LAMMA POWER STATION EXTENSION
Supply and Installation of Submarine Gas Pipeline

Lamma Water Quality Monitoring During Dredging Works Monitoring Report

February 2005

REV	DATE	DESCRIPTION	PREPARED	CHECKED	APPROVED	PURCHASER
1	14/3/05	Issued for approval	WK		PSM	
0	10/3//05	Issued for comments	WK			

STATUS CODE : A = Issued for comments – B = Issued for approval – C = Approved for Construction

THE HONGKONG ELECTRIC CO., LTD.
LAMMA POWER STATION EXTENSION
Supply and Installation of Submarine Gas Pipeline
Contract No. 03/9008

Eni

Saipem

Doc. No.: LTLD-32-1-138-G	REVISION 1	STATUS B

TABULATION OF REVISED PAGES

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Saipem Asia Sdn. Bhd

Lamma Power Station Extension – Supply and Installation of Submarine Gas Pipeline

Lamma Water Quality Monitoring During Dredging Works Monitoring Report (Version 1.1)

February 2005

Approved By

(Project Director: Dr. HF Chan)

REMARKS:

The information supplied and contained within this report is, to the best of our knowledge, correct at the time of printing.

CINOTECH accepts no responsibility for changes made to this report by third parties.

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LIST OF ABBREVIATION

DO	Dissolved Oxygen
EIA	Environmental Impact Assessment
EM&A	Environmental Monitoring and Audit
ET	Environmental Team
GPS	Global Positioning System
GRS	Gas Receiving Station
HEC	Hong Kong Electric Co. Ltd
HOKLAS	The Hong Kong Laboratory Accreditation Scheme
LNG	Liquefied Natural Gas
QA/QC	Quality Assurance / Quality Control
SS	Suspended Solids

EXECUTIVE SUMMARY

Introduction

1. This is the first Environmental Monitoring and Audit (EM&A) Report prepared by Cinotech Consultants Limited (ET-Cinotech) for the dredging works at the Lamma Shore Approach (approximately 0.7km) for the project "Lamma Project Station Extension – Supply and Installation of Submarine Gas Pipeline" (the Project). The dredging works and the corresponding monitoring works were commenced on 22nd February 2005. This document reported the findings of EM&A Works conducted in February 2005.

Environmental Monitoring Works

2. Environmental monitoring for the Project was performed as stipulated in the Work Procedure and the results were checked and reviewed.

3. Summary of the non-compliance of the monitoring events is tabulated Table I.

Table I Summary Table for Non-compliance Recorded

Media / Nature	No. of Exceedances		Action Taken	Results of action taken	Remarks
	Action Level	Limit Level			
DO	0	0	N.A.	N.A.	-
Turbidity	0	0			
SS	0	0			

Water Quality

4. Water quality monitoring was commenced on 22nd February 2005 for 3 days a week.

5. There was no exceedance for all the parameters. No major pollution sources were identified during the monitoring.

1 INTRODUCTION

Background

1.1 Hong Kong Electric Holdings Ltd. (HEC) intends to develop a 1,800 MW power station in Hong Kong Special Administrative Region (HKSAR) to meet the forecast increase in electricity demand to cope with the social and economical growth of the HKSAR. The proposed power station will be located at reclaimed land in the south of the existing Lamma Power Station at the western edge of Lamma Island, termed Lamma Power Station Extension.

1.2 The proposed Power Station will use natural gas as fuel to generate electricity. The natural gas will be supplied from Guandong Liquefied Natural Gas (GD LNG) Terminal located at Cheng Tou Jiao of Shenzen PRC via a 20 inches diameter gas submarine pipeline.

1.3 HEC awarded Saipem Asia Sdn. Bhd. (hereafter called "the Contractor) for the design, engineering, supply of materials, fabrication, testing at works, delivery to site, complete erection including pre-trenching, pipe laying, rock dumping, testing and pre-commissioning at site, preservation during the Defects Liability Period of Submarine Gas Pipeline under to Project titled "Lamma Power Station Extension – Supply and Installation of Submarine Gas Pipeline" (hereinafter called "the Project"). Cinotech Consultants Limited was subsequently commissioned by the Contractor as the Environmental Team (ET-Cinotech) to provide environmental consultancy services and to undertake the Environmental Monitoring and Audit (EM&A) works for the Project.

1.4 The Project works include Pre-Trenching works, Pipe-Lay installation, Post-Lay Trenching (Jetting) and Rock Dumping works related to the installation of 92 km of 20 inches diameter Submarine Gas Pipeline between Guandong Liquefied Natural Gas Terminal (GD LNG) and the receiving point at Gas Receiving Station (GRS) at South-West of Lamma Extension on Lamma Island of Hong Kong – SAR.

1.5 In particular, trench dredging works are carried out at the Lamma Shore Approach (approximately 0.7 km) for a period of about 45 days and the location is also shown in Figure 1. According Item 4.5 of the "Response to Tenderers' Query No.2", a minimum of ten (10) water quality monitoring stations for the dredging works at Lamma shore approach.

1.6 A Work Procedure outlining the monitoring and audit programme to be undertaken for the pre-trenching (dredging) works for the Lamma Shore Approach was submitted and approved. The dredging works and the corresponding monitoring works in accordance with the Work Procedure were commenced on 22nd February 2005.

Project Organizations

1.7 Different parties with different levels of involvement in the project organization include:

- Project Proponent –Hong Kong Electric Holdings Ltd. (HEC)
- Contractor – Saipem Asia Sdn. Bhd.
- Environmental Team (ET-Cinotech) – Cinotech Consultants Limited

1.8 The key contacts of the ET- Cinotech are shown in Table 1.1.

Table 1.1 Key Project Contacts

Party	Name	Role	Phone No.	Fax No.
ET-Cinotech	Dr. Priscilla Choy	Project Manager of ET	2151 2089	3107 1388
	Ms. Winniss Kong	Coordinator	2151 2068	3107 1388
	Mr. Henry Leung	Monitoring Team Leader	2151 2087	3107 1388

Construction Programme

1.9 The dredging works for Lamma Shore Approach were commenced on 22nd February 2005.

Summary of EM&A Requirements

1.10 The EM&A programme requires water quality during the dredging works of the Lamma Shore Approach. Full scale water quality monitoring will be carried out within the first two weeks of the construction programme. The frequency of the monitoring after the initial two weeks will then be reduced if no acceptable impact is revealed.

1.11 The EM&A requirements are described in following sections, including:

- All monitoring parameters;
- Statutory limits for all environmental parameters;
- Event / Action Plan.

1.12 This report presents the monitoring results, observations, locations, equipment, period, methodology and QA/QC procedures of the required monitoring parameters, namely water quality for the dredging works of the Lamma Shore Approach.

2 WATER QUALITY MONITORING

Monitoring Requirements

2.1 In order to ensure that any deterioration in water quality can be readily detected and timely action taken to rectify the situation, a water quality monitoring programme is required.

2.2 Monitoring should be carried out in stages:

1. First Stage: 3 days a week within the first two weeks of the dredging works at Lamma Approach. The monitoring shall be conducted on non-consecutive days.

2. Second Stage: If the monitoring results in first stage are found to be acceptable (no exceedance of water quality related to the Project), the frequency of the monitoring will be reduced to 1 day within the third and fourth weeks of the dredging works, subject to the approval of HEC.

3. Final Stage: If the monitoring results obtained in second stage are found to be acceptable, the monitoring will then cease, subject to the approval of HEC.

Monitoring Parameters

2.3 The following water quality parameters were included in the monitoring programme.

Table 2.1 Water Quality Monitoring Parameters

Phase	Water Quality Parameters
Construction	• Temperature (^{o}C) • Salinity (ppt) • pH (pH value) • Turbidity (NTU) • Dissolved oxygen (DO) (mg/L and % of saturation) • Suspended solids (SS) (mg/L)

Monitoring Equipment

2.4 The water sampler used for water quality monitoring was Kahlsico Water-Bottle Model 135DW150. The sampler with associated equipment complied with the specifications stipulated in the Work Procedure.

2.5 Table 2.2 summarizes the equipment used in the water quality monitoring program. All the monitoring equipment complied with the specifications stipulated in the Work Procedure. Copies of the calibration certificates of are attached in Appendix A.

Table 2.2 Water Quality Monitoring Equipment

Equipment	Model and Make	Qty.
Water Sampler	Kahlsico Water-Bottle Model 135DW 150	1
Multi-parameter Water Quality System	YSI 6820	2
Monitoring Position Equipment	"Magellan" Handheld GPS Model GPS-320	1

Monitoring Frequency and Duration

2.6 Table 2.3 summarizes the monitoring period and frequencies of water quality monitoring.

Table 2.3 Frequency and Parameters of Water Quality Monitoring

Station	Parameters	Frequency	No. of depth
C2, C4, C5, SR1, SR2, SR3, SR4, SR5, SR6 and SR7	SS, turbidity, DO and in-situ parameters*	3 times a week within the first two weeks of the dredging works, reduced to once a week in the third and fourth week if no exceedance recorded	3

Notes:

* *In-situ parameters included temperature, pH, salinity and DO saturation.*

Monitoring Locations

2.7 A total of ten water quality monitoring locations were selected. Table 2.4 describes the locations of these monitoring stations. The locations of the control and impact monitoring stations are shown in Figure 1.

Table 2.4 Locations of Water Quality Monitoring Stations

Station	HK 1980 Grid	
	Easting	Northing
Control		
C2	828608	813492
C4	826776	806464
C5	830440	802186
Impact		
SR1	830224	811528
SR2	829004	810903
SR3	829194	808600
SR4	830119	808650
SR5	830386	807189
SR6	829977	805758
SR7	829566	804545

Monitoring Methodology, Calibration Details and QA/QC Procedures

Instrumentation

2.8 A multi-parameter meter (Model YSI 6820 CE-C-M-Y) was used to measure DO, turbidity, salinity, pH and temperature.

Operating/Analytical Procedures

2.9 At each measurement, two consecutive measurements of in-situ parameters were taken. The probes were retrieved out of the water after the first measurement and then re-deployed for the second measurement. Where the difference in the value between the first and second readings of each set was more than 25% of the value of the first reading, the reading was discarded and further readings were taken.

2.10 For SS measurement, grab samples were collected. Water samples of about 1,000 ml were collected and stored in polyethylene bottles. The sample bottles were packed into an ice-box and delivered to a HOKLAS Laboratory, WELLAB Ltd., for the analysis within 24 hours.

Maintenance and Calibration

2.11 Before each round of monitoring, a zero check in distilled water was performed with the turbidity probe of YSI 6820. The probe was kept in wet condition and then calibrated with a solution of known NTU.

Results and Observations

2.12 The monitoring results and the graphical presentation are shown in Appendix C. Note that in Appendix C, the “sea condition” is given as indicative information and does not necessarily adhere to any standard sea state descriptions. In general, “calm” means small or no waves were observed; “rough” includes white-

capped sea or rougher; and “moderate” means all conditions in between “calm” and “rough”.

2.13 Water quality monitoring was conducted on 22nd, 24th and 26th February 2005 in both mid-ebb and mid-flood tides while dredging works were taking place as per the monitoring schedule (Appendix E).

2.14 The weather during the monitoring session was cloudy or fine.

2.15 The results from the impact monitoring stations were compared with that of the control stations. The Action / Limit Levels for the water quality monitoring are summarized in Appendix B.

2.16 No exceedances for DO, turbidity and SS concentrations were recorded at the impact monitoring stations. The monitoring data of the impact monitoring stations were comparable to that of the control stations.

2.17 No major pollution source was observed.

3 ENVIRONMENTAL AUDIT

Review of Environmental Monitoring Procedures

3.1 The monitoring works conducted by the monitoring team were inspected. The following observations have been recorded for the monitoring works:

- The monitoring team recorded all observations around the monitoring stations, which might affect the monitoring result.
- The monitoring team recorded the weather and sea conditions on the monitoring day.

Implementation Status of Event Action Plans

3.2 The Event Action Plan for water quality is presented in Appendix D. No exceedance was recorded in the monitoring event. No further action/ monitoring was required.

Implementation Status of Mitigation Measures

3.3 The implementation status of mitigation measures is summarized in Appendix F.

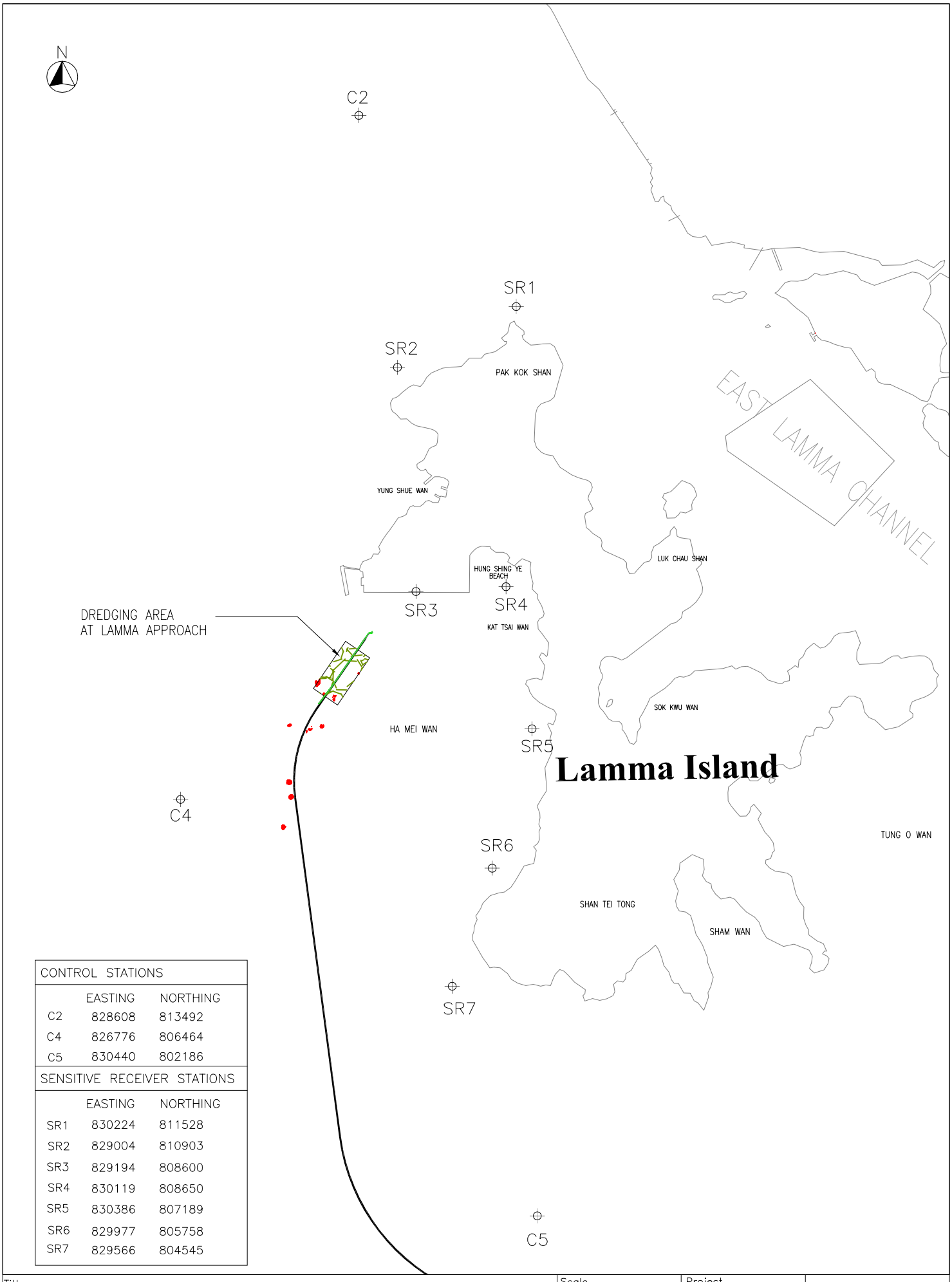
4 CONCLUSIONS AND RECOMMENDATIONS

Conclusions

4.1 Environmental monitoring works were performed on 22nd, 24th and 26th February 2005 in accordance with the Work Procedure while dredging works were undertaking. All monitoring results were checked and reviewed.

4.2 There was no Action/Limit Level exceedance for all the water quality parameters. No major pollution sources were identified.

FIGURES



CONTROL STATIONS		
	EASTING	NORTHING
C2	828608	813492
C4	826776	806464
C5	830440	802186

SENSITIVE RECEIVER STATIONS		
	EASTING	NORTHING
SR1	830224	811528
SR2	829004	810903
SR3	829194	808600
SR4	830119	808650
SR5	830386	807189
SR6	829977	805758
SR7	829566	804545

Title

LAMMA POWER STATION EXTENSION

LOCATION OF WATER QUALITY MONITORING STATIONS

Scale	Project No.
1 : 50 000 A4	MA4017
Date	Figure No.
DEC 04	1

ENOTECH consultants limited

F:\PROJECTS\MA4017\DRAWINGS\WQMS\FIGURE1.DWG

APPENDIX A
COPY OF CALIBRATION CERTIFICATE OF MONITORING EQUIPMENT

WELLAB LTD.

606 - 608 Cornell Centre,
50 Wing Tai Road,
Chai Wan, Hong Kong.
Tel: (852) 2898 7388
Fax: (852) 2898 7076

TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
1601-1610 Delta House,
3 On Yiu Street,
Shatin, N.T.

ATTN: **Mr. Henry Leung**

Test Report No.:	C/W/50219-1
Date of Issue:	2005-02-19
Date Received:	2005-02-18
Date Tested:	2005-02-19
Date Completed:	2005-02-19
Page:	1 of 2

Certificate of Calibration

Item for calibration:

Description	: Sonde Environmental Monitoring System
Manufacturer	: YSI
Model No.	: 6820-C-M
Serial No.	: 02D0126AA
Equipment No.	: W.03.01
Project No.	: C013

Test conditions:

Room Temperature	: 20 degree Celsius
Relative Humidity	: 70%

Test Specifications:

Conductivity & Salinity Sensor, Model: 6560, S/N: 02C0465
1. Conductivity performance check with Potassium Chloride standard solution
2. Salinity performance check with Sodium Chloride standard solution

Dissolved Oxygen Sensor, Model: 6562, S/N: 02C1269-1
1. Performance check against Winkler titration

Turbidity Sensor, Model: 6026, S/N: 5389
1. Calibration check with Formazin standard solution

pH Meter, Model: 6561, S/N: 01J
1. Calibration check with standard pH buffer

Depth Meter
1. Calibration check at 1m water level depth

Methodologies:

1. YSI 6-Series Sonde Environmental Monitoring System Instruction Manual
2. In-house method with reference to APHA and ISO standards

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

Patrick

PATRICK TSE
Operation Manager

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Date of Issue:	2005-02-19
Date Received:	2005-02-18
Date Tested:	2005-02-19
Date Completed:	2005-02-19
Page:	2 of 2

Results:

1. Conductivity performance check

Specific Conductivity, μS/cm		Correction, μS/cm	Acceptable range
Salinity Meter (C1)	Theoretical Value (C2)	D = C1 - C2	
1420	1416	4	1416 ± 20

2. Salinity Performance check

Salinity, ppt		Correction, ppt	Acceptable range
Instrument Reading	Theoretical Value		
30.0	30.2	0.2	30.0 ± 3

3. Dissolved Oxygen check

Oxygen level in water at 20°C	Dissolved Oxygen, mg O_2/L		Correction, mg O_2/L	Acceptable range
	D.O. Meter	Winkler Titration		
Saturated	9.1	9.0	0.1	± 0.1
Half-saturated	5.5	5.6	0.1	± 0.1
Zero	0.0	0.0	0.0	± 0.1

4. Turbidity check

Turbidity value in solution, NTU	Calibration Value, NTU	Correction, NTU	Acceptable range
0.00	0.00	0.00	0.00 ± 0.05
100	100	0	100 ± 5

5. pH Meter check

Test Parameters	Performance characteristic	Acceptable range
Liquid junction error ΔpH_j , pH unit	0.02	Less than 0.05
Shift on stirring ΔpH_s , pH unit	0.01	Less than 0.02
Noise ΔpH_n , pH unit	0.00	Less than 0.02

6. Depth Meter check

Instrument Reading, m	Calibration Value, m	Correction, m	Acceptable range
1.0	1.00	0.00	1.00 ± 0.05

**********END OF REPORT**********

WELLAB LTD.

606 - 608 Cornell Centre,
50 Wing Tai Road,
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TEST REPORT

APPLICANT: **Cinotech Consultants Limited**
1601-1610 Delta House,
3 On Yiu Street,
Shatin, N.T.

ATTN: **Mr. Henry Leung**

Test Report No.:	C/W/50219-2
Date of Issue:	2005-02-19
Date Received:	2005-02-18
Date Tested:	2005-02-19
Date Completed:	2005-02-19
Page:	1 of 2

Certificate of Calibration

Item for calibration:

Description	: Sonde Environmental Monitoring System
Manufacturer	: YSI
Model No.	: 6820-C-M
Serial No.	: 02D0293AA
Equipment No.	: W.03.02
Project No.	: C013

Test conditions:

Room Temperature	: 20 degree Celsius
Relative Humidity	: 70%

Test Specifications:

Conductivity & Salinity Sensor, Model: 6560, S/N: 02C0886
1. Conductivity performance check with Potassium Chloride standard solution
2. Salinity performance check with Sodium Chloride standard solution

Dissolved Oxygen Sensor, Model: 6562, S/N: 02C1269-2
1. Performance check against Winkler titration

Turbidity Sensor, Model: 6026, S/N: 5390
1. Calibration check with Formazin standard solution

pH Meter, Model: 6561, S/N: 02A
1. Calibration check with standard pH buffer

Depth Meter
1. Calibration check at 1m water level depth

Methodologies:

1. YSI 6-Series Sonde Environmental Monitoring System Instruction Manual
2. In-house method with reference to APHA and ISO standards

PREPARED AND CHECKED BY:
For and On Behalf of **WELLAB Ltd.**

Patrick.

PATRICK TSE
Operation Manager

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TEST REPORT

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Date Tested:	2005-02-19
Date Completed:	2005-02-19
Page:	2 of 2

Results:

1. Conductivity performance check

Specific Conductivity, µS/cm		Correction, µS/cm	Acceptable range
Salinity Meter (C1)	Theoretical Value (C2)	D = C1 - C2	
1420	1415	5	1415 ± 20

2. Salinity Performance check

Salinity, ppt		Correction, ppt	Acceptable range
Instrument Reading	Theoretical Value		
30.0	30.1	0.1	30.0 ± 3

3. Dissolved Oxygen check

Oxygen level in water at 20°C	Dissolved Oxygen, mg O_2/L		Correction, mg O_2/L	Acceptable range
	D.O. Meter	Winkler Titration		
Saturated	9.1	9.1	0.0	± 0.1
Half-saturated	5.6	5.7	0.1	± 0.1
Zero	0.0	0.0	0.0	± 0.1

4. Turbidity check

Turbidity value in solution, NTU	Calibration Value, NTU	Correction, NTU	Acceptable range
0.00	0.00	0.00	0.00 ± 0.05
100	100	0	100 ± 5

5. pH Meter check

Test Parameters	Performance characteristic	Acceptable range
Liquid junction error ΔpH_j , pH unit	0.02	Less than 0.05
Shift on stirring ΔpH_s , pH unit	0.01	Less than 0.02
Noise ΔpH_n , pH unit	0.02	Less than 0.02

6. Depth Meter check

Instrument Reading, m	Calibration Value, m	Correction, m	Acceptable range
1.0	1.00	0.00	1.00 ± 0.05

**********END OF REPORT**********

APPENDIX B
ACTION AND LIMIT LEVELS FOR WATER QUALITY MONITORING

Appendix B – Action and Limit Levels for Water Quality Monitoring

Parameter	Level	SR1	SR2	SR3	SR4	SR5	SR6	SR7
Dissolved Oxygen	Action	Surface & Middle: 80% of upstream control station at the same tide of the same day Bottom: 80% of upstream control station at the same tide of the same day						
	Limit	Surface & Middle: 4mg/l Bottom: 2mg/l						
Turbidity (Depth Averaged)	Action	120% of upstream control station at the same tide of the same day						
	Limit	130% of upstream control station at the same tide of the same day						
Suspended Solids (Depth Averaged)	Action	120% of upstream control station at the same tide of the same day						
	Limit	130% of upstream control station at the same tide of the same day						

Remarks: During ebb tide, the upstream control stations are C2 while during flood tide, the upstream control stations are C4 and C5.

APPENDIX C
WATER QUALITY MONITORING RESULTS AND THE GRAPHICAL PRESENTATION

Appendix C

Water Quality Monitoring Results at Location C2 - Mid-Ebb Tide

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)	
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Average	DA*
02/22/05	Cloudy	Moderate	11:14	Surface	1	16.0 16.0	16.0	7.9 7.9	7.9	30.9 30.9	30.9	95.8 95.0	95.4	7.8 7.8	7.8	7.8	1.2 1.1	1.2	2.0	5	5
				Middle	7	16.0 16.0	16.0	7.9 7.9	7.9	30.9 31.0	31.0	94.0 93.6	93.8	7.7 7.7	7.7		1.7 1.9	1.8		5	
				Bottom	13	16.0 16.0	16.0	7.9 8.0	8.0	31.0 30.9	31.0	93.1 93.1	93.1	7.6 7.6	7.6	7.6	2.9 2.8	2.9		6	
02/24/05	Cloudy	Moderate	10:00	Surface	1	16.1 16.1	16.1	7.8 7.8	7.8	30.9 30.8	30.9	96.5 96.3	96.4	7.9 7.9	7.9	7.9	1.0 1.0	1.0	1.6	6	6
				Middle	7	16.1 16.1	16.1	7.8 7.8	7.8	30.9 30.9	30.9	95.3 95.1	95.2	7.8 7.8	7.8		1.5 1.3	1.4		7	
				Bottom	13	16.1 16.1	16.1	7.9 7.9	7.9	30.9 30.9	30.9	94.3 94.2	94.3	7.7 7.7	7.7	7.7	2.5 2.3	2.4		7	
02/26/05	Fine	Moderate	10:18	Surface	1	16.6 16.7	16.7	7.8 7.8	7.8	30.7 30.7	30.7	96.6 90.8	93.7	7.8 7.3	7.6	7.5	6.8 6.9	6.9	7.1	4	6
				Middle	7	16.6 16.6	16.6	7.8 7.8	7.8	30.8 30.7	30.8	91.0 89.6	90.3	7.4 7.2	7.3		7.0 6.9	7.0		6	
				Bottom	13	16.6 16.6	16.6	7.8 7.8	7.8	30.7 30.7	30.7	89.2 88.1	88.7	7.2 7.1	7.2	7.2	7.1 7.4	7.3		7	

Water Quality Monitoring Results at Location C2 - Mid-Flood Tide

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)	
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Average	DA*
02/22/05	Cloudy	Moderate	18:01	Surface	1	15.9 15.9	15.9	8.0 7.9	8.0	31.0 30.9	31.0	95.6 95.3	95.5	7.8 7.8	7.8	7.8	0.6 0.6	0.6	1.1	3	5
				Middle	8	15.9 15.9	15.9	8.0 8.0	8.0	31.0 31.0	31.0	95.4 95.3	95.4	7.8 7.8	7.8		1.0 0.8	0.9		6	
				Bottom	14	15.9 15.9	15.9	8.0 8.0	8.0	31.0 31.0	31.0	93.9 93.7	93.8	7.7 7.7	7.7	7.7	1.6 1.7	1.7		5	
02/24/05	Cloudy	Moderate	17:57	Surface	1	16.2 16.2	16.2	7.9 7.9	7.9	30.7 30.7	30.7	99.4 98.3	98.9	8.1 8.0	8.1	7.9	1.2 1.3	1.3	1.6	6	5
				Middle	7	16.2 16.2	16.2	7.9 7.9	7.9	30.7 30.7	30.7	94.7 94.6	94.7	7.7 7.7	7.7		1.7 1.8	1.8		4	
				Bottom	13	16.1 16.1	16.1	7.9 7.9	7.9	30.8 30.8	30.8	93.8 93.7	93.8	7.7 7.7	7.7	7.7	1.6 1.8	1.7		4	
02/26/05	Fine	Moderate	08:10	Surface	1	16.3 16.3	16.3	7.8 7.7	7.8	30.2 30.1	30.2	90.1 91.0	90.6	7.4 7.4	7.4	7.3	1.5 1.6	1.6	3.1	5	6
				Middle	8	16.3 16.3	16.3	7.7 7.7	7.7	30.1 30.2	30.2	88.6 88.5	88.6	7.2 7.2	7.2		3.6 3.6	3.6		4	
				Bottom	14	16.3 16.3	16.3	7.7 7.8	7.8	30.1 30.2	30.2	87.8 87.6	87.7	7.2 7.2	7.2	7.2	4.2 4.1	4.2		10	

Remarks: * DA: Depth-Averaged
** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Appendix C

Water Quality Monitoring Results at Location C4 - Mid-Ebb Tide

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)	
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Average	DA*
02/22/05	Cloudy	Moderate	13:44	Surface	1	15.9 15.9	15.9	7.9 7.9	7.9	31.1 31.1	31.1	97.2 96.9	97.1	8.0 7.9	8.0	8.0	1.9 1.8	1.9	2.3	4	4
				Middle	9	15.9 15.9	15.9	8.0 8.0	8.0	31.1 31.1	31.1	96.1 96.0	96.1	7.9 7.9	7.9		2.0 1.7	1.9		3	
				Bottom	16	15.9 15.9	15.9	8.0 8.0	8.0	31.1 31.1	31.1	95.4 95.2	95.3	7.8 7.8	7.8	7.8	2.8 3.1	3.0		6	
02/24/05	Cloudy	Moderate	12:38	Surface	1	16.0 16.0	16.0	8.0 8.0	8.0	31.0 31.0	31.0	100.4 100.1	100.3	8.2 8.2	8.2	8.2	0.6 0.7	0.7	1.1	7	5
				Middle	9	16.0 16.0	16.0	8.0 8.0	8.0	31.0 31.0	31.0	99.2 99.2	99.2	8.1 8.1	8.1		1.1 1.0	1.1		3	
				Bottom	16	16.0 15.9	16.0	8.0 8.0	8.0	31.0 31.0	31.0	98.5 98.4	98.5	8.1 8.1	8.1	8.1	1.3 1.4	1.4		5	
02/26/05	Fine	Moderate	12:07	Surface	1	16.4 16.4	16.4	7.9 7.9	7.9	30.3 30.3	30.3	93.6 90.9	92.3	7.6 7.4	7.5	7.4	3.2 3.4	3.3	3.3	5	6
				Middle	9	16.4 16.4	16.4	7.8 7.9	7.9	30.3 30.3	30.3	88.5 89.8	89.2	7.2 7.3	7.3		3.2 3.1	3.2		6	
				Bottom	17	16.4 16.4	16.4	8.0 8.0	8.0	30.5 30.4	30.5	91.9 88.5	90.2	7.5 7.2	7.4	7.4	3.4 3.6	3.5		8	

Water Quality Monitoring Results at Location C4 - Mid-Flood Tide

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)	
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Average	DA*
02/22/05	Cloudy	Moderate	15:43	Surface	1	15.9 15.9	15.9	7.9 7.9	7.9	31.1 31.1	31.1	96.9 96.7	96.8	7.9 7.9	7.9	7.9	1.9 1.8	1.9	2.4	5	6
				Middle	9	15.9 15.9	15.9	7.9 8.0	8.0	31.1 31.1	31.1	96.0 95.9	96.0	7.9 7.9	7.9		1.9 1.9	1.9		6	
				Bottom	16	15.9 15.9	15.9	8.0 8.0	8.0	31.1 31.1	31.1	95.6 95.5	95.6	7.8 7.8	7.8	7.8	3.5 3.4	3.5		6	
02/24/05	Cloudy	Moderate	16:16	Surface	1	16.1 16.1	16.1	8.0 8.0	8.0	31.0 30.9	31.0	97.2 97.4	97.3	7.9 8.0	8.0	8.0	1.2 1.3	1.3	1.7	7	6
				Middle	9	16.0 16.0	16.0	8.0 8.0	8.0	31.0 31.0	31.0	96.8 97.1	97.0	7.9 7.9	7.9		1.8 1.9	1.9		7	
				Bottom	16	16.0 16.0	16.0	8.0 8.0	8.0	31.0 31.0	31.0	97.5 97.2	97.4	8.0 7.9	8.0	8.0	1.8 2.0	1.9		3	
02/26/05	Fine	Moderate	08:26	Surface	1	16.3 16.3	16.3	7.8 7.8	7.8	30.2 30.2	30.2	89.9 91.5	90.7	7.3 7.5	7.4	7.4	3.8 3.7	3.8	3.9	7	7
				Middle	9	16.3 16.3	16.3	7.8 7.9	7.9	30.2 30.3	30.3	88.8 88.7	88.8	7.3 7.2	7.3		3.9 3.8	3.9		7	
				Bottom	17	16.3 16.3	16.3	7.9 7.9	7.9	30.3 30.3	30.3	88.0 87.7	87.9	7.2 7.2	7.2	7.2	3.9 4.0	4.0		9	

Remarks: * DA: Depth-Averaged
** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Appendix C

Water Quality Monitoring Results at Location C5 - Mid-Ebb Tide

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)	
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Average	DA*
02/22/05	Cloudy	Moderate	13:16	Surface	1	16.0 16.0	16.0	7.9 7.9	7.9	31.0 31.0	31.0	97.4 97.1	97.3	8.0 7.9	8.0	7.9	0.8 0.8	0.8	1.9	5	5
				Middle	12	16.1 16.1	16.1	8.0 8.0	8.0	31.1 31.1	31.1	96.1 95.9	96.0	7.8 7.8	7.8		1.2 1.3	1.3		5	
				Bottom	22	16.5 16.5	16.5	8.0 8.0	8.0	31.3 31.3	31.3	93.9 93.7	93.8	7.6 7.6	7.6	7.6	3.4 3.8	3.6		6	
02/24/05	Cloudy	Moderate	11:56	Surface	1	15.8 15.8	15.8	7.9 7.9	7.9	30.9 30.9	30.9	97.5 97.4	97.5	8.0 8.0	8.0	8.0	1.1 1.1	1.1	1.6	8	6
				Middle	11	15.8 15.8	15.8	7.9 7.9	7.9	30.9 30.9	30.9	97.4 97.3	97.4	8.0 8.0	8.0		1.4 1.4	1.4		3	
				Bottom	21	15.8 15.8	15.8	7.9 7.9	7.9	30.9 30.9	30.9	97.4 97.4	97.4	8.0 8.0	8.0	8.0	2.2 2.4	2.3		7	
02/26/05	Fine	Moderate	12:10	Surface	1	16.4 16.4	16.4	7.9 7.9	7.9	30.4 30.3	30.4	88.2 90.2	89.2	7.2 7.4	7.3	7.3	3.3 3.4	3.4	3.3	7	6
				Middle	12	16.4 16.4	16.4	8.0 8.0	8.0	30.4 30.4	30.4	89.1 88.4	88.8	7.3 7.2	7.3		3.2 3.1	3.2		6	
				Bottom	22	16.4 16.4	16.4	8.0 8.0	8.0	30.4 30.4	30.4	88.3 88.9	88.6	7.2 7.2	7.2	7.2	3.2 3.2	3.2		6	

Water Quality Monitoring Results at Location C5 - Mid-Flood Tide

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)	
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Average	DA*
02/22/05	Cloudy	Moderate	16:10	Surface	1	16.0 16.0	16.0	7.9 7.9	7.9	31.0 31.0	31.0	97.6 97.2	97.4	8.0 8.0	8.0	8.0	1.4 1.4	1.4	3.6	5	7
				Middle	12	16.0 16.0	16.0	8.0 8.0	8.0	31.0 31.0	31.0	96.2 96.1	96.2	7.9 7.9	7.9		1.2 1.2	1.2		7	
				Bottom	23	16.7 16.7	16.7	8.0 8.0	8.0	31.3 31.3	31.3	94.3 93.9	94.1	7.6 7.6	7.6	7.6	8.3 8.1	8.2		10	
02/24/05	Cloudy	Moderate	15:59	Surface	1	16.0 16.0	16.0	7.9 7.9	7.9	30.9 30.9	30.9	100.4 100.2	100.3	8.2 8.2	8.2	8.2	1.1 1.3	1.2	1.8	4	5
				Middle	12	15.9 15.9	15.9	7.9 7.9	7.9	30.9 30.9	30.9	99.7 99.7	99.7	8.2 8.2	8.2		2.0 1.9	2.0		4	
				Bottom	22	15.9 15.9	15.9	7.9 8.0	8.0	31.0 31.0	31.0	99.1 99.0	99.1	8.1 8.1	8.1	8.1	2.3 2.3	2.3		8	
02/26/05	Fine	Moderate	09:20	Surface	1	16.4 16.4	16.4	7.8 7.8	7.8	30.2 30.3	30.3	91.2 88.9	90.1	7.4 7.2	7.3	7.3	2.4 2.4	2.4	3.1	7	7
				Middle	12	16.4 16.4	16.4	7.9 7.9	7.9	30.3 30.3	30.3	88.5 89.3	88.9	7.2 7.3	7.3		3.1 3.1	3.1		6	
				Bottom	22	16.4 16.4	16.4	7.9 7.9	7.9	30.3 30.3	30.3	89.8 88.8	89.3	7.3 7.2	7.3	7.3	3.7 4.0	3.9		8	

Remarks: * DA: Depth-Averaged
** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Appendix C

Water Quality Monitoring Results at Location SR1 - Mid-Ebb Tide

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)	
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Average	DA*
02/22/05	Cloudy	Moderate	11:35	Surface	1	16.0 16.0	16.0	8.0 8.0	8.0	31.0 30.9	31.0	93.6 93.4	93.5	7.7 7.6	7.7	7.7	0.9 0.9	0.9	1.1	4	6
				Middle	14	16.1 16.0	16.1	8.0 8.0	8.0	31.0 31.0	31.0	93.3 93.3	93.3	7.6 7.6	7.6		1.2 1.3	1.3		5	
				Bottom	27	16.1 16.1	16.1	8.0 8.0	8.0	31.0 31.0	31.0	93.5 93.5	93.5	7.6 7.6	7.6	7.6	1.2 1.2	1.2		8	
02/24/05	Cloudy	Moderate	10:20	Surface	1	16.1 16.1	16.1	7.9 7.9	7.9	30.9 30.8	30.9	94.0 94.0	94.0	7.7 7.7	7.7	7.7	1.3 1.4	1.4	1.7	4	6
				Middle	14	16.1 16.1	16.1	7.9 7.9	7.9	30.9 30.9	30.9	94.3 94.3	94.3	7.7 7.7	7.7		1.5 1.6	1.6		7	
				Bottom	27	16.1 16.1	16.1	7.9 7.9	7.9	30.9 30.9	30.9	94.1 94.2	94.2	7.7 7.7	7.7	7.7	2.0 2.1	2.1		8	
02/26/05	Fine	Moderate	12:24	Surface	1	16.2 16.2	16.2	7.9 7.9	7.9	30.3 30.3	30.3	94.7 90.3	92.5	7.7 7.4	7.6	7.6	2.8 2.8	2.8	2.7	5	5
				Middle	14	16.2 16.2	16.2	7.9 7.9	7.9	30.3 30.3	30.3	91.7 90.6	91.2	7.5 7.4	7.5		2.5 2.8	2.7		6	
				Bottom	27	16.2 16.2	16.2	7.9 7.9	7.9	30.3 30.3	30.3	89.7 89.7	89.7	7.3 7.3	7.3	7.3	2.6 2.6	2.6		3	

Water Quality Monitoring Results at Location SR1 - Mid-Flood Tide

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)	
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Average	DA*
02/22/05	Cloudy	Moderate	17:45	Surface	1	16.0 16.0	16.0	7.9 7.9	7.9	31.0 31.0	31.0	95.4 94.9	95.2	7.8 7.8	7.8	7.8	1.1 1.2	1.2	1.3	4	5
				Middle	12	16.0 16.0	16.0	8.0 8.0	8.0	31.0 31.0	31.0	93.6 93.6	93.6	7.7 7.7	7.7		1.0 0.9	1.0		4	
				Bottom	22	16.0 16.0	16.0	8.0 8.0	8.0	31.0 31.0	31.0	93.5 93.4	93.5	7.6 7.6	7.6	7.6	1.8 1.6	1.7		8	
02/24/05	Cloudy	Moderate	17:36	Surface	1	16.7 16.7	16.7	7.9 7.9	7.9	30.8 30.8	30.8	95.8 95.8	95.8	7.7 7.7	7.7	7.7	0.8 0.8	0.8	1.6	6	5
				Middle	14	16.1 16.1	16.1	7.9 7.9	7.9	30.8 30.9	30.9	94.9 94.8	94.9	7.7 7.7	7.7		1.2 1.3	1.3		3	
				Bottom	26	16.1 16.1	16.1	7.9 7.9	7.9	30.9 30.9	30.9	96.4 96.3	96.4	7.9 7.9	7.9	7.9	3.1 2.5	2.8		5	
02/26/05	Fine	Moderate	09:22	Surface	1	16.5 16.5	16.5	7.8 7.8	7.8	30.3 30.2	30.3	87.7 87.6	87.7	7.1 7.2	7.2	7.2	2.8 2.8	2.8	3.0	4	4
				Middle	14	16.5 16.5	16.5	7.9 7.9	7.9	30.3 30.3	30.3	88.4 87.8	88.1	7.2 7.1	7.2		2.9 3.0	3.0		3	
				Bottom	26	16.5 16.5	16.5	7.9 7.9	7.9	30.3 30.3	30.3	88.3 87.0	87.7	7.2 7.1	7.2	7.2	3.3 3.3	3.3		4	

Remarks: * DA: Depth-Averaged
** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Appendix C

Water Quality Monitoring Results at Location SR2 - Mid-Ebb Tide

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)	
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Average	DA*
02/22/05	Cloudy	Moderate	11:50	Surface	1	16.0 16.0	16.0	7.9 7.9	7.9	30.9 30.9	30.9	94.8 94.3	94.6	7.8 7.7	7.8	7.8	1.0 0.9	1.0	1.3	5	5
				Middle	6	16.0 16.0	16.0	7.9 7.9	7.9	31.0 31.0	31.0	93.7 93.7	93.7	7.7 7.7	7.7		1.2 1.2	1.2		5	
				Bottom	10	16.1 16.1	16.1	8.0 8.0	8.0	31.1 31.1	31.1	93.6 93.6	93.6	7.6 7.6	7.6	7.6	1.7 1.7	1.7		6	
02/24/05	Cloudy	Moderate	10:31	Surface	1	16.2 16.2	16.2	7.9 7.9	7.9	30.9 30.9	30.9	96.9 96.3	96.6	7.9 7.9	7.9	7.9	1.5 1.4	1.5	1.8	4	6
				Middle	6	16.2 16.2	16.2	7.9 7.9	7.9	31.0 31.0	31.0	96.5 97.0	96.8	7.9 7.9	7.9		1.7 1.8	1.8		7	
				Bottom	10	16.2 16.2	16.2	7.9 7.9	7.9	31.0 31.0	31.0	98.0 98.1	98.1	8.0 8.0	8.0	8.0	2.1 2.3	2.2		6	
02/26/05	Fine	Moderate	12:40	Surface	1	16.2 16.2	16.2	7.9 7.9	7.9	30.3 30.4	30.4	94.6 93.2	93.9	7.7 7.6	7.7	7.6	1.2 1.2	1.2	1.3	4	5
				Middle	5	16.2 16.2	16.2	7.9 7.9	7.9	30.4 30.3	30.4	91.8 91.7	91.8	7.5 7.5	7.5		1.2 1.1	1.2		6	
				Bottom	9	16.2 16.2	16.2	8.0 7.9	8.0	30.4 30.4	30.4	92.0 90.4	91.2	7.5 7.4	7.5	7.5	1.4 1.6	1.5		4	

Water Quality Monitoring Results at Location SR2 - Mid-Flood Tide

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)	
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Average	DA*
02/22/05	Cloudy	Moderate	17:34	Surface	1	15.8 15.8	15.8	7.9 7.9	7.9	31.0 31.0	31.0	96.4 96.3	96.4	7.9 7.9	7.9	7.9	1.2 1.2	1.2	1.3	3	5
				Middle	6	15.8 15.8	15.8	8.0 8.0	8.0	31.0 31.0	31.0	94.6 94.5	94.6	7.8 7.8	7.8		1.2 1.1	1.2		4	
				Bottom	11	15.8 15.8	15.8	8.0 8.0	8.0	31.0 31.0	31.0	94.4 94.2	94.3	7.7 7.7	7.7	7.7	1.3 1.4	1.4		9	
02/24/05	Cloudy	Moderate	17:26	Surface	1	16.7 16.5	16.6	7.6 7.8	7.7	30.7 30.8	30.8	105.8 103.4	104.6	8.5 8.4	8.5	8.4	1.8 1.6	1.7	1.3	4	5
				Middle	6	16.2 16.2	16.2	7.9 7.9	7.9	30.8 30.8	30.8	101.1 101.0	101.1	8.2 8.2	8.2		1.1 1.1	1.1		6	
				Bottom	10	16.1 16.1	16.1	7.9 7.9	7.9	30.8 30.8	30.8	100.2 100.1	100.2	8.2 8.2	8.2	8.2	1.1 0.9	1.0		5	
02/26/05	Fine	Moderate	09:26	Surface	1	16.5 16.5	16.5	7.9 7.9	7.9	30.3 30.3	30.3	87.4 88.2	87.8	7.1 7.2	7.2	7.2	3.1 3.3	3.2	3.6	7	7
				Middle	5	16.5 16.5	16.5	7.9 7.8	7.9	30.3 30.3	30.3	89.2 86.9	88.1	7.3 7.1	7.2		3.5 3.6	3.6		8	
				Bottom	9	16.4 16.5	16.5	7.9 7.9	7.9	30.3 30.3	30.3	88.1 88.2	88.2	7.2 7.2	7.2	7.2	4.0 4.0	4.0		7	

Remarks: * DA: Depth-Averaged
** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Appendix C

Water Quality Monitoring Results at Location SR3 - Mid-Ebb Tide

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)	
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Average	DA*
02/22/05	Cloudy	Moderate	12:15	Surface	1	15.9 15.9	15.9	7.9 7.9	7.9	31.1 31.1	31.1	95.6 95.2	95.4	7.8 7.8	7.8	7.8	0.7 0.6	0.7	0.8	5	6
				Middle	5	15.9 15.9	15.9	7.9 8.0	8.0	31.1 31.1	31.1	95.0 94.9	95.0	7.8 7.8	7.8		0.7 0.8	0.8		4	
				Bottom	8	15.9 15.9	15.9	8.0 8.0	8.0	31.1 31.1	31.1	94.8 94.7	94.8	7.8 7.8	7.8	7.8	0.8 0.8	0.8		8	
02/24/05	Cloudy	Moderate	10:55	Surface	1	16.2 16.2	16.2	7.9 7.9	7.9	31.0 31.0	31.0	100.4 100.4	100.4	8.2 8.2	8.2	8.2	0.8 0.8	0.8	0.7	3	4
				Middle	4	16.2 16.2	16.2	7.9 7.9	7.9	31.0 31.0	31.0	100.3 100.5	100.4	8.2 8.2	8.2		0.6 0.6	0.6		5	
				Bottom	7	16.2 16.2	16.2	7.9 7.9	7.9	31.0 31.0	31.0	100.9 101.0	101.0	8.2 8.2	8.2	8.2	0.7 0.8	0.8		4	
02/26/05	Fine	Moderate	12:53	Surface	1	16.3 16.3	16.3	7.9 7.9	7.9	30.3 30.3	30.3	94.5 91.9	93.2	7.7 7.5	7.6	7.6	0.7 0.7	0.7	0.7	3	4
				Middle	4	16.3 16.3	16.3	7.9 7.9	7.9	30.4 30.3	30.4	91.5 91.1	91.3	7.5 7.4	7.5		0.6 0.6	0.6		5	
				Bottom	8	16.3 16.3	16.3	7.9 7.9	7.9	30.3 30.3	30.3	90.5 92.1	91.3	7.4 7.5	7.5	7.5	0.9 0.9	0.9		3	

Water Quality Monitoring Results at Location SR3 - Mid-Flood Tide

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)	
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Average	DA*
02/22/05	Cloudy	Moderate	17:11	Surface	1	15.9 15.9	15.9	7.9 7.9	7.9	31.0 31.0	31.0	98.4 98.4	98.4	8.1 8.1	8.1	8.0	1.0 0.9	1.0	1.1	3	4
				Middle	5	15.9 15.9	15.9	8.0 8.0	8.0	31.1 31.1	31.1	95.6 95.4	95.5	7.8 7.8	7.8		1.2 1.1	1.2		5	
				Bottom	8	15.7 15.7	15.7	8.0 8.0	8.0	31.1 31.1	31.1	94.9 94.7	94.8	7.8 7.8	7.8	7.8	0.9 1.0	1.0		4	
02/24/05	Cloudy	Moderate	17:04	Surface	1	16.4 16.3	16.4	7.9 7.9	7.9	30.9 31.0	31.0	97.9 99.3	98.6	7.9 8.1	8.0	8.1	0.5 0.5	0.5	0.7	3	6
				Middle	4	16.2 16.1	16.2	8.0 8.0	8.0	30.9 30.9	30.9	99.3 99.5	99.4	8.1 8.1	8.1		0.9 1.0	1.0		4	
				Bottom	7	16.0 15.9	16.0	8.0 8.0	8.0	30.9 30.9	30.9	99.8 99.9	99.9	8.2 8.2	8.2	8.2	0.5 0.6	0.6		11	
02/26/05	Fine	Moderate	09:30	Surface	1	16.5 16.5	16.5	7.9 7.9	7.9	30.3 30.3	30.3	88.0 88.5	88.3	7.2 7.2	7.2	7.2	4.0 4.0	4.0	3.9	6	6
				Middle	5	16.5 16.4	16.5	7.9 7.9	7.9	30.3 30.3	30.3	89.1 86.6	87.9	7.3 7.1	7.2		3.6 3.8	3.7		6	
				Bottom	8	16.4 16.4	16.4	7.9 7.9	7.9	30.3 30.3	30.3	89.0 87.4	88.2	7.2 7.1	7.2	7.2	3.8 3.9	3.9		6	

Remarks: * DA: Depth-Averaged
** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Appendix C

Water Quality Monitoring Results at Location SR4 - Mid-Ebb Tide

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)	
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Average	DA*
02/22/05	Cloudy	Moderate	12:25	Surface	1	15.5 15.5	15.5	7.9 7.9	7.9	31.1 31.1	31.1	99.1 98.6	98.9	8.2 8.1	8.2	8.1	0.6 0.6	0.6	0.6	3	4
				Middle	4	15.5 15.5	15.5	7.9 7.9	7.9	31.1 31.1	31.1	96.4 95.9	96.2	8.0 7.9	8.0		0.6 0.6	0.6		4	
				Bottom	6	15.5 15.5	15.5	8.0 8.0	8.0	31.1 31.1	31.1	94.9 94.8	94.9	7.8 7.8	7.8	7.8	0.5 0.5	0.5		6	
02/24/05	Cloudy	Moderate	11:03	Surface	1	16.2 16.2	16.2	7.8 7.9	7.9	30.9 31.0	31.0	101.5 101.2	101.4	8.3 8.3	8.3	8.3	0.6 0.7	0.7	0.7	3	4
				Middle	4	16.2 16.2	16.2	7.9 7.9	7.9	31.0 31.0	31.0	100.7 100.5	100.6	8.2 8.2	8.2		0.8 0.7	0.8		5	
				Bottom	6	16.2 16.2	16.2	7.9 7.9	7.9	31.0 31.0	31.0	100.3 100.4	100.4	8.2 8.2	8.2	8.2	0.6 0.5	0.6		3	
02/26/05	Fine	Moderate	13:02	Surface	1	16.3 16.3	16.3	8.0 8.0	8.0	30.4 30.4	30.4	94.0 92.5	93.3	7.7 7.6	7.7	7.6	1.4 1.5	1.5	2.2	3	3
				Middle	4	16.3 16.3	16.3	8.0 8.0	8.0	30.4 30.4	30.4	90.9 91.0	91.0	7.4 7.4	7.4		2.2 2.1	2.2		3	
				Bottom	7	16.4 16.4	16.4	8.0 8.0	8.0	30.4 30.4	30.4	89.6 90.0	89.8	7.3 7.3	7.3	7.3	2.8 2.7	2.8		4	

Water Quality Monitoring Results at Location SR4 - Mid-Flood Tide

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)	
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Average	DA*
02/22/05	Cloudy	Moderate	17:00	Surface	1	15.5 15.6	15.6	7.9 7.9	7.9	31.1 31.1	31.1	93.1 93.8	93.5	7.7 7.7	7.7	7.8	1.1 1.0	1.1	0.8	4	5
				Middle	4	15.6 15.5	15.6	8.0 8.0	8.0	31.1 31.1	31.1	94.5 94.6	94.6	7.8 7.8	7.8		0.6 0.6	0.6		5	
				Bottom	7	15.5 15.5	15.5	8.0 8.0	8.0	31.1 31.1	31.1	94.7 94.7	94.7	7.8 7.8	7.8	7.8	0.8 0.7	0.8		6	
02/24/05	Cloudy	Moderate	16:55	Surface	1	16.4 16.4	16.4	8.0 8.0	8.0	31.0 30.9	31.0	101.5 101.4	101.5	8.2 8.2	8.2	8.2	0.1 0.1	0.1	0.1	3	3
				Middle	4	16.3 16.3	16.3	8.0 8.0	8.0	31.0 31.0	31.0	101.3 101.4	101.4	8.2 8.2	8.2		0.1 0.1	0.1		4	
				Bottom	6	16.2 16.2	16.2	8.0 8.0	8.0	31.0 31.0	31.0	102.8 102.8	102.8	8.4 8.4	8.4	8.4	0.1 0.1	0.1		3	
02/26/05	Fine	Moderate	09:34	Surface	1	16.4 16.4	16.4	7.9 7.9	7.9	30.3 30.3	30.3	88.5 87.4	88.0	7.2 7.1	7.2	7.3	3.4 3.4	3.4	3.5	7	7
				Middle	4	16.4 16.4	16.4	7.9 7.9	7.9	30.3 30.3	30.3	90.0 88.9	89.5	7.3 7.2	7.3		3.6 3.6	3.6		6	
				Bottom	7	16.4 16.4	16.4	7.9 7.9	7.9	30.3 30.3	30.3	88.9 89.0	89.0	7.2 7.3	7.3	7.3	3.6 3.5	3.6		9	

Remarks: * DA: Depth-Averaged
** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Appendix C

Water Quality Monitoring Results at Location SR5 - Mid-Ebb Tide

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)	
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Average	DA*
02/22/05	Cloudy	Moderate	12:36	Surface	1	15.9 15.9	15.9	7.9 7.9	7.9	31.0 31.0	31.0	96.8 96.5	96.7	7.9 7.9	7.9	7.9	0.4 0.4	0.4	0.5	5	5
				Middle	5	15.9 15.9	15.9	7.9 7.9	7.9	31.1 31.1	31.1	96.5 96.6	96.6	7.9 7.9	7.9		0.5 0.4	0.5		5	
				Bottom	8	15.9 15.9	15.9	8.0 8.0	8.0	31.1 31.1	31.1	96.4 96.2	96.3	7.9 7.9	7.9	7.9	0.5 0.5	0.5		4	
02/24/05	Cloudy	Moderate	11:13	Surface	1	16.3 16.4	16.4	7.9 7.9	7.9	30.9 30.9	30.9	100.1 100.4	100.3	8.1 8.2	8.2	8.2	0.6 0.6	0.6	0.6	6	5
				Middle	5	16.2 16.2	16.2	7.9 7.9	7.9	30.9 31.0	31.0	100.4 100.8	100.6	8.2 8.2	8.2		0.5 0.5	0.5		5	
				Bottom	8	16.2 16.2	16.2	8.0 7.9	8.0	31.0 31.0	31.0	101.0 100.9	101.0	8.2 8.2	8.2	8.2	0.5 0.6	0.6		3	
02/26/05	Fine	Moderate	13:29	Surface	1	16.4 16.4	16.4	7.8 7.8	7.8	30.2 30.2	30.2	92.3 90.4	91.4	7.5 7.4	7.5	7.3	2.1 2.2	2.2	2.5	5	5
				Middle	5	16.4 16.4	16.4	7.8 7.8	7.8	30.2 30.2	30.2	87.2 87.5	87.4	7.1 7.1	7.1		2.1 2.6	2.4		7	
				Bottom	8	16.4 16.4	16.4	7.9 7.8	7.9	30.3 30.3	30.3	88.6 87.9	88.3	7.2 7.2	7.2	7.2	2.8 2.7	2.8		3	

Water Quality Monitoring Results at Location SR5 - Mid-Flood Tide

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)	
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Average	DA*
02/22/05	Cloudy	Moderate	16:48	Surface	1	15.9 15.9	15.9	7.9 7.9	7.9	31.1 31.1	31.1	94.3 94.5	94.4	7.7 7.7	7.7	7.8	0.4 0.4	0.4	0.4	3	3
				Middle	5	15.9 15.9	15.9	8.0 8.0	8.0	31.1 31.1	31.1	94.7 94.7	94.7	7.8 7.8	7.8		0.5 0.4	0.5		3	
				Bottom	9	15.9 15.9	15.9	8.0 8.0	8.0	31.1 31.1	31.1	94.8 94.7	94.8	7.8 7.8	7.8	7.8	0.4 0.4	0.4		3	
02/24/05	Cloudy	Moderate	16:44	Surface	1	16.7 16.9	16.8	8.0 8.0	8.0	31.0 31.0	31.0	106.3 105.3	105.8	8.6 8.5	8.6	8.6	0.1 0.1	0.1	0.2	4	5
				Middle	5	16.1 16.0	16.1	8.0 8.0	8.0	30.9 30.9	30.9	104.3 104.0	104.2	8.5 8.5	8.5		0.1 0.1	0.1		7	
				Bottom	8	16.0 16.0	16.0	8.0 8.0	8.0	30.9 30.9	30.9	103.8 104.2	104.0	8.5 8.5	8.5	8.5	0.4 0.4	0.4		3	
02/26/05	Fine	Moderate	09:38	Surface	1	16.4 16.4	16.4	7.9 7.9	7.9	30.3 30.3	30.3	91.1 89.8	90.5	7.4 7.3	7.4	7.4	3.2 3.4	3.3	3.5	5	8
				Middle	4	16.4 16.4	16.4	7.9 7.9	7.9	30.3 30.3	30.3	89.5 88.9	89.2	7.3 7.2	7.3		3.6 3.5	3.6		9	
				Bottom	8	16.4 16.4	16.4	7.9 7.9	7.9	30.3 30.3	30.3	87.6 88.7	88.2	7.1 7.2	7.2	7.2	3.6 3.5	3.6		10	

Remarks: * DA: Depth-Averaged
** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Appendix C

Water Quality Monitoring Results at Location SR6 - Mid-Ebb Tide

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)	
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Average	DA*
02/22/05	Cloudy	Moderate	12:48	Surface	1	15.9 15.9	15.9	7.9 7.9	7.9	31.1 31.1	31.1	97.6 97.4	97.5	8.0 8.0	8.0	8.0	0.8 0.8	0.8	0.8	3	6
				Middle	6	15.9 15.9	15.9	8.0 8.0	8.0	31.1 31.1	31.1	96.2 95.6	95.9	7.9 7.8	7.9		0.9 0.8	0.9		6	
				Bottom	11	15.9 15.9	15.9	8.0 8.0	8.0	31.1 31.1	31.1	95.4 95.3	95.4	7.8 7.8	7.8	7.8	0.8 0.8	0.8		10	
02/24/05	Cloudy	Moderate	11:24	Surface	1	16.0 16.0	16.0	7.9 7.9	7.9	30.9 30.9	30.9	101.3 101.0	101.2	8.3 8.3	8.3	8.3	0.3 0.3	0.3	0.6	4	4
				Middle	6	15.8 15.8	15.8	7.9 7.9	7.9	30.9 30.9	30.9	100.1 100.0	100.1	8.2 8.2	8.2		0.5 0.6	0.6		6	
				Bottom	10	15.9 15.9	15.9	7.9 7.9	7.9	30.9 30.9	30.9	99.2 99.1	99.2	8.1 8.1	8.1	8.1	1.0 1.0	1.0		3	
02/26/05	Fine	Moderate	13:43	Surface	1	16.3 16.3	16.3	7.9 7.8	7.9	30.3 30.3	30.3	91.1 86.5	88.8	7.4 7.1	7.3	7.3	3.9 3.8	3.9	3.2	6	5
				Middle	6	16.3 16.3	16.3	7.9 7.8	7.9	30.3 30.3	30.3	88.7 86.8	87.8	7.2 7.1	7.2		3.4 3.1	3.3		4	
				Bottom	12	16.3 16.3	16.3	7.8 7.8	7.8	30.2 30.2	30.2	86.8 84.4	85.6	7.1 6.9	7.0	7.0	2.3 2.4	2.4		6	

Water Quality Monitoring Results at Location SR6 - Mid-Flood Tide

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)	
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Average	DA*
02/22/05	Cloudy	Moderate	16:38	Surface	1	15.9 15.9	15.9	7.9 7.9	7.9	31.1 31.1	31.1	96.9 96.4	96.7	7.9 7.9	7.9	7.9	0.8 0.8	0.8	0.7	3	7
				Middle	6	15.9 15.9	15.9	8.0 8.0	8.0	31.1 31.1	31.1	96.0 95.7	95.9	7.9 7.8	7.9		0.6 0.6	0.6		7	
				Bottom	11	15.9 15.9	15.9	8.0 8.0	8.0	31.1 31.1	31.1	95.6 95.6	95.6	7.8 7.8	7.8	7.8	0.8 0.8	0.8		10	
02/24/05	Cloudy	Moderate	15:28	Surface	1	16.6 16.6	16.6	7.7 7.9	7.8	31.0 30.9	31.0	103.0 103.7	103.4	8.3 8.4	8.4	8.4	0.5 0.5	0.5	0.6	4	4
				Middle	6	16.3 16.2	16.3	7.9 7.9	7.9	30.9 30.9	30.9	103.2 103.0	103.1	8.4 8.4	8.4		0.6 0.6	0.6		5	
				Bottom	10	15.9 15.9	15.9	7.9 7.9	7.9	30.9 30.9	30.9	102.1 102.0	102.1	8.4 8.4	8.4	8.4	0.6 0.7	0.7		3	
02/26/05	Fine	Moderate	09:41	Surface	1	16.4 16.4	16.4	7.9 7.9	7.9	30.3 30.3	30.3	90.3 88.8	89.6	7.4 7.2	7.3	7.4	3.2 3.2	3.2	3.4	11	8
				Middle	6	16.4 16.4	16.4	7.9 7.9	7.9	30.3 30.3	30.3	90.3 89.9	90.1	7.4 7.3	7.4		3.2 3.2	3.2		6	
				Bottom	11	16.4 16.4	16.4	7.9 7.9	7.9	30.3 30.3	30.3	89.2 88.4	88.8	7.3 7.2	7.3	7.3	3.7 3.8	3.8		8	

Remarks: * DA: Depth-Averaged
** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

Appendix C

Water Quality Monitoring Results at Location SR7 - Mid-Ebb Tide

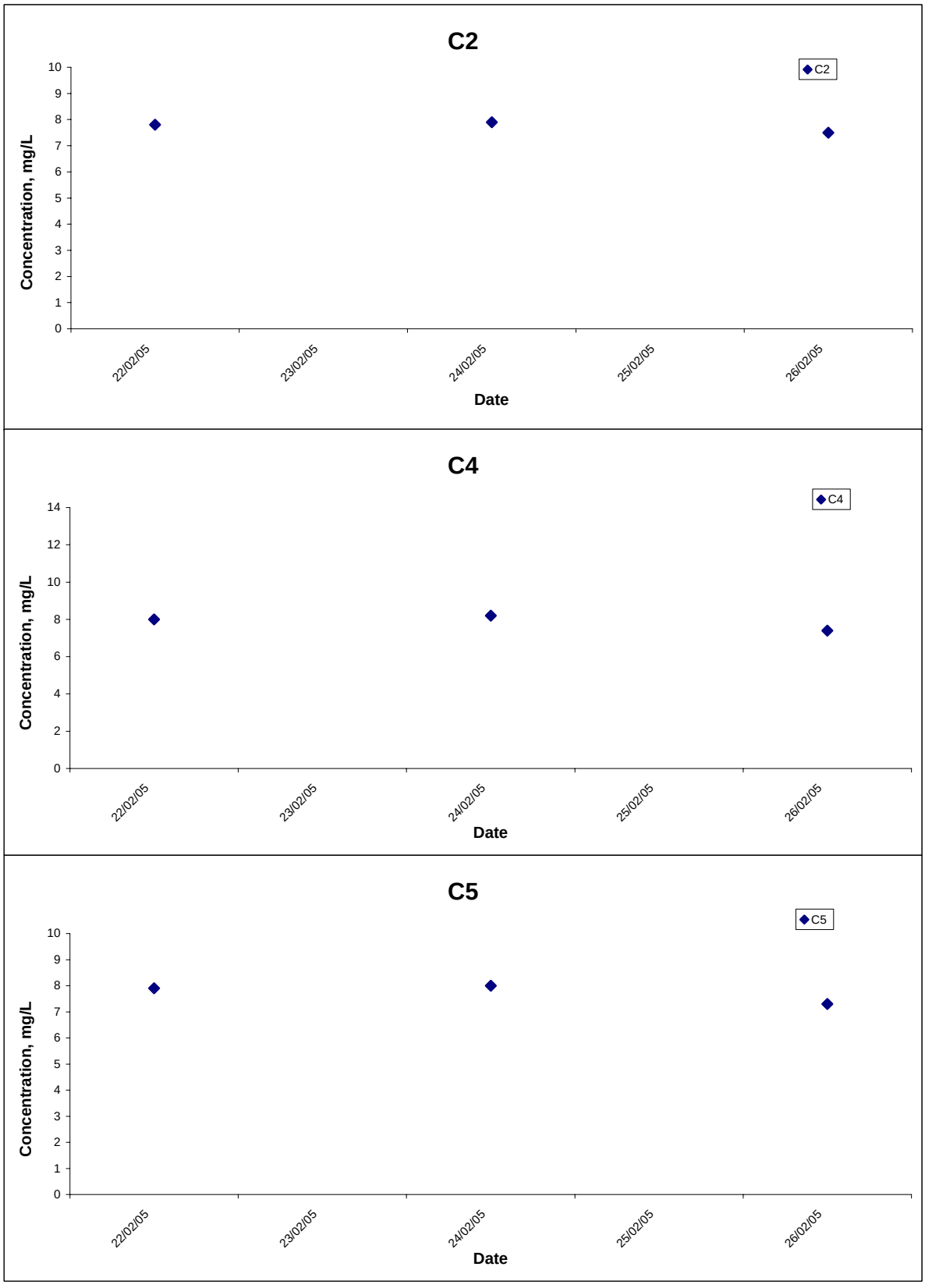
Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)	
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Average	DA*
02/22/05	Cloudy	Moderate	12:58	Surface	1	15.9 15.9	15.9	7.9 8.0	8.0	31.1 31.1	31.1	96.6 96.3	96.5	7.9 7.9	7.9	7.9	1.3 1.3	1.3	1.2	5	6
				Middle	12	15.9 15.9	15.9	8.0 8.0	8.0	31.1 31.1	31.1	95.8 95.8	95.8	7.8 7.8	7.8		1.0 1.0	1.0		7	
				Bottom	22	15.9 15.9	15.9	8.0 8.0	8.0	31.1 31.1	31.1	95.2 95.1	95.2	7.8 7.8	7.8	7.8	1.2 1.1	1.2		6	
02/24/05	Cloudy	Moderate	11:35	Surface	1	15.9 15.8	15.9	7.9 7.9	7.9	30.9 30.9	30.9	101.7 100.8	101.3	8.3 8.3	8.3	8.2	0.8 0.9	0.9	1.9	6	6
				Middle	12	15.8 15.8	15.8	7.9 7.9	7.9	30.9 30.9	30.9	98.8 98.6	98.7	8.1 8.1	8.1		1.9 2.3	2.1		6	
				Bottom	22	15.8 15.8	15.8	7.9 7.9	7.9	30.9 30.9	30.9	97.8 97.7	97.8	8.0 8.0	8.0	8.0	2.6 2.9	2.8		8	
02/26/05	Fine	Moderate	13:59	Surface	1	16.4 16.4	16.4	7.7 7.7	7.7	30.2 30.2	30.2	86.5 85.8	86.2	7.1 7.0	7.1	7.1	1.9 1.9	1.9	1.9	9	7
				Middle	12	16.4 16.4	16.4	7.8 7.7	7.8	30.2 30.2	30.2	86.9 86.4	86.7	7.1 7.0	7.1		1.8 1.9	1.9		5	
				Bottom	22	16.4 16.4	16.4	7.8 7.8	7.8	30.2 30.2	30.2	85.5 84.8	85.2	7.0 6.9	7.0	7.0	1.9 2.0	2.0		6	

Water Quality Monitoring Results at Location SR7 - Mid-Flood Tide

Location	Weather Condition	Sea Condition**	Sampling Time	Depth (m)		Temperature (°C)		pH		Salinity ppt		DO Saturation (%)		Dissolved Oxygen (mg/L)			Turbidity(NTU)			Suspended Solids (mg/L)	
						Value	Average	Value	Average	Value	Average	Value	Average	Value	Average	DA*	Value	Average	DA*	Average	DA*
02/22/05	Cloudy	Moderate	16:26	Surface	1	15.9 15.9	15.9	7.9 7.9	7.9	31.1 31.1	31.1	95.8 95.6	95.7	7.8 7.8	7.8	7.9	0.9 1.0	1.0	1.3	4	4
				Middle	12	15.9 15.9	15.9	8.0 8.0	8.0	31.1 31.1	31.1	96.3 96.4	96.4	7.9 7.9	7.9		1.0 1.1	1.1		4	
				Bottom	22	15.9 15.9	15.9	8.0 8.0	8.0	31.1 31.1	31.1	95.4 95.2	95.3	7.8 7.8	7.8	7.8	1.7 1.7	1.7		5	
02/24/05	Cloudy	Moderate	15:41	Surface	1	16.1 16.1	16.1	7.9 7.9	7.9	30.9 30.9	30.9	102.7 102.6	102.7	8.4 8.4	8.4	8.5	0.6 0.6	0.6	0.7	4	4
				Middle	11	15.9 15.8	15.9	7.9 7.9	7.9	30.9 30.9	30.9	103.2 103.2	103.2	8.5 8.5	8.5		0.5 0.6	0.6		4	
				Bottom	21	15.8 15.8	15.8	7.9 7.9	7.9	30.9 30.9	30.9	100.7 100.4	100.6	8.3 8.2	8.3	8.3	0.8 0.9	0.9		5	
02/26/05	Fine	Moderate	09:44	Surface	1	16.4 16.4	16.4	7.9 7.9	7.9	30.3 30.3	30.3	90.1 87.9	89.0	7.3 7.2	7.3	7.3	3.0 3.1	3.1	3.2	4	7
				Middle	12	16.4 16.4	16.4	7.9 7.9	7.9	30.3 30.3	30.3	89.7 89.4	89.6	7.3 7.3	7.3		3.2 3.2	3.2		7	
				Bottom	22	16.4 16.4	16.4	7.9 7.9	7.9	30.3 30.3	30.3	87.6 88.3	88.0	7.1 7.2	7.2	7.2	3.2 3.3	3.3		10	

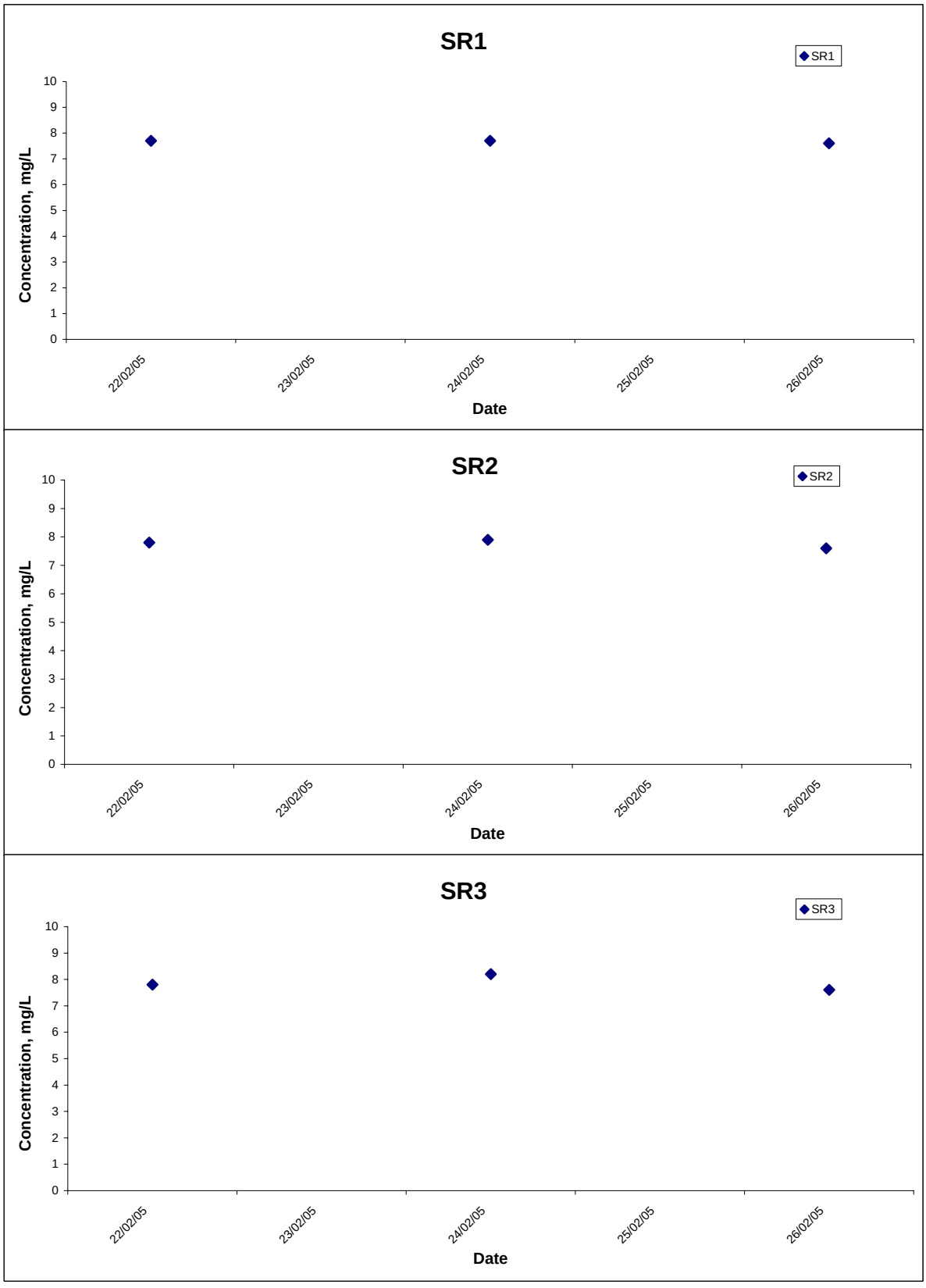
Remarks: * DA: Depth-Averaged
** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

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



Title	Lamma Power Station Extension – Supply and Installation of Submarine Gas Pipeline Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S Date: Feb 05	Project No.: MA4017 Appendix: C	CINOTECH

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



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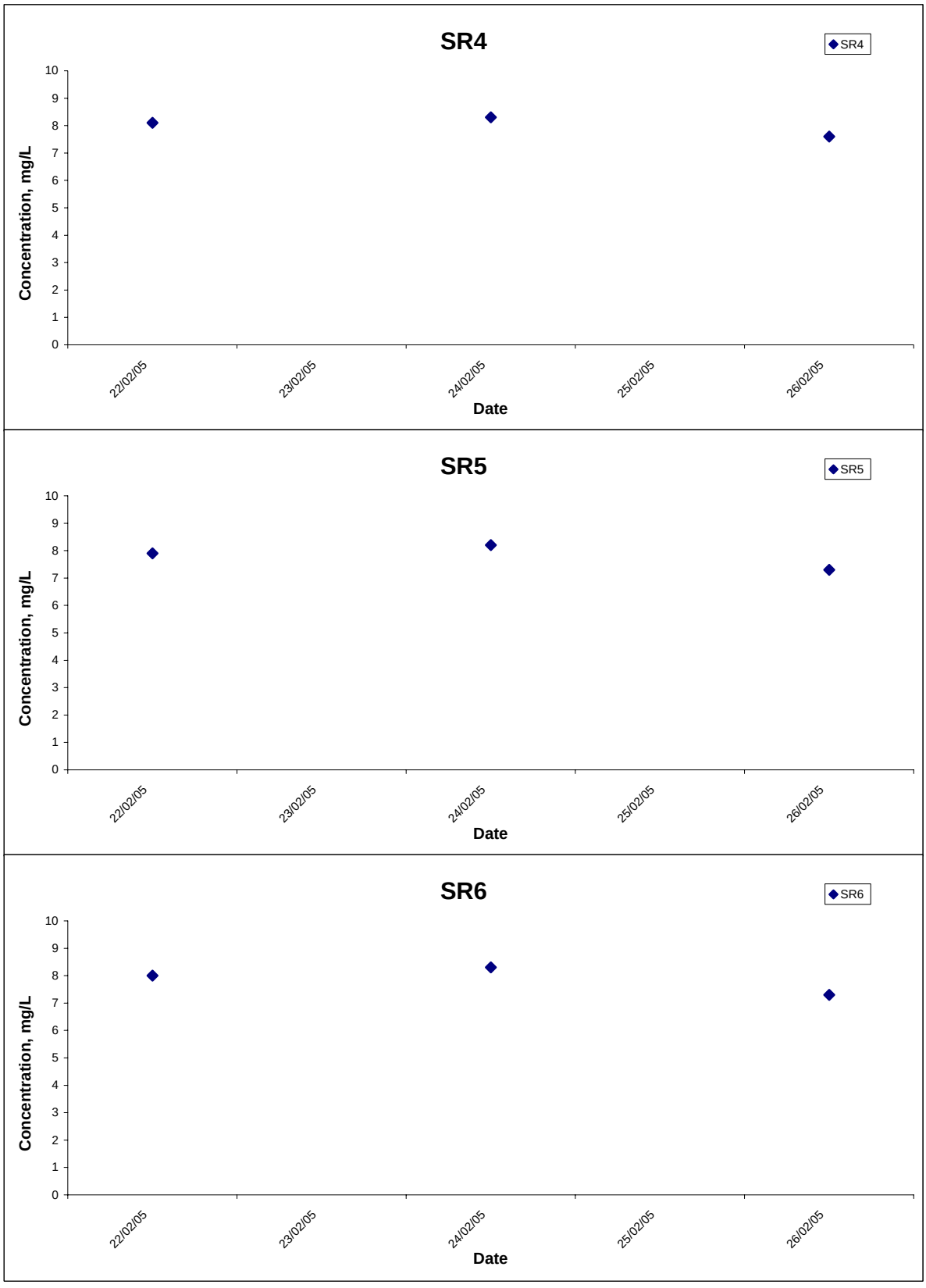

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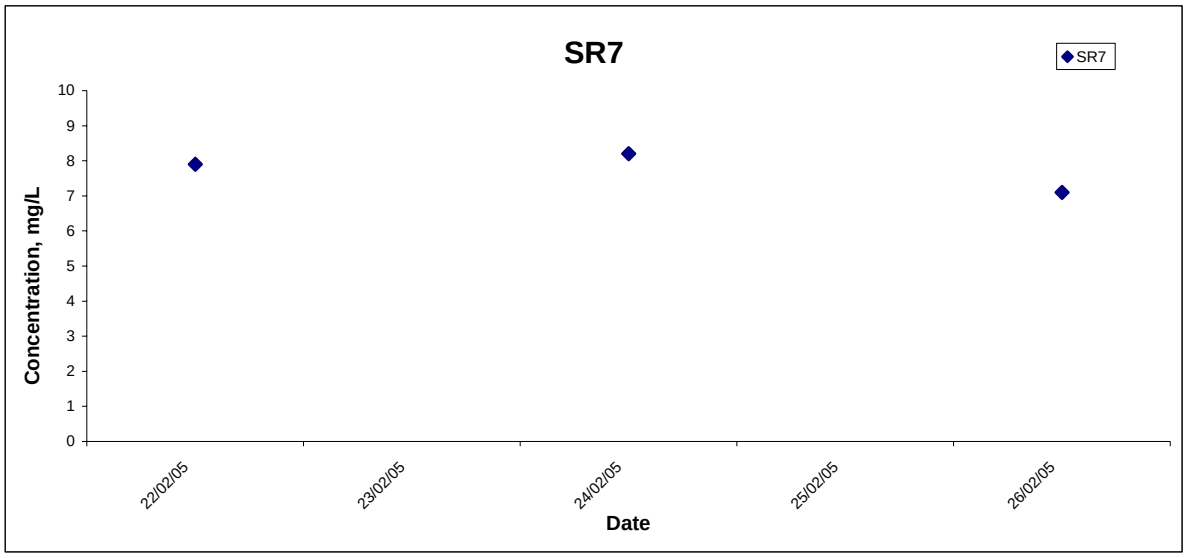
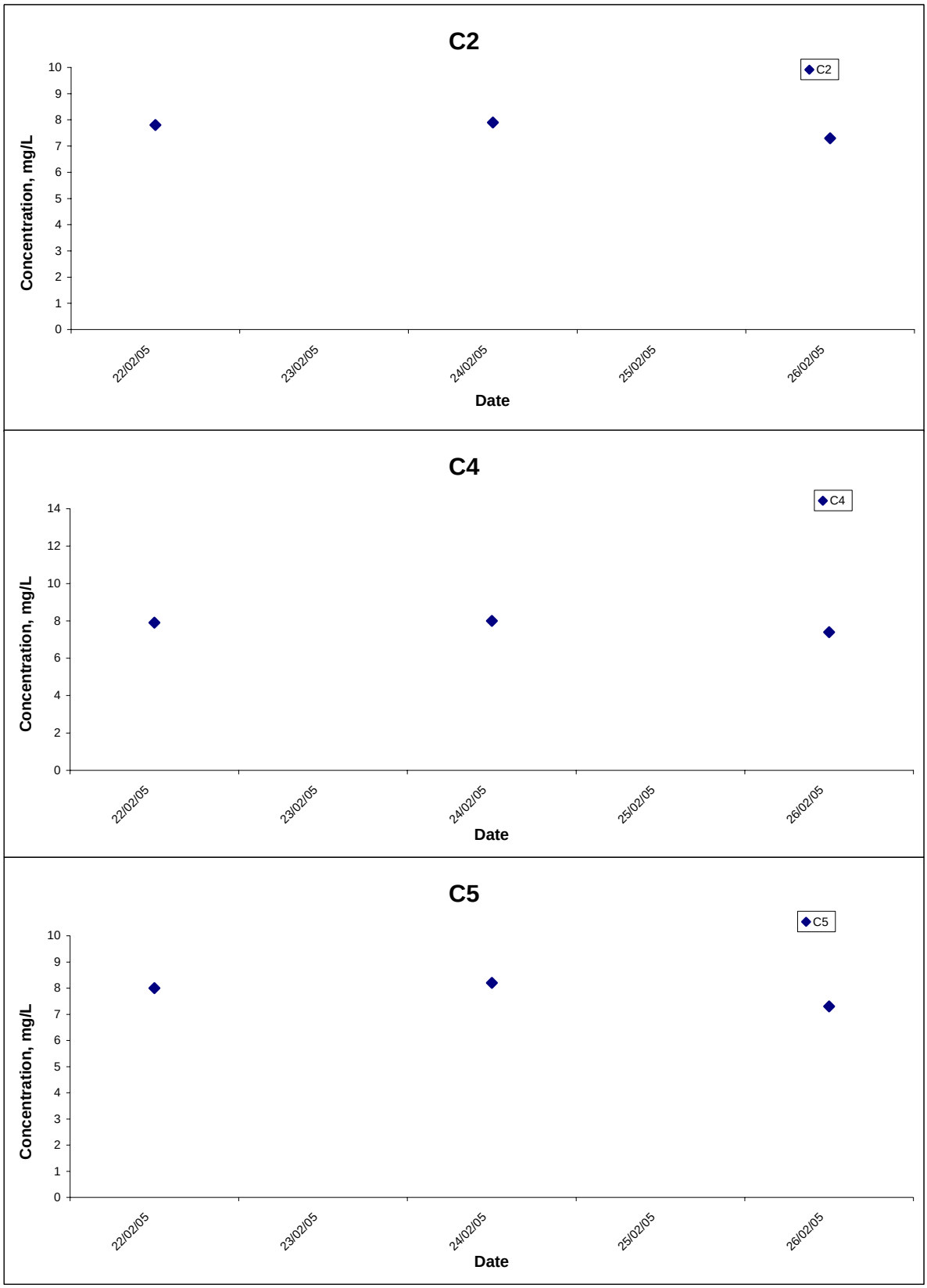
Dissolved Oxygen (Surface & Middle) at Mid-Ebb Tide



Title	Lamma Power Station Extension – Supply and Installation of Submarine Gas Pipeline	Scale	N.T.S	Project No. MA4017
	Graphical Presentation of Water Quality Monitoring Results	Date	Feb 05	Appendix C

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



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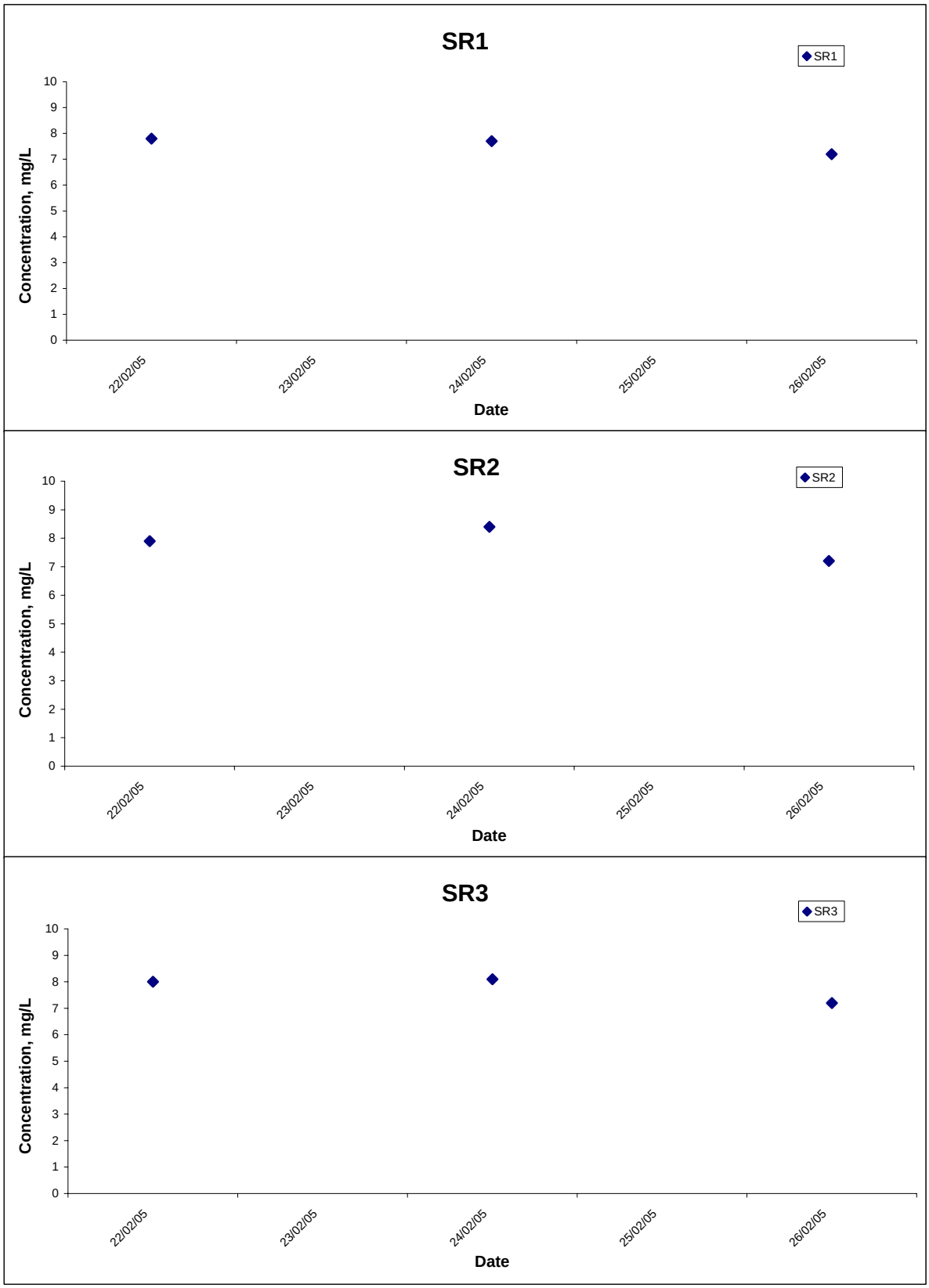
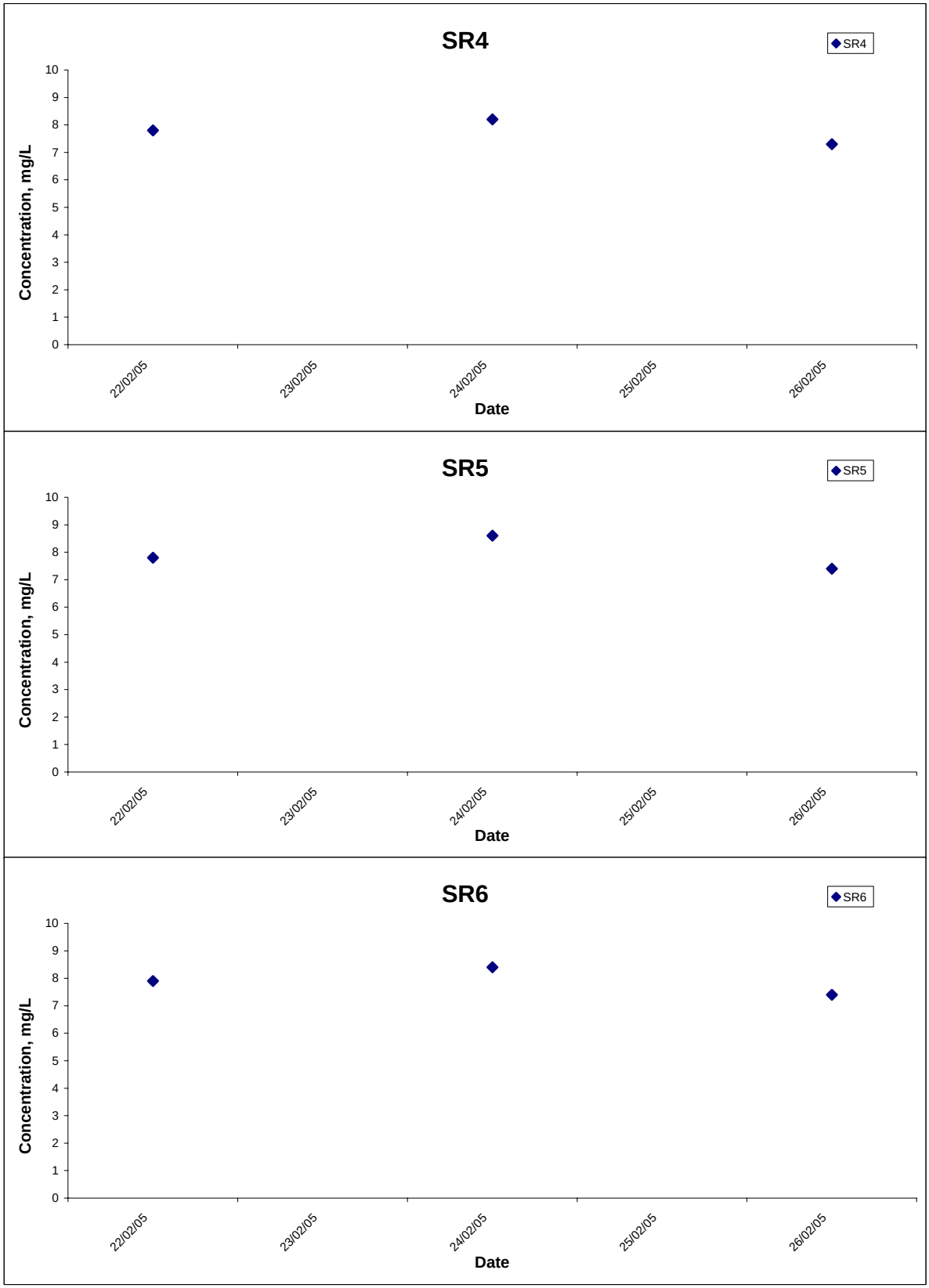
Dissolved Oxygen (Surface & Middle) at Mid-Flood Tide



Title: Lamma Power Station Extension – Supply and Installation of Submarine Gas Pipeline Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S Date: Feb 05	Project No.: MA4017 Appendix: C	CINOTECH

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



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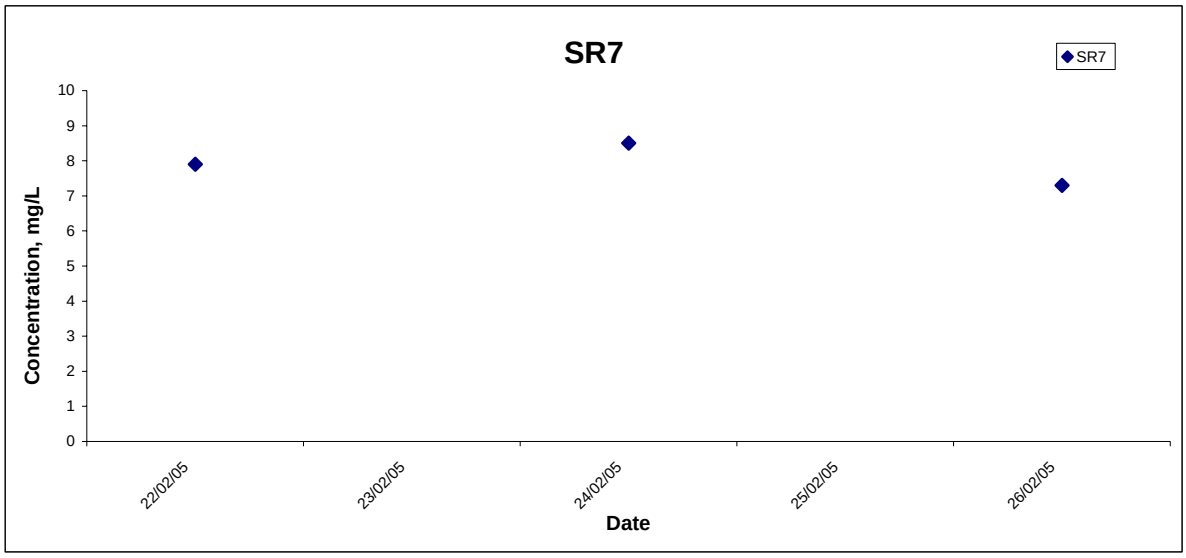
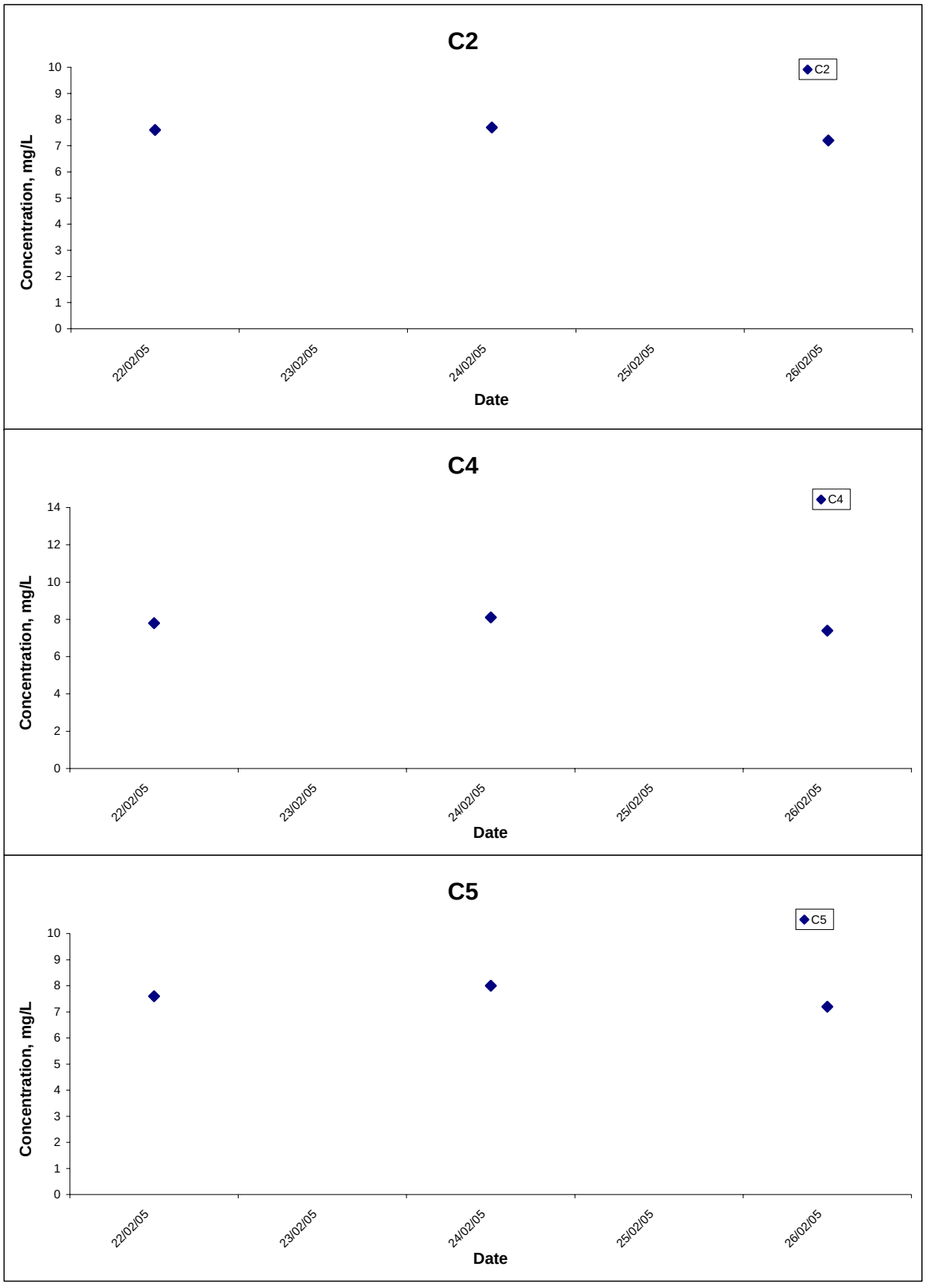
Dissolved Oxygen (Surface & Middle) at Mid-Flood Tide



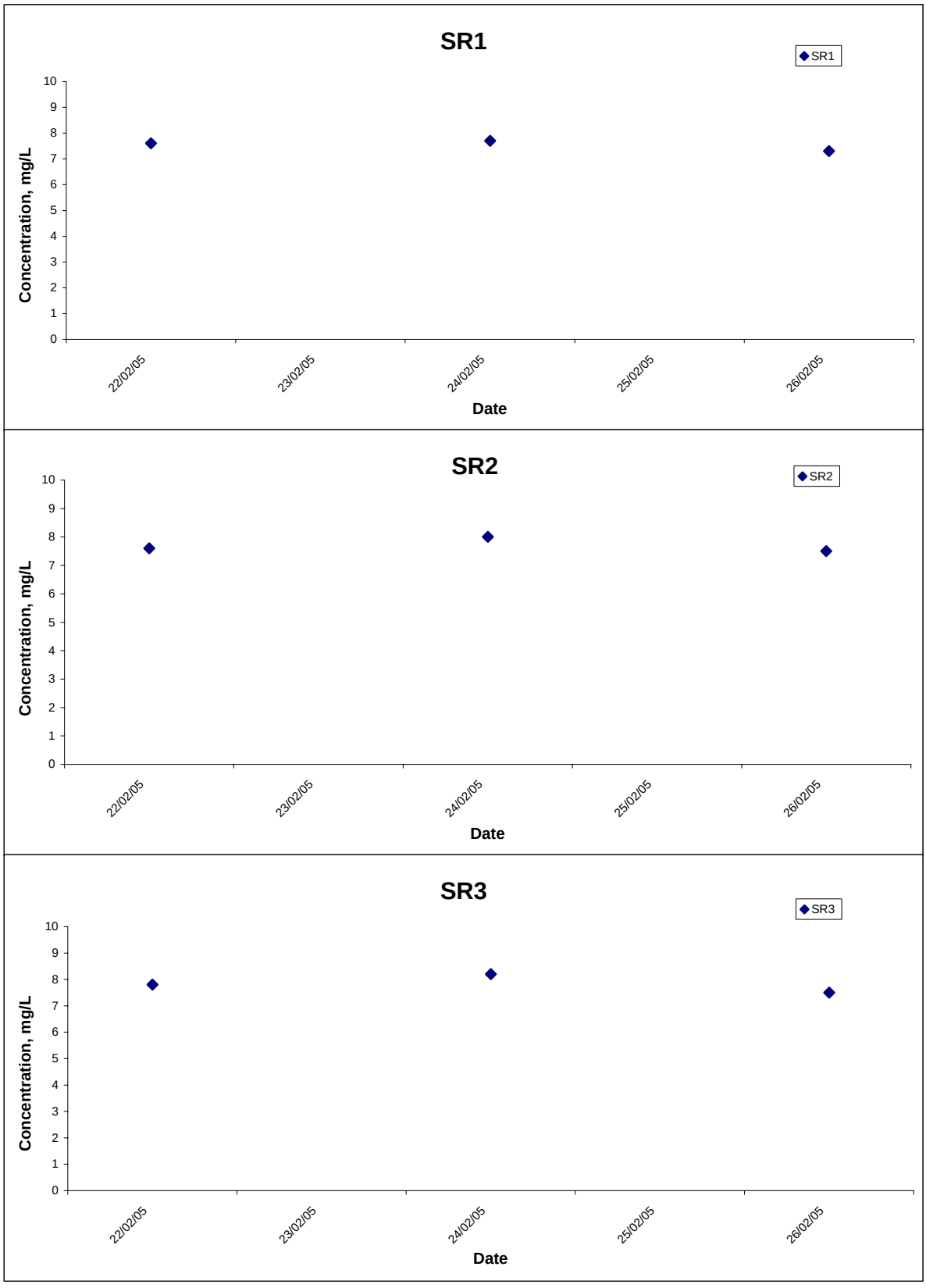
Title	Lamma Power Station Extension – Supply and Installation of Submarine Gas Pipeline	Scale	N.T.S	Project No. MA4017
	Graphical Presentation of Water Quality Monitoring Results	Date	Feb 05	Appendix C

Dissolved Oxygen (Bottom) at Mid-Ebb Tide



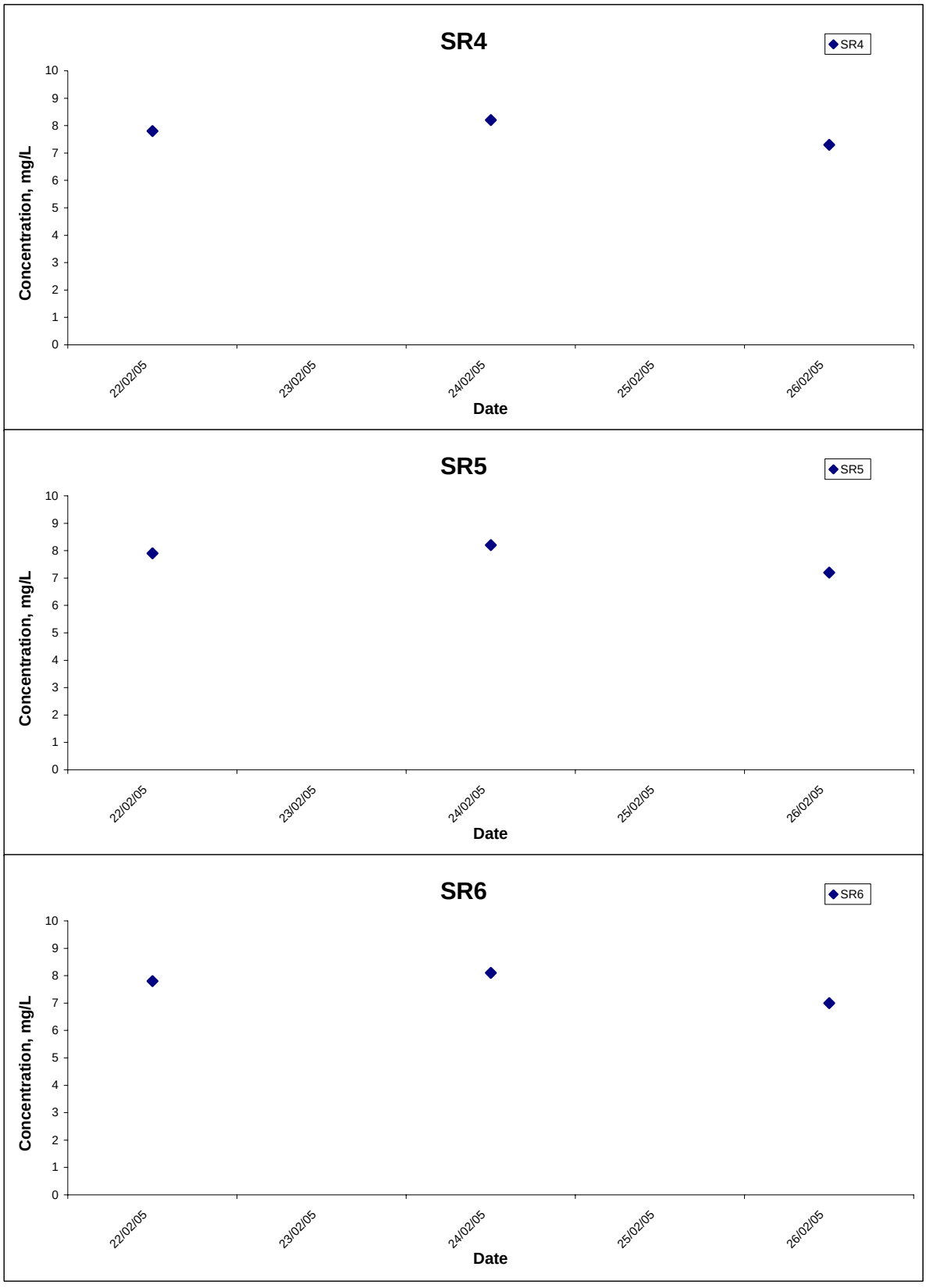
Title	Lamma Power Station Extension – Supply and Installation of Submarine Gas Pipeline Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S Date: Feb 05	Project No.: MA4017 Appendix: C	CINOTECH

Dissolved Oxygen (Bottom) at Mid-Ebb Tide



Title: Lamma Power Station Extension – Supply and Installation of Submarine Gas Pipeline Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S Date: Feb 05	Project No.: MA4017 Appendix: C	CINOTECH

Dissolved Oxygen (Bottom) at Mid-Ebb Tide



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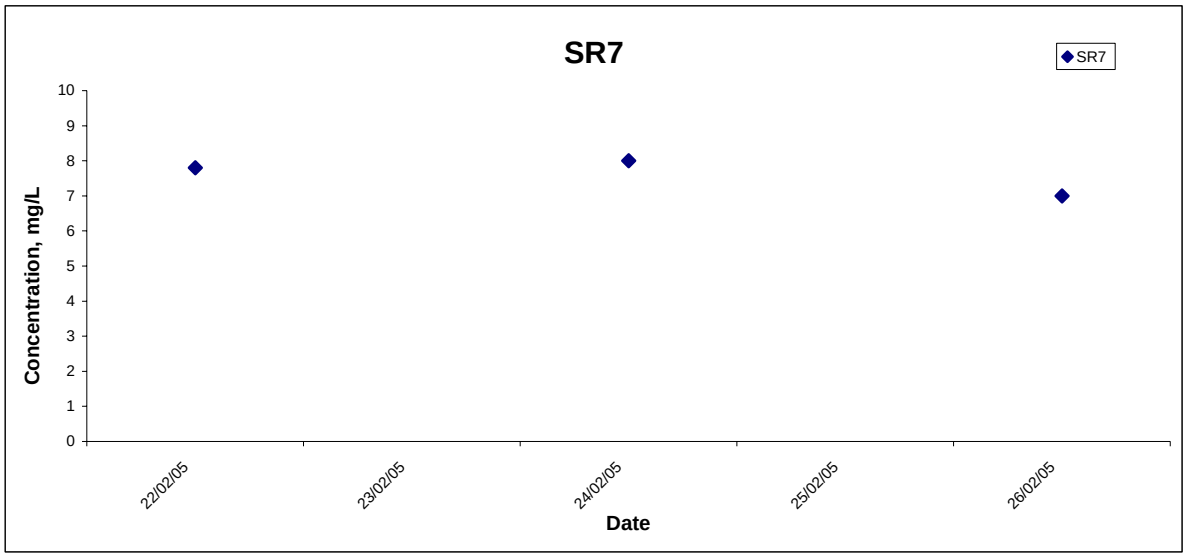
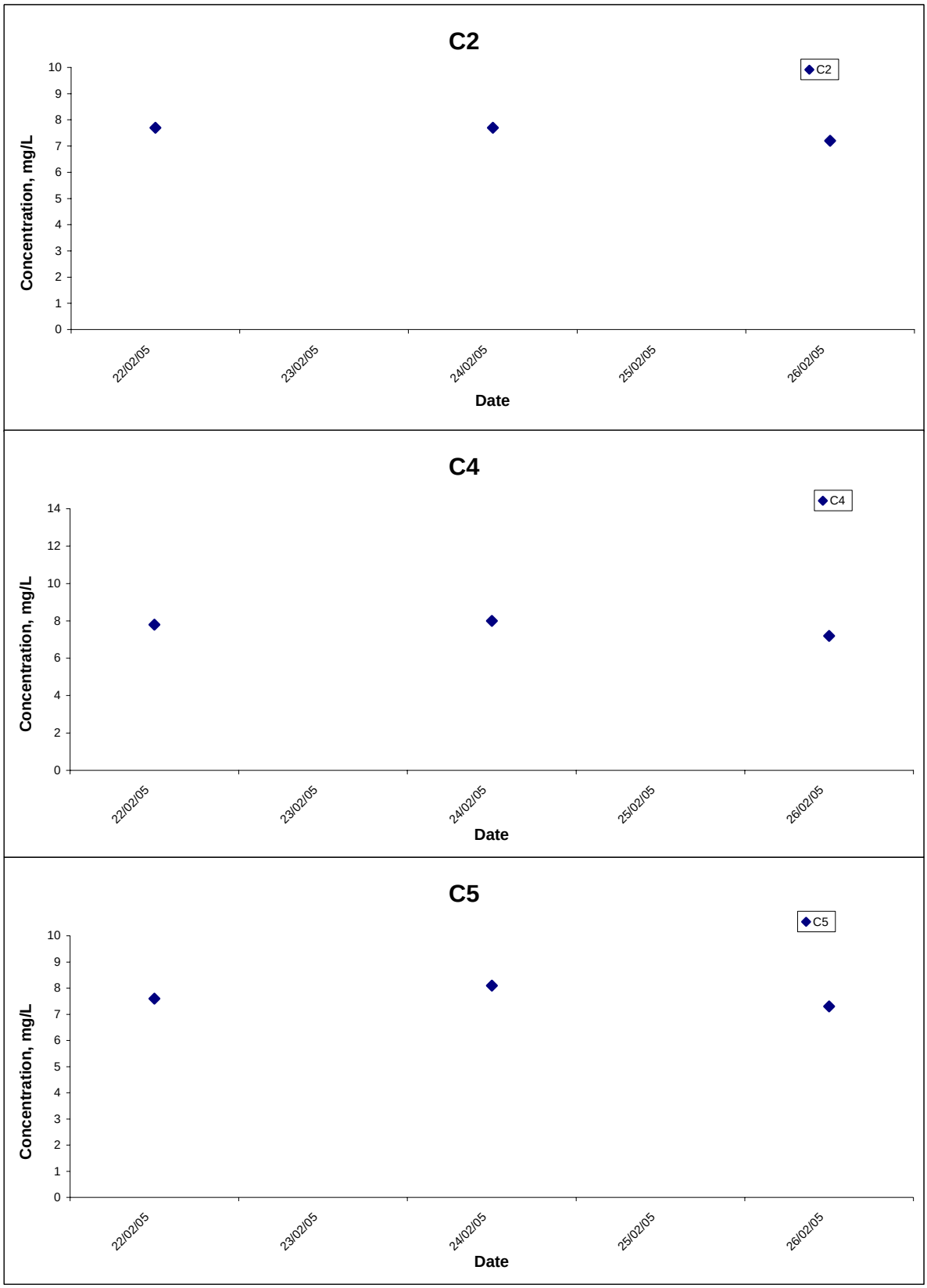
Dissolved Oxygen (Bottom) at Mid-Ebb Tide



Title	Lamma Power Station Extension – Supply and Installation of Submarine Gas Pipeline Graphical Presentation of Water Quality Monitoring Results	Scale N.T.S	Project No. MA4017	CINOTECH
		Date Feb 05	Appendix C	

Dissolved Oxygen (Bottom) at Mid-Flood Tide



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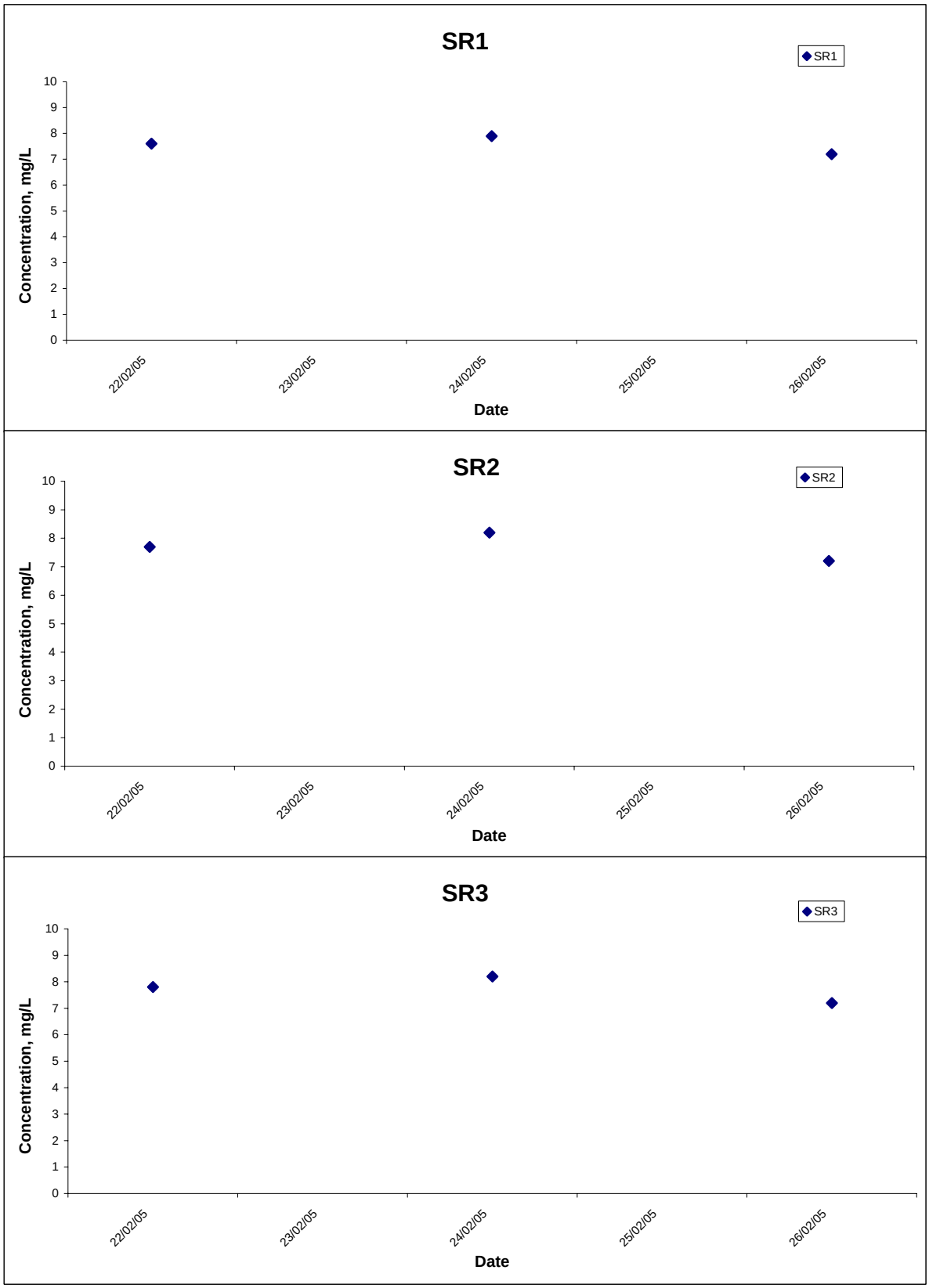

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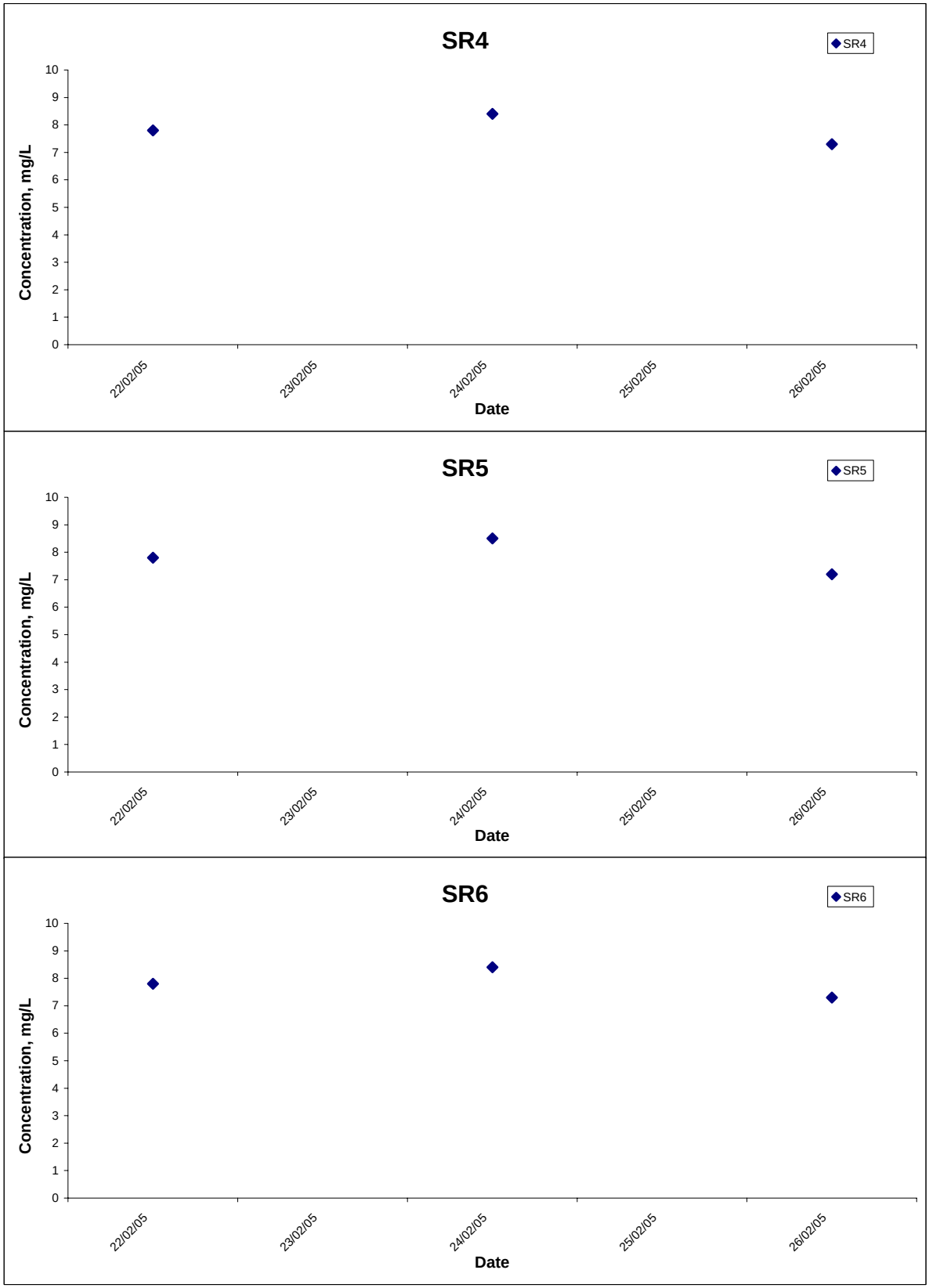

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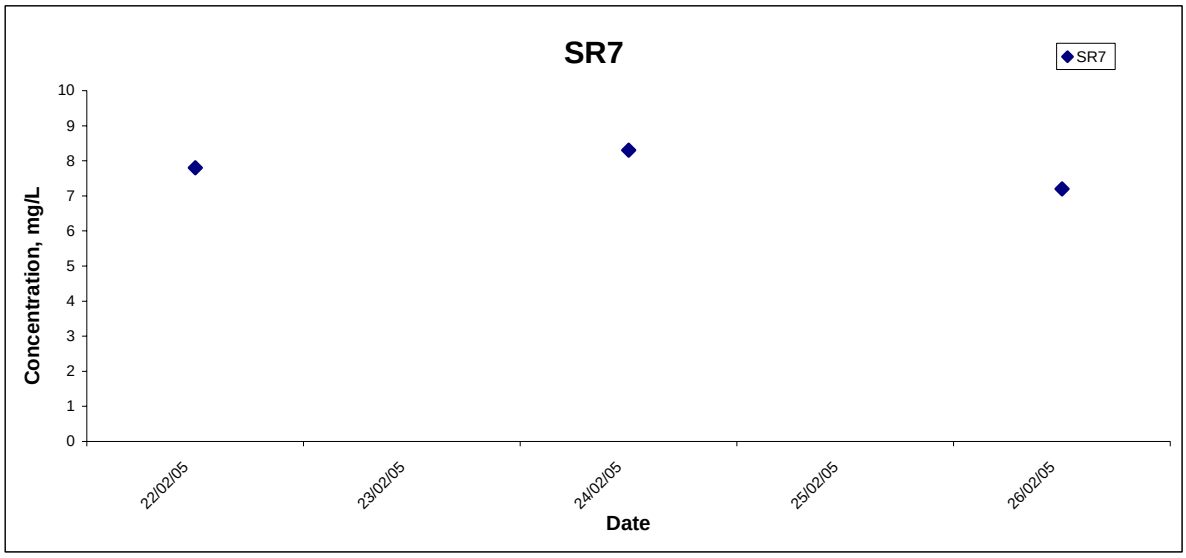
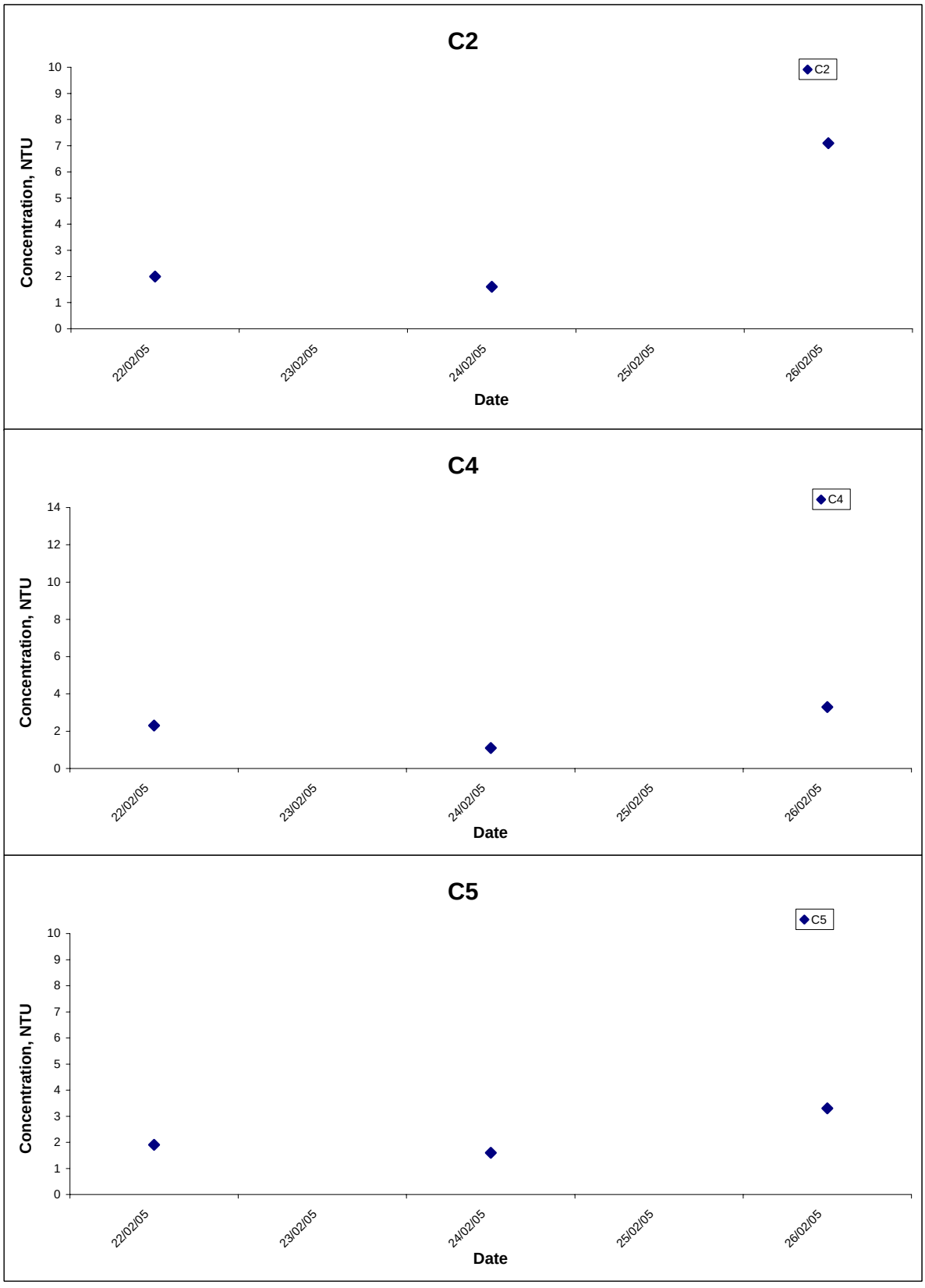
Dissolved Oxygen (Bottom) at Mid-Flood Tide



Title	Lamma Power Station Extension – Supply and Installation of Submarine Gas Pipeline	Scale	N.T.S	Project No. MA4017
	Graphical Presentation of Water Quality Monitoring Results	Date	Feb 05	Appendix C

Turbidity at Mid-Ebb Tide



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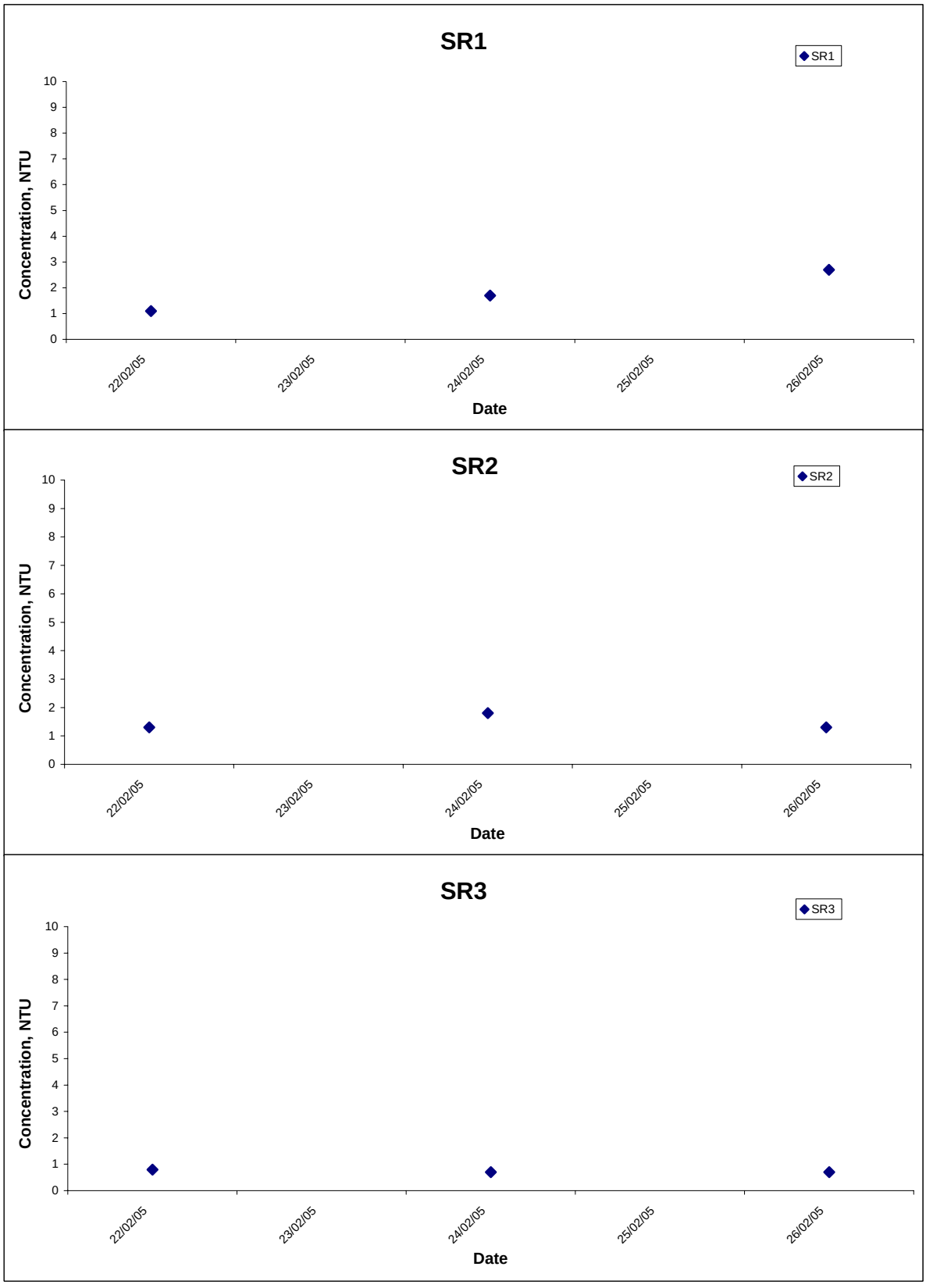
	Graphical Presentation of Water Quality Monitoring Results	Date	Feb 05	Appendix C

CINOTECH

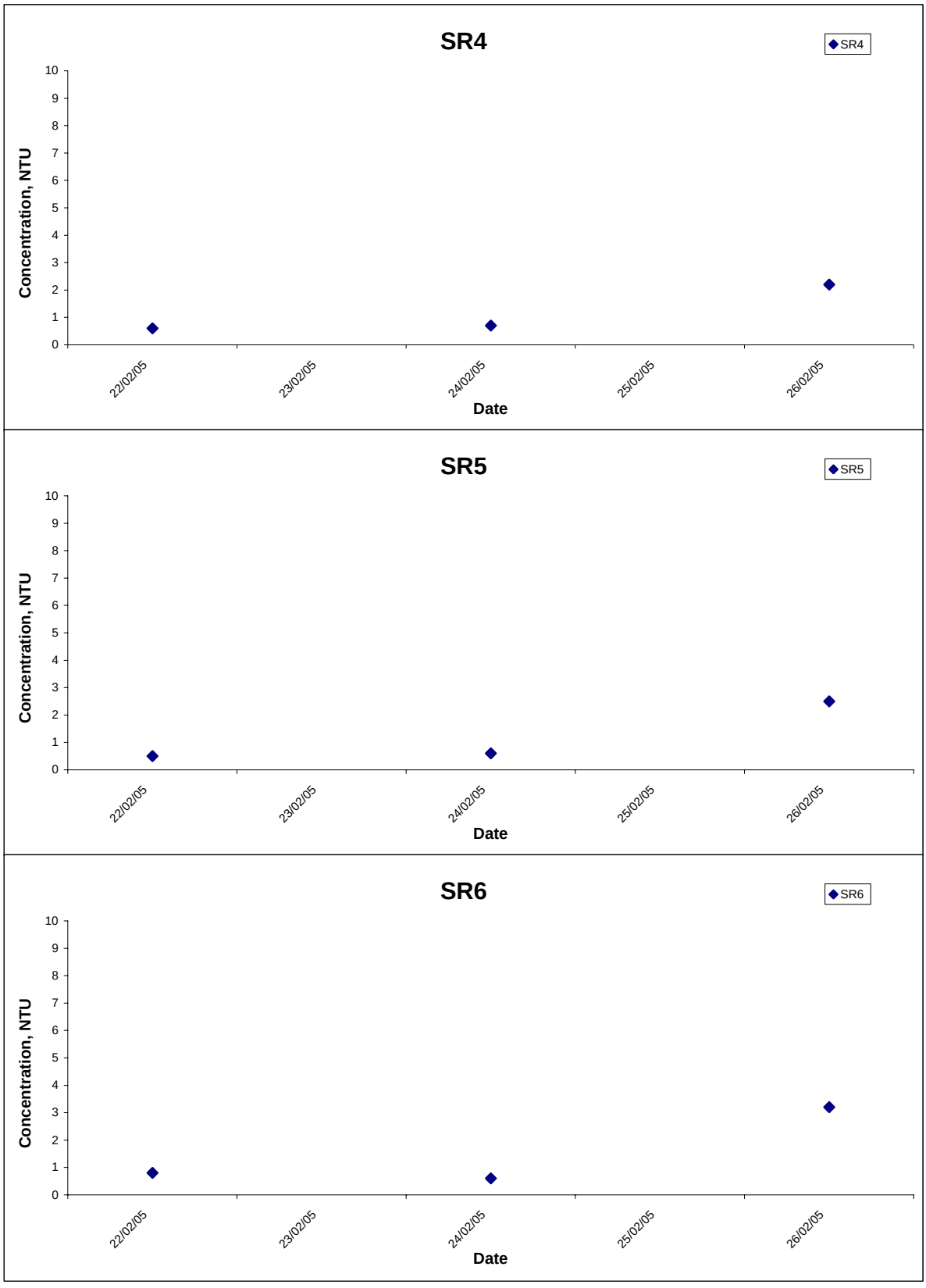
Turbidity at Mid-Ebb Tide



Title	Lamma Power Station Extension – Supply and Installation of Submarine Gas Pipeline	Scale	N.T.S	Project No. MA4017
	Graphical Presentation of Water Quality Monitoring Results	Date	Feb 05	Appendix C

CINOTECH

Turbidity at Mid-Ebb Tide



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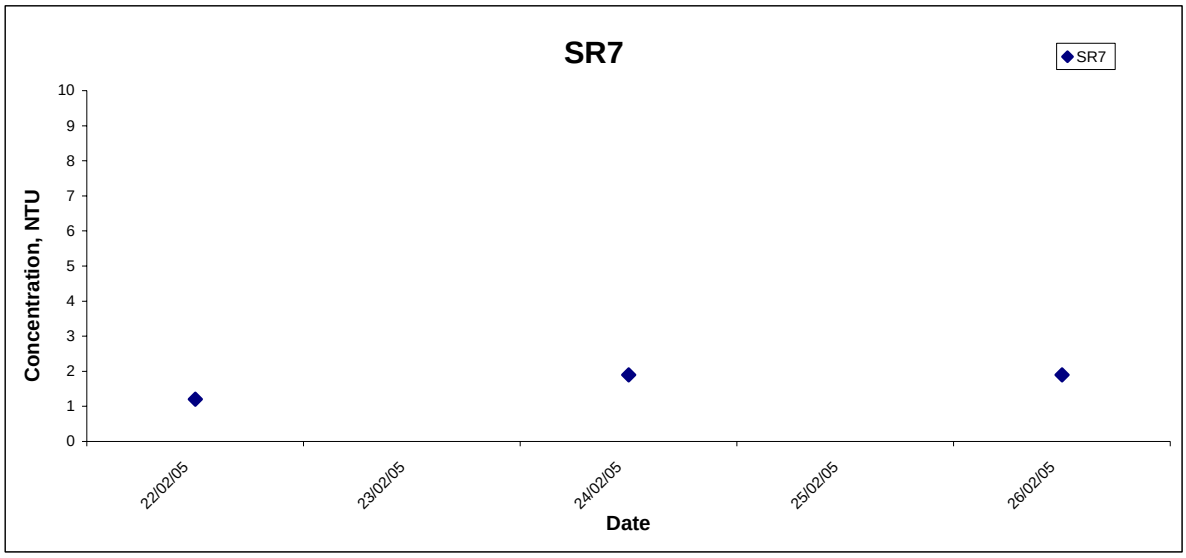

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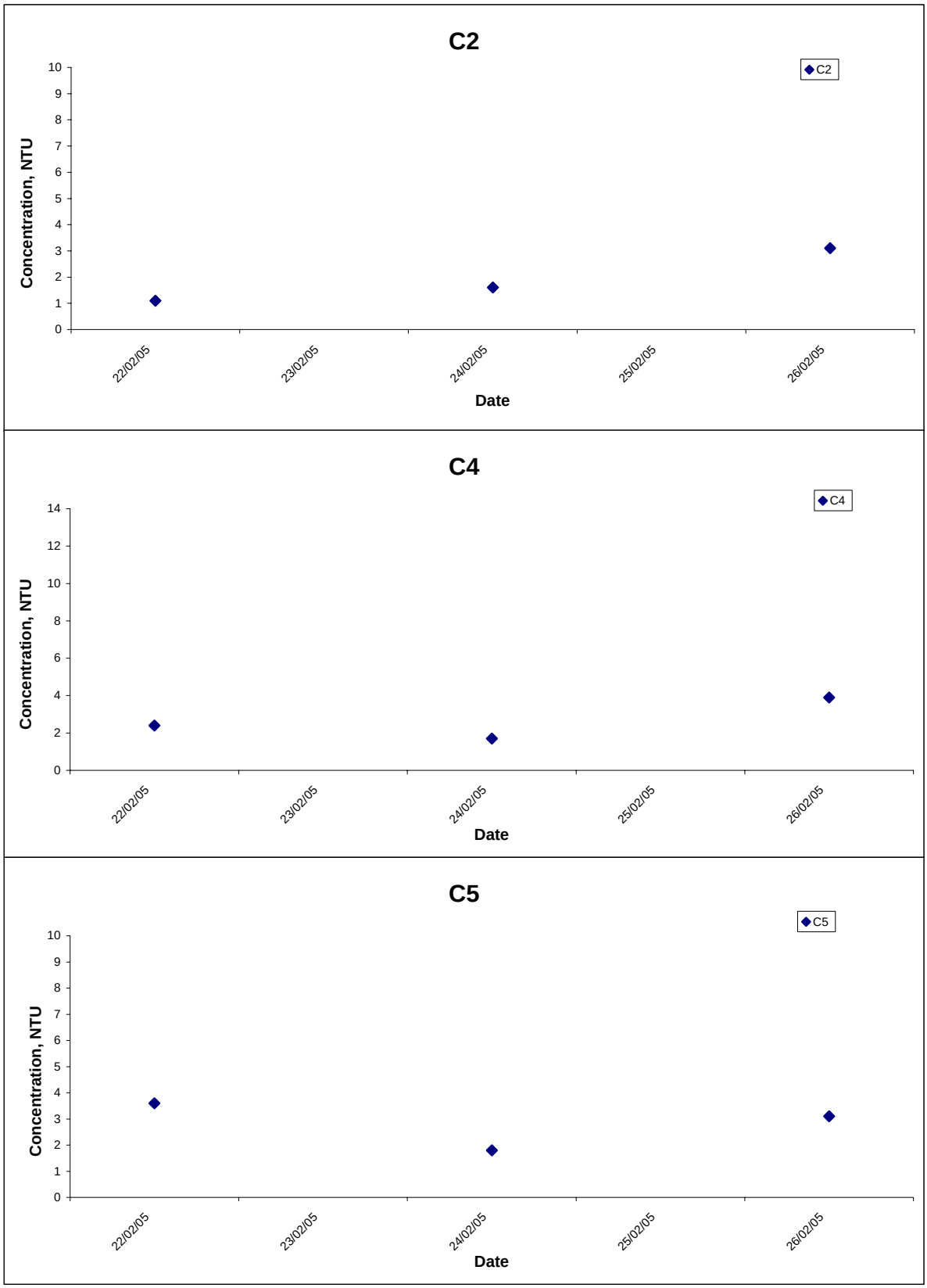
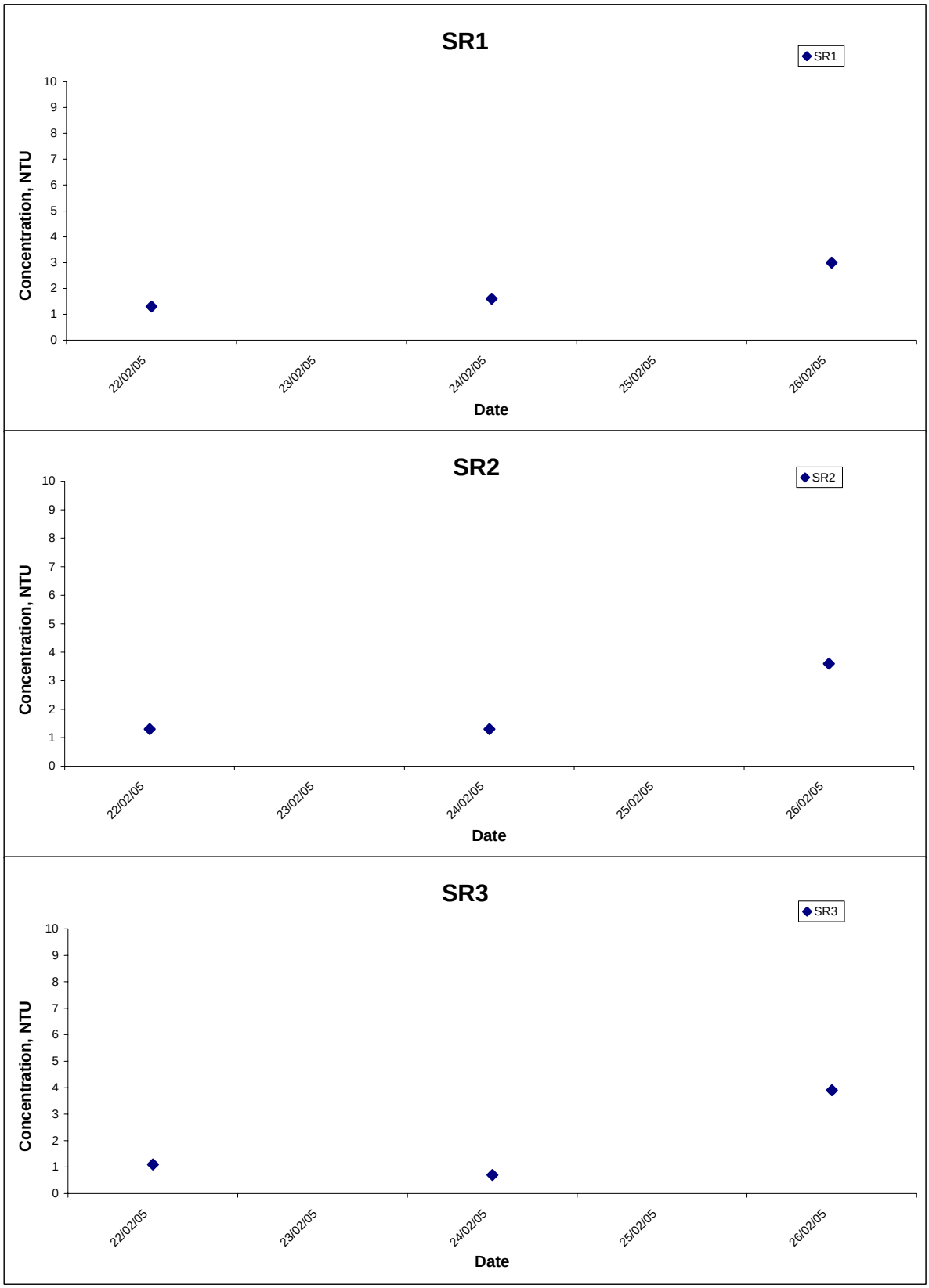
	Graphical Presentation of Water Quality Monitoring Results	Date	Feb 05	Appendix C

Turbidity at Mid-Flood Tide



Title	Lamma Power Station Extension – Supply and Installation of Submarine Gas Pipeline Graphical Presentation of Water Quality Monitoring Results	Scale: N.T.S	Project No.: MA4017	CINOTECH
		Date: Feb 05	Appendix: C	

Turbidity at Mid-Flood Tide



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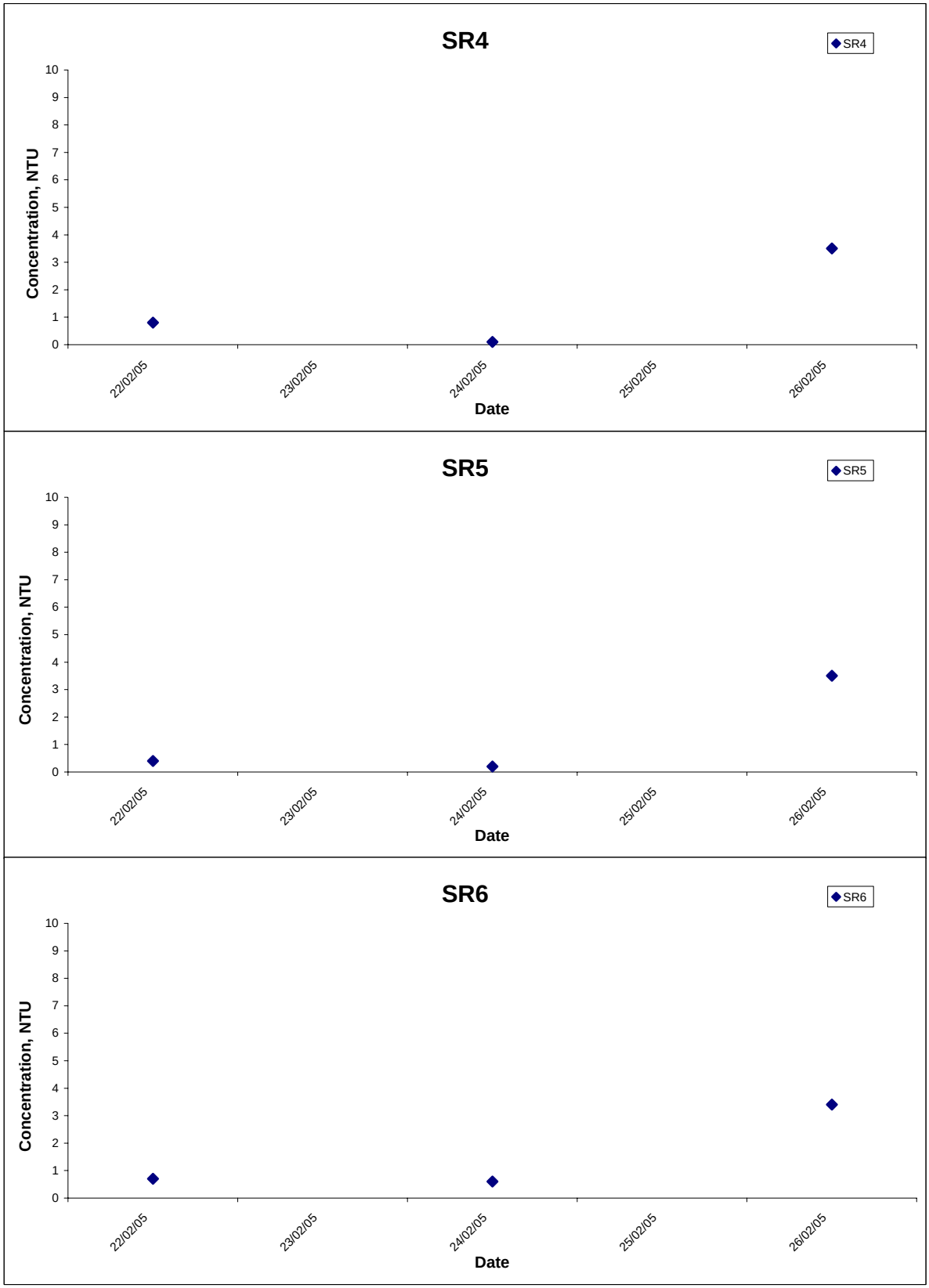

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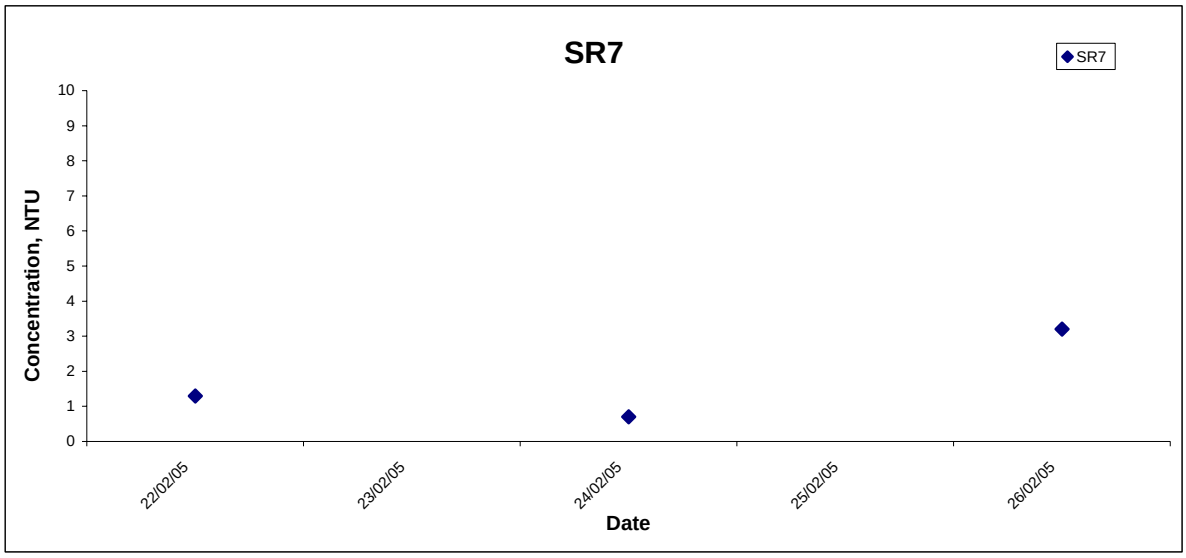
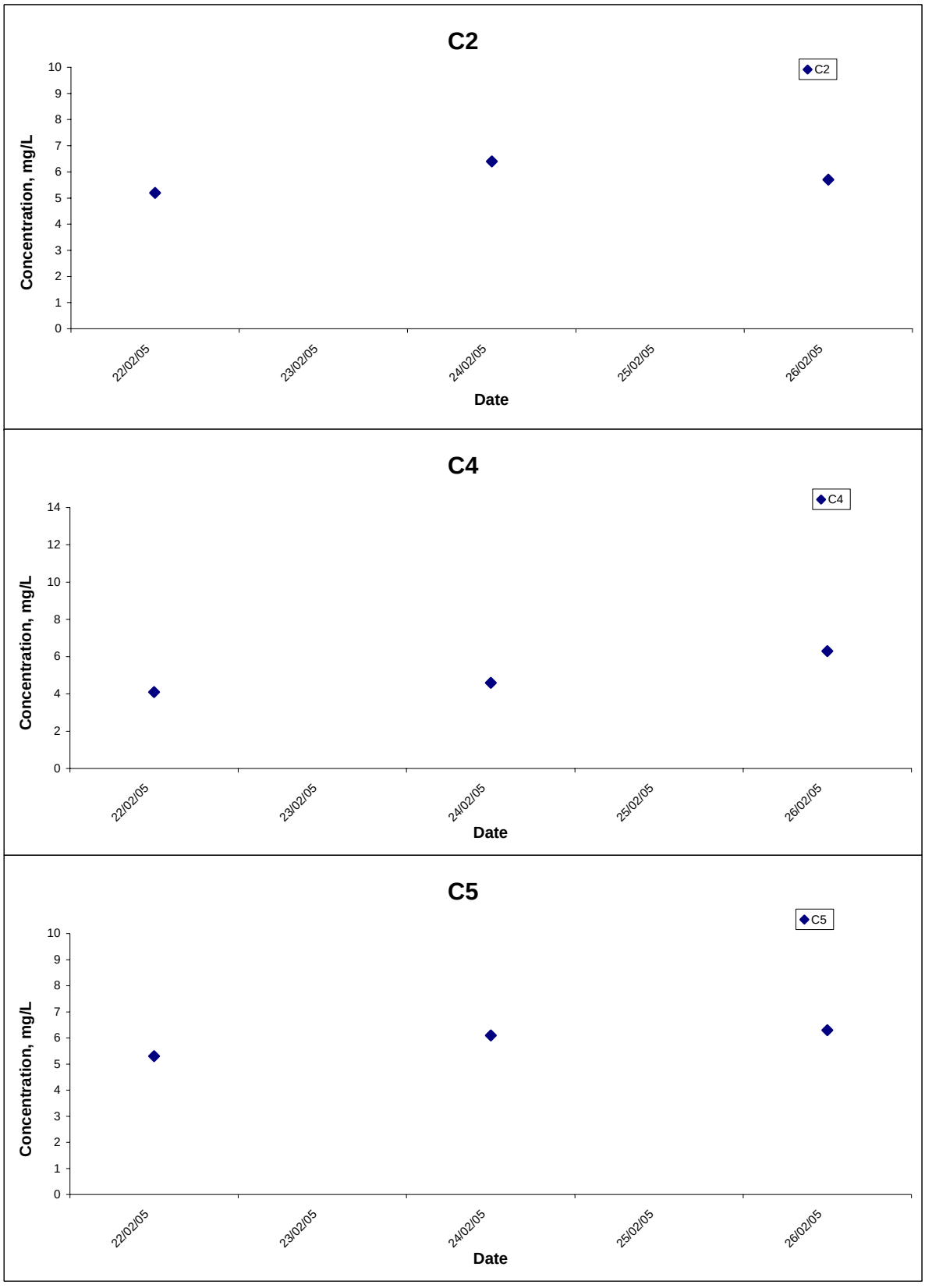
Turbidity at Mid-Flood Tide



Title	Lamma Power Station Extension – Supply and Installation of Submarine Gas Pipeline	Scale	N.T.S	Project No. MA4017
	Graphical Presentation of Water Quality Monitoring Results	Date	Feb 05	Appendix C

Suspended Solids at Mid-Ebb Tide



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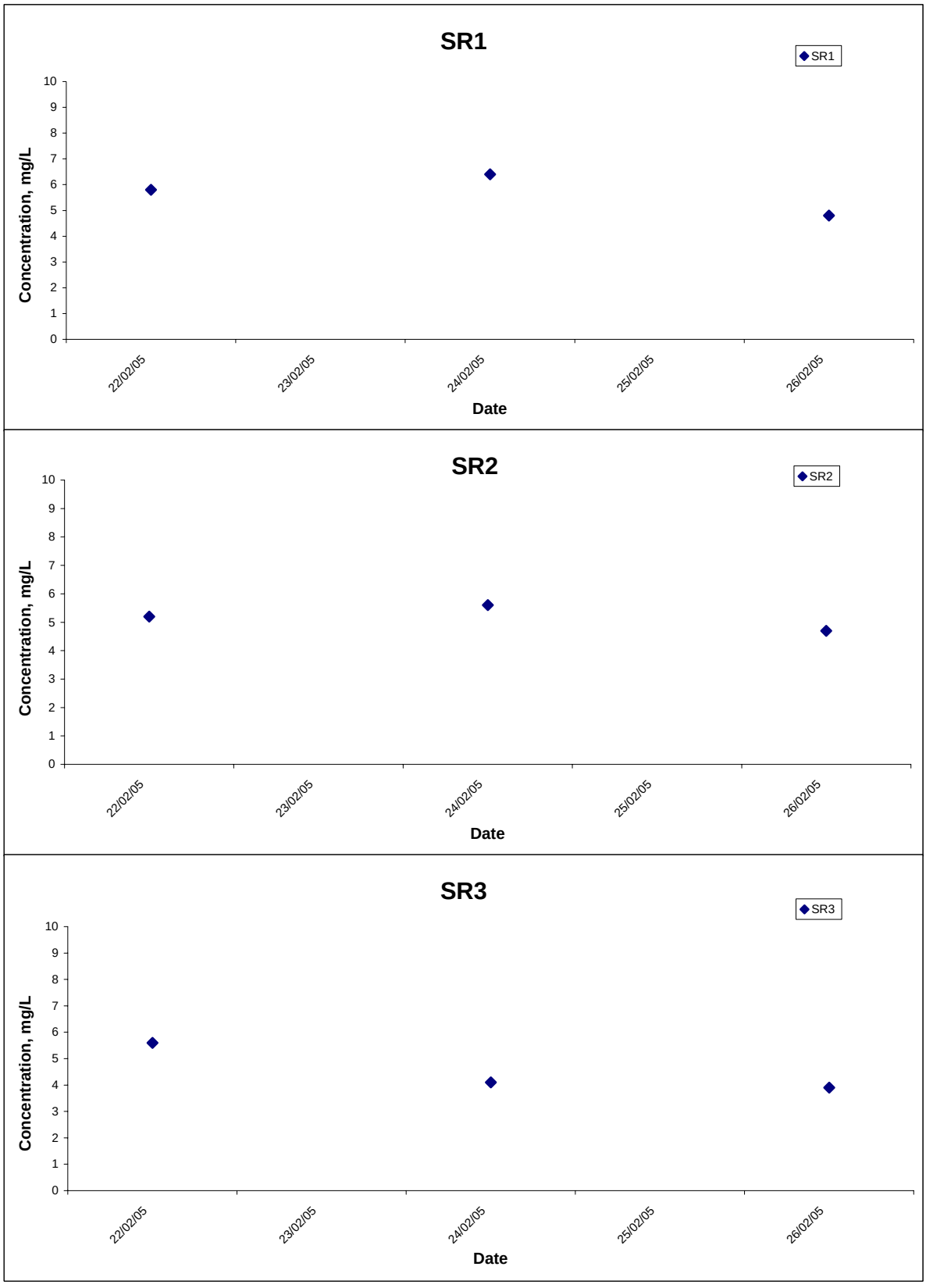
Suspended Solids at Mid-Ebb Tide



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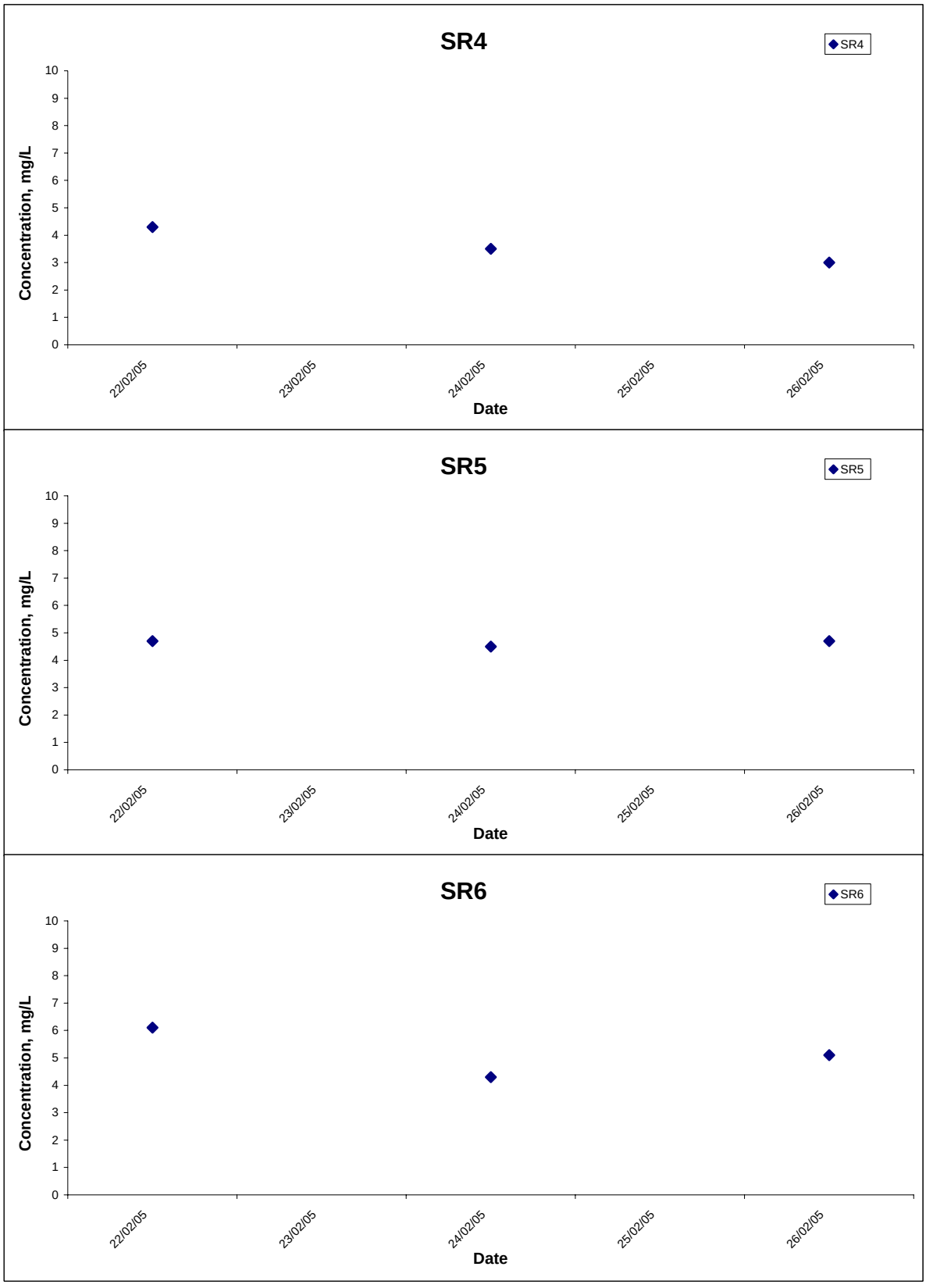

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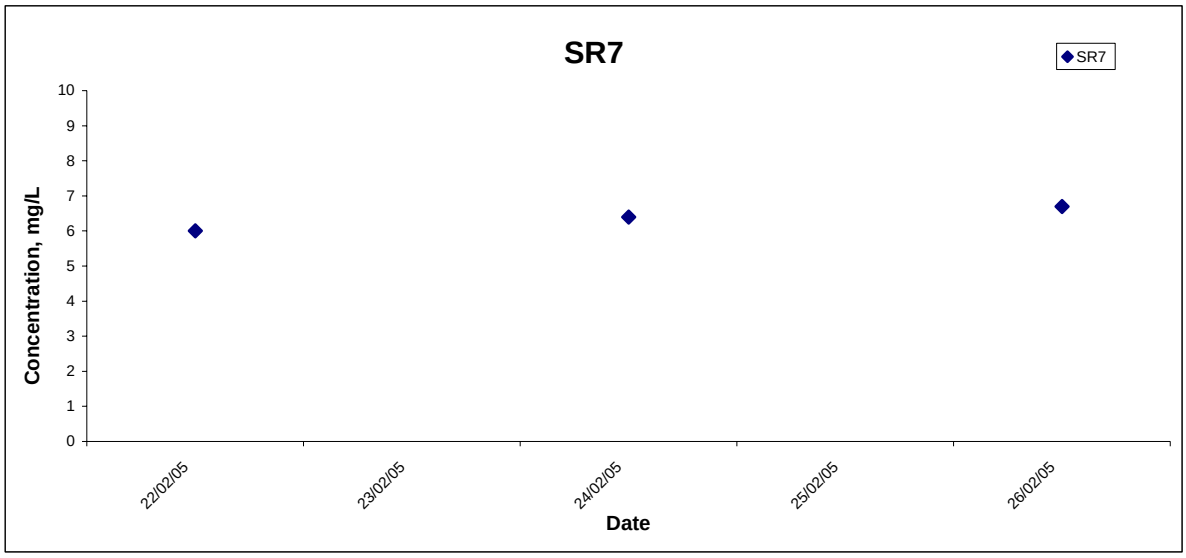
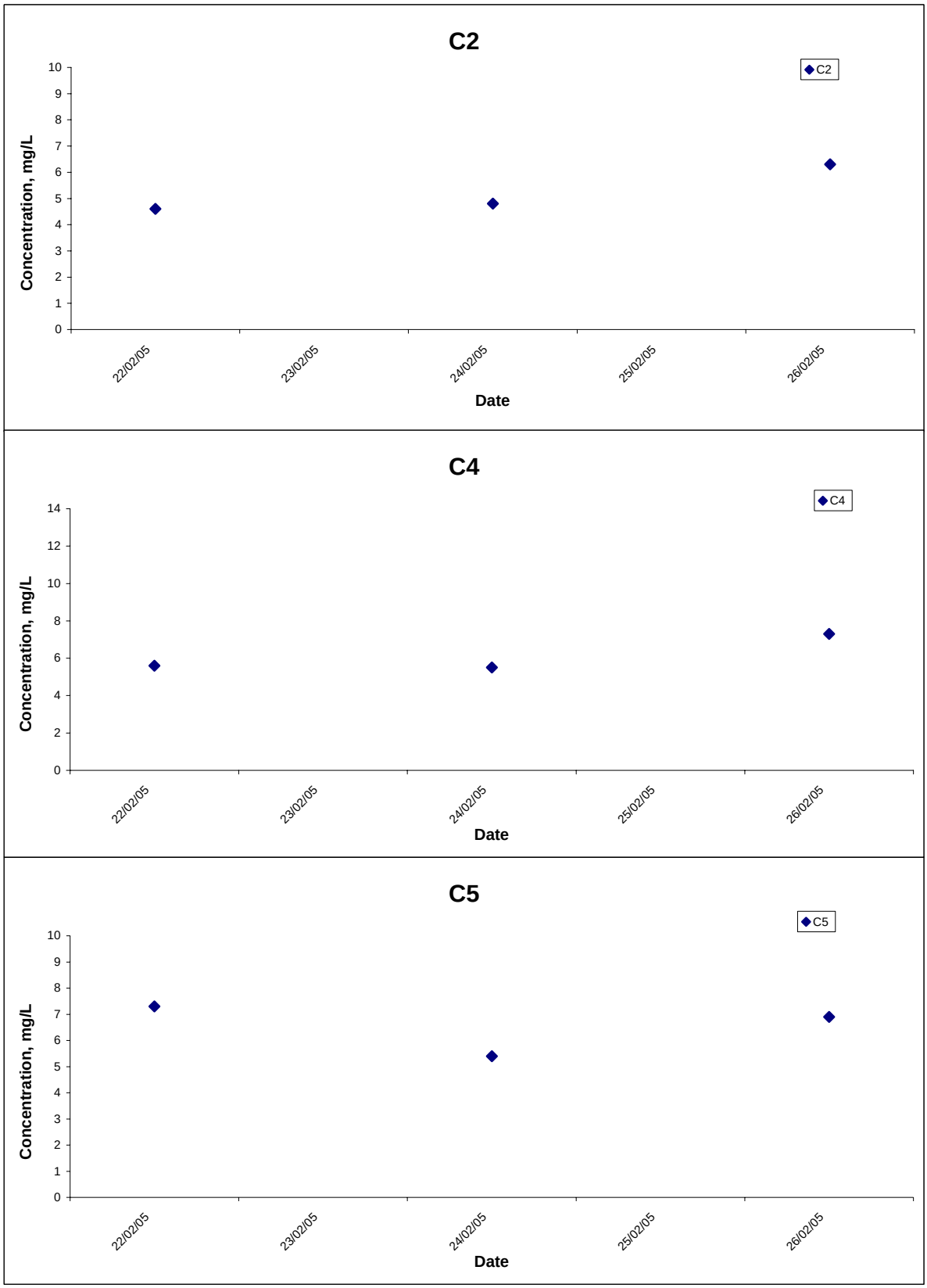


Title	Lamma Power Station Extension – Supply and Installation of Submarine Gas Pipeline	Scale	N.T.S	Project No. MA4017
	Graphical Presentation of Water Quality Monitoring Results	Date	Feb 05	Appendix C

Suspended Solids at Mid-Flood Tide



Title	Lamma Power Station Extension – Supply and Installation of Submarine Gas Pipeline	Scale	N.T.S	Project No. MA4017
	Graphical Presentation of Water Quality Monitoring Results	Date	Feb 05	Appendix C

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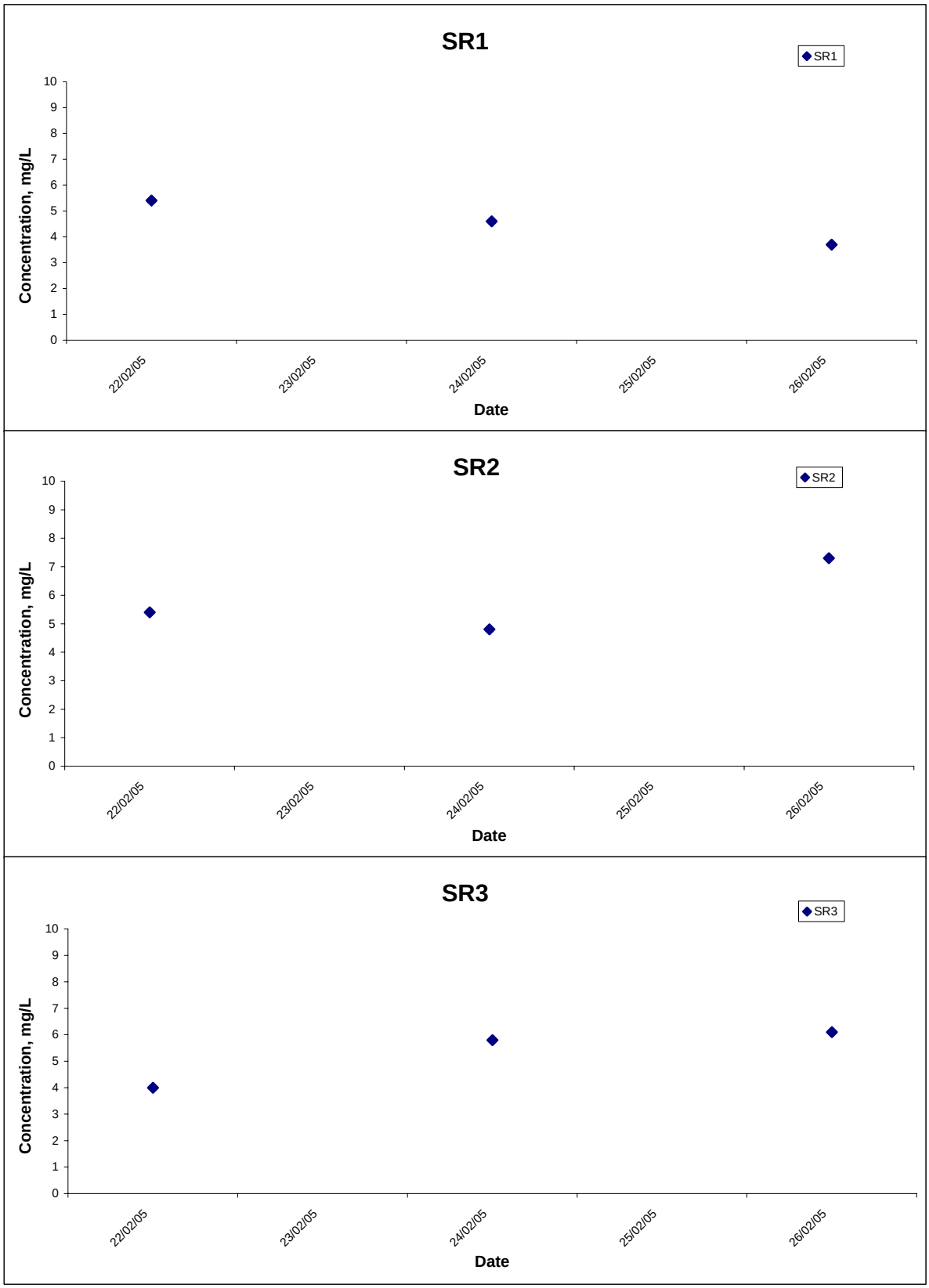
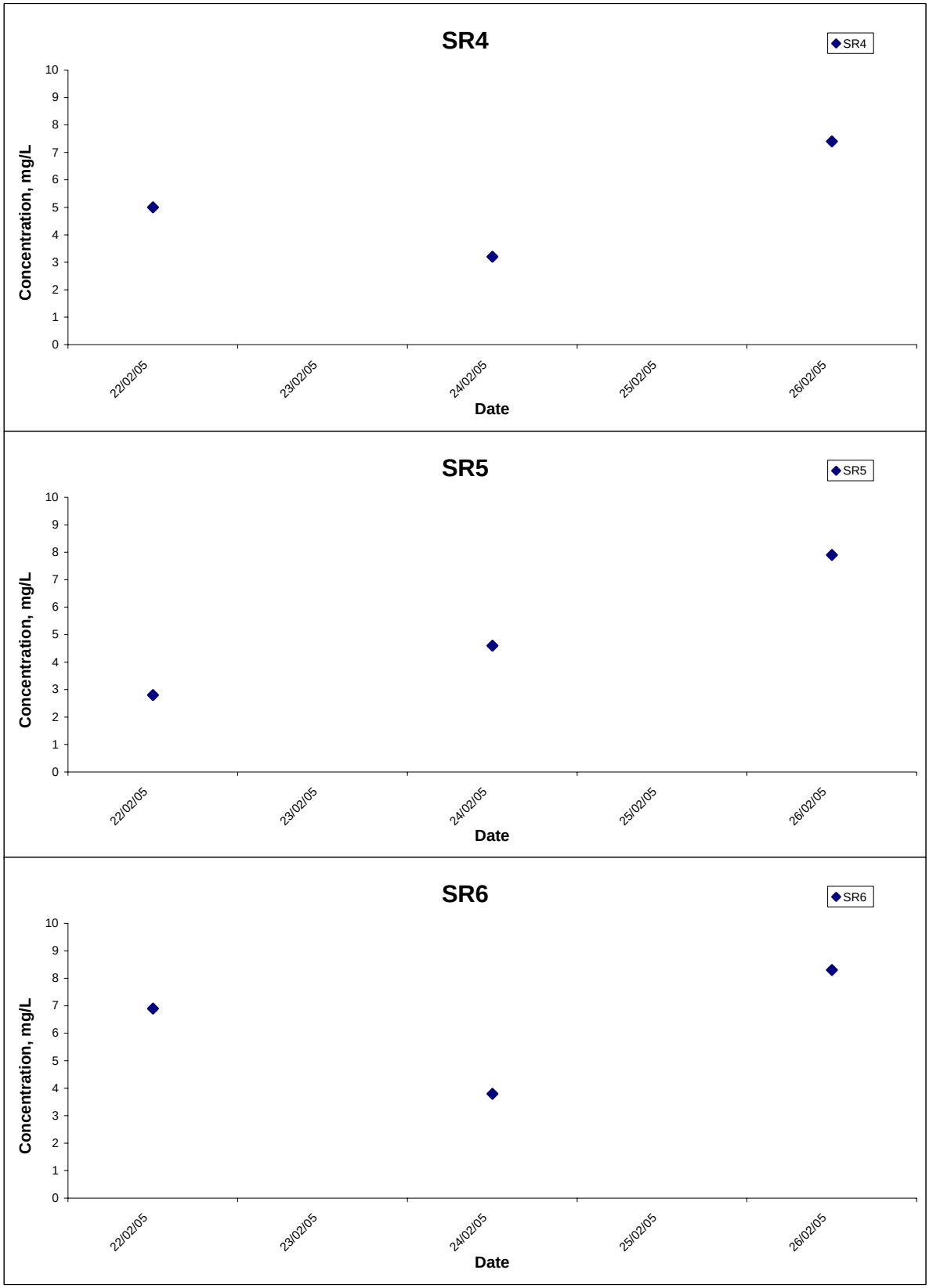
Suspended Solids at Mid-Flood Tide



Title	Lamma Power Station Extension – Supply and Installation of Submarine Gas Pipeline	Scale N.T.S	Project No. MA4017	CINOTECH
	Graphical Presentation of Water Quality Monitoring Results	Date Feb 05	Appendix C	

Suspended Solids at Mid-Flood Tide



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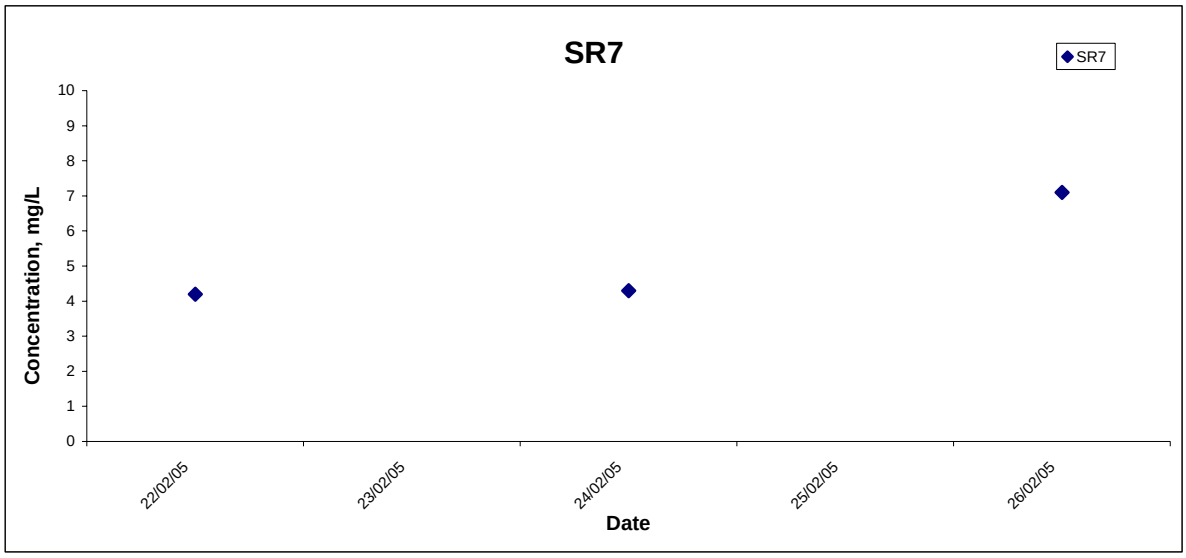
Suspended Solids at Mid-Flood Tide



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		Date Feb 05	Appendix C	

APPENDIX D
EVENT ACTION PLAN FOR WATER QUALITY

Appendix D – Event and Action Plan for Water Quality

EVENT	ACTION		
	ET-Cinotech	**CONTRACTOR**	**ENGINEER**
Monitoring results being exceeded in the first stage monitoring	1. Verbally inform the Contractor and Engineer; 2. Identify source(s) of impact; 3. Check monitoring data, all plant, equipment and Contractor's working methods; 4. Discuss mitigation measures with Engineer and Contractor if the exceedance(s) are valid; 5. Continue the full-scale monitoring until no further exceedance is recorded	1. Inform the Engineer and confirm notification of the exceedance in writing if the exceedance(s) are valid; 2. Rectify unacceptable practice; 3. Check all plant and equipment; 4. Consider changes of working methods; 5. Propose and discuss mitigation measures with Engineer; 6. Implement the agreed mitigation measures.	1. Discuss with Contractor the proposed mitigation measures if the exceedance(s) are valid; 2. Make agreement on the mitigation measures to be implemented; 3. Assess the effectiveness of the implemented mitigation measures.
Monitoring results being exceeded in the second stage monitoring	1. Identify source(s) of impact; 2. Inform contractor and Engineer; 3. Check monitoring data, all plant, equipment and Contractor's working methods; 4. Discuss mitigation measures with Engineer and Contractor if the exceedance(s) are valid; 5. Ensure mitigation measures are implemented; 6. Continue the weekly monitoring until no further exceedance is recorded	1. Inform the Engineer and confirm notification of the non-compliance in writing if the exceedance(s) are valid; 2. Rectify unacceptable practice; 3. Check all plant and equipment and 4. Consider changes of working methods; 5. Propose mitigation measures to Engineer within 3 working days and discuss with ET-Cinotech and Engineer; 6. Implement the agreed mitigation measures.	1. Discuss with Contractor on the proposed mitigation measures if the exceedance(s) are valid; 2. Make agreement on the mitigation measures to be implemented; 3. Assess the effectiveness of the implemented mitigation measures.

APPENDIX E
MONITORING SCEDULE

Lamma Power Station Extension Supply and Installation of Submarine Gas Pipeline
Tentative Water Quality Monitoring Schedule at Lamma during Dredging

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
06-Feb	07-Feb	08-Feb	09-Feb	10-Feb	11-Feb	12-Feb
13-Feb	14-Feb	15-Feb	16-Feb	17-Feb	18-Feb	19-Feb
20-Feb	21-Feb	22-Feb	23-Feb	24-Feb	25-Feb	26-Feb
		Mid-Ebb 12:02 Mid-Flood 17:00		Mid-Ebb 12:53 Mid-Flood 18:23		Mid-Flood 8:02 Mid-Ebb 13:44
27-Feb	28-Feb	01-Mar	02-Mar	03-Mar	04-Mar	05-Mar
		Mid-Flood 9:09 Mid-Ebb 15:22		Mid-Flood 10:01 Mid-Ebb 17:11		Mid-Ebb N/A* Mid-Flood 7:49
06-Mar	07-Mar	08-Mar	09-Mar	10-Mar	11-Mar	12-Mar
		Mid-Ebb 11:35 Mid-Flood 16:33				
13-Mar	14-Mar	15-Mar	16-Mar	17-Mar	18-Mar	19-Mar
		Mid-Flood 9:02 Mid-Ebb 15:38				

* No Ebb tide on 5 March 2005

The schedule may be changed due to unforeseen circumstances (adverse weather, etc)

APPENDIX F
CONSTRUCTION PHASE MITIGATION MEASURES AND THEIR IMPLEMENTATION (GAS PIPELINE)

Appendix F – Construction Phase Mitigation Measures and their Implementation (Gas Pipeline)

EM&A Log Ref.	Mitigation Measures	Implementation Status
	AIR QUALITY	
Q1	For the fuel gas supply system, equipment shall be chosen and measures taken, so as to prevent CH_4 leakage from the system. In accordance with this recommendation, HEC shall be implementing the following:	
	• corrosion-preventing coatings on the pipeline;	C
	• welded pipe joints; and	C
	• laying of pipeline below sea bed such that it is well protected from potential damages by marine activities.	C
Q2	HEC shall submit to EPD for review, a report of the above actions.	C
	WATER QUALITY	
R1	The following rates of dredging for the trenches at the Shenzhen and Lamma approaches and the rate of progress of the jetting shall be adopted:	
	• a single small grab dredger with a maximum daily rate of working of 2,400m^3	C
	• maximum forward speed of the jetting machine should be 1m per minute.	NA
R2	No further mitigation measures were considered necessary, however if unacceptable impacts were to be found in the course of the EM&A programme for the pipeline jetting, then the following measures shall be implemented:	
	• reducing the speed of the water jetting machine; and	NA
	• temporary suspension of the works.	NA
	MARINE ECOLOGICAL IMPACTS	
S1	It is recommended that to avoid disruption to the *Neophocaena phocaenoides* population in the southwestern coastal waters of Lamma Island that works associated with the pipeline jetting do not occur during Spring off the coast of southwest Lamma.	NA
	HAZARDS	
T1	Detail quantitative risk study shall be conducted in accordance with the requirements in the Gas Safety Ordinance (Cap.51) to satisfy EMSD's requirements which shall ensure adequate design of the pipeline to protect against third party damage and safe operation of the pipeline system.	C
T2	HEC shall review their existing safety management system against current best practice.	C

Remarks:
C - Compliance with mitigation measure
NC - Non-compliance with mitigation measure
N/A - Not Applicable