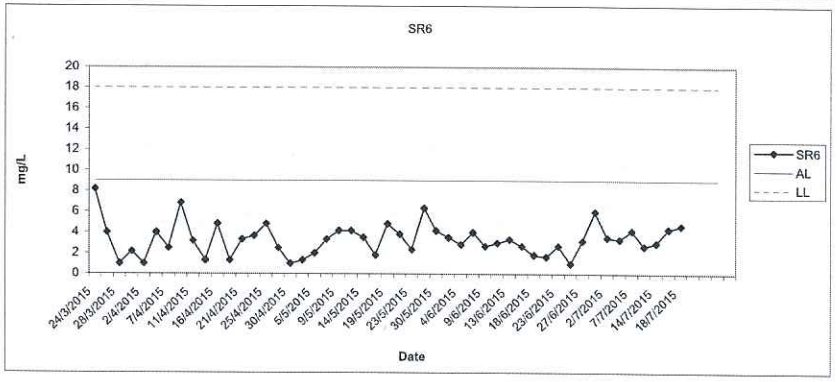


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

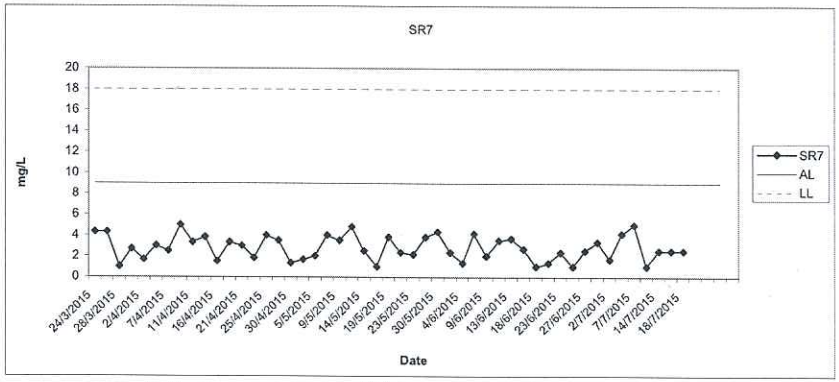
Total Suspended Solids (Depth average) at Mid-Ebb Tide

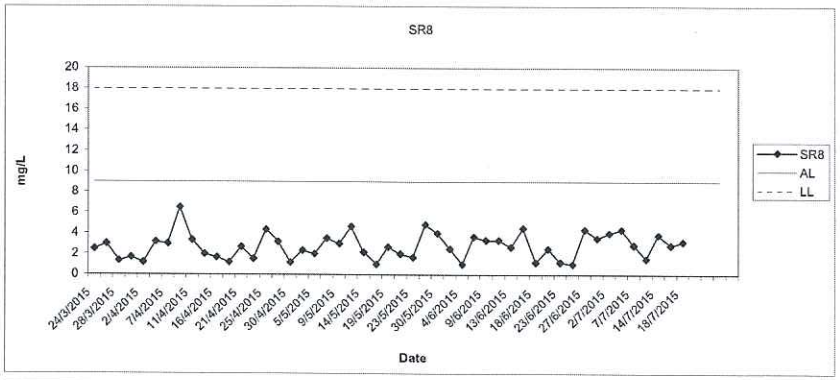


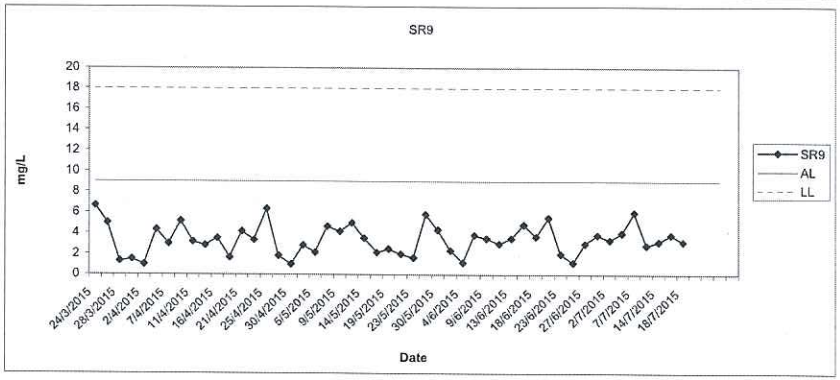




Total Suspended Solids (Depth average) at Mid-Ebb Tide

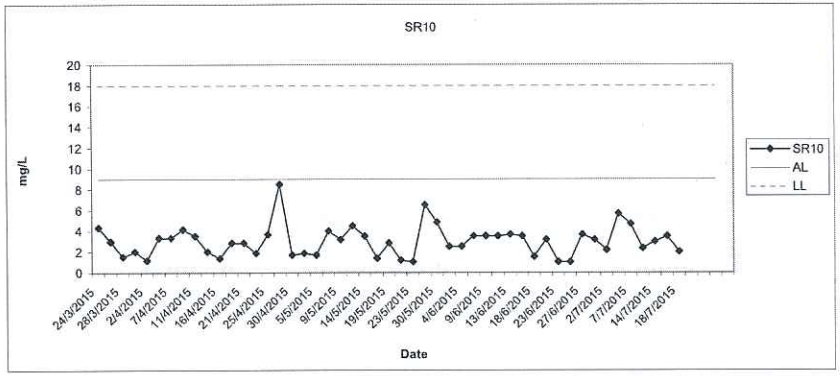


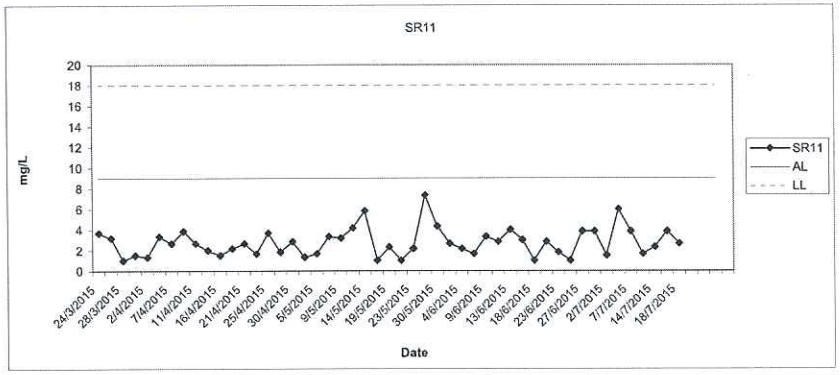


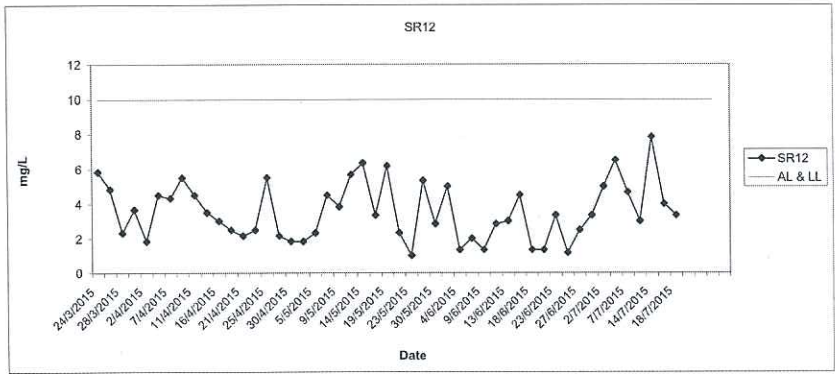


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

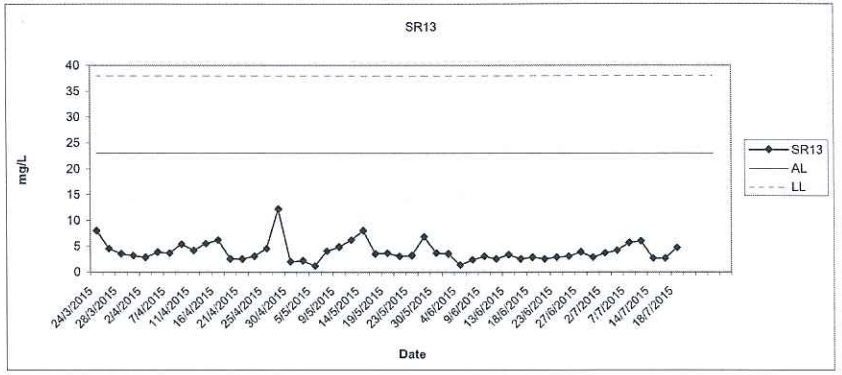
Total Suspended Solids (Depth average) at Mid-Ebb Tide





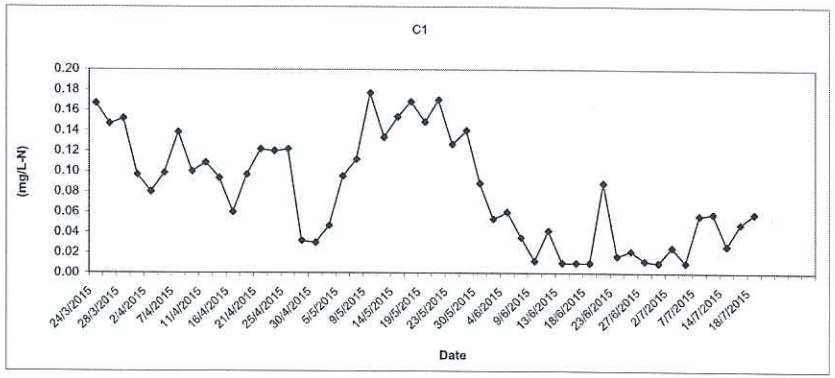


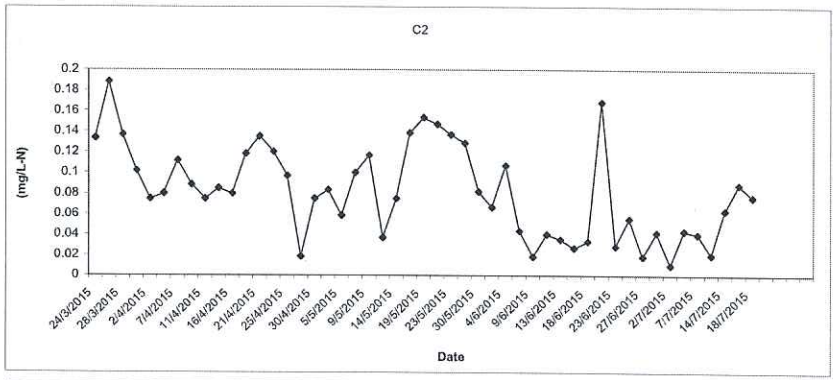
Total Suspended Solids (Depth average) at Mid-Ebb Tide

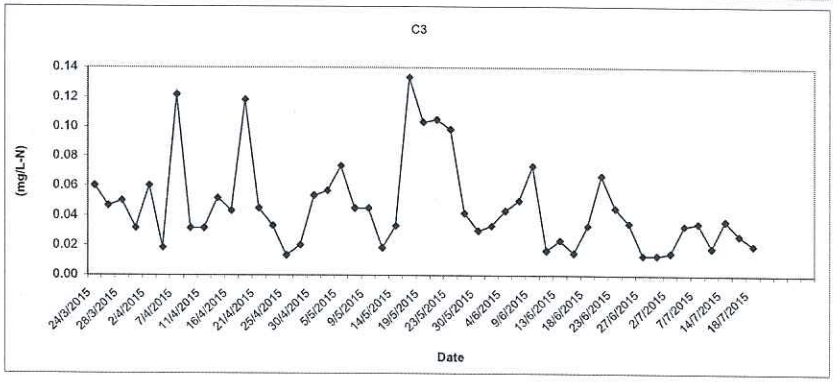


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

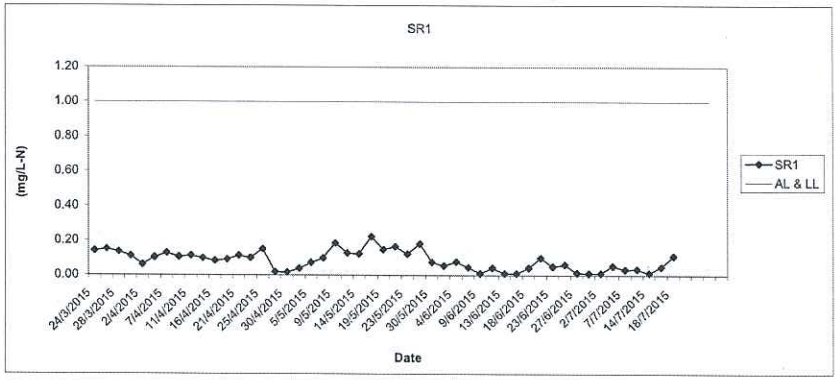
Ammonia Nitrogen (Depth average) at Mid-Ebb Tide

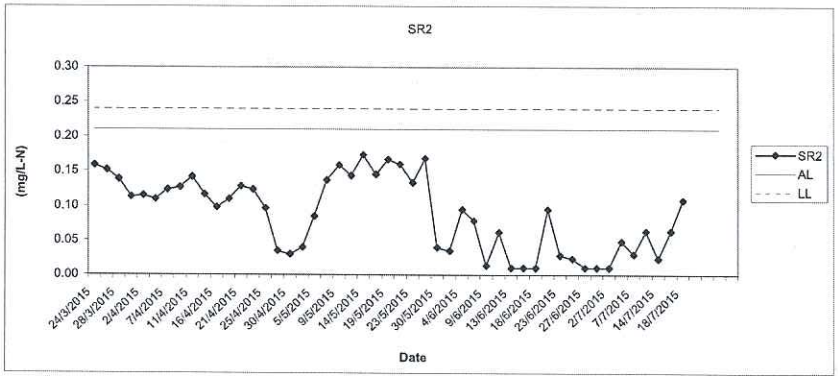


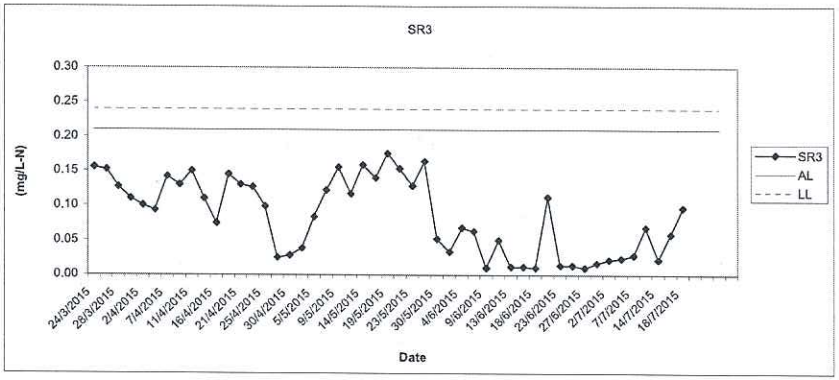




Ammonia Nitrogen (Depth average) at Mid-Ebb Tide

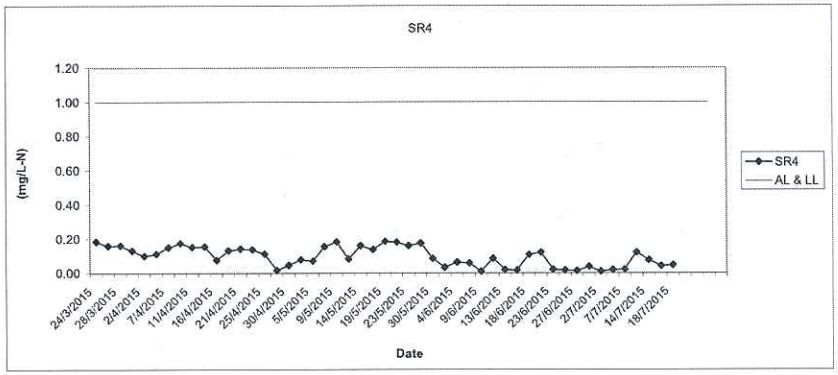


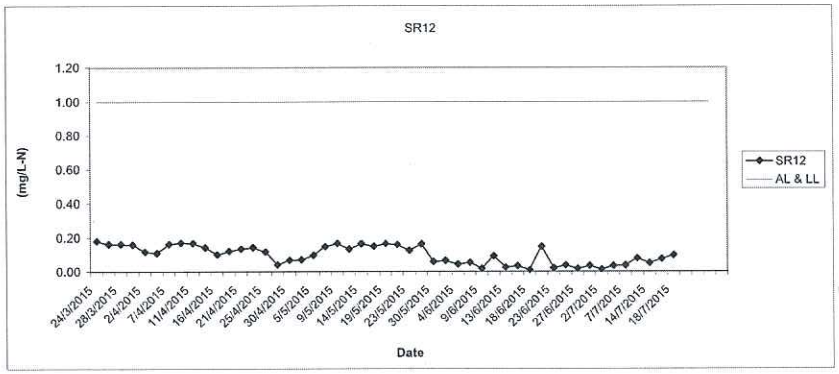




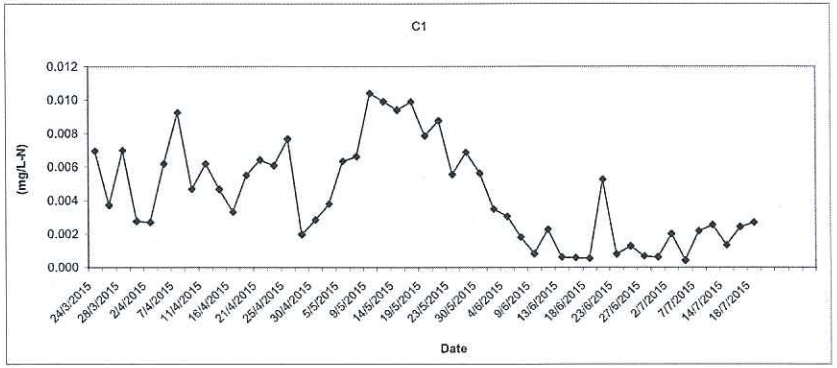
Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

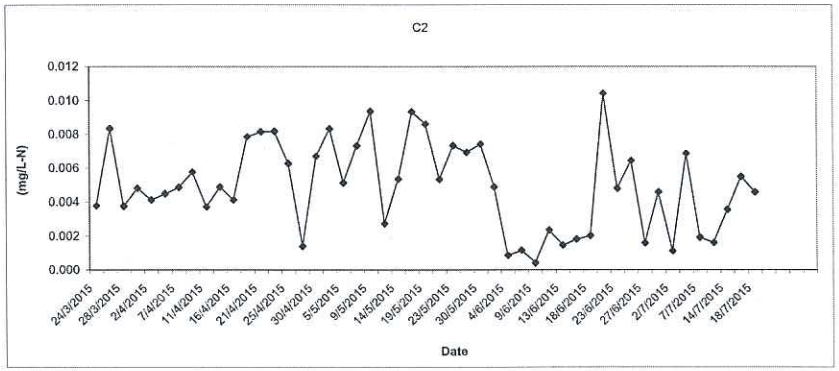
Ammonia Nitrogen (Depth average) at Mid-Ebb Tide

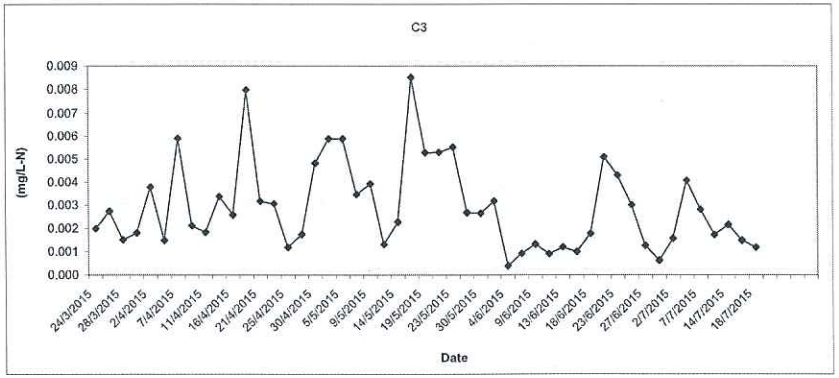




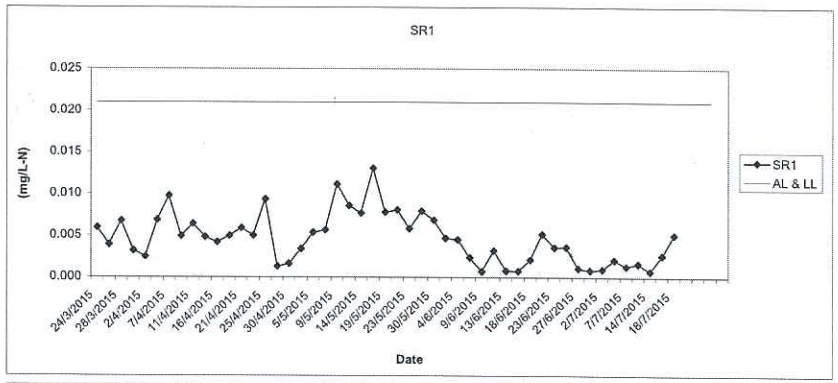
Laboratory Analysis UIA (Depth average) at Mid-Ebb Tide

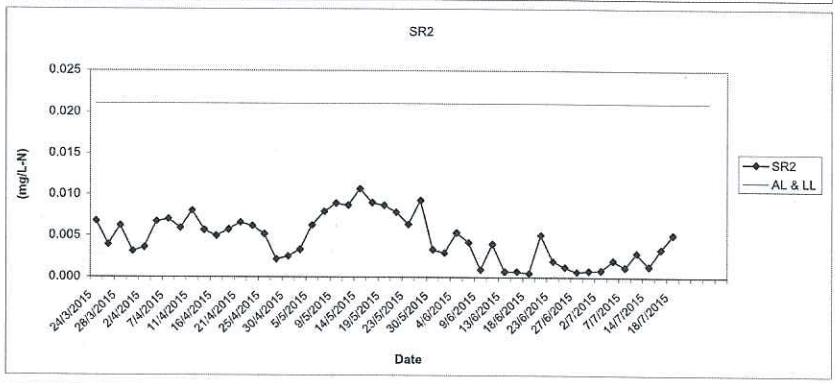


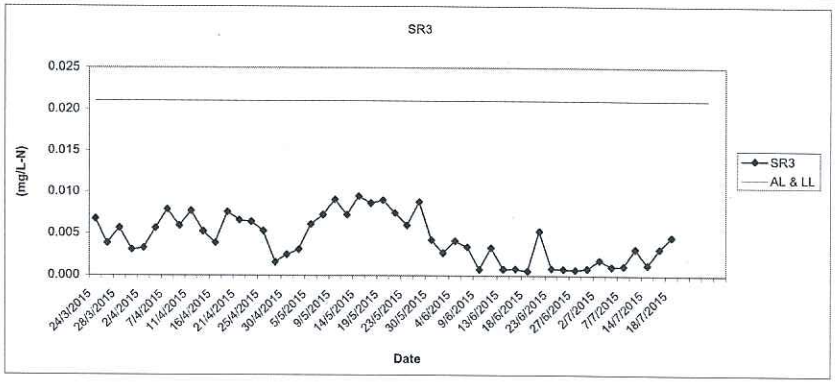




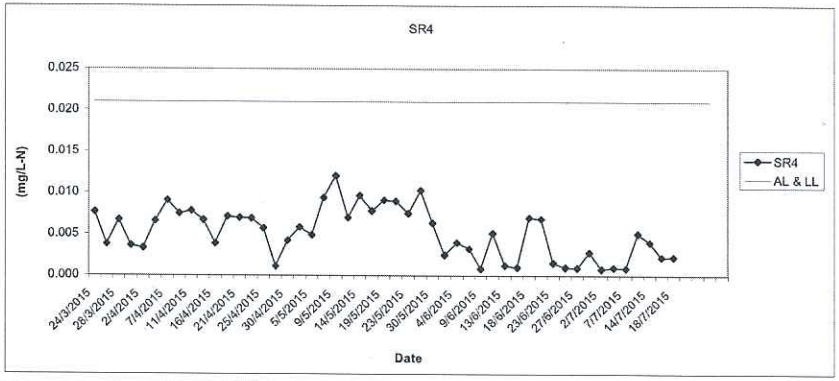
Laboratory Analysis UIA (Depth average) at Mid-Ebb Tide

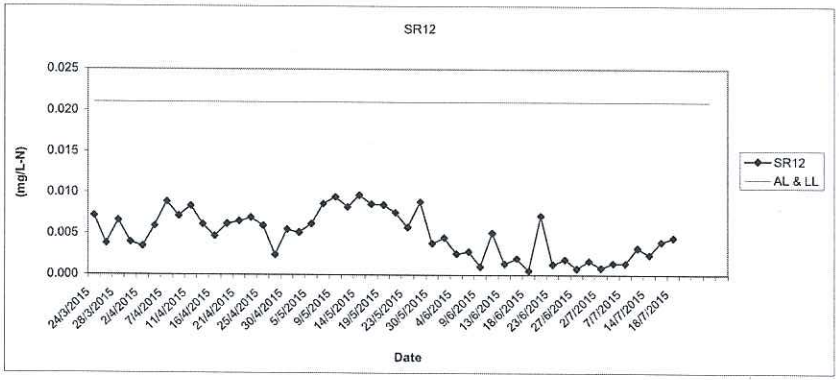






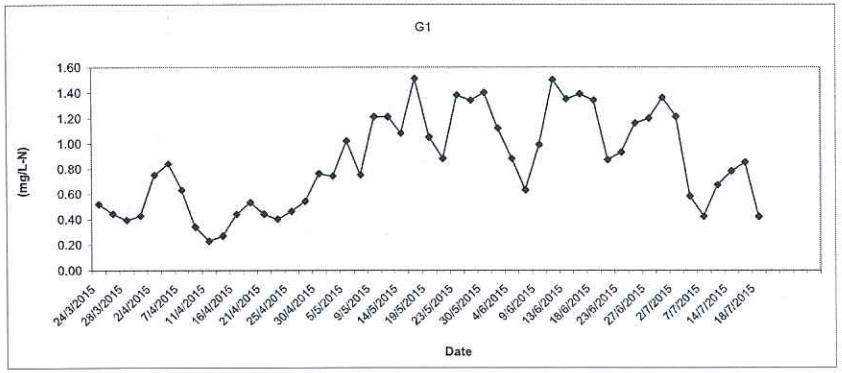
Laboratory Analysis UIA (Depth average) at Mid-Ebb Tide

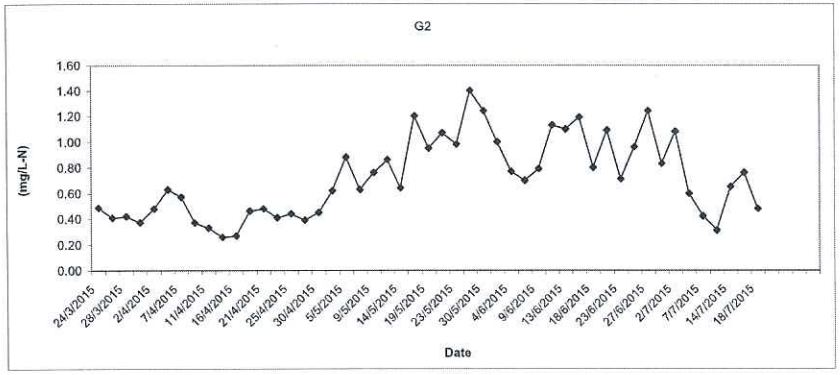


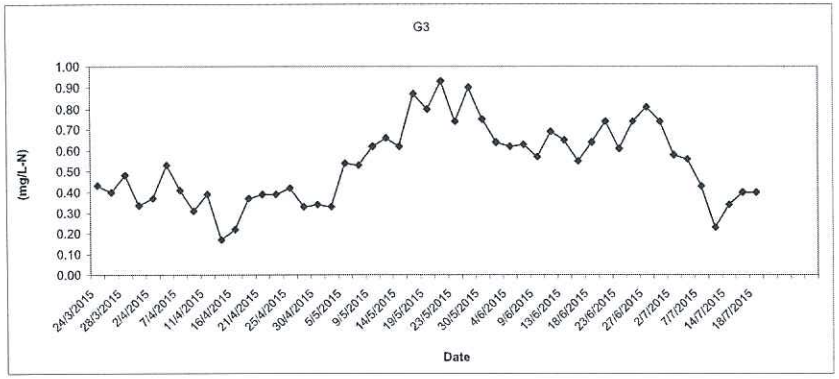


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

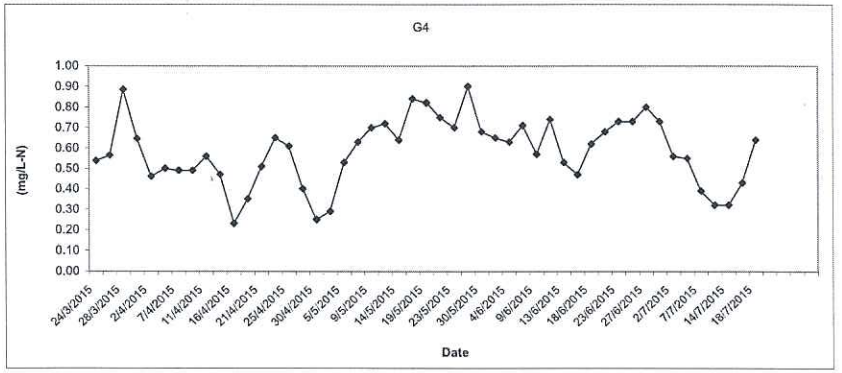
Laboratory Analysis TIN (Depth average) at Mid-Ebb Tide

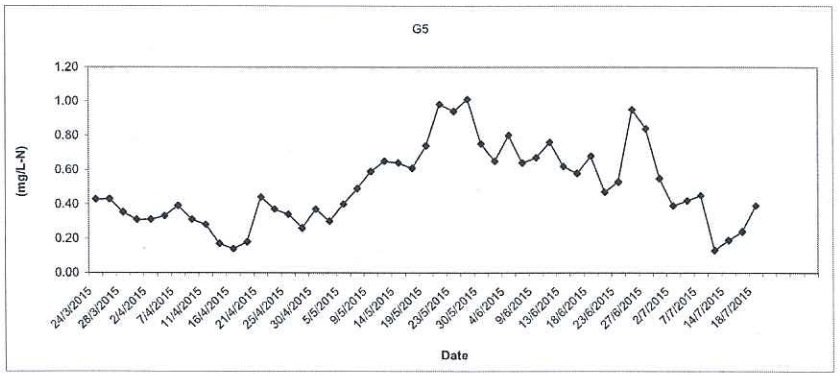


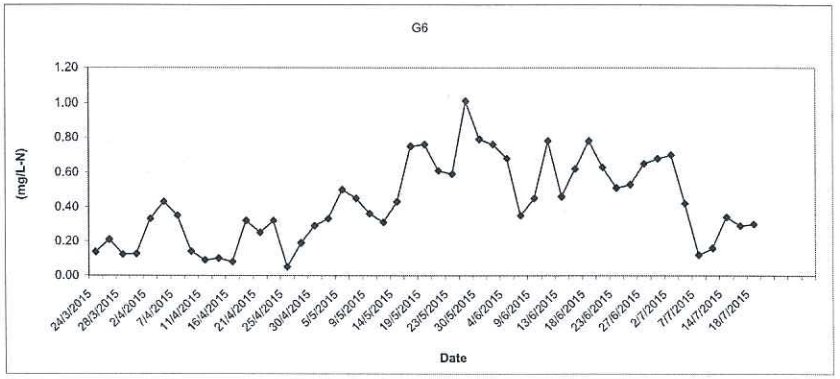




Laboratory Analysis TIN (Depth average) at Mid-Ebb Tide

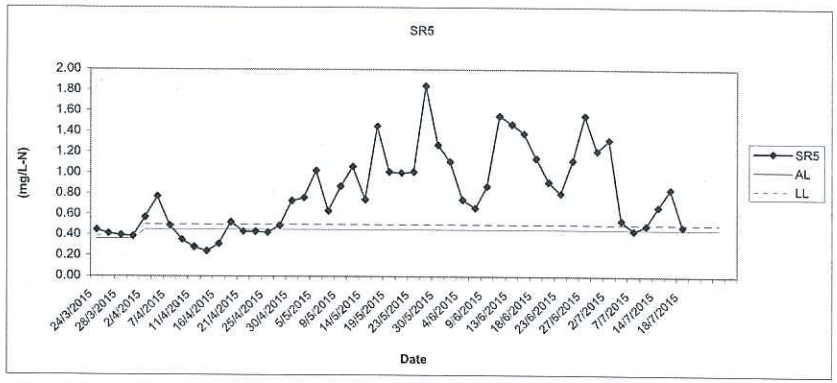


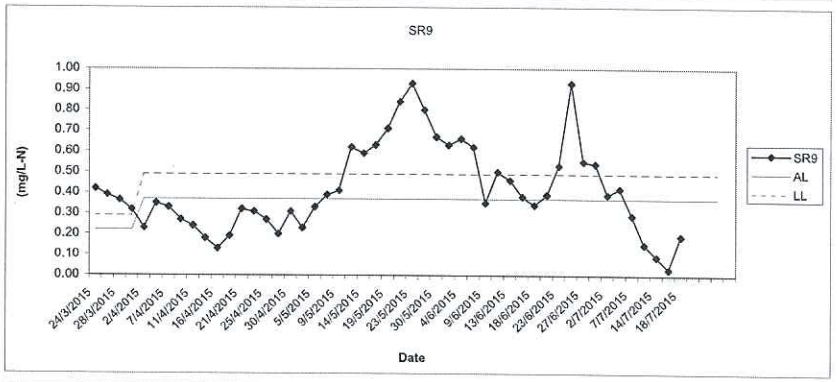


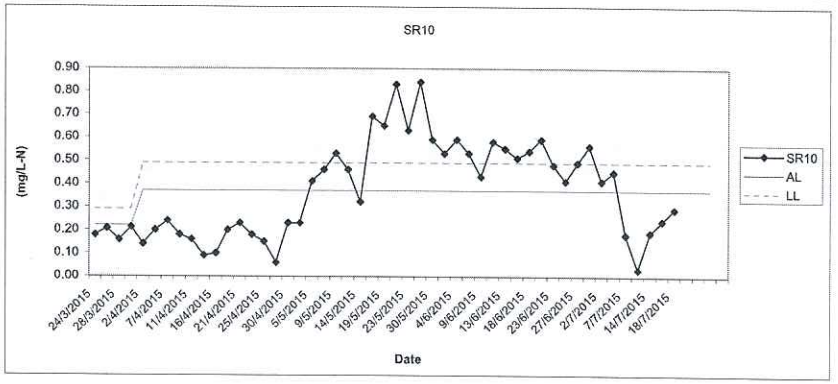


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

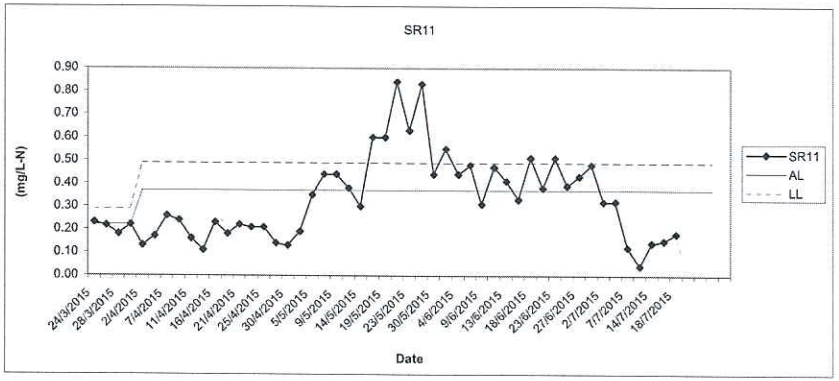
Laboratory Analysis TIN (Depth average) at Mid-Ebb Tide





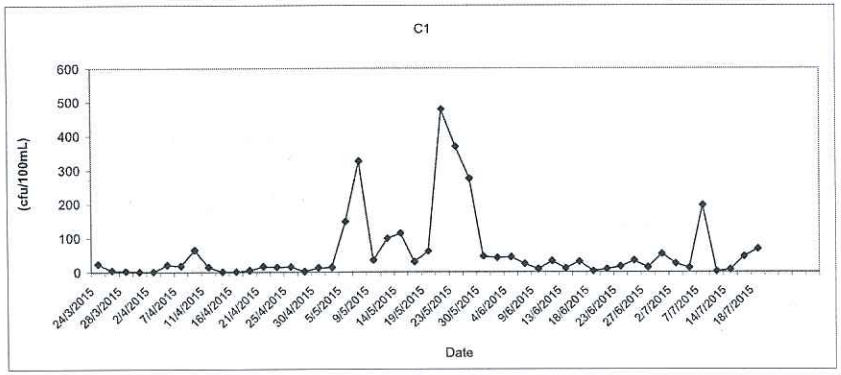


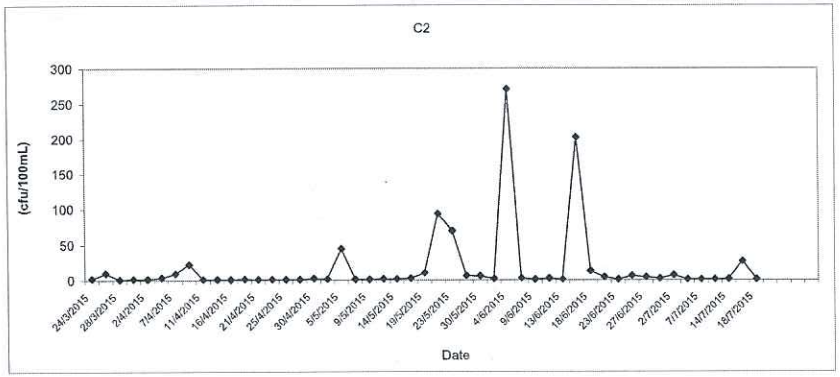
Laboratory Analysis TIN (Depth average) at Mid-Ebb Tide

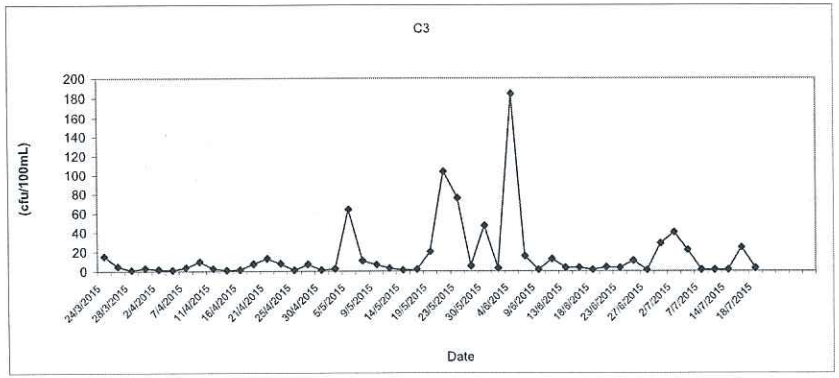


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

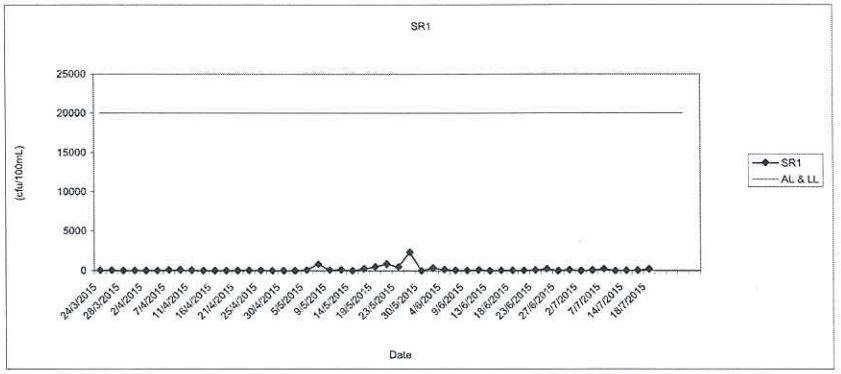
E.coli (Depth average) at Mid-Ebb Tide

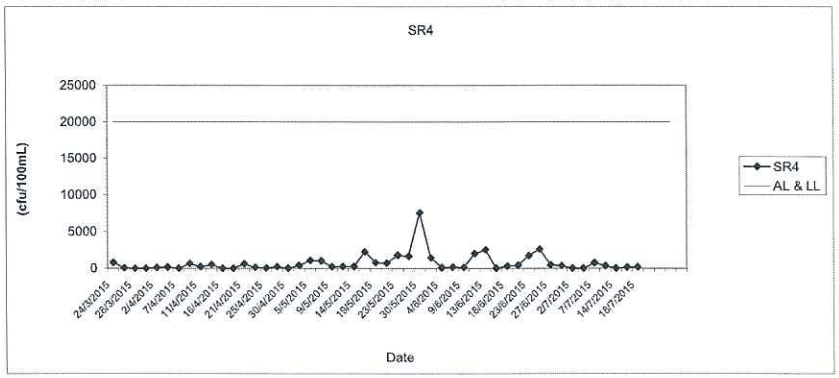


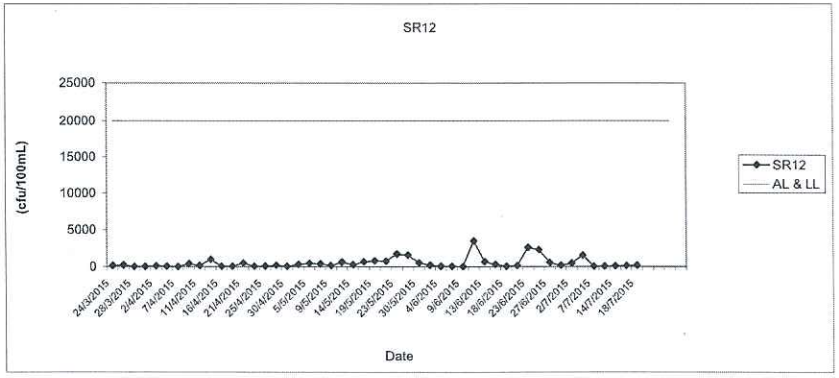




E.coli (Depth average) at Mid-Ebb Tide

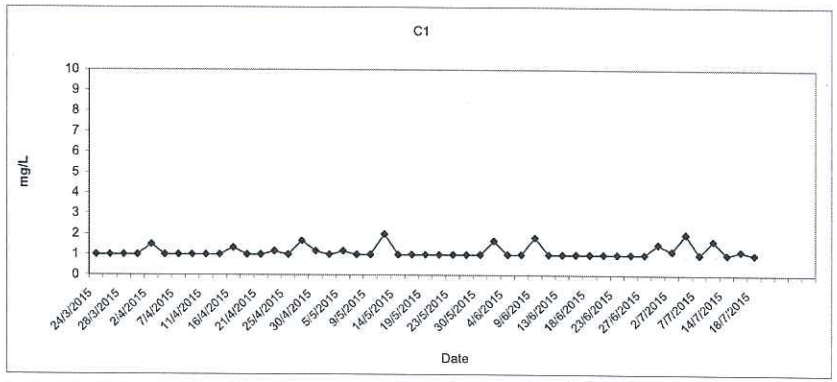


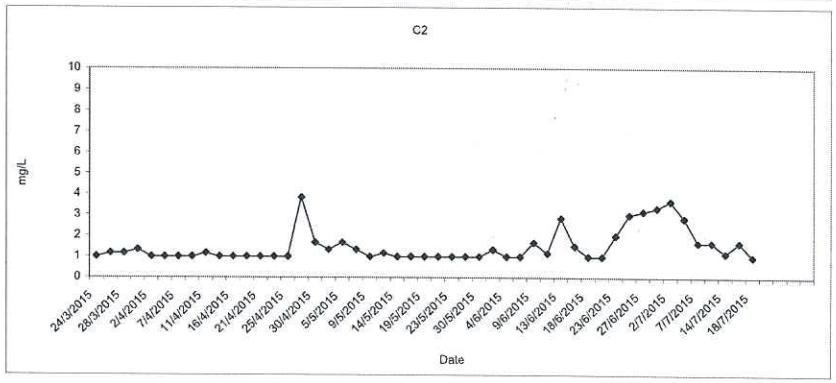


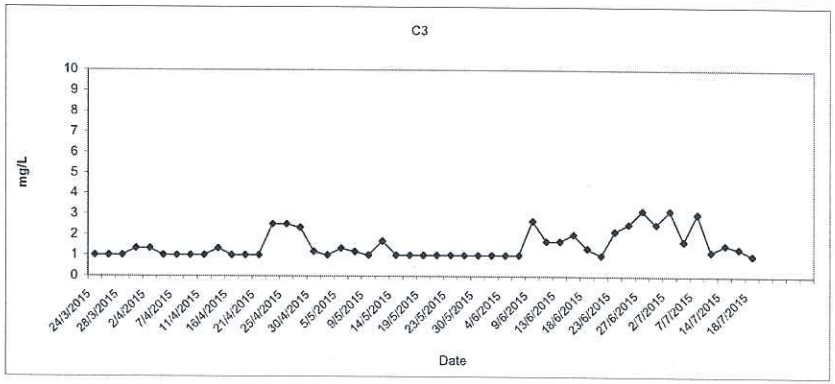


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

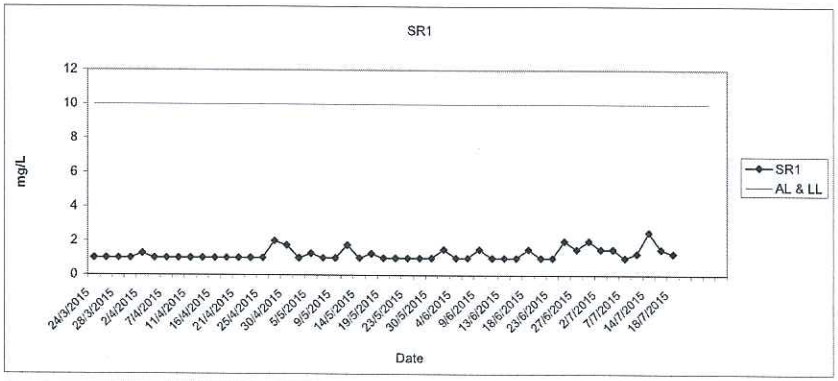
BOD_5 (Depth average) at Mid-Ebb Tide

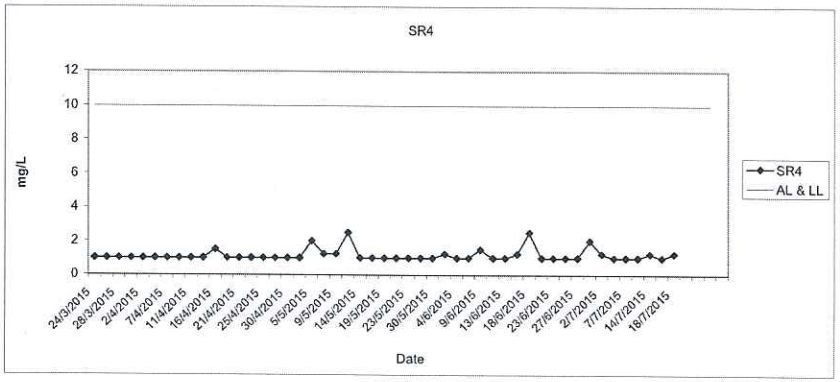


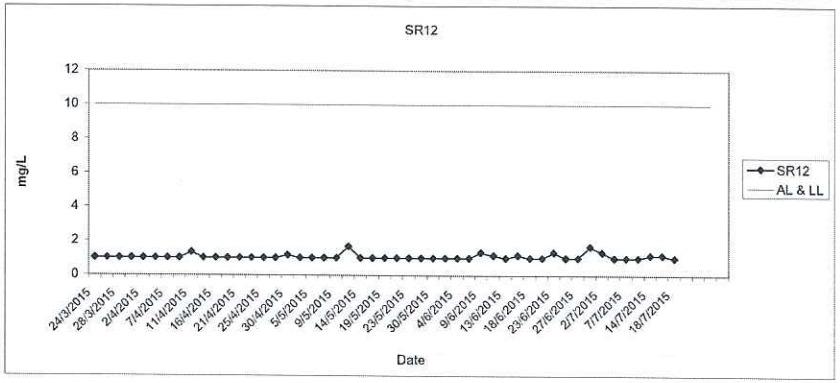




BOD_5 (Depth average) at Mid-Ebb Tide

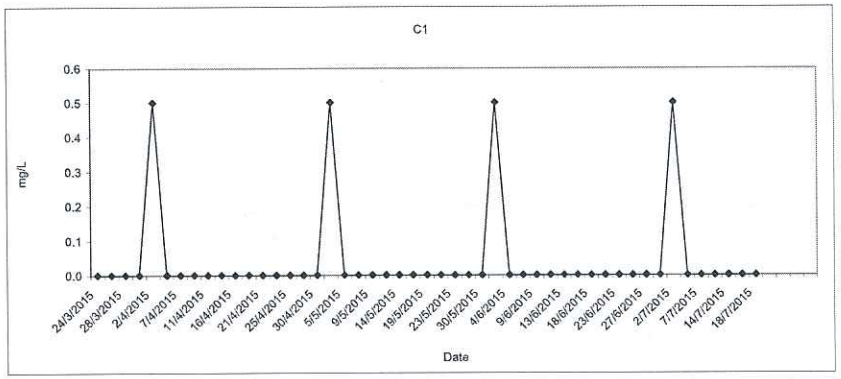


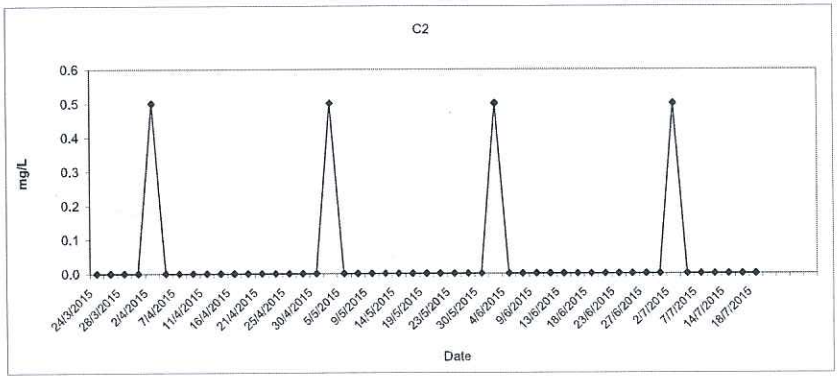


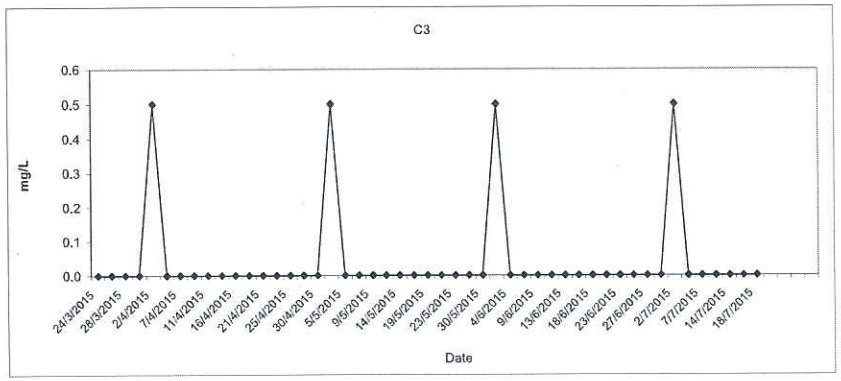


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

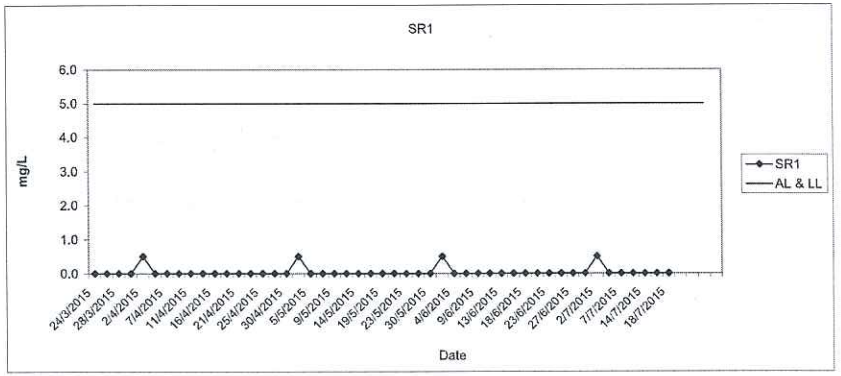
Synthetic Detergent (Depth average) at Mid-Ebb Tide

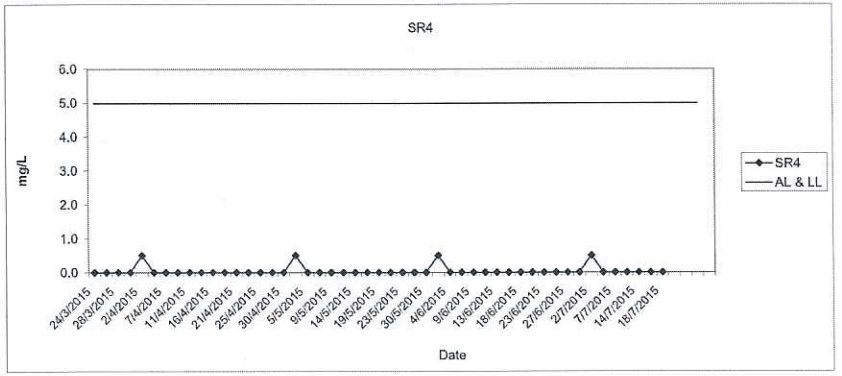


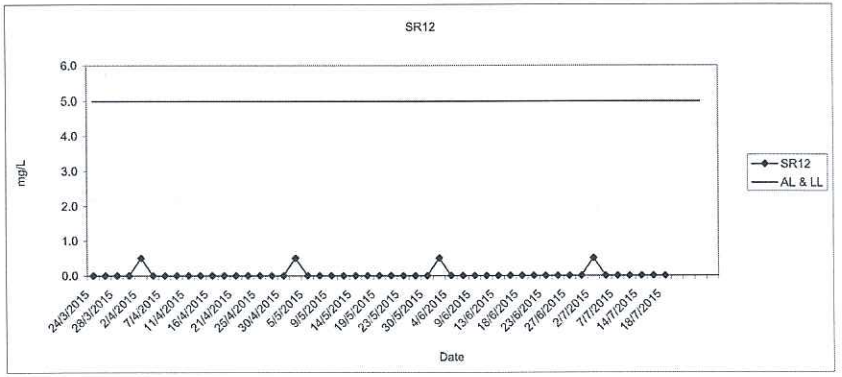




Synthetic Detergent (Depth average) at Mid-Ebb Tide

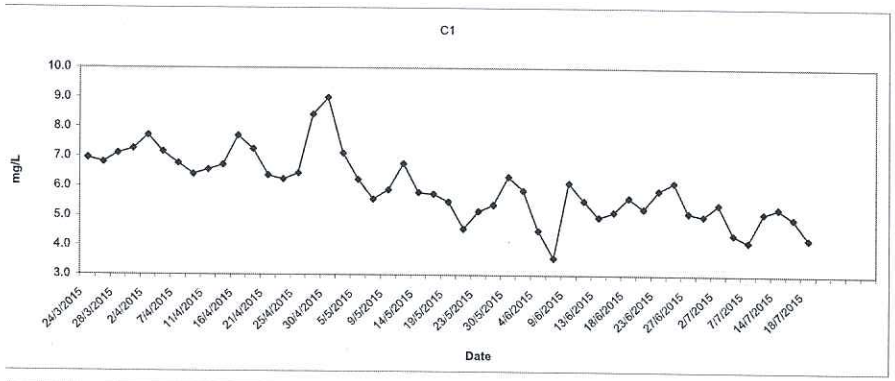


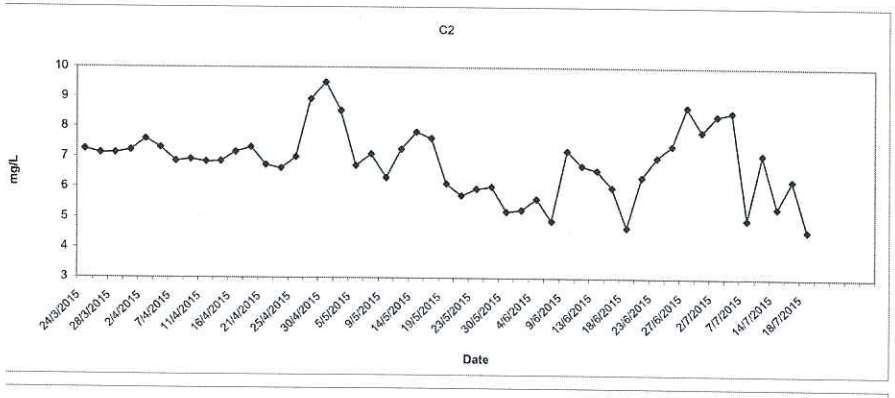


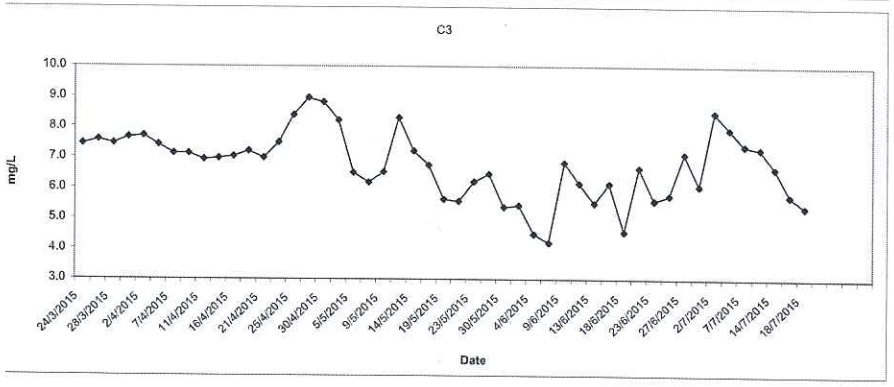


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

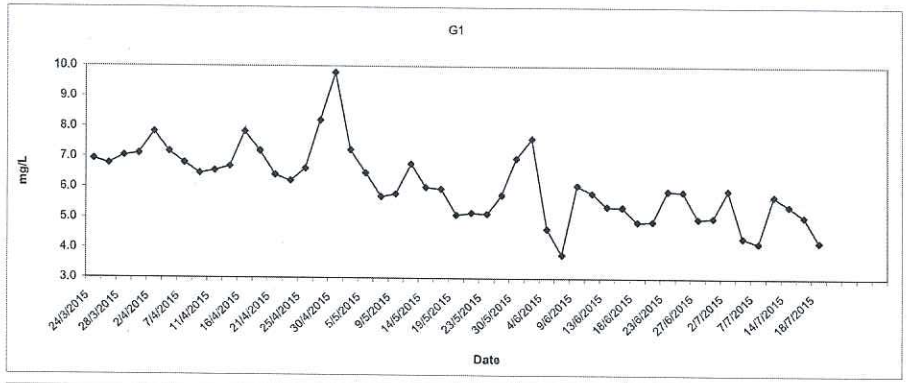
Dissolved Oxygen (Surface and Middle) at Mid-Flood Tide

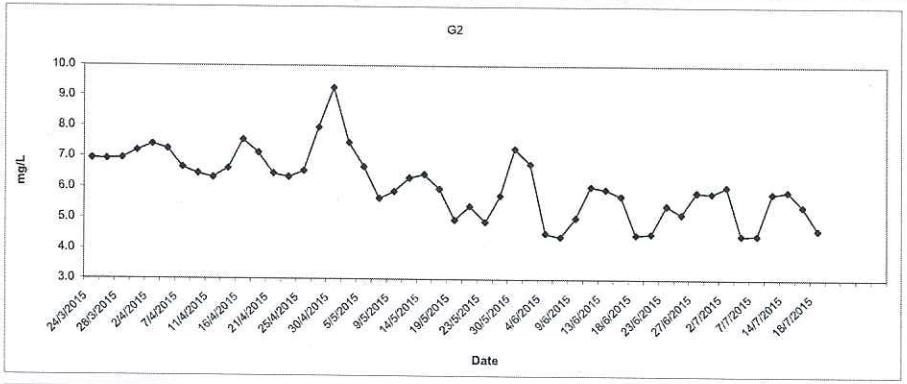


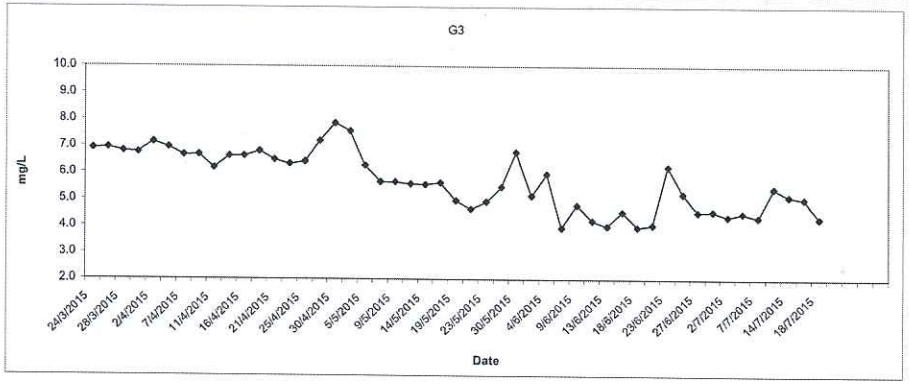




Dissolved Oxygen (Surface and Middle) at Mid-Flood Tide

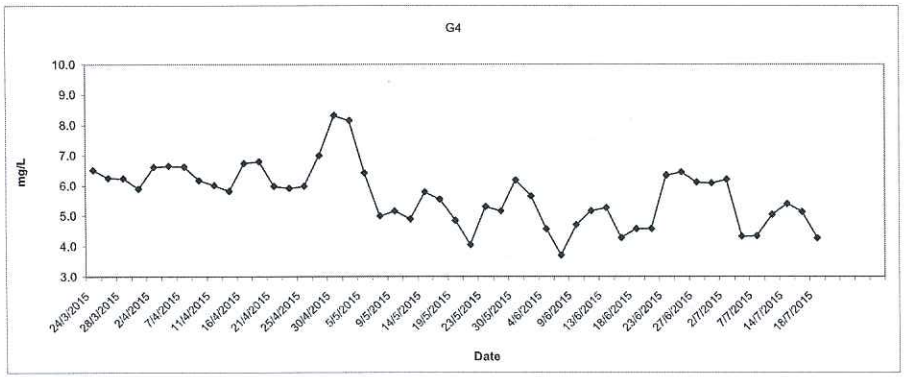


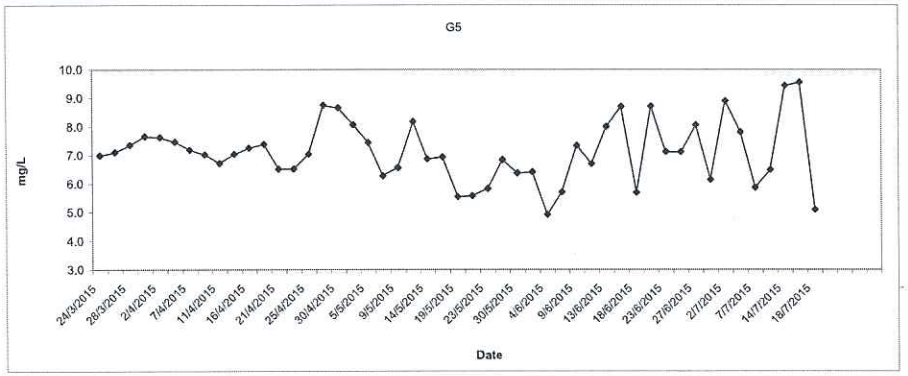


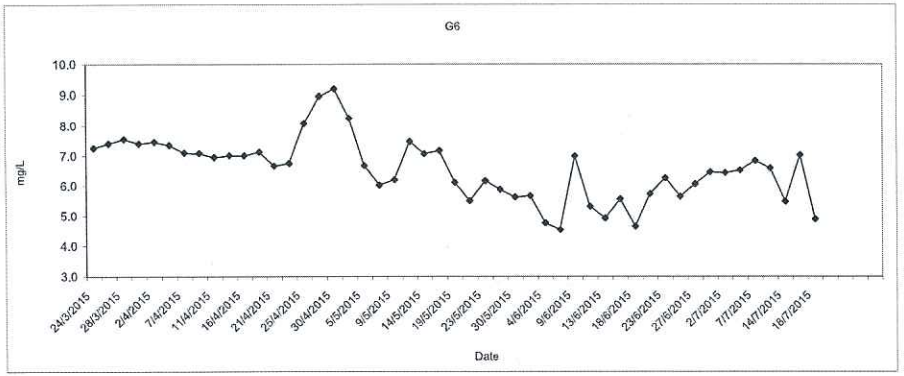


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

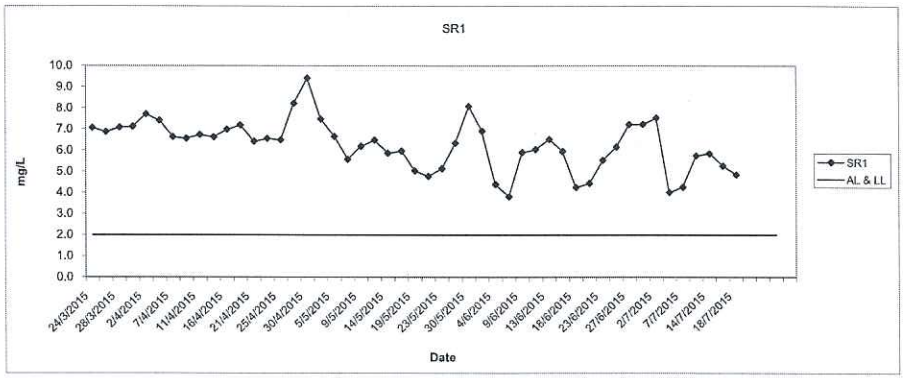
Dissolved Oxygen (Surface and Middle) at Mid-Flood Tide

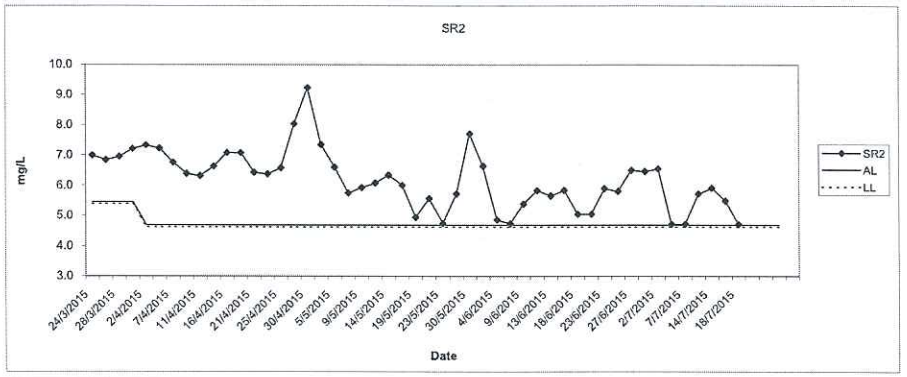


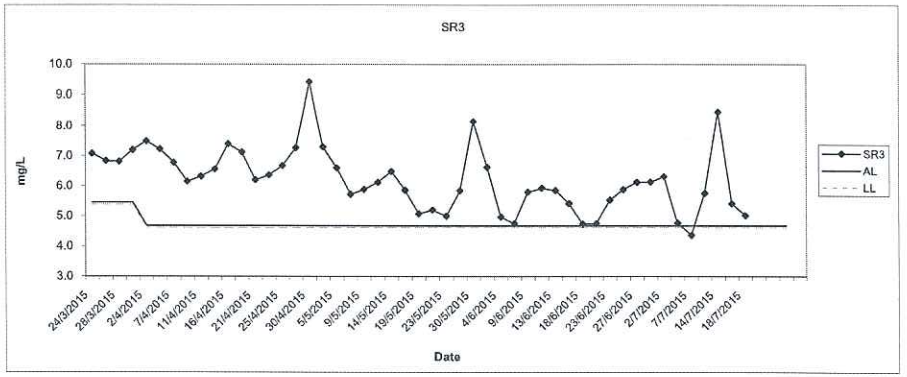




Dissolved Oxygen (Surface and Middle) at Mid-Flood Tide

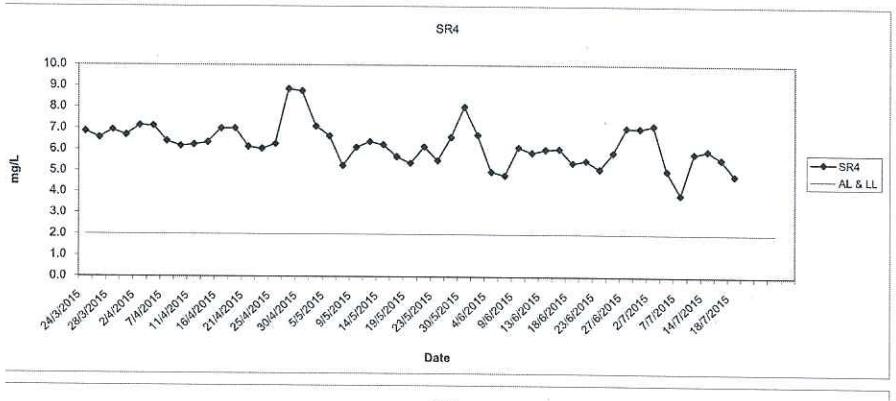


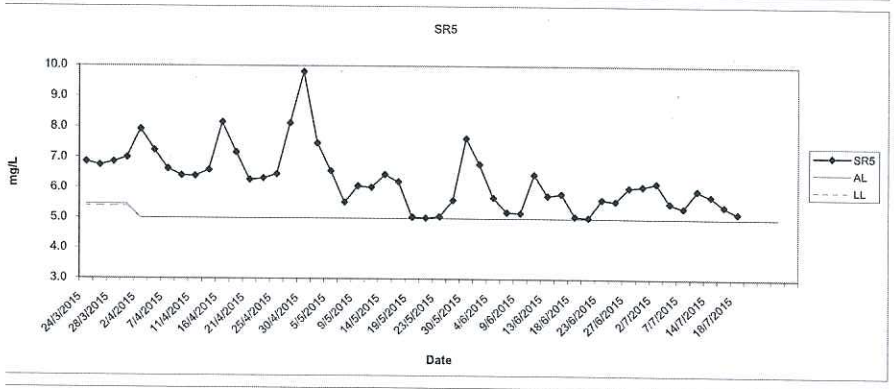


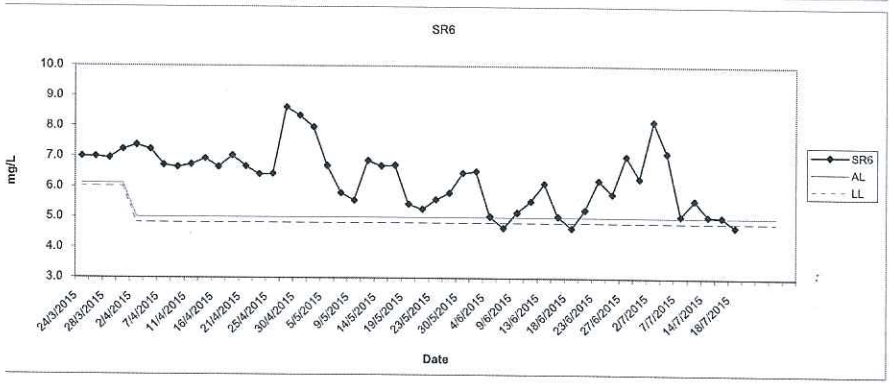


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

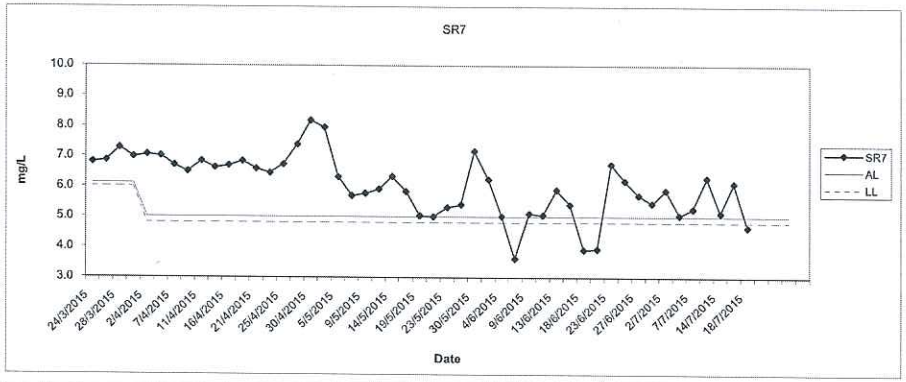
Dissolved Oxygen (Surface and Middle) at Mid-Flood Tide

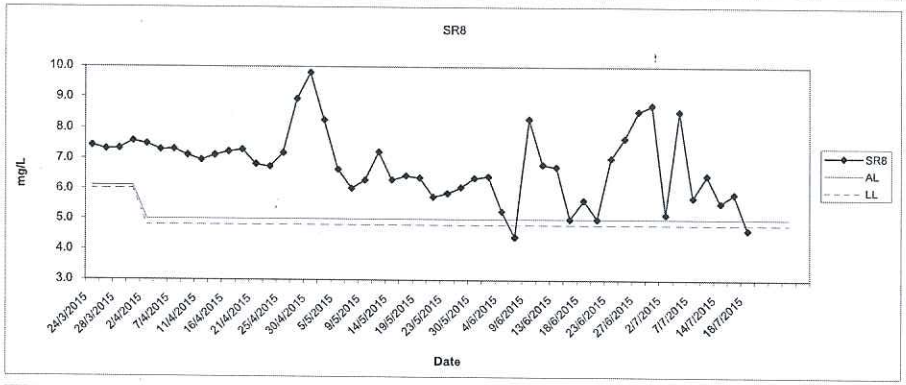


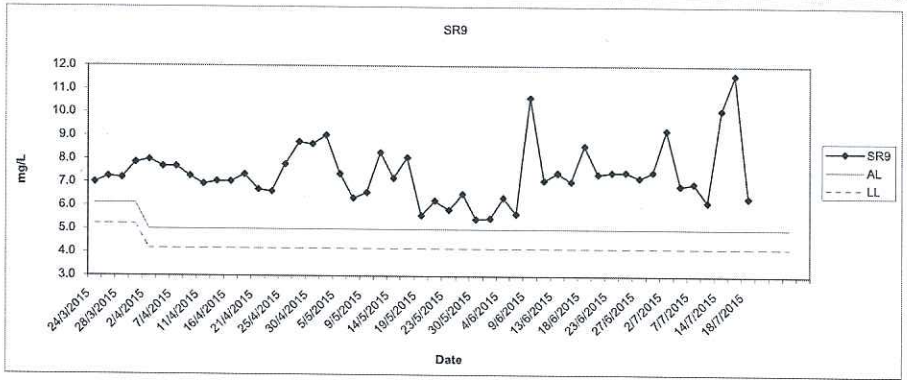




Dissolved Oxygen (Surface and Middle) at Mid-Flood Tide

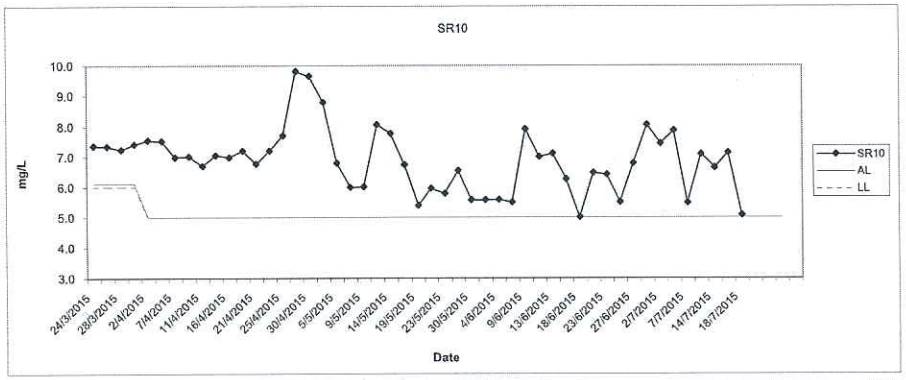


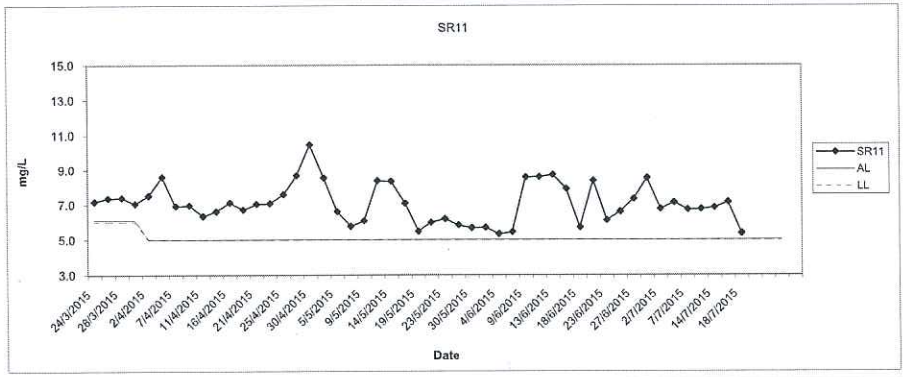


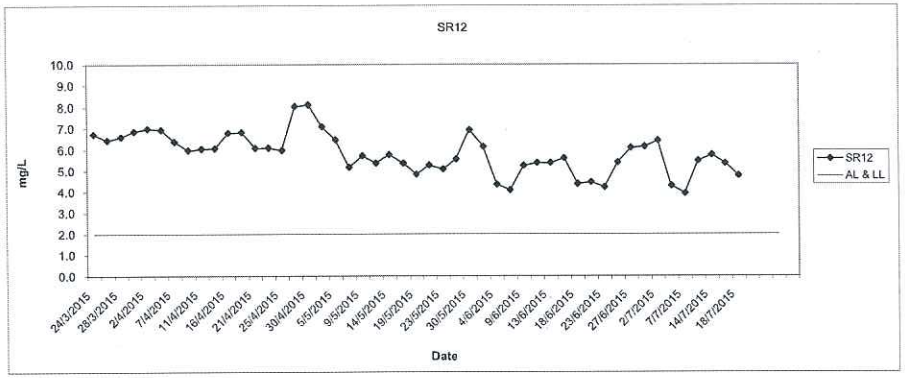


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

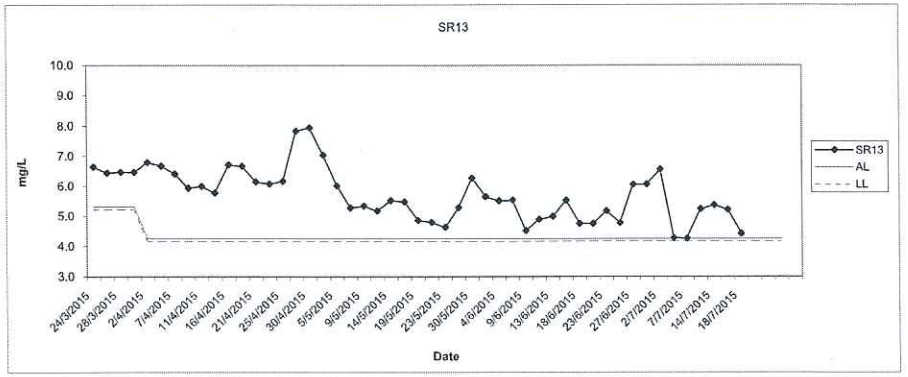
Dissolved Oxygen (Surface and Middle) at Mid-Flood Tide





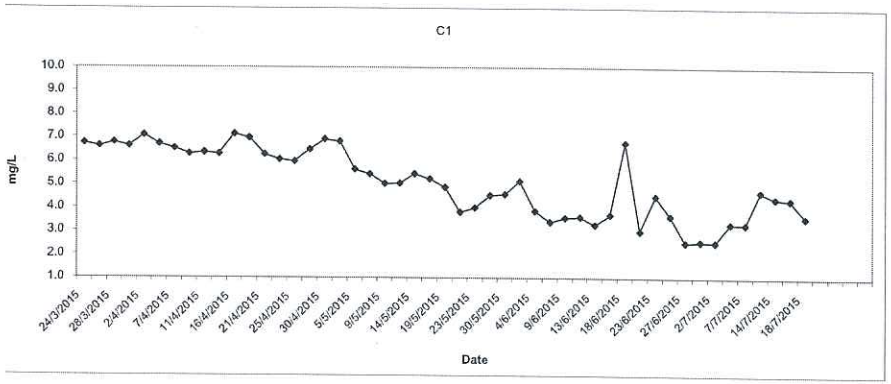


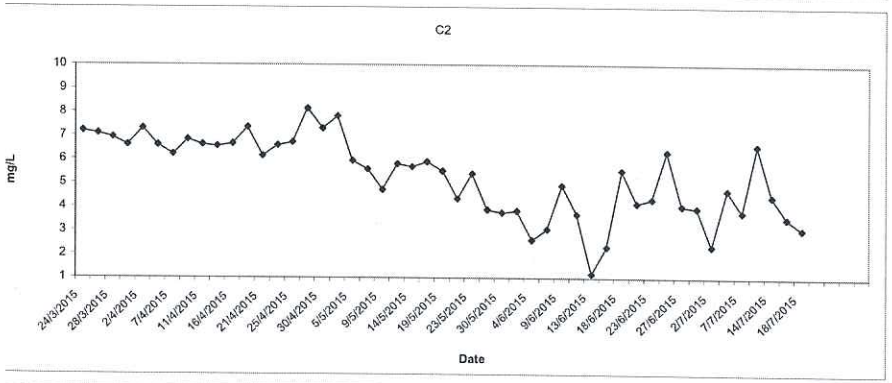
Dissolved Oxygen (Surface and Middle) at Mid-Flood Tide

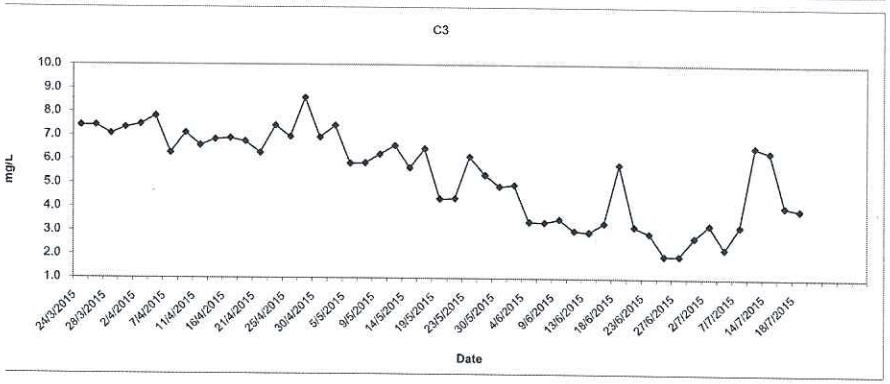


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

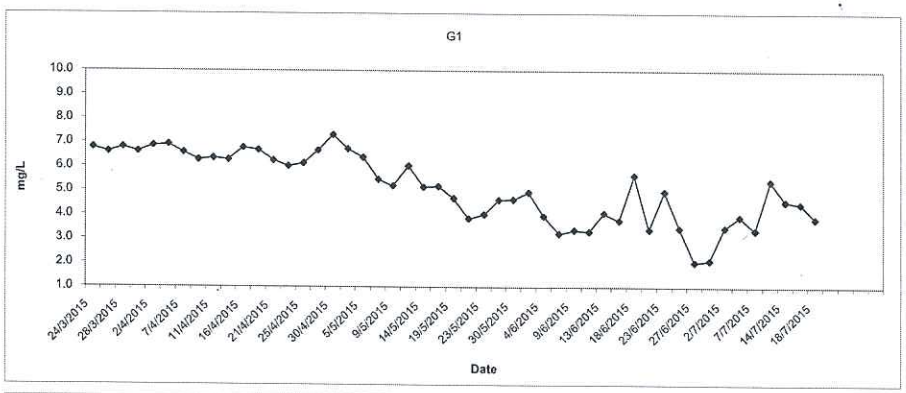
Dissolved Oxygen (Bottom) at Mid-Flood Tide

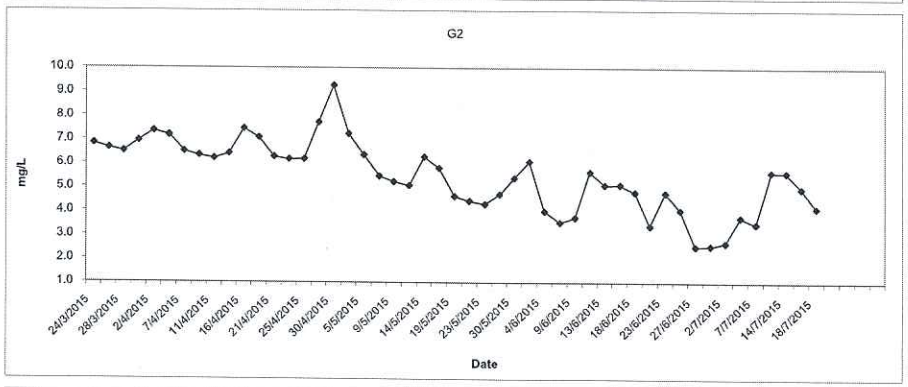


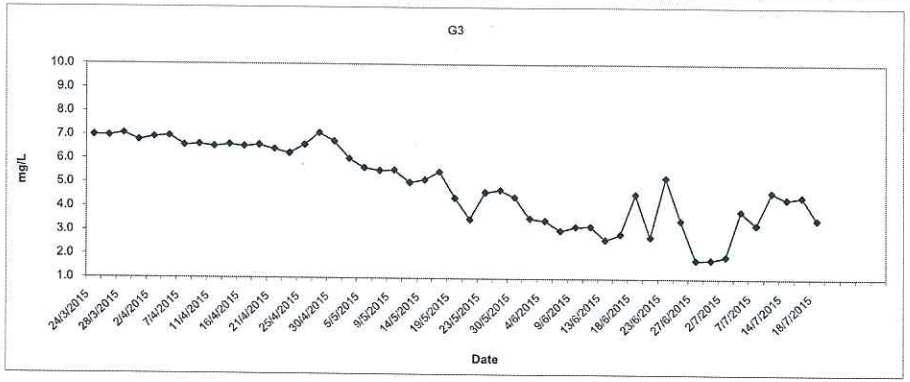




Dissolved Oxygen (Bottom) at Mid-Flood Tide

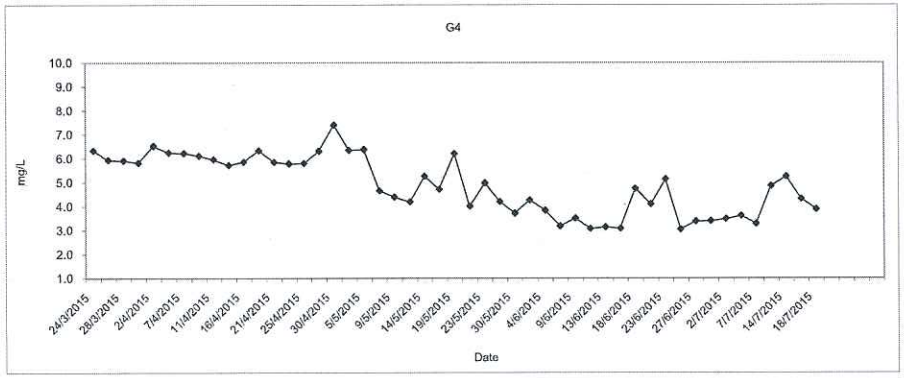


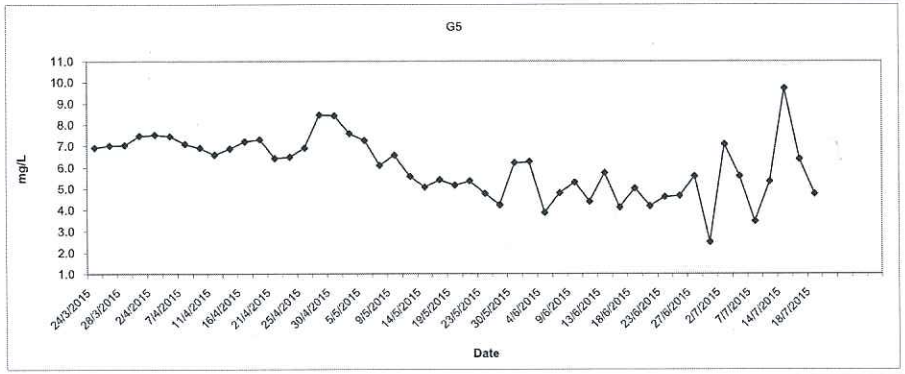


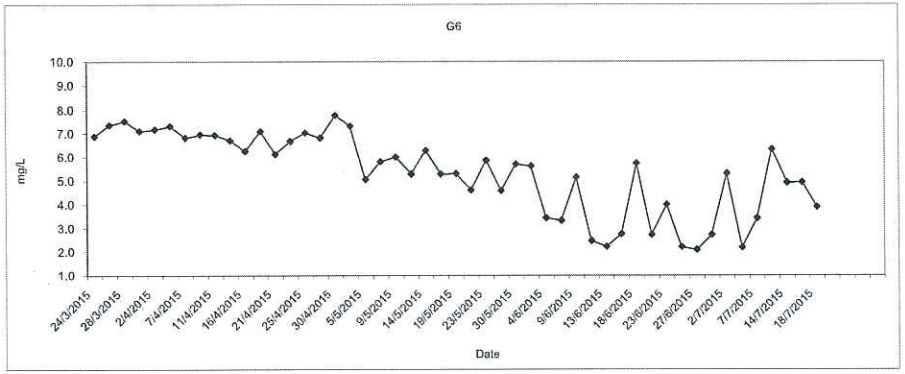


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

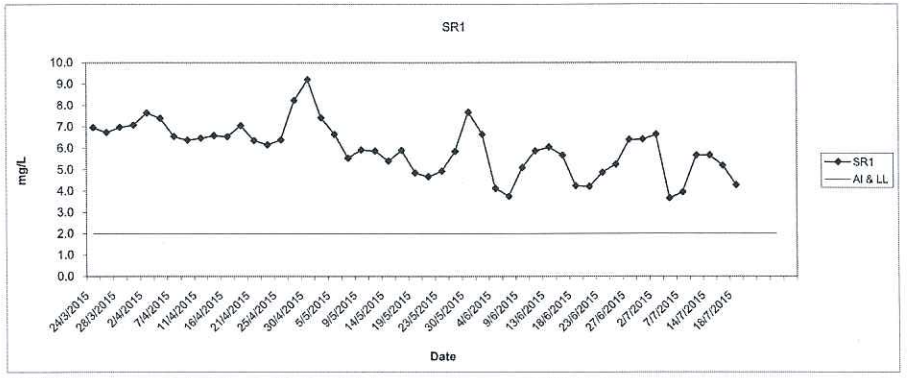
Dissolved Oxygen (Bottom) at Mid-Flood Tide

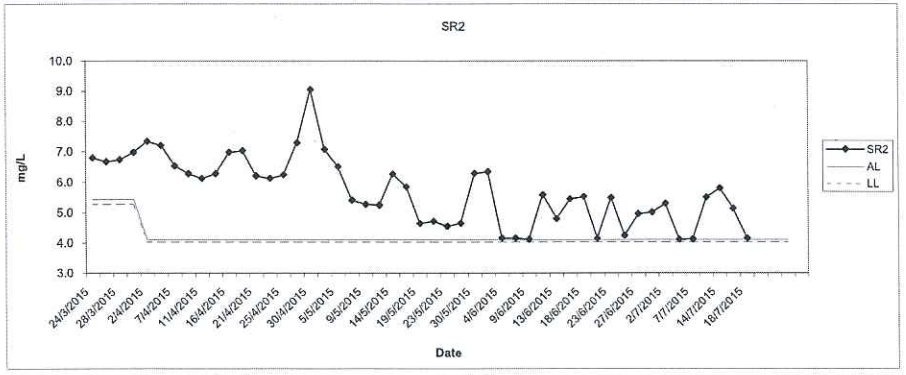


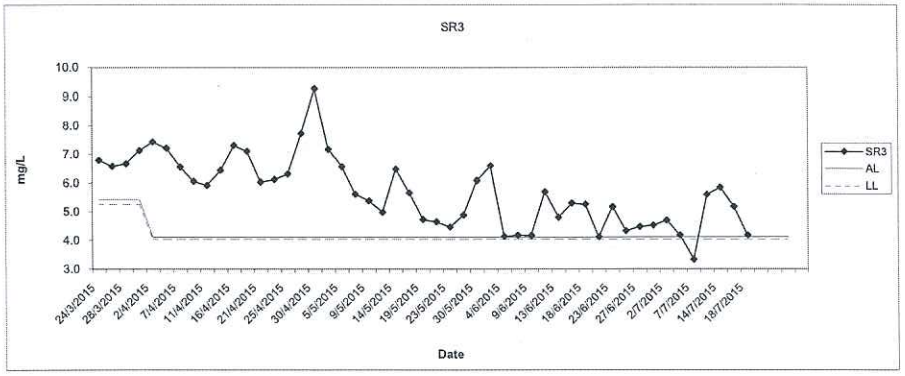




Dissolved Oxygen (Bottom) at Mid-Flood Tide

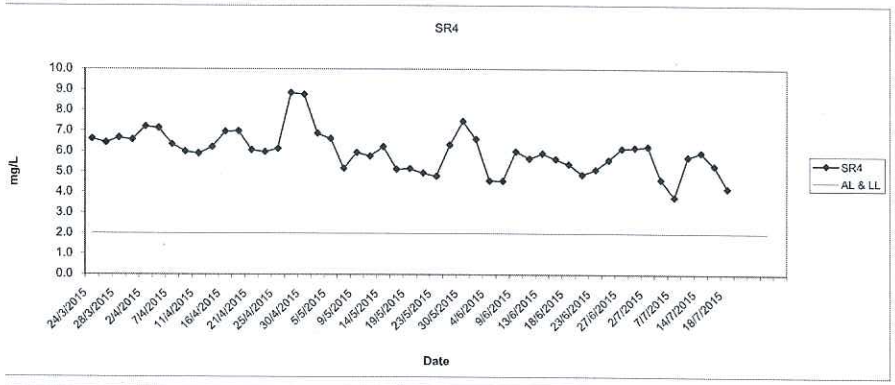


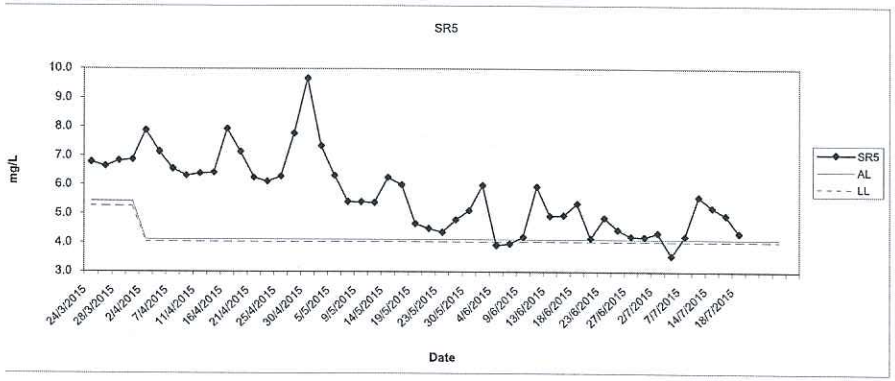


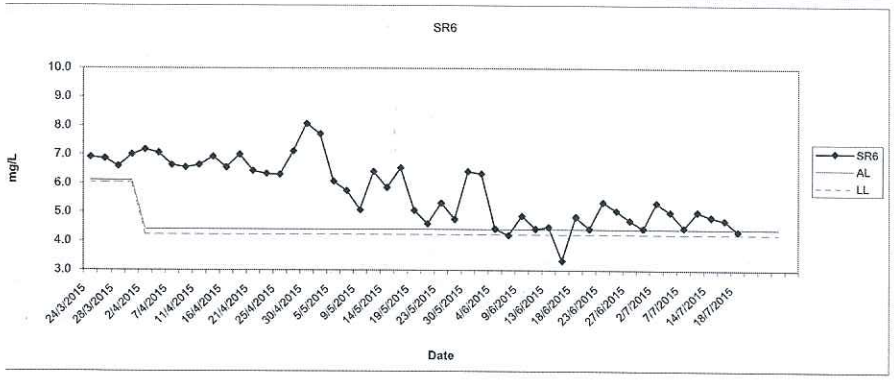


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

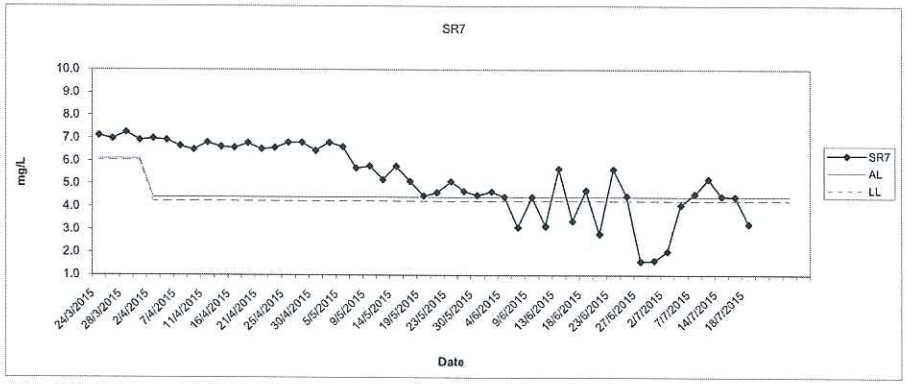
Dissolved Oxygen (Bottom) at Mid-Flood Tide

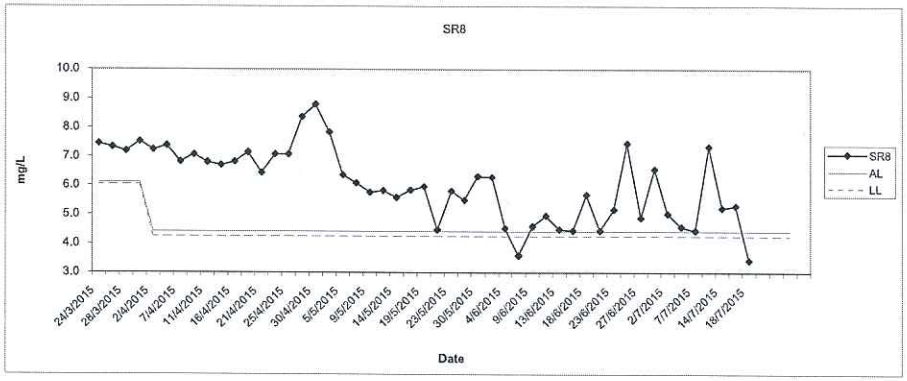


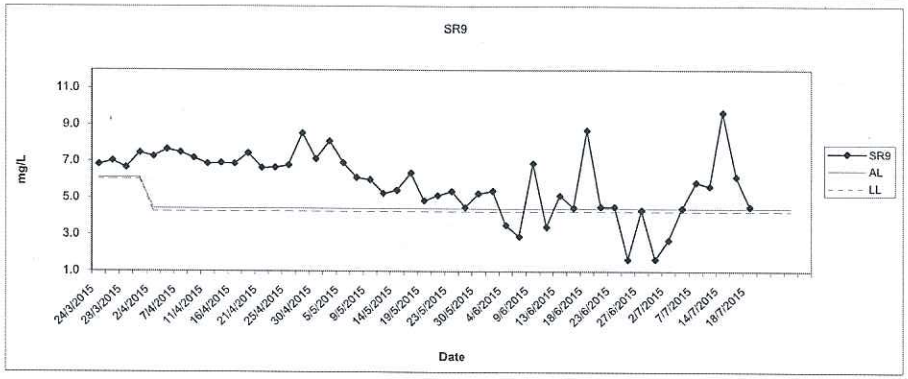




Dissolved Oxygen (Bottom) at Mid-Flood Tide

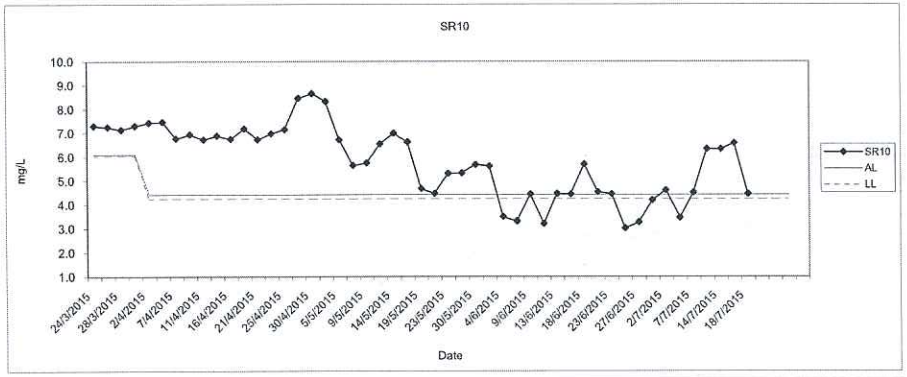


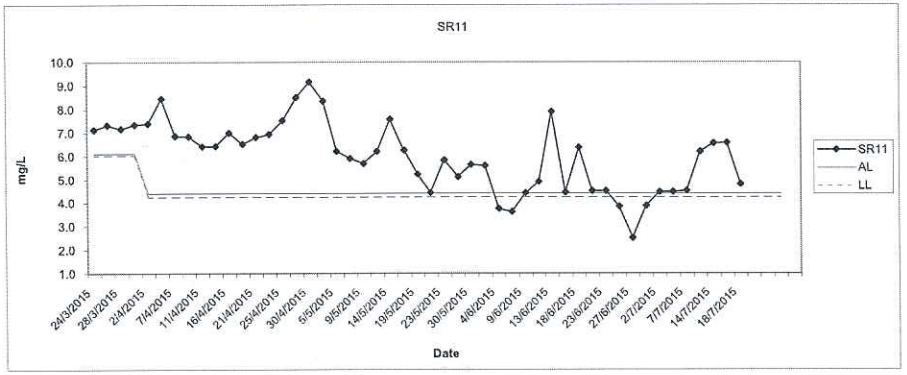


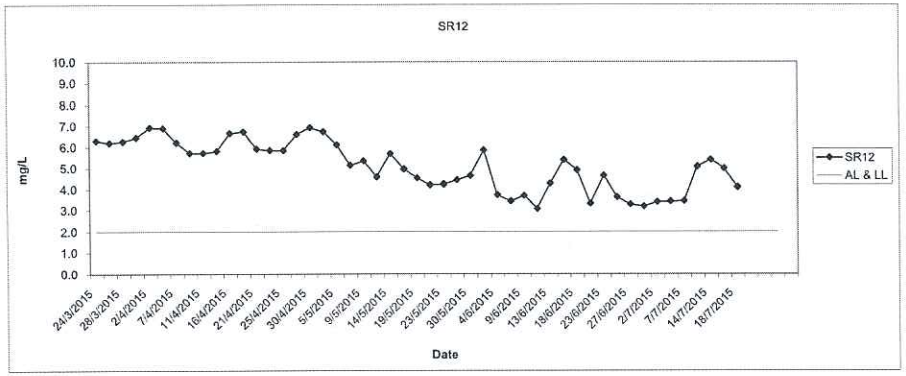


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

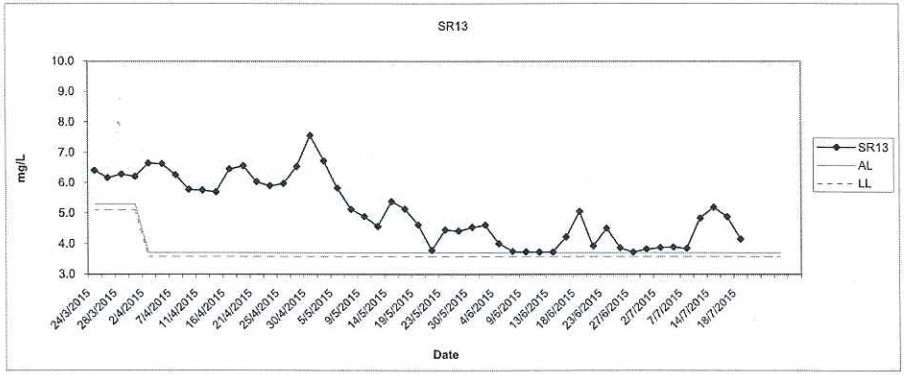
Dissolved Oxygen (Bottom) at Mid-Flood Tide





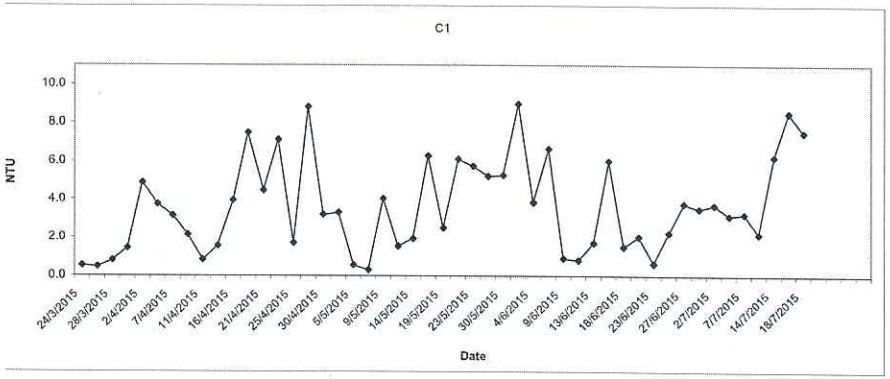


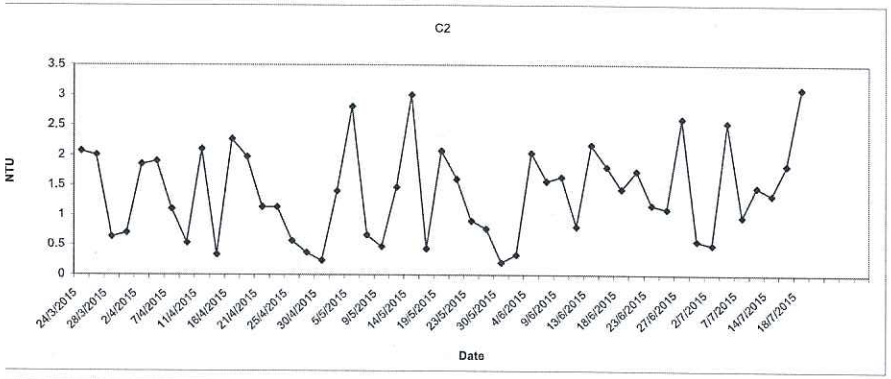
Dissolved Oxygen (Bottom) at Mid-Flood Tide

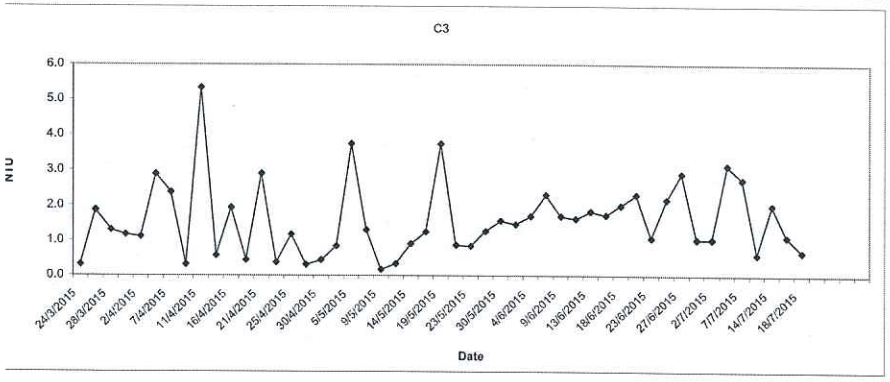


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

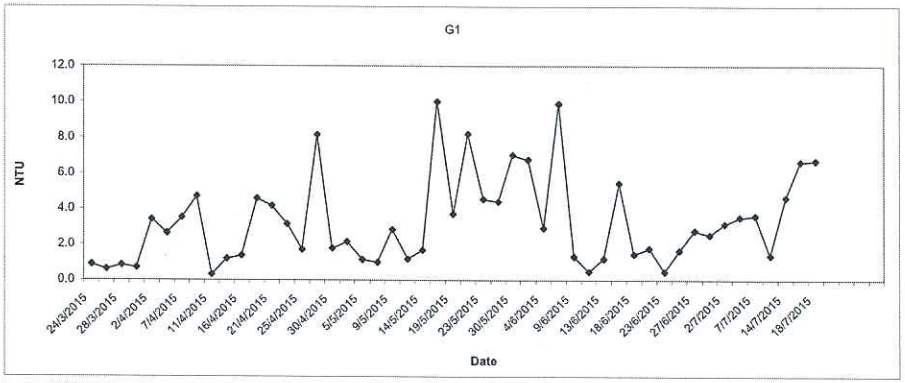
Turbidity (Depth average) at Mid-Flood Tide

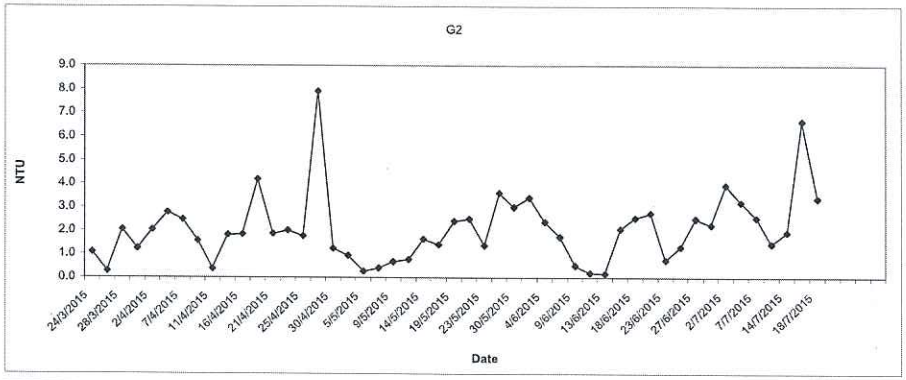


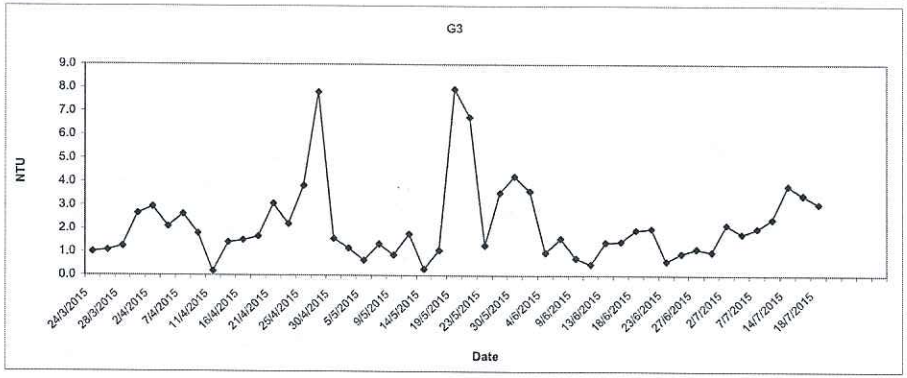




Turbidity (Depth average) at Mid-Flood Tide

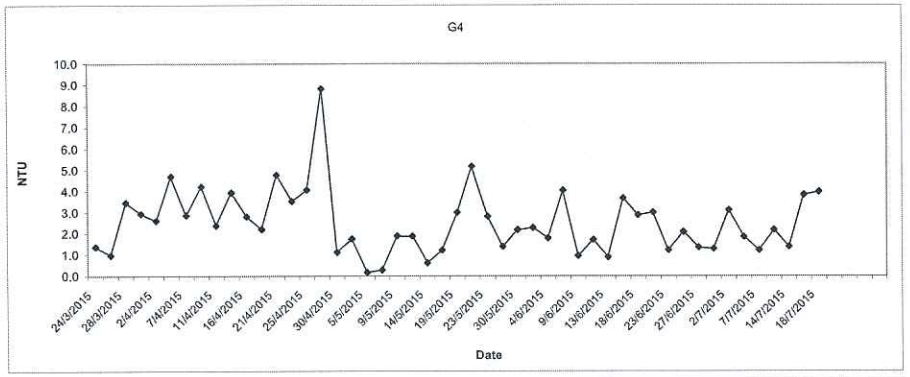


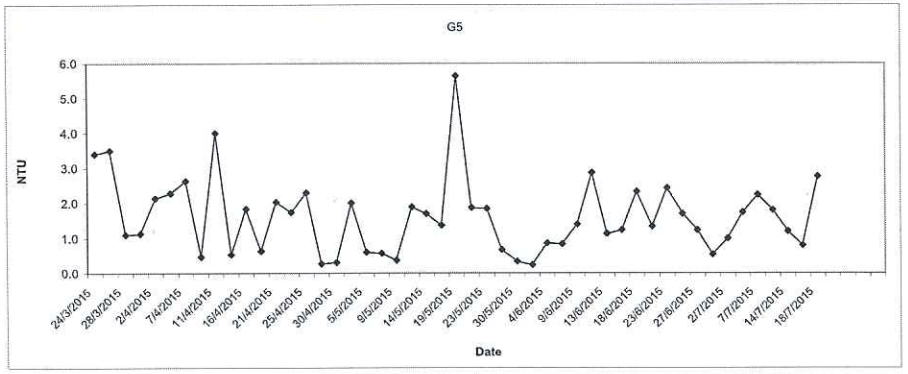


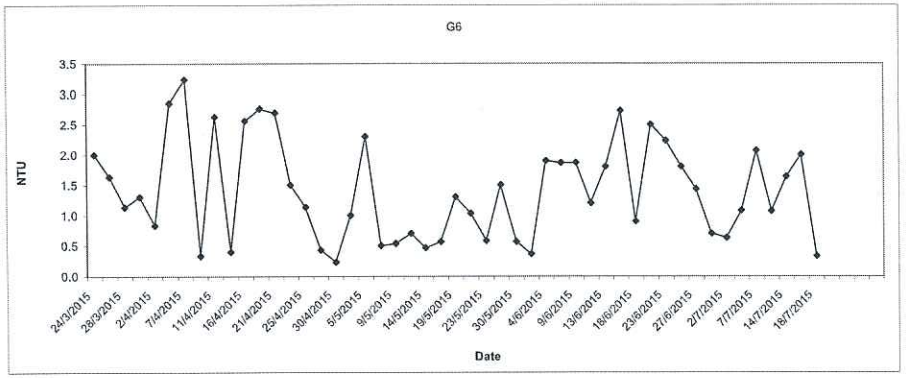


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

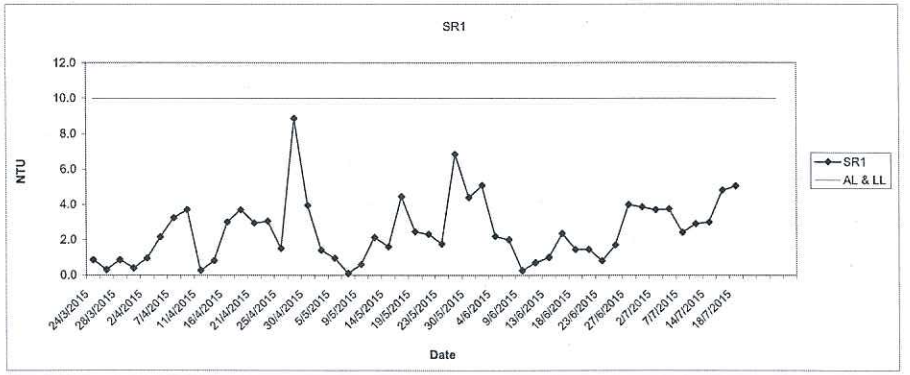
Turbidity (Depth average) at Mid-Flood Tide

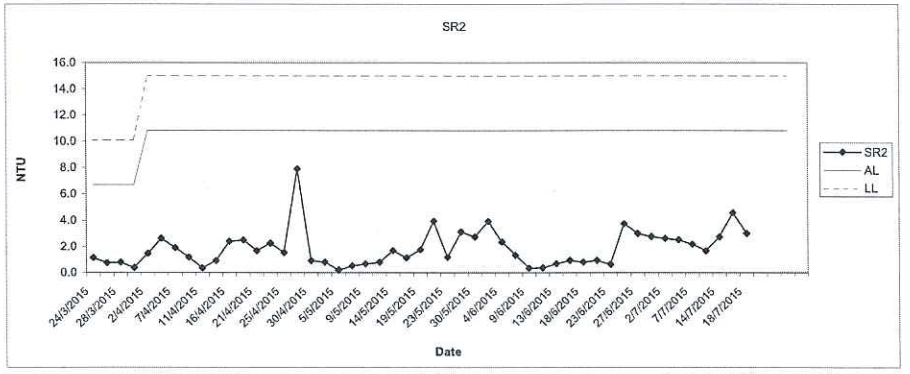


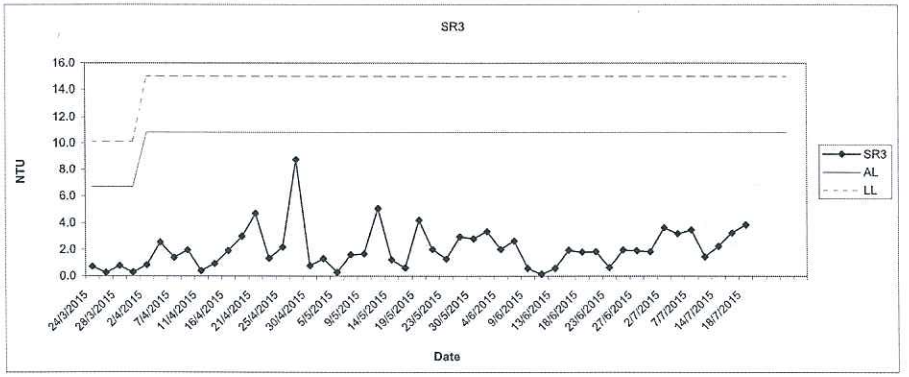




Turbidity (Depth average) at Mid-Flood Tide

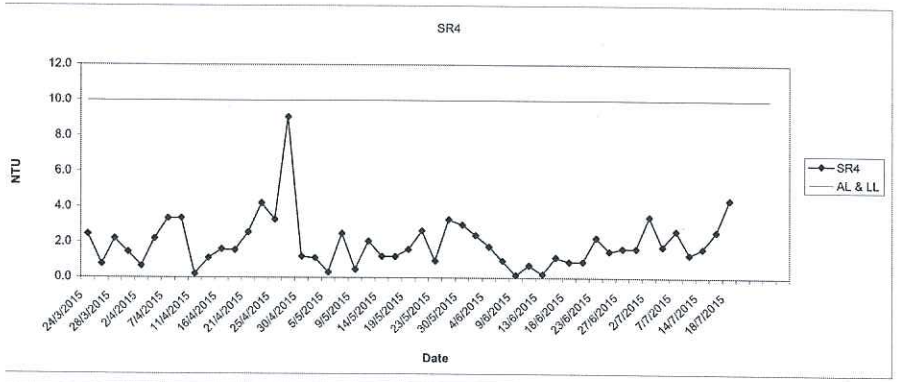


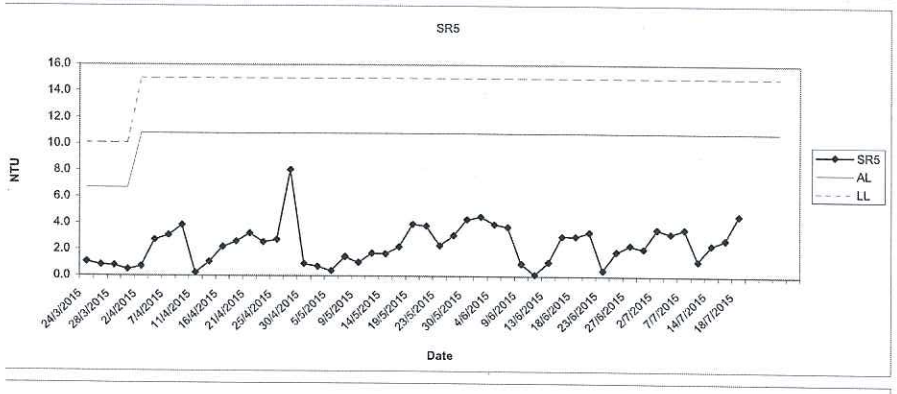


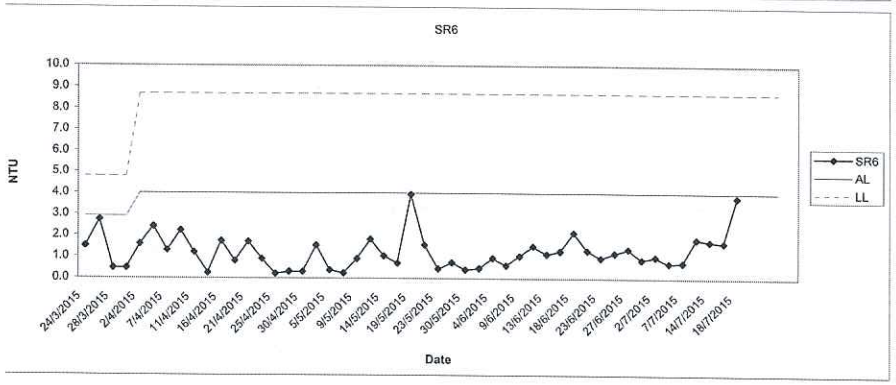


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

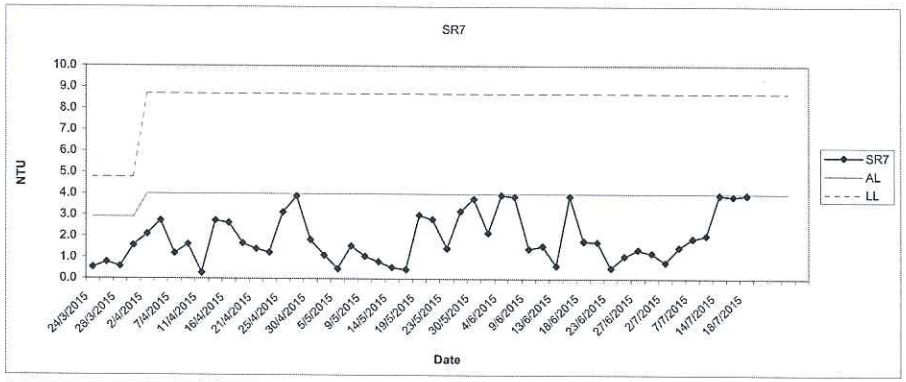
Turbidity (Depth average) at Mid-Flood Tide

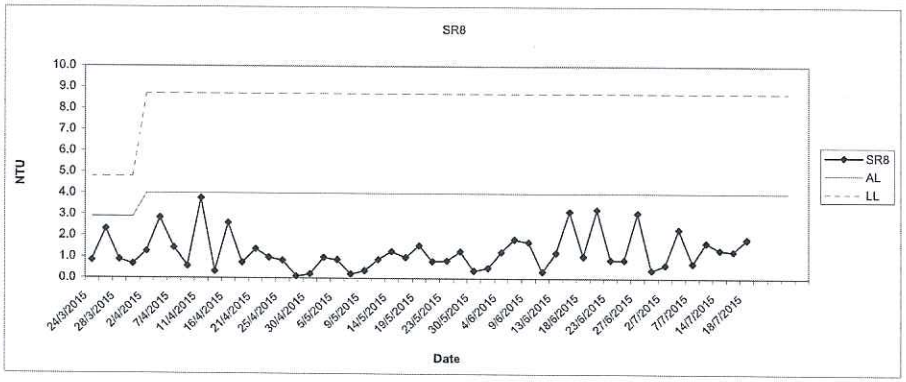


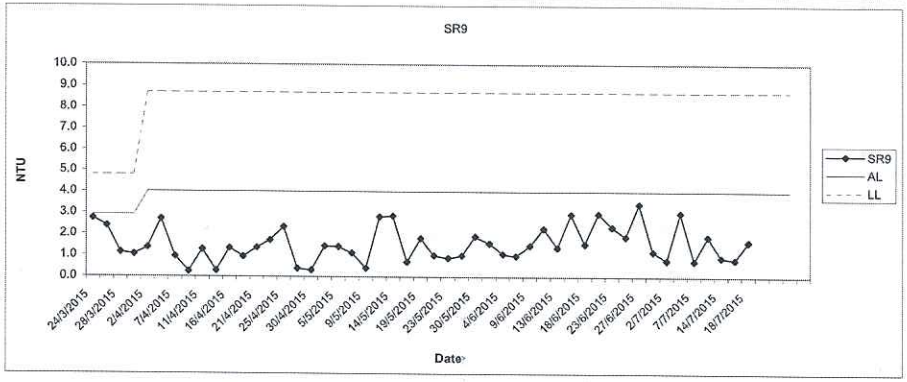




Turbidity (Depth average) at Mid-Flood Tide

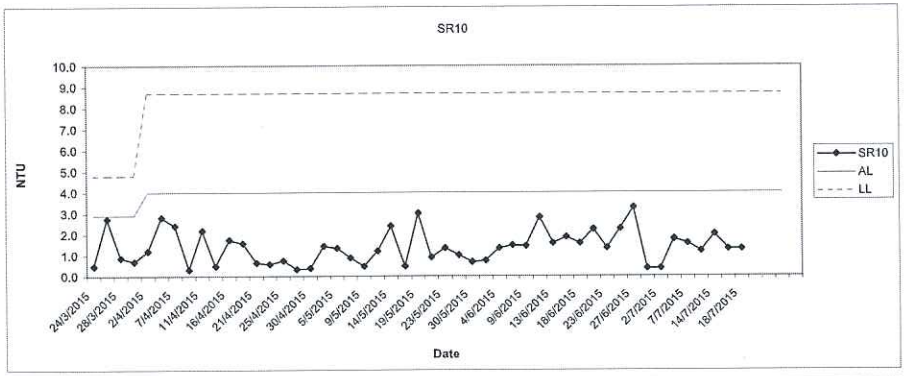


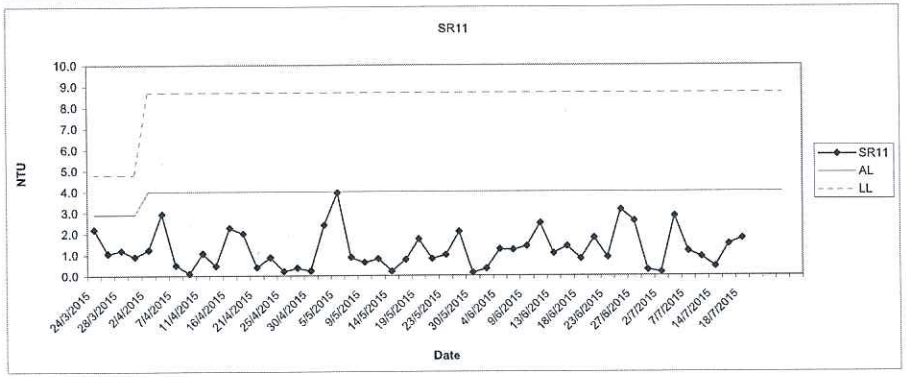


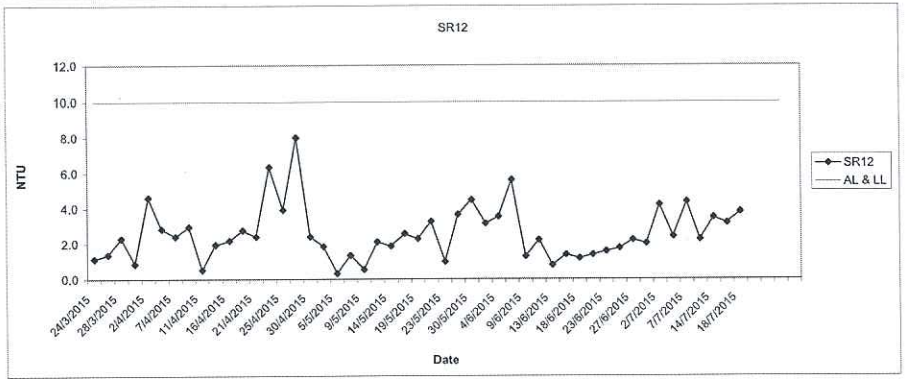


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

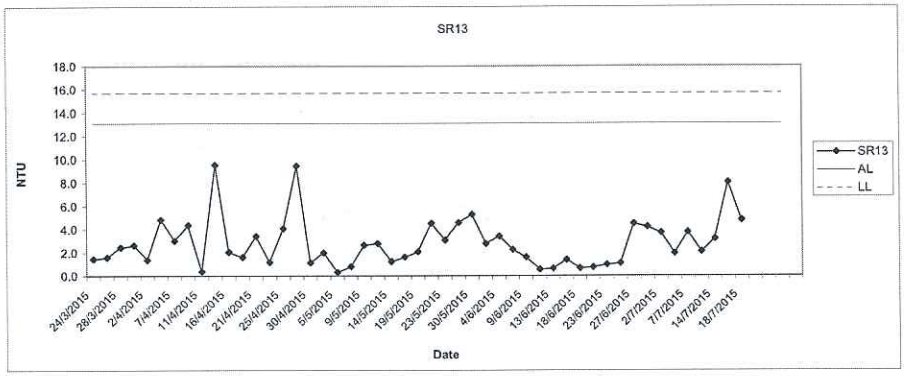
Turbidity (Depth average) at Mid-Flood Tide





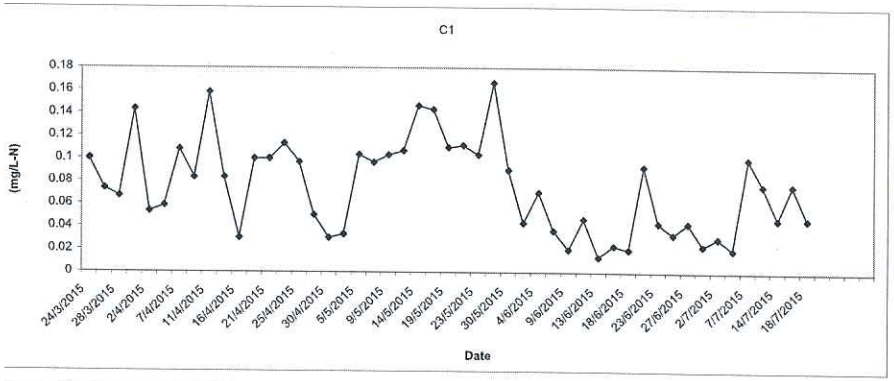


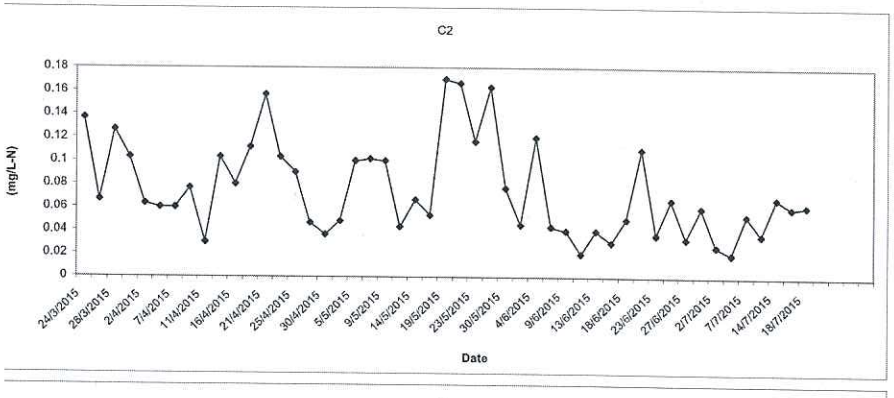
Turbidity (Depth average) at Mid-Flood Tide

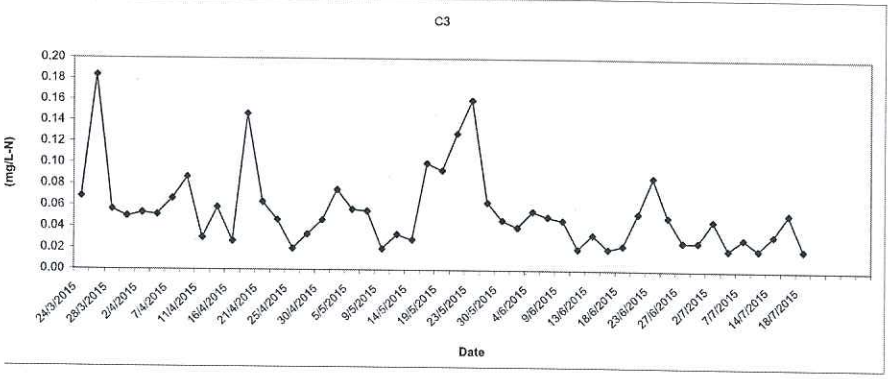


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

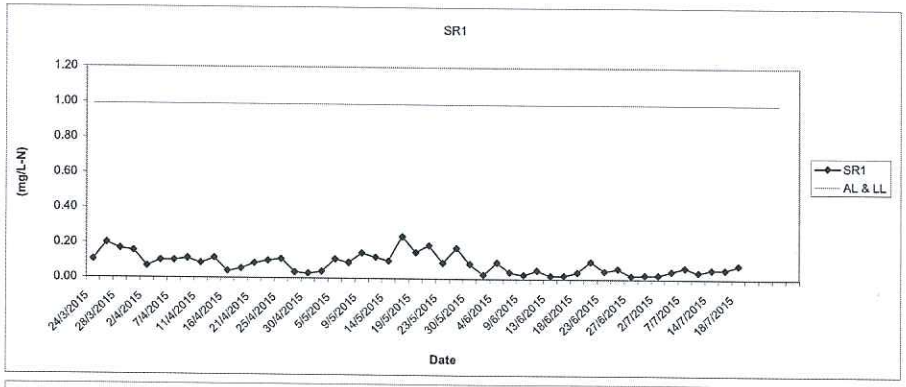
In-situ Ammonia (Depth average) at Mid-Flood Tide

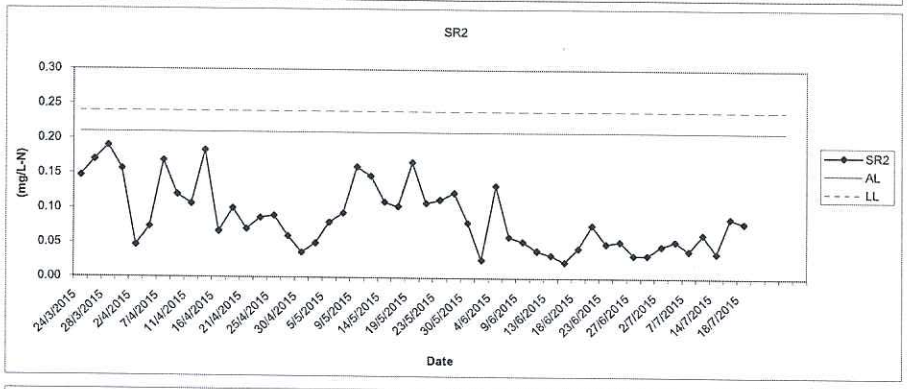


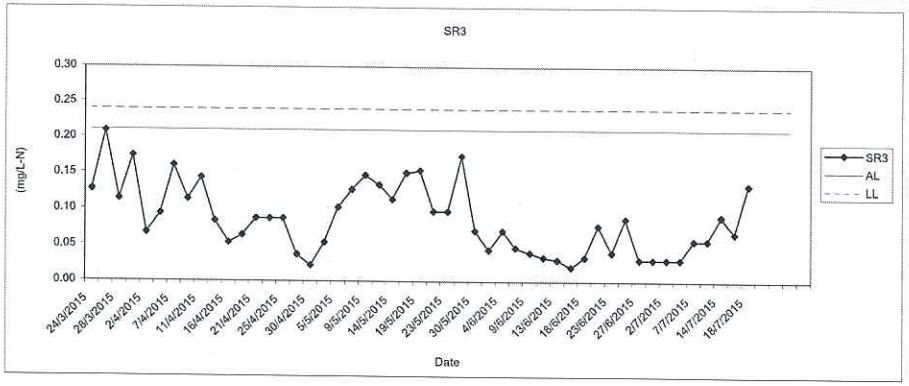




In-situ Ammonia (Depth average) at Mid-Flood Tide

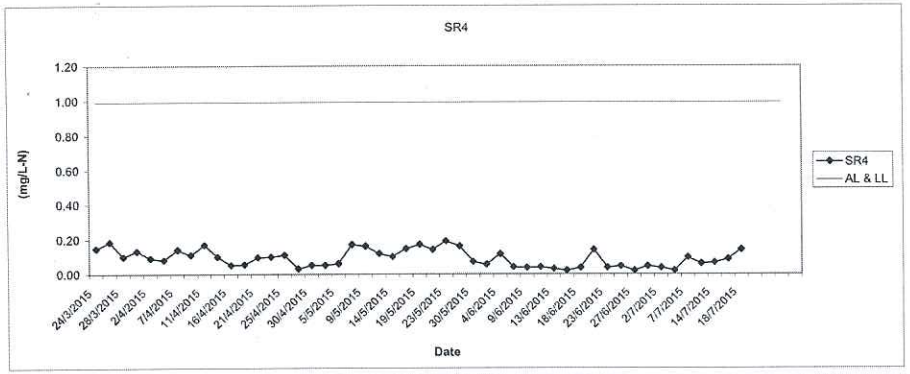


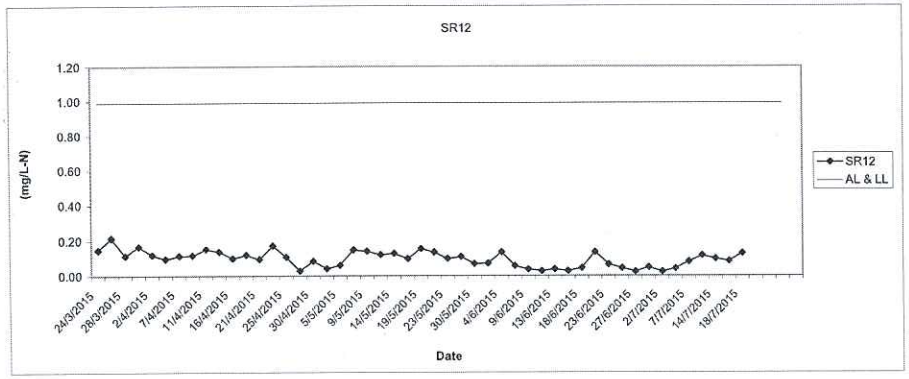




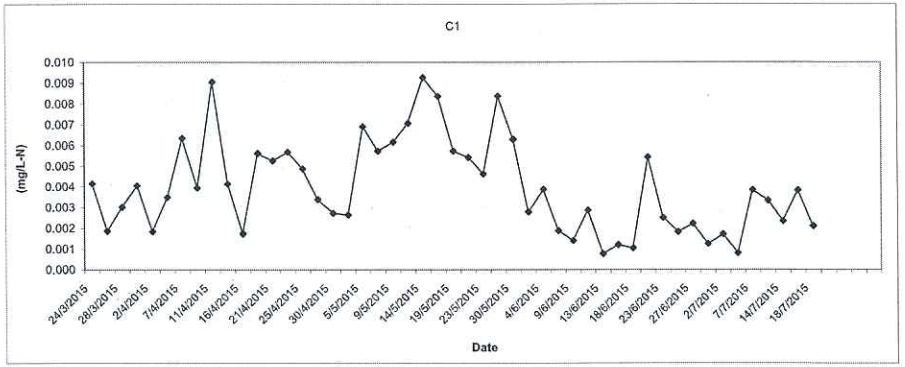
Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

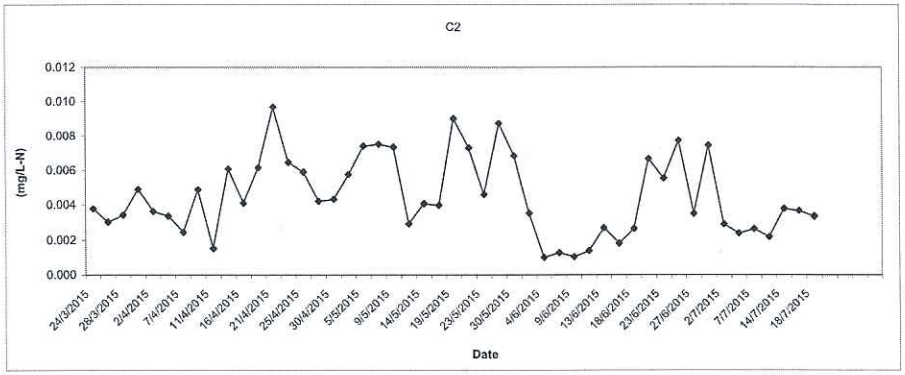
In-situ Ammonia (Depth average) at Mid-Flood Tide

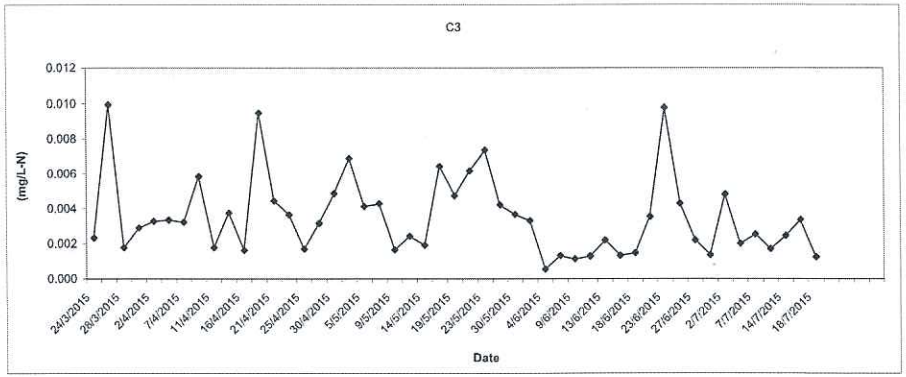




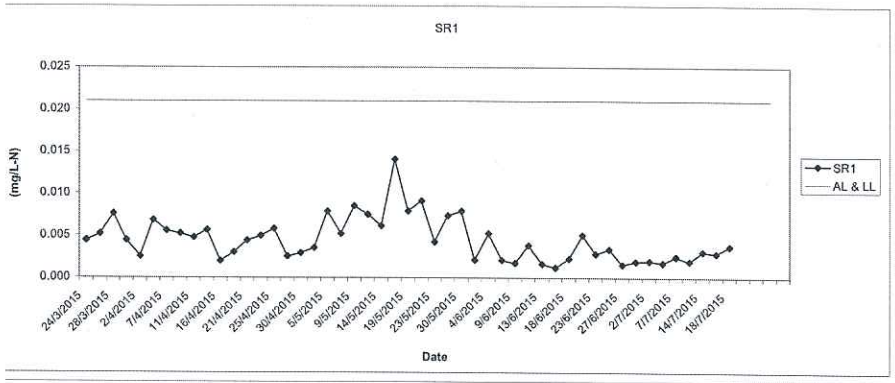
In-situ UIA (Depth average) at Mid-Flood Tide

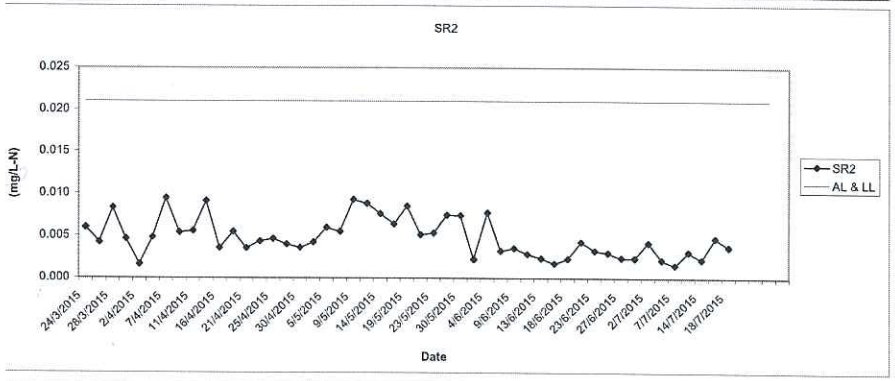


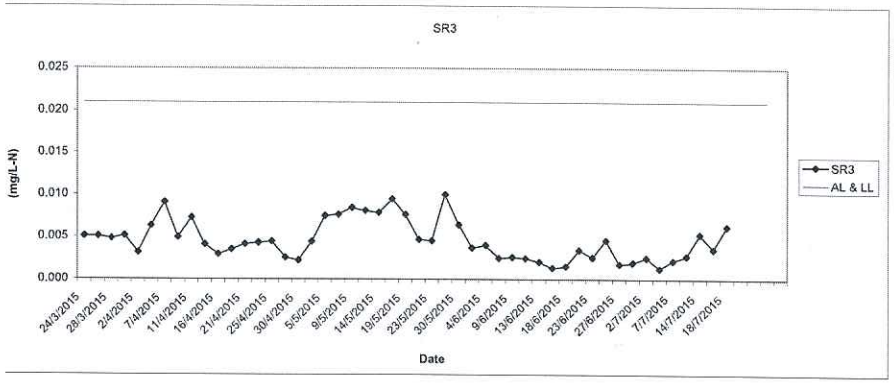




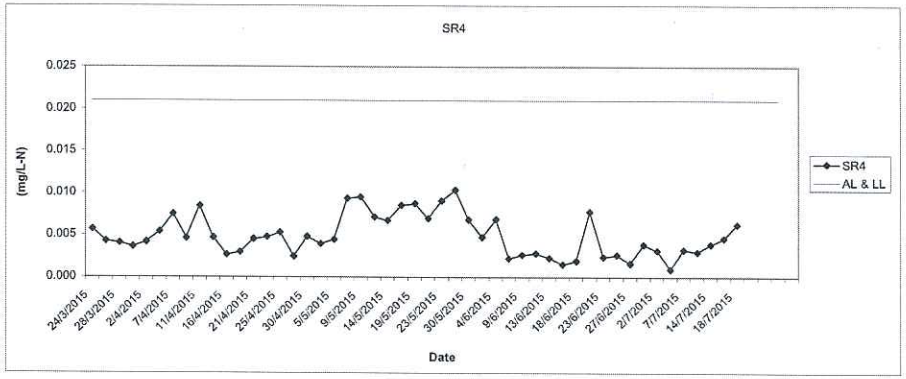
In-situ UIA (Depth average) at Mid-Flood Tide

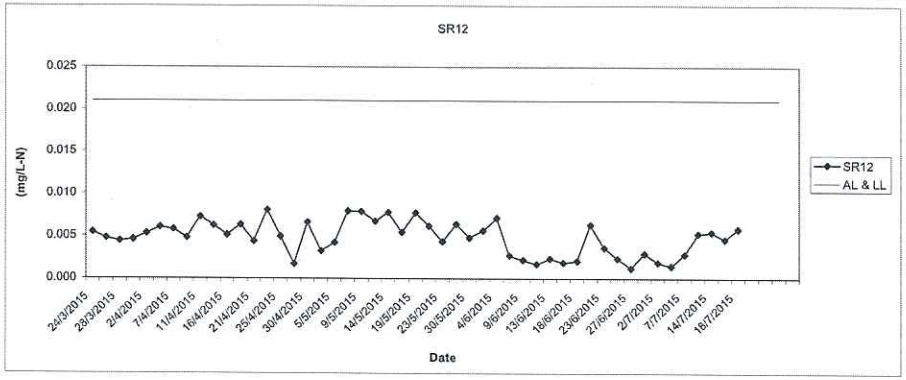






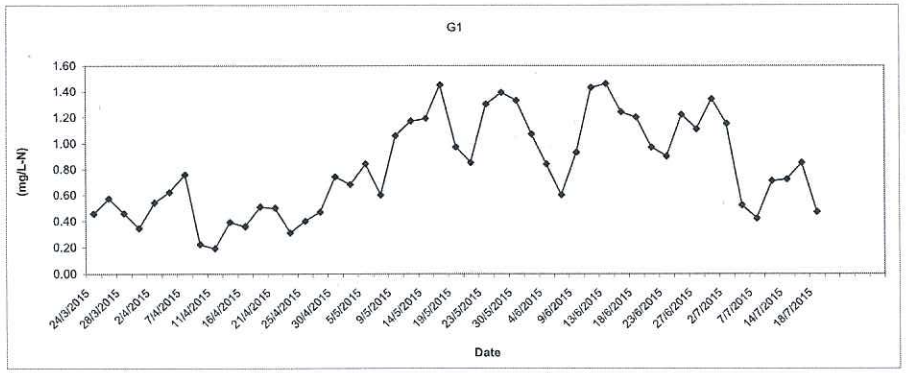
In-situ UIA (Depth average) at Mid-Flood Tide

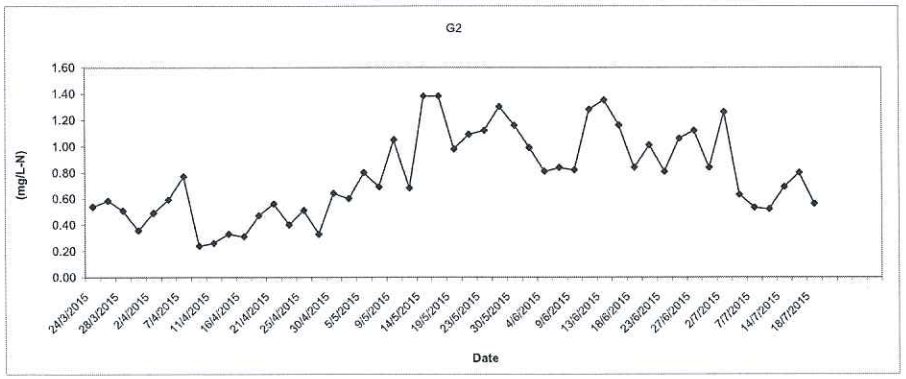


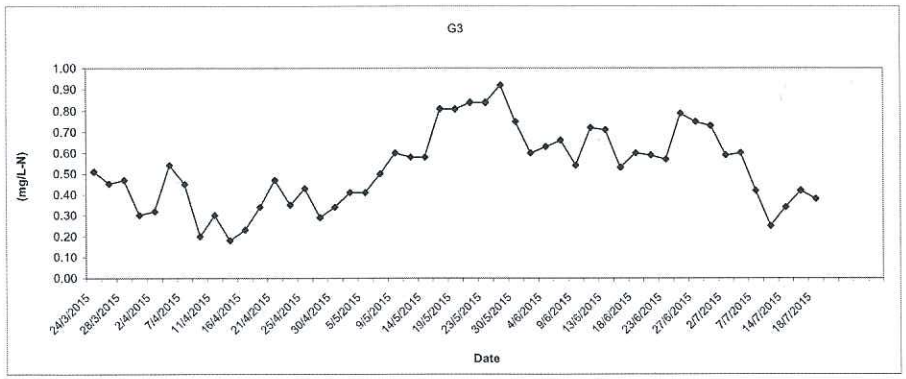


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

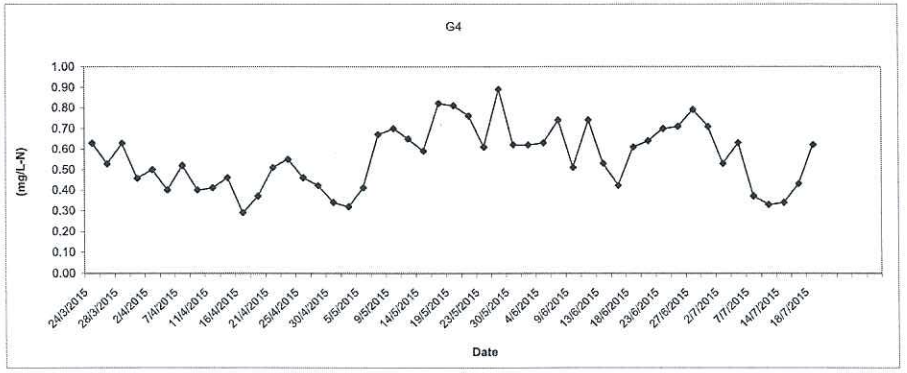
In-situ TIN (Depth average) at Mid-Flood Tide

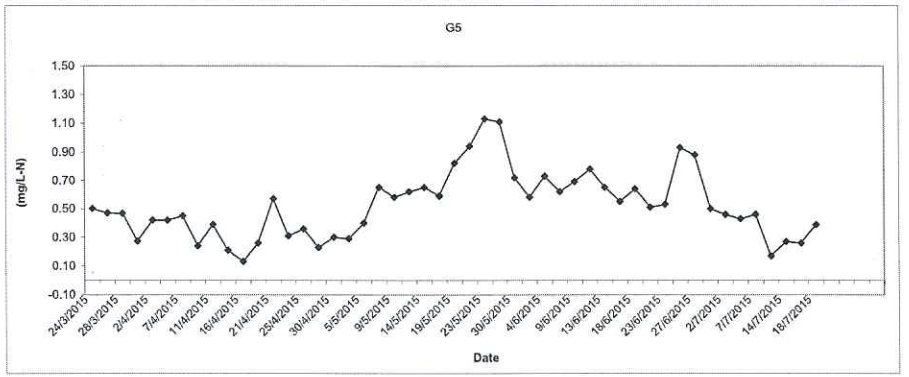


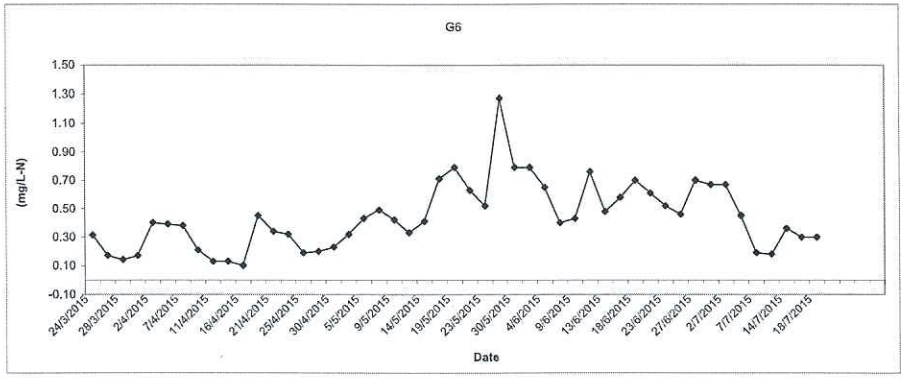




In-situ TIN (Depth average) at Mid-Flood Tide

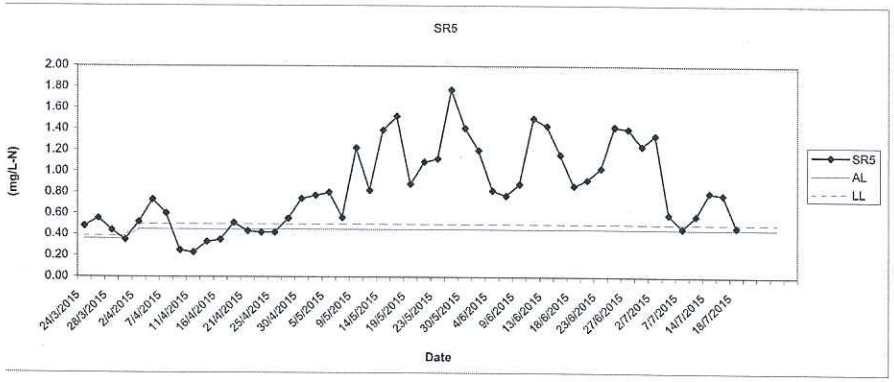


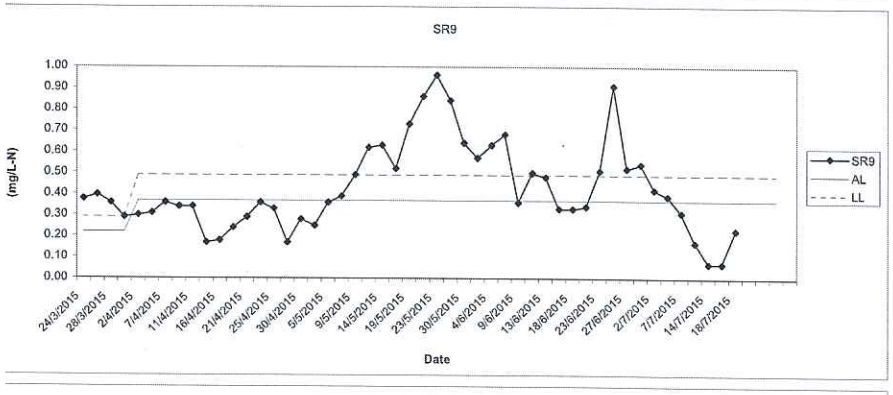


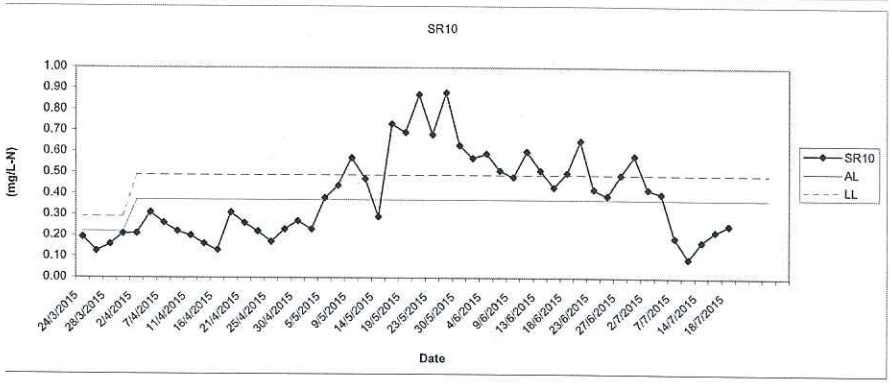


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

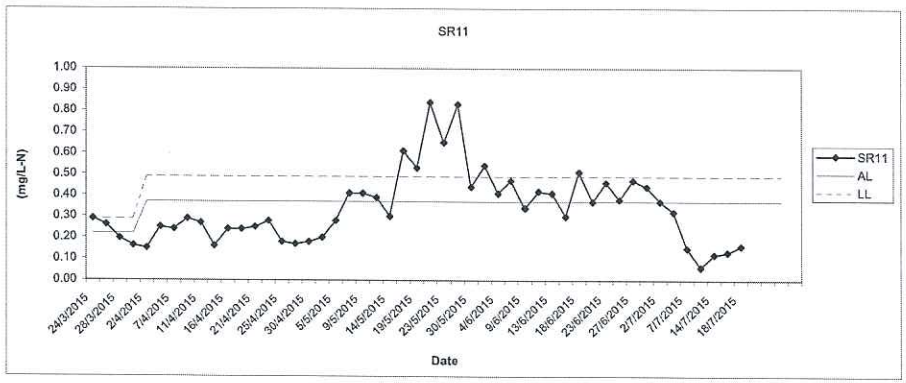
In-situ TIN (Depth average) at Mid-Flood Tide





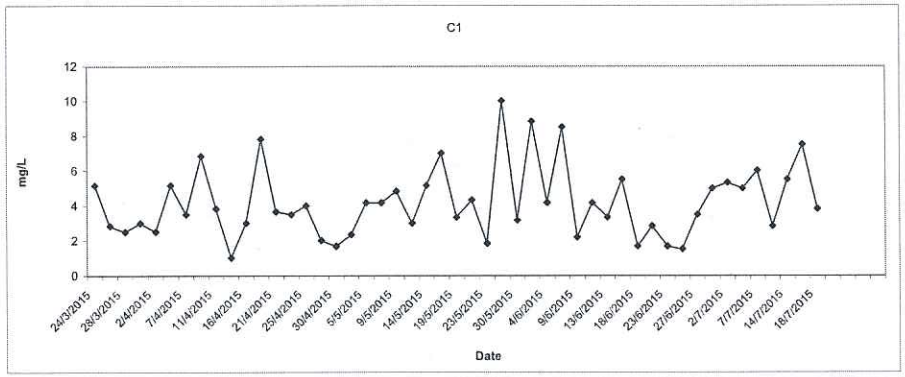


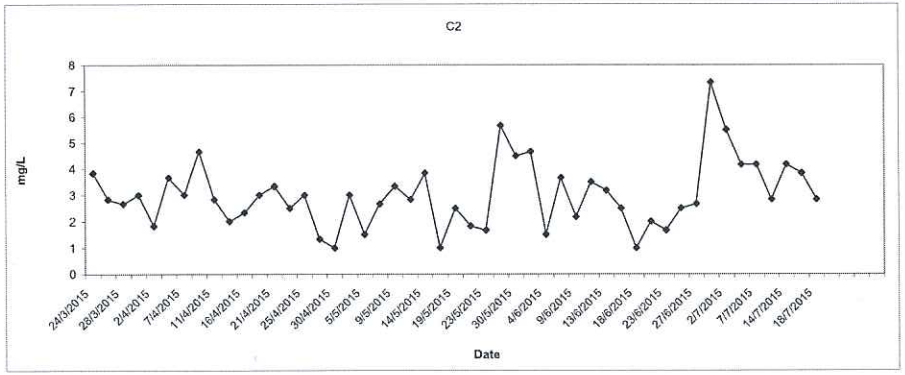
In-situ TIN (Depth average) at Mid-Flood Tide

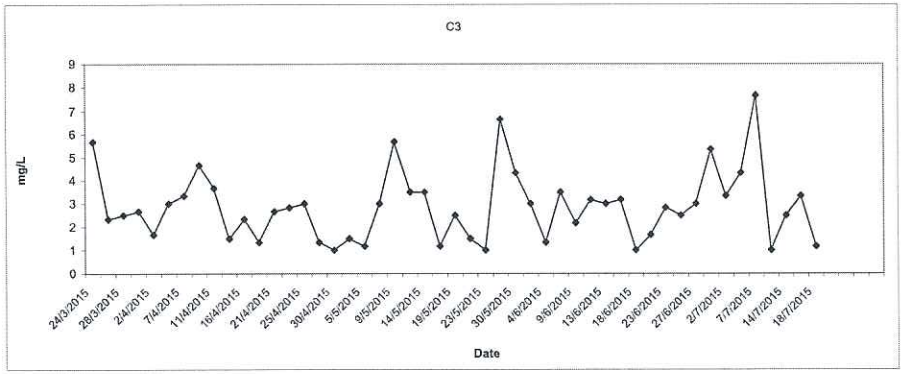


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

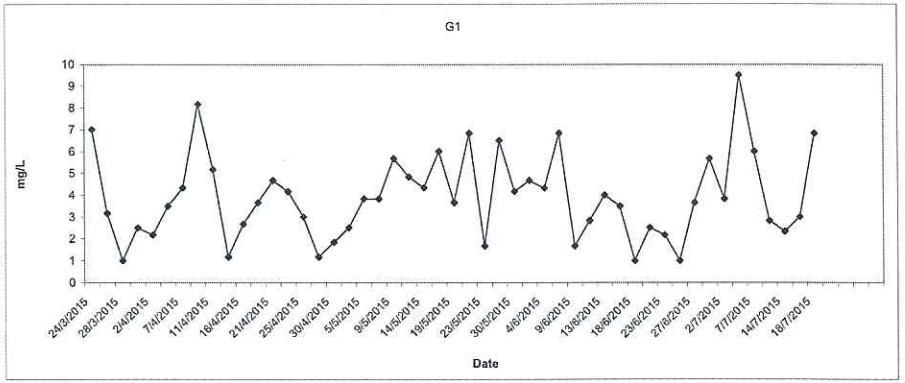
Total Suspended Solids (Depth average) at Mid-Flood Tide

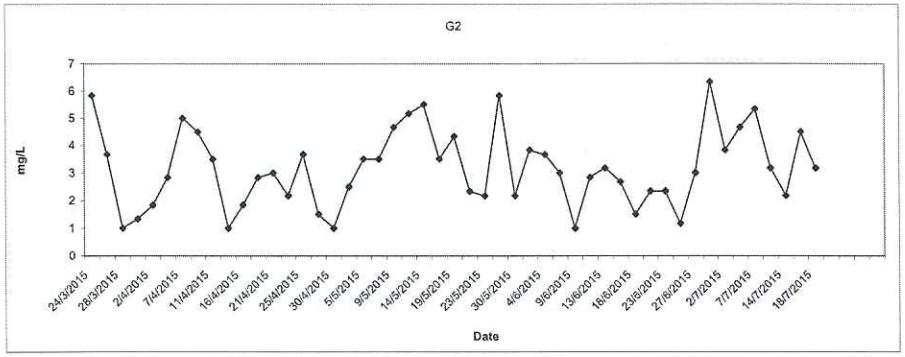


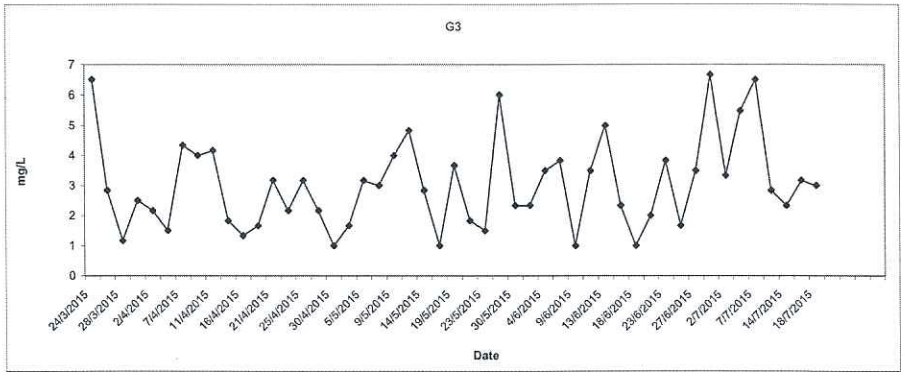




Total Suspended Solids (Depth average) at Mid-Flood Tide

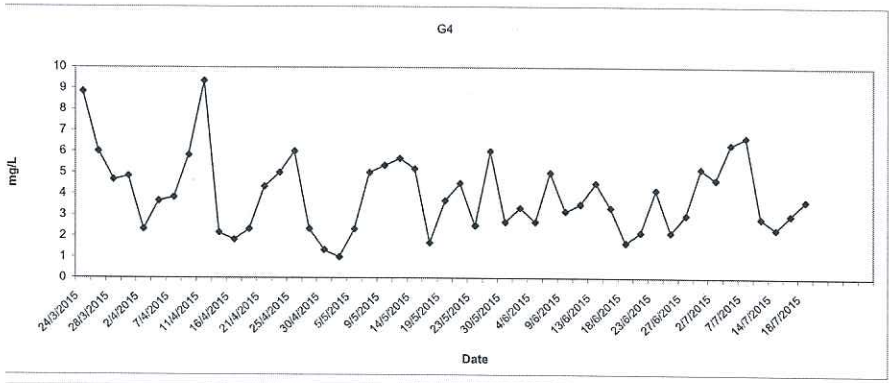


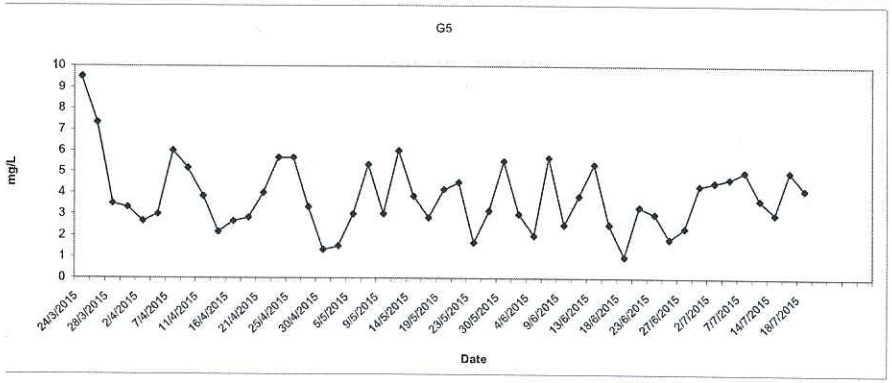


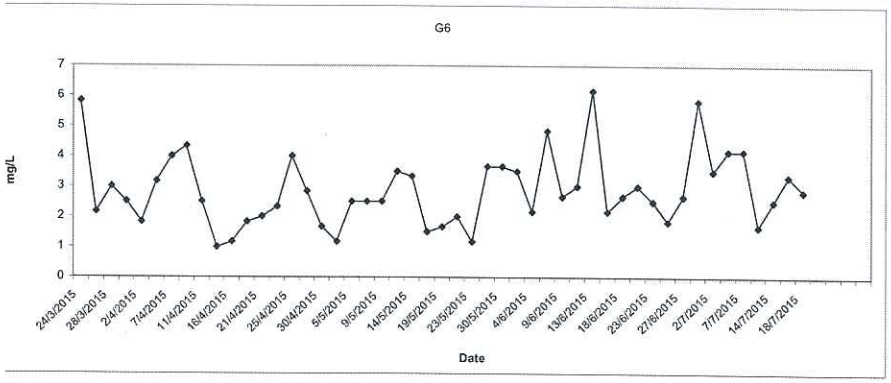


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

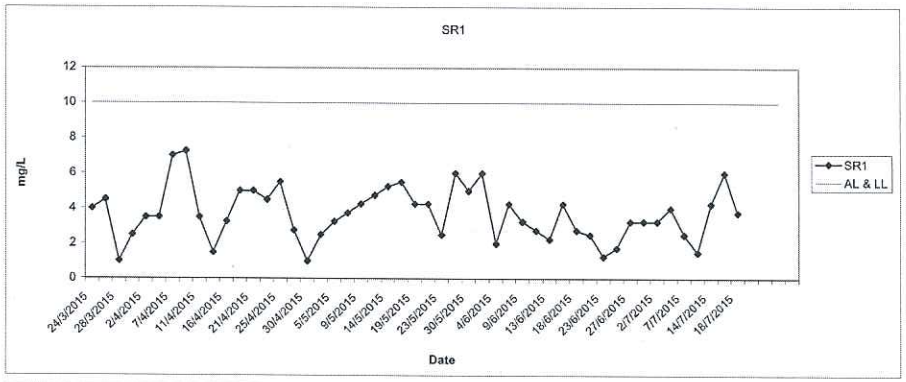
Total Suspended Solids (Depth average) at Mid-Flood Tide

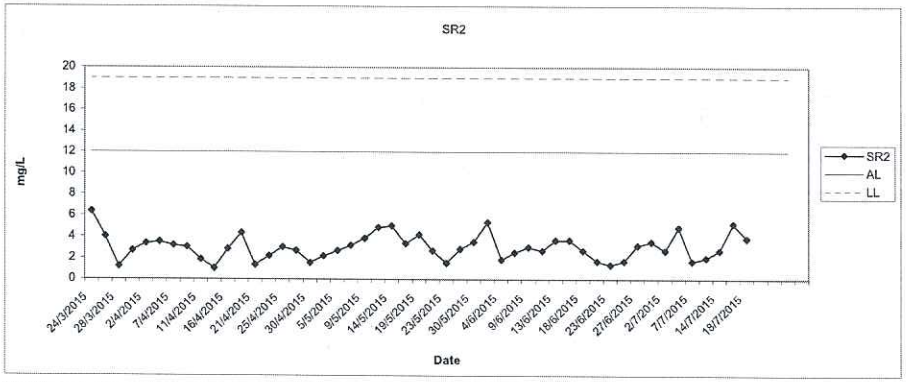


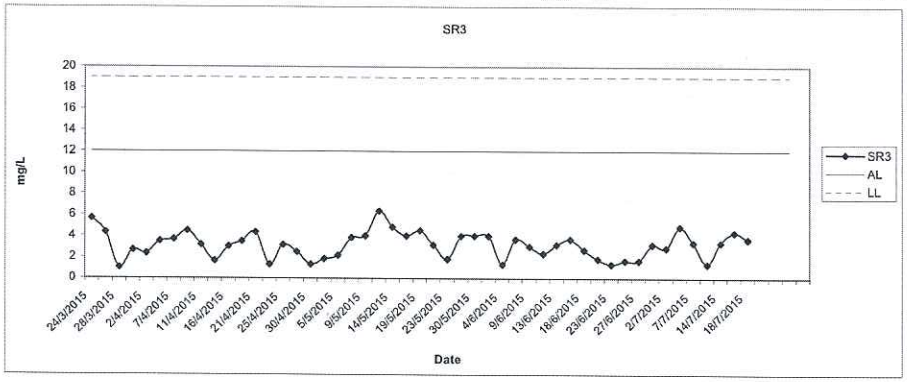




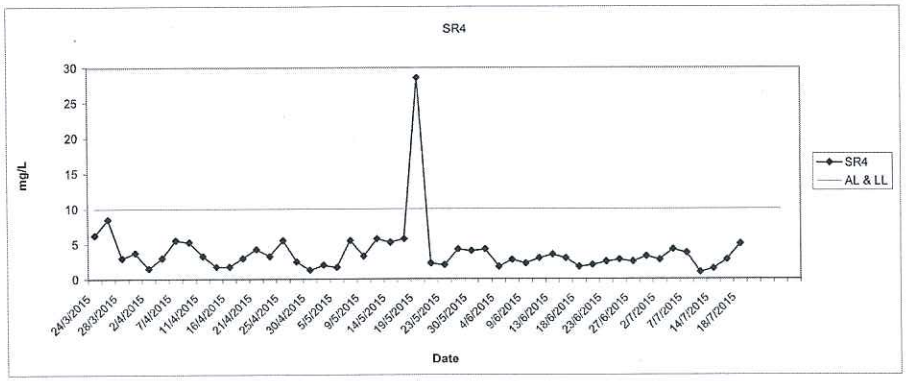
Total Suspended Solids (Depth average) at Mid-Flood Tide

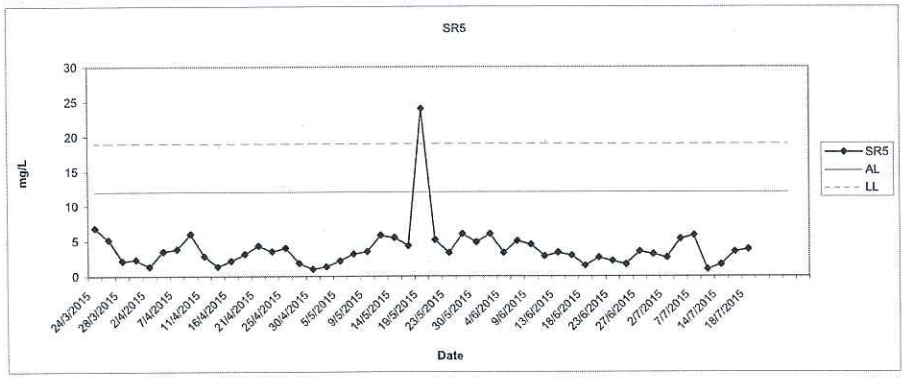


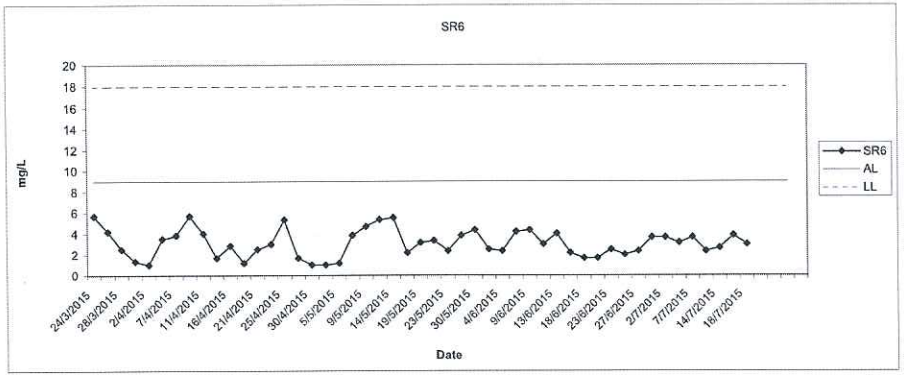




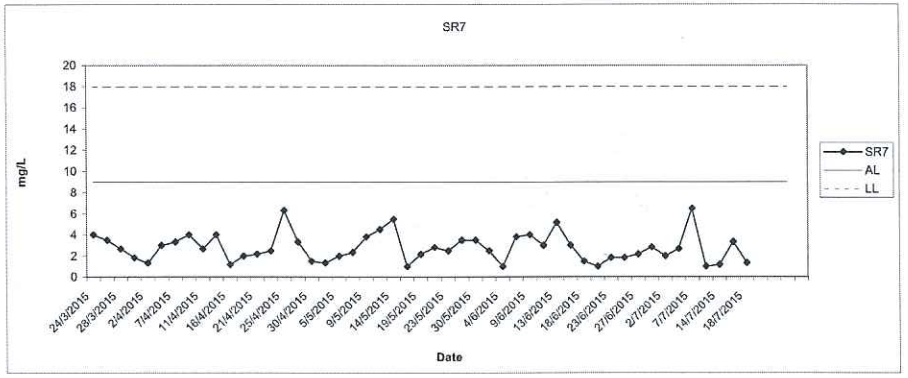
Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

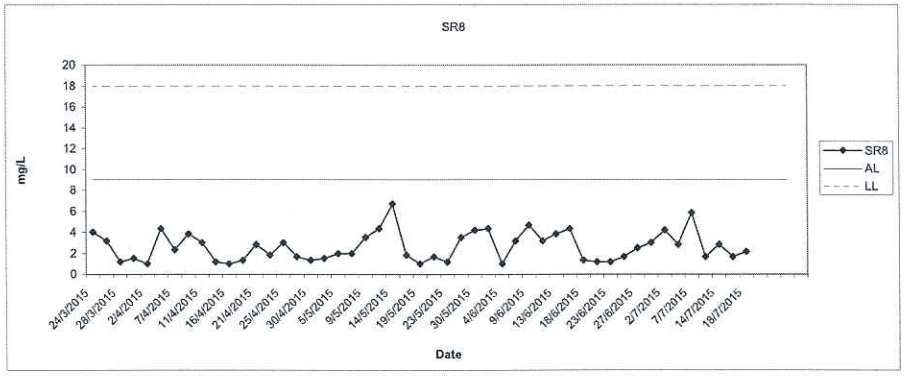


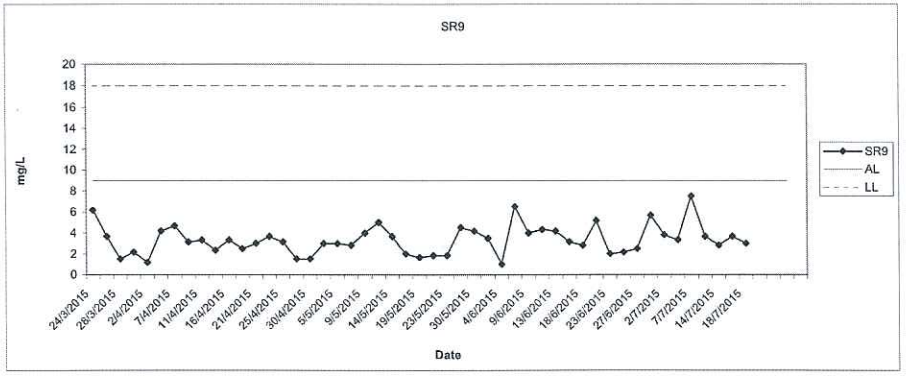




Total Suspended Solids (Depth average) at Mid-Flood Tide

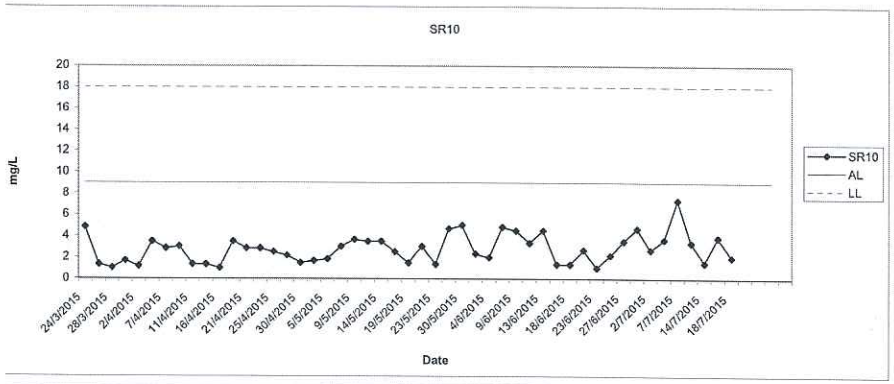


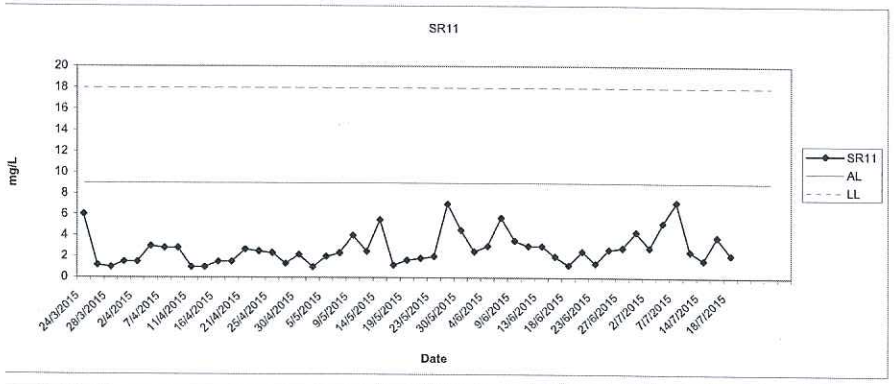


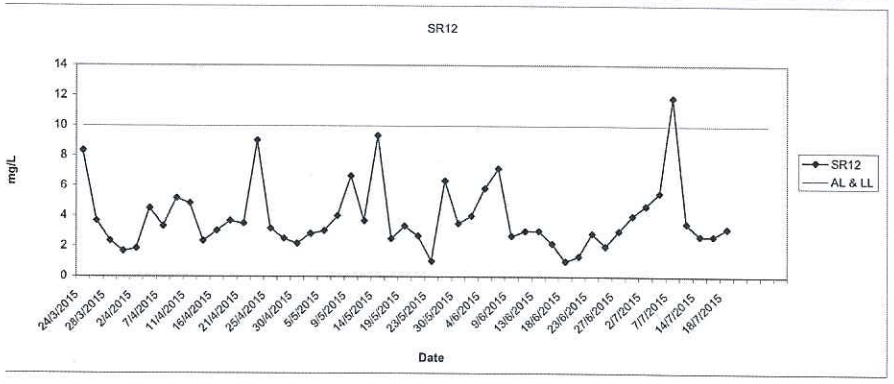


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

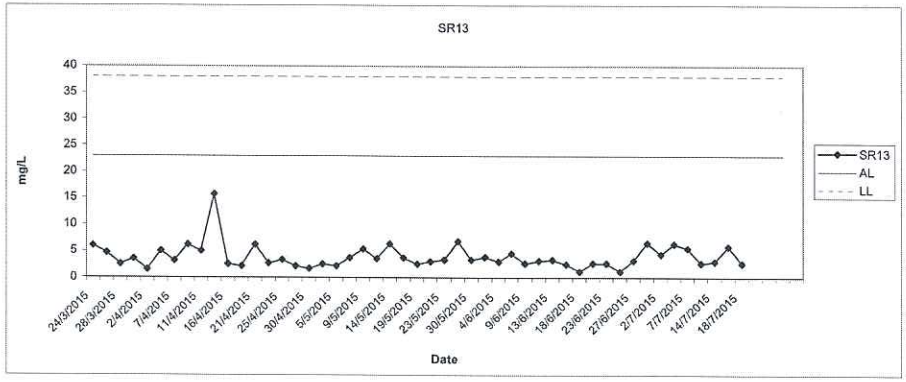
Total Suspended Solids (Depth average) at Mid-Flood Tide





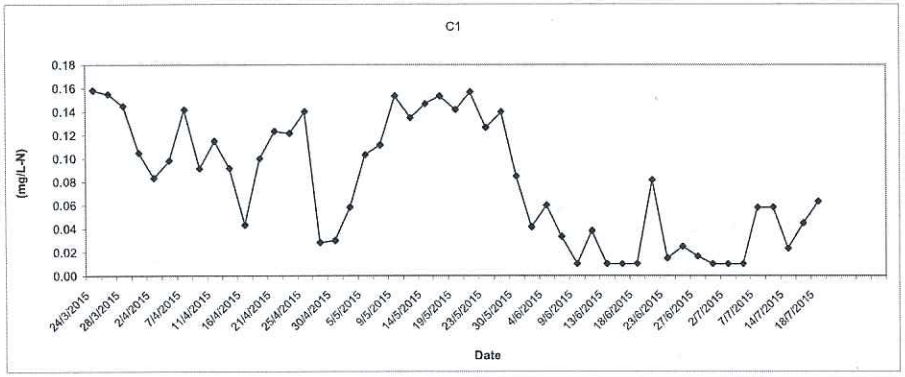


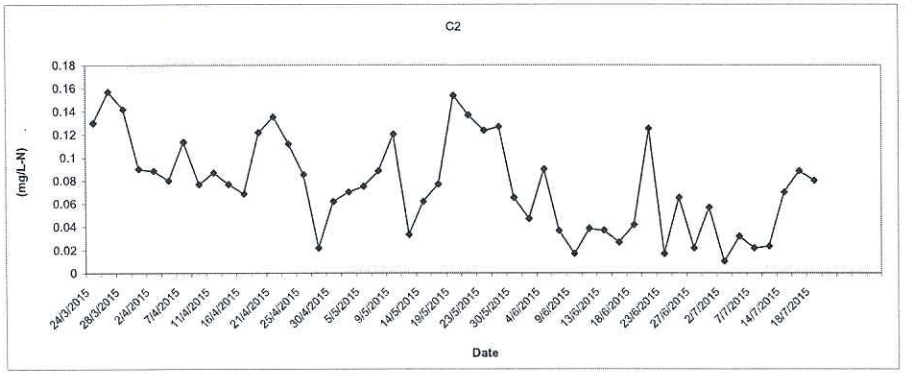
Total Suspended Solids (Depth average) at Mid-Flood Tide

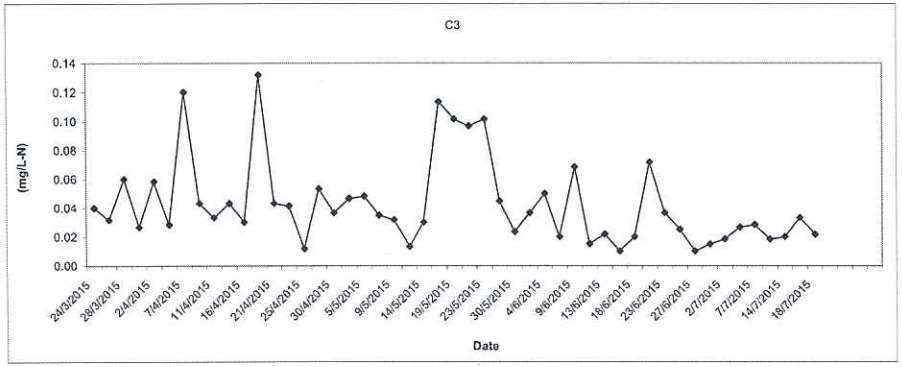


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

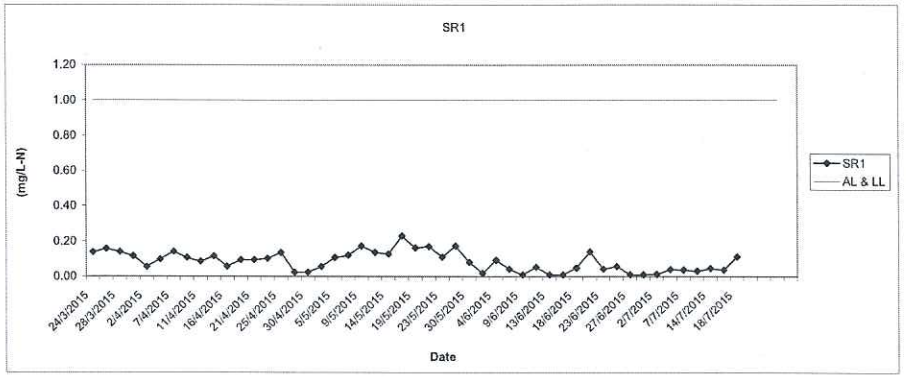
Ammonia Nitrogen (Depth average) at Mid-Flood Tide

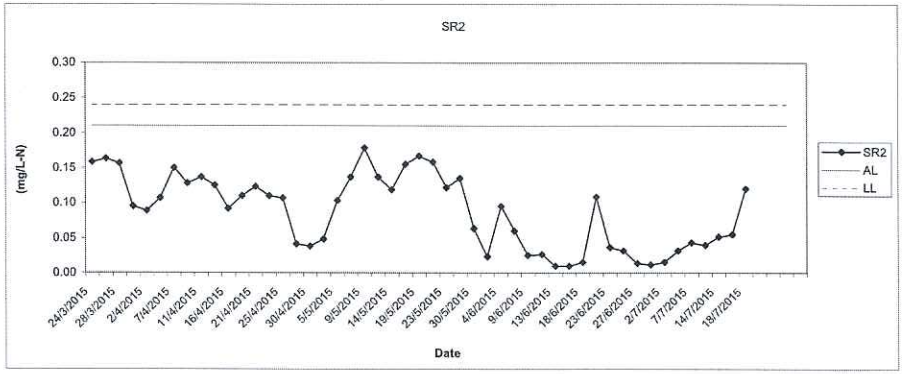


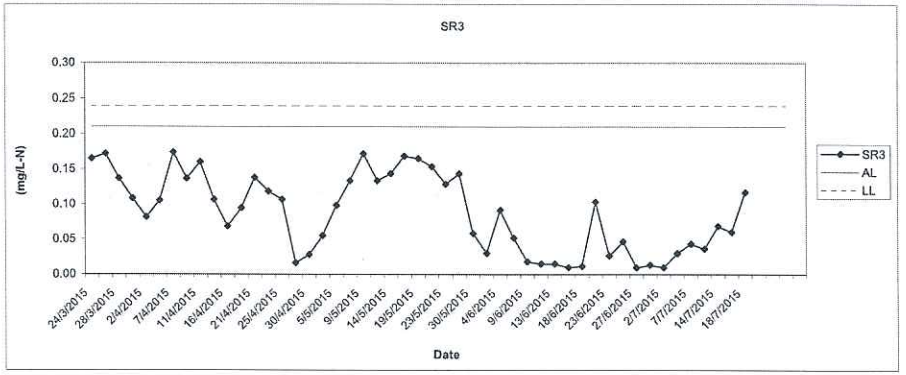




Ammonia Nitrogen (Depth average) at Mid-Flood Tide

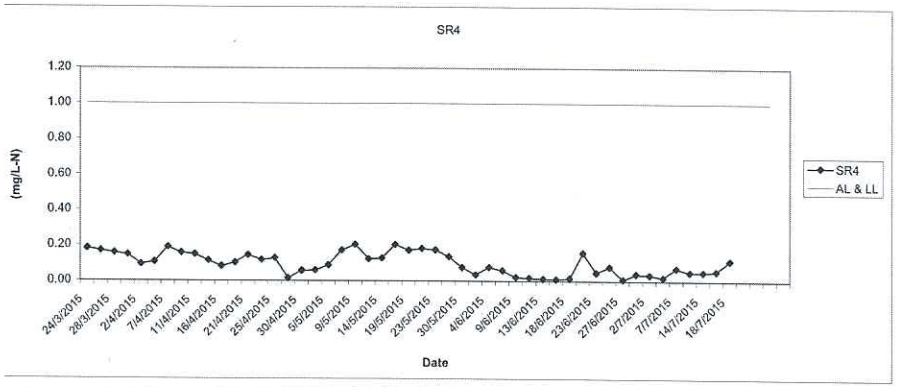


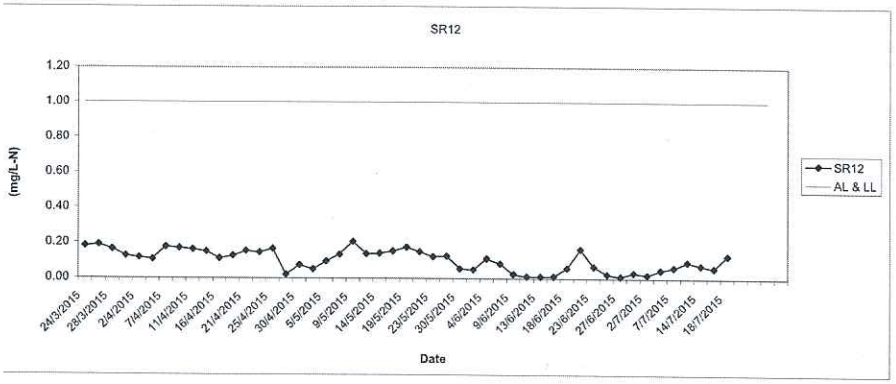




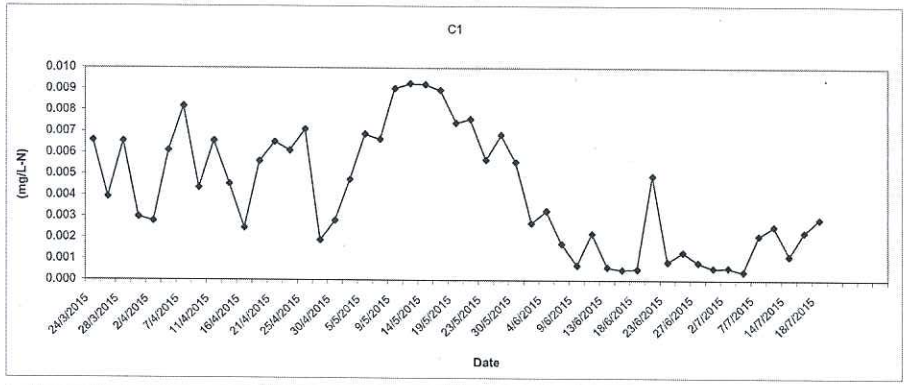
Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

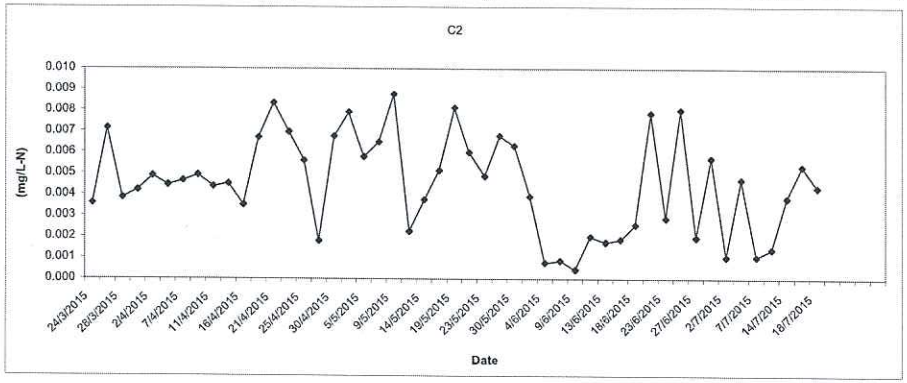
Ammonia Nitrogen (Depth average) at Mid-Flood Tide

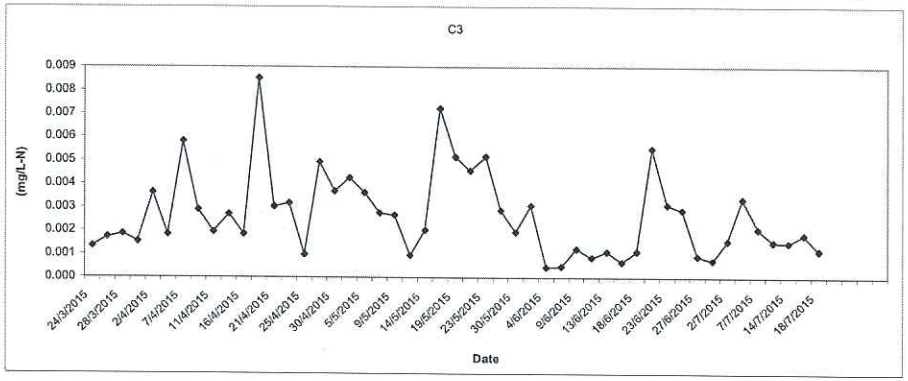




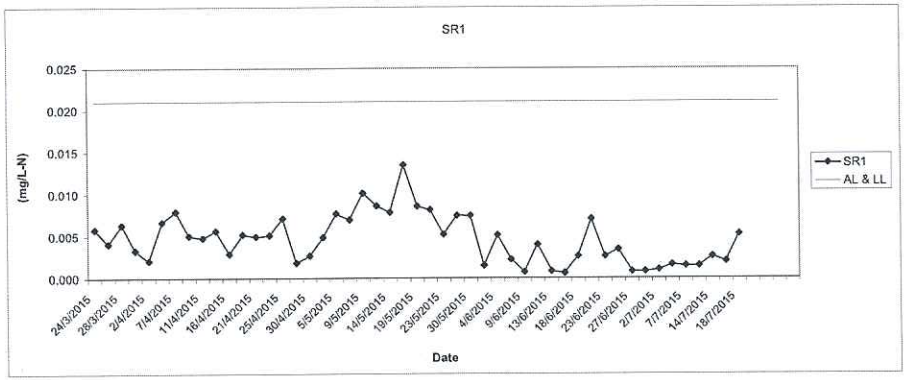
Laboratory Analysis UIA (Depth average) at Mid-Flood Tide

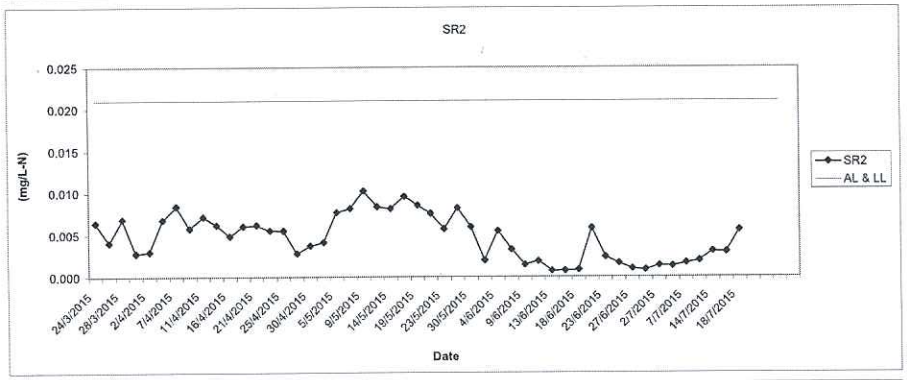


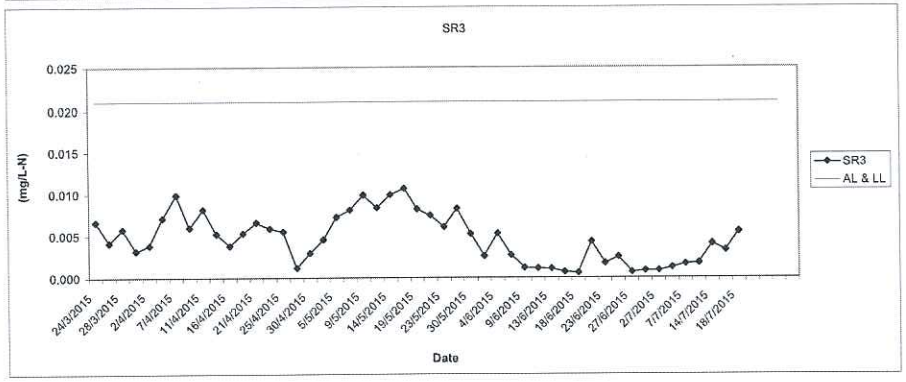




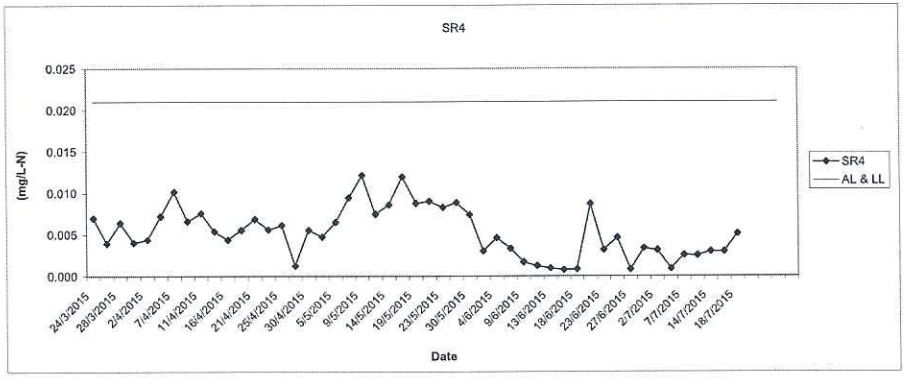
Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

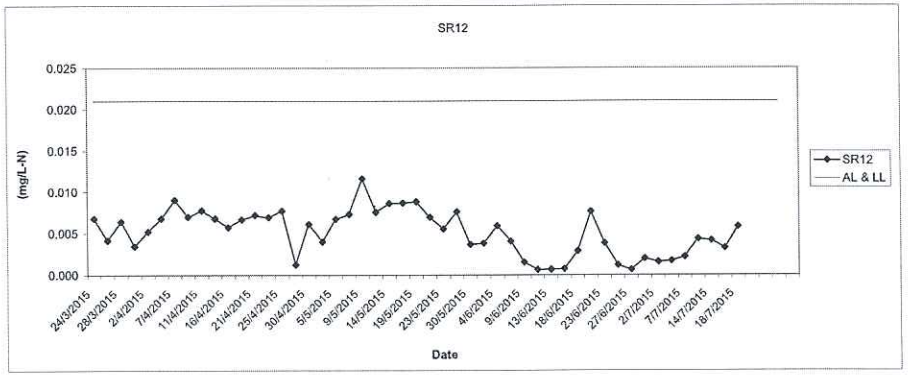






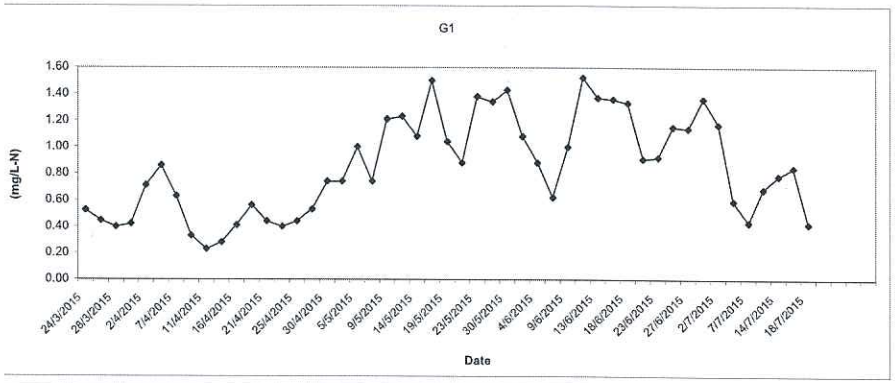
Laboratory Analysis UIA (Depth average) at Mid-Flood Tide

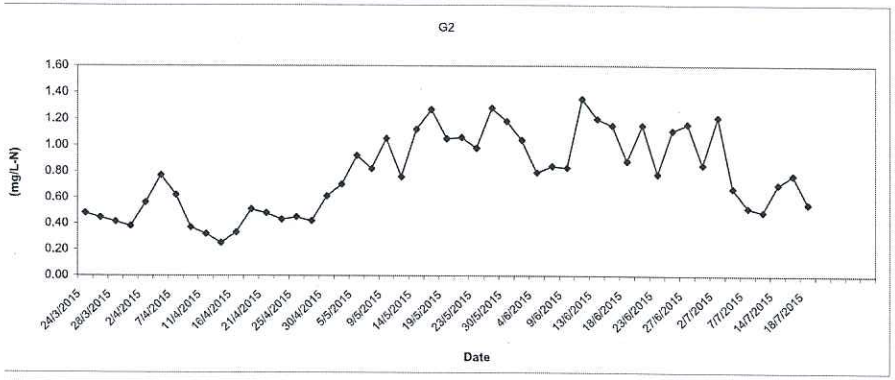


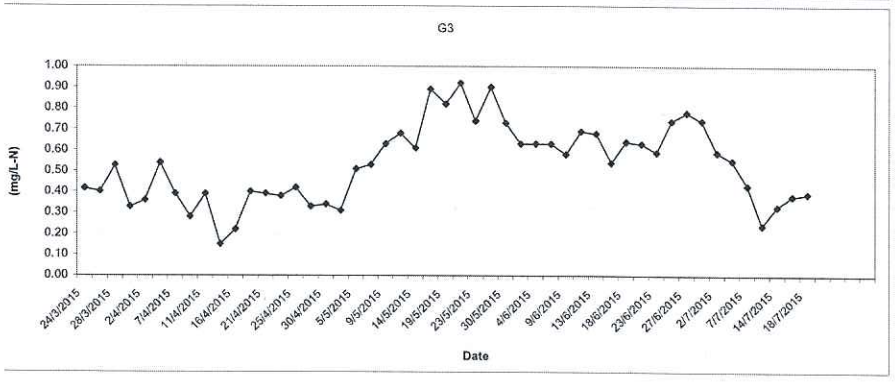


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

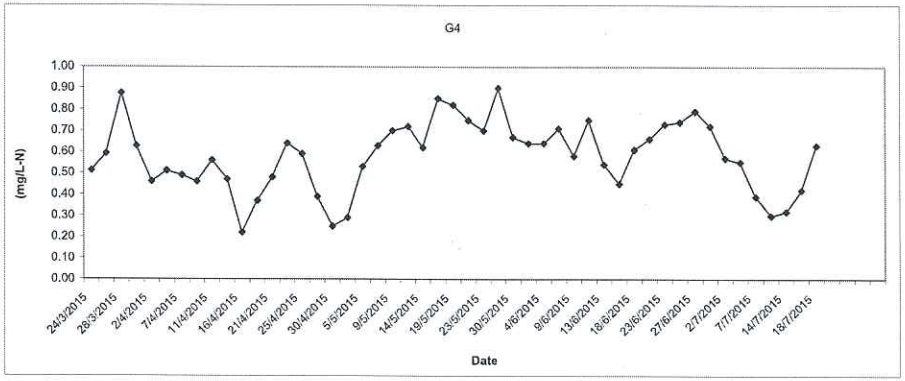
Laboratory Analysis TIN (Depth average) at Mid-Flood Tide

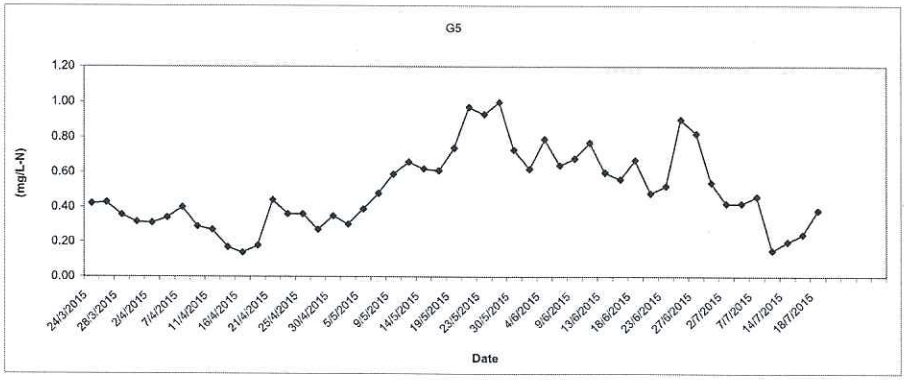


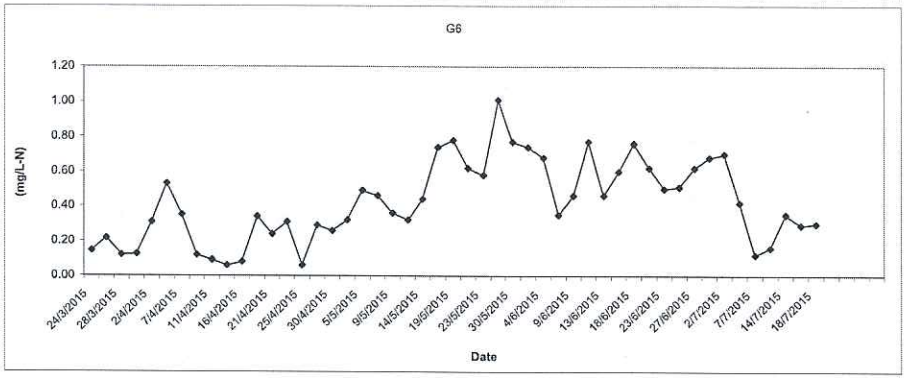




Laboratory Analysis TIN (Depth average) at Mid-Flood Tide

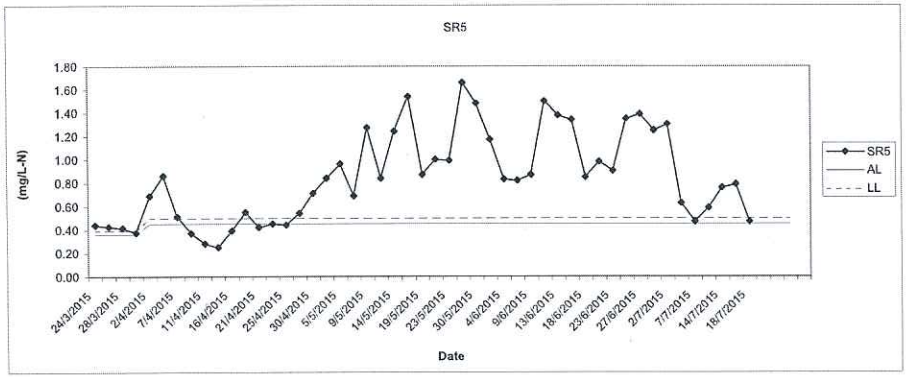


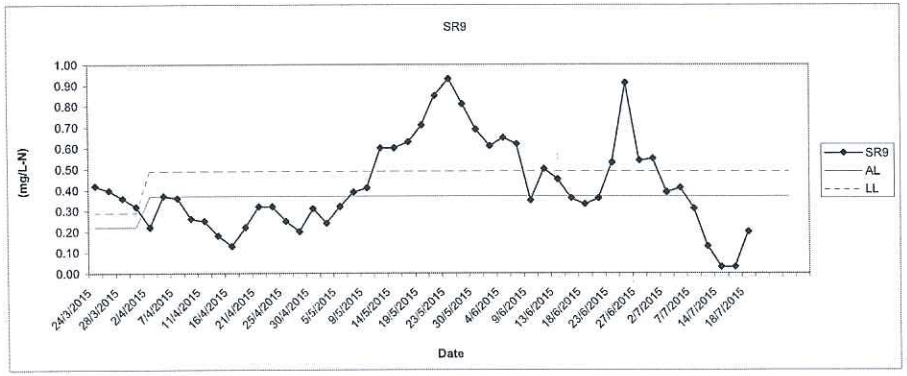


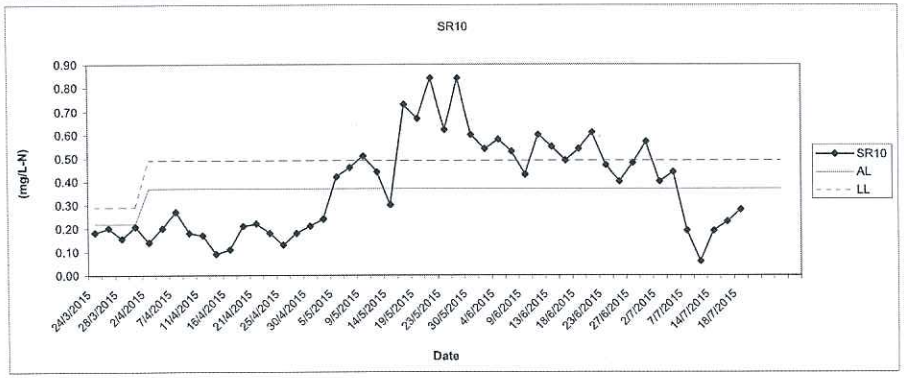


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

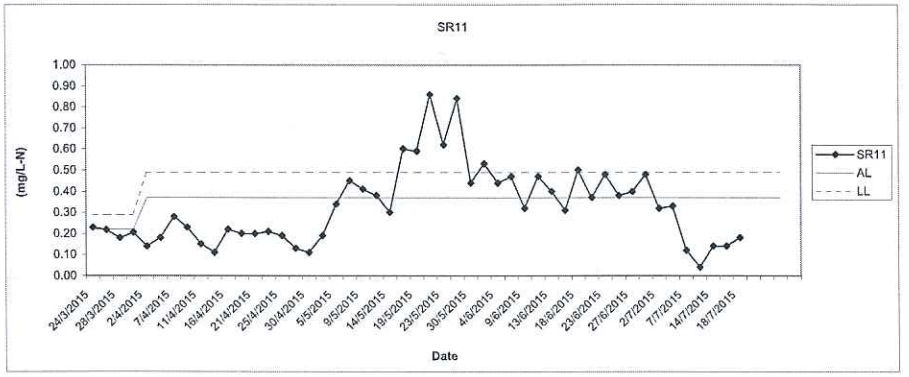
Laboratory Analysis TIN (Depth average) at Mid-Flood Tide





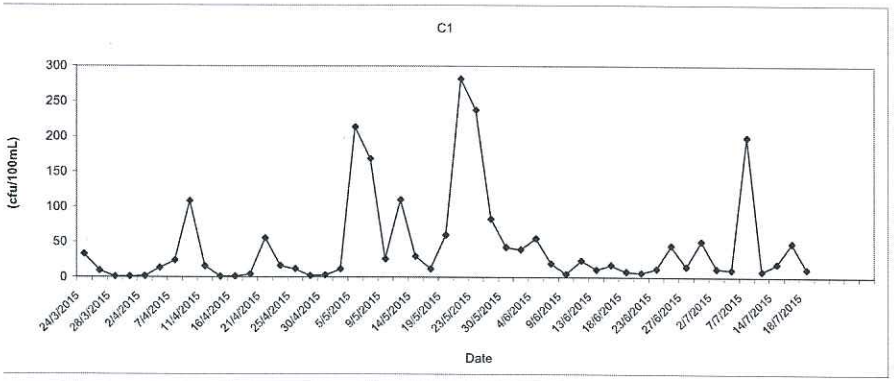


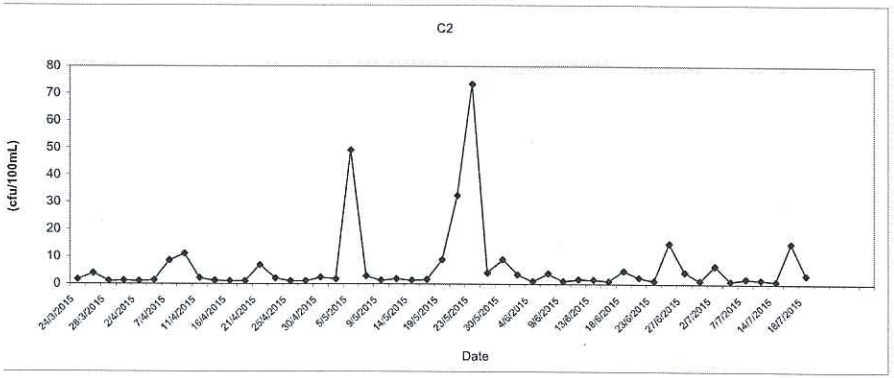
Laboratory Analysis TIN (Depth average) at Mid-Flood Tide

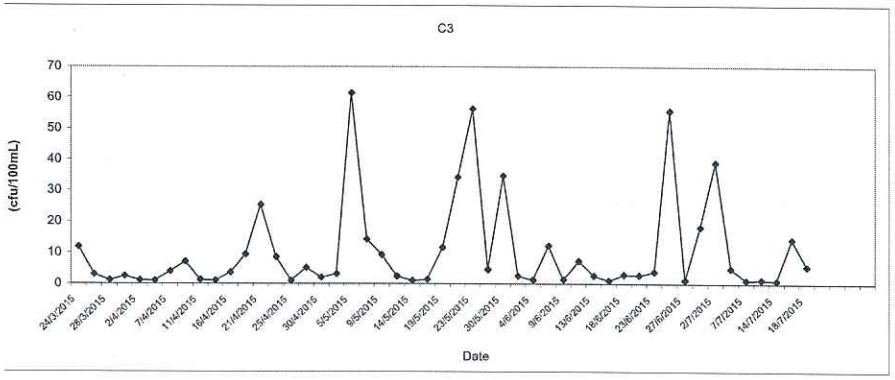


Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

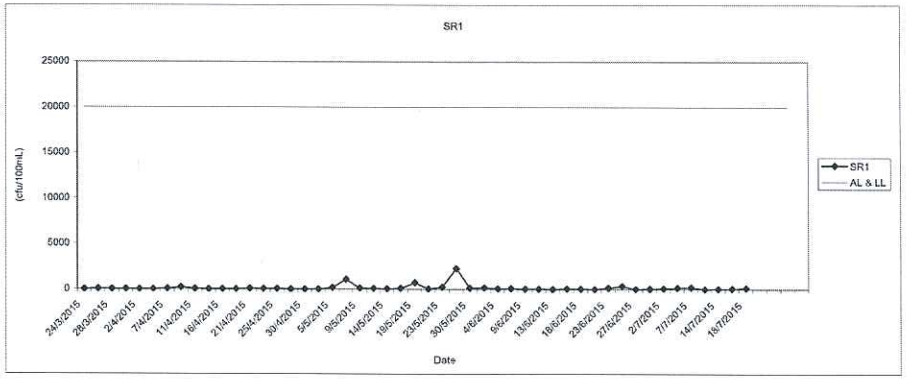
E.coli **(Depth average) at Mid-Flood Tide**

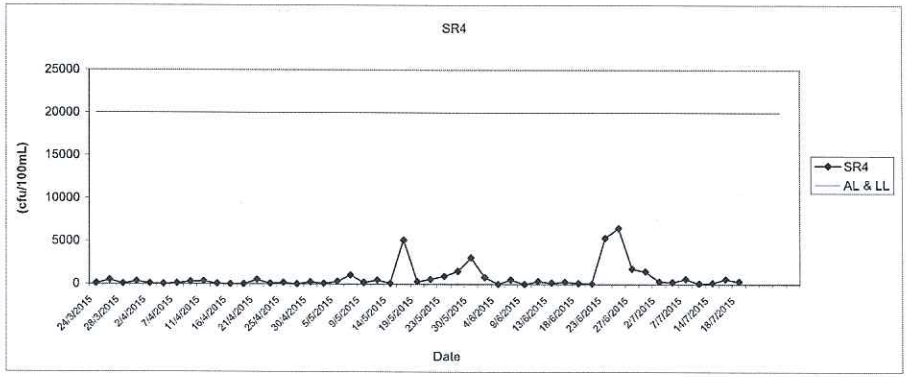


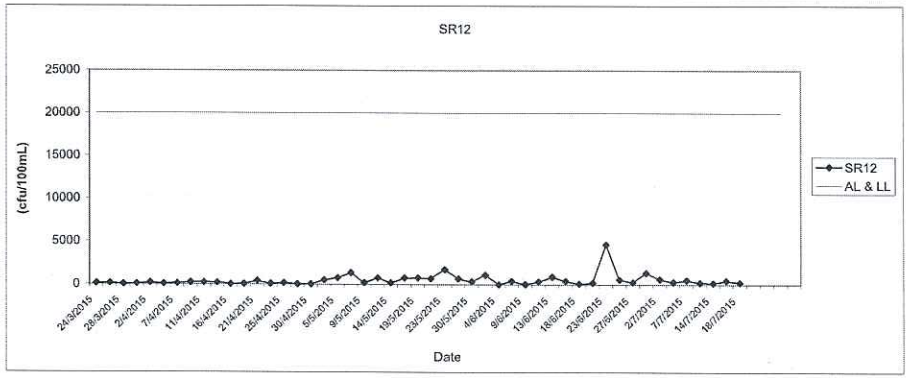




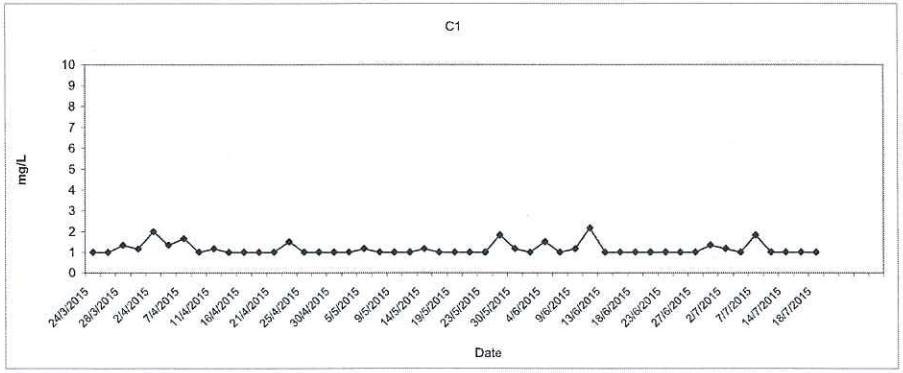
E.coli **(Depth average) at Mid-Flood Tide**

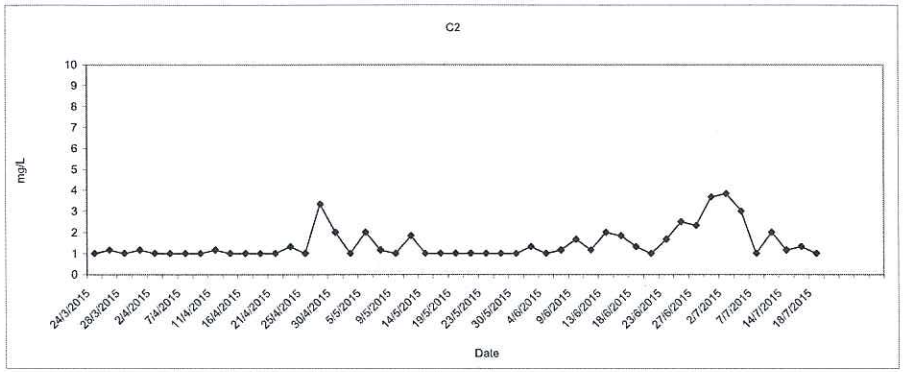


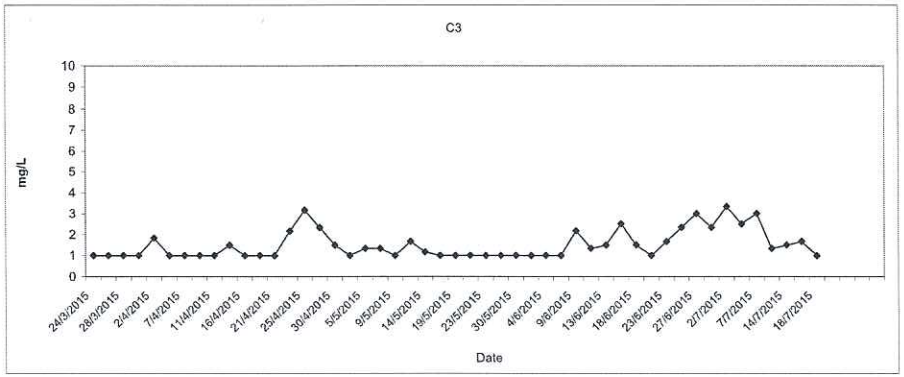




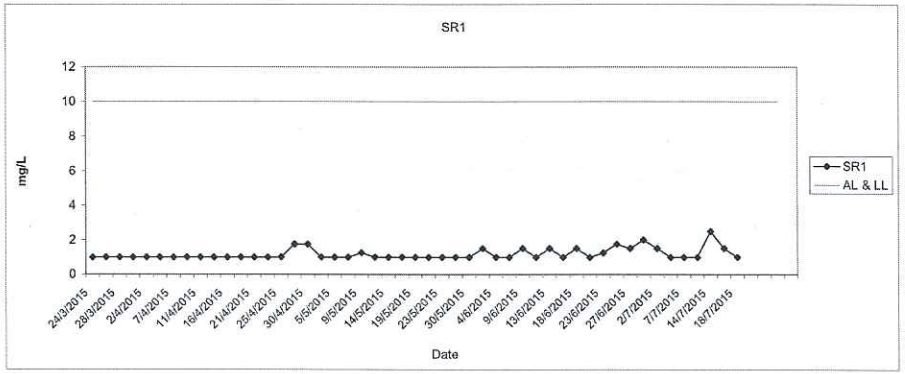
Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

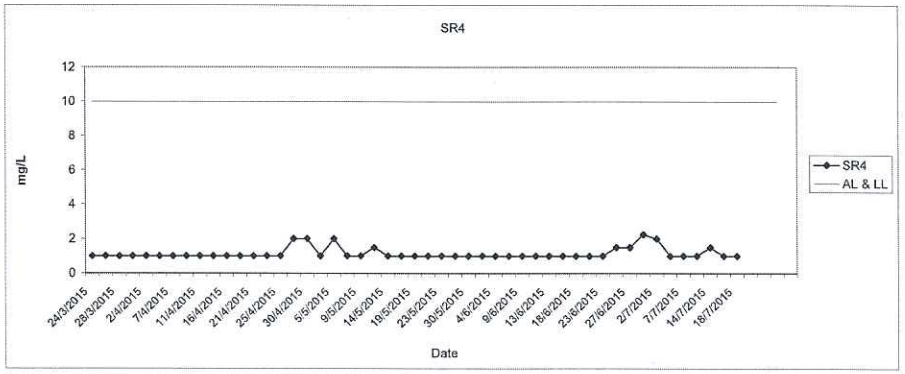


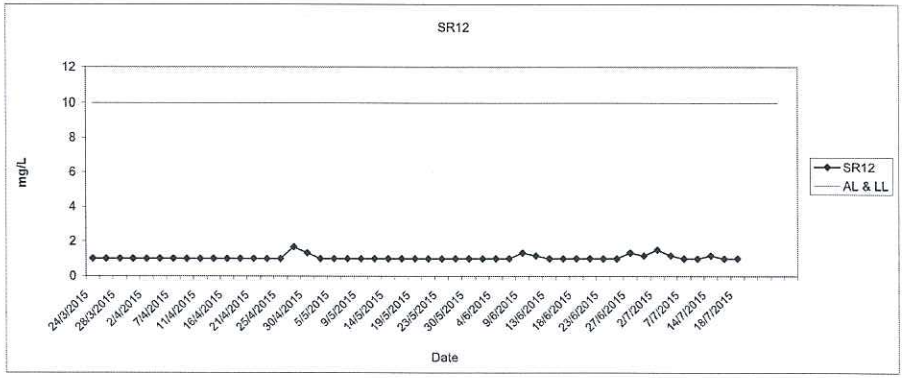




BOD_5 (Depth average) at Mid-Flood Tide

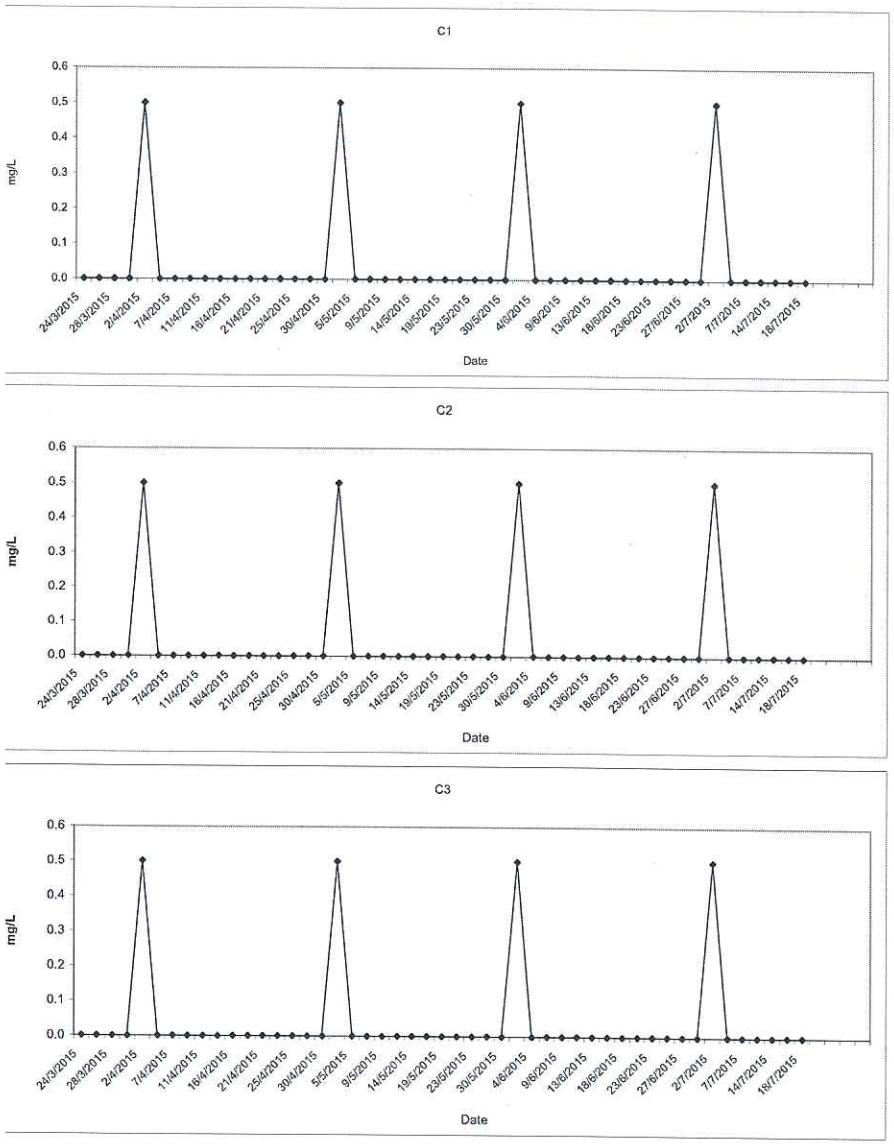






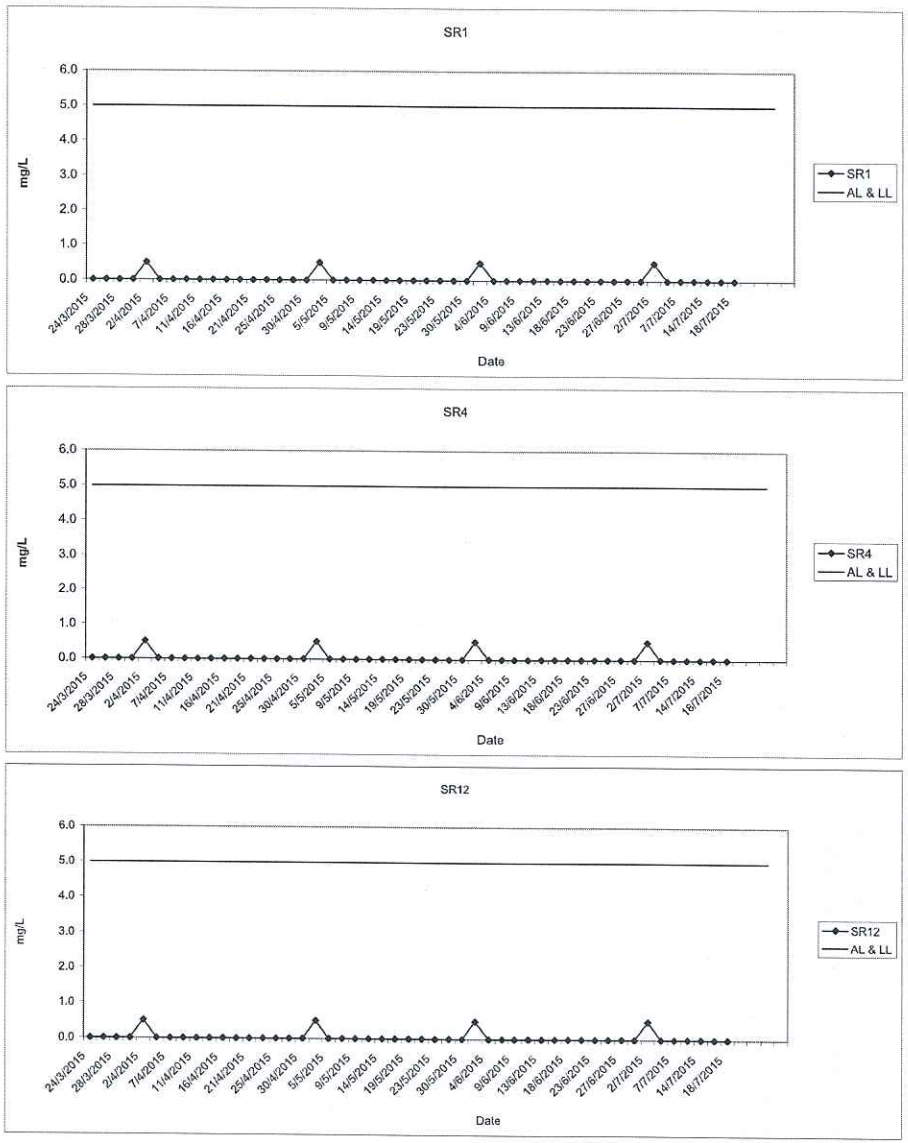
Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

Synthetic Detergent (Depth average) at Mid-Flood Tide



Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

Synthetic Detergent (Depth average) at Mid-Flood Tide



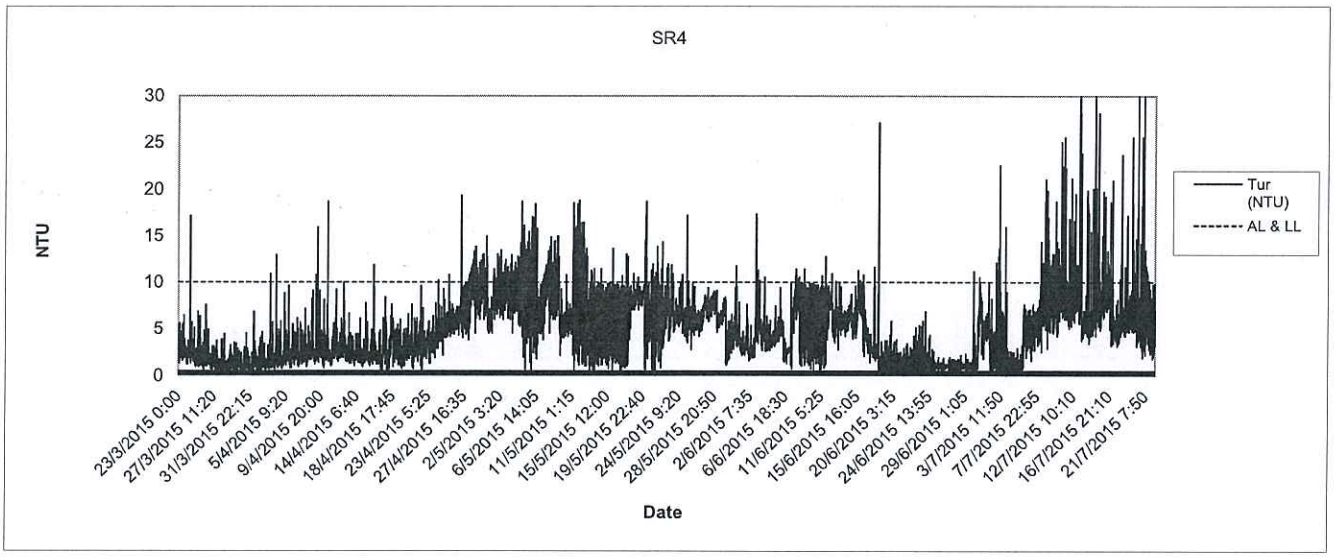
Providing Sufficient Water Depth for Kwai Tsing Container Basin and its Approach Channel

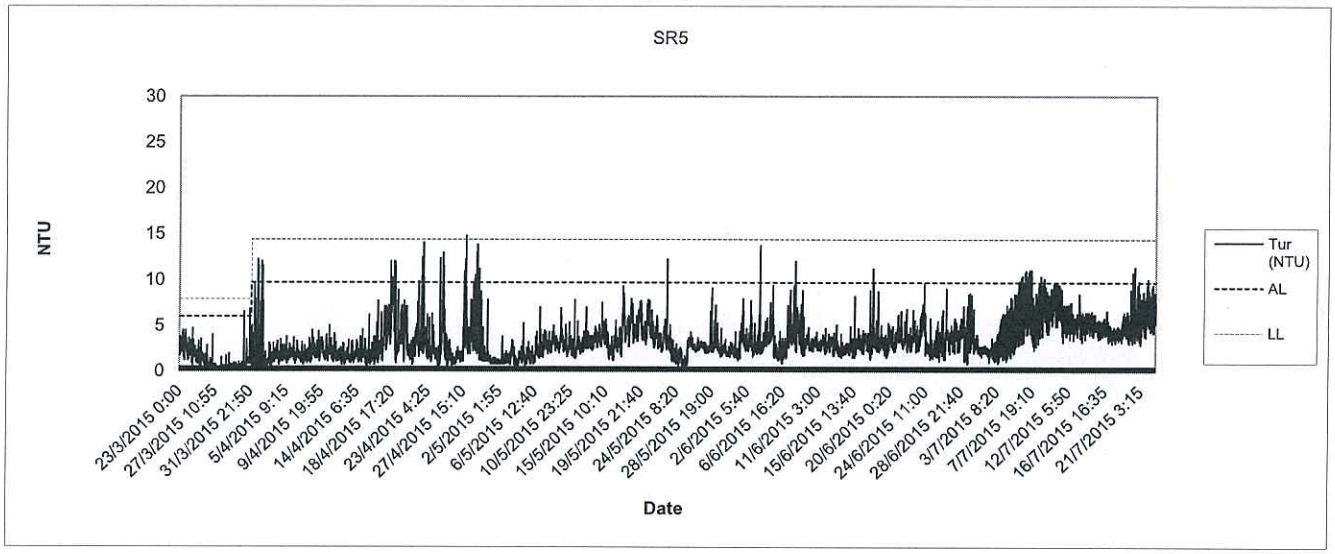
MATERIALAB CONSULTANTS LIMITED
Fugro Development Centre,
5 Lok Yi Street,
17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com.hk

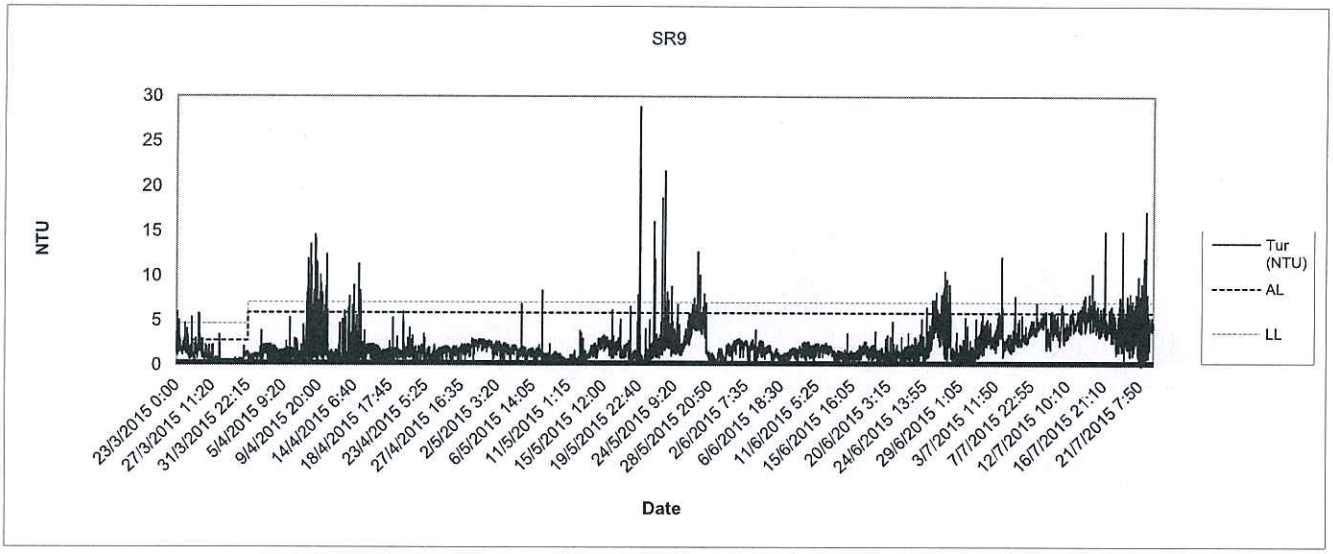
Appendix E

Graphical Presentation – 24-hr Monitoring Results

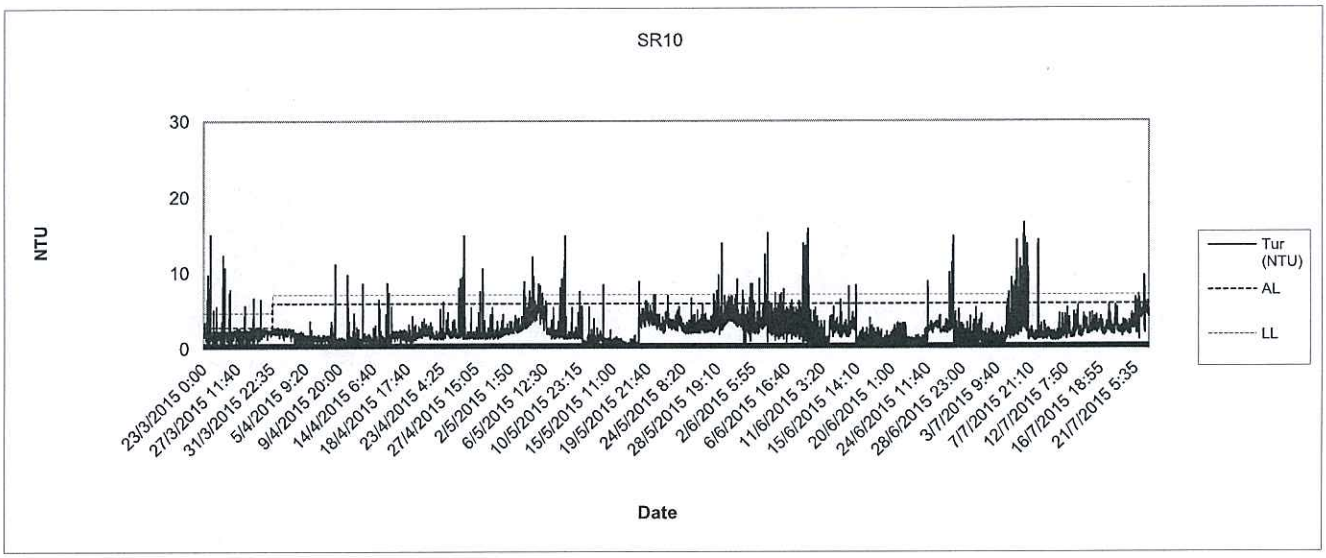
Turbidity
24-hr Water Quality Monitoring

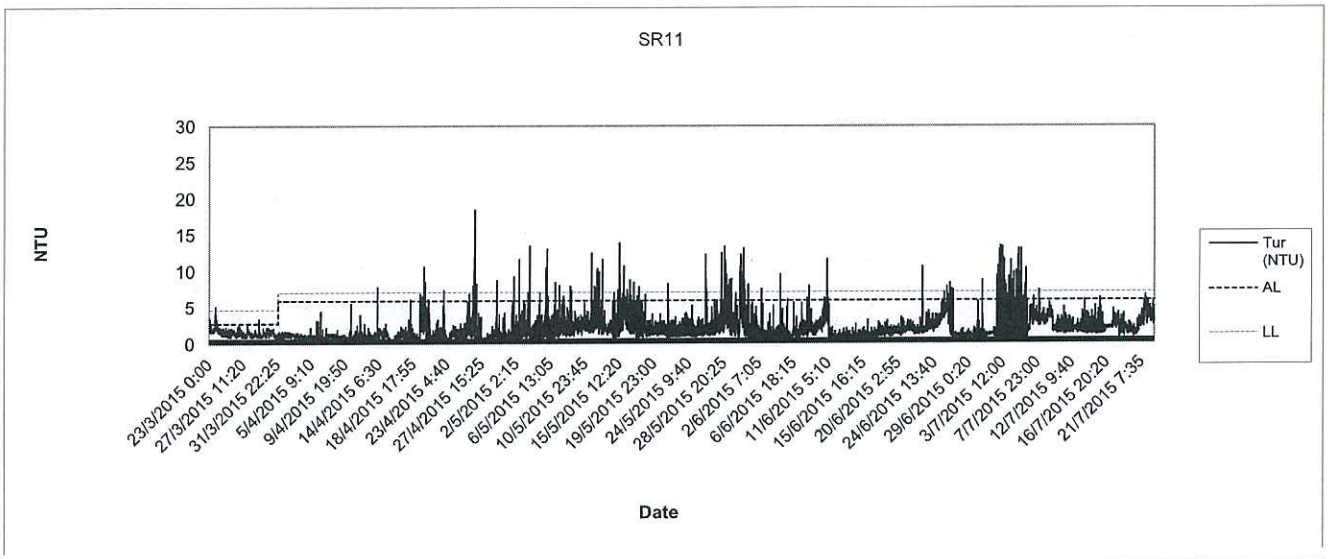


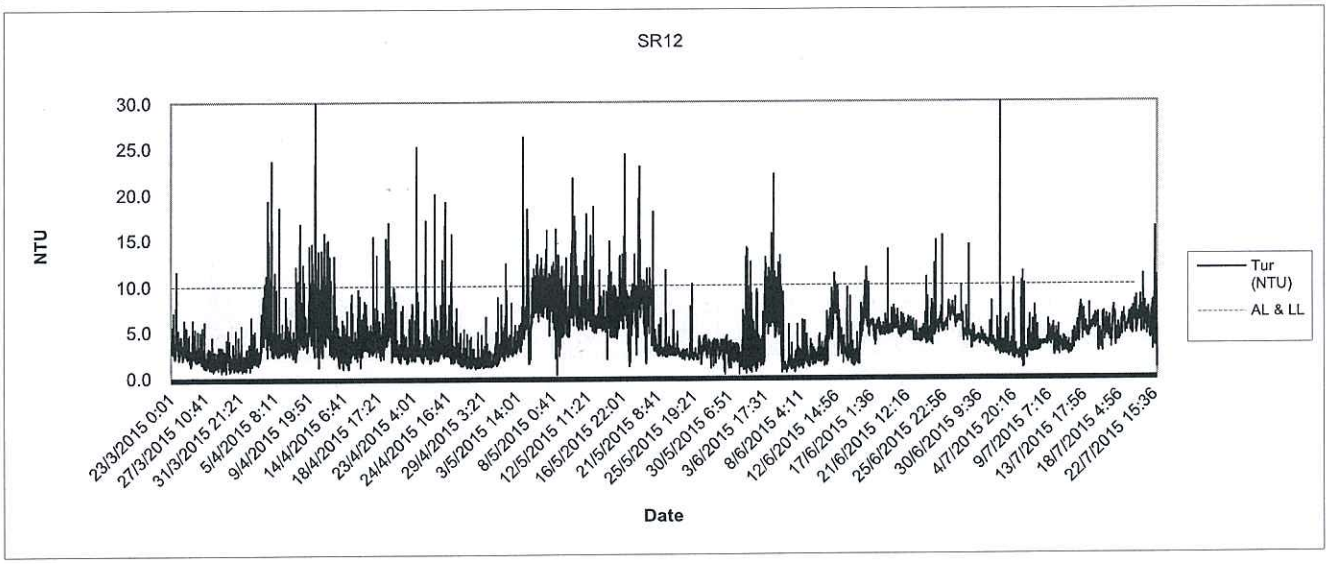




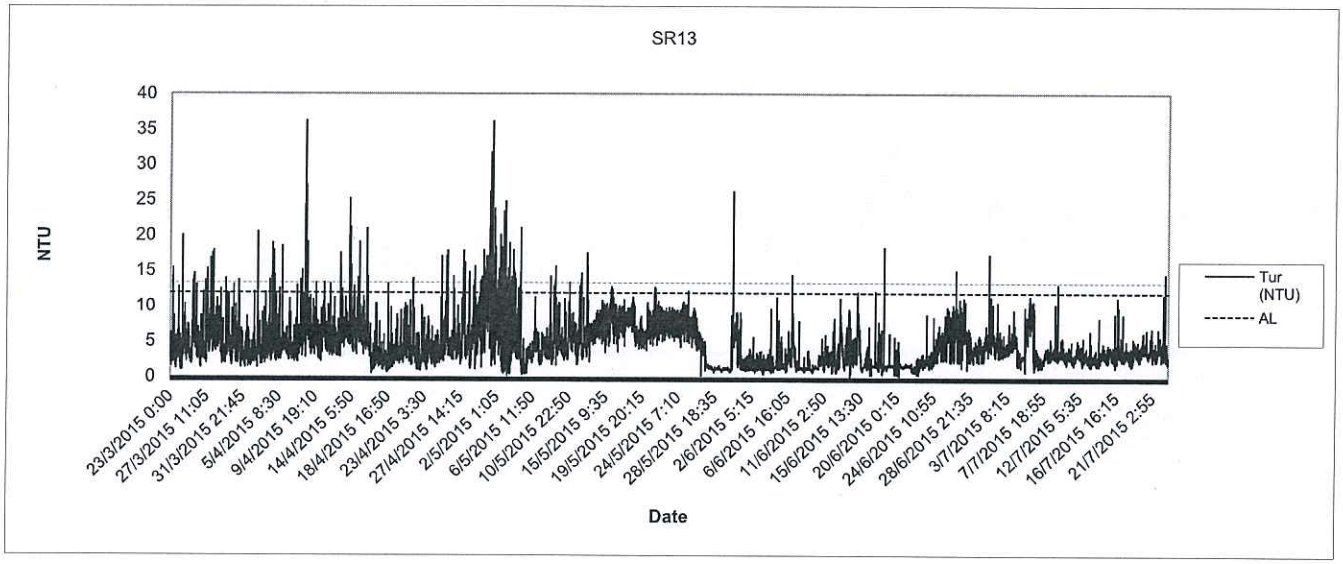
Turbidity
24-hr Water Quality Monitoring



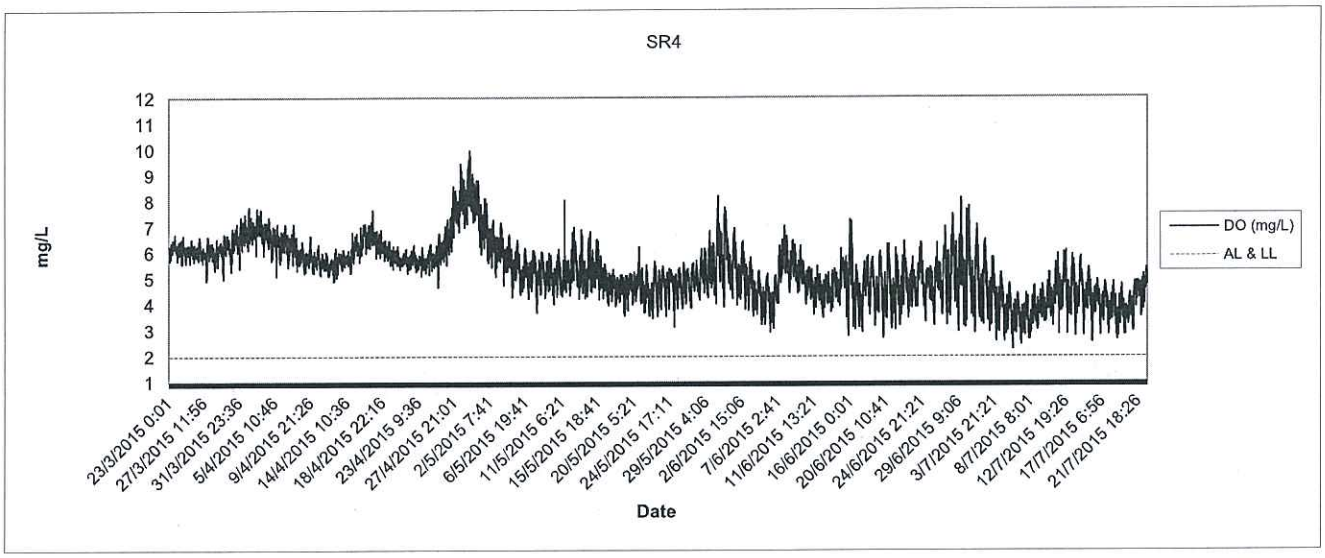


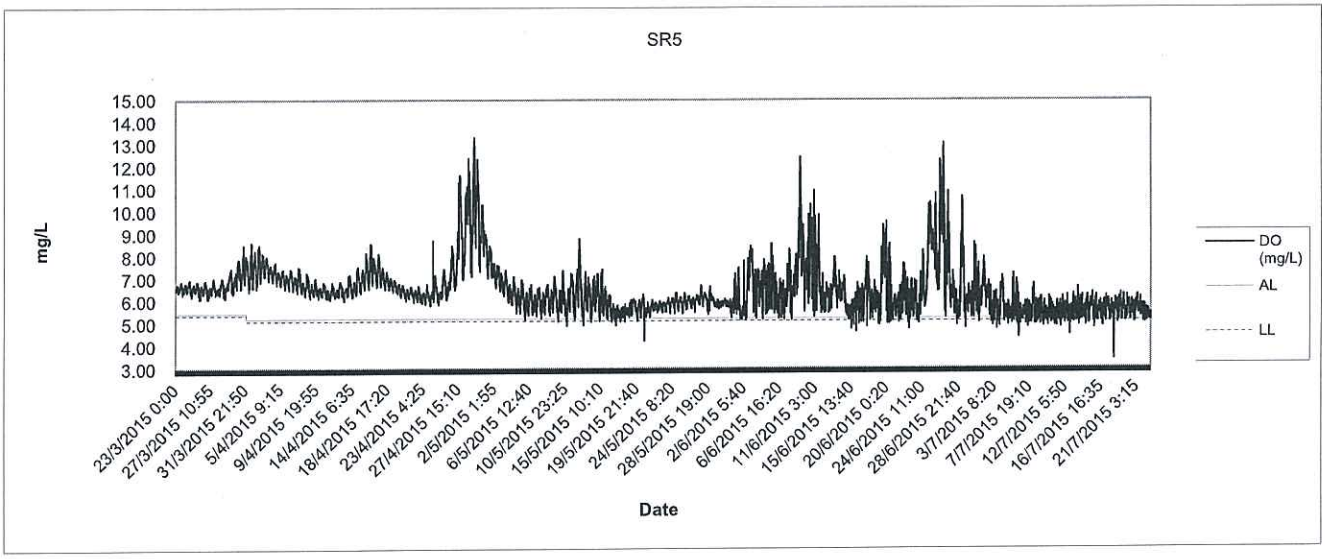


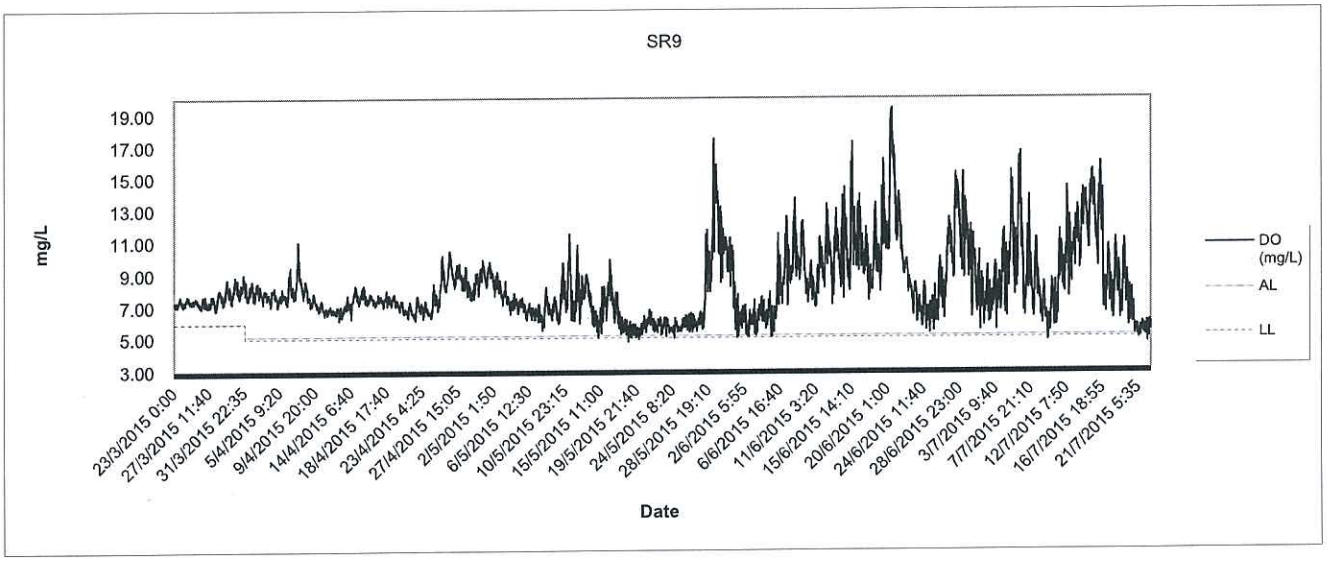
Turbidity
24-hr Water Quality Monitoring



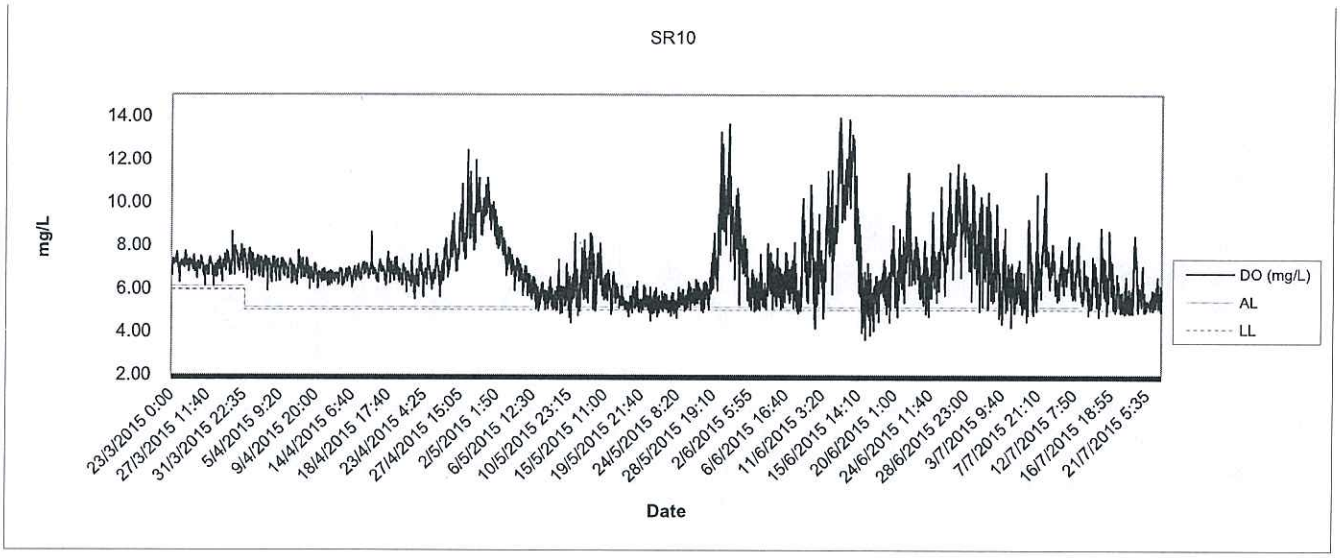
Dissolved Oxygen
24-hr Water Quality Monitoring

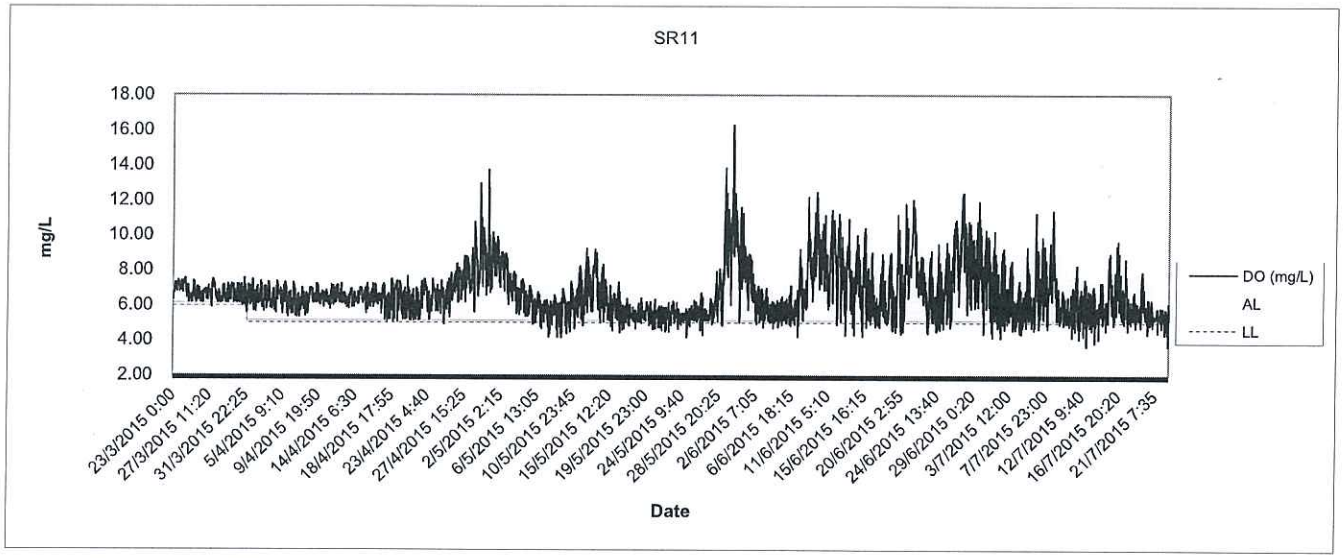


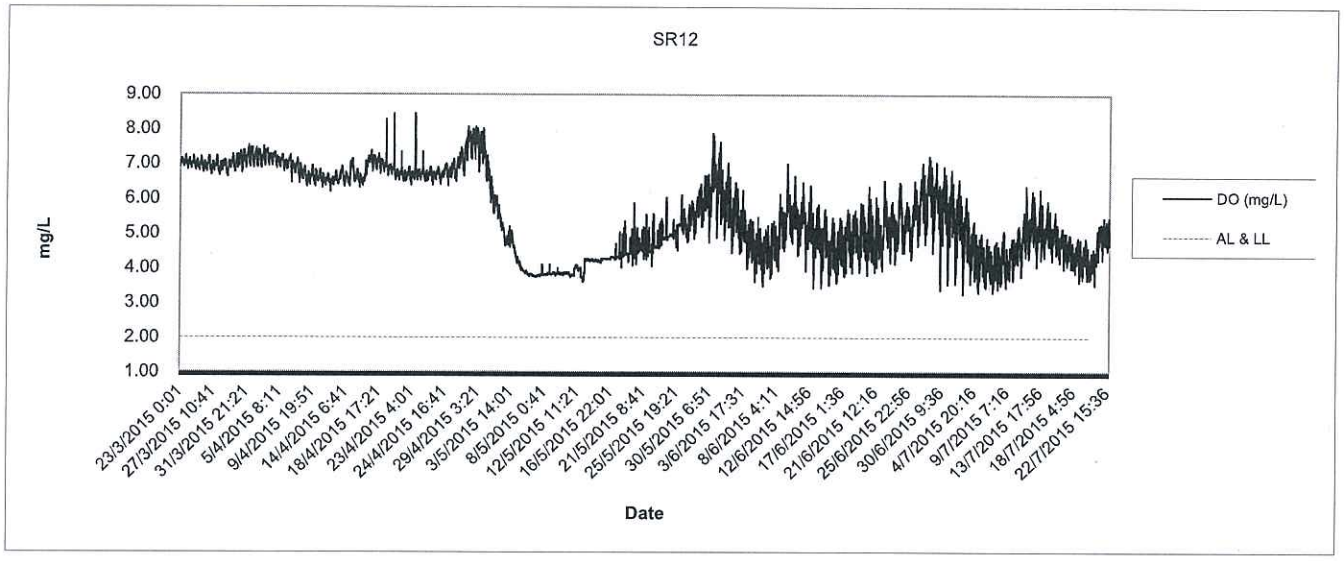




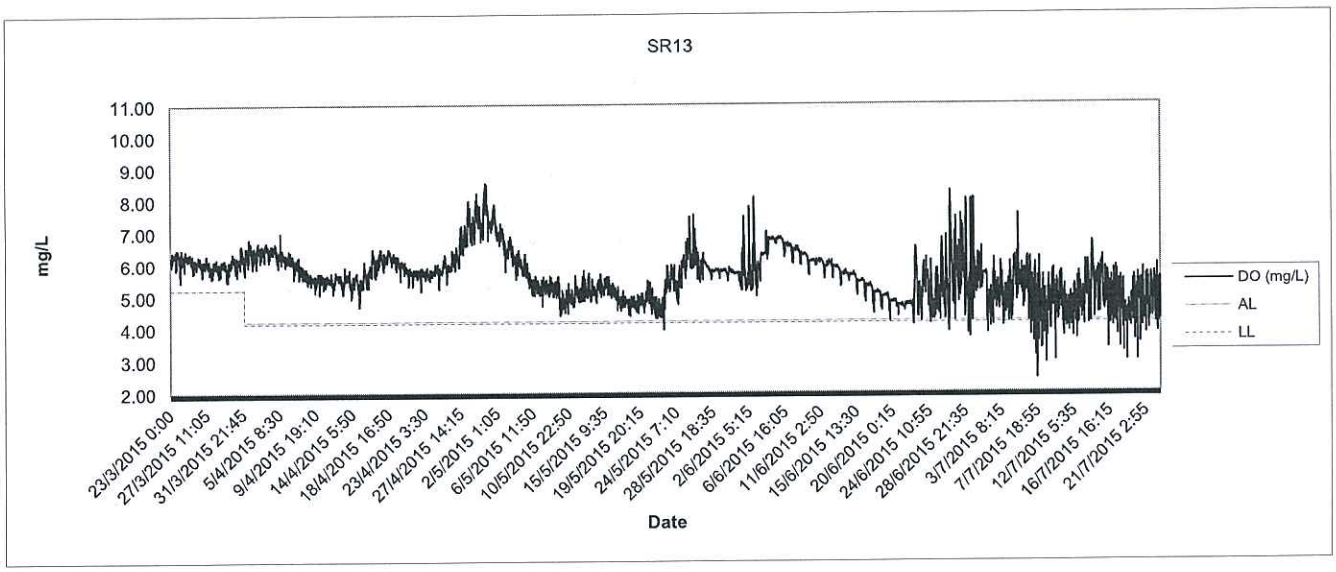
Dissolved Oxygen
24-hr Water Quality Monitoring



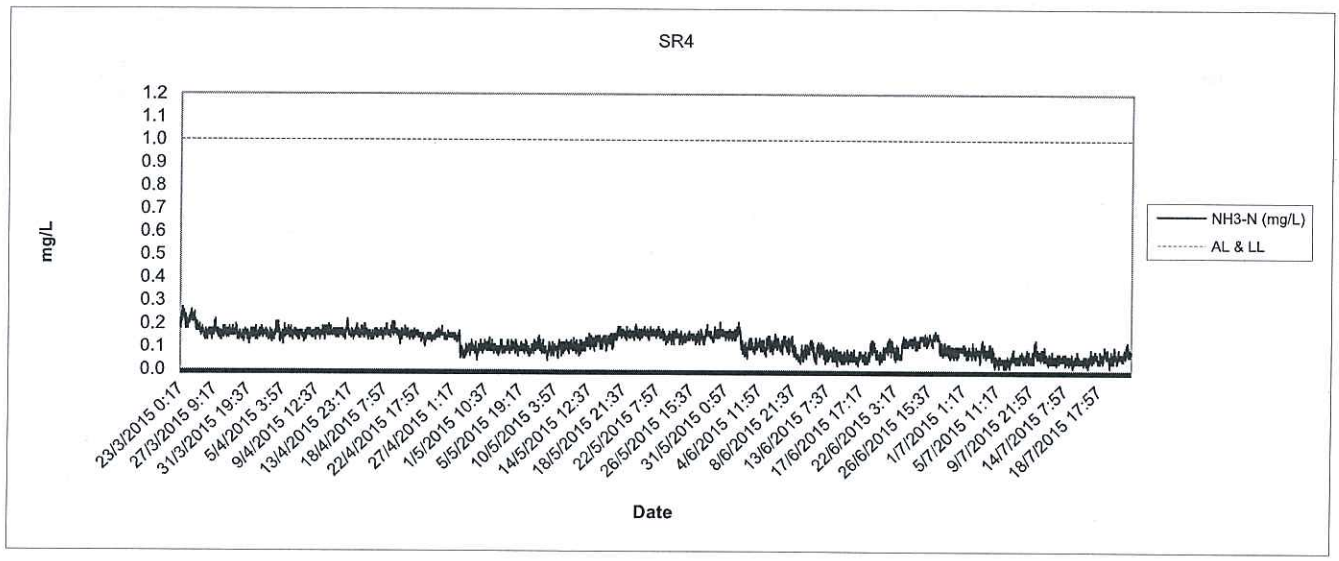


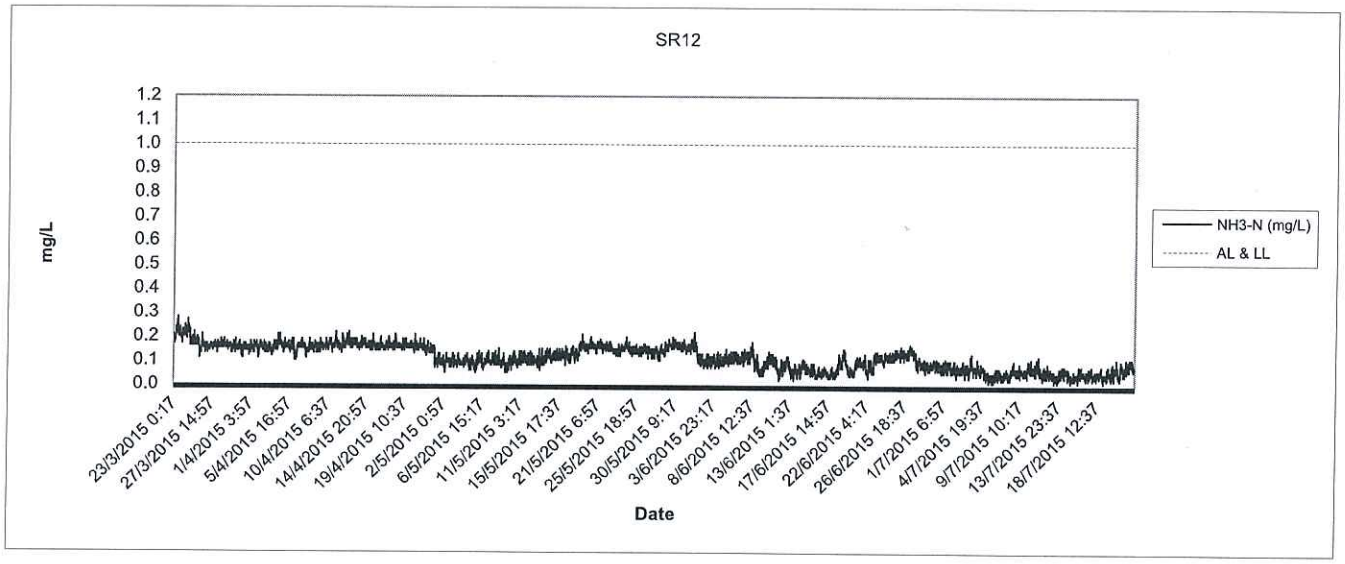


Dissolved Oxygen
24-hr Water Quality Monitoring



Ammonia-N
24-hr Water Quality Monitoring





MATERIALAB CONSULTANTS LIMITED
Fugro Development Centre,
5 Lok Yi Street,
17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com.hk

Appendix F

Environmental Mitigation Implementation Schedule

EIA Ref	EM& A Ref	No.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Who to implement the measure	Location of the measure	When to implement the measure?	Implementation Status
		A	Water Quality					
3.8	2.9		Use of Silt Screens	Minimize the effect of potential increase in SS levels at the seawater intakes	Contractor	WSD8, WSD9 and EMSD1	Construction Phase	
		A1	Silt Screens shall be installed at the flushing water intakes WSRs WSD1, WSD8~~, WSD9~~ and EMSD1 to minimise the effect of potential increase in SS levels at the seawater intakes.					Implemented
3.8	2.9		Use of Silt Curtains	Minimize the release of suspended soil from the dredging area	Contractor	Construction Work Sites	Construction Phase	
		A2	To minimize the potential SS impact from dredging, deployment of silt curtains around the grab dredgers is recommended; and Before commencement of dredging works, the holder of the Environmental Permit shall submit detailed proposal of the design and arrangement of the frame type silt curtain to EPD for approval.					Implemented
3.10	2.9	A3	Water Quality Monitoring Program	Perform water quality monitoring at sensitive receivers during construction phase	ET	Monitoring Locations as stated in Table 2.1 of the EM&A Manual	Construction Phase	
			Water quality monitoring shall be carried out in accordance with Section 2 of the Environmental Monitoring and Audit (EM&A) Manual. Event and Action Plan (EAP) for water quality shall be followed in case of any exceedance in action and limit level.					Implemented
3.8 (EP Ref 3)	-		Dredging Operation	Minimize potential adverse effect as a result of dredging activities	Contractor	Construction Work Sites	Construction Phase	
		A4	Only two types of dredgers are allowed for this Project: (a) grab dredger with closed grab, and (b) ~~cutter suction dredger~~ spud pole grab dredger.					Implemented
		A5	The speed of any construction vessels shall not exceed 10 knots when passing through the area of the Project.					Implemented
		A6	No more than ~~three~~ two grab dredgers with closed grab ~~(or one cutter suction dredger with two closed grab dredgers)~~ shall be operated within the Project Area at any one time for the Project.					Implemented
		A7	Only one closed grab dredger ~~or one cutter suction dredger~~ shall be operated in Zone 2B and during which no other closed grab dredger shall be allowed in other zones within the Project Area.					NA-no work in such location
		A8	No more than one grab dredger with closed ~~grab (or one cutter suction dredger)~~ shall be operated within each of the five main zones at any one time for the ~~Project in which the cutter suction dredger shall only be operated in Zones 2 and 4 with maximum dredging rate of 700 m³ in 30 minutes in any given hour (max. 8,400 m³/day, based on a 12-hour operation per day)~~.					Implemented
		A9	The maximum dredging rate for closed grab dredger at Rambler Channel – Zones 1 to 2 (subzones Z1A, Z1B, Z2A, Z2B and Z2C) shall follow the Dredging Plan for the Hotspot, as shown in EP-426/2011/A.					Implemented
		A10	The maximum dredging rate for closed grab dredger at Rambler Channel – Zones 3 to 4 (subzones Z3A to Z4B) shall not exceed 1,600 m³ per day during dry season or 3,440 m³ per day during wet season as shown in EP-426/2011/A.					Implemented
		A11	The maximum dredging rate for closed grab dredger at Rambler Channel – Zones 5 to 6 (subzones Z5A, Z5B and Z6A) shall not exceed 4,000 m³ per day during both dry and wet seasons as shown in EP-426/2011/A.					Implemented
		A12	The maximum dredging rate for closed grab dredger at Rambler Channel –					Implemented

EIA Ref	EM&A Ref	No.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Who to implement the measure	Location of the measure	When to implement the measure?	Implementation Status
			Zones 5 to 8 (subzones Z5C, Z6B, Z6C, Z6D, Z7 and Z8) shall not exceed 4,000 m^3 per day during both dry and wet seasons as shown in EP-426/2011/A.					
		A13	The maximum dredging rate for closed grab dredger at Northern Fairway – Zones 9 to 12 shall not exceed 4,000 m^3 per day during both dry and wet seasons as shown in EP-426/2011/A.					Implemented
		A14	The maximum dredging rate for closed grab dredger at Western Fairway – Zone 13A shall not exceed 4,000 m^3 per day during both dry and wet seasons as shown in EP-426/2011/A.					NA-Dredging works completed
		A15	The maximum dredging rate for closed grab dredger at Western Fairway – Zone 13B shall not exceed 4,000 m^3 per day during both dry and wet seasons as shown in EP-426/2011/A.					NA-Dredging works completed
		A16	~~The dredging pump of cutter suction dredger shall be operated during cutting to reduce the sediment loss to water body.~~					NA-no CSD employed
		A17	Project dredging works within Zone 1 to 6 (including sub-zones) of the Container Basin shall not be carried out at the same time with Terminal Operator's maintenance dredging activities.					NA-No Terminal Operator's maintenance dredging carried out
		A18	~~Cutter suction dredger is only to be deployed for the removal of harder material during daytime only (07:00 to 19:00) in Zone 2 (including subzones) of the Container Basin.~~					NA-no CSD employed
		A19	In case of rainstorm warning in effect during dredging works, the dredged material on barge shall be covered properly before transportation to disposal site.					Implemented
		A20	In case of exceedance of SS and NH3-N at the Tsing Yi WSD flushing intake due to dredging operation is evidenced, the Contractor shall propose mitigation measures not limited to reducing dredging rate. If exceedance persists, the Contractor shall propose not to undertake dredging operation in close proximity to the Tsing Yi flushing water intake during flood tide. The Contractor shall liaise with the ETL, IEC, ER, EPD and WSD for the proposed mitigation measures.					NA-no exceedance due to dredging operation
		A21	If further mitigation measures are required due to continuous exceedance of SS and NH_3-N, consideration shall then be given to dredge only on the state of the tide which would avoid migration of SS towards the WSD and EMSD intakes.					NA-no exceedance due to dredging operation
		A22	Dredging sub-zone Z2B where high NH_3-N in sediment is found shall be isolated with dredging works to be carried out towards the end of construction programme.					NA-no work in such location
		A23	Administrative control in terms of dredging rate adjustment in controlling the release of contaminants shall be employed as mitigation measures.					Implemented
		A24	Field trials shall be carried out to propose the most effective dredging process and rate to control the release of ammoniacal nitrogen and UIA into the water column and achieve compliance at the WSD1 seawater intake (NH_3-N) and at the beaches for UIA. Capital dredging works in dredging sub-zone Z2B (Figure 1.2h refers)					Implemented

EIA Ref	EM& A Ref	No.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Who to implement the measure	Location of the measure	When to implement the measure?	Implementation Status
			should not therefore be carried out until the proposed method and rate are confirmed.					
		A25	Detailed dredging plan shall be prepared providing details of individual dredging subzones and dredging rate taking into account of the field trial results.					Implemented
3.8	-		Other Good Site Practices for Dredging	Minimize potential adverse effect as a result of dredging activities	Contractor	Construction Work Sites	Construction Phase	
		A26	All vessels should be sized so that adequate clearance is maintained between vessels and the seabed in all tide conditions, to ensure that undue turbidity is not generated by turbulence from vessel movement or propeller wash.					Implemented
		A27	The speed of all Contractor's vessels should be controlled within the works area to prevent propeller wash from stirring up the seabed sediments.					Implemented
		A28	All barges / dredgers used should be fitted with tight fitting seals to their bottom openings to prevent leakage of material.					Implemented
		A29	Construction activities should not cause foam, oil, grease, scum, litter or other objectionable matter to be present on the water within the site or dumping grounds.					Implemented
		A30	No overflow of dredged mud should be allowed. Barges or hopper should not be filled to a level that will cause the overflow of materials or polluted water during loading or transportation.					Implemented
		B	**Waste Management**					
			Good Site Practices	Minimize potential adverse effect arising from the handling of dredged material	Contractor	Construction Work Sites (General)	Construction Phase	
4.5	3.3	B1	Obtain the profile of different sediment categories and careful planning of sediment removal.					Implemented
		B2	Nomination of an approved person, such as a site manager, to be responsible for good site practices, arrangements for collection and effective disposal to an appropriate facility, of all wastes generated at the site.					Implemented
		B3	Training of site personnel in proper waste management and chemical handling procedures.					Implemented
		B4	Provision of sufficient waste disposal points and regular collection of waste.					Implemented
		B5	Well planned delivery programme for offsite disposal such that adverse environmental impact from transporting sediment material is not anticipated.					Implemented
		B6	Use well maintained PME on site.					Implemented
			General Refuse	Minimize the adverse effect arising from the handling of site general refuse	Contractor	Construction Work Sites (General)	Construction Phase	
4.5	3.3	B7	General refuse should be stored in enclosed bins. A reputable waste collector should be employed by the contractor to remove general refuse from the site.					Implemented
			Chemical Waste	Minimize the adverse effect arising from the handling of site chemical waste	Contractor	Construction Work Site	Construction Phase	
4.5	3.3	B8	If chemical wastes are produced at the construction site, the Contractor shall be required to register with the EPD as a chemical waste producer and to follow the guidelines stated in the Code of Practice on the Packaging, Labelling and Storage of Chemical Wastes. Good quality containers compatible with the chemical wastes shall be used, and incompatible chemicals should be stored separately. Appropriate labels shall be securely attached on each chemical waste container indicating the corresponding chemical characteristics of the chemical waste, such as explosive,					Implemented

EIA Ref	EM& A Ref	No.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Who to implement the measure	Location of the measure	When to implement the measure?	Implementation Status
			flammable, oxidizing, irritant, toxic, harmful, corrosive, etc. The Contractor shall use a licensed collector to transport and dispose of the chemical wastes, to either the approved Chemical Waste Treatment Centre, or another licensed facility, in accordance with the Waste Disposal (Chemical Waste) (General) Regulation.					
4.5	3.3		Marine Dredged Sediment	Control of transportation and disposal of dredged material in a manner to minimize potential impacts on water quality	Contractor	Construction Work Site	Construction Phase	
		B9	Control of transportation and disposal of dredged material in a manner to minimize potential impacts on water quality.					Implemented
		B10	Bottom opening of barges will be fitted with tight fitting seals to prevent leakage of material. Excess material shall be cleaned from the decks and exposed fittings of barges and dredgers before the vessel is moved.					Implemented
		B11	Monitoring of the barge loading shall be conducted to ensure that loss of material does not take place during transportation. Transport barges or vessels shall be equipped with automatic self-monitoring devices as specified by the EPD.					Implemented
		B12	Barges or hopper barges shall not be filled to a level that would cause the overflow of materials or sediment laden water during loading or transportation.					Implemented
		B13	Sediment Quality Report shall be prepared and submit to EPD under DASO.					Implemented
		B14	If disposal of Type 3 sediment is identified, agreement with EPD shall be reached regarding the treatment of sediment before disposal.					NA – no type 3 material disposed
		B15	Project works shall not be carried out before obtaining confirmation from MFC on disposal option.					Implemented
		B16	Follow strictly all conditions stipulated in the dumping permit.					Implemented
		C	**Marine Ecology**	Review and assess the potential adverse effect on marine ecology	Contractor	Construction Work Sites	Construction Phase	
5.7	4.1	C1	Water quality monitoring results shall be reviewed from time to time to assess if there were any impact to marine ecology due to dredging operation.					Implemented
		D	**Fisheries**	Review and assess the potential adverse effect on fisheries	Contractor	Construction Work Sites	Construction Phase	
6.7	5.1	D1	Water quality monitoring results shall be reviewed from time to time to assess if there were any impact to fisheries due to dredging operation.					Implemented
		E	**Hazard to Life**		Contractor	Construction Work Sites (General)	Construction Phase	
7.8.2	6.2	E1	Sound communication channel shall be established with the oil companies, Marine Department, and Fire Services Department for effective notification and emergency evacuation in case of accidents.					Implemented
		E2	Proper safety and emergency training shall be given to the relevant operation staff at the dredging site. Emergency plans and procedures should be prepared and drills should be performed periodically.					Implemented
		F	**Landscape Visual and Glare**	Minimize landscape and visual impacts during construction phase	Contractor	Construction activities' area	Throughout design, construction phase	
8.9 Table 8-3 & 8-6	7.2	F1	Visa shields to the lights of dredgers shall be provided.					Implemented
		F2	The light source shall not point directly to any VSRs.					Implemented
		F3	Lights shall be switched off if they are not in use.					Implemented
		G	**Cultural Heritage**	Minimize potential marine archaeological	Contractor	Locations of the 20	During Construction	
9.5	8		Monitoring Brief					

EIA Ref	EM& A Ref	No.	Recommended Mitigation Measures	Objectives of the Recommended Measures & Main Concerns to Address	Who to implement the measure	Location of the measure	When to implement the measure?	Implementation Status
		G1	A monitoring brief shall be conducted during the dredging. It shall only be required during dredging at the locations of the 20 unidentified sonar contacts and masked areas and does not need to cover all of the dredging activities. Dredging staff should be briefed about the possibility of locating archaeological objects and a marine archaeologist shall be available to monitor the dredged spoil and provide advice. If material indicative of archaeological remains is retrieved, the AMO should be contacted as soon as possible.	impact during dredging activities		unidentified sonar contacts and masked areas	works	NA-no work in such location
		H	**Noise**					
10.8	9		Good Site Practices	Control and minimize the generation of undue noise nuisance	Contractor	Construction Work Sites (Along the alignment of dredging	Construction Phase	
		H1	Only well-maintained plant shall be operated on-site and plant should be serviced regularly during the construction program.					Implemented
		H2	Machines and plant that may be in intermittent use should be shut down between works periods or should be throttled down to a minimum.					Implemented
		H3	Plant known to emit noise strongly in one direction should, wherever possible, be orientated so that the noise is directed away from nearby NSRs.					Implemented
		H4	If dredging is to be carried out during restricted hours, work locations close to NSRs shall be avoided.					Implemented
		I	**Construction Dust**					
11.7	10		Dust Control	Good site practice to control dust and odour impact to the nearby sensitive receivers	Contractor	Construction Work Sites (General)	Construction Phase	
		I1	Requirements of the Air Pollution Control (Construction Dust) Regulation, where relevant, shall be adhered to during the construction period.					Implemented
			Odour		Contractor	Construction Work Sites (General)	Construction Phase	
		I2	To minimize potential odour emissions, if dredged sediment is anticipated to be placed on barge for more than a day the load shall be properly covered as far as practicable to minimise the exposed area and potential odour.					NA-no work in such condition
		I3	If dredged sediment is found to be malodorous it shall be removed from site as soon as possible within one hour after the barge being filled up.					NA-no work in such condition

MATERIALAB CONSULTANTS LIMITED
Fugro Development Centre,
5 Lok Yi Street,
17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com.hk

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Appendix G

Waste Generation in Reporting Period

Name of Department : Civil Engineering and Development Department
Contract No. : CV/2013/04

Monthly Summary Waste Flow Table for 2015 (year)

Year	Actual Quantities of Inert C&D Materials Generated Monthly					Actual Quantities of C&D Wastes Generated Monthly				
	Total Quantity Generated	Broken Concrete (see Note 4)	Reused in the Contract	Reused in other Projects	Disposed as Public Fill	Metals	Paper/cardboard packaging	Plastics (see Note 3)	Chemical Waste	Others, e.g. general refuse
	(in '000 m^3)	(in '000 m^3)	(in '000 m^3)	(in '000 m^3)	(in '000 m^3)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 kg)	(in '000 m^3)
Jan	nil	nil	nil	nil	nil	nil	nil	nil	nil	0.01
Feb	nil	nil	nil	nil	nil	nil	nil	nil	nil	0.01
Mar	nil	nil	nil	nil	nil	nil	nil	nil	0.6	0.01
Apr	nil	nil	nil	nil	nil	nil	nil	nil	nil	0.01
May	nil	nil	nil	nil	nil	nil	nil	nil	11.4	0.01
Jun	nil	nil	nil	nil	nil	nil	nil	nil	nil	0.01
Jul	nil	nil	nil	nil	nil	nil	nil	nil	2.4	0.01
Aug										
Sep										
Oct										
Nov										
Dec										
Total	nil	nil	nil	nil	nil	nil	nil	nil	14.4	0.07

Notes:

(1) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.

(2) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material.

(3) Broken concrete for recycling into aggregates

Yearly Summary Waste Flow Table

Year	Estimated Annual Quantities of Inert C&D Materials (in '000m3)										Estimated Annual of C&D Wastes									
	Total Quantity Generated		Broken Concrete (see Note 3)		Reused in the Contract		Reused in other Projects		Disposed as Public Fill		Metals		Paper/cardboard packaging		Plastics (see Note 2)		Chemical Waste		Others, e.g. general refuse	
	(a)		(b)		(c)		(d)		(a-b-c-d)		(in '000 kg)		(in '000 kg)		(in '000 kg)		(in '000 kg)		(in '000 m3)	
	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.	Est.	Act.
2013	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	0.003	0.01
2014	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	0.2	0.16
2015	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	-	Nil	-	13	-	0.2	-
2016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2020																				
2021																				
Grand Total	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	Nil	0.403	0.17

Notes: (1) The performance targets are given in sub-clause (14) of this Appendix to the PS.

(2) The waste flow table shall also include C&D materials that are specified in the Contract to be imported for use at the Site.

(3) Plastics refer to plastic bottles/containers, plastic sheets/foam from packaging material

(4) Broken concrete for recycling into aggregates.

Monthly Summary of Sediment Disposal (2014-2015)

Marine Sediment Type	Type 1 – Open Sea Disposal	Type 2 – Confined Marine Disposal	Type 3 – Special Treatment / Disposal
Month	Monthly Quantity (m3)	Monthly Quantity (m3)	Monthly Quantity (m3)
2014			
Jan	nil	nil	nil
Feb	nil	nil	nil
Mar	nil	nil	nil
Apr	nil	nil	nil
May	3,700	nil	nil
Jun	66,950	nil	nil
Jul	80,600	nil	nil
Aug	79,600	nil	nil
Sep	100,700	nil	nil
Oct	60,450	50,400	nil
Nov	72,990	38,540	nil
Dec	84,440	10,720	nil
2015			
Jan	126750	47580	nil
Feb	153770	12440	nil
Mar	101370	65870	nil
Apr	173760	29840	nil
May	99550	29180	nil
June	49460	9360	nil
July	30680	5180	nil
Total	1284770	299110	nil

MATERIALAB CONSULTANTS LIMITED
Fugro Development Centre,
5 Lok Yi Street,
17 M.S. Castle Peak Road,
Tai Lam, Tuen Mun, N.T., Hong Kong.
Tel : (852)-24508238
Fax : (852)-24508032
Email : mcl@fugro.com.hk

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Appendix H

Quarterly Assessment of Construction Impact

Cluster 1 TIN(Insitu)
1.3 x Baseline vs Impact

1.3 x Baseline TIN (Insitu) (mg/L) data			
SR5	1/4/2014	Mid-Flood	0.48
SR5	1/7/2014	Mid-Flood	0.61
SR5	1/9/2014	Mid-Flood	0.64
SR5	1/11/2014	Mid-Flood	0.83
SR5	1/14/2014	Mid-Flood	0.68
SR5	1/16/2014	Mid-Flood	0.55
SR5	1/18/2014	Mid-Flood	0.56
SR5	1/21/2014	Mid-Flood	0.50
SR5	1/23/2014	Mid-Flood	0.61
SR5	1/25/2014	Mid-Flood	0.88
SR5	1/27/2014	Mid-Flood	0.77
SR5	1/29/2014	Mid-Flood	0.61

Impact TIN (Insitu) (mg/L) data			
SR5	4/23/2015	Mid-Flood	0.42
SR5	4/25/2015	Mid-Flood	0.42
SR5	4/28/2015	Mid-Flood	0.55
SR5	4/30/2015	Mid-Flood	0.74
SR5	5/2/2015	Mid-Flood	0.77
SR5	5/5/2015	Mid-Flood	0.80
SR5	5/7/2015	Mid-Flood	0.56
SR5	5/9/2015	Mid-Flood	1.22
SR5	5/12/2015	Mid-Flood	0.82
SR5	5/14/2015	Mid-Flood	1.39
SR5	5/16/2015	Mid-Flood	1.52
SR5	5/19/2015	Mid-Flood	0.88
SR5	5/21/2015	Mid-Flood	1.09
SR5	5/23/2015	Mid-Flood	1.12
SR5	5/28/2015	Mid-Flood	1.77
SR5	5/30/2015	Mid-Flood	1.41
SR5	6/2/2015	Mid-Flood	1.20
SR5	6/4/2015	Mid-Flood	0.82
SR5	6/6/2015	Mid-Flood	0.77
SR5	6/9/2015	Mid-Flood	0.88
SR5	6/11/2015	Mid-Flood	1.50
SR5	6/13/2015	Mid-Flood	1.43
SR5	6/16/2015	Mid-Flood	1.16
SR5	6/18/2015	Mid-Flood	0.86
SR5	6/20/2015	Mid-Flood	0.92
SR5	6/23/2015	Mid-Flood	1.03
SR5	6/25/2015	Mid-Flood	1.42
SR5	6/27/2015	Mid-Flood	1.40
SR5	6/30/2015	Mid-Flood	1.24
SR5	7/2/2015	Mid-Flood	1.34
SR5	7/4/2015	Mid-Flood	0.59
SR5	7/7/2015	Mid-Flood	0.46
SR5	7/11/2015	Mid-Flood	0.58
SR5	7/14/2015	Mid-Flood	0.80
SR5	7/16/2015	Mid-Flood	0.78
SR5	7/18/2015	Mid-Flood	0.47

Cluster 1 TIN(Insitu)
1.3 x Baseline vs Impact

Baseline (Insitu) x 1.3		Impact (Insitu)	
Raw Statistics		Raw Statistics	
Number of Valid Observations	12	Number of Valid Observations	36
Number of Distinct Observations	12	Number of Distinct Observations	31
Minimum	0.477	Minimum	0.42
Maximum	0.883	Maximum	1.77
Mean of Raw Data	0.643	Mean of Raw Data	0.976
Standard Deviation of Raw Data	0.127	Standard Deviation of Raw Data	0.365
Kstar	22.19	Kstar	6.366
Mean of Log Transformed Data	-0.458	Mean of Log Transformed Data	-0.0984
Standard Deviation of Log Transformed Data	0.191	Standard Deviation of Log Transformed Data	0.401
Normal Distribution Test Results		Normal Distribution Test Results	
Correlation Coefficient R	0.968	Correlation Coefficient R	0.981
Shapiro Wilk Test Statistic	0.93	Shapiro Wilk Test Statistic	0.947
Shapiro Wilk Critical (0.95) Value	0.859	Shapiro Wilk Critical (0.95) Value	0.935
Approximate Shapiro Wilk P Value	0.407	Approximate Shapiro Wilk P Value	0.115
Lilliefors Test Statistic	0.186	Lilliefors Test Statistic	0.131
Lilliefors Critical (0.95) Value	0.256	Lilliefors Critical (0.95) Value	0.148
Data appear Normal at (0.05) Significance Level		Data appear Normal at (0.05) Significance Level	

t-Test Site vs Background Comparison for Full Data Sets without NDs

User Selected Options	
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: Impact (Insitu)
Background Data: Baseline (Insitu) x 1.3

Raw Statistics

	Site	Background
Number of Valid Observations	36	12
Number of Distinct Observations	31	12
Minimum	0.42	0.477
Maximum	1.77	0.883
Mean	0.976	0.643
Median	0.88	0.614
SD	0.365	0.127
SE of Mean	0.0608	0.0366

Site vs Background Two-Sample t-Test

H0: Mu of Site - Mu of Background <= 0

Method	DF	t-Test Value	Critical t (0.050)	P-Value
Pooled (Equal Variance)	46	3.078	1.679	0.002
Satterthwaite (Unequal Variance)	45.8	4.686	1.679	0

Pooled SD 0.324
Conclusion with Alpha = 0.050
* Student t (Pooled) Test: Reject H0, Conclude Site > Background
* Satterthwaite Test: Reject H0, Conclude Site > Background

Test of Equality of Variances

Numerator DF	Denominator DF	F-Test Value	P-Value
35	11	8.268	0.001

Conclusion with Alpha = 0.05
* Two variances are not equal

Cluster 1 TIN(Insitu)
Gradient vs Impact

Gradient TIN (Insitu) (mg/L) data							
G2	4/23/2015	Mid-Flood	0.40	G4	4/23/2015	Mid-Flood	0.55
G2	4/25/2015	Mid-Flood	0.51	G4	4/25/2015	Mid-Flood	0.46
G2	4/28/2015	Mid-Flood	0.33	G4	4/28/2015	Mid-Flood	0.42
G2	4/30/2015	Mid-Flood	0.64	G4	4/30/2015	Mid-Flood	0.34
G2	5/2/2015	Mid-Flood	0.60	G4	5/2/2015	Mid-Flood	0.32
G2	5/5/2015	Mid-Flood	0.80	G4	5/5/2015	Mid-Flood	0.41
G2	5/7/2015	Mid-Flood	0.69	G4	5/7/2015	Mid-Flood	0.67
G2	5/9/2015	Mid-Flood	1.05	G4	5/9/2015	Mid-Flood	0.70
G2	5/12/2015	Mid-Flood	0.68	G4	5/12/2015	Mid-Flood	0.65
G2	5/14/2015	Mid-Flood	1.38	G4	5/14/2015	Mid-Flood	0.59
G2	5/16/2015	Mid-Flood	1.38	G4	5/16/2015	Mid-Flood	0.82
G2	5/19/2015	Mid-Flood	0.98	G4	5/19/2015	Mid-Flood	0.81
G2	5/21/2015	Mid-Flood	1.09	G4	5/21/2015	Mid-Flood	0.76
G2	5/23/2015	Mid-Flood	1.12	G4	5/23/2015	Mid-Flood	0.61
G2	5/28/2015	Mid-Flood	1.30	G4	5/28/2015	Mid-Flood	0.89
G2	5/30/2015	Mid-Flood	1.16	G4	5/30/2015	Mid-Flood	0.62
G2	6/2/2015	Mid-Flood	0.99	G4	6/2/2015	Mid-Flood	0.62
G2	6/4/2015	Mid-Flood	0.81	G4	6/4/2015	Mid-Flood	0.63
G2	6/6/2015	Mid-Flood	0.84	G4	6/6/2015	Mid-Flood	0.74
G2	6/9/2015	Mid-Flood	0.82	G4	6/9/2015	Mid-Flood	0.51
G2	6/11/2015	Mid-Flood	1.28	G4	6/11/2015	Mid-Flood	0.74
G2	6/13/2015	Mid-Flood	1.35	G4	6/13/2015	Mid-Flood	0.53
G2	6/16/2015	Mid-Flood	1.16	G4	6/16/2015	Mid-Flood	0.42
G2	6/18/2015	Mid-Flood	0.84	G4	6/18/2015	Mid-Flood	0.61
G2	6/20/2015	Mid-Flood	1.01	G4	6/20/2015	Mid-Flood	0.64
G2	6/23/2015	Mid-Flood	0.81	G4	6/23/2015	Mid-Flood	0.70
G2	6/25/2015	Mid-Flood	1.06	G4	6/25/2015	Mid-Flood	0.71
G2	6/27/2015	Mid-Flood	1.12	G4	6/27/2015	Mid-Flood	0.79
G2	6/30/2015	Mid-Flood	0.84	G4	6/30/2015	Mid-Flood	0.71
G2	7/2/2015	Mid-Flood	1.26	G4	7/2/2015	Mid-Flood	0.53
G2	7/4/2015	Mid-Flood	0.63	G4	7/4/2015	Mid-Flood	0.63
G2	7/7/2015	Mid-Flood	0.53	G4	7/7/2015	Mid-Flood	0.37
G2	7/11/2015	Mid-Flood	0.52	G4	7/11/2015	Mid-Flood	0.33
G2	7/14/2015	Mid-Flood	0.69	G4	7/14/2015	Mid-Flood	0.34
G2	7/16/2015	Mid-Flood	0.80	G4	7/16/2015	Mid-Flood	0.43
G2	7/18/2015	Mid-Flood	0.56	G4	7/18/2015	Mid-Flood	0.62
G3	4/23/2015	Mid-Flood	0.35				
G3	4/25/2015	Mid-Flood	0.43				
G3	4/28/2015	Mid-Flood	0.29				
G3	4/30/2015	Mid-Flood	0.34				
G3	5/2/2015	Mid-Flood	0.41				
G3	5/5/2015	Mid-Flood	0.41				
G3	5/7/2015	Mid-Flood	0.50				
G3	5/9/2015	Mid-Flood	0.60				
G3	5/12/2015	Mid-Flood	0.58				
G3	5/14/2015	Mid-Flood	0.58				
G3	5/16/2015	Mid-Flood	0.81				
G3	5/19/2015	Mid-Flood	0.81				
G3	5/21/2015	Mid-Flood	0.84				
G3	5/23/2015	Mid-Flood	0.84				
G3	5/28/2015	Mid-Flood	0.92				
G3	5/30/2015	Mid-Flood	0.75				
G3	6/2/2015	Mid-Flood	0.60				
G3	6/4/2015	Mid-Flood	0.63				
G3	6/6/2015	Mid-Flood	0.66				
G3	6/9/2015	Mid-Flood	0.54				
G3	6/11/2015	Mid-Flood	0.72				
G3	6/13/2015	Mid-Flood	0.71				
G3	6/16/2015	Mid-Flood	0.53				
G3	6/18/2015	Mid-Flood	0.60				
G3	6/20/2015	Mid-Flood	0.59				
G3	6/23/2015	Mid-Flood	0.57				
G3	6/25/2015	Mid-Flood	0.79				
G3	6/27/2015	Mid-Flood	0.75				
G3	6/30/2015	Mid-Flood	0.73				
G3	7/2/2015	Mid-Flood	0.59				
G3	7/4/2015	Mid-Flood	0.60				
G3	7/7/2015	Mid-Flood	0.42				
G3	7/11/2015	Mid-Flood	0.25				
G3	7/14/2015	Mid-Flood	0.34				
G3	7/16/2015	Mid-Flood	0.42				
G3	7/18/2015	Mid-Flood	0.38				

Impact TIN (Insitu) (mg/L) data			
SR5	4/23/2015	Mid-Flood	0.42
SR5	4/25/2015	Mid-Flood	0.42
SR5	4/28/2015	Mid-Flood	0.55
SR5	4/30/2015	Mid-Flood	0.74
SR5	5/2/2015	Mid-Flood	0.77
SR5	5/5/2015	Mid-Flood	0.80
SR5	5/7/2015	Mid-Flood	0.56
SR5	5/9/2015	Mid-Flood	1.22
SR5	5/12/2015	Mid-Flood	0.82
SR5	5/14/2015	Mid-Flood	1.39
SR5	5/16/2015	Mid-Flood	1.52
SR5	5/19/2015	Mid-Flood	0.88
SR5	5/21/2015	Mid-Flood	1.09
SR5	5/23/2015	Mid-Flood	1.12
SR5	5/28/2015	Mid-Flood	1.77
SR5	5/30/2015	Mid-Flood	1.41
SR5	6/2/2015	Mid-Flood	1.20
SR5	6/4/2015	Mid-Flood	0.82
SR5	6/6/2015	Mid-Flood	0.77
SR5	6/9/2015	Mid-Flood	0.88
SR5	6/11/2015	Mid-Flood	1.50
SR5	6/13/2015	Mid-Flood	1.43
SR5	6/16/2015	Mid-Flood	1.16
SR5	6/18/2015	Mid-Flood	0.86
SR5	6/20/2015	Mid-Flood	0.92
SR5	6/23/2015	Mid-Flood	1.03
SR5	6/25/2015	Mid-Flood	1.42
SR5	6/27/2015	Mid-Flood	1.40
SR5	6/30/2015	Mid-Flood	1.24
SR5	7/2/2015	Mid-Flood	1.34
SR5	7/4/2015	Mid-Flood	0.59
SR5	7/7/2015	Mid-Flood	0.46
SR5	7/11/2015	Mid-Flood	0.58
SR5	7/14/2015	Mid-Flood	0.80
SR5	7/16/2015	Mid-Flood	0.78
SR5	7/18/2015	Mid-Flood	0.47

Cluster 1 TIN(Insitu)
Gradient vs Impact

Impact (Insitu)		Gradient (Insitu)	
Raw Statistics		Raw Statistics	
Number of Valid Observations	36	Number of Valid Observations	108
Number of Distinct Observations	31	Number of Distinct Observations	60
Minimum	0.42	Minimum	0.25
Maximum	1.77	Maximum	1.38
Mean of Raw Data	0.976	Mean of Raw Data	0.686
Standard Deviation of Raw Data	0.365	Standard Deviation of Raw Data	0.258
Kstar	6.366	Kstar	7.22
Mean of Log Transformed Data	-0.0984	Mean of Log Transformed Data	-0.445
Standard Deviation of Log Transformed Data	0.401	Standard Deviation of Log Transformed Data	0.376
Normal Distribution Test Results		Normal Distribution Test Results	
Correlation Coefficient R	0.981	Correlation Coefficient R	0.972
Shapiro Wilk Test Statistic	0.947	Approximate Shapiro Wilk Test Statistic	0.929
Shapiro Wilk Critical (0.95) Value	0.935	Approximate Shapiro Wilk P Value	4.95E-06
Approximate Shapiro Wilk P Value	0.115	Lilliefors Test Statistic	0.109
Lilliefors Test Statistic	0.131	Lilliefors Critical (0.95) Value	0.0853
Lilliefors Critical (0.95) Value	0.148	Data not Normal at (0.05) Significance Level	
Data appear Normal at (0.05) Significance Level			

Wilcoxon-Mann-Whitney Site vs Background Comparison Test for Full Data Sets without NDs

User Selected Options	
Full Precision	OFF
Confidence Coefficient	0.95
Substantial Difference	0%
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: Impact (Insitu)
Background Data: Gradient (Insitu)

Raw Statistics

	Site	Background
Number of Valid Observations	36	108
Number of Distinct Observations	31	60
Minimum	0.42	0.25
Maximum	1.77	1.38
Mean	0.976	0.686
Median	0.88	0.635
SD	0.365	0.258
SE of Mean	0.0608	0.0248

Wilcoxon-Mann-Whitney (WMW) Test

H0: Mean/Median of Site or AOC <= Mean/Median of Background

Site Rank Sum W-Stat	3531
WMW Test U-Stat	4.247
WMW Critical Value (0.050)	1.645
P-Value	1.08E-05

Conclusion with Alpha = 0.05
Reject H0, Conclude Site > Background
P-Value < alpha (0.05)

Cluster 2 TIN(Insitu)
1.3 x Baseline vs Impact

Baseline x 1.3 TIN (Insitu) (mg/L)			
SR9	1/4/2014	Mid-Ebb	0.15
SR9	1/7/2014	Mid-Ebb	0.78
SR9	1/9/2014	Mid-Ebb	0.58
SR9	1/11/2014	Mid-Ebb	0.67
SR9	1/14/2014	Mid-Ebb	0.57
SR9	1/16/2014	Mid-Ebb	0.66
SR9	1/18/2014	Mid-Ebb	0.40
SR9	1/21/2014	Mid-Ebb	0.46
SR9	1/23/2014	Mid-Ebb	0.29
SR9	1/25/2014	Mid-Ebb	0.33
SR9	1/27/2014	Mid-Ebb	0.18
SR9	1/29/2014	Mid-Ebb	0.23
SR10	1/4/2014	Mid-Ebb	0.29
SR10	1/7/2014	Mid-Ebb	0.55
SR10	1/9/2014	Mid-Ebb	0.33
SR10	1/11/2014	Mid-Ebb	0.35
SR10	1/14/2014	Mid-Ebb	0.33
SR10	1/16/2014	Mid-Ebb	0.33
SR10	1/18/2014	Mid-Ebb	0.32
SR10	1/21/2014	Mid-Ebb	0.32
SR10	1/23/2014	Mid-Ebb	0.23
SR10	1/25/2014	Mid-Ebb	0.33
SR10	1/27/2014	Mid-Ebb	0.17
SR10	1/29/2014	Mid-Ebb	0.22
SR11	1/4/2014	Mid-Ebb	0.27
SR11	1/7/2014	Mid-Ebb	0.60
SR11	1/9/2014	Mid-Ebb	0.31
SR11	1/11/2014	Mid-Ebb	0.39
SR11	1/14/2014	Mid-Ebb	0.31
SR11	1/16/2014	Mid-Ebb	0.30
SR11	1/18/2014	Mid-Ebb	0.31
SR11	1/21/2014	Mid-Ebb	0.28
SR11	1/23/2014	Mid-Ebb	0.20
SR11	1/25/2014	Mid-Ebb	0.27
SR11	1/27/2014	Mid-Ebb	0.16
SR11	1/29/2014	Mid-Ebb	0.24

Impact TIN (Insitu) (mg/L)							
SR9	4/23/2015	Mid-Ebb	0.26	SR11	4/23/2015	Mid-Ebb	0.27
SR9	4/25/2015	Mid-Ebb	0.34	SR11	4/25/2015	Mid-Ebb	0.19
SR9	4/28/2015	Mid-Ebb	0.17	SR11	4/28/2015	Mid-Ebb	0.17
SR9	4/30/2015	Mid-Ebb	0.27	SR11	4/30/2015	Mid-Ebb	0.19
SR9	5/2/2015	Mid-Ebb	0.24	SR11	5/2/2015	Mid-Ebb	0.19
SR9	5/5/2015	Mid-Ebb	0.36	SR11	5/5/2015	Mid-Ebb	0.28
SR9	5/7/2015	Mid-Ebb	0.40	SR11	5/7/2015	Mid-Ebb	0.43
SR9	5/9/2015	Mid-Ebb	0.47	SR11	5/9/2015	Mid-Ebb	0.42
SR9	5/12/2015	Mid-Ebb	0.61	SR11	5/12/2015	Mid-Ebb	0.38
SR9	5/14/2015	Mid-Ebb	0.57	SR11	5/14/2015	Mid-Ebb	0.29
SR9	5/16/2015	Mid-Ebb	0.56	SR11	5/16/2015	Mid-Ebb	0.61
SR9	5/19/2015	Mid-Ebb	0.70	SR11	5/19/2015	Mid-Ebb	0.60
SR9	5/21/2015	Mid-Ebb	0.88	SR11	5/21/2015	Mid-Ebb	0.86
SR9	5/23/2015	Mid-Ebb	0.94	SR11	5/23/2015	Mid-Ebb	0.63
SR9	5/28/2015	Mid-Ebb	0.71	SR11	5/28/2015	Mid-Ebb	0.90
SR9	5/30/2015	Mid-Ebb	0.64	SR11	5/30/2015	Mid-Ebb	0.45
SR9	6/2/2015	Mid-Ebb	0.62	SR11	6/2/2015	Mid-Ebb	0.53
SR9	6/4/2015	Mid-Ebb	0.67	SR11	6/4/2015	Mid-Ebb	0.43
SR9	6/6/2015	Mid-Ebb	0.66	SR11	6/6/2015	Mid-Ebb	0.46
SR9	6/9/2015	Mid-Ebb	0.36	SR11	6/9/2015	Mid-Ebb	0.33
SR9	6/11/2015	Mid-Ebb	0.51	SR11	6/11/2015	Mid-Ebb	0.42
SR9	6/13/2015	Mid-Ebb	0.42	SR11	6/13/2015	Mid-Ebb	0.41
SR9	6/16/2015	Mid-Ebb	0.36	SR11	6/16/2015	Mid-Ebb	0.29
SR9	6/18/2015	Mid-Ebb	0.31	SR11	6/18/2015	Mid-Ebb	0.51
SR9	6/20/2015	Mid-Ebb	0.39	SR11	6/20/2015	Mid-Ebb	0.40
SR9	6/23/2015	Mid-Ebb	0.52	SR11	6/23/2015	Mid-Ebb	0.51
SR9	6/25/2015	Mid-Ebb	0.88	SR11	6/25/2015	Mid-Ebb	0.41
SR9	6/27/2015	Mid-Ebb	0.54	SR11	6/27/2015	Mid-Ebb	0.47
SR9	6/30/2015	Mid-Ebb	0.53	SR11	6/30/2015	Mid-Ebb	0.47
SR9	7/2/2015	Mid-Ebb	0.40	SR11	7/2/2015	Mid-Ebb	0.34
SR9	7/4/2015	Mid-Ebb	0.39	SR11	7/4/2015	Mid-Ebb	0.31
SR9	7/7/2015	Mid-Ebb	0.33	SR11	7/7/2015	Mid-Ebb	0.16
SR9	7/11/2015	Mid-Ebb	0.16	SR11	7/11/2015	Mid-Ebb	0.06
SR9	7/14/2015	Mid-Ebb	0.10	SR11	7/14/2015	Mid-Ebb	0.12
SR9	7/16/2015	Mid-Ebb	0.06	SR11	7/16/2015	Mid-Ebb	0.13
SR9	7/18/2015	Mid-Ebb	0.20	SR11	7/18/2015	Mid-Ebb	0.17
SR10	4/23/2015	Mid-Ebb	0.21				
SR10	4/25/2015	Mid-Ebb	0.17				
SR10	4/28/2015	Mid-Ebb	0.13				
SR10	4/30/2015	Mid-Ebb	0.27				
SR10	5/2/2015	Mid-Ebb	0.22				
SR10	5/5/2015	Mid-Ebb	0.38				
SR10	5/7/2015	Mid-Ebb	0.46				
SR10	5/9/2015	Mid-Ebb	0.59				
SR10	5/12/2015	Mid-Ebb	0.44				
SR10	5/14/2015	Mid-Ebb	0.29				
SR10	5/16/2015	Mid-Ebb	0.61				
SR10	5/19/2015	Mid-Ebb	0.68				
SR10	5/21/2015	Mid-Ebb	0.81				
SR10	5/23/2015	Mid-Ebb	0.64				
SR10	5/28/2015	Mid-Ebb	0.87				
SR10	5/30/2015	Mid-Ebb	0.63				
SR10	6/2/2015	Mid-Ebb	0.50				
SR10	6/4/2015	Mid-Ebb	0.60				
SR10	6/6/2015	Mid-Ebb	0.50				
SR10	6/9/2015	Mid-Ebb	0.45				
SR10	6/11/2015	Mid-Ebb	0.61				
SR10	6/13/2015	Mid-Ebb	0.57				
SR10	6/16/2015	Mid-Ebb	0.49				
SR10	6/18/2015	Mid-Ebb	0.54				
SR10	6/20/2015	Mid-Ebb	0.55				
SR10	6/23/2015	Mid-Ebb	0.46				
SR10	6/25/2015	Mid-Ebb	0.41				
SR10	6/27/2015	Mid-Ebb	0.46				
SR10	6/30/2015	Mid-Ebb	0.54				
SR10	7/2/2015	Mid-Ebb	0.39				
SR10	7/4/2015	Mid-Ebb	0.42				
SR10	7/7/2015	Mid-Ebb	0.23				
SR10	7/11/2015	Mid-Ebb	0.07				
SR10	7/14/2015	Mid-Ebb	0.17				
SR10	7/16/2015	Mid-Ebb	0.22				
SR10	7/18/2015	Mid-Ebb	0.26				

Cluster 2 TIN(Insitu)
1.3 x Baseline vs Impact

Baseline (Insitu) x 1.3		Impact (Insitu)	
Raw Statistics		Raw Statistics	
Number of Valid Observations	36	Number of Valid Observations	108
Number of Distinct Observations	35	Number of Distinct Observations	57
Minimum	0.146	Minimum	0.06
Maximum	0.777	Maximum	0.94
Mean of Raw Data	0.353	Mean of Raw Data	0.427
Standard Deviation of Raw Data	0.157	Standard Deviation of Raw Data	0.202
Kstar	5.481	Kstar	3.672
Mean of Log Transformed Data	-1.127	Mean of Log Transformed Data	-0.988
Standard Deviation of Log Transformed Data	0.415	Standard Deviation of Log Transformed Data	0.579
Normal Distribution Test Results		Normal Distribution Test Results	
Correlation Coefficient R	0.938	Correlation Coefficient R	0.99
Shapiro Wilk Test Statistic	0.874	Approximate Shapiro Wilk Test Statistic	0.961
Shapiro Wilk Critical (0.95) Value	0.935	Approximate Shapiro Wilk P Value	0.0208
Approximate Shapiro Wilk P Value	5.11E-04	Lilliefors Test Statistic	0.0486
Lilliefors Test Statistic	0.246	Lilliefors Critical (0.95) Value	0.0853
Lilliefors Critical (0.95) Value	0.148	Data appear Normal at (0.05) Significance Level	
Data not Normal at (0.05) Significance Level			

Wilcoxon-Mann-Whitney Site vs Background Comparison Test for Full Data Sets without NDs

User Selected Options	
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: Impact (Insitu)
Background Data: Baseline (Insitu) x 1.3

Raw Statistics

	Site	Background
Number of Valid Observations	108	36
Number of Distinct Observations	57	35
Minimum	0.06	0.146
Maximum	0.94	0.777
Mean	0.427	0.353
Median	0.42	0.313
SD	0.202	0.157
SE of Mean	0.0194	0.0261

Wilcoxon-Mann-Whitney (WMW) Test

H0: Mean/Median of Site or AOC <= Mean/Median of Background

Site Rank Sum W-Stat	8290
WMW Test U-Stat	2.12
WMW Critical Value (0.050)	1.645
P-Value	0.017

Conclusion with Alpha = 0.05
Reject H0, Conclude Site > Background
P-Value < alpha (0.05)

Cluster 2 TIN(Insitu)
Gradient vs Impact

Gradient TIN (insitu) (mg/L)		
G5	4/23/2015 Mid-Ebb	0.32
G5	4/25/2015 Mid-Ebb	0.37
G5	4/28/2015 Mid-Ebb	0.22
G5	4/30/2015 Mid-Ebb	0.30
G5	5/2/2015 Mid-Ebb	0.30
G5	5/5/2015 Mid-Ebb	0.40
G5	5/7/2015 Mid-Ebb	0.45
G5	5/9/2015 Mid-Ebb	0.60
G5	5/12/2015 Mid-Ebb	0.62
G5	5/14/2015 Mid-Ebb	0.62
G5	5/16/2015 Mid-Ebb	0.58
G5	5/19/2015 Mid-Ebb	0.78
G5	5/21/2015 Mid-Ebb	0.96
G5	5/23/2015 Mid-Ebb	0.94
G5	5/28/2015 Mid-Ebb	1.11
G5	5/30/2015 Mid-Ebb	0.71
G5	6/2/2015 Mid-Ebb	0.65
G5	6/4/2015 Mid-Ebb	0.75
G5	6/6/2015 Mid-Ebb	0.60
G5	6/9/2015 Mid-Ebb	0.66
G5	6/11/2015 Mid-Ebb	0.74
G5	6/13/2015 Mid-Ebb	0.68
G5	6/16/2015 Mid-Ebb	0.56
G5	6/18/2015 Mid-Ebb	0.69
G5	6/20/2015 Mid-Ebb	0.53
G5	6/23/2015 Mid-Ebb	0.48
G5	6/25/2015 Mid-Ebb	0.96
G5	6/27/2015 Mid-Ebb	0.90
G5	6/30/2015 Mid-Ebb	0.59
G5	7/2/2015 Mid-Ebb	0.40
G5	7/4/2015 Mid-Ebb	0.43
G5	7/7/2015 Mid-Ebb	0.46
G5	7/11/2015 Mid-Ebb	0.15
G5	7/14/2015 Mid-Ebb	0.22
G5	7/16/2015 Mid-Ebb	0.29
G5	7/18/2015 Mid-Ebb	0.38
G6	4/23/2015 Mid-Ebb	0.26
G6	4/25/2015 Mid-Ebb	0.19
G6	4/28/2015 Mid-Ebb	0.20
G6	4/30/2015 Mid-Ebb	0.29
G6	5/2/2015 Mid-Ebb	0.32
G6	5/5/2015 Mid-Ebb	0.44
G6	5/7/2015 Mid-Ebb	0.39
G6	5/9/2015 Mid-Ebb	0.48
G6	5/12/2015 Mid-Ebb	0.34
G6	5/14/2015 Mid-Ebb	0.40
G6	5/16/2015 Mid-Ebb	0.68
G6	5/19/2015 Mid-Ebb	0.79
G6	5/21/2015 Mid-Ebb	0.62
G6	5/23/2015 Mid-Ebb	0.62
G6	5/28/2015 Mid-Ebb	1.20
G6	5/30/2015 Mid-Ebb	0.79
G6	6/2/2015 Mid-Ebb	0.73
G6	6/4/2015 Mid-Ebb	0.69
G6	6/6/2015 Mid-Ebb	0.37
G6	6/9/2015 Mid-Ebb	0.44
G6	6/11/2015 Mid-Ebb	0.75
G6	6/13/2015 Mid-Ebb	0.41
G6	6/16/2015 Mid-Ebb	0.60
G6	6/18/2015 Mid-Ebb	0.74
G6	6/20/2015 Mid-Ebb	0.67
G6	6/23/2015 Mid-Ebb	0.51
G6	6/25/2015 Mid-Ebb	0.55
G6	6/27/2015 Mid-Ebb	0.70
G6	6/30/2015 Mid-Ebb	0.64
G6	7/2/2015 Mid-Ebb	0.70
G6	7/4/2015 Mid-Ebb	0.45
G6	7/7/2015 Mid-Ebb	0.20
G6	7/11/2015 Mid-Ebb	0.19
G6	7/14/2015 Mid-Ebb	0.30
G6	7/16/2015 Mid-Ebb	0.32
G6	7/18/2015 Mid-Ebb	0.28

Impact TIN (Insitu) (mg/L)					
SR9	4/23/2015 Mid-Ebb	0.26	SR11	4/23/2015 Mid-Ebb	0.27
SR9	4/25/2015 Mid-Ebb	0.34	SR11	4/25/2015 Mid-Ebb	0.19
SR9	4/28/2015 Mid-Ebb	0.17	SR11	4/28/2015 Mid-Ebb	0.17
SR9	4/30/2015 Mid-Ebb	0.27	SR11	4/30/2015 Mid-Ebb	0.19
SR9	5/2/2015 Mid-Ebb	0.24	SR11	5/2/2015 Mid-Ebb	0.19
SR9	5/5/2015 Mid-Ebb	0.36	SR11	5/5/2015 Mid-Ebb	0.28
SR9	5/7/2015 Mid-Ebb	0.40	SR11	5/7/2015 Mid-Ebb	0.43
SR9	5/9/2015 Mid-Ebb	0.47	SR11	5/9/2015 Mid-Ebb	0.42
SR9	5/12/2015 Mid-Ebb	0.61	SR11	5/12/2015 Mid-Ebb	0.38
SR9	5/14/2015 Mid-Ebb	0.57	SR11	5/14/2015 Mid-Ebb	0.29
SR9	5/16/2015 Mid-Ebb	0.56	SR11	5/16/2015 Mid-Ebb	0.61
SR9	5/19/2015 Mid-Ebb	0.70	SR11	5/19/2015 Mid-Ebb	0.60
SR9	5/21/2015 Mid-Ebb	0.88	SR11	5/21/2015 Mid-Ebb	0.86
SR9	5/23/2015 Mid-Ebb	0.94	SR11	5/23/2015 Mid-Ebb	0.63
SR9	5/28/2015 Mid-Ebb	0.71	SR11	5/28/2015 Mid-Ebb	0.90
SR9	5/30/2015 Mid-Ebb	0.64	SR11	5/30/2015 Mid-Ebb	0.45
SR9	6/2/2015 Mid-Ebb	0.62	SR11	6/2/2015 Mid-Ebb	0.53
SR9	6/4/2015 Mid-Ebb	0.67	SR11	6/4/2015 Mid-Ebb	0.43
SR9	6/6/2015 Mid-Ebb	0.66	SR11	6/6/2015 Mid-Ebb	0.46
SR9	6/9/2015 Mid-Ebb	0.36	SR11	6/9/2015 Mid-Ebb	0.33
SR9	6/11/2015 Mid-Ebb	0.51	SR11	6/11/2015 Mid-Ebb	0.42
SR9	6/13/2015 Mid-Ebb	0.42	SR11	6/13/2015 Mid-Ebb	0.41
SR9	6/16/2015 Mid-Ebb	0.36	SR11	6/16/2015 Mid-Ebb	0.29
SR9	6/18/2015 Mid-Ebb	0.31	SR11	6/18/2015 Mid-Ebb	0.51
SR9	6/20/2015 Mid-Ebb	0.39	SR11	6/20/2015 Mid-Ebb	0.40
SR9	6/23/2015 Mid-Ebb	0.52	SR11	6/23/2015 Mid-Ebb	0.51
SR9	6/25/2015 Mid-Ebb	0.88	SR11	6/25/2015 Mid-Ebb	0.41
SR9	6/27/2015 Mid-Ebb	0.54	SR11	6/27/2015 Mid-Ebb	0.47
SR9	6/30/2015 Mid-Ebb	0.53	SR11	6/30/2015 Mid-Ebb	0.47
SR9	7/2/2015 Mid-Ebb	0.40	SR11	7/2/2015 Mid-Ebb	0.34
SR9	7/4/2015 Mid-Ebb	0.39	SR11	7/4/2015 Mid-Ebb	0.31
SR9	7/7/2015 Mid-Ebb	0.33	SR11	7/7/2015 Mid-Ebb	0.16
SR9	7/11/2015 Mid-Ebb	0.16	SR11	7/11/2015 Mid-Ebb	0.06
SR9	7/14/2015 Mid-Ebb	0.10	SR11	7/14/2015 Mid-Ebb	0.12
SR9	7/16/2015 Mid-Ebb	0.06	SR11	7/16/2015 Mid-Ebb	0.13
SR9	7/18/2015 Mid-Ebb	0.20	SR11	7/18/2015 Mid-Ebb	0.17
SR10	4/23/2015 Mid-Ebb	0.21			
SR10	4/25/2015 Mid-Ebb	0.17			
SR10	4/28/2015 Mid-Ebb	0.13			
SR10	4/30/2015 Mid-Ebb	0.27			
SR10	5/2/2015 Mid-Ebb	0.22			
SR10	5/5/2015 Mid-Ebb	0.38			
SR10	5/7/2015 Mid-Ebb	0.46			
SR10	5/9/2015 Mid-Ebb	0.59			
SR10	5/12/2015 Mid-Ebb	0.44			
SR10	5/14/2015 Mid-Ebb	0.29			
SR10	5/16/2015 Mid-Ebb	0.61			
SR10	5/19/2015 Mid-Ebb	0.68			
SR10	5/21/2015 Mid-Ebb	0.81			
SR10	5/23/2015 Mid-Ebb	0.64			
SR10	5/28/2015 Mid-Ebb	0.87			
SR10	5/30/2015 Mid-Ebb	0.63			
SR10	6/2/2015 Mid-Ebb	0.50			
SR10	6/4/2015 Mid-Ebb	0.60			
SR10	6/6/2015 Mid-Ebb	0.50			
SR10	6/9/2015 Mid-Ebb	0.45			
SR10	6/11/2015 Mid-Ebb	0.61			
SR10	6/13/2015 Mid-Ebb	0.57			
SR10	6/16/2015 Mid-Ebb	0.49			
SR10	6/18/2015 Mid-Ebb	0.54			
SR10	6/20/2015 Mid-Ebb	0.55			
SR10	6/23/2015 Mid-Ebb	0.46			
SR10	6/25/2015 Mid-Ebb	0.41			
SR10	6/27/2015 Mid-Ebb	0.46			
SR10	6/30/2015 Mid-Ebb	0.54			
SR10	7/2/2015 Mid-Ebb	0.39			
SR10	7/4/2015 Mid-Ebb	0.42			
SR10	7/7/2015 Mid-Ebb	0.23			
SR10	7/11/2015 Mid-Ebb	0.07			
SR10	7/14/2015 Mid-Ebb	0.17			
SR10	7/16/2015 Mid-Ebb	0.22			
SR10	7/18/2015 Mid-Ebb	0.26			

Cluster 2 TIN(Insitu)
Gradient vs Impact

Impact (Insitu)		Gradient (Insitu)	
Raw Statistics		Raw Statistics	
Number of Valid Observations	108	Number of Valid Observations	72
Number of Distinct Observations	57	Number of Distinct Observations	46
Minimum	0.06	Minimum	0.15
Maximum	0.94	Maximum	1.2
Mean of Raw Data	0.427	Mean of Raw Data	0.537
Standard Deviation of Raw Data	0.202	Standard Deviation of Raw Data	0.23
Kstar	3.672	Kstar	4.966
Mean of Log Transformed Data	-0.988	Mean of Log Transformed Data	-0.722
Standard Deviation of Log Transformed Data	0.579	Standard Deviation of Log Transformed Data	0.468
Normal Distribution Test Results		Normal Distribution Test Results	
Correlation Coefficient R	0.99	Correlation Coefficient R	0.984
Approximate Shapiro Wilk Test Statistic	0.961	Approximate Shapiro Wilk Test Statistic	0.959
Approximate Shapiro Wilk P Value	0.0208	Approximate Shapiro Wilk P Value	0.0536
Lilliefors Test Statistic	0.0486	Lilliefors Test Statistic	0.0777
Lilliefors Critical (0.95) Value	0.0853	Lilliefors Critical (0.95) Value	0.104
Data appear Normal at (0.05) Significance Level		Data appear Normal at (0.05) Significance Level	

Wilcoxon-Mann-Whitney Site vs Background Comparison Test for Full Data Sets without NDs

User Selected Options	
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: Impact (Insitu)
Background Data: Gradient (Insitu)

Raw Statistics

	Site	Background
Number of Valid Observations	108	72
Number of Distinct Observations	57	46
Minimum	0.06	0.15
Maximum	0.94	1.2
Mean	0.427	0.537
Median	0.42	0.54
SD	0.202	0.23
SE of Mean	0.0194	0.0271

Wilcoxon-Mann-Whitney (WMW) Test

H0: Mean/Median of Site or AOC <= Mean/Median of Background

Site Rank Sum W-Stat	8710
WMW Test U-Stat	-3.11
WMW Critical Value (0.050)	1.645
P-Value	9.36E-04

Conclusion with Alpha = 0.05
Do Not Reject H0, Conclude Site <= Background
P-Value < alpha (0.05)

Cluster 2 TIN(Insitu)
G1 vs Impact

G1 TIN (insitu) (mg/L)		
G1	4/23/2015 Mid-Ebb	0.36
G1	4/25/2015 Mid-Ebb	0.47
G1	4/28/2015 Mid-Ebb	0.52
G1	4/30/2015 Mid-Ebb	0.76
G1	5/2/2015 Mid-Ebb	0.74
G1	5/5/2015 Mid-Ebb	0.81
G1	5/7/2015 Mid-Ebb	0.68
G1	5/9/2015 Mid-Ebb	1.16
G1	5/12/2015 Mid-Ebb	1.29
G1	5/14/2015 Mid-Ebb	1.15
G1	5/16/2015 Mid-Ebb	1.54
G1	5/19/2015 Mid-Ebb	1.08
G1	5/21/2015 Mid-Ebb	0.90
G1	5/23/2015 Mid-Ebb	1.21
G1	5/28/2015 Mid-Ebb	1.49
G1	5/30/2015 Mid-Ebb	1.31
G1	6/2/2015 Mid-Ebb	1.19
G1	6/4/2015 Mid-Ebb	0.88
G1	6/6/2015 Mid-Ebb	0.62
G1	6/9/2015 Mid-Ebb	1.00
G1	6/11/2015 Mid-Ebb	1.44
G1	6/13/2015 Mid-Ebb	1.42
G1	6/16/2015 Mid-Ebb	1.42
G1	6/18/2015 Mid-Ebb	1.28
G1	6/20/2015 Mid-Ebb	0.90
G1	6/23/2015 Mid-Ebb	0.98
G1	6/25/2015 Mid-Ebb	1.19
G1	6/27/2015 Mid-Ebb	1.12
G1	6/30/2015 Mid-Ebb	1.35
G1	7/2/2015 Mid-Ebb	1.16
G1	7/4/2015 Mid-Ebb	0.54
G1	7/7/2015 Mid-Ebb	0.43
G1	7/11/2015 Mid-Ebb	0.65
G1	7/14/2015 Mid-Ebb	0.75
G1	7/16/2015 Mid-Ebb	0.87
G1	7/18/2015 Mid-Ebb	0.45

Impact TIN (Insitu) (mg/L)					
SR9	4/23/2015 Mid-Ebb	0.26	SR11	4/23/2015 Mid-Ebb	0.27
SR9	4/25/2015 Mid-Ebb	0.34	SR11	4/25/2015 Mid-Ebb	0.19
SR9	4/28/2015 Mid-Ebb	0.17	SR11	4/28/2015 Mid-Ebb	0.17
SR9	4/30/2015 Mid-Ebb	0.27	SR11	4/30/2015 Mid-Ebb	0.19
SR9	5/2/2015 Mid-Ebb	0.24	SR11	5/2/2015 Mid-Ebb	0.19
SR9	5/5/2015 Mid-Ebb	0.36	SR11	5/5/2015 Mid-Ebb	0.28
SR9	5/7/2015 Mid-Ebb	0.40	SR11	5/7/2015 Mid-Ebb	0.43
SR9	5/9/2015 Mid-Ebb	0.47	SR11	5/9/2015 Mid-Ebb	0.42
SR9	5/12/2015 Mid-Ebb	0.61	SR11	5/12/2015 Mid-Ebb	0.38
SR9	5/14/2015 Mid-Ebb	0.57	SR11	5/14/2015 Mid-Ebb	0.29
SR9	5/16/2015 Mid-Ebb	0.56	SR11	5/16/2015 Mid-Ebb	0.61
SR9	5/19/2015 Mid-Ebb	0.70	SR11	5/19/2015 Mid-Ebb	0.60
SR9	5/21/2015 Mid-Ebb	0.88	SR11	5/21/2015 Mid-Ebb	0.86
SR9	5/23/2015 Mid-Ebb	0.94	SR11	5/23/2015 Mid-Ebb	0.63
SR9	5/28/2015 Mid-Ebb	0.71	SR11	5/28/2015 Mid-Ebb	0.90
SR9	5/30/2015 Mid-Ebb	0.64	SR11	5/30/2015 Mid-Ebb	0.45
SR9	6/2/2015 Mid-Ebb	0.62	SR11	6/2/2015 Mid-Ebb	0.53
SR9	6/4/2015 Mid-Ebb	0.67	SR11	6/4/2015 Mid-Ebb	0.43
SR9	6/6/2015 Mid-Ebb	0.66	SR11	6/6/2015 Mid-Ebb	0.46
SR9	6/9/2015 Mid-Ebb	0.36	SR11	6/9/2015 Mid-Ebb	0.33
SR9	6/11/2015 Mid-Ebb	0.51	SR11	6/11/2015 Mid-Ebb	0.42
SR9	6/13/2015 Mid-Ebb	0.42	SR11	6/13/2015 Mid-Ebb	0.41
SR9	6/16/2015 Mid-Ebb	0.36	SR11	6/16/2015 Mid-Ebb	0.29
SR9	6/18/2015 Mid-Ebb	0.31	SR11	6/18/2015 Mid-Ebb	0.51
SR9	6/20/2015 Mid-Ebb	0.39	SR11	6/20/2015 Mid-Ebb	0.40
SR9	6/23/2015 Mid-Ebb	0.52	SR11	6/23/2015 Mid-Ebb	0.51
SR9	6/25/2015 Mid-Ebb	0.88	SR11	6/25/2015 Mid-Ebb	0.41
SR9	6/27/2015 Mid-Ebb	0.54	SR11	6/27/2015 Mid-Ebb	0.47
SR9	6/30/2015 Mid-Ebb	0.53	SR11	6/30/2015 Mid-Ebb	0.47
SR9	7/2/2015 Mid-Ebb	0.40	SR11	7/2/2015 Mid-Ebb	0.34
SR9	7/4/2015 Mid-Ebb	0.39	SR11	7/4/2015 Mid-Ebb	0.31
SR9	7/7/2015 Mid-Ebb	0.33	SR11	7/7/2015 Mid-Ebb	0.16
SR9	7/11/2015 Mid-Ebb	0.16	SR11	7/11/2015 Mid-Ebb	0.06
SR9	7/14/2015 Mid-Ebb	0.10	SR11	7/14/2015 Mid-Ebb	0.12
SR9	7/16/2015 Mid-Ebb	0.06	SR11	7/16/2015 Mid-Ebb	0.13
SR9	7/18/2015 Mid-Ebb	0.20	SR11	7/18/2015 Mid-Ebb	0.17
SR10	4/23/2015 Mid-Ebb	0.21			
SR10	4/25/2015 Mid-Ebb	0.17			
SR10	4/28/2015 Mid-Ebb	0.13			
SR10	4/30/2015 Mid-Ebb	0.27			
SR10	5/2/2015 Mid-Ebb	0.22			
SR10	5/5/2015 Mid-Ebb	0.38			
SR10	5/7/2015 Mid-Ebb	0.46			
SR10	5/9/2015 Mid-Ebb	0.59			
SR10	5/12/2015 Mid-Ebb	0.44			
SR10	5/14/2015 Mid-Ebb	0.29			
SR10	5/16/2015 Mid-Ebb	0.61			
SR10	5/19/2015 Mid-Ebb	0.68			
SR10	5/21/2015 Mid-Ebb	0.81			
SR10	5/23/2015 Mid-Ebb	0.64			
SR10	5/28/2015 Mid-Ebb	0.87			
SR10	5/30/2015 Mid-Ebb	0.63			
SR10	6/2/2015 Mid-Ebb	0.50			
SR10	6/4/2015 Mid-Ebb	0.60			
SR10	6/6/2015 Mid-Ebb	0.50			
SR10	6/9/2015 Mid-Ebb	0.45			
SR10	6/11/2015 Mid-Ebb	0.61			
SR10	6/13/2015 Mid-Ebb	0.57			
SR10	6/16/2015 Mid-Ebb	0.49			
SR10	6/18/2015 Mid-Ebb	0.54			
SR10	6/20/2015 Mid-Ebb	0.55			
SR10	6/23/2015 Mid-Ebb	0.46			
SR10	6/25/2015 Mid-Ebb	0.41			
SR10	6/27/2015 Mid-Ebb	0.46			
SR10	6/30/2015 Mid-Ebb	0.54			
SR10	7/2/2015 Mid-Ebb	0.39			
SR10	7/4/2015 Mid-Ebb	0.42			
SR10	7/7/2015 Mid-Ebb	0.23			
SR10	7/11/2015 Mid-Ebb	0.07			
SR10	7/14/2015 Mid-Ebb	0.17			
SR10	7/16/2015 Mid-Ebb	0.22			
SR10	7/18/2015 Mid-Ebb	0.26			

Cluster 2 TIN(Insitu)
G1 vs Impact

Impact (Insitu)		G1 (Insitu)	
Raw Statistics		Raw Statistics	
Number of Valid Observations	108	Number of Valid Observations	36
Number of Distinct Observations	57	Number of Distinct Observations	32
Minimum	0.06	Minimum	0.36
Maximum	0.94	Maximum	1.54
Mean of Raw Data	0.427	Mean of Raw Data	0.975
Standard Deviation of Raw Data	0.202	Standard Deviation of Raw Data	0.34
Kstar	3.672	Kstar	6.713
Mean of Log Transformed Data	-0.988	Mean of Log Transformed Data	-0.0951
Standard Deviation of Log Transformed Data	0.579	Standard Deviation of Log Transformed Data	0.398
Normal Distribution Test Results		Normal Distribution Test Results	
Correlation Coefficient R	0.99	Correlation Coefficient R	0.985
Approximate Shapiro Wilk Test Statistic	0.961	Shapiro Wilk Test Statistic	0.951
Approximate Shapiro Wilk P Value	0.0208	Shapiro Wilk Critical (0.95) Value	0.935
Lilliefors Test Statistic	0.0486	Approximate Shapiro Wilk P Value	0.147
Lilliefors Critical (0.95) Value	0.0853	Lilliefors Test Statistic	0.113
Data appear Normal at (0.05) Significance Level		Lilliefors Critical (0.95) Value	0.148
		Data appear Normal at (0.05) Significance Level	

t-Test Site vs Background Comparison for Full Data Sets without NDs

User Selected Options	
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Greater Than or Equal to Background Mean/Median (Form 2)
Alternative Hypothesis	Site or AOC Mean/Median Less Than Background Mean/Median

Raw Statistics

	Site	Background
Number of Valid Observations	108	36
Number of Distinct Observations	57	32
Minimum	0.06	0.36
Maximum	0.94	1.54
Mean	0.427	0.975
Median	0.42	0.99
SD	0.202	0.34
SE of Mean	0.0194	0.0567

Site vs Background Two-Sample t-Test

H0: Mu of Site - Mu of Background <= 0

Method	DF	t-Test Value	Critical t (0.050)	P-Value
Pooled (Equal Variance)	142	-11.705	1.656	1
Satterthwaite (Unequal Variance)	43.5	-9.141	1.681	1

Pooled SD 0.243

Conclusion with Alpha = 0.050

* Student t (Pooled) Test: Do Not Reject H0, Conclude Site <= Background
* Satterthwaite Test: Do Not Reject H0, Conclude Site <= Background

Test of Equality of Variances

Numerator DF	Denominator DF	F-Test Value	P-Value
35	107	2.85	0

Conclusion with Alpha = 0.05

* Two variances are not equal

Cluster 1 TIN(Lab)
1.3 x Baseline vs Impact

1.3 x Baseline TIN (lab) (mg/L) data			
SR5	1/4/2014	Mid-Flood	0.48
SR5	1/7/2014	Mid-Flood	0.52
SR5	1/9/2014	Mid-Flood	0.48
SR5	1/11/2014	Mid-Flood	0.53
SR5	1/14/2014	Mid-Flood	0.35
SR5	1/16/2014	Mid-Flood	0.43
SR5	1/18/2014	Mid-Flood	0.59
SR5	1/21/2014	Mid-Flood	0.32
SR5	1/23/2014	Mid-Flood	0.55
SR5	1/25/2014	Mid-Flood	0.47
SR5	1/27/2014	Mid-Flood	0.40
SR5	1/29/2014	Mid-Flood	0.66

Impact TIN (lab) (mg/L) data			
SR5	7/24/2014	Mid-Flood	0.45
SR5	7/26/2014	Mid-Flood	0.44
SR5	7/29/2014	Mid-Flood	0.54
SR5	7/31/2014	Mid-Flood	0.71
SR5	8/2/2014	Mid-Flood	0.84
SR5	8/5/2014	Mid-Flood	0.96
SR5	8/7/2014	Mid-Flood	0.69
SR5	8/9/2014	Mid-Flood	1.27
SR5	8/12/2014	Mid-Flood	0.84
SR5	8/14/2014	Mid-Flood	1.24
SR5	16/8/2014	Mid-Flood	1.54
SR5	8/19/2014	Mid-Flood	0.87
SR5	21/8/2014	Mid-Flood	1.00
SR5	8/23/2014	Mid-Flood	0.99
SR5	8/26/2014	Mid-Flood	1.66
SR5	28/8/2014	Mid-Flood	1.48
SR5	30/8/2014	Mid-Flood	1.17
SR5	9/2/2014	Mid-Flood	0.83
SR5	9/4/2014	Mid-Flood	0.82
SR5	9/6/2014	Mid-Flood	0.87
SR5	9/9/2014	Mid-Flood	1.50
SR5	9/11/2014	Mid-Flood	1.38
SR5	13/9/2014	Mid-Flood	1.34
SR5	16/9/2014	Mid-Flood	0.85
SR5	9/18/2014	Mid-Flood	0.98
SR5	20/9/2014	Mid-Flood	0.90
SR5	23/9/2014	Mid-Flood	1.35
SR5	25/9/2014	Mid-Flood	1.39
SR5	27/9/2014	Mid-Flood	1.25
SR5	30/9/2014	Mid-Flood	1.30
SR5	10/2/2014	Mid-Flood	0.63
SR5	10/4/2014	Mid-Flood	0.47
SR5	10/7/2014	Mid-Flood	0.59
SR5	10/9/2014	Mid-Flood	0.76
SR5	10/11/2014	Mid-Flood	0.79
SR5	10/14/2014	Mid-Flood	0.47

Cluster 1 TIN(Lab)
1.3 x Baseline vs Impact

Baseline (Lab) x 1.3		Impact (Lab)	
Raw Statistics		Raw Statistics	
Number of Valid Observations	12	Number of Valid Observations	36
Number of Distinct Observations	12	Number of Distinct Observations	31
Minimum	0.477	Minimum	0.42
Maximum	0.883	Maximum	1.77
Mean of Raw Data	0.643	Mean of Raw Data	0.976
Standard Deviation of Raw Data	0.127	Standard Deviation of Raw Data	0.365
Kstar	22.19	Kstar	6.366
Mean of Log Transformed Data	-0.458	Mean of Log Transformed Data	-0.0984
Standard Deviation of Log Transformed Data	0.191	Standard Deviation of Log Transformed Data	0.401
Normal Distribution Test Results		Normal Distribution Test Results	
Correlation Coefficient R	0.968	Correlation Coefficient R	0.981
Shapiro Wilk Test Statistic	0.93	Shapiro Wilk Test Statistic	0.947
Shapiro Wilk Critical (0.95) Value	0.859	Shapiro Wilk Critical (0.95) Value	0.935
Approximate Shapiro Wilk P Value	0.407	Approximate Shapiro Wilk P Value	0.115
Lilliefors Test Statistic	0.186	Lilliefors Test Statistic	0.131
Lilliefors Critical (0.95) Value	0.256	Lilliefors Critical (0.95) Value	0.148
Data appear Normal at (0.05) Significance Level		Data appear Normal at (0.05) Significance Level	

t-Test Site vs Background Comparison for Full Data Sets without NDs

User Selected Options	
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference (S)	0
Selected Null Hypothesis	Site or AOC Mean Less Than or Equal to Background Mean (Form 1)
Alternative Hypothesis	Site or AOC Mean Greater Than the Background Mean

Area of Concern Data: Impact (Lab)
Background Data: Baseline (lab) x 1.3

Raw Statistics

	Site	Background
Number of Valid Observations	36	12
Number of Distinct Observations	31	12
Minimum	0.42	0.477
Maximum	1.77	0.883
Mean	0.976	0.643
Median	0.88	0.614
SD	0.365	0.127
SE of Mean	0.0608	0.0366

Site vs Background Two-Sample t-Test

H0: Mu of Site - Mu of Background <= 0

Method	DF	t-Test Value	Critical t (0.050)	P-Value
Pooled (Equal Variance)	46	3.078	1.679	0.002
Satterthwaite (Unequal Variance)	45.8	4.686	1.679	0

Pooled SD 0.324
Conclusion with Alpha = 0.050
* Student t (Pooled) Test: Reject H0, Conclude Site > Background
* Satterthwaite Test: Reject H0, Conclude Site > Background

Test of Equality of Variances

Numerator DF	Denominator DF	F-Test Value	P-Value
35	11	8.268	0.001

Conclusion with Alpha = 0.05
* Two variances are not equal

Cluster 1 TIN(Lab)
Gradient vs Impact

Gradient TIN (lab) (mg/L) data							
G2	4/23/2015	Mid-Flood	0.43	G4	4/23/2015	Mid-Flood	0.64
G2	4/25/2015	Mid-Flood	0.45	G4	4/25/2015	Mid-Flood	0.59
G2	4/28/2015	Mid-Flood	0.42	G4	4/28/2015	Mid-Flood	0.39
G2	4/30/2015	Mid-Flood	0.61	G4	4/30/2015	Mid-Flood	0.25
G2	5/2/2015	Mid-Flood	0.70	G4	5/2/2015	Mid-Flood	0.29
G2	5/5/2015	Mid-Flood	0.92	G4	5/5/2015	Mid-Flood	0.53
G2	5/7/2015	Mid-Flood	0.82	G4	5/7/2015	Mid-Flood	0.63
G2	5/9/2015	Mid-Flood	1.05	G4	5/9/2015	Mid-Flood	0.70
G2	5/12/2015	Mid-Flood	0.76	G4	5/12/2015	Mid-Flood	0.72
G2	5/14/2015	Mid-Flood	1.12	G4	5/14/2015	Mid-Flood	0.62
G2	5/16/2015	Mid-Flood	1.27	G4	5/16/2015	Mid-Flood	0.85
G2	5/19/2015	Mid-Flood	1.05	G4	5/19/2015	Mid-Flood	0.82
G2	5/21/2015	Mid-Flood	1.06	G4	5/21/2015	Mid-Flood	0.75
G2	5/23/2015	Mid-Flood	0.98	G4	5/23/2015	Mid-Flood	0.70
G2	5/28/2015	Mid-Flood	1.28	G4	5/28/2015	Mid-Flood	0.90
G2	5/30/2015	Mid-Flood	1.18	G4	5/30/2015	Mid-Flood	0.67
G2	6/2/2015	Mid-Flood	1.04	G4	6/2/2015	Mid-Flood	0.64
G2	6/4/2015	Mid-Flood	0.79	G4	6/4/2015	Mid-Flood	0.64
G2	6/6/2015	Mid-Flood	0.84	G4	6/6/2015	Mid-Flood	0.71
G2	6/9/2015	Mid-Flood	0.83	G4	6/9/2015	Mid-Flood	0.58
G2	6/11/2015	Mid-Flood	1.35	G4	6/11/2015	Mid-Flood	0.75
G2	6/13/2015	Mid-Flood	1.20	G4	6/13/2015	Mid-Flood	0.54
G2	6/16/2015	Mid-Flood	1.15	G4	6/16/2015	Mid-Flood	0.45
G2	6/18/2015	Mid-Flood	0.88	G4	6/18/2015	Mid-Flood	0.61
G2	6/20/2015	Mid-Flood	1.15	G4	6/20/2015	Mid-Flood	0.66
G2	6/23/2015	Mid-Flood	0.78	G4	6/23/2015	Mid-Flood	0.73
G2	6/25/2015	Mid-Flood	1.11	G4	6/25/2015	Mid-Flood	0.74
G2	6/27/2015	Mid-Flood	1.16	G4	6/27/2015	Mid-Flood	0.79
G2	6/30/2015	Mid-Flood	0.85	G4	6/30/2015	Mid-Flood	0.72
G2	7/2/2015	Mid-Flood	1.21	G4	7/2/2015	Mid-Flood	0.57
G2	7/4/2015	Mid-Flood	0.67	G4	7/4/2015	Mid-Flood	0.55
G2	7/7/2015	Mid-Flood	0.52	G4	7/7/2015	Mid-Flood	0.39
G2	7/11/2015	Mid-Flood	0.49	G4	7/11/2015	Mid-Flood	0.30
G2	7/14/2015	Mid-Flood	0.70	G4	7/14/2015	Mid-Flood	0.32
G2	7/16/2015	Mid-Flood	0.77	G4	7/16/2015	Mid-Flood	0.42
G2	7/18/2015	Mid-Flood	0.55	G4	7/18/2015	Mid-Flood	0.63
G3	4/23/2015	Mid-Flood	0.38				
G3	4/25/2015	Mid-Flood	0.42				
G3	4/28/2015	Mid-Flood	0.33				
G3	4/30/2015	Mid-Flood	0.34				
G3	5/2/2015	Mid-Flood	0.31				
G3	5/5/2015	Mid-Flood	0.51				
G3	5/7/2015	Mid-Flood	0.53				
G3	5/9/2015	Mid-Flood	0.63				
G3	5/12/2015	Mid-Flood	0.68				
G3	5/14/2015	Mid-Flood	0.61				
G3	5/16/2015	Mid-Flood	0.89				
G3	5/19/2015	Mid-Flood	0.82				
G3	5/21/2015	Mid-Flood	0.92				
G3	5/23/2015	Mid-Flood	0.74				
G3	5/28/2015	Mid-Flood	0.90				
G3	5/30/2015	Mid-Flood	0.73				
G3	6/2/2015	Mid-Flood	0.63				
G3	6/4/2015	Mid-Flood	0.63				
G3	6/6/2015	Mid-Flood	0.63				
G3	6/9/2015	Mid-Flood	0.58				
G3	6/11/2015	Mid-Flood	0.69				
G3	6/13/2015	Mid-Flood	0.68				
G3	6/16/2015	Mid-Flood	0.54				
G3	6/18/2015	Mid-Flood	0.64				
G3	6/20/2015	Mid-Flood	0.63				
G3	6/23/2015	Mid-Flood	0.59				
G3	6/25/2015	Mid-Flood	0.74				
G3	6/27/2015	Mid-Flood	0.78				
G3	6/30/2015	Mid-Flood	0.74				
G3	7/2/2015	Mid-Flood	0.59				
G3	7/4/2015	Mid-Flood	0.55				
G3	7/7/2015	Mid-Flood	0.43				
G3	7/11/2015	Mid-Flood	0.24				
G3	7/14/2015	Mid-Flood	0.33				
G3	7/16/2015	Mid-Flood	0.38				
G3	7/18/2015	Mid-Flood	0.39				

Impact TIN (lab) (mg/L) data			
SR5	4/23/2015	Mid-Flood	0.45
SR5	4/25/2015	Mid-Flood	0.44
SR5	4/28/2015	Mid-Flood	0.54
SR5	4/30/2015	Mid-Flood	0.71
SR5	5/2/2015	Mid-Flood	0.84
SR5	5/5/2015	Mid-Flood	0.96
SR5	5/7/2015	Mid-Flood	0.69
SR5	5/9/2015	Mid-Flood	1.27
SR5	5/12/2015	Mid-Flood	0.84
SR5	5/14/2015	Mid-Flood	1.24
SR5	5/16/2015	Mid-Flood	1.54
SR5	5/19/2015	Mid-Flood	0.87
SR5	5/21/2015	Mid-Flood	1.00
SR5	5/23/2015	Mid-Flood	0.99
SR5	5/28/2015	Mid-Flood	1.66
SR5	5/30/2015	Mid-Flood	1.48
SR5	6/2/2015	Mid-Flood	1.17
SR5	6/4/2015	Mid-Flood	0.83
SR5	6/6/2015	Mid-Flood	0.82
SR5	6/9/2015	Mid-Flood	0.87
SR5	6/11/2015	Mid-Flood	1.50
SR5	6/13/2015	Mid-Flood	1.38
SR5	6/16/2015	Mid-Flood	1.34
SR5	6/18/2015	Mid-Flood	0.85
SR5	6/20/2015	Mid-Flood	0.98
SR5	6/23/2015	Mid-Flood	0.90
SR5	6/25/2015	Mid-Flood	1.35
SR5	6/27/2015	Mid-Flood	1.39
SR5	6/30/2015	Mid-Flood	1.25
SR5	7/2/2015	Mid-Flood	1.30
SR5	7/4/2015	Mid-Flood	0.63
SR5	7/7/2015	Mid-Flood	0.47
SR5	7/11/2015	Mid-Flood	0.59
SR5	7/14/2015	Mid-Flood	0.76
SR5	7/16/2015	Mid-Flood	0.79
SR5	7/18/2015	Mid-Flood	0.47

Cluster 1 TIN(Lab)
Gradient vs Impact

Impact (Lab)	
Raw Statistics	
Number of Valid Observations	36
Number of Distinct Observations	33
Minimum	0.44
Maximum	1.66
Mean of Raw Data	0.977
Standard Deviation of Raw Data	0.346
Kstar	7.091
Mean of Log Transformed Data	-0.0898
Standard Deviation of Log Transformed Data	0.379
Normal Distribution Test Results	
Correlation Coefficient R	0.982
Shapiro Wilk Test Statistic	0.945
Shapiro Wilk Critical (0.95) Value	0.935
Approximate Shapiro Wilk P Value	0.0996
Lilliefors Test Statistic	0.121
Lilliefors Critical (0.95) Value	0.148
Data appear Normal at (0.05) Significance Level	

Gradient (Lab)	
Raw Statistics	
Number of Valid Observations	108
Number of Distinct Observations	62
Minimum	0.24
Maximum	1.35
Mean of Raw Data	0.695
Standard Deviation of Raw Data	0.25
Kstar	7.405
Mean of Log Transformed Data	-0.431
Standard Deviation of Log Transformed Data	0.378
Normal Distribution Test Results	
Correlation Coefficient R	0.984
Approximate Shapiro Wilk Test Statistic	0.952
Approximate Shapiro Wilk P Value	0.00239
Lilliefors Test Statistic	0.089
Lilliefors Critical (0.95) Value	0.0853
Data not Normal at (0.05) Significance Level	

Wilcoxon-Mann-Whitney Site vs Background Comparison Test for Full Data Sets without NDs

User Selected Options	
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: Impact (Lab)
Background Data: Gradient (Lab)

Raw Statistics

	Site	Background
Number of Valid Observations	36	108
Number of Distinct Observations	33	62
Minimum	0.44	0.24
Maximum	1.66	1.35
Mean	0.977	0.695
Median	0.885	0.67
SD	0.346	0.25
SE of Mean	0.0577	0.024

Wilcoxon-Mann-Whitney (WMW) Test

H0: Mean/Median of Site or AOC <= Mean/Median of Background

Site Rank Sum W-Stat	3559
WMW Test U-Stat	4.376
WMW Critical Value (0.050)	1.645
P-Value	6.04E-06

Conclusion with Alpha = 0.05
Reject H0, Conclude Site > Background
P-Value < alpha (0.05)

Cluster 2 TIN(Lab)
1.3 x Baseline vs Impact

Baseline x 1.3 TIN (lab) (mg/L)			
SR9	1/4/2014	Mid-Ebb	0.17
SR9	1/7/2014	Mid-Ebb	0.27
SR9	1/9/2014	Mid-Ebb	0.63
SR9	1/11/2014	Mid-Ebb	0.66
SR9	1/14/2014	Mid-Ebb	0.38
SR9	1/16/2014	Mid-Ebb	0.36
SR9	1/18/2014	Mid-Ebb	0.22
SR9	1/21/2014	Mid-Ebb	0.07
SR9	1/23/2014	Mid-Ebb	0.06
SR9	1/25/2014	Mid-Ebb	0.04
SR9	1/27/2014	Mid-Ebb	0.04
SR9	1/29/2014	Mid-Ebb	0.04
SR10	1/4/2014	Mid-Ebb	0.21
SR10	1/7/2014	Mid-Ebb	0.22
SR10	1/9/2014	Mid-Ebb	0.22
SR10	1/11/2014	Mid-Ebb	0.23
SR10	1/14/2014	Mid-Ebb	0.16
SR10	1/16/2014	Mid-Ebb	0.14
SR10	1/18/2014	Mid-Ebb	0.15
SR10	1/21/2014	Mid-Ebb	0.13
SR10	1/23/2014	Mid-Ebb	0.17
SR10	1/25/2014	Mid-Ebb	0.09
SR10	1/27/2014	Mid-Ebb	0.10
SR10	1/29/2014	Mid-Ebb	0.13
SR11	1/4/2014	Mid-Ebb	0.21
SR11	1/7/2014	Mid-Ebb	0.20
SR11	1/9/2014	Mid-Ebb	0.22
SR11	1/11/2014	Mid-Ebb	0.24
SR11	1/14/2014	Mid-Ebb	0.17
SR11	1/16/2014	Mid-Ebb	0.14
SR11	1/18/2014	Mid-Ebb	0.12
SR11	1/21/2014	Mid-Ebb	0.15
SR11	1/23/2014	Mid-Ebb	0.21
SR11	1/25/2014	Mid-Ebb	0.14
SR11	1/27/2014	Mid-Ebb	0.08
SR11	1/29/2014	Mid-Ebb	0.11

Impact TIN (lab) (mg/L)							
SR9	4/23/2015	Mid-Ebb	0.31	SR11	4/23/2015	Mid-Ebb	0.21
SR9	4/25/2015	Mid-Ebb	0.27	SR11	4/25/2015	Mid-Ebb	0.21
SR9	4/28/2015	Mid-Ebb	0.20	SR11	4/28/2015	Mid-Ebb	0.14
SR9	4/30/2015	Mid-Ebb	0.31	SR11	4/30/2015	Mid-Ebb	0.13
SR9	5/2/2015	Mid-Ebb	0.23	SR11	5/2/2015	Mid-Ebb	0.19
SR9	5/5/2015	Mid-Ebb	0.33	SR11	5/5/2015	Mid-Ebb	0.35
SR9	5/7/2015	Mid-Ebb	0.39	SR11	5/7/2015	Mid-Ebb	0.44
SR9	5/9/2015	Mid-Ebb	0.41	SR11	5/9/2015	Mid-Ebb	0.44
SR9	5/12/2015	Mid-Ebb	0.62	SR11	5/12/2015	Mid-Ebb	0.38
SR9	5/14/2015	Mid-Ebb	0.59	SR11	5/14/2015	Mid-Ebb	0.30
SR9	5/16/2015	Mid-Ebb	0.63	SR11	5/16/2015	Mid-Ebb	0.60
SR9	5/19/2015	Mid-Ebb	0.71	SR11	5/19/2015	Mid-Ebb	0.60
SR9	5/21/2015	Mid-Ebb	0.84	SR11	5/21/2015	Mid-Ebb	0.84
SR9	5/23/2015	Mid-Ebb	0.93	SR11	5/23/2015	Mid-Ebb	0.63
SR9	5/28/2015	Mid-Ebb	0.80	SR11	5/28/2015	Mid-Ebb	0.83
SR9	5/30/2015	Mid-Ebb	0.67	SR11	5/30/2015	Mid-Ebb	0.44
SR9	6/2/2015	Mid-Ebb	0.63	SR11	6/2/2015	Mid-Ebb	0.55
SR9	6/4/2015	Mid-Ebb	0.66	SR11	6/4/2015	Mid-Ebb	0.44
SR9	6/6/2015	Mid-Ebb	0.62	SR11	6/6/2015	Mid-Ebb	0.48
SR9	6/9/2015	Mid-Ebb	0.35	SR11	6/9/2015	Mid-Ebb	0.31
SR9	6/11/2015	Mid-Ebb	0.50	SR11	6/11/2015	Mid-Ebb	0.47
SR9	6/13/2015	Mid-Ebb	0.46	SR11	6/13/2015	Mid-Ebb	0.41
SR9	6/16/2015	Mid-Ebb	0.38	SR11	6/16/2015	Mid-Ebb	0.33
SR9	6/18/2015	Mid-Ebb	0.34	SR11	6/18/2015	Mid-Ebb	0.51
SR9	6/20/2015	Mid-Ebb	0.39	SR11	6/20/2015	Mid-Ebb	0.38
SR9	6/23/2015	Mid-Ebb	0.53	SR11	6/23/2015	Mid-Ebb	0.51
SR9	6/25/2015	Mid-Ebb	0.93	SR11	6/25/2015	Mid-Ebb	0.39
SR9	6/27/2015	Mid-Ebb	0.55	SR11	6/27/2015	Mid-Ebb	0.43
SR9	6/30/2015	Mid-Ebb	0.54	SR11	6/30/2015	Mid-Ebb	0.48
SR9	7/2/2015	Mid-Ebb	0.39	SR11	7/2/2015	Mid-Ebb	0.32
SR9	7/4/2015	Mid-Ebb	0.42	SR11	7/4/2015	Mid-Ebb	0.32
SR9	7/7/2015	Mid-Ebb	0.29	SR11	7/7/2015	Mid-Ebb	0.12
SR9	7/11/2015	Mid-Ebb	0.15	SR11	7/11/2015	Mid-Ebb	0.04
SR9	7/14/2015	Mid-Ebb	0.09	SR11	7/14/2015	Mid-Ebb	0.14
SR9	7/16/2015	Mid-Ebb	0.03	SR11	7/16/2015	Mid-Ebb	0.15
SR9	7/18/2015	Mid-Ebb	0.19	SR11	7/18/2015	Mid-Ebb	0.18
SR10	4/23/2015	Mid-Ebb	0.18				
SR10	4/25/2015	Mid-Ebb	0.15				
SR10	4/28/2015	Mid-Ebb	0.06				
SR10	4/30/2015	Mid-Ebb	0.23				
SR10	5/2/2015	Mid-Ebb	0.23				
SR10	5/5/2015	Mid-Ebb	0.41				
SR10	5/7/2015	Mid-Ebb	0.46				
SR10	5/9/2015	Mid-Ebb	0.53				
SR10	5/12/2015	Mid-Ebb	0.46				
SR10	5/14/2015	Mid-Ebb	0.32				
SR10	5/16/2015	Mid-Ebb	0.69				
SR10	5/19/2015	Mid-Ebb	0.65				
SR10	5/21/2015	Mid-Ebb	0.83				
SR10	5/23/2015	Mid-Ebb	0.63				
SR10	5/28/2015	Mid-Ebb	0.84				
SR10	5/30/2015	Mid-Ebb	0.59				
SR10	6/2/2015	Mid-Ebb	0.53				
SR10	6/4/2015	Mid-Ebb	0.59				
SR10	6/6/2015	Mid-Ebb	0.53				
SR10	6/9/2015	Mid-Ebb	0.43				
SR10	6/11/2015	Mid-Ebb	0.58				
SR10	6/13/2015	Mid-Ebb	0.55				
SR10	6/16/2015	Mid-Ebb	0.51				
SR10	6/18/2015	Mid-Ebb	0.54				
SR10	6/20/2015	Mid-Ebb	0.59				
SR10	6/23/2015	Mid-Ebb	0.48				
SR10	6/25/2015	Mid-Ebb	0.41				
SR10	6/27/2015	Mid-Ebb	0.49				
SR10	6/30/2015	Mid-Ebb	0.56				
SR10	7/2/2015	Mid-Ebb	0.41				
SR10	7/4/2015	Mid-Ebb	0.45				
SR10	7/7/2015	Mid-Ebb	0.18				
SR10	7/11/2015	Mid-Ebb	0.03				
SR10	7/14/2015	Mid-Ebb	0.19				
SR10	7/16/2015	Mid-Ebb	0.24				
SR10	7/18/2015	Mid-Ebb	0.29				

Cluster 2 TIN(Lab)
1.3 x Baseline vs Impact

Baseline (Lab) x 1.3		Impact (Lab)	
Raw Statistics		Raw Statistics	
Number of Valid Observations	36	Number of Valid Observations	108
Number of Distinct Observations	33	Number of Distinct Observations	53
Minimum	0.0437	Minimum	0.03
Maximum	0.665	Maximum	0.93
Mean of Raw Data	0.192	Mean of Raw Data	0.428
Standard Deviation of Raw Data	0.137	Standard Deviation of Raw Data	0.206
Kstar	2.412	Kstar	3.093
Mean of Log Transformed Data	-1.852	Mean of Log Transformed Data	-1.015
Standard Deviation of Log Transformed Data	0.652	Standard Deviation of Log Transformed Data	0.67
Normal Distribution Test Results		Normal Distribution Test Results	
Correlation Coefficient R	0.876	Correlation Coefficient R	0.993
Shapiro Wilk Test Statistic	0.777	Approximate Shapiro Wilk Test Statistic	0.967
Shapiro Wilk Critical (0.95) Value	0.935	Approximate Shapiro Wilk P Value	0.0718
Approximate Shapiro Wilk P Value	8.73E-07	Lilliefors Test Statistic	0.0538
Lilliefors Test Statistic	0.22	Lilliefors Critical (0.95) Value	0.0853
Lilliefors Critical (0.95) Value	0.148	Data appear Normal at (0.05) Significance Level	
Data not Normal at (0.05) Significance Level			

Wilcoxon-Mann-Whitney Site vs Background Comparison Test for Full Data Sets without NDs

User Selected Options	
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: Impact (Lab)
Background Data: Baseline (Lab) x 1.3

Raw Statistics

	Site	Background
Number of Valid Observations	108	36
Number of Distinct Observations	53	33
Minimum	0.03	0.0437
Maximum	0.93	0.665
Mean	0.428	0.192
Median	0.43	0.164
SD	0.206	0.137
SE of Mean	0.0198	0.0229

Wilcoxon-Mann-Whitney (WMW) Test

H0: Mean/Median of Site or AOC <= Mean/Median of Background

Site Rank Sum W-Stat	9115
WMW Test U-Stat	5.926
WMW Critical Value (0.050)	1.645
P-Value	1.55E-09

Conclusion with Alpha = 0.05
Reject H0, Conclude Site > Background
P-Value < alpha (0.05)

Cluster 2 TIN(Lab)
Gradient vs Impact

Gradient TIN (lab) (mg/L)		
G5	4/23/2015 Mid-Ebb	0.37
G5	4/25/2015 Mid-Ebb	0.34
G5	4/28/2015 Mid-Ebb	0.26
G5	4/30/2015 Mid-Ebb	0.37
G5	5/2/2015 Mid-Ebb	0.30
G5	5/5/2015 Mid-Ebb	0.40
G5	5/7/2015 Mid-Ebb	0.49
G5	5/9/2015 Mid-Ebb	0.59
G5	5/12/2015 Mid-Ebb	0.65
G5	5/14/2015 Mid-Ebb	0.64
G5	5/16/2015 Mid-Ebb	0.61
G5	5/19/2015 Mid-Ebb	0.74
G5	5/21/2015 Mid-Ebb	0.98
G5	5/23/2015 Mid-Ebb	0.94
G5	5/28/2015 Mid-Ebb	1.01
G5	5/30/2015 Mid-Ebb	0.75
G5	6/2/2015 Mid-Ebb	0.65
G5	6/4/2015 Mid-Ebb	0.80
G5	6/6/2015 Mid-Ebb	0.64
G5	6/9/2015 Mid-Ebb	0.67
G5	6/11/2015 Mid-Ebb	0.76
G5	6/13/2015 Mid-Ebb	0.62
G5	6/16/2015 Mid-Ebb	0.58
G5	6/18/2015 Mid-Ebb	0.68
G5	6/20/2015 Mid-Ebb	0.47
G5	6/23/2015 Mid-Ebb	0.53
G5	6/25/2015 Mid-Ebb	0.95
G5	6/27/2015 Mid-Ebb	0.84
G5	6/30/2015 Mid-Ebb	0.55
G5	7/2/2015 Mid-Ebb	0.39
G5	7/4/2015 Mid-Ebb	0.42
G5	7/7/2015 Mid-Ebb	0.45
G5	7/11/2015 Mid-Ebb	0.13
G5	7/14/2015 Mid-Ebb	0.19
G5	7/16/2015 Mid-Ebb	0.24
G5	7/18/2015 Mid-Ebb	0.39
G6	4/23/2015 Mid-Ebb	0.32
G6	4/25/2015 Mid-Ebb	0.05
G6	4/28/2015 Mid-Ebb	0.19
G6	4/30/2015 Mid-Ebb	0.29
G6	5/2/2015 Mid-Ebb	0.33
G6	5/5/2015 Mid-Ebb	0.50
G6	5/7/2015 Mid-Ebb	0.45
G6	5/9/2015 Mid-Ebb	0.36
G6	5/12/2015 Mid-Ebb	0.31
G6	5/14/2015 Mid-Ebb	0.43
G6	5/16/2015 Mid-Ebb	0.75
G6	5/19/2015 Mid-Ebb	0.76
G6	5/21/2015 Mid-Ebb	0.61
G6	5/23/2015 Mid-Ebb	0.59
G6	5/28/2015 Mid-Ebb	1.01
G6	5/30/2015 Mid-Ebb	0.79
G6	6/2/2015 Mid-Ebb	0.76
G6	6/4/2015 Mid-Ebb	0.68
G6	6/6/2015 Mid-Ebb	0.35
G6	6/9/2015 Mid-Ebb	0.45
G6	6/11/2015 Mid-Ebb	0.78
G6	6/13/2015 Mid-Ebb	0.46
G6	6/16/2015 Mid-Ebb	0.62
G6	6/18/2015 Mid-Ebb	0.78
G6	6/20/2015 Mid-Ebb	0.63
G6	6/23/2015 Mid-Ebb	0.51
G6	6/25/2015 Mid-Ebb	0.53
G6	6/27/2015 Mid-Ebb	0.65
G6	6/30/2015 Mid-Ebb	0.68
G6	7/2/2015 Mid-Ebb	0.70
G6	7/4/2015 Mid-Ebb	0.42
G6	7/7/2015 Mid-Ebb	0.12
G6	7/11/2015 Mid-Ebb	0.16
G6	7/14/2015 Mid-Ebb	0.34
G6	7/16/2015 Mid-Ebb	0.29
G6	7/18/2015 Mid-Ebb	0.30

Impact TIN (lab) (mg/L)					
SR9	4/23/2015 Mid-Ebb	0.31	SR11	4/23/2015 Mid-Ebb	0.21
SR9	4/25/2015 Mid-Ebb	0.27	SR11	4/25/2015 Mid-Ebb	0.21
SR9	4/28/2015 Mid-Ebb	0.20	SR11	4/28/2015 Mid-Ebb	0.14
SR9	4/30/2015 Mid-Ebb	0.31	SR11	4/30/2015 Mid-Ebb	0.13
SR9	5/2/2015 Mid-Ebb	0.23	SR11	5/2/2015 Mid-Ebb	0.19
SR9	5/5/2015 Mid-Ebb	0.33	SR11	5/5/2015 Mid-Ebb	0.35
SR9	5/7/2015 Mid-Ebb	0.39	SR11	5/7/2015 Mid-Ebb	0.44
SR9	5/9/2015 Mid-Ebb	0.41	SR11	5/9/2015 Mid-Ebb	0.44
SR9	5/12/2015 Mid-Ebb	0.62	SR11	5/12/2015 Mid-Ebb	0.38
SR9	5/14/2015 Mid-Ebb	0.59	SR11	5/14/2015 Mid-Ebb	0.30
SR9	5/16/2015 Mid-Ebb	0.63	SR11	5/16/2015 Mid-Ebb	0.60
SR9	5/19/2015 Mid-Ebb	0.71	SR11	5/19/2015 Mid-Ebb	0.60
SR9	5/21/2015 Mid-Ebb	0.84	SR11	5/21/2015 Mid-Ebb	0.84
SR9	5/23/2015 Mid-Ebb	0.93	SR11	5/23/2015 Mid-Ebb	0.63
SR9	5/28/2015 Mid-Ebb	0.80	SR11	5/28/2015 Mid-Ebb	0.83
SR9	5/30/2015 Mid-Ebb	0.67	SR11	5/30/2015 Mid-Ebb	0.44
SR9	6/2/2015 Mid-Ebb	0.63	SR11	6/2/2015 Mid-Ebb	0.55
SR9	6/4/2015 Mid-Ebb	0.66	SR11	6/4/2015 Mid-Ebb	0.44
SR9	6/6/2015 Mid-Ebb	0.62	SR11	6/6/2015 Mid-Ebb	0.48
SR9	6/9/2015 Mid-Ebb	0.35	SR11	6/9/2015 Mid-Ebb	0.31
SR9	6/11/2015 Mid-Ebb	0.50	SR11	6/11/2015 Mid-Ebb	0.47
SR9	6/13/2015 Mid-Ebb	0.46	SR11	6/13/2015 Mid-Ebb	0.41
SR9	6/16/2015 Mid-Ebb	0.38	SR11	6/16/2015 Mid-Ebb	0.33
SR9	6/18/2015 Mid-Ebb	0.34	SR11	6/18/2015 Mid-Ebb	0.51
SR9	6/20/2015 Mid-Ebb	0.39	SR11	6/20/2015 Mid-Ebb	0.38
SR9	6/23/2015 Mid-Ebb	0.53	SR11	6/23/2015 Mid-Ebb	0.51
SR9	6/25/2015 Mid-Ebb	0.93	SR11	6/25/2015 Mid-Ebb	0.39
SR9	6/27/2015 Mid-Ebb	0.55	SR11	6/27/2015 Mid-Ebb	0.43
SR9	6/30/2015 Mid-Ebb	0.54	SR11	6/30/2015 Mid-Ebb	0.48
SR9	7/2/2015 Mid-Ebb	0.39	SR11	7/2/2015 Mid-Ebb	0.32
SR9	7/4/2015 Mid-Ebb	0.42	SR11	7/4/2015 Mid-Ebb	0.32
SR9	7/7/2015 Mid-Ebb	0.29	SR11	7/7/2015 Mid-Ebb	0.12
SR9	7/11/2015 Mid-Ebb	0.15	SR11	7/11/2015 Mid-Ebb	0.04
SR9	7/14/2015 Mid-Ebb	0.09	SR11	7/14/2015 Mid-Ebb	0.14
SR9	7/16/2015 Mid-Ebb	0.03	SR11	7/16/2015 Mid-Ebb	0.15
SR9	7/18/2015 Mid-Ebb	0.19	SR11	7/18/2015 Mid-Ebb	0.18
SR10	4/23/2015 Mid-Ebb	0.18			
SR10	4/25/2015 Mid-Ebb	0.15			
SR10	4/28/2015 Mid-Ebb	0.06			
SR10	4/30/2015 Mid-Ebb	0.23			
SR10	5/2/2015 Mid-Ebb	0.23			
SR10	5/5/2015 Mid-Ebb	0.41			
SR10	5/7/2015 Mid-Ebb	0.46			
SR10	5/9/2015 Mid-Ebb	0.53			
SR10	5/12/2015 Mid-Ebb	0.46			
SR10	5/14/2015 Mid-Ebb	0.32			
SR10	5/16/2015 Mid-Ebb	0.69			
SR10	5/19/2015 Mid-Ebb	0.65			
SR10	5/21/2015 Mid-Ebb	0.83			
SR10	5/23/2015 Mid-Ebb	0.63			
SR10	5/28/2015 Mid-Ebb	0.84			
SR10	5/30/2015 Mid-Ebb	0.59			
SR10	6/2/2015 Mid-Ebb	0.53			
SR10	6/4/2015 Mid-Ebb	0.59			
SR10	6/6/2015 Mid-Ebb	0.53			
SR10	6/9/2015 Mid-Ebb	0.43			
SR10	6/11/2015 Mid-Ebb	0.58			
SR10	6/13/2015 Mid-Ebb	0.55			
SR10	6/16/2015 Mid-Ebb	0.51			
SR10	6/18/2015 Mid-Ebb	0.54			
SR10	6/20/2015 Mid-Ebb	0.59			
SR10	6/23/2015 Mid-Ebb	0.48			
SR10	6/25/2015 Mid-Ebb	0.41			
SR10	6/27/2015 Mid-Ebb	0.49			
SR10	6/30/2015 Mid-Ebb	0.56			
SR10	7/2/2015 Mid-Ebb	0.41			
SR10	7/4/2015 Mid-Ebb	0.45			
SR10	7/7/2015 Mid-Ebb	0.18			
SR10	7/11/2015 Mid-Ebb	0.03			
SR10	7/14/2015 Mid-Ebb	0.19			
SR10	7/16/2015 Mid-Ebb	0.24			
SR10	7/18/2015 Mid-Ebb	0.29			

Cluster 2 TIN(Lab)
Gradient vs Impact

Impact (Lab)		Gradient (Lab)	
Raw Statistics		Raw Statistics	
Number of Valid Observations	108	Number of Valid Observations	72
Number of Distinct Observations	53	Number of Distinct Observations	49
Minimum	0.03	Minimum	0.05
Maximum	0.93	Maximum	1.01
Mean of Raw Data	0.428	Mean of Raw Data	0.533
Standard Deviation of Raw Data	0.206	Standard Deviation of Raw Data	0.227
Kstar	3.093	Kstar	4.205
Mean of Log Transformed Data	-1.015	Mean of Log Transformed Data	-0.749
Standard Deviation of Log Transformed Data	0.67	Standard Deviation of Log Transformed Data	0.548
Normal Distribution Test Results		Normal Distribution Test Results	
Correlation Coefficient R	0.993	Correlation Coefficient R	0.994
Approximate Shapiro Wilk Test Statistic	0.967	Approximate Shapiro Wilk Test Statistic	0.972
Approximate Shapiro Wilk P Value	0.0718	Approximate Shapiro Wilk P Value	0.283
Lilliefors Test Statistic	0.0538	Lilliefors Test Statistic	0.0644
Lilliefors Critical (0.95) Value	0.0853	Lilliefors Critical (0.95) Value	0.104
Data appear Normal at (0.05) Significance Level		Data appear Normal at (0.05) Significance Level	

t-Test Site vs Background Comparison for Full Data Sets without NDs

User Selected Options	
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference	0
Selected Null Hypothesis	Site or AOC Mean/Median Less Than or Equal to Background Mean/Median (Form 1)
Alternative Hypothesis	Site or AOC Mean/Median Greater Than Background Mean/Median

Area of Concern Data: Impact (Lab)
Background Data: Gradient (Lab)

Raw Statistics

	Site	Background
Number of Valid Observations	108	72
Number of Distinct Observations	53	49
Minimum	0.03	0.05
Maximum	0.93	1.01
Mean	0.428	0.533
Median	0.43	0.53
SD	0.206	0.227
SE of Mean	0.0198	0.0267

Site vs Background Two-Sample t-Test

H0: Mu of Site - Mu of Background <= 0

Method	DF	t-Test Value	Critical t (0.050)	P-Value
Pooled (Equal Variance)	178	-3.207	1.653	0.999
Satterthwaite (Unequal Variance)	142.2	-3.146	1.656	0.999

Pooled SD 0.214
Conclusion with Alpha = 0.050
* Student t (Pooled) Test: Do Not Reject H0, Conclude Site <= Background
* Satterthwaite Test: Do Not Reject H0, Conclude Site <= Background

Test of Equality of Variances

Numerator DF	Denominator DF	F-Test Value	P-Value
71	107	1.209	0.372

Conclusion with Alpha = 0.05
* Two variances appear to be equal

Cluster 2 TIN(Lab)
G1 vs Impact

G1 TIN (lab) (mg/L)		
G1	4/23/2015 Mid-Ebb	0.40
G1	4/25/2015 Mid-Ebb	0.46
G1	4/28/2015 Mid-Ebb	0.54
G1	4/30/2015 Mid-Ebb	0.76
G1	5/2/2015 Mid-Ebb	0.74
G1	5/5/2015 Mid-Ebb	1.02
G1	5/7/2015 Mid-Ebb	0.75
G1	5/9/2015 Mid-Ebb	1.21
G1	5/12/2015 Mid-Ebb	1.21
G1	5/14/2015 Mid-Ebb	1.08
G1	5/16/2015 Mid-Ebb	1.51
G1	5/19/2015 Mid-Ebb	1.05
G1	5/21/2015 Mid-Ebb	0.88
G1	5/23/2015 Mid-Ebb	1.38
G1	5/28/2015 Mid-Ebb	1.34
G1	5/30/2015 Mid-Ebb	1.40
G1	6/2/2015 Mid-Ebb	1.12
G1	6/4/2015 Mid-Ebb	0.88
G1	6/6/2015 Mid-Ebb	0.63
G1	6/9/2015 Mid-Ebb	0.99
G1	6/11/2015 Mid-Ebb	1.50
G1	6/13/2015 Mid-Ebb	1.35
G1	6/16/2015 Mid-Ebb	1.39
G1	6/18/2015 Mid-Ebb	1.34
G1	6/20/2015 Mid-Ebb	0.87
G1	6/23/2015 Mid-Ebb	0.93
G1	6/25/2015 Mid-Ebb	1.16
G1	6/27/2015 Mid-Ebb	1.20
G1	6/30/2015 Mid-Ebb	1.36
G1	7/2/2015 Mid-Ebb	1.21
G1	7/4/2015 Mid-Ebb	0.58
G1	7/7/2015 Mid-Ebb	0.42
G1	7/11/2015 Mid-Ebb	0.67
G1	7/14/2015 Mid-Ebb	0.78
G1	7/16/2015 Mid-Ebb	0.85
G1	7/18/2015 Mid-Ebb	0.42

Impact TIN (lab) (mg/L)					
SR9	4/23/2015 Mid-Ebb	0.31	SR11	4/23/2015 Mid-Ebb	0.21
SR9	4/25/2015 Mid-Ebb	0.27	SR11	4/25/2015 Mid-Ebb	0.21
SR9	4/28/2015 Mid-Ebb	0.20	SR11	4/28/2015 Mid-Ebb	0.14
SR9	4/30/2015 Mid-Ebb	0.31	SR11	4/30/2015 Mid-Ebb	0.13
SR9	5/2/2015 Mid-Ebb	0.23	SR11	5/2/2015 Mid-Ebb	0.19
SR9	5/5/2015 Mid-Ebb	0.33	SR11	5/5/2015 Mid-Ebb	0.35
SR9	5/7/2015 Mid-Ebb	0.39	SR11	5/7/2015 Mid-Ebb	0.44
SR9	5/9/2015 Mid-Ebb	0.41	SR11	5/9/2015 Mid-Ebb	0.44
SR9	5/12/2015 Mid-Ebb	0.62	SR11	5/12/2015 Mid-Ebb	0.38
SR9	5/14/2015 Mid-Ebb	0.59	SR11	5/14/2015 Mid-Ebb	0.30
SR9	5/16/2015 Mid-Ebb	0.63	SR11	5/16/2015 Mid-Ebb	0.60
SR9	5/19/2015 Mid-Ebb	0.71	SR11	5/19/2015 Mid-Ebb	0.60
SR9	5/21/2015 Mid-Ebb	0.84	SR11	5/21/2015 Mid-Ebb	0.84
SR9	5/23/2015 Mid-Ebb	0.93	SR11	5/23/2015 Mid-Ebb	0.63
SR9	5/28/2015 Mid-Ebb	0.80	SR11	5/28/2015 Mid-Ebb	0.83
SR9	5/30/2015 Mid-Ebb	0.67	SR11	5/30/2015 Mid-Ebb	0.44
SR9	6/2/2015 Mid-Ebb	0.63	SR11	6/2/2015 Mid-Ebb	0.55
SR9	6/4/2015 Mid-Ebb	0.66	SR11	6/4/2015 Mid-Ebb	0.44
SR9	6/6/2015 Mid-Ebb	0.62	SR11	6/6/2015 Mid-Ebb	0.48
SR9	6/9/2015 Mid-Ebb	0.35	SR11	6/9/2015 Mid-Ebb	0.31
SR9	6/11/2015 Mid-Ebb	0.50	SR11	6/11/2015 Mid-Ebb	0.47
SR9	6/13/2015 Mid-Ebb	0.46	SR11	6/13/2015 Mid-Ebb	0.41
SR9	6/16/2015 Mid-Ebb	0.38	SR11	6/16/2015 Mid-Ebb	0.33
SR9	6/18/2015 Mid-Ebb	0.34	SR11	6/18/2015 Mid-Ebb	0.51
SR9	6/20/2015 Mid-Ebb	0.39	SR11	6/20/2015 Mid-Ebb	0.38
SR9	6/23/2015 Mid-Ebb	0.53	SR11	6/23/2015 Mid-Ebb	0.51
SR9	6/25/2015 Mid-Ebb	0.93	SR11	6/25/2015 Mid-Ebb	0.39
SR9	6/27/2015 Mid-Ebb	0.55	SR11	6/27/2015 Mid-Ebb	0.43
SR9	6/30/2015 Mid-Ebb	0.54	SR11	6/30/2015 Mid-Ebb	0.48
SR9	7/2/2015 Mid-Ebb	0.39	SR11	7/2/2015 Mid-Ebb	0.32
SR9	7/4/2015 Mid-Ebb	0.42	SR11	7/4/2015 Mid-Ebb	0.32
SR9	7/7/2015 Mid-Ebb	0.29	SR11	7/7/2015 Mid-Ebb	0.12
SR9	7/11/2015 Mid-Ebb	0.15	SR11	7/11/2015 Mid-Ebb	0.04
SR9	7/14/2015 Mid-Ebb	0.09	SR11	7/14/2015 Mid-Ebb	0.14
SR9	7/16/2015 Mid-Ebb	0.03	SR11	7/16/2015 Mid-Ebb	0.15
SR9	7/18/2015 Mid-Ebb	0.19	SR11	7/18/2015 Mid-Ebb	0.18
SR10	4/23/2015 Mid-Ebb	0.18			
SR10	4/25/2015 Mid-Ebb	0.15			
SR10	4/28/2015 Mid-Ebb	0.06			
SR10	4/30/2015 Mid-Ebb	0.23			
SR10	5/2/2015 Mid-Ebb	0.23			
SR10	5/5/2015 Mid-Ebb	0.41			
SR10	5/7/2015 Mid-Ebb	0.46			
SR10	5/9/2015 Mid-Ebb	0.53			
SR10	5/12/2015 Mid-Ebb	0.46			
SR10	5/14/2015 Mid-Ebb	0.32			
SR10	5/16/2015 Mid-Ebb	0.69			
SR10	5/19/2015 Mid-Ebb	0.65			
SR10	5/21/2015 Mid-Ebb	0.83			
SR10	5/23/2015 Mid-Ebb	0.63			
SR10	5/28/2015 Mid-Ebb	0.84			
SR10	5/30/2015 Mid-Ebb	0.59			
SR10	6/2/2015 Mid-Ebb	0.53			
SR10	6/4/2015 Mid-Ebb	0.59			
SR10	6/6/2015 Mid-Ebb	0.53			
SR10	6/9/2015 Mid-Ebb	0.43			
SR10	6/11/2015 Mid-Ebb	0.58			
SR10	6/13/2015 Mid-Ebb	0.55			
SR10	6/16/2015 Mid-Ebb	0.51			
SR10	6/18/2015 Mid-Ebb	0.54			
SR10	6/20/2015 Mid-Ebb	0.59			
SR10	6/23/2015 Mid-Ebb	0.48			
SR10	6/25/2015 Mid-Ebb	0.41			
SR10	6/27/2015 Mid-Ebb	0.49			
SR10	6/30/2015 Mid-Ebb	0.56			
SR10	7/2/2015 Mid-Ebb	0.41			
SR10	7/4/2015 Mid-Ebb	0.45			
SR10	7/7/2015 Mid-Ebb	0.18			
SR10	7/11/2015 Mid-Ebb	0.03			
SR10	7/14/2015 Mid-Ebb	0.19			
SR10	7/16/2015 Mid-Ebb	0.24			
SR10	7/18/2015 Mid-Ebb	0.29			

Impact (Lab)		G1 (lab)	
Raw Statistics		Raw Statistics	
Number of Valid Observations	108	Number of Valid Observations	36
Number of Distinct Observations	53	Number of Distinct Observations	31
Minimum	0.03	Minimum	0.4
Maximum	0.93	Maximum	1.51
Mean of Raw Data	0.428	Mean of Raw Data	0.983
Standard Deviation of Raw Data	0.206	Standard Deviation of Raw Data	0.335
Kstar	3.093	Kstar	6.992
Mean of Log Transformed Data	-1.015	Mean of Log Transformed Data	-0.0845
Standard Deviation of Log Transformed Data	0.67	Standard Deviation of Log Transformed Data	0.39
Normal Distribution Test Results		Normal Distribution Test Results	
Correlation Coefficient R	0.993	Correlation Coefficient R	0.981
Approximate Shapiro Wilk Test Statistic	0.967	Shapiro Wilk Test Statistic	0.941
Approximate Shapiro Wilk P Value	0.0718	Shapiro Wilk Critical (0.95) Value	0.935
Lilliefors Test Statistic	0.0538	Approximate Shapiro Wilk P Value	0.0722
Lilliefors Critical (0.95) Value	0.0853	Lilliefors Test Statistic	0.107
Data appear Normal at (0.05) Significance Level		Lilliefors Critical (0.95) Value	0.148
		Data appear Normal at (0.05) Significance Level	

t-Test Site vs Background Comparison for Full Data Sets without NDs

User Selected Options	
Full Precision	OFF
Confidence Coefficient	95%
Substantial Difference (S)	0
Selected Null Hypothesis	Site or AOC Mean Greater Than or Equal to Background Mean (Form 2)
Alternative Hypothesis	Site or AOC Mean Less Than the Background Mean

Area of Concern Data: Impact (Lab)
Background Data: G1 (Lab)

Raw Statistics

	Site	Background
Number of Valid Observations	108	36
Number of Distinct Observations	53	31
Minimum	0.03	0.4
Maximum	0.93	1.51
Mean	0.428	0.983
Median	0.43	1.005
SD	0.206	0.335
SE of Mean	0.0198	0.0558

Site vs Background Two-Sample t-Test

H0: Mu of Site - Mu of Background <= 0

Method	DF	t-Test Value	Critical t (0.050)	P-Value
Pooled (Equal Variance)	142	-11.805	1.656	1
Satterthwaite (Unequal Variance)	44.2	-9.365	1.68	1

Pooled SD 0.244
Conclusion with Alpha = 0.050
* Student t (Pooled) Test: Do Not Reject H0, Conclude Site <= Background
* Satterthwaite Test: Do Not Reject H0, Conclude Site <= Background

Test of Equality of Variances

Numerator DF	Denominator DF	F-Test Value	P-Value
35	107	2.643	0

Conclusion with Alpha = 0.05
* Two variances are not equal