

The Hongkong Electric Co Ltd
香港電燈有限公司



ENVIRONMENTAL IMPACT ASSESSMENT (EIA) ORDINANCE, CAP. 499

ENVIRONMENTAL PERMIT NO. EP-071/2000/B

**LAMMA POWER STATION EXTENSION
ENVIRONMENTAL MONITORING & AUDIT PROGRAMME
AT CONSTRUCTION PHASE**

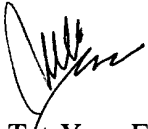

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EXECUTIVE SUMMARY

This is the forty-seventh monthly Environmental Monitoring and Audit (EM&A) report for the Project “Construction of Lamma Power Station Extension” prepared by the Environmental Team (ET). This report presents the results of impact monitoring on air quality and noise for the said project in February 2005.

After successful completion of post-project monitoring in September 2002, no further marine water quality monitoring for the reclamation works would be required.

Air and noise monitoring were performed. The results were checked against the established Action/Limit (AL) levels. An on-site audit was conducted once per week. The implementation status of the environmental mitigation measures, Event/Action Plan and environmental complaint handling procedures were also checked.

Construction Activities Undertaken

Construction activities for Lamma Extension during the reporting month are tabulated as follows:

Item	Construction Activities
Unit L9	Civil and building works for Main Station Building, 275kV Switching Station, Shunt Reactor, Chimney, Drainage, Waste & Water Reuse Basin, C.W. Culvert System, Gas Duct Foundation and Lamma Power Station Addition and Alteration (LPS A&A) Works and mechanical erection for Unit L9
Transmission System	Site formation work and tunnel excavation at the Lamma Power Station Cable Duct No.1, cable landing points N2, N4 & N5, installation of type 1& 2 retaining walls and slipways, filling of quarry spall and type 2 rockfill at N4 & N5 respectively
Gas Pipeline	Dredging work for submarine pipeline at Lamma Shore Approach
Miscellaneous	Slurry ash piping & filling and defects rectification for site formation

Environmental Monitoring Works

One (1) air quality environmental monitoring work was rescheduled as shown in the following table.

Monitoring work	Original Schedule	Makeup sampling	Reasons
1 hour TSP monitoring at AM3	18/02/2005	19/02/2005	Failure of TSP Sampler

Other than this, all monitoring work at designated stations was performed as scheduled satisfactorily.

Air Quality

No exceedance of Action/Limit levels on 1-hour TSP and 24-hour TSP for air quality was recorded in the month.Noise

Construction work for Lamma Extension was carried out during the restricted hours including evening-time, holidays and night-time under valid Construction Noise Permits. No exceedance of Action and Limit levels for noise arising from the construction of Lamma Extension and transmission system was recorded in the month.

Site Environmental Audit

Independent Environmental Checker (IEC) conducted a site inspection on 23/02/2005. The inspection result is attached in Appendix H.

Site audits were carried out on a weekly basis to monitor environmental issues on the construction site. The site conditions were generally satisfactory. All required mitigation measures were implemented.

As the dredging work for formation of underwater trenches for transmission system has partially been completed on 11/8/2004 and will be suspended until May 2005, there will be no site audit for the underwater trenches work during this period.

Environmental Licensing and Permitting

Description	Permit No.	Valid Period		Issued To	Date of Issuance
		From	To		
Varied Environmental Permit	EP-071/2000/B	13/07/01	-	HEC	13/07/01
Construction Noise Permit	GW-UW0353-04	03/08/04	02/02/05	Contractor	03/08/04
Construction Noise Permit	GW-RS0339-04	11/08/04	10/02/05	Contractor	11/08/04
Construction Noise Permit	GW-RS0446-04	05/10/04	04/04/05	Contractor	05/10/04
Construction Noise Permit	GW-RS0668-04	06/01/05	02/07/05	Contractor	06/01/05
Construction Noise Permit	GW-RS0669-04	06/01/05	02/07/05	Contractor	06/01/05
Construction Noise Permit	GW-RS0678-04	10/01/05	09/07/05	Contractor	07/01/05
Construction Noise Permit	GW-RS0679-04	10/01/05	09/07/05	Contractor	06/01/05
Construction Noise Permit	GW-RS0084-05	16/02/05	02/08/05	Contractor	16/02/05
Construction Noise Permit	GW-RS0097-05	21/02/05	09/08/05	Contractor	18/02/05
Dumping Permit	EP/MD/05-027	06/08/04	05/02/05	Contractor	05/08/04
Dumping Permit	EP/MD/05-093	09/12/04	08/06/05	Contractor	08/12/04
Registration of Chemical Waste Producer	WPN5213-912-P2781-07	11/06/04	-	Contractor	11/06/04
Registration of Chemical Waste	WPN5213-912-K2801-03	15/09/04	-	Contractor	15/09/04

Description	Permit No.	Valid Period		Issued To	Date of Issuance
		From	To		
Producer					
Registration of Chemical Waste	WPN5517-912-T2007-01	08/12/92	-	Contractor	08/12/92
WPCO Discharge Licence	EP890/W2/XD020	22/11/04	30/11/09	Contractor	22/11/04

Implementation Status of Environmental Mitigation Measures

Environmental mitigation measures for the construction activities as recommended in the EM&A manual were implemented in the reporting month.

Environmental Complaints

No complaint against the construction activities was received in the reporting month.

Future Key Issues

The future key issues to be considered in the coming month are as follows:

Unit L9 Civil and Building Works

- to continue monitoring the noise level during construction and to ensure compliance with the CNP's already obtained;
- to continue executing the preventive measures for avoiding noise exceedance and keep monitoring/ reviewing the performance;
- to monitor and review the sufficiency of the dust suppression measures provided and increase the resources accordingly if necessary;

Transmission System

- to continue monitoring the noise level during construction;
- to continue executing the preventive measures for avoiding noise exceedance and keep monitoring/ reviewing the performance;
- to monitor and review the sufficiency of the dust suppression measures provided and increase the resources accordingly if necessary;
- to closely monitor the construction activities in order to avoid disturbance to the rare plants;
- to provide temporary fire fighting equipment for prevention of fire within the work sites.

Concluding Remarks

The environmental performance of the project was generally satisfactory.

1. INTRODUCTION

1.1 Background

The Environmental Team (hereinafter called the “ET”) was formed within the Hongkong Electric Co. Ltd (HEC) to undertake Environmental Monitoring and Audit for “Construction of Lamma Power Station Extension” (hereinafter called the “Project”). Under the requirements of Section 6 of Environmental Permit EP-071/2000/B, an EM&A programme for impact environmental monitoring set out in the EM&A Manual (Construction Phase) is required to be implemented. In accordance with the EM&A Manual, environmental monitoring of air quality, noise and water quality and regular environmental audits are required for the Project. As the post-project marine water monitoring was successfully completed in September 2002, no further water quality monitoring for the reclamation works would be required.

The Project involves the construction of a gas-fired power station employing combined cycled gas turbine technology, forming an extension to the existing Lamma Power Station. The key elements of the Project including the construction activities associated with the transmission system and submarine gas pipeline are outlined as follows.

- dredging and reclamation to form approximately 22 hectares of usable area;
- construction of six 300MW class gas-fired combined cycle units;
- construction of a gas receiving station;
- construction of a new transmission system linking the Lamma Extension to load centres on Hong Kong Island;
- laying of a gas pipeline for the supply of natural gas to the new power station

This report summarizes the environmental monitoring and audit work for the Project for the month of February 2005.

1.2 Project Organisation

An Environmental Management Committee (EMC) has been set up in HEC to oversee the Project. The management structure includes the following:

- Environmental Protection Department (The Authority);
- Environmental Manager (The Chairman of the Environmental Management Committee);
- Engineer;
- Independent Environmental Checker (IEC);
- Environmental Team (ET);
- Contractor.

The project organisation chart for the construction EM&A programme is shown in Appendix A.

1.3 Construction Works undertaken during the Reporting Month

Construction activities for Unit L9 were the civil and building works for Main Station Building, 275kV Switching Station, Shunt Reactor, Chimney, Drainage, Waste & Water Reuse Basin, C.W. Culvert System, Gas Duct Foundation and LPS A&A Works. Mechanical erection for Unit L9 was commenced on 21/2/2005. Construction activities for Unit L9's associated transmission system were site formation work and tunnel excavation at the Lamma Power Station Cable Duct No.1, cable landing points N2, N4 & N5, installation of type 1 & 2 retaining walls and slipways, filling of quarry spall and type 2 rockfill at N4 & N5 respectively. The underwater trenches work has partially been completed on 11/8/2004 and will be suspended until early April 2005. The dredging work for submarine pipeline at Lamma Shore Approach was commenced on 22/2/2005. A separate monthly EM&A report prepared by a consultant, as one of ET members, is shown in Appendix K. Uncontaminated materials were dumped at the assigned location within the South Cheung Chau Spoil Disposal Area. Layout plans for construction site and transmission system are shown in Figure 1.1 and Figure 1.2 respectively. Figure 1.3 shows the dumping location in February 2005.

The main construction activities carried out during the reporting month and the corresponding environmental mitigation measures are summarized in Table 1.1. The implementation of major mitigation measures in the month is provided in Appendix I.

Table 1.1 Construction Activities and Their Corresponding Environmental Mitigation Measures

Item	Construction Activities	Environmental Mitigation Measures
Unit L9 Civil and Building Works		
1	Main Station Building	Air – Dust suppression measures implemented. Noise – General noise mitigation measures employed at all work sites throughout the construction phase. Waste Management – Waste Management Plan submitted and implemented.
2	275kV Switching Station	Air – Dust suppression measures implemented. Noise – General noise mitigation measures employed at all work sites throughout the construction phase.

Item	Construction Activities	Environmental Mitigation Measures
		Waste Management – Waste Management Plan submitted and implemented.
3	Shunt Reactor	Air – Dust suppression measures implemented. Noise – General noise mitigation measures employed at all work sites throughout the construction phase. Waste Management – Waste Management Plan submitted and implemented.
4	Chimney	Air – Dust suppression measures implemented. Noise – General noise mitigation measures employed at all work sites throughout the construction phase. Waste Management – Waste Management Plan submitted and implemented.
5	Drainage Works	Air – Dust suppression measures implemented. Noise – General noise mitigation measures employed at all work sites throughout the construction phase. Waste Management – Waste Management Plan submitted and implemented.
6	Waste & Water Reuse Basin	Air – Dust suppression measures implemented. Noise – General noise mitigation measures employed at all work sites throughout the construction phase.

Item	Construction Activities	Environmental Mitigation Measures
		Waste Management – Waste Management Plan submitted and implemented.
7	C.W. Culvert System	Air – Dust suppression measures implemented. Noise – General noise mitigation measures employed at all work sites throughout the construction phase. Waste Management – Waste Management Plan submitted and implemented.
8	Gas Duct Foundation	Air – Dust suppression measures implemented. Noise – General noise mitigation measures employed at all work sites throughout the construction phase. Waste Management – Waste Management Plan submitted and implemented.
9	LPS A&A Works	Air – Dust suppression measures implemented. Noise – General noise mitigation measures employed at all work sites throughout the construction phase. Waste Management – Waste Management Plan submitted and implemented.

Item	Construction Activities	Environmental Mitigation Measures
Construction of Transmission System		
10	Site formation work and tunnel excavation at the Lamma Power Station Cable Duct No.1, cable landing points N2, N4 & N5	Air Quality <ul style="list-style-type: none"> – Dust suppression measures implemented. Noise <ul style="list-style-type: none"> – General noise mitigation measures employed at all work sites throughout the construction phase. Terrestrial Ecology <ul style="list-style-type: none"> – Special care and close monitoring to avoid disturbances to the rare plant species. – Temporary fire fighting equipment provided within the work area during construction.
11	Installation of type 1 & 2 retaining walls and slipways	Noise <ul style="list-style-type: none"> – General noise mitigation measures employed at all work sites throughout the construction phase.
12	Filling of quarry spall and type 2 rockfill at N4 and N5 respectively	Noise <ul style="list-style-type: none"> – General noise mitigation measures employed at all work sites throughout the construction phase.
Unit L9 Mechanical Erection		
13	Condenser Erection	Air <ul style="list-style-type: none"> – Dust suppression measures implemented. Noise <ul style="list-style-type: none"> – General noise mitigation measures employed at all work sites throughout the construction phase. Waste Management <ul style="list-style-type: none"> – Waste Management Plan submitted and implemented.
Miscellaneous		
14	Slurry ash piping & filling	Noise <ul style="list-style-type: none"> – General noise mitigation measures implemented and silent type equipment deployed.

Item	Construction Activities	Environmental Mitigation Measures
15	Defects Rectification for Site Formation	Air – Dust suppression measures implemented. Noise – General noise mitigation measures implemented and silent type equipment deployed.

1.4 Summary of EM&A Requirements

The EM&A program requires environmental monitoring for air, noise and water quality. As the post-project marine water monitoring was successfully completed in September 2002, no further water quality monitoring for the reclamation works would be required. The detailed EM&A monitoring work for air quality and noise are described in Sections 2 and 3 respectively. Regular environmental site audits for air quality, noise, water quality and waste management were carried out.

The following environmental audits are summarized in Section 4 of this report:

- Environmental monitoring results;
- Waste Management Records;
- Weekly site audit results;
- The status of environmental licensing and permits for the Project;
- The implementation status of environmental protection and pollution control/mitigation measures.

Future key issues will be reported in Section 5 of this report.

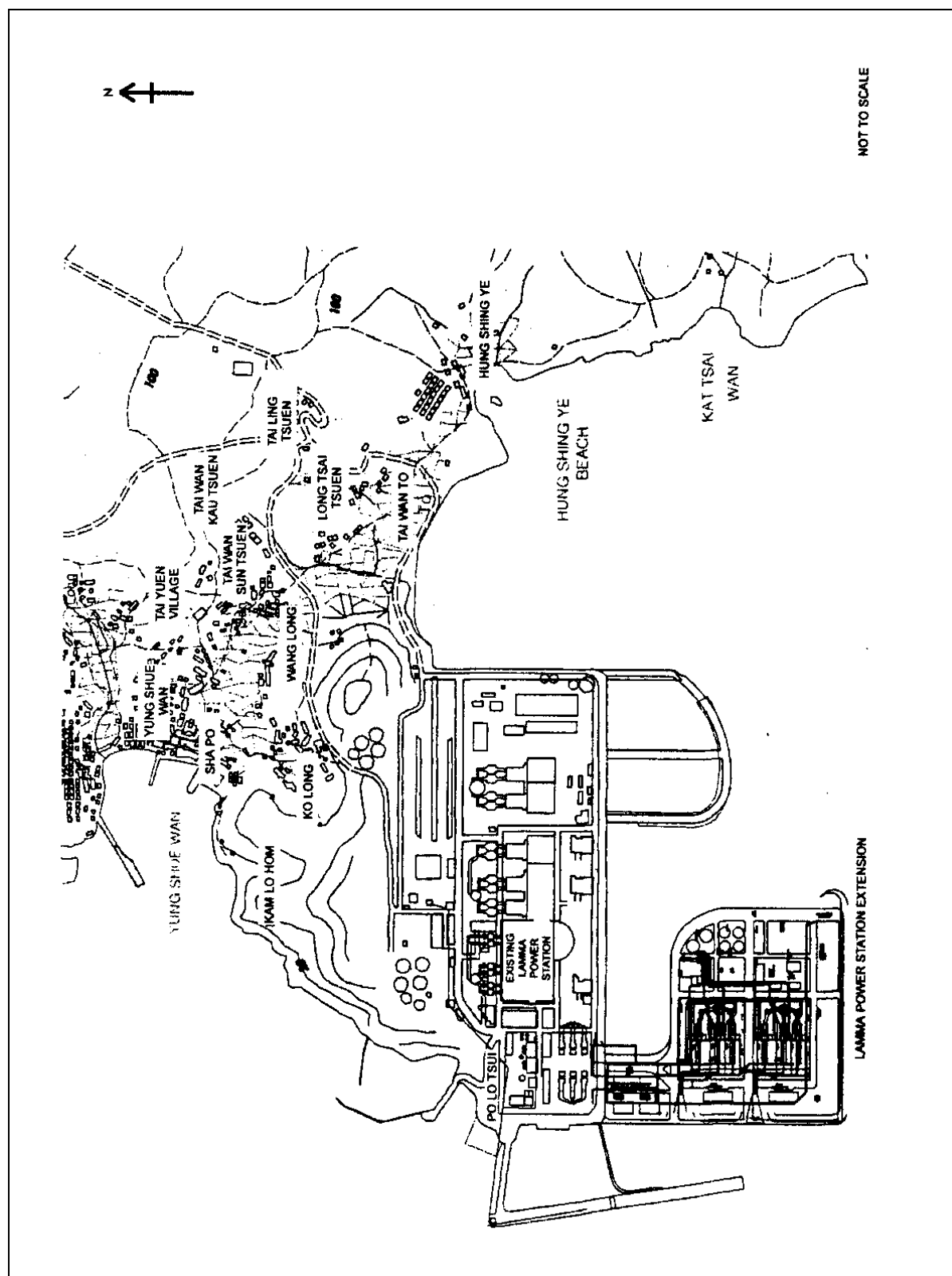


Figure 1.1 Layout of Work Site

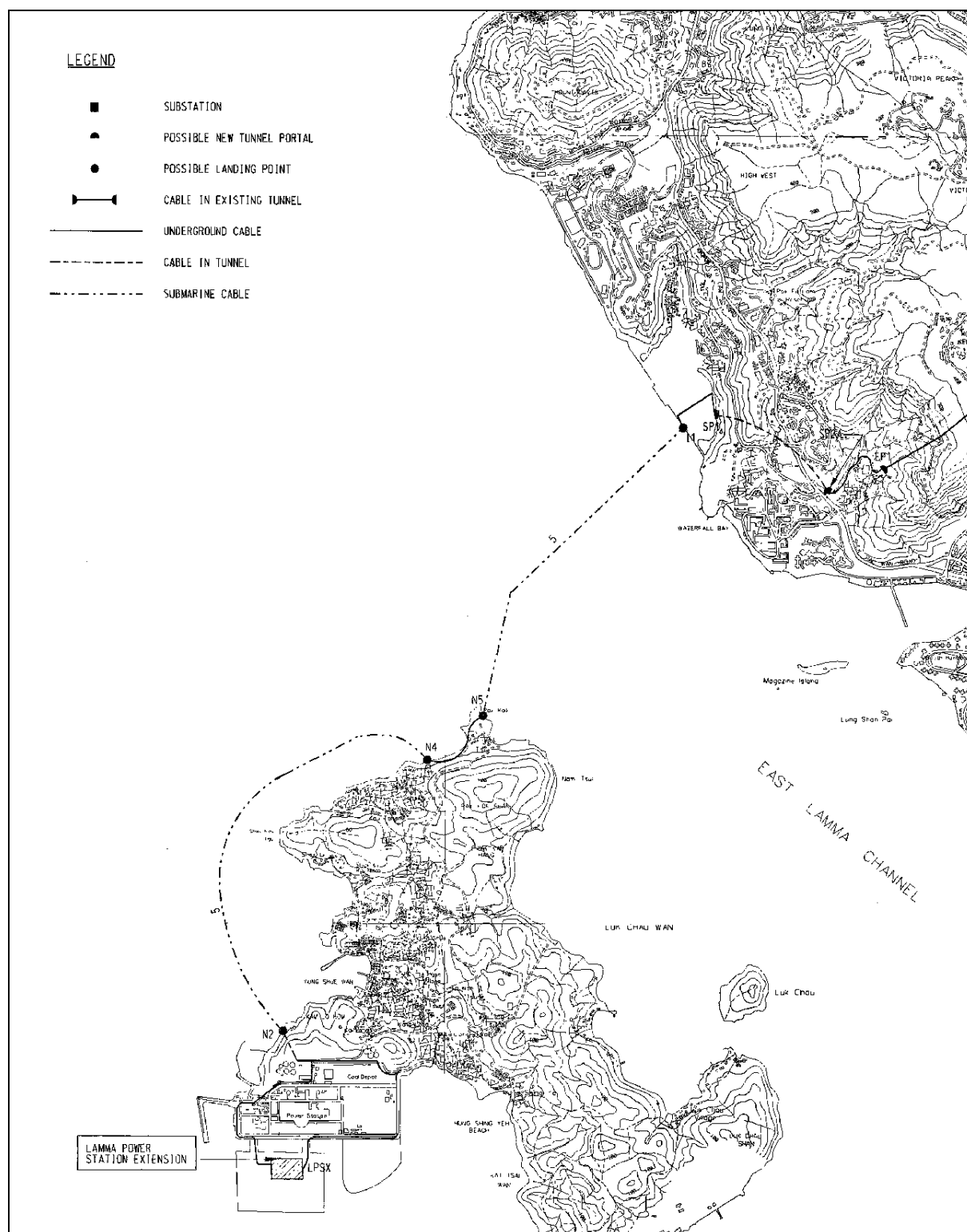
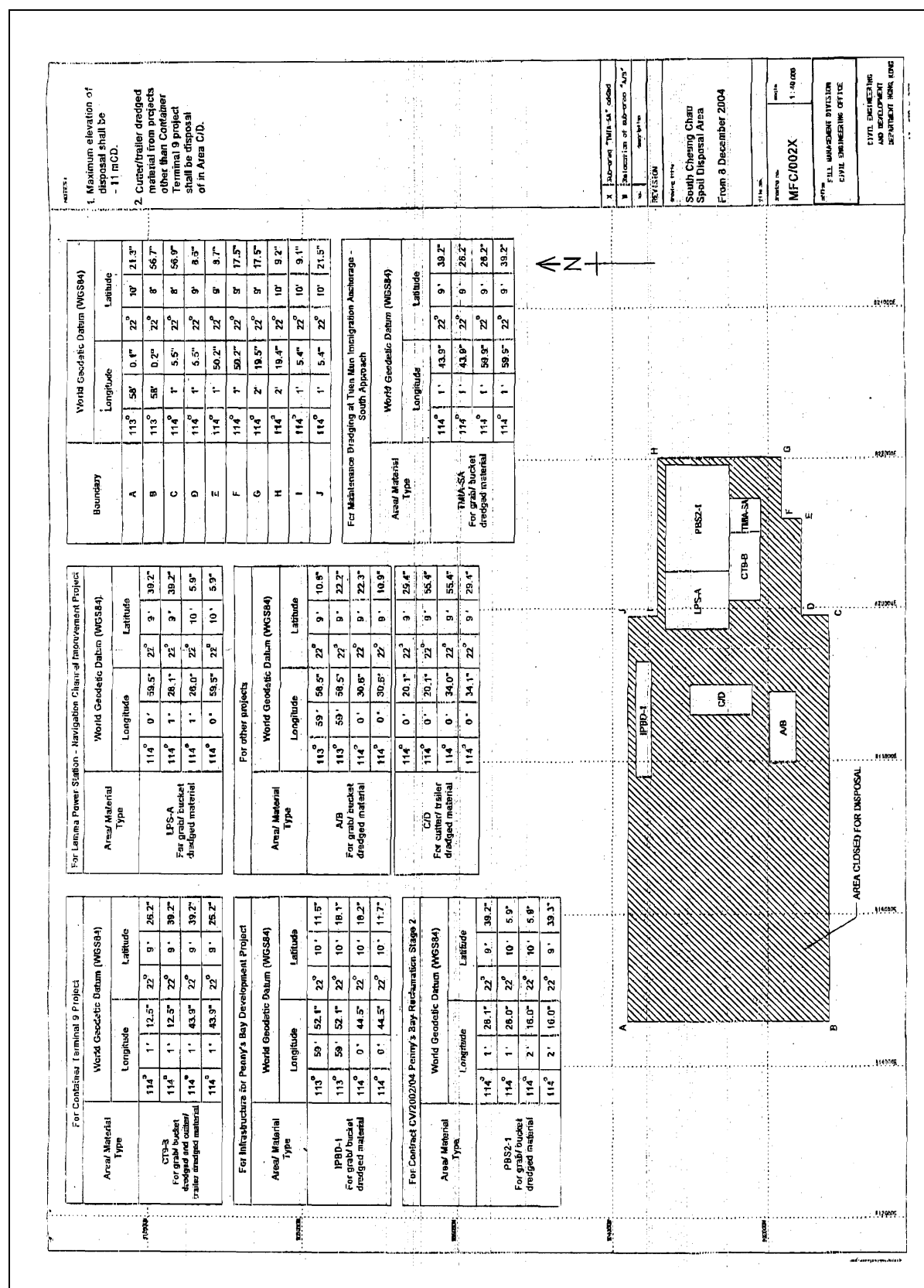


Figure 1.2 Cable Route of Transmission System



2. AIR QUALITY

2.1 Monitoring Requirements

1-hour and 24-hour TSP monitoring at agreed frequencies were conducted to monitor air quality. The impact monitoring data were checked against the Action/Limit Levels as determined in the Baseline Monitoring Report (Construction Phase). Appendix B shows the established Action/Limit Levels for Air Quality.

2.2 Monitoring Locations

Three dust monitoring locations were selected for 1-hour TSP sampling (AM1, AM2 & AM3) while four monitoring locations were selected for 24-hour TSP sampling (AM1, AM2, AM3 and AM4). Table 2.1 tabulates the monitoring stations. The locations of the monitoring stations are shown in Figure 2.1.

Table 2.1 Air Quality Monitoring Locations

Location I.D.	Description
AM1	Reservoir
AM2	East Gate
AM3	Ash Lagoon
AM4	Tai Yuen Village

2.3 Monitoring Equipment

Continuous 24-hour TSP air quality monitoring was performed using the GS2310 High Volume Air Samplers (HVAS), Partisol Model 2000 Sampler and the MINIVOL Portable Sampler at AM1&2, AM3 and AM4 respectively. TEOM Model 1400a continuous dust monitors were used to carry out 1-hour TSP monitoring at AM1, AM2 and AM3. Table 2.2 summarises the equipment used in dust monitoring.

Table 2.2 Air Quality Monitoring Equipment

Equipment	Model and Make
<i>24-hour sampling:</i> HVAS Sampler	Model GS2310 Anderson Instruments Inc.
Partisol Air Sampler	Partisol Model 2000 Rupprecht & Patashnick
MINIVOL Portable Sampler	AIRMETRICS
<i>1-hour sampling:</i> Continuous TSP Dust Meter	TEOM Model 1400a Rupprecht & Patashnick

2.4 Monitoring Parameters, Frequency and Duration

Table 2.3 summarises the monitoring parameters, duration and frequency of air quality monitoring. The monitoring schedule for the reporting month is shown in Appendix C.

Table 2.3 Air Quality Monitoring Parameter, Duration and Frequency

Monitoring Stations	Parameter	Duration	Frequency
AM1	1-hour TSP	1	3 hourly samples every 6 days
	24-hour TSP	24	Once every 6 days
AM2	1-hour TSP	1	3 hourly samples every 6 days
	24-hour TSP	24	Once every 6 days
AM3	1-hour TSP	1	3 hourly samples every 6 days
	24-hour TSP	24	Once every 6 days
AM4	24-hour TSP	24	Once every 6 days

2.5 Monitoring Procedures and Calibration Details

24- hour TSP Monitor:

Preparation of Filter Papers

- Visual inspection of filter papers was carried out to ensure that there were no pinholes, tears and creases;
- The filter papers were then labeled before sampling.
- The filter papers were equilibrated at room temperature and relative humidity < 50% for at least 24 hours before weighing.

Field Monitoring

- During collection of the sampled filter paper, the information on the elapse timer was logged. Site observations around the monitoring stations, which might have affected the monitoring results, were also recorded. Major pollution sources, if any, would be identified and reported. The flow record chart for the previous sampling was checked to see if there was any abnormality.
- The post-sampling filter papers were removed carefully from the filter holder and folded to avoid loss of fibres or dust particles from the filter papers;
- The filter holder and its surrounding were cleaned;
- A pre-weighed blank filter paper for the next sampling was put in place and aligned carefully. The filter holder was then tightened firmly to avoid leakage;
- A new flow record chart was loaded into the flow recorder;
- The programmable timer was set for the next 24 hrs sampling period, $\pm 1/2$ hr;
- The post-sampling filter papers were equilibrated at room temperature and relative humidity $< 50\%$ for at least 24 hours before weighing.

1- hour TSP Monitor:

- The following parameters of the TEOM model dust meters are regularly checked to ensure proper functionality:
 - Mass concentration;
 - Total mass;
 - Frequency of the tapered element;
 - Electrical noise;
 - Main flow;
 - Auxiliary flow.

Maintenance & Calibration

- The monitoring equipment and their accessories are maintained in good working conditions.
- Monitoring equipment is calibrated at monthly intervals. Calibration details are shown in Appendix F.

2.6 Results and Observations

One (1) dust monitoring event was re-scheduled in the reporting month as shown in the following table:

Monitoring work	Monitoring Location	Original Schedule	Makeup Sampling	Reasons
1 hour TSP sampling	AM3	18/02/2005	19/02/2005	Failure of TEOM TSP sampler.

Apart from the above incident, all dust monitoring works were conducted on schedule. All monitoring data and graphical presentation of the monitoring results are provided in Appendix D. Key findings and observations are provided below:

1-hour TSP

No exceedance of 1-hour TSP Action/Limit Level was recorded in the month.

24-hour TSP

No exceedance of 24-hour TSP Action/Limit Level was recorded in the month.

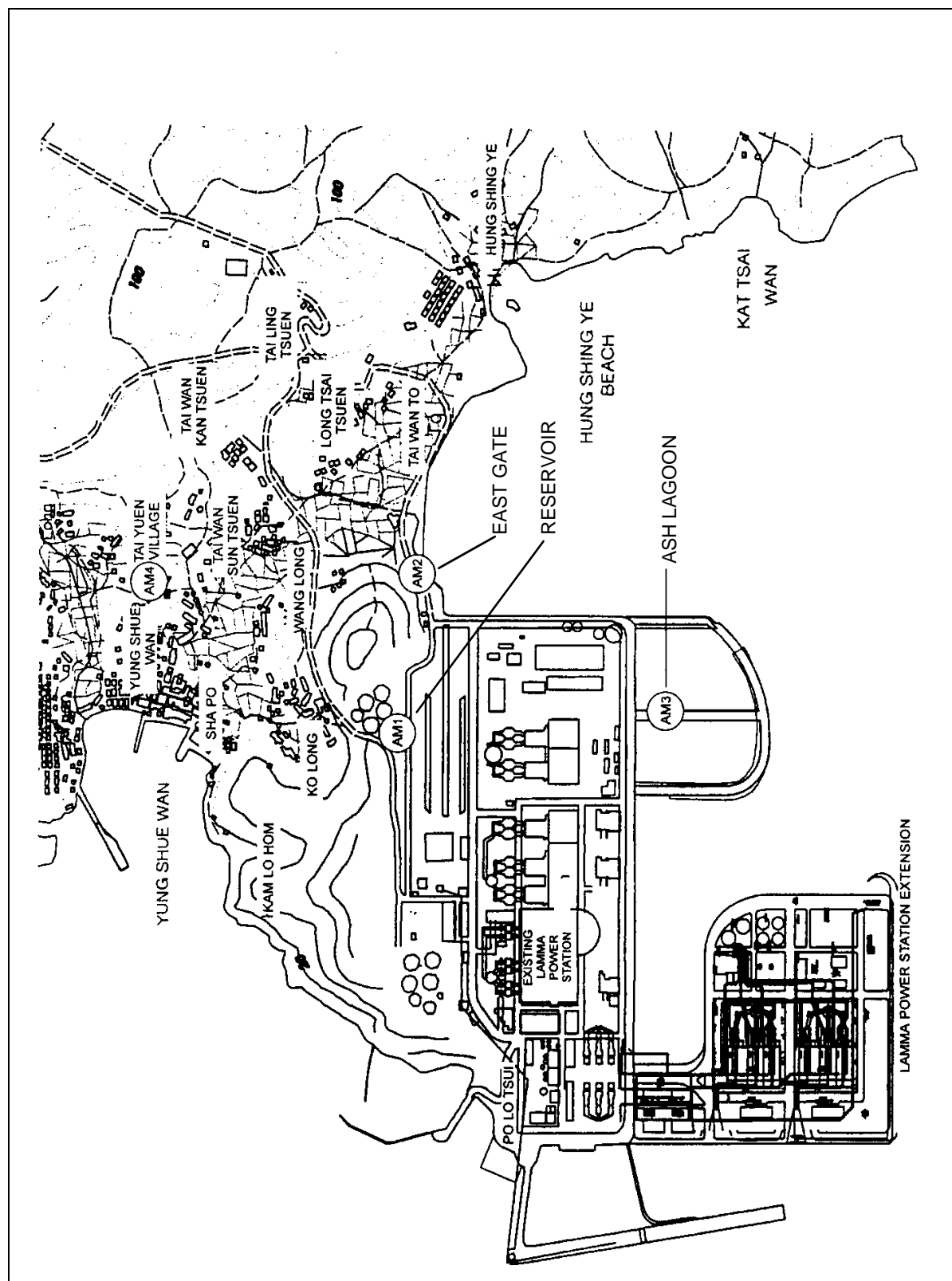


Figure 2.1 Location of Air Quality Monitoring Stations

3. NOISE

3.1 Monitoring Requirements

Continuous noise alarm monitoring at Ash Lagoon/Ching Lam were carried out to calculate the noise contributed by the construction activities at the two critical NSR's, viz. Long Tsai Tsuen/Hung Shing Ye and the school within the village of Tai Wan San Tsuen. The impact monitoring data for construction noise were checked against the limit levels specified in the EM&A Manual. With the availability of the construction noise permits, impact monitoring for the construction work during the restricted hours was also carried out. Section 4 presents the details of the construction noise permits.

Manual noise measurements at Pak Kok Tsui residences were carried out for the construction work of Transmission System in this reporting month. The impact noise monitoring data were checked against the limit levels specified in the EM&A Manual. Appendix B shows the established Action/Limit Levels for noise.

3.2 Monitoring Locations

In accordance with the EM&A manual, the identified noise monitoring locations are listed in Table 3.1 and shown in Figure 3.1 and Figure 3.2.

Table 3.1 Noise Monitoring Locations

Purpose of noise monitoring	Monitoring Location
Lamma Extension	Ash Lagoon
Lamma Extension	Ching Lam
Transmission System	Pak Kok Tsui residences (No.2 and No.8)

3.3 Monitoring Equipment

The sound level meters used for noise monitoring complied with International Electrotechnical Commission Publications 651:1979 (Type 1) and 804:1985 (Type 1). The noise monitoring equipment used is shown in Table 3.2.

Table 3.2 Noise Monitoring Equipment

Equipment	Model	
	Lamma Extension	Transmission System
Sound level meter	Rion NA-27/ B&K 2238F	Rion NL-31
Sound level calibrator	B&K 4231	Rion NC-74

3.4 Monitoring Parameters, Frequency and Duration

Continuous alarm monitoring of A-weighted L_{Aeq} levels was carried out at Ash Lagoon and Ching Lam while manual noise monitoring was conducted at Pak Kok Tsui residences. The measurement duration and parameter of noise monitoring were presented in Table 3.3 as follows:

Table 3.3 Noise Monitoring Duration and Parameter

Location	Time Period	Frequency	Parameter
Ash Lagoon Ching Lam	Daytime: 0700-1900 hrs on normal weekdays	Daytime: 30 minutes	30-min L_{Aeq}
	Evening-time & holidays: 0700-2300 hrs on holidays; and 1900-2300 hrs on all other days	Evening-time & holidays: 5 minutes	5-min L_{Aeq}
	Night-time: 2300-0700 hrs of next day	Night-time: 5 minutes	5-min L_{Aeq}
Pak Kok Tsui residences	0700-1900 hrs on normal weekdays	Twice per week	30-min L_{Aeq}

3.5 Monitoring Procedures and Calibration Details

Monitoring Procedures

Continuous Noise Monitoring for Lamma Extension Construction

The measured noise levels (MNL's) were collected at the noise alarm monitoring stations at Ash Lagoon and Ching Lam. The notional background noise levels (viz. baseline noise data at Ash Lagoon and Ching Lam) were applied to correct the corresponding MNL's in 30-min/5-min L_{Aeq} .

A wind speed sensor was installed at Station Building Rooftop. The wind speed signal was used to determine whether the data from Ash Lagoon and Ching Lam noise alarm monitoring stations were affected. The instantaneous data was discarded in case the instantaneous wind speed exceeded 10 m/s. The 30-min/5-min L_{Aeq} was considered valid only if the amount of valid data was equal to or above 70%.

When calibrating the noise measuring equipment, all observations around the monitoring stations, which might have affected the monitoring results, were recorded.

Manual Noise Monitoring for Transmission System Construction

Manual noise measurements were carried out at the Pak Kok Tsui residences in accordance with standard acoustical principles and practices for checking the impact of noise related to construction of the Transmission System.

Hand-held anemometer was used to measure the wind speed while taking noise measurements. If the wind speed is excessive, noise data will be discarded and re-measured.

Equipment Calibration

The sound level meters and calibrators have been verified by the manufacturer or accredited laboratory. Equipment for continuous noise monitoring was calibrated at site on a monthly basis.

The sound level meters used for manual noise measurement were calibrated with a sound level calibrator immediately before and after noise measurement in accordance with the relevant Technical Memoranda under the Noise Control Ordinance. Calibration details are shown in Appendix F.

3.6 Results and Observations

Continuous noise monitoring was conducted at the two monitoring stations at Ash Lagoon and Ching Lam while manual noise monitoring was carried out at the Pak Kok Tsui residences. All monitoring results and their graphical presentations are provided in Appendix E

No exceedance of noise Action/Limit Level was recorded in the month.

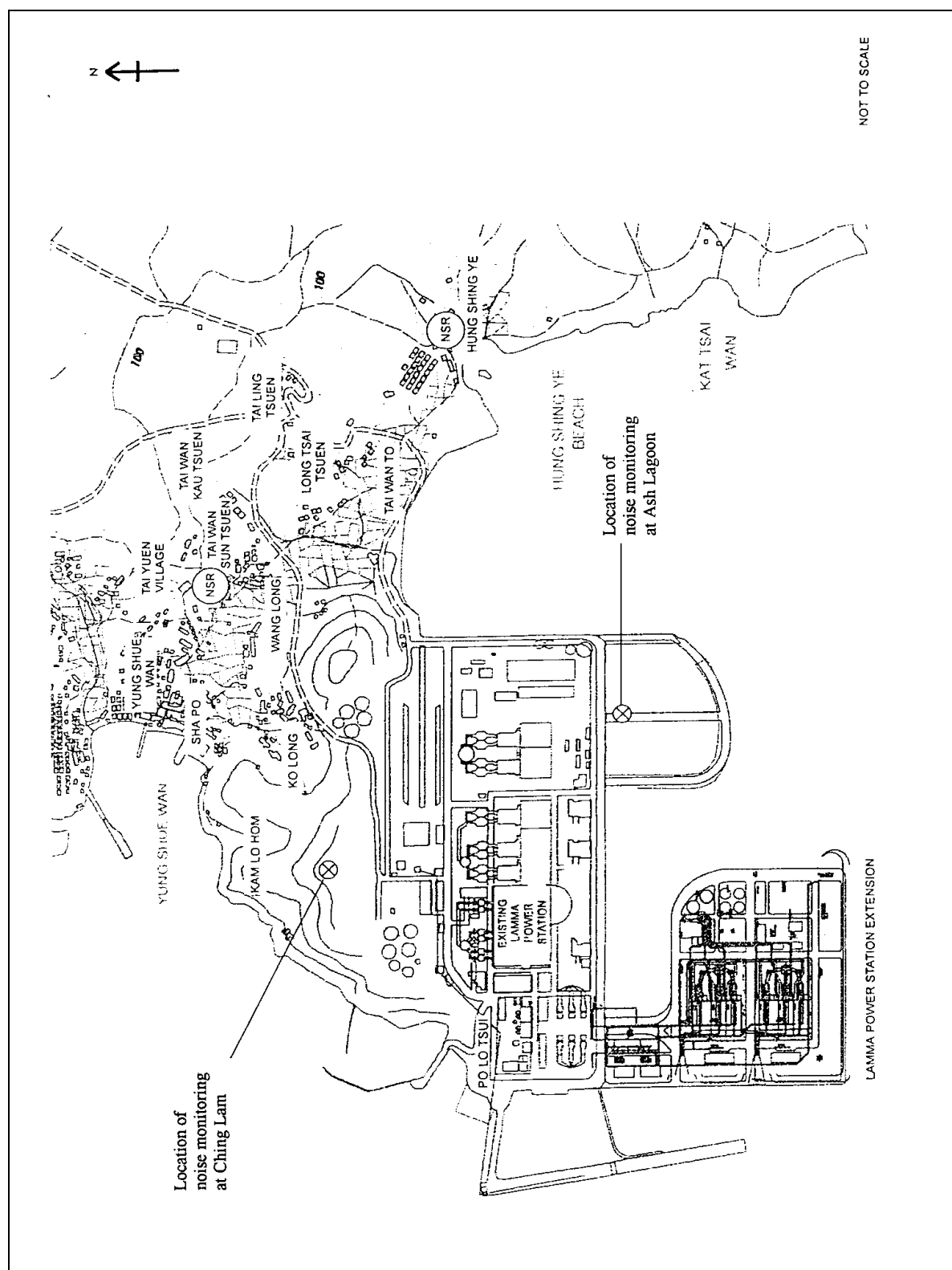


Figure 3.1 Location of Noise Monitoring Stations

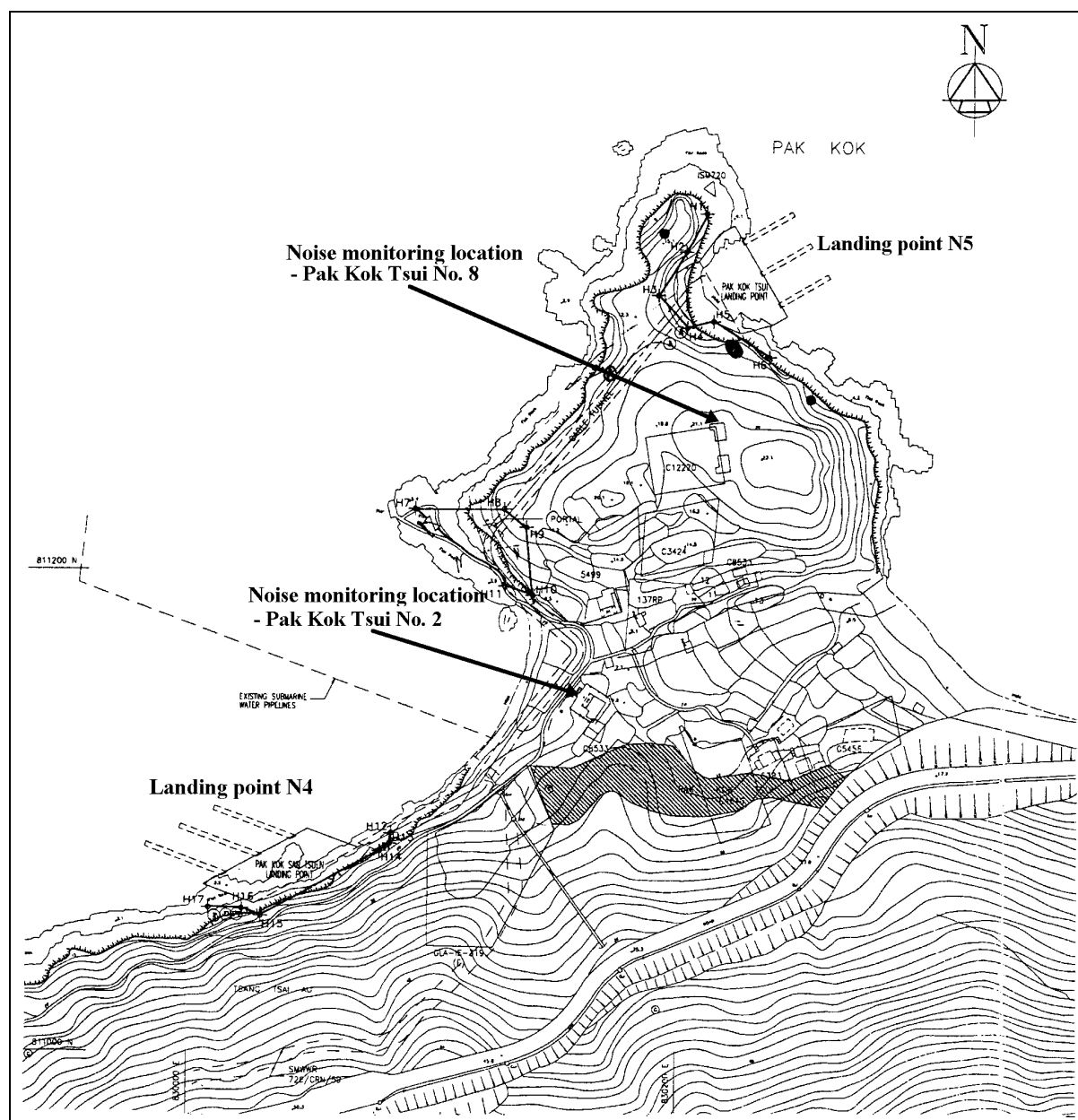


Figure 3.2 Locations of Manual Noise Monitoring

4. ENVIRONMENTAL AUDIT

4.1 Review of Environmental Monitoring Procedures

The environmental monitoring procedures were regularly reviewed by the Environmental Team. No modification to the existing monitoring procedures was recommended.

4.2 Assessment of Environmental Monitoring Results

Monitoring results for Air Quality and Noise

The environmental monitoring results for Air Quality and Noise in the reporting month presented in sections 2, 3 and 4 respectively are summarized in Table 4.1.

Table 4.1 Summary of AL Level Exceedances on Monitoring Parameters

Item	Parameter Monitored	Monitoring Period	No. of Exceedances In		Event/Action Plan Implementation Status and Results
			Action Level	Limit Level	
Air					
1	Ambient TSP (24-hour)	01/02/05-28/02/05	0	0	
2	Ambient TSP (1-hour)	01/02/05-28/02/05	0	0	
Noise					
1	Noise level at the critical NSR's predicted by the noise alarm monitoring system	01/02/05-28/02/05	0	0	
2	Manual noise monitoring at the Pak Kok Tsui residences	01/02/05-28/02/05	0	0	

Waste Management Records

The estimated amounts of different types of waste generated in February 2005 are shown in Table 4.2.

Table 4.2 Estimated Amounts of Waste Generated in February 2005

Waste Type	Examples	Estimated Amount
Construction Waste	Concrete Waste, Used formwork	37 Tonne
General Refuse	Domestic wastes collected on site	14 Tonne

4.3 Site Environmental Audit

IEC conducted a site inspection on 23/02/2005. The inspection result is attached in Appendix H.

Site audits were carried out by ET on a weekly basis to monitor environmental issues at the construction sites to ensure that all mitigation measures were implemented timely and properly. The site conditions were generally satisfactory. All required mitigation measures were implemented. The weekly site inspection results are attached in Appendix H.

As the dredging work for formation of underwater trenches for transmission system has partially been completed on 11/8/2004 and will be suspended until early April 2005, there will be no site audit for the related dredging work during this period.

4.4 Status of Environmental Licensing and Permitting

All permits/licenses obtained for the project are summarised in Table 4.3.

Table 4.3 Summary of Environmental Licensing and Permit Status

Description	Permit No.	Valid Period		Highlights	Status
		From	To		
Varied Environmental Permit	EP-071/2000/B	13/07/01	-	The whole construction work site.	Valid
Construction Noise Permit	GW-UW0353-04	03/08/04	02/02/05	Operation of PME's allowed during the restricted hours (07:00-23:00 on holidays and 19:00-23:00 on all other days)	Superseded

Description	Permit No.	Valid Period		Highlights	Status
		From	To		
Construction Noise Permit	GW-RS0339-04	11/08/04	10/02/05	6 groups (A-F) of PME's are assigned. Only one group can be used. Groups A-E are restricted to general holidays including Sundays between 0700-2300 hrs and any day not being a general holiday between 1900-2300hrs.	Superseded
Construction Noise Permit	GW-RS0446-04	05/10/04	04/04/05	Operation of PME's allowed during the restricted hours (07:00-23:00 on holidays and 19:00-23:00 on all other days)	Valid
Construction Noise Permit	GW-RS0668-04	06/01/05	02/07/05	Operation of PME's allowed during the restricted hours (07:00-23:00 on holidays and 19:00-23:00 on all other days)	Valid
Construction Noise Permit	GW-RS0669-04	06/01/05	02/07/05	Operation of PME's allowed during the restricted hours (23:00-07:00 on next day)	Valid
Construction Noise Permit	GW-RS0678-04	10/01/05	09/07/05	Operation of PME's allowed during the restricted hours (07:00-23:00 on holidays and 19:00-23:00 on all other days)	Valid
Construction Noise Permit	GW-RS0679-04	10/01/05	09/07/05	Operation of PME's allowed during the restricted hours (07:00-23:00 on holidays and 19:00-23:00 on all other days)	Valid

Description	Permit No.	Valid Period		Highlights	Status
		From	To		
Construction Noise Permit	GW-RS0084-05	16/02/05	02/08/05	Operation of PME's allowed during the restricted hours (0700-2300 hrs on holidays and 1900-2300 hrs on all other days). 2 groups (A-B) of PME's are assigned. Only one group can be used.	Valid
Construction Noise Permit	GW-RS0097-05	21/02/05	09/08/05	Operation of PME's allowed during the restricted hours (general holidays including Sundays between 0700-0700 hrs on next day and any day not being a holiday between 1900-0700 hrs on next day). 6 groups (A-F) of PME's are assigned. Only one group can be used. Groups A-E are restricted to general holidays including Sundays between 0700-2300 hrs and any day not being a general holiday between 1900-2300 hrs.	Valid
Dumping Permit	EP/MD/05-027	06/08/04	05/02/05	Dumping at South Cheung Chau Disposal Area; civil works for Transmission System.	Valid
Dumping Permit	EP/MD/05-093	09/12/04	08/06/05	Dumping at South Cheung Chau Disposal Area; Supply and Installation of Submarine Gas Pipeline	Valid

Description	Permit No.	Valid Period		Highlights	Status
		From	To		
Registration of Chemical Waste Producer	WPN5213-912-P2781-07	11/06/04	-	Major Chemical Waste Type: Spent lubrication oil, waste car battery, paint or thinner contaminated container	Valid
Registration of Chemical Waste Producer	WPN5213-912-K2801-03	15/09/04	-	Major Chemical Waste Type: Spent lubricating oil, spent battery, contaminated soil with spent flammable liquid	Valid
Registration of Chemical Waste Producer	WPN5517-912-T2007-01	08/12/92	-	Major Chemical Waste Type for the construction work: lubrication oil and paints	Valid
WPCO Discharge Licence	EP890/W2/XD020	22/11/04	30/11/09	Toilet for LMX construction site	Valid

4.5 Implementation Status of Environmental Mitigation Measures

Mitigation measures detailed in the permits and the EM&A Manual (Construction Phase) are required to be implemented. An updated summary of the Environmental Mitigation Implementation Schedule (EMIS) is presented in Appendix I.

4.6 Implementation Status of Event/Action Plans

The Event/Action Plans extracted from the EM&A Manual (Construction Phase) are presented in Appendix G.

4.7 Implementation Status of Environmental Complaint Handling Procedures

In February 2005, no complaint against the construction activities was received.

Table 4.4 Environmental Complaints / Enquiries Received in February 2005

Case Reference / Date, Time Received / Date, Time Concerned	Descriptions /Actions Taken	Conclusion / Status
Nil	N/A	N/A

Table 4.5 Outstanding Environmental Complaints / Enquiries Carried Over

Case Reference / Date, Time Received / Date, Time Concerned	Descriptions /Actions Taken	Conclusion / Status
Nil	N/A	N/A

5. FUTURE KEY ISSUES

5.1 Status of Natural Gas supply

Based on current project schedule, HEC anticipates there is no delay in the supply of natural gas.

5.2 Key Issues for the Coming Month

Key issues to be considered in the coming month include:

Unit L9 Civil and Building Works

Noise Impact

- To continue monitoring the noise level during construction and to ensure compliance with the CNP's already obtained.
- To continue executing the preventive measures for avoiding noise exceedance and keep monitoring/ reviewing the noise performance.

Air Impact

- To monitor and review the sufficiency of the dust suppression measures provided and increase the resources accordingly if necessary.

Unit L9 Mechanical Erection

Noise Impact

- To continue monitoring the noise level during construction
- To continue executing the preventive measures for avoiding noise exceedance and keep monitoring/ reviewing the noise performance.

Air Impact

- To monitor and review the sufficiency of the dust suppression measures provided and increase the resources accordingly if necessary.

Transmission System

Noise Impact

- To continue monitoring the noise level during construction.
- To continue executing the preventive measures for avoiding noise exceedance and keep monitoring/ reviewing the performance.

Air Impact

- To monitor and review the sufficiency of the dust suppression measures provided and increase the resources accordingly if necessary.

Terrestrial Ecology Impact

- To closely monitor the construction activities in order to avoid disturbance to the rare plants.
- To provide temporary fire fighting equipment for prevention of fire within the work sites.

5.3 Monitoring Schedules for the Next 3 Months

With the completion of post-project monitoring, no further marine water quality monitoring for the reclamation works is required.

The tentative environmental monitoring schedules for the next 3 months are shown in Appendix C.

5.4 Construction Program for the Next 3 Months

The Unit L9 electrical erection and dredging work for submarine cable installation would be started in early March 2005 and May 2005 respectively.

The period of construction activity of slurry ash piping & filling is tentatively from 1/3/2005 to 31/5/2005. The tentative construction programs for the next 3 months are shown in Appendix J.

6. CONCLUSION

One (1) 1 hour TSP sample was rescheduled owing to the breakdown of TSP sampler. Other than this, all monitoring work at designated stations was performed as scheduled satisfactorily. The environmental monitoring works and site inspection were performed as scheduled in the reporting month. All monitoring results were checked and reviewed.

No Action/Limit level exceedance on 1-hour and 24-hour TSP level was recorded in the reporting month.

No Action/Limit level exceedance on noise was recorded in the reporting month.

Environmental mitigation measures recommended in the EM&A manual for the construction activities were implemented in the reporting month. No complaint against the construction activities was received in the reporting month. No prosecution was received for this Project in the reporting period.

The environmental performance of the Project was generally satisfactory.

Appendix A Organization Chart

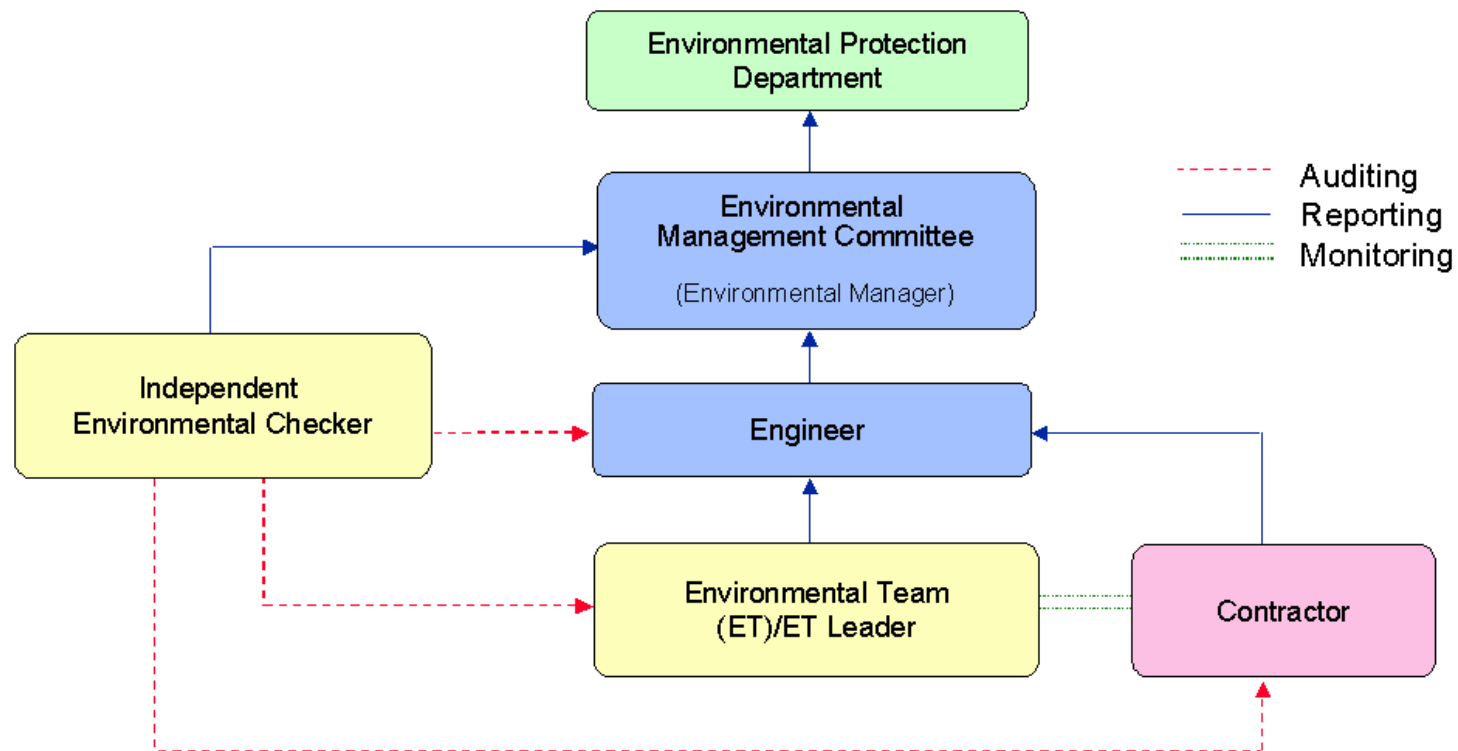


Figure A.1 Organisation of EM&A Programme at Construction Phase

Appendix B Action and Limit Levels for Air Quality and Noise Monitoring

B.1. Air

Table B.1 Action and Limit Levels for 1-hour and 24-hour TSP

	Action Level, $\mu\text{g}/\text{m}^3$	Limit Level, $\mu\text{g}/\text{m}^3$
1-hour TSP*	340	500
24-hour TSP	190	260

* No Action/Limit Level for 1-hour TSP is applied to AM4 where no real time dust monitor is installed.

B.2. Noise

Table B.2 presents the Action and Limit (AL) levels for construction noise other than percussive piling.

Table B.2 AL Levels for Construction Noise (Other than Percussive Piling)

Parameters	Action	Limit
Noise Levels at the NSR's at Long Tsai Tsuen/Hung Shing Ye and school within the village of Tai Wan San Tsuen predicted by the noise alarm monitoring system	When one or more documented complaints are received	a. 75 dB(A) in $L_{Aeq,30 \text{ min}}$ (07:00-19:00 hrs on normal weekdays) (Note 1)
Manual noise monitoring at the nearest Pak Kok Tsui residences to cable landing points N4 and N5		b. subject to statutory control under the Noise Control Ordinance (07:00-23:00 hrs on holidays and 19:00-23:00 hrs on all other days). Set to 60 dB(A) in $L_{Aeq,5 \text{ min}}$ c. subject to statutory control under the Noise Control Ordinance (23:00-07:00 hrs of next day). Set to 45 dB(A) in $L_{Aeq,5 \text{ min}}$
Note: 1. For educational institution, the limit level shall be 70 dB(A), reduced to 65 dB(A) during examination periods.		

Appendix C Environmental Monitoring Schedule

Table C.1 Monitoring schedule for 24hr and 1hr TSP monitoring for Lamma Extension Construction (February 2005 to May 2005)

24hr TSP Monitoring	1hr TSP Monitoring
06/Feb/2005	06/Feb/2005 1500hr to 1800hr
12/Feb/2005	12/Feb/2005 1500hr to 1800hr
18/Feb/2005	18/Feb/2005 1500hr to 1800hr
24/Feb/2005	24/Feb/2005 1500hr to 1800hr
02/Mar/2005	02/Mar/2005 1500hr to 1800hr
08/Mar/2005	08/Mar/2005 1500hr to 1800hr
14/Mar/2005	14/Mar/2005 1500hr to 1800hr
20/Mar/2005	20/Mar/2005 1500hr to 1800hr
26/Mar/2005	26/Mar/2005 1500hr to 1800hr
01/Apr/2005	01/Apr/2005 1500hr to 1800hr
07/Apr/2005	07/Apr/2005 1500hr to 1800hr
13/Apr/2005	13/Apr/2005 1500hr to 1800hr
19/Apr/2005	19/Apr/2005 1500hr to 1800hr
25/Apr/2005	25/Apr/2005 1500hr to 1800hr
01/May/2005	01/May/2005 1500hr to 1800hr
07/May/2005	07/May/2005 1500hr to 1800hr
13/May/2005	13/May/2005 1500hr to 1800hr
19/May/2005	19/May/2005 1500hr to 1800hr
25/May/2005	25/May/2005 1500hr to 1800hr
31/May/2005	31/May/2005 1500hr to 1800hr

Table C.2 Manual Noise Monitoring Schedule for Transmission System Construction
(February 2005 to May 2005)

Date	Monitoring Start Time
01/Feb/2005	14:00
04/Feb/2005	10:00
08/Feb/2005	14:00
12/Feb/2005	10:00
15/Feb/2005	14:00
18/Feb/2005	10:00
22/Feb/2005	14:00
25/Feb/2005	10:00
01/Mar/2005	10:00
04/Mar/2005	14:00
08/Mar/2005	10:00
11/Mar/2005	14:00
15/Mar/2005	10:00
18/Mar/2005	14:00
22/Mar/2005	10:00
24/Mar/2005	14:00
29/Mar/2005	10:00
01/Apr/2005	14:00
04/Apr/2005	10:00
08/Apr/2005	14:00
12/Apr/2005	10:00
15/Apr/2005	14:00
19/Apr/2005	10:00
22/Apr/2005	14:00
26/Apr/2005	10:00
29/Apr/2005	14:00
03/May/2005	10:00
06/May/2005	14:00
10/May/2005	10:00
13/May/2005	14:00
17/May/2005	10:00
20/May/2005	14:00
24/May/2005	10:00
27/May/2005	14:00
31/May/2005	10:00

APPENDIX D AIR QUALITY MONITORING RESULTS

Site: Lamma Power Station Extension

Month: February 2005

24 hour TSP Measurement:-

Date	TSP concentration ($\mu\text{g}/\text{m}^3$)				Weather Information (From Hong Kong Observatory)		
	Reservoir (AM1)	East Gate (AM2)	Ash Lagoon (AM3)	Tai Yuen Village (AM4)	Mean Wind Speed (km/hr)	Prevailing Wind Dir. (°)	Mean R.H. (%)
06/02/2005	23	41	32	47	18.8	060	93
12/02/2005	47	44	46	54	26.4	070	80
18/02/2005	80	80	59	56	25.9	010	85
24/02/2005	66	50	81	72	7.0	030	93

1 hour TSP Measurement:-

Date	Time	TSP concentration ($\mu\text{g}/\text{m}^3$)		
		Reservoir (AM1)	East Gate (AM2)	Ash Lagoon (AM3)
06/02/2005	15:00-15:59	43	34	35
	16:00-16:59	36	21	43
	17:00-17:59	24	24	16
12/02/2005	15:00-15:59	48	41	51
	16:00-16:59	52	46	32
	17:00-17:59	51	44	24
18/02/2005 ⁽¹⁾	15:00-15:59	36	43	87 (19/2)
	16:00-16:59	48	55	51 (19/2)
	17:00-17:59	51	52	52 (19/2)
24/02/2005	15:00-15:59	66	85	75
	16:00-16:59	61	61	52
	17:00-17:59	55	47	65

Remark:

- (1) The monitoring stations, Reservoir, East Gate & Ash Lagoon are located within Lamma Power Station.
- (2) TEOM 1-hr TSP sampler at AM3 (Ash Lagoon) was found defective on 18/02/2005. A make-up 1hr TSP sampling for AM3 was carried out on 19/02/2005.

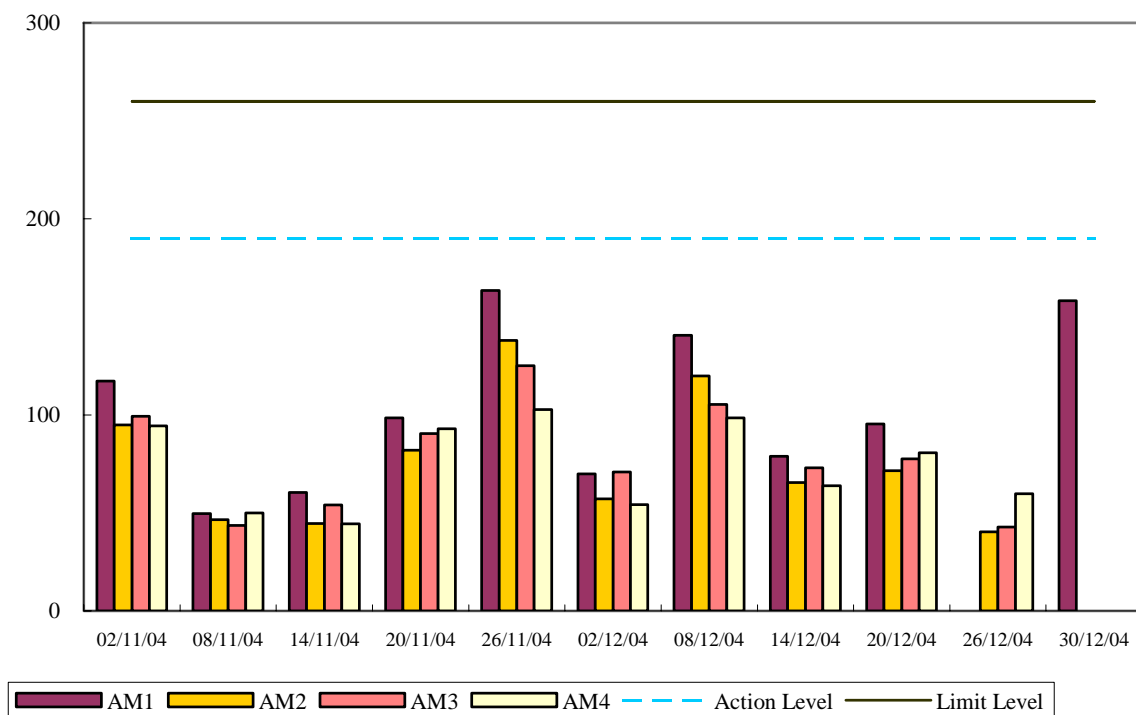
	1-hr TSP ($\mu\text{g}/\text{m}^3$)	24-hr TSP ($\mu\text{g}/\text{m}^3$)
Action Level	340	190
Limit Level	500	260

Calibration: Calibration details are shown in appendix F.

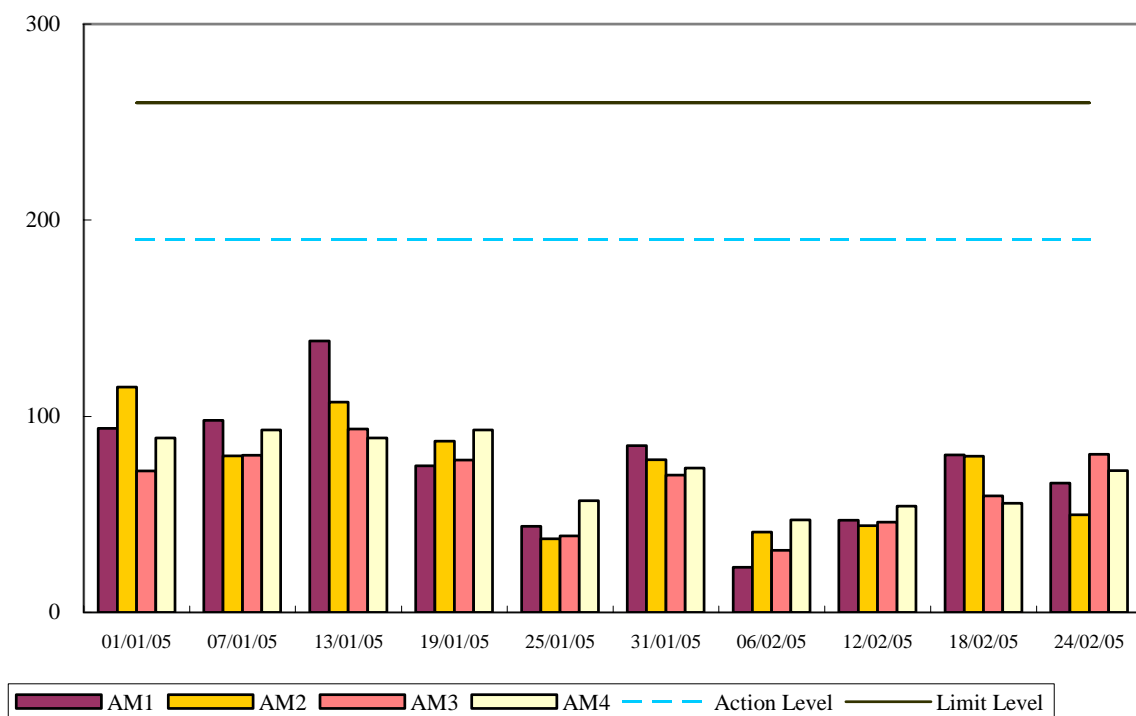
Equipment used:

Location	1-hr TSP	24-hr TSP
Reservoir and East Gate	TEOM 1400a	High Volume Air Sampler
Ash Lagoon		Partisol Model 2000 Sampler
Tai Yuen Village	-	MINIVOL Portable Sampler

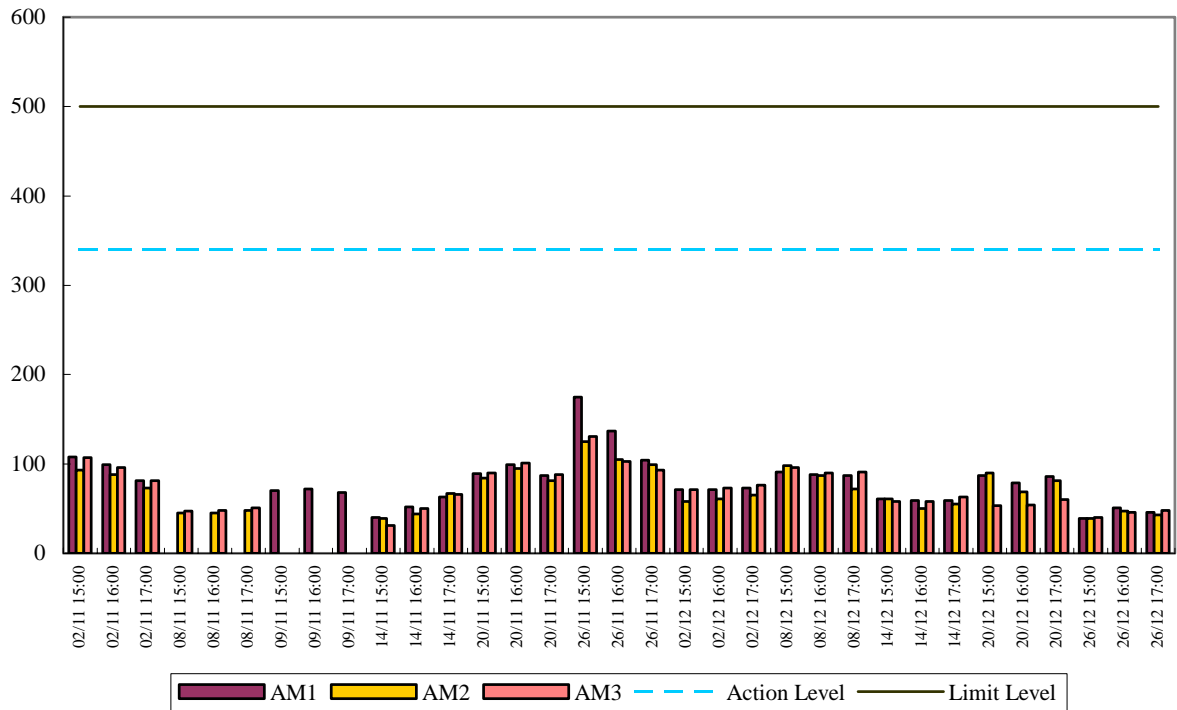
24-hr TSP Air Monitoring Data (November 2004 - December 2004)



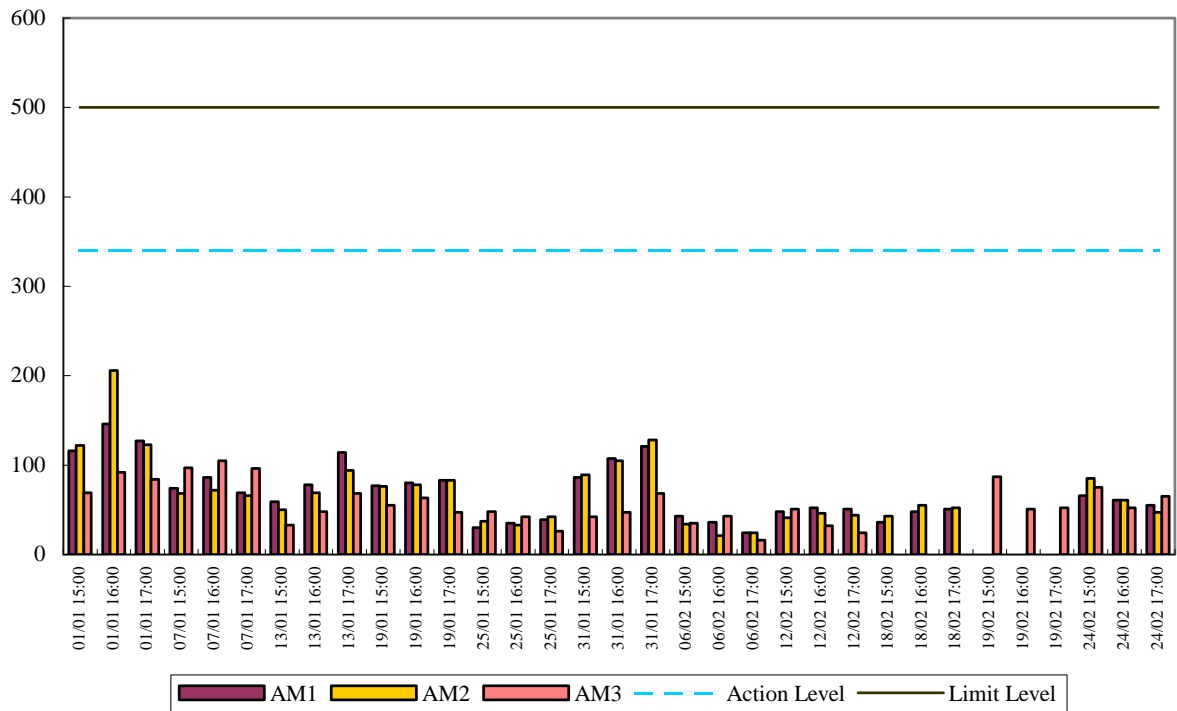
24-hr TSP Air Monitoring Data (January 2005 - February 2005)



1-hr TSP Air Monitoring Data (November 2004 - December 2004)



1-hr TSP Air Monitoring Data (January 2005 - February 2005)



Appendix E.1

Continuous Noise Monitoring Results for February 2005

Site: Lamma Power Station Extension - Superstructure and E&M Works
 Measurement Location: Ash Lagoon and Ching Lam
 Measurement Parameter: 30-min Leq (07:00-19:00 hrs on normal weekdays)
 5-min Leq (07:00-23:00 hrs on holidays and 19:00-23:00 hrs on all other days, and 23:00-07:00 hrs of next day)
 Noise Equipment Used: Rion NA-27 (Ash Lagoon) and B&K 2238F (Ching Lam) sound level meters and Rion NC-74 sound level calibrator
 Last Calibration Date: Rion NA-27 sound level meter - 17/02/2005
 B&K 2238F sound level meter - 13/07/2004
 B&K 4231 calibrator - 26/10/2004

Date	Time	Calculated Noise Level at NSR at Long Tsai Tsuen/Hung Shing Ye (dB(A))		Limit Noise Level (dB(A))	Calculated Noise Level at NSR at the school within Tai Wan San Tsuen (dB(A))		Limit Noise Level (dB(A))
		Max	Avg		Max	Avg	
01/02/2005	07:00-19:00	47	43	75	38	35	70
01/02/2005	19:00-23:00	46	45	60	40	36	60
01/02/2005	23:00-07:00	--	--	45	--	--	45
02/02/2005	07:00-19:00	46	43	75	--	--	70
02/02/2005	19:00-23:00	46	45	60	41	37	60
02/02/2005	23:00-07:00	--	--	45	--	--	45
03/02/2005	07:00-19:00	49	45	75	41	36	70
03/02/2005	19:00-23:00	46	46	60	41	40	60
03/02/2005	23:00-07:00	38	34	45	33	30	45
04/02/2005	07:00-19:00	47	44	75	42	38	70
04/02/2005	19:00-23:00	42	42	60	38	36	60
04/02/2005	23:00-07:00	--	--	45	--	--	45
05/02/2005	07:00-19:00	46	43	75	35	30	70
05/02/2005	19:00-23:00	44	43	60	39	34	60
05/02/2005	23:00-07:00	--	--	45	--	--	45
06/02/2005	07:00-23:00	47	44	60	41	34	60
06/02/2005	23:00-07:00	--	--	45	--	--	45
07/02/2005	07:00-19:00	46	43	75	39	34	70
07/02/2005	19:00-23:00	44	44	60	39	36	60
07/02/2005	23:00-07:00	35	35	45	30	30	45
08/02/2005	07:00-19:00	46	44	75	35	33	70
08/02/2005	19:00-23:00	--	--	60	--	--	60

Date	Time	Calculated Noise Level at NSR at Long Tsai Tsuen/Hung Shing Ye (dB(A))		Limit Noise Level (dB(A))	Calculated Noise Level at NSR at the school within Tai Wan San Tsuen (dB(A))		Limit Noise Level (dB(A))
		Max	Avg		Max	Avg	
08/02/2005	23:00-07:00	40	36	45	35	31	45
09/02/2005	07:00-23:00	34	31	60	30	27	60
09/02/2005	23:00-07:00	--	--	45	--	--	45
10/02/2005	07:00-23:00	36	36	60	31	31	60
10/02/2005	23:00-07:00	--	--	45	--	--	45
11/02/2005	07:00-23:00	36	34	60	31	29	60
11/02/2005	23:00-07:00	--	--	45	--	--	45
12/02/2005	07:00-19:00	46	43	75	39	38	70
12/02/2005	19:00-23:00	44	44	60	39	37	60
12/02/2005	23:00-07:00	--	--	45	--	--	45
13/02/2005	07:00-23:00	45	43	60	40	37	60
13/02/2005	23:00-07:00	40	36	45	37	32	45
14/02/2005	07:00-19:00	45	42	75	43	38	70
14/02/2005	19:00-23:00	44	44	60	39	35	60
14/02/2005	23:00-07:00	36	36	45	38	35	45
15/02/2005	07:00-19:00	45	42	75	41	35	70
15/02/2005	19:00-23:00	41	41	60	36	35	60
15/02/2005	23:00-07:00	30	27	45	25	22	45
16/02/2005	07:00-19:00	43	40	75	38	35	70
16/02/2005	19:00-23:00	42	41	60	37	36	60
16/02/2005	23:00-07:00	--	--	45	--	--	45
17/02/2005	07:00-19:00	45	44	75	38	38	70
17/02/2005	19:00-23:00	46	46	60	41	37	60
17/02/2005	23:00-07:00	--	--	45	--	--	45
18/02/2005	07:00-19:00	54	51	75	43	41	70
18/02/2005	19:00-23:00	47	46	60	43	41	60
18/02/2005	23:00-07:00	29	27	45	24	22	45
19/02/2005	07:00-19:00	51	50	75	41	39	70
19/02/2005	19:00-23:00	48	48	60	38	34	60
19/02/2005	23:00-07:00	33	27	45	28	22	45
20/02/2005	07:00-23:00	50	47	60	45	37	60
20/02/2005	23:00-07:00	32	29	45	28	24	45
21/02/2005	07:00-19:00	52	49	75	45	39	70
21/02/2005	19:00-23:00	49	48	60	36	34	60
21/02/2005	23:00-07:00	--	--	45	--	--	45

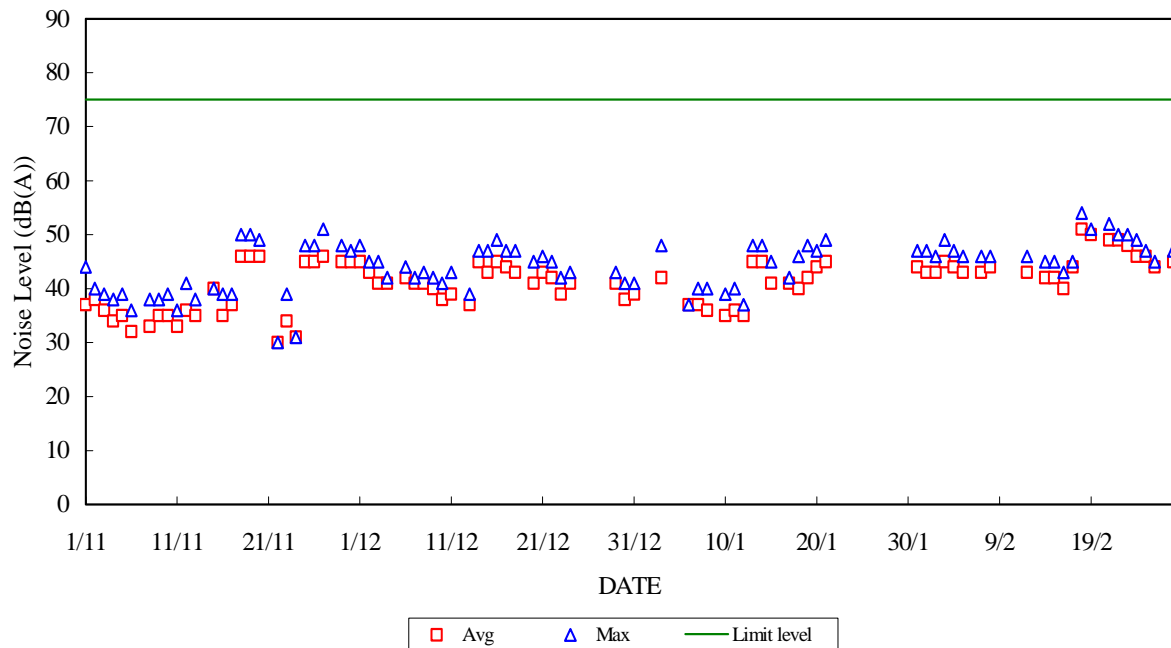
Date	Time	Calculated Noise Level at NSR at Long Tsai Tsuen/Hung Shing Ye (dB(A))		Limit Noise Level (dB(A))	Calculated Noise Level at NSR at the school within Tai Wan San Tsuen (dB(A))		Limit Noise Level (dB(A))
		Max	Avg		Max	Avg	
22/02/2005	07:00-19:00	50	49	75	45	42	70
22/02/2005	19:00-23:00	48	47	60	37	35	60
22/02/2005	23:00-07:00	--	--	45	--	--	45
23/02/2005	07:00-19:00	50	48	75	38	36	70
23/02/2005	19:00-23:00	46	46	60	35	32	60
23/02/2005	23:00-07:00	39	39	45	--	--	45
24/02/2005	07:00-19:00	49	46	75	42	40	70
24/02/2005	19:00-23:00	--	--	60	--	--	60
24/02/2005	23:00-07:00	27	27	45	23	23	45
25/02/2005	07:00-19:00	47	46	75	41	37	70
25/02/2005	19:00-23:00	35	32	60	31	27	60
25/02/2005	23:00-07:00	42	37	45	37	32	45
26/02/2005	07:00-19:00	45	44	75	36	33	70
26/02/2005	19:00-23:00	44	39	60	35	32	60
26/02/2005	23:00-07:00	42	36	45	36	30	45
27/02/2005	07:00-23:00	48	46	60	42	37	60
27/02/2005	23:00-07:00	31	30	45	--	--	45
28/02/2005	07:00-19:00	47	45	75	42	40	70
28/02/2005	19:00-23:00	32	32	60	28	28	60
28/02/2005	23:00-07:00	--	--	45	--	--	45

Note: "--" represents the measured noise monitoring data lower than the established notional background level/discarded under strong wind.

Construction Noise Monitoring in November 2004 - February 2005

NSR at Long Tsai Tsuen/Hung Shing Ye

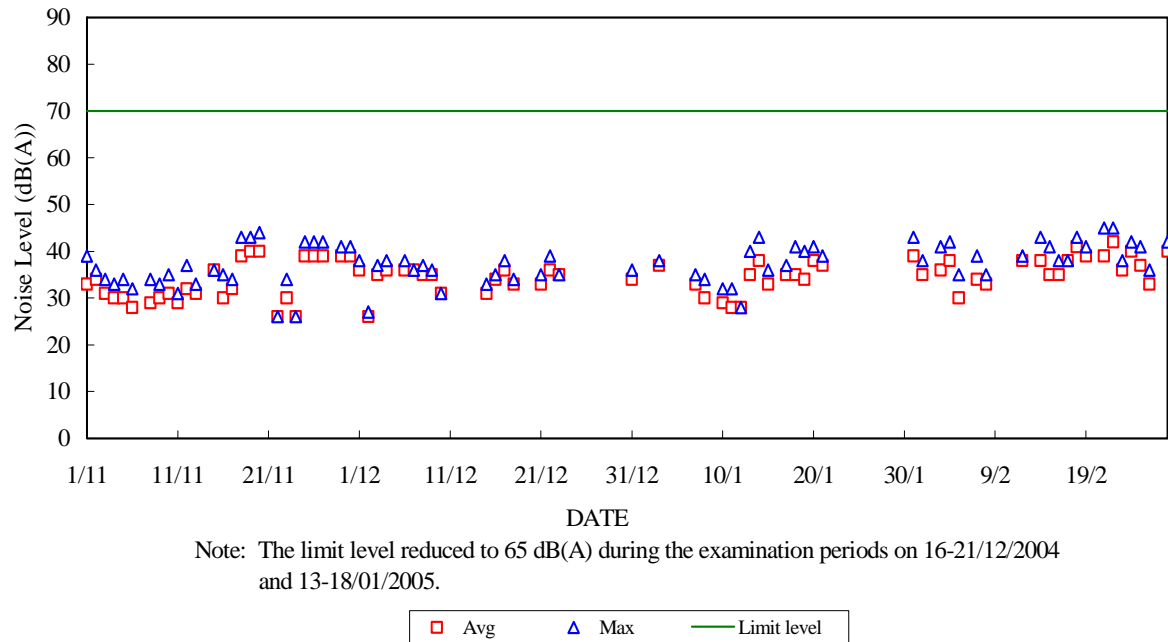
07:00-19:00 hrs on Normal Weekdays



Construction Noise Monitoring in November 2004 - February 2005

NSR at School within Tai Wan San Tsuen

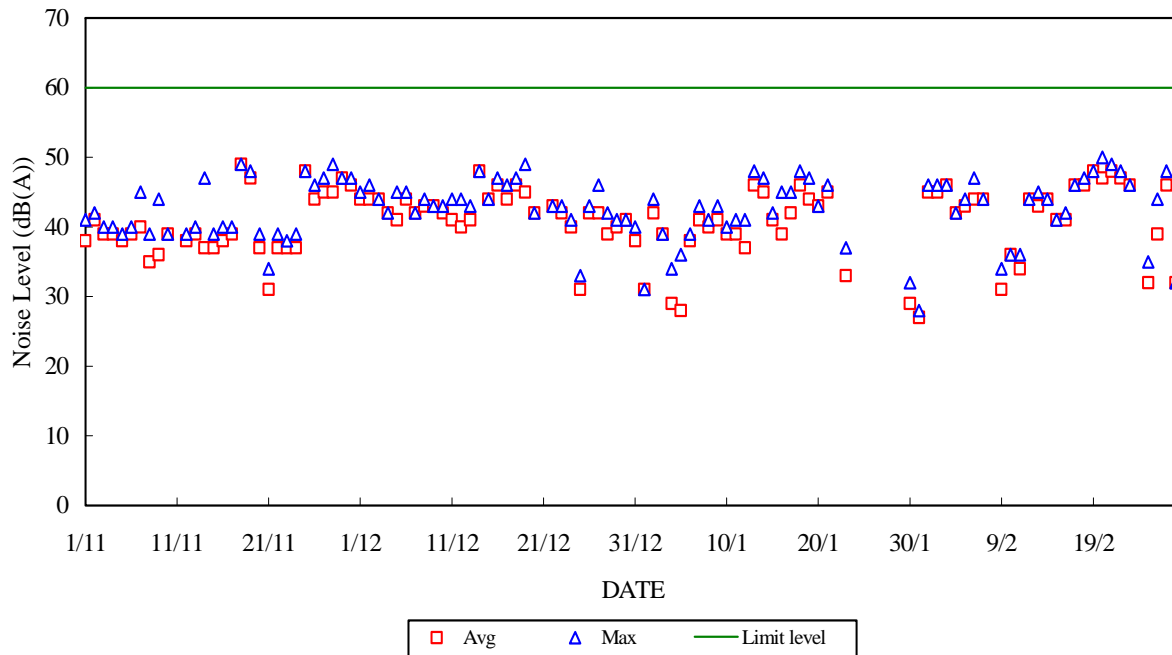
07:00-19:00 hrs on Normal Weekdays



Construction Noise Monitoring in November 2004 - February 2005

NSR at Long Tsai Tsuen/Hung Shing Ye

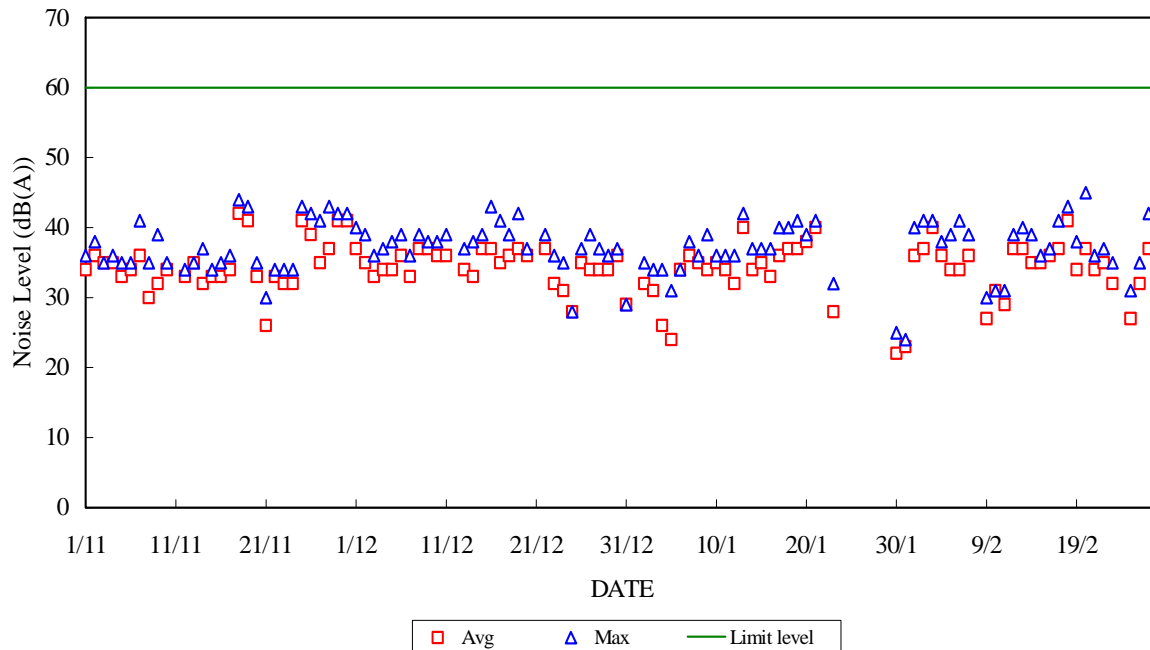
07:00-23:00 hrs on Holidays and 19:00-23:00 hrs on All Other Days



Construction Noise Monitoring in November 2004 - February 2005

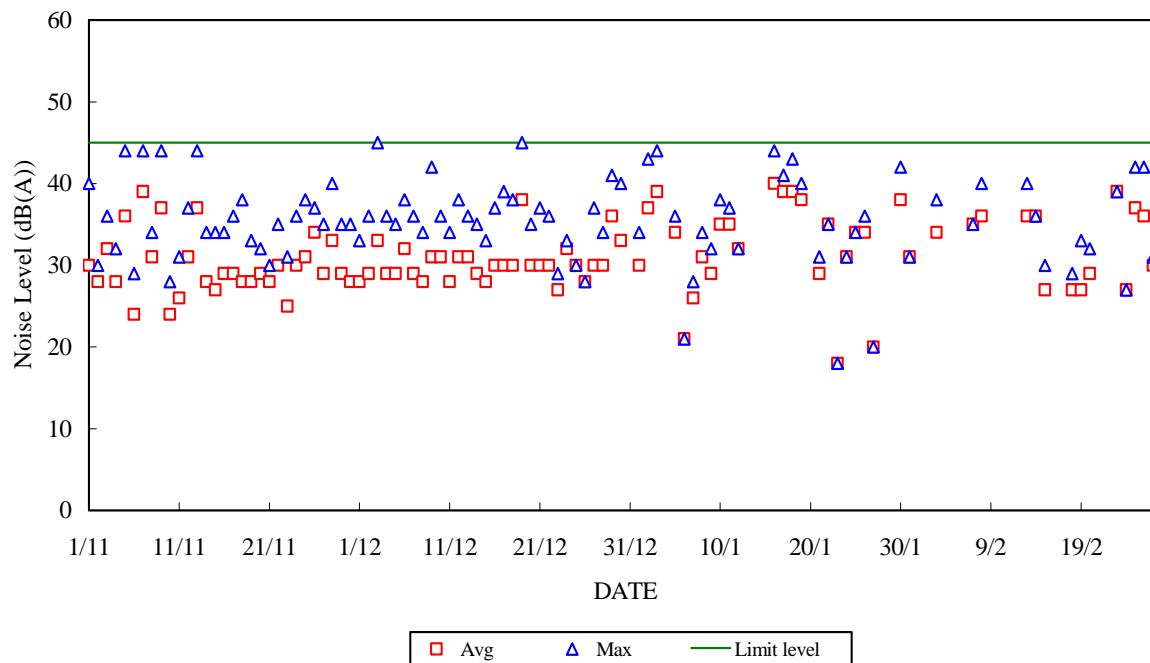
NSR at School within Tai Wan San Tsuen

07:00-23:00 hrs on Holidays and 19:00-23:00 hrs on All Other Days



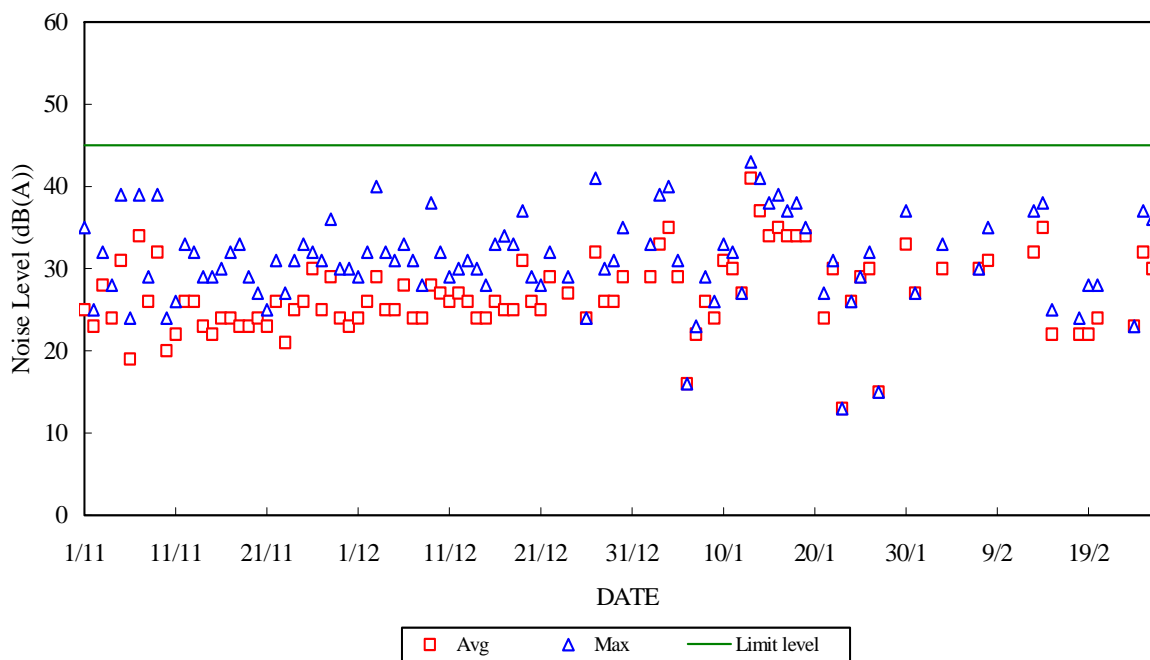
Construction Noise Monitoring in November 2004 - February 2005

NSR at Long Tsai Tsuen/Hung Shing Ye
23:00-07:00 hrs of Next Day



Construction Noise Monitoring in November 2004 - February 2005

NSR at School within Tai Wan San Tsuen
23:00-07:00 hrs of Next Day



Appendix E.2

Manual Noise Monitoring Results for February 2005

Site: Lamma Power Station Extension - Transmission System
Measurement Parameter: 30-min Leq (07:00-19:00 hrs on normal weekdays)
Noise Equipment Used: Rion NL-31 sound level meter and Rion NC-74 sound level calibrator
Wind Speed Equipment: Sper Scientific anemometer 840003
Last Calibration Date: Rion NL-31 sound level meter - 08/07/2004
Rion NC-74 sound level calibrator - 09/08/2004

Measurement Location: N4 - Pak Kok Tsui No.2

Date	Time	Measured Noise Level (dB(A))	Notional Background Noise Level (dB(A))	Corrected Noise Level (dB(A))	Limit Noise Level (dB(A))	Wind Speed (m/s)
01/02/2005	14:00-14:30	61.3	54.9	60.2	75	<5
04/02/2005	10:00-10:30	60.9	54.9	59.6	75	<5
08/02/2005	11:00-11:30	53.8	54.9	--	75	<5
12/02/2005	10:00-10:30	51.4	54.9	--	75	<5
15/02/2005	14:00-14:30	53.6	54.9	--	75	<5
18/02/2005	10:00-10:30	60.3	54.9	58.8	75	<5
22/02/2005	14:00-14:30	58.4	54.9	55.8	75	<5
25/02/2005	10:00-10:30	58.2	54.9	56.2	75	<5

Measurement Location: N5 - Pak Kok Tsui No.8

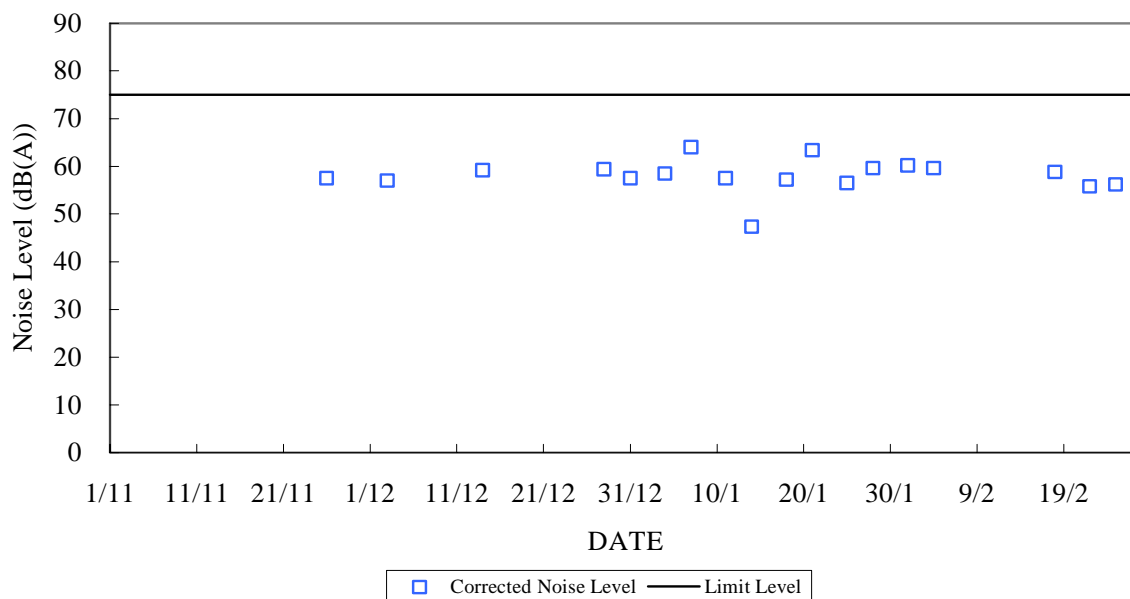
Date	Time	Measured Noise Level (dB(A))	Notional Background Noise Level (dB(A))	Corrected Noise Level (dB(A))	Limit Noise Level (dB(A))	Wind Speed (m/s)
01/02/2005	14:40-15:10	59.2	54.9	57.2	75	<5
04/02/2005	10:40-11:10	54.6	54.9	--	75	<5
08/02/2005	11:40-12:10	51.4	54.9	--	75	<5
12/02/2005	10:40-11:10	52.3	54.9	--	75	<5
15/02/2005	14:40-15:10	53.6	54.9	--	75	<5
18/02/2005	10:40-11:10	56.7	54.9	52.0	75	<5
22/02/2005	14:40-15:10	64.7	54.9	64.2	75	<5
25/02/2005	10:40-11:10	58.6	54.9	56.2	75	<5

Note:

1. The noise generated from local noisy events (e.g. dog barking, passing-by pedestrians, motor vehicle, aeroplane, helicopter, etc.) was manually removed during measurement as far as practicable.
2. "--" represents the measured noise monitoring data lower than the established notional background level.

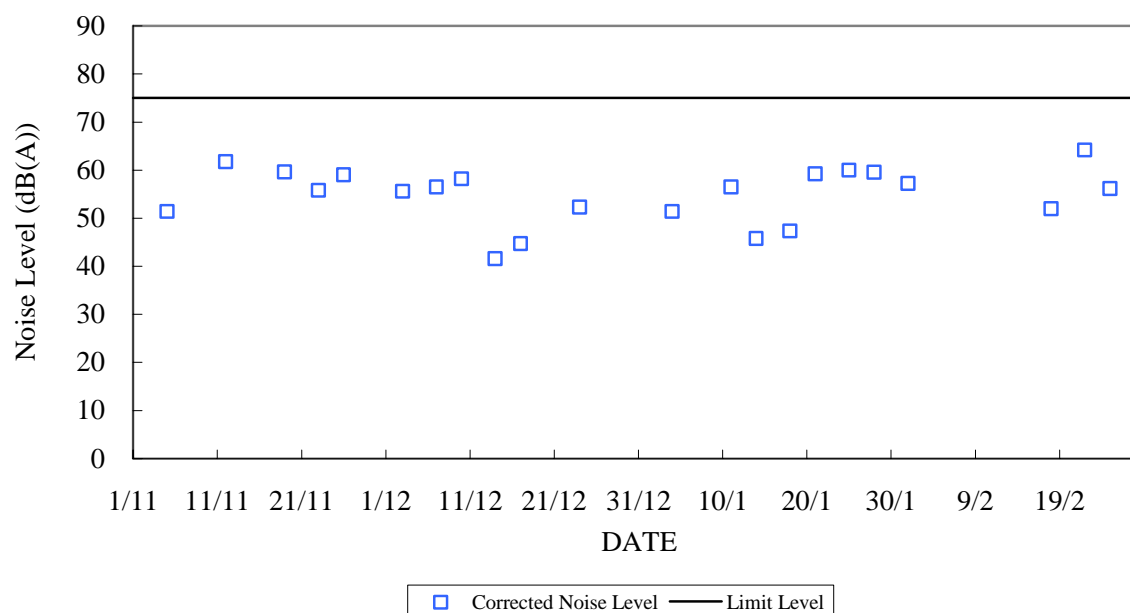
Construction Noise Monitoring in November 2004 - February 2005

NSR at N4 - Pak Kok Tsui No. 2
07:00 -19:00 hrs on Normal Weekdays



Construction Noise Monitoring in November 2004 - February 2005

NSR at N5 - Pak Kok Tsui No. 8
07:00 -19:00 hrs on Normal Weekdays



Appendix F

The QA/QC Procedures and Results

HIGH VOLUME AIR SAMPLER
SITE VISIT LOG SHEET

Site Name: RT Site No.: AM1
 Date of visit: 14-2-05 Hour of Visit: 11:20
 Staff name: W.L.MAK HVAS S/N: 2198
 Used filter paper no.: LR90 New filter paper no.: LR92
 Type of filter: Glass-fibre

I. Ambient Conditions

Temperature, $T_a = \frac{18.5 + 273}{291.5} \text{ K}$ Pressure, $P_a = 1014 \text{ mb}$

II. Correction of manometer reading

Calibration orifice No.	Manometer reading at site conditions corresponds to $Q_{STD} = 40 \text{ ft}^3/\text{min}$. (inch H_2O)
1534(09/2004)	$\Delta H_a = 18.33(T_a/P_a) = 5.26$

Manometer reading before calibration: 5.5

Adjustment of flow controller (Y/N): Y

Manometer reading after calibration: 5.4

Note: Tolerance Limit of HVAS flow: $\pm 1.0 \text{ ft}^3/\text{min}$. Corresponding limits for manometer : $\pm 0.2 \text{ inch H}_2\text{O}$

III. General Conditions of HVAS

IV. Remarks

HIGH VOLUME AIR SAMPLER
SITE VISIT LOG SHEET

Site Name: E.G. Site No.: AM2
 Date of visit: 14-2-05 Hour of Visit: 10:00
 Staff name: W.L. MAK, H.K. TUNG HVAS S/N: 2195
 Used filter paper no.: LR91 New filter paper no.: LR93
 Type of filter: Glass-fibre

I. Ambient Conditions

Temperature, $T_a = \frac{17.1 + 273}{270.1} \text{ K}$ Pressure, $P_a = 1019 \text{ mb}$

II. Correction of manometer reading

Calibration orifice No.	Manometer reading at site conditions corresponds to $Q_{STD} = 40 \text{ ft}^3/\text{min.}$ (inch H_2O)
1534(09/2004)	$\Delta H_a = 18.33(T_a/P_a) = 5.2$

Manometer reading before calibration: 5.3
 Adjustment of flow controller (Y/N): N
 Manometer reading after calibration: 5.3

Note: Tolerance Limit of HVAS flow: $\pm 1.0 \text{ ft}^3/\text{min.}$ Corresponding limits for manometer : $\pm 0.2 \text{ inch H}_2\text{O}$

III. General Conditions of HVAS

IV. Remarks

PARTISOL TSP SAMPLER
SITE VISIT LOG SHEET

Site Name: A.L. Site Number: AM3
Date of Visit: 14-2-05 Hour of Visit: 10:50
Staff Name: W.L. MAK Partisol S/N: 20008 205500001
Used Filter No.: PC 41 New Filter No.: PC 42
Ambient temperature: 18.5°C Ambient pressure: 1016 mbar.

I. General Services

1. Replace control unit Large In-line Filter X
2. Clean the sample inlet head ✓
3. Clean sample tube X
4. Clean / Replace pump head X
5. Clean / Replace piston X

II. Operational Audits (3 months interval as recommended by manufacturer)

1. Temperature Check (Ambient temperature $\pm 2^{\circ}\text{C}$)

18.2 °C Before Calibration: Y/N N 18.5 °C After

2. Pressure Check (Ambient pressure ± 20 mbar)(factor = 0.000987)

(1.007)/020 mbar Before Calibration: Y/N N mbar After

3. Flow Check (16.7 \pm 1.1 litre/min)

16.7 l/min Before Calibration: Y/N N 16.7 l/min After

III. Remarks

MINI VOLUME AIR SAMPLER

SITE VISIT LOG SHEET

Site Name: TYV Site No.: AM 4

Date of visit: 14-2-05 Hour of Visit: 10:55

Staff name: H.K. TSANG MINIVOL S/N: 3393

Used filter paper no.: MH26 New filter paper no.: MH27

Type of filter: ~~Cellulose~~ / Glass-fibre
(Delete as appropriate)

I. Calibration is performed by using Drycal DC-2 Flow Calibrator

5 Sl/min set point is recommended

4.965 Before 5.00 After

II. General Service of Mini Vol Air Sampler

1. Clean Rotameter: X
2. Clean / replace Pump Valves: X
3. Clean / replace Pump Diaphragms: X
4. Clean Impaction Inlet: ✓
5. Replace Timer Battery Every 6 months: X
6. Replace Inlet Filter: ✓

III. Remarks

THE HONGKONG ELECTRIC CO., LTD.
LAMMA POWER STATION EXTENSION
TEOM 1400A CONTINUOUS DUST MONITOR
DATA QUALITY ASSURANCE LOG SHEET

Month : February

Year : 2005

Reservoir (AM1)					
Date	Frequency (Hz) (230 – 260)	Noise (< 0.1)	Operation Mode (Mode 4)	Main Flow (l/min) (0.94 – 1.06)	Aux. Flow (l/min) (14.67 – 16.67)
6/2/2005	252.93	0.060	4	1.00	15.68
12/2/2005	255.49	0.034	4	1.02	15.68
18/2/2005	255.26	0.033	4	1.00	15.68
24/2/2005	254.86	0.036	4	1.00	15.68

East Gate (AM2)					
Date	Frequency (Hz) (230 – 250)	Noise (< 0.1)	Operation Mode (Mode 4)	Main Flow (l/min) (0.94 – 1.06)	Aux. Flow (l/min) (14.67 – 16.67)
6/2/2005	244.62	0.031	4	0.99	15.67
12/2/2005	244.42	0.029	4	1.00	15.65
18/2/2005	245.26	0.050	4	1.00	15.64
24/2/2005	244.86	0.057	4	0.99	15.64

Ash Lagoon (AM3)					
Date	Frequency (Hz) (230 – 260)	Noise (< 0.1)	Operation Mode (Mode 4)	Main Flow (l/min) (0.94 – 1.06)	Aux. Flow (l/min) (14.67 – 16.67)
6/2/2005	261.69	0.017	4	1.01	15.69
12/2/2005	261.57	0.024	4	1.01	15.68
19/2/2005*	261.36	0.035	4	1.01	15.67
24/2/2005	261.08	0.020	4	1.01	15.67

Maintenance Record			
	Reservoir	East Gate	Ash Lagoon
TEOM Filter Exchange	✓	✓	✓
Clean TSP Inlet	✓	✓	✓
Replace flow in-line filter			
Pump Repair			
Leak Check			
Flow Audit			
Flow Controller Calibration			
A/C filter cleaning	✓	✓	✓

Remarks:

* TEOM 1-hr TSP sampler at AM3 (Ash Lagoon) was found defective on 18/2/2005. A make-up 1-hr sample for AM3 was carried out on 19/2/2005.

Prepared by :

Checked by :

THE HONGKONG ELECTRIC CO., LTD.
LAMMA POWER STATION EXTENSION
NOISE MONITORING STATION
SITE VISIT LOG SHEET

Location Ash Lagoon/Ching Lam*

Date 17-2-05 Time 10:40

Equipment Rion NA-27/B&K 2238F* Sound Level Meter

Serial Number 00111465/00111466/00111467/2343838/2356907*

Staff Attended W.L. MAK ; H.K. TSANG

1. Calibration

Acoustic calibrator used B&K 4231
Rion NC-74

Calibration level before adjustment (dB(A)) 94.0

Calibration level after adjustment (dB(A)) 94

2. Weather Conditions

a. ~~Sunny/fine/cloudy/showery/heavy rain*~~

b. ~~Strong wind/breeze/calm*~~

3. Remark/Observation

Note: * - Please delete where inappropriate

THE HONGKONG ELECTRIC CO., LTD.
LAMMA POWER STATION EXTENSION
NOISE MONITORING STATION
SITE VISIT LOG SHEET

Location Ash Lagoon/~~Ching Lam~~*

Date 18-2-04 Time 11:00

Equipment Rion NA-27/~~B&K 2238F~~* Sound Level Meter

Serial Number ~~00111465/00111466/00111467/2343838/2356907~~*

Staff Attended W.L. MAK, H.K. TSANG

1. Calibration

Acoustic calibrator used

~~Rion NC-74~~
B&K 4231

Calibration level before adjustment (dB(A)) 93.8

Calibration level after adjustment (dB(A)) 94

2. Weather Conditions

a. ~~Sunny/fine/cloudy/showery/heavy rain*~~

b. ~~Strong wind/breeze/calm*~~

3. Remark/Observation

Note: * - Please delete where inappropriate

18/5/2004

Equipment Calibration Record for February 2005

Site: Civil works for 275kV Cable Route from Lamma Island to Cyberport

Noise Equipment Used: RION NL-31

Calibrator Used: RION NC-74

Measurement Location: N4 – Pak Kok Tsui No. 2

Date	Calibration Level before Measurement (dB(A))	Calibration Level after Measurement (dB(A))	Calibrated by
01/02/2005	94.0	94.0	Anthony Wong
04/02/2005	94.0	94.0	Anthony Wong
08/02/2005	94.0	94.0	Anthony Wong
12/02/2005	94.0	94.0	Anthony Wong
15/02/2005	94.0	94.0	Anthony Wong
18/02/2005	94.0	94.0	Anthony Wong
22/02/2005	94.0	94.0	Anthony Wong
25/02/2005	94.0	94.0	Anthony Wong

Measurement Location: N5 – Pak Kok Tsui No. 8

Date	Calibration Level before Measurement (dB(A))	Calibration Level after Measurement (dB(A))	Calibrated by
01/02/2005	94.0	94.0	Anthony Wong
04/02/2005	94.0	94.0	Anthony Wong
08/02/2005	94.0	94.0	Anthony Wong
12/02/2005	94.0	94.0	Anthony Wong
15/02/2005	94.0	94.0	Anthony Wong
18/02/2005	94.0	94.0	Anthony Wong
22/02/2005	94.0	94.0	Anthony Wong
25/02/2005	94.0	94.0	Anthony Wong

Note: Measurement accepted as valid only if the calibration levels from before and after the noise measurement agreed to within 1.0 dB.

Appendix G Event/Action Plans

Table G.1 Event and Action Plans for Air Quality

Event	Monitoring	Action		
	ET Leader	IEC	Engineer	Contractor
Action Level				
Exceedance of one sample	Identify source Inform Engineer and IEC verbally Repeat measurement to confirm finding	Check monitoring data submitted by ET and advise Engineer.	Notify Contractor Checking monitoring data and contractor's working methods	Rectify any unacceptable practice amend any working methods if appropriate
Exceedance of two or more consecutive samples	Identify source Inform Engineer and IEC verbally Repeat measurement to confirm finding Increase monitoring frequency Discuss with Engineer and Contractor on remedial actions required If exceedance continues, arrange meeting with Engineer If exceedance stops, discontinue additional monitoring	Check monitoring data submitted by ET and advise Engineer. Provide feedback to the Engineer on the remedial actions proposed by the ET / Contractor Advise Engineer on the effectiveness of the proposed remedial measures Verify the implementation of the remedial measures	Confirm receipt of notification of failure in writing Notify contractor Checking monitoring data and contractor's working methods Discuss proposed remedial actions with the ET and Contractor Ensure remedial actions properly implemented	Submit proposals for remedial actions to Engineer within 3 working days of notifications Implement the agreed proposals Amend proposal if appropriate
Limit level				
Exceedance of one sample	Repeat measurement to confirm finding. Identify the source(s) of the impact. If the exceedance is found to be valid and due to the Construction works, verbally advise the Contractor, Engineer and IEC, and inform the EPD of the exceedance, as soon as practicable. Increase monitoring frequency to daily Assess the effectiveness of the contractor's remedial actions and keep Engineer, IEC and EPD informed of the results	Check monitoring data submitted by ET and advise Engineer Provide feedback to the Engineer on the remedial actions proposed by the ET / Contractor Advise Engineer on the effectiveness of the proposed remedial measures Verify the implementation of the remedial measures	Confirm receipt of notification of failure in writing Notify Contractor Checking monitoring data and Contractor's working method Discuss with ET and Contractor on remedial actions to be provided Ensure remedial measures properly implemented	Take immediate action to avoid further exceedance Submit proposals for remedial actions to Engineer within 3 working days of notifications Implement the agreed proposals Amend proposal if appropriate

Event	Monitoring		Action	
	ET Leader	IEC	Engineer	Contractor
Exceedance of two or more consecutive samples	Identify source	Provide feedback to the Engineer on the remedial actions proposed by the ET / Contractor	Confirm receipt of notification of failure in writing	Take immediate action to avoid further exceedance
	If the exceedance is found to be valid and due to the construction works, verbally advise the Contractor, Engineer and IEC, and inform the EPD of the exceedance as soon as practicable.	Advise Engineer on the effectiveness of the proposed remedial measures	Checking monitoring data and Contractor's working methods	Submit proposals for remedial actions to Engineer within 3 working days of notifications
	Repeat measurement to confirm finding	Verify the implementation of the remedial measures	Notify Contractor	Implement the agreed proposals
	Increase monitoring frequency to daily		Discuss proposed remedial actions with ET and Contractor	Resubmit proposals if problem still not under control
	Carry out analysis of Contractor's working procedures to determine possible mitigation to be implemented		Ensure remedial measures properly implemented	
	Arrange meeting with Engineer and Contractor to discuss the remedial actions to be taken		If exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop the portion of work until the exceedance is abated	Stop the relevant portion of works as determined by the Engineer until the exceedance is abated
	If exceedance stops, discontinue additional monitoring			

Table G.2 Event and Action Plans for Construction Noise

Exceedance	ET Leader	IEC	Engineer	Contractor
Action Level	Undertake noise measurement/check monitoring data to establish validity of complaint.	Review the analysed results submitted by the ET.	Notify Contractor of the complaint if proven.	Submit proposals for remedial actions to Engineer.
	If the complaint is valid, inform Engineer and IEC verbally.	Review the remedial measures proposed by the Contractor and advise the Engineer and ET accordingly.	Check Contractor's working methods and advise IEC and ET accordingly.	Amend proposals if required by the Engineer.
	Identify the source(s) of the noise.	Verify the implementation of the remedial measures.	Remind the Contractor of his contractual obligations and discuss remedial actions.	Implement the remedial actions immediately upon instruction from the Engineer.
	Discuss remedial actions required with Contractor and Engineer.		Keep the Contractor informed of the efficacy of remedial actions.	Liaise with the Engineer to optimise the effectiveness of the agreed mitigation.
	Increase manual monitoring frequency to assess efficacy of remedial measures.			
	If exceedance continues, review implementation of appropriate mitigation measures.			
Limit Level	Repeat manual measurement/check monitoring data to confirm findings.	Agree potential remedial actions with Engineer, ET and Contractor.	Notify Contractor of exceedance.	Take immediate action to avoid further exceedance.
	Identify the source(s) of the impact. If the exceedance is found to be valid and due to the Construction works, verbally advise the Contractor, Engineer and IEC, and inform the EPD of the exceedance, as soon as practicable.	Review Contractor's remedial actions / measures to ensure their effectiveness and advise the Engineer and ET accordingly.	Check Contractor's working methods and advise IEC and ET accordingly.	Submit proposals for remedial actions to Engineer.
	Discuss remedial actions required with Engineer.	Verify the implementation of the remedial measures	Discuss with Contractor the remedial actions to be implemented.	Amend proposals if required by the Engineer.
	Increase manual monitoring frequency to assess efficacy of remedial measures.		Keep the Contractor informed of the efficacy of remedial actions. If the exceedance continues, consider what portion of the work is responsible and instruct the Contractor to stop the portion of work until the exceedance is abated	Implement remedial actions immediately upon instruction from the Engineer. If the exceedance continues, consider what portion of the work is responsible and, as instructed by the Engineer, stop the portion of work until the exceedance is abated

Table G.3 Event and Action Plans for Water Quality

Exceedance	ET Leader	IEC	Engineer	Contractor
Action level exceeded on one sampling day	<p>Verbally inform the Contractor, and IEC.</p> <p>Repeat in-situ measurement to confirm findings;</p> <p>Identify source(s) of impact;</p> <p>Check monitoring data, all plant, equipment and Contractor's working methods;</p> <p>Discuss mitigation measures with Engineer and Contractor;</p> <p>Repeat measurement on next day of exceedance.</p>	<p>Provide feedback to the Engineer on the remedial actions proposed by the ET / Contractor</p> <p>Advise Engineer on the effectiveness of the proposed remedial measures</p> <p>Verify the implementation of the remedial measures</p>	<p>Discuss with Contractor the proposed mitigation measures;</p> <p>Make agreement on the mitigation measures to be implemented;</p> <p>Assess the effectiveness of the implemented mitigation measures.</p>	<p>Inform the Engineer and confirm notification of the non-compliance in writing;</p> <p>Rectify unacceptable practice;</p> <p>Check all plant and equipment;</p> <p>Consider changes of working methods;</p> <p>Propose and discuss mitigation measures with Engineer;</p> <p>Implement the agreed mitigation measures.</p>
Action level exceeded on more than one consecutive sampling day	<p>Repeat in-situ measurements to confirm findings;</p> <p>Identify source(s) of impact;</p> <p>Inform Contractor and IEC;</p> <p>Check monitoring data, all plant, equipment and Contractor's working methods;</p> <p>Discuss mitigation measure with Engineer and Contractor;</p> <p>Ensure mitigation measures are implemented;</p> <p>Prepare to increase the monitoring frequency to daily;</p> <p>Repeat measurement on next day of exceedance.</p>	<p>Provide feedback to the Engineer on the remedial actions proposed by the ET / Contractor</p> <p>Advise Engineer on the effectiveness of the proposed remedial measures</p> <p>Verify the implementation of the remedial measures</p>	<p>Discuss with ET and Contractor on the proposed mitigation measures;</p> <p>Make agreement on the mitigation measures to be implemented;</p> <p>Assess the effectiveness of the implemented mitigation measures.</p>	<p>Inform the Engineer and confirm notification of the non-compliance in writing;</p> <p>Rectify unacceptable practice;</p> <p>Check all plant and equipment; Consider changes of working methods;</p> <p>Propose mitigation measures to Engineer within 3 working days and discuss with ET and Engineer;</p> <p>Implement the agreed mitigation measures.</p>

Exceedance	ET Leader	IEC	Engineer	Contractor
Limit level exceeded on one sampling day	<p>Verbally inform the Contractor, IEC and the EPD of the exceedance;</p> <p>Repeat in-situ measurement to confirm findings;</p> <p>Identify source(s) of impact;</p> <p>Check monitoring data, all plant, equipment and Contractor's working methods;</p> <p>Discuss mitigation measure with Engineer and Contractor;</p> <p>Ensure mitigation measures are implemented;</p> <p>Increase the monitoring frequency to daily until no exceedance of Limit level.</p>	<p>Provide feedback to the Engineer on the remedial actions proposed by the ET / Contractor</p> <p>Advise Engineer on the effectiveness of the proposed remedial measures</p> <p>Verify the implementation of the remedial measures</p>	<p>Discuss with Contractor on the proposed mitigation measures;</p> <p>Request Contractor to critically review the working methods;</p> <p>Make agreement on the mitigation measures to be implemented;</p> <p>Assess the effectiveness of the implemented mitigation measures.</p>	<p>Inform the Engineer and confirm notification of the non-compliance in writing;</p> <p>Rectify unacceptable practice;</p> <p>Check all plant and equipment; Consider changes of working methods;</p> <p>Propose mitigation measures to Engineer within 3 working days and discuss with Engineer;</p> <p>Implement the agreed mitigation measures.</p>
Limit level exceeded by more than one consecutive sampling day	<p>Repeat in-situ measurement to confirm findings;</p> <p>Identify source(s) of impact;</p> <p>Inform Contractor, IEC and EPD;</p> <p>Check monitoring data, all plant, equipment and Contractor's working methods;</p> <p>Discuss mitigation measure with Engineer and Contractor;</p> <p>Ensure mitigation measures are implemented;</p> <p>Increase the monitoring frequency to daily until no exceedance of Limit level for two consecutive days.</p>	<p>Provide feedback to the Engineer on the remedial actions proposed by the ET / Contractor</p> <p>Advise Engineer on the effectiveness of the proposed remedial measures</p> <p>Verify the implementation of the remedial measures</p>	<p>Discuss with Contractor on the proposed mitigation measures;</p> <p>Request Contractor to critically review the working methods;</p> <p>Make agreement on the mitigation measures to be implemented;</p> <p>Assess the effectiveness of the implemented mitigation measures;</p> <p>Consider and instruct, if necessary, the Contractor to slow down or to stop all or part of the marine works until no exceedance of the Limit Level.</p>	<p>Inform the Engineer and confirm notification of the non-compliance in writing;</p> <p>Rectify unacceptable practice;</p> <p>Check all plant and equipment; Consider changes of working methods;</p> <p>Propose mitigation measures to Engineer within 3 working days and discuss with Engineer;</p> <p>Implement the agreed mitigation measures..</p> <p>As directed by the Engineer, to slow down or to stop all or part of the marine work</p>

Appendix H

Site Audit Summary

The Hongkong Electric Co. Ltd.
Lamma Power Station Extension – Site Formation, Piling Works and
Superstructure Works
Weekly Site Inspection Checklist

Inspection date 2/2/05 Time 1500 Inspected By ET: Larry Wong
 Contractor: Planner Ling
 Site LMA - Superstructure Works

Weather

Condition ☐ Sunny ☒ Fine ☐ Overcast ☐ Hazy ☐ Drizzle ☐ Rain ☐ Storm
 Temperature 16 °C Humidity ☐ High ☒ Moderate ☐ Low
 Wind ☐ Calm ☒ Light ☐ Breeze ☐ Strong

GENERAL

Ref.	Checklist Condition	N/A	Yes	No	Unk	Remarks
VEP 1.5	Has a copy of the most update Environmental Permit been displayed at all vehicular site entrances/exits for public information?		/			
VEP 1.6	Is a copy of EIA report kept in Engineers' and Contractors' offices on site?		/			

AIR QUALITY

Ref.	Checklist Condition	N/A	Yes	No	Unk	Remarks
General Requirements						
Cap311R: 3	Has the contractors notified EPD of the construction site which is classified as a notifiable work in a specified form? If there is any change in the notice, do the contractors notify EPD of the change?		/			
Cap311R: Sch 12(3)	A compressed air jet shall not be used for cleaning or clearing dust from any vehicle, equipment, other materials or person. Is this observed?		/			
Cap311	Do the contractors possess valid Air Pollution Control Specified Processes Licenses for the concrete batching plant wherever applicable and have it available for inspection?	/				
Construction Sites						
EM&A : A1	Are haul roads paved with concrete or sprayed with water to keep the entire road wet?		/			
Stockpiling of dusty materials						
Cap311R: Sch 18	Are stockpiles of dusty materials entirely covered with impervious sheets or sheltered on the top and 3 sides or sprayed with water to maintain the entire surface wet to prevent dust emission?	/				

Ref.	Checklist Condition	N/A	Yes	No	Unk	Remarks
Cement and dry pulverized fuel ash (PFA)						
Cap311R: Sch 15(3)	Are the storage silos for cement or dry PFA prevented from overfilling?	/				
Cap311R: Sch 15(4)	Are the handlings of cement or dry PFA through a totally enclosed system equipped with air pollution control equipment at the vent of the system?	/				
Cap311R: Sch 15(2)	Is bulk cement or dry PFA stored in a closed silo fitted with a high-level alarm?	/				
Cap311R: Sch 17	Are the cement, dry PFA or other dusty materials collected by the air pollution control equipment disposed of in totally enclosed containers?	/				
Loading, unloading or transfer of dusty materials						
Cap311R: Sch 19	Are dusty materials, except cement and dry PFA, sprayed with water immediately prior to any loading, unloading or transfer operation?	/				
EM&A: A1	Are the dropping heights of the fill materials controlled to a practical level to minimize fugitive dust emission?	/				
Use of vehicles						
Cap311R: Sch 21(2) EM&A: A1	Is every load of dusty material on the vehicles leaving the construction site covered entirely by clean impervious sheeting?	/				
Cap311R: Sch 21(1)	Is every vehicle wheel-washed by the wheel washing facilities to remove any dusty materials from its body and wheels before leaving the construction site?		/			
Transfer of dusty materials using a belt conveyor system						
Cap311R: Sch 20(1)	Are belt conveyors used for transfer of dusty materials covered on the top and 2 sides?	/				
Cap311R: Sch 20(2)	Is every transfer point between any two-belt conveyors totally enclosed?	/				
Cap311R: Sch 20(3)	Is a belt scraper or equivalent device installed at the head pulley of every conveyor? Is the belt scraper equipped with bottom plates or similar means to prevent falling of materials from the return belts?	/				
Cap311R: Sch 20(4)	Are stockpiling conveyors equipped with level adjusting mechanism to maintain the dropping height within 1 m?	/				
Concrete batching plant						
EM&A: A2	Are the loading, unloading, handling, transfer or storage of any dusty materials carried out in a totally enclosed system?	/				
EM&A: A2	Are dusty materials, except cement and dry PFA, wetted by water spray system?	/				
EM&A: A2	Are all the receiving hoppers enclosed on three (3) sides up to 3m above unloading point?	/				
EM&A: A2	Are all the conveyor transfer points totally enclosed?	/				

Ref.	Checklist Condition	N/A	Yes	No	Unk	Remarks
	Miscellaneous					
Cap311R: Sch 16	Are completed earthworks sealed and hydroseeded and planted as soon as possible?	/				
Cap311O	Is open burning prohibited?		/			
Cap311	Is black smoke emission from plant/equipment avoided?		/			

WASTE/CHEMICAL WASTE MANAGEMENT

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
	Dredged Materials					
WMP EM&A: E3	Does the appropriate contractor possess valid dumping permits for dredged marine mud and have them available for inspection?	/				
WMP EM&A: E3	Has the contractor kept a complete set of dumping records/ticketing system and made them available for inspection?	/				
EM&A: E3	Are wastes disposed of at licensed sites?	/				
	Construction Waste and Excavated Materials					
WMP EM&A: E3	Does the Contractor possess a valid Public Dumping License for construction waste and excavated materials and make it available for inspection?	/				
WMP	Has the Contractor maintained disposal records for the construction waste and excavated materials, and made them available for inspection?	/				
WMP	Is suitable concrete waste/excavated material used for on-site reclamation/filling works?		/			
WMP	Are the used formworks reused as far as possible before being disposed of in a landfill site?		/			
WMP	Are the remaining unsuitable excavated materials disposed of at the public filling areas?	/				
EM&A: E3	Are wastes disposed of at licensed sites?	/				
	General refuse					
WMP	Has the Contractor maintained a disposal record for general refuse and made it available for inspection?	/				
WMP	Is general refuse stored within receptacles and separated from chemical wastes?	/				
WMP	Is the refuse disposed of regularly and properly?		/			
WMP	Are burning of refuse at site and dumping at sea prohibited?		/			
	Chemical Waste					
EM&A: E3	Has the contractor obtained the necessary disposal permits from the relevant authority, if required, according to Waste Disposal (Chemical Waste) (General Regulation)?	/				

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
WDO	Has the Contractor been registered as a chemical waste producer?	/				
EM&A: E3	Has the Contractor kept all the trip tickets for the disposal of chemical waste and made them available for inspection?	/				
EM&A: E4	Is chemical waste handled according to the Code of Practice on the Packaging, Handling and Storage of Chemical Waste?"	/				
EM&A: E4	Is the chemical waste storage, if any, well maintained, kept closed and locked?	/				
Storage, collection and transportation of waste						
EM&A: E3	Are wastes transported by enclosed containers or covered trucks?	/				
EM&A: E3	Are waste materials segregated and sorted into 3 categories as follows?					
	(1) public fill materials for on-site reuse, or disposal at public filling area;	/				
	(2) reusable / recyclable materials;	/				
	(3) un-reusable / non-recyclable waste for landfill disposal.	/				
EM&A: E3	Are the records of the quantities of wastes generated and disposed off-site for the 3 categories of waste properly maintained?	/				

WATER QUALITY

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
Surface Run-off						
PN1/94	Are the silt removal facilities, channels and manholes maintained and the deposited silt and grit removed regularly?	/				
PN1/94	Are earthworks final surfaces well compacted and the subsequent permanent work or surface protection carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms? Is appropriate drainage like intercepting channels provided where necessary?	/				
PN1/94	Are measures taken to minimize the ingress of rainwater into trenches? Is rainwater pumped out from trenches or foundation excavations discharged into storm drains via silt removal facilities?	/				
PN1/94	Are open stockpiles of construction materials (e.g. aggregates, sand and fill material) on site covered with tarpaulin or similar fabric during rainstorms? Are measures taken to prevent the washing away of construction materials, soil, silt or debris into the drainage system?	/				
PN1/94	Are manholes (including newly constructed ones) adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers?	/				
Groundwater						
PN1/94	Is groundwater that pumped out of wells discharged into storm drains after the removal of silt in silt removal facilities?	/				

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
	Boring and Drilling Water					
PN1/94	Is water that used in ground boring and drilling for site investigation or rock/soil anchoring recirculated as far as possible after sedimentation? If there is a need for final disposal, is the wastewater discharged into storm drains via silt removal facilities?	/				
	Wheel Washing Water					
PN1/94	Is a wheel-washing bay provided at every exit if practicable and is the silt removed from wash-water before discharging into storm drains?	/				

MARINE ECOLOGY

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
EM&A: G1	Are all percussive piling works conducted on reclaimed land to avoid noise impact to marine mammals?	/				
EM&A: G2	Do the marine vessels moving to and from the construction site strictly follow the routes stated in the "Plan for Dredging & Reclamation, Routing of Construction Related Marine Vessels, and Installation of Silt Curtain"?	/				
EM&A: G3	Is rubble mound seawall constructed to the south and west edges of the reclamation to enhance recolonisation of marine organisms?	/				

NOISE

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
EM&A : C1	Are working programmes scheduled to minimize noise nuisance?		/			
EM&A: C1	Are construction works or equipment sited to minimize noise nuisance?		/			
EM&A: C1	Are all plant and equipment maintained in good operating conditions?		/			
EM&A: C1/GP	Is idle equipment turned off or throttled down?		/			
EM&A: C1	Are methods of working devised and arranged to minimize noise nuisance?		/			
EM&A: C1)	Are construction works carried out in a manner to minimize noise nuisance?		/			
EM&A: C2	To mitigate construction noise during Sunday's and public holidays, is either one of the following measures adopted? a) Mitigation by portable noise barriers at noise sources or b) Rescheduling of some powered mechanical equipment to less sensitive time periods?		/			
EM&A: C3	To mitigate night time construction noise, is dredging equipment equipped with silencers or mufflers?	/				
NCO	Are valid construction noise permits, if required, available for inspection?		/			
NCO	Are conditions of construction noise permits, if any, for the relevant part(s) of the works implemented accordingly?		/			
NCO	Are valid noise emission labels fixed at air compressors and hand held percussive breakers?		/			
	Major noise source(s)	<input type="checkbox"/> Traffic		<input checked="" type="checkbox"/> Construction activities inside the site		
		<input type="checkbox"/> Construction activities outside the site		<input type="checkbox"/> Others _____		

Abbreviation

VEP:	Varied Environmental Permit	EM&A:	EM&A Manual (Construction Phase)
WMP:	Waste Management Plan	NCO:	Noise Control Ordinance
Cap311R:	APC (Construction Dust) Regulation	WDO:	Waste Disposal Ordinance
Cap311O:	APC (Open Burning) Regulation		
Cap311:	Air Pollution Control Ordinance		
PN1/94:	Practice Note for Professional Persons (Construction Site Drainage)		
Unk:	Unknown		

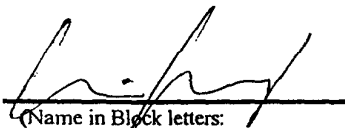
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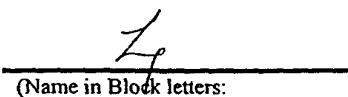
Nil.

Signatures

ET Member

Contractor's Representative


(Name in Block letters:
Larry Wong)


(Name in Block letters:
Dennis Ling)

11th November 2002

The Hongkong Electric Co. Ltd.
Lamma Power Station Extension – Site Formation, Piling Works and
Superstructure Works
Weekly Site Inspection Checklist

Inspection date 7/2/05 Time 15:00 Inspected By ET: Larry Wong
 Contractor: Dennis Ling
 Site LMA - Superstructure Works

Weather

Condition ☐ Sunny ☒ Fine ☐ Overcast ☐ Hazy ☐ Drizzle ☐ Rain ☐ Storm
 Temperature 15 °C Humidity ☐ High ☒ Moderate ☐ Low
 Wind ☐ Calm ☒ Light ☐ Breeze ☐ Strong

GENERAL

Ref.	Checklist Condition	N/A	Yes	No	Unk	Remarks
VEP 1.5	Has a copy of the most update Environmental Permit been displayed at all vehicular site entrances/exits for public information?		/			
VEP 1.6	Is a copy of EIA report kept in Engineers' and Contractors' offices on site?		/			

AIR QUALITY

Ref.	Checklist Condition	N/A	Yes	No	Unk	Remarks
General Requirements						
Cap311R: 3	Has the contractors notified EPD of the construction site which is classified as a notifiable work in a specified form? If there is any change in the notice, do the contractors notify EPD of the change?		/			
Cap311R: Sch 12(3)	A compressed air jet shall not be used for cleaning or clearing dust from any vehicle, equipment, other materials or person. Is this observed?		/			
Cap311	Do the contractors possess valid Air Pollution Control Specified Processes Licenses for the concrete batching plant wherever applicable and have it available for inspection?	/				
Construction Sites						
EM&A : A1	Are haul roads paved with concrete or sprayed with water to keep the entire road wet?		/			
Stockpiling of dusty materials						
Cap311R: Sch 18	Are stockpiles of dusty materials entirely covered with impervious sheets or sheltered on the top and 3 sides or sprayed with water to maintain the entire surface wet to prevent dust emission?	/				

Ref.	Checklist Condition	N/A	Yes	No	Unk	Remarks
Cement and dry pulverized fuel ash (PFA)						
Cap311R: Sch 15(3)	Are the storage silos for cement or dry PFA prevented from overfilling?	/				
Cap311R: Sch 15(4)	Are the handlings of cement or dry PFA through a totally enclosed system equipped with air pollution control equipment at the vent of the system?	/				
Cap311R: Sch 15(2)	Is bulk cement or dry PFA stored in a closed silo fitted with a high-level alarm?	/				
Cap311R: Sch 17	Are the cement, dry PFA or other dusty materials collected by the air pollution control equipment disposed of in totally enclosed containers?	/				
Loading, unloading or transfer of dusty materials						
Cap311R: Sch 19	Are dusty materials, except cement and dry PFA, sprayed with water immediately prior to any loading, unloading or transfer operation?	/				
EM&A: A1	Are the dropping heights of the fill materials controlled to a practical level to minimize fugitive dust emission?	/				
Use of vehicles						
Cap311R: Sch 21(2) EM&A: A1	Is every load of dusty material on the vehicles leaving the construction site covered entirely by clean impervious sheeting?	/				
Cap311R: Sch 21(1)	Is every vehicle wheel-washed by the wheel washing facilities to remove any dusty materials from its body and wheels before leaving the construction site?		/			
Transfer of dusty materials using a belt conveyor system						
Cap311R: Sch 20(1)	Are belt conveyors used for transfer of dusty materials covered on the top and 2 sides?	/				
Cap311R: Sch 20(2)	Is every transfer point between any two-belt conveyors totally enclosed?	/				
Cap311R: Sch 20(3)	Is a belt scraper or equivalent device installed at the head pulley of every conveyor? Is the belt scraper equipped with bottom plates or similar means to prevent falling of materials from the return belts?	/				
Cap311R: Sch 20(4)	Are stockpiling conveyors equipped with level adjusting mechanism to maintain the dropping height within 1 m?	/				
Concrete batching plant						
EM&A: A2	Are the loading, unloading, handling, transfer or storage of any dusty materials carried out in a totally enclosed system?	/				
EM&A: A2	Are dusty materials, except cement and dry PFA, wetted by water spray system?	/				
EM&A: A2	Are all the receiving hoppers enclosed on three (3) sides up to 3m above unloading point?	/				
EM&A: A2	Are all the conveyor transfer points totally enclosed?	/				

Ref.	Checklist Condition	N/A	Yes	No	Unk	Remarks
	Miscellaneous					
Cap311R: Sch 16	Are completed earthworks sealed and hydroseeded and planted as soon as possible?	/				
Cap311O	Is open burning prohibited?		/			
Cap311	Is black smoke emission from plant/equipment avoided?		/			

WASTE/CHEMICAL WASTE MANAGEMENT

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
	Dredged Materials					
WMP EM&A: E3	Does the appropriate contractor possess valid dumping permits for dredged marine mud and have them available for inspection?	/				
WMP EM&A: E3	Has the contractor kept a complete set of dumping records/ticketing system and made them available for inspection?	/				
EM&A: E3	Are wastes disposed of at licensed sites?	/				
	Construction Waste and Excavated Materials					
WMP EM&A: E3	Does the Contractor possess a valid Public Dumping License for construction waste and excavated materials and make it available for inspection?	/				
WMP	Has the Contractor maintained disposal records for the construction waste and excavated materials, and made them available for inspection?	/				
WMP	Is suitable concrete waste/excavated material used for on-site reclamation/filling works?		/			
WMP	Are the used formworks reused as far as possible before being disposed of in a landfill site?		/			
WMP	Are the remaining unsuitable excavated materials disposed of at the public filling areas?	/				
EM&A: E3	Are wastes disposed of at licensed sites?	/				
	General refuse					
WMP	Has the Contractor maintained a disposal record for general refuse and made it available for inspection?	/				
WMP	Is general refuse stored within receptacles and separated from chemical wastes?	/				
WMP	Is the refuse disposed of regularly and properly?		/			
WMP	Are burning of refuse at site and dumping at sea prohibited?		/			
	Chemical Waste					
EM&A: E3	Has the contractor obtained the necessary disposal permits from the relevant authority, if required, according to Waste Disposal (Chemical Waste) (General Regulation)?	/				

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
WDO	Has the Contractor been registered as a chemical waste producer?	/				
EM&A: E3	Has the Contractor kept all the trip tickets for the disposal of chemical waste and made them available for inspection?	/				
EM&A: E4	Is chemical waste handled according to the Code of Practice on the Packaging, Handling and Storage of Chemical Waste?"	/				
EM&A: E4	Is the chemical waste storage, if any, well maintained, kept closed and locked?	/				
Storage, collection and transportation of waste						
EM&A: E3	Are wastes transported by enclosed containers or covered trucks?	/				
EM&A: E3	Are waste materials segregated and sorted into 3 categories as follows?					
	(1) public fill materials for on-site reuse, or disposal at public filling area;	/				
	(2) reusable / recyclable materials;	/				
	(3) un-reusable / non-recyclable waste for landfill disposal.	/				
EM&A: E3	Are the records of the quantities of wastes generated and disposed off-site for the 3 categories of waste properly maintained?	/				

WATER QUALITY

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
Surface Run-off						
PN1/94	Are the silt removal facilities, channels and manholes maintained and the deposited silt and grit removed regularly?	/				
PN1/94	Are earthworks final surfaces well compacted and the subsequent permanent work or surface protection carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms? Is appropriate drainage like intercepting channels provided where necessary?	/				
PN1/94	Are measures taken to minimize the ingress of rainwater into trenches? Is rainwater pumped out from trenches or foundation excavations discharged into storm drains via silt removal facilities?	/				
PN1/94	Are open stockpiles of construction materials (e.g, aggregates, sand and fill material) on site covered with tarpaulin or similar fabric during rainstorms? Are measures taken to prevent the washing away of construction materials, soil, silt or debris into the drainage system?	/				
PN1/94	Are manholes (including newly constructed ones) adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers?	/				
Groundwater						
PN1/94	Is groundwater that pumped out of wells discharged into storm drains after the removal of silt in silt removal facilities?	/				

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
	Boring and Drilling Water					
PN1/94	Is water that used in ground boring and drilling for site investigation or rock/soil anchoring recirculated as far as possible after sedimentation? If there is a need for final disposal, is the wastewater discharged into storm drains via silt removal facilities?	/				
	Wheel Washing Water					
PN1/94	Is a wheel-washing bay provided at every exit if practicable and is the silt removed from wash-water before discharging into storm drains?		/			

MARINE ECOLOGY

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
EM&A: G1	Are all percussive piling works conducted on reclaimed land to avoid noise impact to marine mammals?	/				
EM&A: G2	Do the marine vessels moving to and from the construction site strictly follow the routes stated in the "Plan for Dredging & Reclamation, Routing of Construction Related Marine Vessels, and Installation of Silt Curtain"?	/				
EM&A: G3	Is rubble mound seawall constructed to the south and west edges of the reclamation to enhance recolonisation of marine organisms?	/				

NOISE

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
EM&A : C1	Are working programmes scheduled to minimize noise nuisance?		/			
EM&A: C1	Are construction works or equipment sited to minimize noise nuisance?		/			
EM&A: C1	Are all plant and equipment maintained in good operating conditions?		/			
EM&A: C1/GP	Is idle equipment turned off or throttled down?		/			
EM&A: C1	Are methods of working devised and arranged to minimize noise nuisance?		/			
EM&A: C1)	Are construction works carried out in a manner to minimize noise nuisance?		/			
EM&A: C2	To mitigate construction noise during Sunday's and public holidays, is either one of the following measures adopted? a) Mitigation by portable noise barriers at noise sources or b) Rescheduling of some powered mechanical equipment to less sensitive time periods?		/			
EM&A: C3	To mitigate night time construction noise, is dredging equipment equipped with silencers or mufflers?	/				
NCO	Are valid construction noise permits, if required, available for inspection?		/			
NCO	Are conditions of construction noise permits, if any, for the relevant part(s) of the works implemented accordingly?		/			
NCO	Are valid noise emission labels fixed at air compressors and hand held percussive breakers?		/			
	Major noise source(s)	<input type="checkbox"/> Traffic		<input checked="" type="checkbox"/> Construction activities inside the site		
		<input type="checkbox"/> Construction activities outside the site		<input type="checkbox"/> Others _____		

Abbreviation

VEP:	Varied Environmental Permit	EM&A:	EM&A Manual (Construction Phase)
WMP:	Waste Management Plan	NCO:	Noise Control Ordinance
Cap311R:	APC (Construction Dust) Regulation	WDO:	Waste Disposal Ordinance
Cap311O:	APC (Open Burning) Regulation		
Cap311:	Air Pollution Control Ordinance		
PN1/94:	Practice Note for Professional Persons (Construction Site Drainage)		
Unk:	Unknown		

Remark

Nil.

Signatures


ET Member

Contractor's Representative



(Name in Block letters:

Larry Wong)



(Name in Block letters:

Dennis Ling)

11th November 2002

The Hongkong Electric Co. Ltd.
Lamma Power Station Extension – Site Formation, Piling Works and
Superstructure Works
Weekly Site Inspection Checklist

Inspection date 16/2/05 Time 1500 Inspected By ET: Larry Wong
 Contractor: Pennis Ling
 Site LMX - Superstructure works

Weather

Condition ☐ Sunny ☒ Fine ☐ Overcast ☐ Hazy ☐ Drizzle ☐ Rain ☐ Storm
 Temperature 13 °C Humidity ☐ High ☒ Moderate ☐ Low
 Wind ☐ Calm ☒ Light ☐ Breeze ☐ Strong

GENERAL

Ref.	Checklist Condition	N/A	Yes	No	Unk	Remarks
VEP 1.5	Has a copy of the most update Environmental Permit been displayed at all vehicular site entrances/exits for public information?		/			
VEP 1.6	Is a copy of EIA report kept in Engineers' and Contractors' offices on site?		/			

AIR QUALITY

Ref.	Checklist Condition	N/A	Yes	No	Unk	Remarks
General Requirements						
Cap311R: 3	Has the contractors notified EPD of the construction site which is classified as a notifiable work in a specified form? If there is any change in the notice, do the contractors notify EPD of the change?		/			
Cap311R: Sch 12(3)	A compressed air jet shall not be used for cleaning or clearing dust from any vehicle, equipment, other materials or person. Is this observed?		/			
Cap311	Do the contractors possess valid Air Pollution Control Specified Processes Licenses for the concrete batching plant wherever applicable and have it available for inspection?	/				
Construction Sites						
EM&A : A1	Are haul roads paved with concrete or sprayed with water to keep the entire road wet?		/			
Stockpiling of dusty materials						
Cap311R: Sch 18	Are stockpiles of dusty materials entirely covered with impervious sheets or sheltered on the top and 3 sides or sprayed with water to maintain the entire surface wet to prevent dust emission?	/				

Ref.	Checklist Condition	N/A	Yes	No	Unk	Remarks
Cement and dry pulverized fuel ash (PFA)						
Cap311R: Sch 15(3)	Are the storage silos for cement or dry PFA prevented from overfilling?	/				
Cap311R: Sch 15(4)	Are the handlings of cement or dry PFA through a totally enclosed system equipped with air pollution control equipment at the vent of the system?	/				
Cap311R: Sch 15(2)	Is bulk cement or dry PFA stored in a closed silo fitted with a high-level alarm?	/				
Cap311R: Sch 17	Are the cement, dry PFA or other dusty materials collected by the air pollution control equipment disposed of in totally enclosed containers?	/				
Loading, unloading or transfer of dusty materials						
Cap311R: Sch 19	Are dusty materials, except cement and dry PFA, sprayed with water immediately prior to any loading, unloading or transfer operation?	/				
EM&A: A1	Are the dropping heights of the fill materials controlled to a practical level to minimize fugitive dust emission?	/				
Use of vehicles						
Cap311R: Sch 21(2) EM&A: A1	Is every load of dusty material on the vehicles leaving the construction site covered entirely by clean impervious sheeting?	/				
Cap311R: Sch 21(1)	Is every vehicle wheel-washed by the wheel washing facilities to remove any dusty materials from its body and wheels before leaving the construction site?		/			
Transfer of dusty materials using a belt conveyor system						
Cap311R: Sch 20(1)	Are belt conveyors used for transfer of dusty materials covered on the top and 2 sides?	/				
Cap311R: Sch 20(2)	Is every transfer point between any two-belt conveyors totally enclosed?	/				
Cap311R: Sch 20(3)	Is a belt scraper or equivalent device installed at the head pulley of every conveyor? Is the belt scraper equipped with bottom plates or similar means to prevent falling of materials from the return belts?	/				
Cap311R: Sch 20(4)	Are stockpiling conveyors equipped with level adjusting mechanism to maintain the dropping height within 1 m?	/				
Concrete batching plant						
EM&A: A2	Are the loading, unloading, handling, transfer or storage of any dusty materials carried out in a totally enclosed system?	/				
EM&A: A2	Are dusty materials, except cement and dry PFA, wetted by water spray system?	/				
EM&A: A2	Are all the receiving hoppers enclosed on three (3) sides up to 3m above unloading point?	/				
EM&A: A2	Are all the conveyor transfer points totally enclosed?	/				

Ref.	Checklist Condition	N/A	Yes	No	Unk	Remarks
	Miscellaneous					
Cap311R: Sch 16	Are completed earthworks sealed and hydroseeded and planted as soon as possible?	/				
Cap311O	Is open burning prohibited?		/			
Cap311	Is black smoke emission from plant/equipment avoided?		/			

WASTE/CHEMICAL WASTE MANAGEMENT

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
	Dredged Materials					
WMP EM&A: E3	Does the appropriate contractor possess valid dumping permits for dredged marine mud and have them available for inspection?	/				
WMP EM&A: E3	Has the contractor kept a complete set of dumping records/ticketing system and made them available for inspection?	/				
EM&A: E3	Are wastes disposed of at licensed sites?	/				
	Construction Waste and Excavated Materials					
WMP EM&A: E3	Does the Contractor possess a valid Public Dumping License for construction waste and excavated materials and make it available for inspection?	/				
WMP	Has the Contractor maintained disposal records for the construction waste and excavated materials, and made them available for inspection?	/				
WMP	Is suitable concrete waste/excavated material used for on-site reclamation/filling works?		/			
WMP	Are the used formworks reused as far as possible before being disposed of in a landfill site?		/			
WMP	Are the remaining unsuitable excavated materials disposed of at the public filling areas?	/				
EM&A: E3	Are wastes disposed of at licensed sites?	/				
	General refuse					
WMP	Has the Contractor maintained a disposal record for general refuse and made it available for inspection?	/				
WMP	Is general refuse stored within receptacles and separated from chemical wastes?	/				
WMP	Is the refuse disposed of regularly and properly?		/			
WMP	Are burning of refuse at site and dumping at sea prohibited?		/			
	Chemical Waste					
EM&A: E3	Has the contractor obtained the necessary disposal permits from the relevant authority, if required, according to Waste Disposal (Chemical Waste) (General Regulation)?	/				

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
WDO	Has the Contractor been registered as a chemical waste producer?	/				
EM&A: E3	Has the Contractor kept all the trip tickets for the disposal of chemical waste and made them available for inspection?	/				
EM&A: E4	Is chemical waste handled according to the Code of Practice on the Packaging, Handling and Storage of Chemical Waste?"	/				
EM&A: E4	Is the chemical waste storage, if any, well maintained, kept closed and locked?	/				
Storage, collection and transportation of waste						
EM&A: E3	Are wastes transported by enclosed containers or covered trucks?	/				
EM&A: E3	Are waste materials segregated and sorted into 3 categories as follows?					
	(1) public fill materials for on-site reuse, or disposal at public filling area;	/				
	(2) reusable / recyclable materials;	/				
	(3) un-reusable / non-recyclable waste for landfill disposal.	/				
EM&A: E3	Are the records of the quantities of wastes generated and disposed off-site for the 3 categories of waste properly maintained?	/				

WATER QUALITY

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
Surface Run-off						
PN1/94	Are the silt removal facilities, channels and manholes maintained and the deposited silt and grit removed regularly?	/				
PN1/94	Are earthworks final surfaces well compacted and the subsequent permanent work or surface protection carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms? Is appropriate drainage like intercepting channels provided where necessary?	/				
PN1/94	Are measures taken to minimize the ingress of rainwater into trenches? Is rainwater pumped out from trenches or foundation excavations discharged into storm drains via silt removal facilities?	/				
PN1/94	Are open stockpiles of construction materials (e.g, aggregates, sand and fill material) on site covered with tarpaulin or similar fabric during rainstorms? Are measures taken to prevent the washing away of construction materials, soil, silt or debris into the drainage system?	/				
PN1/94	Are manholes (including newly constructed ones) adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers?	/				
Groundwater						
PN1/94	Is groundwater that pumped out of wells discharged into storm drains after the removal of silt in silt removal facilities?	/				

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
	Boring and Drilling Water					
PN1/94	Is water that used in ground boring and drilling for site investigation or rock/soil anchoring recirculated as far as possible after sedimentation? If there is a need for final disposal, is the wastewater discharged into storm drains via silt removal facilities?	/				
	Wheel Washing Water					
PN1/94	Is a wheel-washing bay provided at every exit if practicable and is the silt removed from wash-water before discharging into storm drains?		/			

MARINE ECOLOGY

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
EM&A: G1	Are all percussive piling works conducted on reclaimed land to avoid noise impact to marine mammals?	/				
EM&A: G2	Do the marine vessels moving to and from the construction site strictly follow the routes stated in the "Plan for Dredging & Reclamation, Routing of Construction Related Marine Vessels, and Installation of Silt Curtain"?	/				
EM&A: G3	Is rubble mound seawall constructed to the south and west edges of the reclamation to enhance recolonisation of marine organisms?	/				

NOISE

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
EM&A : C1	Are working programmes scheduled to minimize noise nuisance?		/			
EM&A: C1	Are construction works or equipment sited to minimize noise nuisance?		/			
EM&A: C1	Are all plant and equipment maintained in good operating conditions?		/			
EM&A: C1/GP	Is idle equipment turned off or throttled down?		/			
EM&A: C1	Are methods of working devised and arranged to minimize noise nuisance?		/			
EM&A: C1)	Are construction works carried out in a manner to minimize noise nuisance?		/			
EM&A: C2	To mitigate construction noise during Sunday's and public holidays, is either one of the following measures adopted? a) Mitigation by portable noise barriers at noise sources or b) Rescheduling of some powered mechanical equipment to less sensitive time periods?		/			
EM&A: C3	To mitigate night time construction noise, is dredging equipment equipped with silencers or mufflers?	/				
NCO	Are valid construction noise permits, if required, available for inspection?		/			
NCO	Are conditions of construction noise permits, if any, for the relevant part(s) of the works implemented accordingly?		/			
NCO	Are valid noise emission labels fixed at air compressors and hand held percussive breakers?		/			
	Major noise source(s)	<input type="checkbox"/> Traffic	<input checked="" type="checkbox"/> Construction activities inside the site			
		<input type="checkbox"/> Construction activities outside the site	<input type="checkbox"/> Others _____			

Abbreviation

VEP:	Varied Environmental Permit	EM&A:	EM&A Manual (Construction Phase)
WMP:	Waste Management Plan	NCO:	Noise Control Ordinance
Cap311R:	APC (Construction Dust) Regulation	WDO:	Waste Disposal Ordinance
Cap311O:	APC (Open Burning) Regulation		
Cap311:	Air Pollution Control Ordinance		
PN1/94:	Practice Note for Professional Persons (Construction Site Drainage)		
Unk:	Unknown		


Remark

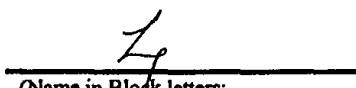
Nil.

Signatures

ET Member

Contractor's Representative


(Name in Block letters:
Larry Wong)


(Name in Block letters:
Dennis Ling)

11th November 2002

The Hongkong Electric Co. Ltd.
Lamma Power Station Extension – Site Formation, Piling Works and
Superstructure Works
Weekly Site Inspection Checklist

Inspection date 23/2/05 Time 10:30am Inspected By ET: Andy Fok
 Contractor: Albert Tsim
 Site Lmx - Superstructure Works

Weather

Condition ☐ Sunny ☐ Fine ☒ Overcast ☐ Hazy ☐ Drizzle ☐ Rain ☐ Storm
 Temperature 15 °C Humidity ☐ High ☒ Moderate ☐ Low
 Wind ☒ Calm ☐ Light ☐ Breeze ☐ Strong

GENERAL

Ref.	Checklist Condition	N/A	Yes	No	Unk	Remarks
VEP 1.5	Has a copy of the most update Environmental Permit been displayed at all vehicular site entrances/exits for public information?		<input checked="" type="checkbox"/>			
VEP 1.6	Is a copy of EIA report kept in Engineers' and Contractors' offices on site?		<input checked="" type="checkbox"/>			

AIR QUALITY

Ref.	Checklist Condition	N/A	Yes	No	Unk	Remarks
General Requirements						
Cap311R: 3	Has the contractors notified EPD of the construction site which is classified as a notifiable work in a specified form? If there is any change in the notice, do the contractors notify EPD of the change?		<input checked="" type="checkbox"/>			
Cap311R: Sch 12(3)	A compressed air jet shall not be used for cleaning or clearing dust from any vehicle, equipment, other materials or person. Is this observed?		<input checked="" type="checkbox"/>			
Cap311	Do the contractors possess valid Air Pollution Control Specified Processes Licenses for the concrete batching plant wherever applicable and have it available for inspection?	<input checked="" type="checkbox"/>				
Construction Sites						
EM&A : A1	Are haul roads paved with concrete or sprayed with water to keep the entire road wet?		<input checked="" type="checkbox"/>			
Stockpiling of dusty materials						
Cap311R: Sch 18	Are stockpiles of dusty materials entirely covered with impervious sheets or sheltered on the top and 3 sides or sprayed with water to maintain the entire surface wet to prevent dust emission?	<input checked="" type="checkbox"/>				

Ref.	Checklist Condition	N/A	Yes	No	Unk	Remarks
	Cement and dry pulverized fuel ash (PFA)					
Cap311R: Sch 15(3)	Are the storage silos for cement or dry PFA prevented from overfilling?	✓				
Cap311R: Sch 15(4)	Are the handlings of cement or dry PFA through a totally enclosed system equipped with air pollution control equipment at the vent of the system?	✓				
Cap311R: Sch 15(2)	Is bulk cement or dry PFA stored in a closed silo fitted with a high-level alarm?	✓				
Cap311R: Sch 17	Are the cement, dry PFA or other dusty materials collected by the air pollution control equipment disposed of in totally enclosed containers?	✓				
	Loading, unloading or transfer of dusty materials					
Cap311R: Sch 19	Are dusty materials, except cement and dry PFA, sprayed with water immediately prior to any loading, unloading or transfer operation?	✓				
EM&A: A1	Are the dropping heights of the fill materials controlled to a practical level to minimize fugitive dust emission?	✓				
	Use of vehicles					
Cap311R: Sch 21(2) EM&A: A1	Is every load of dusty material on the vehicles leaving the construction site covered entirely by clean impervious sheeting?	✓				
Cap311R: Sch 21(1)	Is every vehicle wheel-washed by the wheel washing facilities to remove any dusty materials from its body and wheels before leaving the construction site?		✓			
	Transfer of dusty materials using a belt conveyor system					
Cap311R: Sch 20(1)	Are belt conveyors used for transfer of dusty materials covered on the top and 2 sides?	✓				
Cap311R: Sch 20(2)	Is every transfer point between any two-belt conveyors totally enclosed?	✓				
Cap311R: Sch 20(3)	Is a belt scraper or equivalent device installed at the head pulley of every conveyor? Is the belt scraper equipped with bottom plates or similar means to prevent falling of materials from the return belts?	✓				
Cap311R: Sch 20(4)	Are stockpiling conveyors equipped with level adjusting mechanism to maintain the dropping height within 1 m?	✓				
	Concrete batching plant					
EM&A: A2	Are the loading, unloading, handling, transfer or storage of any dusty materials carried out in a totally enclosed system?	✓				
EM&A: A2	Are dusty materials, except cement and dry PFA, wetted by water spray system?	✓				
EM&A: A2	Are all the receiving hoppers enclosed on three (3) sides up to 3m above unloading point?	✓				
EM&A: A2	Are all the conveyor transfer points totally enclosed?	✓				

Ref.	Checklist Condition	N/A	Yes	No	Unk	Remarks
	Miscellaneous					
Cap311R: Sch 16	Are completed earthworks sealed and hydroseeded and planted as soon as possible?	✓				
Cap311O	Is open burning prohibited?		✓			
Cap311	Is black smoke emission from plant/equipment avoided?		✓			

WASTE/CHEMICAL WASTE MANAGEMENT

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
	Dredged Materials					
WMP EM&A: E3	Does the appropriate contractor possess valid dumping permits for dredged marine mud and have them available for inspection?	✓				
WMP EM&A: E3	Has the contractor kept a complete set of dumping records/ticketing system and made them available for inspection?	✓				
EM&A: E3	Are wastes disposed of at licensed sites?	✓				
	Construction Waste and Excavated Materials					
WMP EM&A: E3	Does the Contractor possess a valid Public Dumping License for construction waste and excavated materials and make it available for inspection?	✓				
WMP	Has the Contractor maintained disposal records for the construction waste and excavated materials, and made them available for inspection?	✓				
WMP	Is suitable concrete waste/excavated material used for on-site reclamation/filling works?		✓			
WMP	Are the used formworks reused as far as possible before being disposed of in a landfill site?		✓			
WMP	Are the remaining unsuitable excavated materials disposed of at the public filling areas?	✓				
EM&A: E3	Are wastes disposed of at licensed sites?	✓				
	General refuse					
WMP	Has the Contractor maintained a disposal record for general refuse and made it available for inspection?		✓			
WMP	Is general refuse stored within receptacles and separated from chemical wastes?		✓			
WMP	Is the refuse disposed of regularly and properly?		✓			
WMP	Are burning of refuse at site and dumping at sea prohibited?		✓			
	Chemical Waste					
EM&A: E3	Has the contractor obtained the necessary disposal permits from the relevant authority, if required, according to Waste Disposal (Chemical Waste) (General Regulation)?	✓				

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
WDO	Has the Contractor been registered as a chemical waste producer?	✓				
EM&A: E3	Has the Contractor kept all the trip tickets for the disposal of chemical waste and made them available for inspection?	✓				
EM&A: E4	Is chemical waste handled according to the Code of Practice on the Packaging, Handling and Storage of Chemical Waste?"	✓				
EM&A: E4	Is the chemical waste storage, if any, well maintained, kept closed and locked?	✓				
Storage, collection and transportation of waste						
EM&A: E3	Are wastes transported by enclosed containers or covered trucks?	✓				
EM&A: E3	Are waste materials segregated and sorted into 3 categories as follows?					
	(1) public fill materials for on-site reuse, or disposal at public filling area;	✓				
	(2) reusable / recyclable materials;	✓				
	(3) un-reusable / non-recyclable waste for landfill disposal.	✓				
EM&A: E3	Are the records of the quantities of wastes generated and disposed off-site for the 3 categories of waste properly maintained?	✓				

WATER QUALITY

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
Surface Run-off						
PN1/94	Are the silt removal facilities, channels and manholes maintained and the deposited silt and grit removed regularly?	✓				
PN1/94	Are earthworks final surfaces well compacted and the subsequent permanent work or surface protection carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms? Is appropriate drainage like intercepting channels provided where necessary?	✓				
PN1/94	Are measures taken to minimize the ingress of rainwater into trenches? Is rainwater pumped out from trenches or foundation excavations discharged into storm drains via silt removal facilities?	✓				
PN1/94	Are open stockpiles of construction materials (e.g, aggregates, sand and fill material) on site covered with tarpaulin or similar fabric during rainstorms? Are measures taken to prevent the washing away of construction materials, soil, silt or debris into the drainage system?	✓				
PN1/94	Are manholes (including newly constructed ones) adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers?	✓				
Groundwater						
PN1/94	Is groundwater that pumped out of wells discharged into storm drains after the removal of silt in silt removal facilities?	✓				

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
	Boring and Drilling Water					
PN1/94	Is water that used in ground boring and drilling for site investigation or rock/soil anchoring recirculated as far as possible after sedimentation? If there is a need for final disposal, is the wastewater discharged into storm drains via silt removal facilities?	✓				
	Wheel Washing Water					
PN1/94	Is a wheel-washing bay provided at every exit if practicable and is the silt removed from wash-water before discharging into storm drains?		✓			

MARINE ECOLOGY

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
EM&A: G1	Are all percussive piling works conducted on reclaimed land to avoid noise impact to marine mammals?	✓				
EM&A: G2	Do the marine vessels moving to and from the construction site strictly follow the routes stated in the "Plan for Dredging & Reclamation, Routing of Construction Related Marine Vessels, and Installation of Silt Curtain"?	✓				
EM&A: G3	Is rubble mound seawall constructed to the south and west edges of the reclamation to enhance recolonisation of marine organisms?	✓				

NOISE

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
EM&A : C1	Are working programmes scheduled to minimize noise nuisance?		✓			
EM&A: C1	Are construction works or equipment sited to minimize noise nuisance?		✓			
EM&A: C1	Are all plant and equipment maintained in good operating conditions?		✓			
EM&A: C1/GP	Is idle equipment turned off or throttled down?		✓			
EM&A: C1	Are methods of working devised and arranged to minimize noise nuisance?		✓			
EM&A: C1)	Are construction works carried out in a manner to minimize noise nuisance?		✓			
EM&A: C2	To mitigate construction noise during Sunday's and public holidays, is either one of the following measures adopted? a) Mitigation by portable noise barriers at noise sources or b) Rescheduling of some powered mechanical equipment to less sensitive time periods?		✓			
EM&A: C3	To mitigate night time construction noise, is dredging equipment equipped with silencers or mufflers?	✓				
NCO	Are valid construction noise permits, if required, available for inspection?		✓			
NCO	Are conditions of construction noise permits, if any, for the relevant part(s) of the works implemented accordingly?		✓			
NCO	Are valid noise emission labels fixed at air compressors and hand held percussive breakers?		✓			
	Major noise source(s)	<input type="checkbox"/> Traffic		<input checked="" type="checkbox"/> Construction activities inside the site		
		<input type="checkbox"/> Construction activities outside the site		<input type="checkbox"/> Others _____		

Abbreviation

VEP:	Varied Environmental Permit	EM&A:	EM&A Manual (Construction Phase)
WMP:	Waste Management Plan	NCO:	Noise Control Ordinance
Cap311R:	APC (Construction Dust) Regulation	WDO:	Waste Disposal Ordinance
Cap311O:	APC (Open Burning) Regulation		
Cap311:	Air Pollution Control Ordinance		
PN1/94:	Practice Note for Professional Persons (Construction Site Drainage)		
Unk:	Unknown		

Remark

N/A


Signatures


ET Member


Contractor's Representative

IEC's Representative

**This site inspection was carried out
in the presence of IEC's representative**


(Name in Block letters:
ANDY FOK)


(Name in Block letters:
ALBERT TSUI)


(Name in Block Letters:
Chan Tin Ho)

11th November 2002

The Hongkong Electric Co. Ltd.
Lamma Power Station Extension – Construction of Transmission System
Weekly Site Inspection Checklist

Inspection date 02/02/05 Time 15:30 Inspected by ET: Hendry Ho
Contractor: Kier
 Site Transmission Route (Civil Work)

Weather

Condition ☐ Sunny ☐ Fine ☒ Overcast ☐ Hazy ☐ Drizzle ☐ Rain ☐ Storm
Temperature 17 °C **Humidity** ☐ High ☒ Moderate ☐ Low
Wind ☐ Calm ☒ Light ☐ Breeze ☐ Strong

GENERAL

Ref.	Checklist Condition	N/A	Yes	No	Unk	Remarks
VEP 1.5	Has a copy of the most updated Environmental Permit been displayed at all vehicular site entrances/exits for public information?		✓			
VEP 1.6	Is a copy of EIA report kept in Engineers' and Contractors' offices on site?		✓			

AIR QUALITY

Ref.	Checklist Condition	N/A	Yes	No	Unk	Remarks
	General Requirements					
Cap311R:	Has the contractors notified EPD of the construction site which is classified as a notifiable work in a specified form? If there is any change in the notice? If yes, did the contractors notify EPD of the change?	✓				
Cap311R: Sch 12(3)	A compressed air jet shall not be used for cleaning or clearing dust from any vehicle, equipment, other materials or person. Has this been observed?	✓				
	Stockpiling of dusty materials					
Cap311R: Sch 18 EM&A:J1	Are stockpiles of dusty materials entirely covered with impervious sheets or sheltered on the top and 3 sides or sprayed with water to maintain the entire surface wet to prevent dust emission?		✓			
	Use of vehicles					
Cap311R: Sch 21(2)	Is every load of dusty material on the vehicles leaving the construction site covered entirely by clean impervious sheeting?	✓				
	Miscellaneous					
Cap311R: Sch 16	Are completed earthworks sealed and hydroseeded and planted as soon as possible?	✓				

Ref.	Checklist Condition	N/A	Yes	No	Unk	Remarks
Cap311O	Is open burning prohibited?		✓			
Cap311	Is black smoke emission from plant/equipment avoided?		✓			

WASTE/CHEMICAL WASTE MANAGEMENT

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
Dredged Materials						
Cap466	Does the appropriate contractor possess valid dumping permits for dredged marine mud and have them available for inspection?		✓			
Cap466	Are wastes disposed of at licensed sites?		✓			
Construction Waste and Excavated Materials						
Cap354	Does the Contractor possess a valid Public Dumping License for construction waste and excavated materials and make it available for inspection?	✓				
Cap354	Are wastes disposed of at licensed sites?	✓				
Chemical Waste						
Cap354C	Has the contractor obtained the necessary disposal permits from the relevant authority, if required, according to Waste Disposal (Chemical Waste) (General Regulation)?	✓				
Cap354C	Has the Contractor registered as a chemical waste producer?		✓			
Cap354C	Is chemical waste handled according to the "Code of Practice on the Packaging, Handling and Storage of Chemical Waste"?	✓				

MARINE ECOLOGY

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
EM&A: M1	Are rubble mound seawalls constructed for the landing and launching points at Lamma Island?	✓				

NOISE

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
EM&A: L1	Are quiet PME's or standard PME's with modest source noise controls used at the cable route from N4 to N5?	✓				
EM&A: L2 ~ L5	Are quiet PME's (particularly the barge-mounted crane) or PME's with comparably effective source noise controls used at landing point N5?	✓				
NCO	Are valid construction noise permits, if required, available for inspection?		✓			N2, I1, LPS Landing Point
NCO	Are conditions of construction noise permits, if any, for the relevant part(s) of the works implemented accordingly?		✓			
NCO	Are valid noise emission labels fixed at air compressors and hand held percussive breakers?		✓			

TERRESTRIAL ECOLOGY

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
EM&A: O1	Are the construction activities at landing points N4 & N5 closely monitored to avoid impact on the uncommon and rare plant species <i>Celtis biondii</i> , <i>Pteris dispar</i> and <i>Ardicia pusilla</i> , and the restricted plants <i>Vitis balansaeana</i> , <i>Pterospermum heterophyllum</i> and <i>Rhapis excelsa</i> ?		✓			
EM&A: O2	Are fences erected in accordance with the Hoarding Plan and kept in good condition along the boundary of construction sites to prevent tipping, vehicle movements, and encroachment of personnel into adjacent wooded areas, particularly where the rare, uncommon and restricted plant species are located?		✓			
EM&A: Q3	Has regular checking been performed to ensure that the work site boundaries are not exceeded and that no damage occurs to surrounding areas?		✓			
EM&A: Q4	Is open fire prohibited and prevented within the work site boundary during construction? Is temporary fire fighting equipment provided in the work area during construction?		✓			
	Major noise source(s)	Traffic	✓	Construction activities inside the site		
		Construction activities outside the site	✓	Others: Birds		

Abbreviation

VEP: Varied Environmental Permit
Cap311R: APC (Construction Dust) Regulation
Cap311O: APC (Open Burning) Regulation
Cap311: Air Pollution Control Ordinance
Cap466: Dumping at Sea Ordinance

EM&A: EM&A Manual (Construction Phase)
NCO: Noise Control Ordinance
Cap354: Waste Disposal Ordinance
Cap354c: WDO (Chemical Waste) (General) Regulation
Unk: Unknown

Remark

Signatures

ET Member

Contractor's Representative



(Name in Block letters:

Henry Bettor)



(Name in Block letters:

Tang Siu On)

20th December 2001

The Hongkong Electric Co. Ltd.
Lamma Power Station Extension – Construction of Transmission System
Weekly Site Inspection Checklist

Inspection date 08/02/05 Time 10:30 Inspected by ET: Hendry Ho
Contractor: Kier

Site Transmission Route (Civil Work)

Weather

Condition ☐ Sunny ☒ Fine ☐ Overcast ☐ Hazy ☐ Drizzle ☐ Rain ☐ Storm

Temperature 19 °C Humidity ☐ High ☒ Moderate ☐ Low

Wind ☐ Calm ☒ Light ☐ Breeze ☐ Strong

GENERAL

Ref.	Checklist Condition	N/A	Yes	No	Unk	Remarks
VEP 1.5	Has a copy of the most updated Environmental Permit been displayed at all vehicular site entrances/exits for public information?		✓			
VEP 1.6	Is a copy of EIA report kept in Engineers' and Contractors' offices on site?		✓			

AIR QUALITY

Ref.	Checklist Condition	N/A	Yes	No	Unk	Remarks
	General Requirements					
Cap311R:	Has the contractors notified EPD of the construction site which is classified as a notifiable work in a specified form? If there is any change in the notice? If yes, did the contractors notify EPD of the change?	✓				
Cap311R: Sch 12(3)	A compressed air jet shall not be used for cleaning or clearing dust from any vehicle, equipment, other materials or person. Has this been observed?	✓				
	Stockpiling of dusty materials					
Cap311R: Sch 18 EM&A:J1	Are stockpiles of dusty materials entirely covered with impervious sheets or sheltered on the top and 3 sides or sprayed with water to maintain the entire surface wet to prevent dust emission?		✓			
	Use of vehicles					
Cap311R: Sch 21(2)	Is every load of dusty material on the vehicles leaving the construction site covered entirely by clean impervious sheeting?	✓				
	Miscellaneous					
Cap311R: Sch 16	Are completed earthworks sealed and hydroseeded and planted as soon as possible?	✓				

Ref.	Checklist Condition	N/A	Yes	No	Unk	Remarks
Cap311O	Is open burning prohibited?		✓			
Cap311	Is black smoke emission from plant/equipment avoided?		✓			

WASTE/CHEMICAL WASTE MANAGEMENT

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
Dredged Materials						
Cap466	Does the appropriate contractor possess valid dumping permits for dredged marine mud and have them available for inspection?		✓			
Cap466	Are wastes disposed of at licensed sites?		✓			
Construction Waste and Excavated Materials						
Cap354	Does the Contractor possess a valid Public Dumping License for construction waste and excavated materials and make it available for inspection?	✓				
Cap354	Are wastes disposed of at licensed sited?	✓				
Chemical Waste						
Cap354C	Has the contractor obtained the necessary disposal permits from the relevant authority, if required, according to Waste Disposal (Chemical Waste) (General Regulation)?	✓				
Cap354C	Has the Contractor registered as a chemical waste producer?		✓			
Cap354C	Is chemical waste handled according to the "Code of Practice on the Packaging, Handling and Storage of Chemical Waste"?	✓				

MARINE ECOLOGY

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
EM&A: M1	Are rubble mound seawalls constructed for the landing and launching points at Lamma Island?	✓				

NOISE

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
EM&A: L1	Are quiet PME's or standard PME's with modest source noise controls used at the cable route from N4 to N5?	✓				
EM&A: L2 ~ L5	Are quiet PME's (particularly the barge-mounted crane) or PME's with comparably effective source noise controls used at landing point N5?	✓				
NCO	Are valid construction noise permits, if required, available for inspection?		✓			N2, 11, LPS Landing Point
NCO	Are conditions of construction noise permits, if any, for the relevant part(s) of the works implemented accordingly?		✓			
NCO	Are valid noise emission labels fixed at air compressors and hand held percussive breakers?		✓			

TERRESTRIAL ECOLOGY

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
EM&A: O1	Are the construction activities at landing points N4 & N5 closely monitored to avoid impact on the uncommon and rare plant species <i>Celtis biondii</i> , <i>Pteris dispar</i> and <i>Ardicia pusilla</i> , and the restricted plants <i>Vitis balansaeana</i> , <i>Pterospermum heterophyllum</i> and <i>Rhapis excelsa</i> ?		✓			
EM&A: O2	Are fences erected in accordance with the Hoarding Plan and kept in good condition along the boundary of construction sites to prevent tipping, vehicle movements, and encroachment of personnel into adjacent wooded areas, particularly where the rare, uncommon and restricted plant species are located?		✓			
EM&A: Q3	Has regular checking been performed to ensure that the work site boundaries are not exceeded and that no damage occurs to surrounding areas?		✓			
EM&A: Q4	Is open fire prohibited and prevented within the work site boundary during construction? Is temporary fire fighting equipment provided in the work area during construction?		✓			
	Major noise source(s)	Traffic	✓			Construction activities inside the site
		Construction activities outside the site	✓			Others: Birds

Abbreviation

VEP: Varied Environmental Permit
Cap311R: APC (Construction Dust) Regulation
Cap311O: APC (Open Burning) Regulation
Cap311: Air Pollution Control Ordinance
Cap466: Dumping at Sea Ordinance

EM&A: EM&A Manual (Construction Phase)
NCO: Noise Control Ordinance
Cap354: Waste Disposal Ordinance
Cap354c: WDO (Chemical Waste) (General) Regulation
Unk: Unknown

Remark

Inspection Carried out on Tuesday due to Lunar New Holiday on 2/2/05.

Signatures

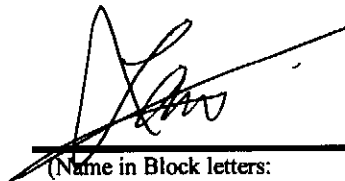
ET Member

Contractor's Representative



(Name in Block letters:

HENRY S. TSO.)



(Name in Block letters:

C.K. LAW.)

20th December 2001

The Hongkong Electric Co. Ltd.
Lamma Power Station Extension – Construction of Transmission System
Weekly Site Inspection Checklist

Inspection date 16/02/05 Time 15:00 Inspected by ET: Hendry Ho
Contractor: Kier

Site Transmission Route (Civil Work)

Weather

Condition ☐ Sunny ☐ Fine ☒ Overcast ☐ Hazy ☐ Drizzle ☐ Rain ☐ Storm
 Temperature 20 °C Humidity ☐ High ☒ Moderate ☐ Low
 Wind ☐ Calm ☐ Light ☒ Breeze ☐ Strong

GENERAL

Ref.	Checklist Condition	N/A	Yes	No	Unk	Remarks
VEP 1.5	Has a copy of the most updated Environmental Permit been displayed at all vehicular site entrances/exits for public information?		✓			
VEP 1.6	Is a copy of EIA report kept in Engineers' and Contractors' offices on site?		✓			

AIR QUALITY

Ref.	Checklist Condition	N/A	Yes	No	Unk	Remarks
General Requirements						
Cap311R:	Has the contractors notified EPD of the construction site which is classified as a notifiable work in a specified form? If there is any change in the notice? If yes, did the contractors notify EPD of the change?	✓				
Cap311R: Sch 12(3)	A compressed air jet shall not be used for cleaning or clearing dust from any vehicle, equipment, other materials or person. <i>Has this been observed?</i>	✓				
Stockpiling of dusty materials						
Cap311R: Sch 18 EM&A:J1	Are stockpiles of dusty materials entirely covered with impervious sheets or sheltered on the top and 3 sides or sprayed with water to maintain the entire surface wet to prevent dust emission?		✓			
Use of vehicles						
Cap311R: Sch 21(2)	Is every load of dusty material on the vehicles leaving the construction site covered entirely by clean impervious sheeting?	✓				
Miscellaneous						
Cap311R: Sch 16	Are completed earthworks sealed and hydroseeded and planted as soon as possible?	✓				

Ref.	Checklist Condition	N/A	Yes	No	Unk	Remarks
Cap3110	Is open burning prohibited?		✓			
Cap311	Is black smoke emission from plant/equipment avoided?		✓			

WASTE/CHEMICAL WASTE MANAGEMENT

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
Dredged Materials						
Cap466	Does the appropriate contractor possess valid dumping permits for dredged marine mud and have them available for inspection?		✓			
Cap466	Are wastes disposed of at licensed sites?		✓			
Construction Waste and Excavated Materials						
Cap354	Does the Contractor possess a valid Public Dumping License for construction waste and excavated materials and make it available for inspection?	✓				
Cap354	Are wastes disposed of at licensed sited?	✓				
Chemical Waste						
Cap354C	Has the contractor obtained the necessary disposal permits from the relevant authority, if required, according to Waste Disposal (Chemical Waste) (General Regulation)?	✓				
Cap354C	Has the Contractor registered as a chemical waste producer?		✓			
Cap354C	Is chemical waste handled according to the "Code of Practice on the Packaging, Handling and Storage of Chemical Waste"?	✓				

MARINE ECOLOGY

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
EM&A: M1	Are rubble mound seawalls constructed for the landing and launching points at Lamma Island?	✓				

NOISE

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
EM&A: L1	Are quiet PME's or standard PME's with modest source noise controls used at the cable route from N4 to N5?	✓				
EM&A: L2 ~ L5	Are quiet PME's (particularly the barge-mounted crane) or PME's with comparably effective source noise controls used at landing point N5?	✓				
NCO	Are valid construction noise permits, if required, available for inspection?		✓			N2, I1, LPS Landing Point
NCO	Are conditions of construction noise permits, if any, for the relevant part(s) of the works implemented accordingly?		✓			
NCO	Are valid noise emission labels fixed at air compressors and hand held percussive breakers?		✓			

TERRESTRIAL ECOLOGY

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
EM&A: O1	Are the construction activities at landing points N4 & N5 closely monitored to avoid impact on the uncommon and rare plant species <i>Celtis biondii</i> , <i>Pteris dispar</i> and <i>Ardicia pusilla</i> , and the restricted plants <i>Vitis balansaeana</i> , <i>Pterospermum heterophyllum</i> and <i>Rhapis excelsa</i> ?		✓			
EM&A: O2	Are fences erected in accordance with the Hoarding Plan and kept in good condition along the boundary of construction sites to prevent tipping, vehicle movements, and encroachment of personnel into adjacent wooded areas, particularly where the rare, uncommon and restricted plant species are located?		✓			
EM&A: Q3	Has regular checking been performed to ensure that the work site boundaries are not exceeded and that no damage occurs to surrounding areas?		✓			
EM&A: Q4	Is open fire prohibited and prevented within the work site boundary during construction? Is temporary fire fighting equipment provided in the work area during construction?		✓			
	Major noise source(s)		Traffic	✓	Construction activities inside the site	
			Construction activities outside the site	✓	Others: Birds	

Abbreviation

VEP: Varied Environmental Permit
Cap311R: APC (Construction Dust) Regulation
Cap311O: APC (Open Burning) Regulation
Cap311: Air Pollution Control Ordinance
Cap466: Dumping at Sea Ordinance


EM&A: EM&A Manual (Construction Phase)
NCO: Noise Control Ordinance
Cap354: Waste Disposal Ordinance
Cap354c: WDO (Chemical Waste) (General) Regulation
Unk: Unknown

Remark

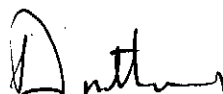
Signatures

ET Member

Contractor's Representative



(Name in Block letters:
Harry S. Ho)



(Name in Block letters: Tan Siu On)

20th December 2001

The Hongkong Electric Co. Ltd.
Lamma Power Station Extension – Construction of Transmission System
Weekly Site Inspection Checklist

Inspection date 23/02/05 Time 15:00 Inspected by ET: Hendry Ho
Contractor: Kier

Site Transmission Route (Civil Work)

Weather

Condition ☐ Sunny ☐ Fine ☒ Overcast ☐ Hazy ☐ Drizzle ☐ Rain ☐ Storm

Temperature 18 °C **Humidity** ☒ High ☐ Moderate ☐ Low

Wind ☐ Calm ☒ Light ☐ Breeze ☐ Strong

GENERAL

Ref.	Checklist Condition	N/A	Yes	No	Unk	Remarks
VEP 1.5	Has a copy of the most updated Environmental Permit been displayed at all vehicular site entrances/exits for public information?		✓			
VEP 1.6	Is a copy of EIA report kept in Engineers' and Contractors' offices on site?		✓			

AIR QUALITY

Ref.	Checklist Condition	N/A	Yes	No	Unk	Remarks
	General Requirements					
Cap311R:	Has the contractors notified EPD of the construction site which is classified as a notifiable work in a specified form? If there is any change in the notice? If yes, did the contractors notify EPD of the change?	✓				
Cap311R: Sch 12(3)	A compressed air jet shall not be used for cleaning or clearing dust from any vehicle, equipment, other materials or person. Has this been observed?	✓				
	Stockpiling of dusty materials					
Cap311R: Sch 18 EM&A:J1	Are stockpiles of dusty materials entirely covered with impervious sheets or sheltered on the top and 3 sides or sprayed with water to maintain the entire surface wet to prevent dust emission?		✓			
	Use of vehicles					
Cap311R: Sch 21(2)	Is every load of dusty material on the vehicles leaving the construction site covered entirely by clean impervious sheeting?	✓				
	Miscellaneous					
Cap311R: Sch 16	Are completed earthworks sealed and hydroseeded and planted as soon as possible?	✓				

Ref.	Checklist Condition	N/A	Yes	No	Unk	Remarks
Cap311O	Is open burning prohibited?		✓			
Cap311	Is black smoke emission from plant/equipment avoided?		✓			

WASTE/CHEMICAL WASTE MANAGEMENT

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
Dredged Materials						
Cap466	Does the appropriate contractor possess valid dumping permits for dredged marine mud and have them available for inspection?		✓			
Cap466	Are wastes disposed of at licensed sites?		✓			
Construction Waste and Excavated Materials						
Cap354	Does the Contractor possess a valid Public Dumping License for construction waste and excavated materials and make it available for inspection?	✓				
Cap354	Are wastes disposed of at licensed sited?	✓				
Chemical Waste						
Cap354C	Has the contractor obtained the necessary disposal permits from the relevant authority, if required, according to Waste Disposal (Chemical Waste) (General Regulation)?	✓				
Cap354C	Has the Contractor registered as a chemical waste producer?		✓			
Cap354C	Is chemical waste handled according to the "Code of Practice on the Packaging, Handling and Storage of Chemical Waste"?	✓				

MARINE ECOLOGY

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
EM&A: M1	Are rubble mound seawalls constructed for the landing and launching points at Lamma Island?	✓				

NOISE

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
EM&A: L1	Are quiet PME's or standard PME's with modest source noise controls used at the cable route from N4 to N5?	✓				
EM&A: L2 ~ L5	Are quiet PME's (particularly the barge-mounted crane) or PME's with comparably effective source noise controls used at landing point N5?	✓				
NCO	Are valid construction noise permits, if required, available for inspection?		✓			N2, I1, LPS Landing Point
NCO	Are conditions of construction noise permits, if any, for the relevant part(s) of the works implemented accordingly?		✓			
NCO	Are valid noise emission labels fixed at air compressors and hand held percussive breakers?		✓			

TERRESTRIAL ECOLOGY

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
EM&A: O1	Are the construction activities at landing points N4 & N5 closely monitored to avoid impact on the uncommon and rare plant species <i>Celtis biondii</i> , <i>Pteris dispar</i> and <i>Ardicia pusilla</i> , and the restricted plants <i>Vitis balansaeana</i> , <i>Pterospermum heterophyllum</i> and <i>Rhapis excelsa</i> ?		✓			
EM&A: O2	Are fences erected in accordance with the Hoarding Plan and kept in good condition along the boundary of construction sites to prevent tipping, vehicle movements, and encroachment of personnel into adjacent wooded areas, particularly where the rare, uncommon and restricted plant species are located?		✓			
EM&A: Q3	Has regular checking been performed to ensure that the work site boundaries are not exceeded and that no damage occurs to surrounding areas?		✓			
EM&A: Q4	Is open fire prohibited and prevented within the work site boundary during construction? Is temporary fire fighting equipment provided in the work area during construction?		✓			
	Major noise source(s)		Traffic	✓	Construction activities inside the site	
			Construction activities outside the site	✓	Others: Birds	

Abbreviation

VEP: Varied Environmental Permit
Cap311R: APC (Construction Dust) Regulation
Cap311O: APC (Open Burning) Regulation
Cap311: Air Pollution Control Ordinance
Cap466: Dumping at Sea Ordinance

EM&A: EM&A Manual (Construction Phase)
NCO: Noise Control Ordinance
Cap354: Waste Disposal Ordinance
Cap354c: WDO (Chemical Waste) (General) Regulation
Unk: Unknown

Remark

Signatures

ET Member

Contractor's Representative



(Name in Block letters:

S. T. Ho



(Name in Block letters:

Tang Siu On

20th December 2001

The Hongkong Electric Co. Ltd.
Lamma Power Station Extension – E&M Works
Weekly Site Inspection Checklist

Inspection date 24-2-2003 Time 09:30 Inspected By ET: W. Sin
 Contractor: Eddy Wang (TOK)
 Site LMX - Unit 9 Mech. Erection Area

Weather

Condition ☐ Sunny ☐ Fine ☒ Overcast ☐ Hazy ☐ Drizzle ☐ Rain ☐ Storm
 Temperature 16 °C Humidity ☒ High ☐ Moderate ☐ Low
 Wind ☐ Calm ☒ Light ☐ Breeze ☐ Strong

GENERAL

Ref.	Checklist Condition	N/A	Yes	No	Unk	Remarks
VEP 1.5	Has a copy of the most update Environmental Permit been displayed at all vehicular site entrances/exits for public information?		✓			
VEP 1.6	Is a copy of EIA report kept in Engineers' and Contractors' offices on site?		✓			

AIR QUALITY

Ref.	Checklist Condition	N/A	Yes	No	Unk	Remarks
General Requirements						
Cap311R: 3	Has the contractors notified EPD of the construction site which is classified as a notifiable work in a specified form? If there is any change in the notice, do the contractors notify EPD of the change?	✓				
Cap311R: Sch 12(3)	A compressed air jet shall not be used for cleaning or clearing dust from any vehicle, equipment, other materials or person. Is this observed?		✓			
Cap311	Do the contractors possess valid Air Pollution Control Specified Processes Licenses for the concrete batching plant wherever applicable and have it available for inspection?	✓				
Construction Sites						
EM&A : A1	Are haul roads paved with concrete or sprayed with water to keep the entire road wet?		✓			Spraying provided by PR
Stockpiling of dusty materials						
Cap311R: Sch 18	Are stockpiles of dusty materials entirely covered with impervious sheets or sheltered on the top and 3 sides or sprayed with water to maintain the entire surface wet to prevent dust emission?	✓				

Ref.	Checklist Condition	N/A	Yes	No	Unk	Remarks
Cement and dry pulverized fuel ash (PFA)						
Cap311R: Sch 15(3)	Are the storage silos for cement or dry PFA prevented from overfilling?	✓				
Cap311R: Sch 15(4)	Are the handlings of cement or dry PFA through a totally enclosed system equipped with air pollution control equipment at the vent of the system?	✓				
Cap311R: Sch 15(2)	Is bulk cement or dry PFA stored in a closed silo fitted with a high-level alarm?	✓				
Cap311R: Sch 17	Are the cement, dry PFA or other dusty materials collected by the air pollution control equipment disposed of in totally enclosed containers?	✓				
Loading, unloading or transfer of dusty materials						
Cap311R: Sch 19	Are dusty materials, except cement and dry PFA, sprayed with water immediately prior to any loading, unloading or transfer operation?	✓				
EM&A: A1	Are the dropping heights of the fill materials controlled to a practical level to minimize fugitive dust emission?	✓				
Use of vehicles						
Cap311R: Sch 21(2) EM&A: A1	Is every load of dusty material on the vehicles leaving the construction site covered entirely by clean impervious sheeting?	✓				
Cap311R: Sch 21(1)	Is every vehicle wheel-washed by the wheel washing facilities to remove any dusty materials from its body and wheels before leaving the construction site?		✓			Cleaning provided by PY
Transfer of dusty materials using a belt conveyor system						
Cap311R: Sch 20(1)	Are belt conveyors used for transfer of dusty materials covered on the top and 2 sides?	✓				
Cap311R: Sch 20(2)	Is every transfer point between any two-belt conveyors totally enclosed?	✓				
Cap311R: Sch 20(3)	Is a belt scraper or equivalent device installed at the head pulley of every conveyor? Is the belt scraper equipped with bottom plates or similar means to prevent falling of materials from the return belts?	✓				
Cap311R: Sch 20(4)	Are stockpiling conveyors equipped with level adjusting mechanism to maintain the dropping height within 1 m?	✓				
Concrete batching plant						
EM&A: A2	Are the loading, unloading, handling, transfer or storage of any dusty materials carried out in a totally enclosed system?	✓				
EM&A: A2	Are dusty materials, except cement and dry PFA, wetted by water spray system?	✓				
EM&A: A2	Are all the receiving hoppers enclosed on three (3) sides up to 3m above unloading point?	✓				
EM&A: A2	Are all the conveyor transfer points totally enclosed?	✓				

Ref.	Checklist Condition	N/A	Yes	No	Unk	Remarks
	Miscellaneous					
Cap311R: Sch 16	Are completed earthworks sealed and hydroseeded and planted as soon as possible?	✓				
Cap3110	Is open burning prohibited?		✓			
Cap311	Is black smoke emission from plant/equipment avoided?		✓			

WASTE/CHEMICAL WASTE MANAGEMENT

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
	Dredged Materials					
WMP EM&A: E3	Does the appropriate contractor possess valid dumping permits for dredged marine mud and have them available for inspection?	✓				
WMP EM&A: E3	Has the contractor kept a complete set of dumping records/ticketing system and made them available for inspection?	✓				
EM&A: E3	Are wastes disposed of at licensed sites?	✓				
	Construction Waste and Excavated Materials					
WMP EM&A: E3	Does the Contractor possess a valid Public Dumping License for construction waste and excavated materials and make it available for inspection?	✓				
WMP	Has the Contractor maintained disposal records for the construction waste and excavated materials, and made them available for inspection?	✓				
WMP	Is suitable concrete waste/excavated material used for on-site reclamation/filling works?	✓				
WMP	Are the used formworks reused as far as possible before being disposed of in a landfill site?	✓				
WMP	Are the remaining unsuitable excavated materials disposed of at the public filling areas?	✓				
EM&A: E3	Are wastes disposed of at licensed sites?	✓				
	General refuse					
WMP	Has the Contractor maintained a disposal record for general refuse and made it available for inspection?		✓			
WMP	Is general refuse stored within receptacles and separated from chemical wastes?		✓			
WMP	Is the refuse disposed of regularly and properly?		✓			
WMP	Are burning of refuse at site and dumping at sea prohibited?		✓			
	Chemical Waste					
EM&A: E3	Has the contractor obtained the necessary disposal permits from the relevant authority, if required, according to Waste Disposal (Chemical Waste) (General Regulation)?	✓				

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
WDO	Has the Contractor been registered as a chemical waste producer?	✓				
EM&A: E3	Has the Contractor kept all the trip tickets for the disposal of chemical waste and made them available for inspection?	✓				
EM&A: E4	Is chemical waste handled according to the Code of Practice on the Packaging, Handling and Storage of Chemical Waste?"	✓				
EM&A: E4	Is the chemical waste-storage, if any, well maintained, kept closed and locked?	✓				
Storage, collection and transportation of waste						
EM&A: E3	Are wastes transported by enclosed containers or covered trucks?		✓			
EM&A: E3	Are waste materials segregated and sorted into 3 categories as follows?	✓				
	(1) public fill materials for on-site reuse, or disposal at public filling area;	✓				
	(2) reusable / recyclable materials;					
	(3) un-reusable / non-recyclable waste for landfill disposal.					
EM&A: E3	Are the records of the quantities of wastes generated and disposed off-site for the 3 categories of waste properly maintained?	✓				

WATER QUALITY

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
Surface Run-off						
PN1/94	Are the silt removal facilities, channels and manholes maintained and the deposited silt and grit removed regularly?	✓				
PN1/94	Are earthworks final surfaces well compacted and the subsequent permanent work or surface protection carried out immediately after the final surfaces are formed to prevent erosion caused by rainstorms? Is appropriate drainage like intercepting channels provided where necessary?	✓				
PN1/94	Are measures taken to minimize the ingress of rainwater into trenches? Is rainwater pumped out from trenches or foundation excavations discharged into storm drains via silt removal facilities?	✓				
PN1/94	Are open stockpiles of construction materials (e.g, aggregates, sand and fill material) on site covered with tarpaulin or similar fabric during rainstorms? Are measures taken to prevent the washing away of construction materials, soil, silt or debris into the drainage system?	✓				
PN1/94	Are manholes (including newly constructed ones) adequately covered and temporarily sealed so as to prevent silt, construction materials or debris from getting into the drainage system, and to prevent storm run-off from getting into foul sewers?	✓				
Groundwater						
PN1/94	Is groundwater that pumped out of wells discharged into storm drains after the removal of silt in silt removal facilities?	✓				

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
	Boring and Drilling Water					
PN1/94	Is water that used in ground boring and drilling for site investigation or rock/soil anchoring recirculated as far as possible after sedimentation? If there is a need for final disposal, is the wastewater discharged into storm drains via silt removal facilities?	✓				
	Wheel Washing Water					
PN1/94	Is a wheel-washing bay provided at every exit if practicable and is the silt removed from wash-water before discharging into storm drains?	✓				

MARINE ECOLOGY

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
EM&A: G1	Are all percussive piling works conducted on reclaimed land to avoid noise impact to marine mammals?	✓				
EM&A: G2	Do the marine vessels moving to and from the construction site strictly follow the routes stated in the "Plan for Dredging & Reclamation, Routing of Construction Related Marine Vessels, and Installation of Silt Curtain"?	✓				
EM&A: G3	Is rubble mound seawall constructed to the south and west edges of the reclamation to enhance recolonisation of marine organisms?	✓				

NOISE

Ref	Checklist Condition	N/A	Yes	No	Unk	Remarks
EM&A : C1	Are working programmes scheduled to minimize noise nuisance?		✓			
EM&A: C1	Are construction works or equipment sited to minimize noise nuisance?		✓			
EM&A: C1	Are all plant and equipment maintained in good operating conditions?		✓			
EM&A: C1/GP	Is idle equipment turned off or throttled down?		✓			
EM&A: C1	Are methods of working devised and arranged to minimize noise nuisance?		✓			
EM&A: C1)	Are construction works carried out in a manner to minimize noise nuisance?		✓			
EM&A: C2	To mitigate construction noise during Sunday's and public holidays, is either one of the following measures adopted? a) Mitigation by portable noise barriers at noise sources or b) Rescheduling of some powered mechanical equipment to less sensitive time periods?		✓			
EM&A: C3	To mitigate night time construction noise, is dredging equipment equipped with silencers or mufflers?	✓				
NCO	Are valid construction noise permits, if required, available for inspection?	✓				
NCO	Are conditions of construction noise permits, if any, for the relevant part(s) of the works implemented accordingly?	✓				
NCO	Are valid noise emission labels fixed at air compressors and hand held percussive breakers?		✓			
	Major noise source(s)	<input type="checkbox"/> Traffic	<input checked="" type="checkbox"/> Construction activities inside the site			
		<input type="checkbox"/> Construction activities outside the site	<input type="checkbox"/> Others _____			

Abbreviation

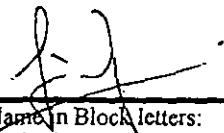
VEP:	Varied Environmental Permit	EM&A:	EM&A Manual (Construction Phase)
WMP:	Waste Management Plan	NCO:	Noise Control Ordinance
Cap311R:	APC (Construction Dust) Regulation	WDO:	Waste Disposal Ordinance
Cap311O:	APC (Open Burning) Regulation		
Cap311:	Air Pollution Control Ordinance		
PN1/94:	Practice Note for Professional Persons (Construction Site Drainage)		
Unk:	Unknown		

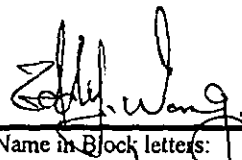
Remark

Signatures

ET Member

Contractor's Representative


(Name in Block letters:
W S W
HSC/PDM)


(Name in Block letters:
EDDY WONG)

Appendix I: Summary of EMIS

I.1. Power Station (Part B of EIA Report)

Table I.1 Construction Phase Mitigation Measures and their Implementation

EM&A Log Ref.	Mitigation Measures	Implementation Status
	AIR QUALITY	
A1	For general construction works, the dust control measures stipulated under the Air Pollution Control (Construction Dust) Regulation shall be complied with, such as:	
	• the haul roads shall be sprayed with water to keep the entire road surface wet.	C
	• the load carried by vehicle shall be covered by impervious sheeting to ensure no leakage of dusty materials from the vehicle.	C
	• the heights from which fill materials are dropped shall be controlled to a practical level to minimise the fugitive dust arising from unloading.	C
A2	For the concrete batching plant, the following control measures are recommended:	
	• loading, unloading, handling, transfer or storage of any dusty materials shall be carried out in a totally enclosed system.	N/A
	• The materials which may generate airborne dust emissions shall be wetted by water spray system.	N/A
	• All receiving hoppers shall be enclosed on three sides up to 3m above unloading point.	N/A
	• All conveyor transfer points shall be totally enclosed.	N/A
	WATER QUALITY	
B1	The following configurations and maximum rates of dredging shall be allowed:	
	• 3 large grab dredgers and 1 small grab dredger operating concurrently, each with rates of working of 12,000 m ³ day ⁻¹ and 8,000 m ³ day ⁻¹ respectively. During the flood phase of the tidal cycle the total number of large dredgers working shall be reduced by one, while during the ebb phase of the tidal cycle no reductions in the total number of dredgers shall be required.	N/A
	• 1 trailer dredger with a rate of working of 8,000 m ³ day ⁻¹ , and 2 large grab dredgers, each with rates of working of 12,000 m ³ day ⁻¹	N/A
B2	Silt curtains shall be installed on the eastern, southern and north western sides of the reclamation site during dredging for the reclamation construction. This is a required mitigation measure for the construction works and shall be implemented prior to the commencement of bulk dredging.	N/A
B3	As a necessary operational constraint combined bulk dredging and sand filling for site formation shall not be permitted at any time. In addition, sand filling for site platform shall take place behind constructed sea walls which pierce the water surface.	N/A
B4	HEC shall ensure design to divert all storm drains away from Hung Shing Ye Bay.	N/A

EM&A Log Ref.	Mitigation Measures	Implementation Status
B5	Sand fill for the rubble mound seawalls shall be placed by controlled pumping down the trailer arm.	N/A
B6	<p>EM&A shall confirm the acceptability of any impacts during construction and should any unacceptable impacts be found then one or more of the following mitigation measures shall be implemented:</p> <ul style="list-style-type: none"> reducing the number of dredgers working at any one time; reducing the rate of working of the dredgers; temporary suspension of operations; phasing of the works so that dredging / filling is only undertaken at certain stages of the tidal cycle. 	N/A
B7	<p>In addition to the above specific measures the following general working procedures shall be adopted.</p> <ul style="list-style-type: none"> fully-enclosed or watertight grabs shall be used to minimise loss of sediment during the raising of loaded grabs through the water column; the descent speed of grabs shall be controlled to minimise the seabed impact speed and to reduce the volume of over dredging; barges shall be loaded carefully to avoid splashing of material; all barges used for the transport of dredged materials shall be fitted with tight bottom seals in order to prevent leakage of material during loading and transport; all barges shall be filled to a level which ensures that material does not spill over during loading and transport to the disposal site and that adequate freeboard is maintained to ensure that the decks are not washed by wave action; the speed of trailer dredgers shall be controlled to prevent propeller wash from stirring up the sea bed sediments; "rainbowing" sand fill from trailer dredgers shall not be permitted; and the works shall cause no visible foam, oil, grease or litter or other objectionable matter to be present in the water within and adjacent to the dredging site and along the route to the disposal site. 	
		N/A
		N/A
		N/A
		N/A
		N/A
		N/A
		C
B8	Cumulative impacts shall be assessed through EM&A. Co-ordination with the EM&A consultants for other projects to determine if any exceedances are caused by the other projects or by HEC's activities. Should monitoring results indicate exceedances at sensitive receivers due to HEC's activities, then the above described mitigation measures shall be implemented until impacts reduce to acceptable levels.	N/A
	NOISE	
C1	General noise mitigation measures shall be employed at all work sites throughout the construction phase.	C
C2	Mitigate against general construction noise during Sunday's and public holidays, either at source with portable noise barriers, or by rescheduling of some PME's to less sensitive time periods.	C
C3	Mitigate against night time noise from dredging equipment, with silencers or mufflers.	N/A

EM&A Log Ref.	Mitigation Measures	Implementation Status
	LANDSCAPE & VISUAL IMPACTS	
D1	The following mitigation measures shall be allowed for landscape and visual improvement: <ul style="list-style-type: none"> Use rubble mound seawall along south and west edges of the reclamation to provide a more natural look. Break the mass of main buildings by varying the height/division into smaller units. Plant trees and vegetation for screening. Adopt colour scheme to blend the buildings into the scenery. 	N/A N/A N/A N/A
	WASTE MANAGEMENT	
E1	HEC to submit a Waste Management Plan for the construction phase to EPD. The Plan shall be verified by the IEC and shall describe the arrangements for avoidance, reuse, recovery and recycling, storage, collection, treatment and disposal of different categories of waste to be generated from the construction activities and shall take into account the recommendations of the EIA report.	C
	<i>Dredging Waste</i>	
E2	All vessels for marine transportation of dredged sediment shall be fitted with tight fitting seals to their bottom openings to prevent leakage of materials. In addition, loading of barges and hoppers shall be controlled to prevent splashing of dredged material into the surrounding water, and barges or hoppers should under no circumstances be filled to a level which shall cause the overflowing of materials or polluted water during loading or transportation	N/A
	<i>Storage, Collection and Transport of Waste</i>	
E3	<ul style="list-style-type: none"> Minimise windblown litter and dust during transportation by either covering trucks or transporting wastes in enclosed containers. Obtain the necessary waste disposal permits from the appropriate authorities, if they are required, in accordance with the Waste Disposal Ordinance (Cap.354), Waste Disposal (Chemical Waste) (General) Regulation (Cap.354), the Crown Land Ordinance (Cap 28), Dumping at Sea Ordinance (Cap 466) and Work Branch Technical Circular No. 22/92, Marine Disposal of Dredged Mud. Disposal of waste at Licensed sites; Develop procedures such as a ticketing system to facilitate tracking of marine mud and chemical waste, and to ensure that illegal disposal does not occur; Segregate and sort the waste materials into 3 categories: <ul style="list-style-type: none"> public fill (e.g. concrete and rubble) for re-use on-site or disposal at a public filling area; re-use and/or recycling waste (e.g. steel and other metals); waste which cannot be re-used and/or recycled (e.g. wood, glass and plastic) for landfill disposal. The sorting process shall be carefully monitored to avoid missing of the 3 categories. Different types of wastes shall be stockpiled and stored in different containers or skips to enhance re-use or recycling of materials and their proper disposal. Maintain records of the quantities of wastes generated and disposed off-site for each category of waste. 	N/A C C N/A N/A C

EM&A Log Ref.	Mitigation Measures	Implementation Status
E4	Chemical waste that is produced, as defined by Schedule 1 of the Waste Disposal (Chemical Waste) (General) Regulation, shall be handled in accordance with the Code of Practice on the Packaging, Handling and Storage of Chemical Wastes	N/A
	LAND CONTAMINATION	
F1	No land Contamination mitigation measures are required during the construction phase.	N/A
	MARINE ECOLOGY	
G1	All percussive piling works shall be conducted on reclaimed land to avoid noise impact to marine mammals	N/A
G2	All construction related vessels shall approach the extension site from the north and via the East Lamma Channel to avoid disturbance to the finless porpoise	C
G3	Rubble mound seawall to the south and west edges of the reclamation to enhance recolonisation of marine organisms	N/A
G4	Artificial Reefs of a volume not less than 400 m ³ shall be deployed in a location to be decided upon consultation with the Director of Agriculture and Fisheries to serve the purpose of an Additional Habitat Enhancement Measure.	N/A
	FISHERIES	
H1	No Fisheries-specific mitigation measures are required during the construction phase.	N/A
	RISK ASSESSMENT	
I1	No risk mitigation measures are required during the construction phase.	N/A

I.2. Transmission System (Part C of EIA Report)

Table I.2 Construction Phase Mitigation Measures and their Implementation

EM&A Log Ref.	Mitigation Measures	Implementation Status
	AIR QUALITY	
J1	To mitigate potential construction related dust impacts, the dust control measures stipulated under the Air Pollution Control (Construction Dust) Regulation shall be complied with, such as:	
	<ul style="list-style-type: none"> all debris or materials shall be either covered or stored in a debris sheltered collection area; 	C
	<ul style="list-style-type: none"> prior to any material handling, all dusty material shall be sprayed with water. 	C
	WATER QUALITY	
K1	No mitigation measures are considered necessary.	N/A
	NOISE	
L1	N4-N5 Cable Route Selection and use of quiet PMEs, or use of modest source noise controls with standard PMEs	N/A
L2	N5 Landing Point Selection and use of quiet PMEs (particularly the barge-mounted crane), or use of comparably effective source noise controls with the PMEs;	C
L3	For non-percussive piling – use of equipment with a SWL of 113 dB(A) or less if there is no programme overlap of the piling with the site formation works, otherwise offsetting source noise controls shall be required.	N/A
L4	For percussive piling – use of equipment with a SWL of 115 dB(A) or less, otherwise, offsetting source noise controls shall be required.	N/A
L5	If non-percussive piling and site formation activities are to be carried out simultaneously then careful equipment selection and source controls shall be required for both activities to reduce each by approximately 3 dB(A).	N/A
	MARINE ECOLOGY	
M1	Construction of rubble mound seawalls for the landing and launching points at Lamma Island.	N/A
	FISHERIES	
N1	No fisheries-specific mitigation measures are required during the construction phase	N/A
	TERRESTRIAL ECOLOGY The following mitigation measures shall be implemented to protect the important plant species and minimizing disturbance to the surrounding environment through good construction practice, as recommended below:	

EM&A Log Ref.	Mitigation Measures	Implementation Status
O1	Avoidance of impact on the uncommon and rare plant species <i>Celtis biondii</i> , <i>Pteris dispar</i> and <i>Ardicia pusilla</i> , and the restricted plants <i>Vitis balansaeana</i> , <i>Pterospermum heterophyllum</i> and <i>Rhapis excelsa</i> , by locating the landing points N4 & N5 and the connecting cable trough in areas outside where these plant species are located (Figures 9.4b & 9.4c, Part C, Volume 2), as well as close monitoring of the construction activity.	C
O2	The erection of fences along the boundary of construction sites before the commencement of works to prevent tipping, vehicle movements, and encroachment of personnel into adjacent wooded areas, particularly where the rare, uncommon and restricted plant species are located.	C
O3	Regular checking to ensue that the work site boundaries are not exceeded and that no damage occurs to surrounding areas.	C
O4	The prohibition and prevention of open fires within the work site boundary during construction and provision of temporary fire fighting equipment in the work area during construction.	C
	LANDSCAPE AND VISUAL IMPACT	
P1	The visual impact of the Cable Landing Point I1 is considered negligible as it would have similar appearance as the existing sea wall and therefore no mitigation is required.	N/A
P2	<p>The proposed landing points N2, N4 and N5, the following landscaping mitigation measures are recommended to minimize the potential impacts:</p> <ul style="list-style-type: none"> Although the size of the landing points varies (N2 is 26x70m, N4 is 27x65m and N5 is 33x56m), each has a finished platform level at +6.00mPD. With the Low Water Level at +1.00mPD, the platforms shall be a maximum of some 5m above the water level at low tide. In order to minimize the visual impact of the landing points, the exposed sides of the platforms and the cable slipways shall be screened with irregularly arranged boulders of varying sizes to mimic the natural coastline features. The horizontal platform surface shall be finished with natural materials such as stone pavings or tiles. The cable trough in between Landing Points N4 and N5 is 5.5m wide and 260m long. The walkway that is formed above the cable trough shall be shielded by boulders (or, where practicable, shrub planting) from potential viewers from the sea and horizontal surfaces be finished with natural materials such as stone paving. Appropriate compensatory landscaping shall be provided for any disruption to existing vegetation to blend in with the surrounding setting. As a planning gain, parts of the landing points N4 and N5 and the cable trough between the landing points can be used for amenity and recreational purposes. Some low maintenance fixtures, matching with the natural environment, shall be built or placed on the landing points for public use. HEC shall resolve any management and maintenance requirements of the proposed mitigation measures during the processing stage of wayleave agreements. If required by Government, HEC commit to bear the management and maintenance responsibilities of these facilities. 	
		N/A
		N/A
		N/A

Remarks:

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

Appendix J

Tentative Construction Programme

ID	Task Name	Start	Finish	March				April				May				Jun	
				27/2	6/3	13/3	20/3	27/3	3/4	10/4	17/4	24/4	1/5	8/5	15/5	22/5	29/5
1	Civil Works																
2																	
3	Site Proccession & Preparation Work	Tue 25/5/04	Mon 12/7/04														
4																	
5	<u>Within Lamma Power Station</u>																
6	Construction of Cable Duct	Mon 4/10/04	Thu 29/9/05														
7	Construction of Cable Duct North Portal	Mon 12/7/04	Wed 30/11/05														
8																	
9	<u>Yung Shue Wan South</u>																
10	Construction of Cable Landing Point	Mon 12/7/04	Wed 30/11/05														
11	Construction of Cable Duct South Portal	Mon 12/7/04	Wed 30/11/05														
12																	
13	<u>Pak Kok San Tsuen</u>																
14	Construction of Cable Landing Point	Tue 24/8/04	Fri 14/10/05														
15	Construction of Cable Trenches	Sat 30/7/05	Fri 14/10/05														
16	Construction of Cable Duct	Thu 25/11/04	Fri 29/7/05														
17	Construction of Cable Duct South Portal	Tue 24/8/04	Fri 14/10/05														
18																	
19	<u>Pak Kok Tsui</u>																
20	Construction of Cable Landing Point	Mon 12/7/04	Wed 14/9/05														
21	Construction of Cable Duct North Portal	Mon 12/7/04	Fri 6/5/05														

Additional Transmission System for Lamma Power Station
275kV Cable Route from Lamma Island to Cyberport
3-Month Programme (Rev. D)

Task



Milestone



External Tasks

Split



Summary



External Milestone



Progress

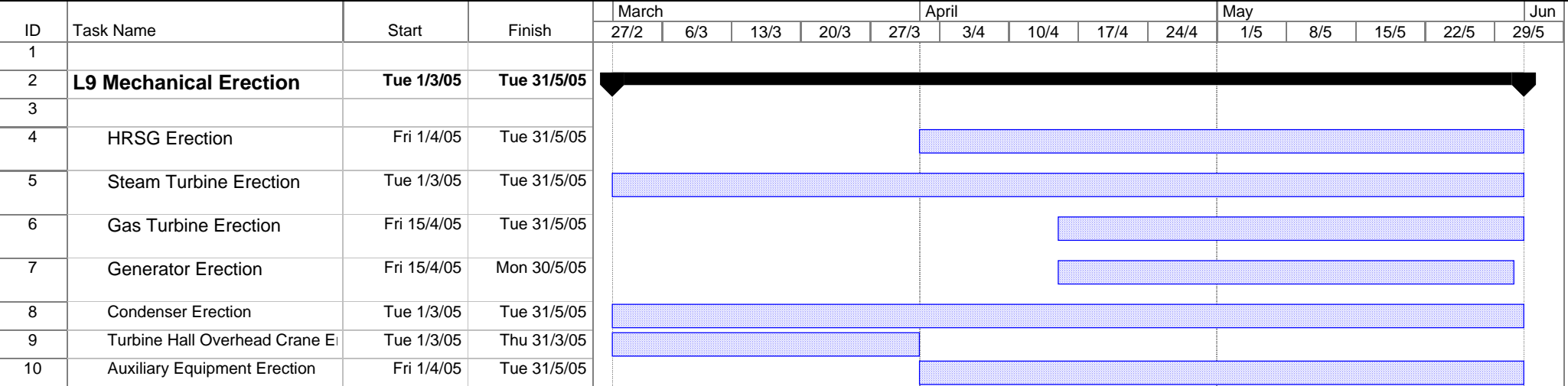


Project Summary



Deadline

ID	Activities	Start	Finish	2005 March		2005 April	2005 May	2005 June
				2/27	3/20	4/10	5/1	5/22
1	Defect	04/6/15	05/2/28					



Lamma Power Station Extension
Unit 9 Mechanical Erection
3-Month Programme

Task

Split

Progress

Milestone

Summary

Project Summary

External Tasks

External Milestone

Deadline

Appendix K



Supply and Installation of Submarine Gas Pipeline

Monthly EM&A Report prepared by a Consultant as
one of the ET Members

LAMMA POWER STATION EXTENSION Supply and Installation of Submarine Gas Pipeline

Lamma Water Quality Monitoring During Dredging Works Monitoring Report

February 2005

1	14/3/05	Issued for approval	WK		DSM	
0	10/3/05	Issued for comments	WK			
REV	DATE	DESCRIPTION	PREPARED	CHECKED	APPROVED	PURCHASER
STATUS CODE : A = Issued for comments – B = Issued for approval – C = Approved for Construction						
TOTAL OR PARTIAL REPRODUCTION AND/OR UTILIZATION OF THIS DOCUMENT ARE FORBIDDEN WITHOUT PRIOR WRITTEN AUTHORIZATION OF THE OWNER						
		THE HONGKONG ELECTRIC CO., LTD. LAMMA POWER STATION EXTENSION Supply and Installation of Submarine Gas Pipeline Contract No. 03/9008				
		 Saipem				
		Doc. No.: LTLD-32-1-138-G		REVISION 1	STATUS B	

**TABULATION OF REVISED PAGES**

PAGE	REVISIONS									PAGE	REVISIONS								
	0	1	2	3	4	5	6	7			0	1	2	3	4	5	6	7	
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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

<p>Approved By </p> <p align="center">(Project Director: Dr. HF Chan)</p>

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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- C Water Quality Monitoring Results and the Graphical Presentation
- D Event Action Plan for Water Quality
- E Monitoring Schedule
- F Construction Phase Mitigation Measures and their Implementation (Gas Pipeline)

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 Shenzhen 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	<ul style="list-style-type: none">• Temperature (°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
<i>Control</i>		
C2	828608	813492
C4	826776	806464
C5	830440	802186
<i>Impact</i>		
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



C2
⊕

SR1
⊕

SR2
⊕

PAK KOK SHAN

YUNG SHUE WAN

SR3
⊕

HUNG SHING YE
BEACH
⊕

SR4
⊕

KAT TSAI WAN

LUK CHAU SHAN

SOK KWU WAN

SR5
⊕

Lamma Island

TUNG O WAN

SR6
⊕

SHAN TEI TONG

SHAM WAN

SR7
⊕

C5
⊕

DREDGING AREA
AT LAMMA APPROACH

C4
⊕

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	1 : 50 000 A4
Date	DEC 04

Project No.	MA4017
Figure No.	1



**APPENDIX A
COPY OF CALIBRATION CERTIFICATE
OF MONITORING EQUIPMENT**

WELLAB LTD.

606 - 608 Cornell Centre,
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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.

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

ATTN: Mr. Henry Leung

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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WELLAB LTD.

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TEST REPORT

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: 2 of 2

Results:

1. Conductivity performance check

Specific Conductivity, $\mu\text{S}/\text{cm}$		Correction, $\mu\text{S}/\text{cm}$	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,
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.

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

ATTN: Mr. Henry Leung

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

This test document cannot be reproduced in any way, except in full context, without the prior approval in writing of the laboratory.

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

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Page: 2 of 2

Results:

1. Conductivity performance check

Specific Conductivity, $\mu\text{S}/\text{cm}$		Correction, $\mu\text{S}/\text{cm}$	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	<u>Surface & Middle</u> : 80% of upstream control station at the same tide of the same day <u>Bottom</u> : 80% of upstream control station at the same tide of the same day						
	Limit	<u>Surface & Middle</u> : 4mg/l <u>Bottom</u> : 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	
				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
02/24/05	Cloudy	Moderate	10:31	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	
				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	
02/26/05	Fine	Moderate	12:40	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	
				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
02/24/05	Cloudy	Moderate	17:26	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	
				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	
02/26/05	Fine	Moderate	09:26	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	7.9	7.9	31.1	31.1	99.1	98.9	8.2	8.1	8.1	8.2	0.6	0.6	0.6	3	4	
						15.5		7.9		31.1		98.6		8.1		0.6							
				Middle	4	15.5	15.5	7.9	7.9	31.1	31.1	96.4	96.2	8.0		8.0	0.6		0.6		4		
						15.5		7.9		31.1		95.9		7.9		8.0	0.6						
				Bottom	6	15.5	15.5	8.0	8.0	31.1	31.1	94.9	94.9	7.8		7.8	7.8		0.5		0.5		6
						15.5		8.0		31.1		94.8		7.8			7.8		0.5				
02/24/05	Cloudy	Moderate	11:03	Surface	1	16.2	16.2	7.8	7.9	30.9	31.0	101.5	101.4	8.3	8.3	8.3	8.3	0.7	0.7	0.7	3	4	
						16.2		7.9		31.0		101.2		8.3		8.2					8.2		0.8
				Middle	4	16.2	16.2	7.9	7.9	31.0	31.0	100.7	100.6	8.2		8.2	0.8		0.8		5		
						16.2		7.9		31.0		100.5		8.2		8.2	0.7						
				Bottom	6	16.2	16.2	7.9	7.9	31.0	31.0	100.3	100.4	8.2		8.2	8.2		0.6		0.6		3
						16.2		7.9		31.0		100.4		8.2			8.2		0.5				
02/26/05	Fine	Moderate	13:02	Surface	1	16.3	16.3	8.0	8.0	30.4	30.4	94.0	93.3	7.7	7.6	7.6	7.7	1.5	1.5	2.2	3	3	
						16.3		8.0		30.4		92.5		7.6		2.2							
				Middle	4	16.3	16.3	8.0	8.0	30.4	30.4	90.9	91.0	7.4		7.4	7.4		2.2		2.2		3
						16.3		8.0		30.4		91.0		7.4			7.4		2.1				
				Bottom	7	16.4	16.4	8.0	8.0	30.4	30.4	89.6	89.8	7.3		7.3	7.3		2.8		2.8		4
						16.4		8.0		30.4		90.0		7.3			7.3		2.7				

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		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		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		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		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		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		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	

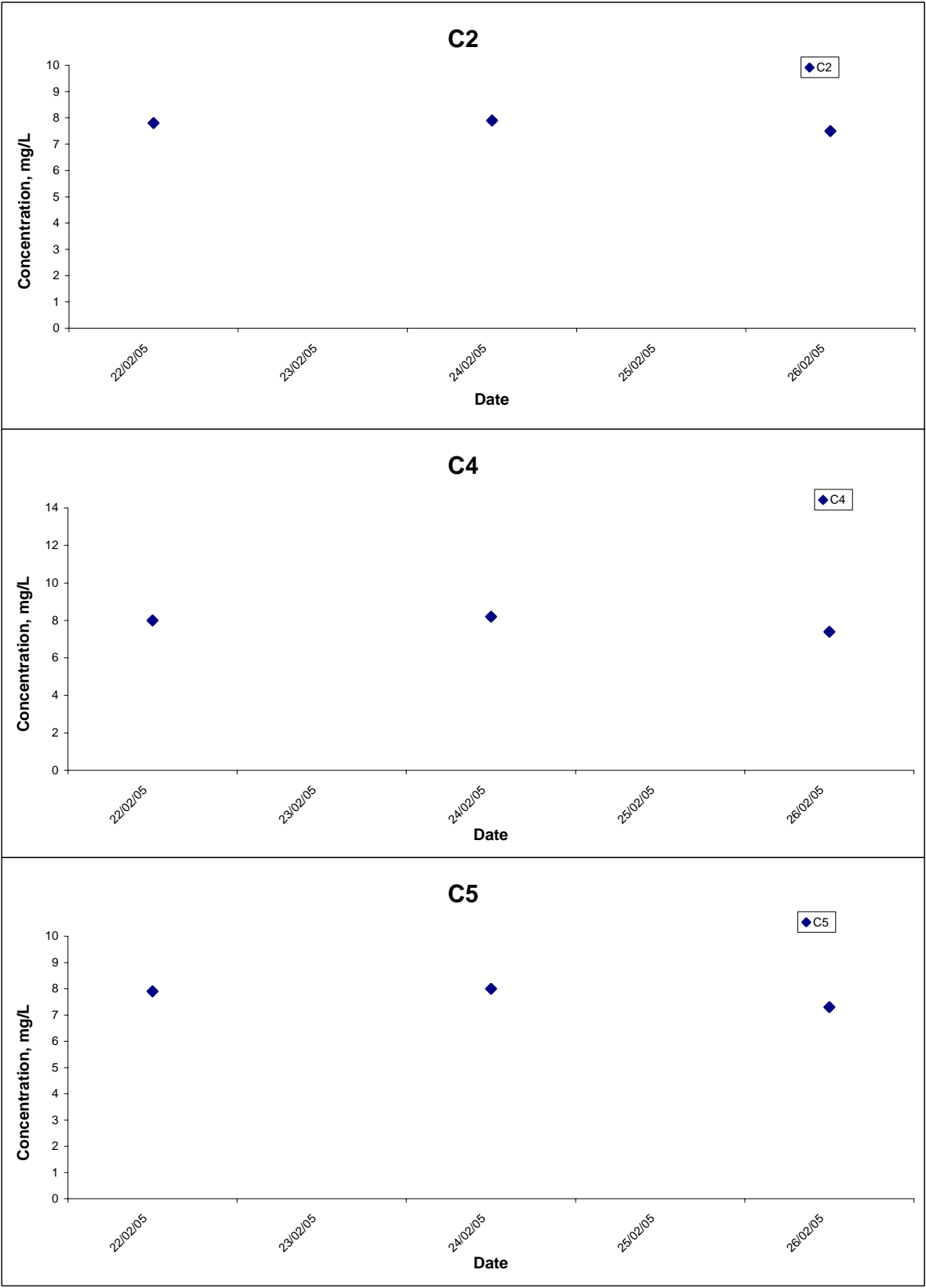
Water Quality Monitoring Results at Location SR7 - Mid-Flood Tide

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

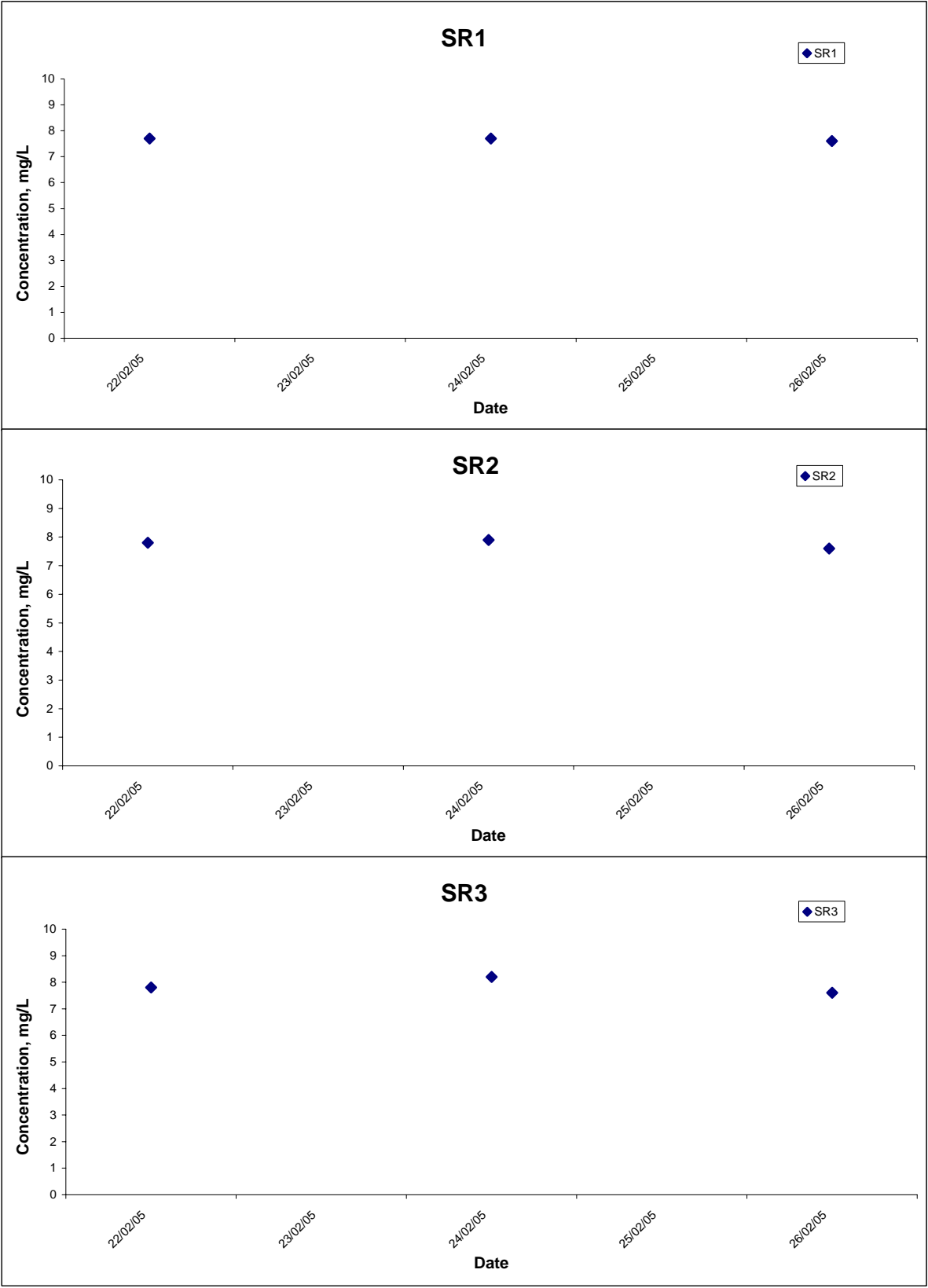
** Calm: Small or no wave; Moderate: Between calm and rough; Rough : White capped or rougher

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



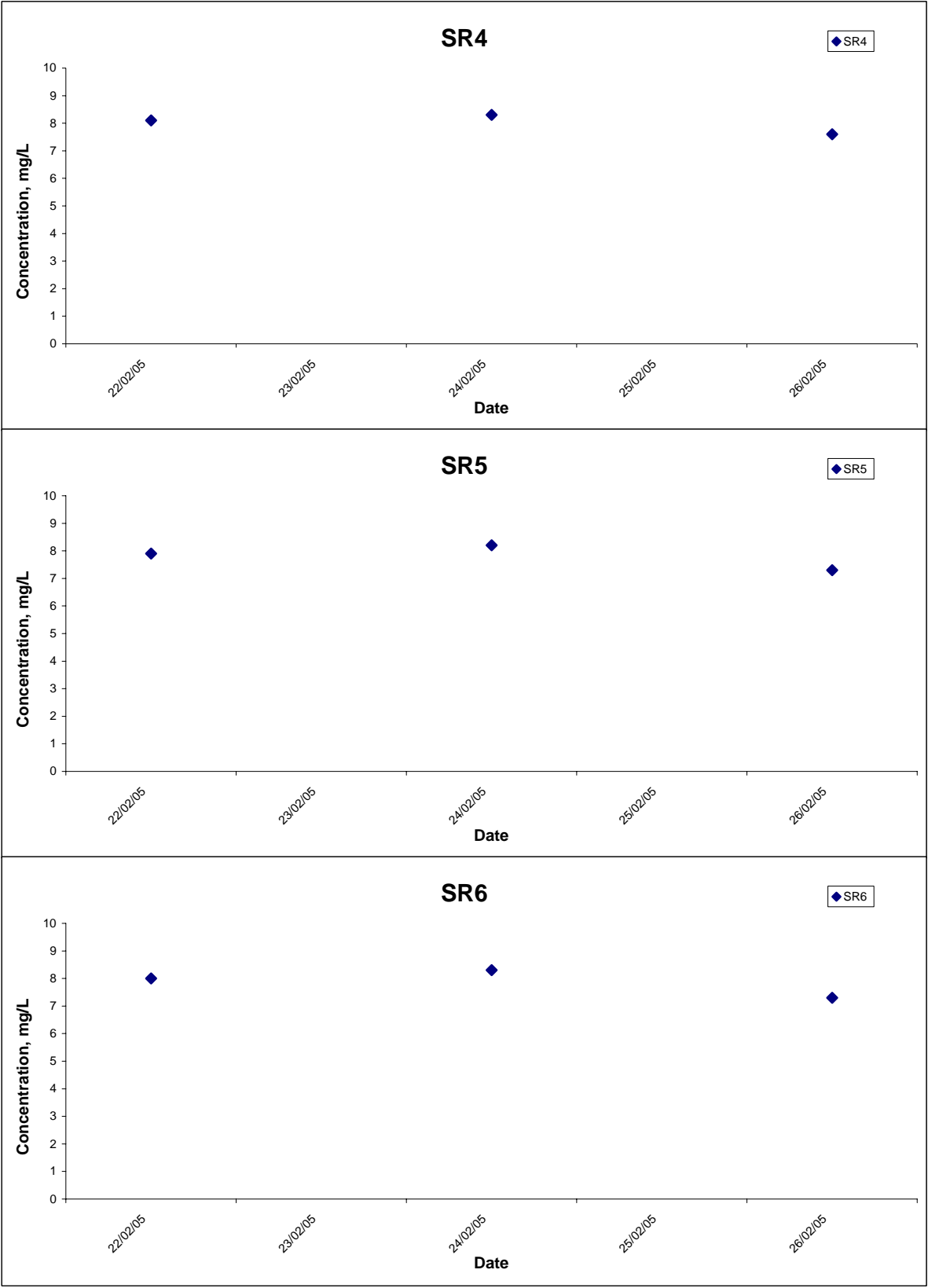
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		Date	Feb 05	Appendix	C	

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



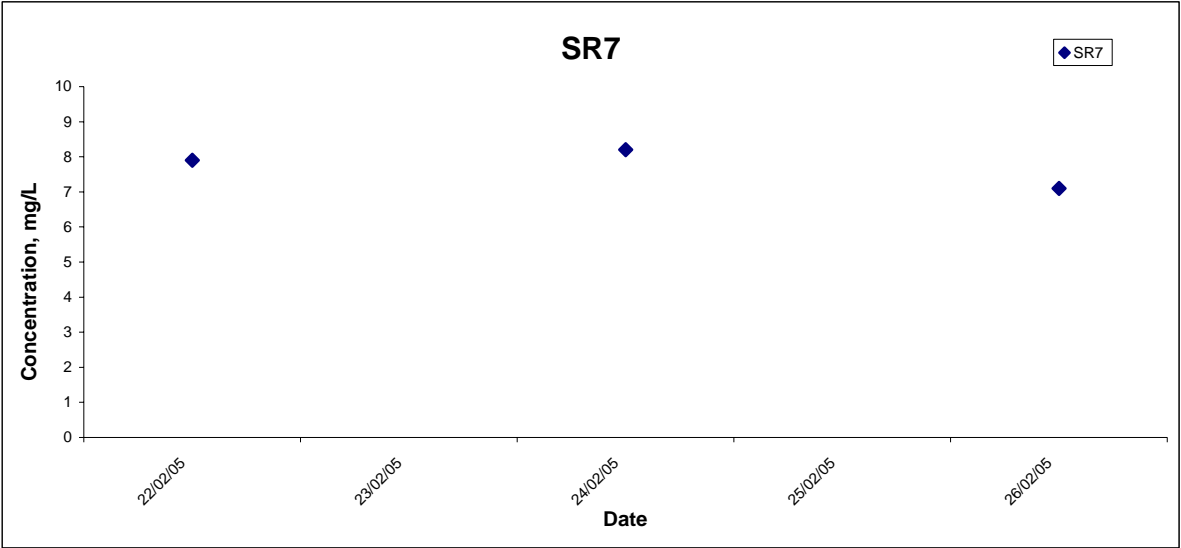
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		Date	Feb 05	Appendix	C	

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



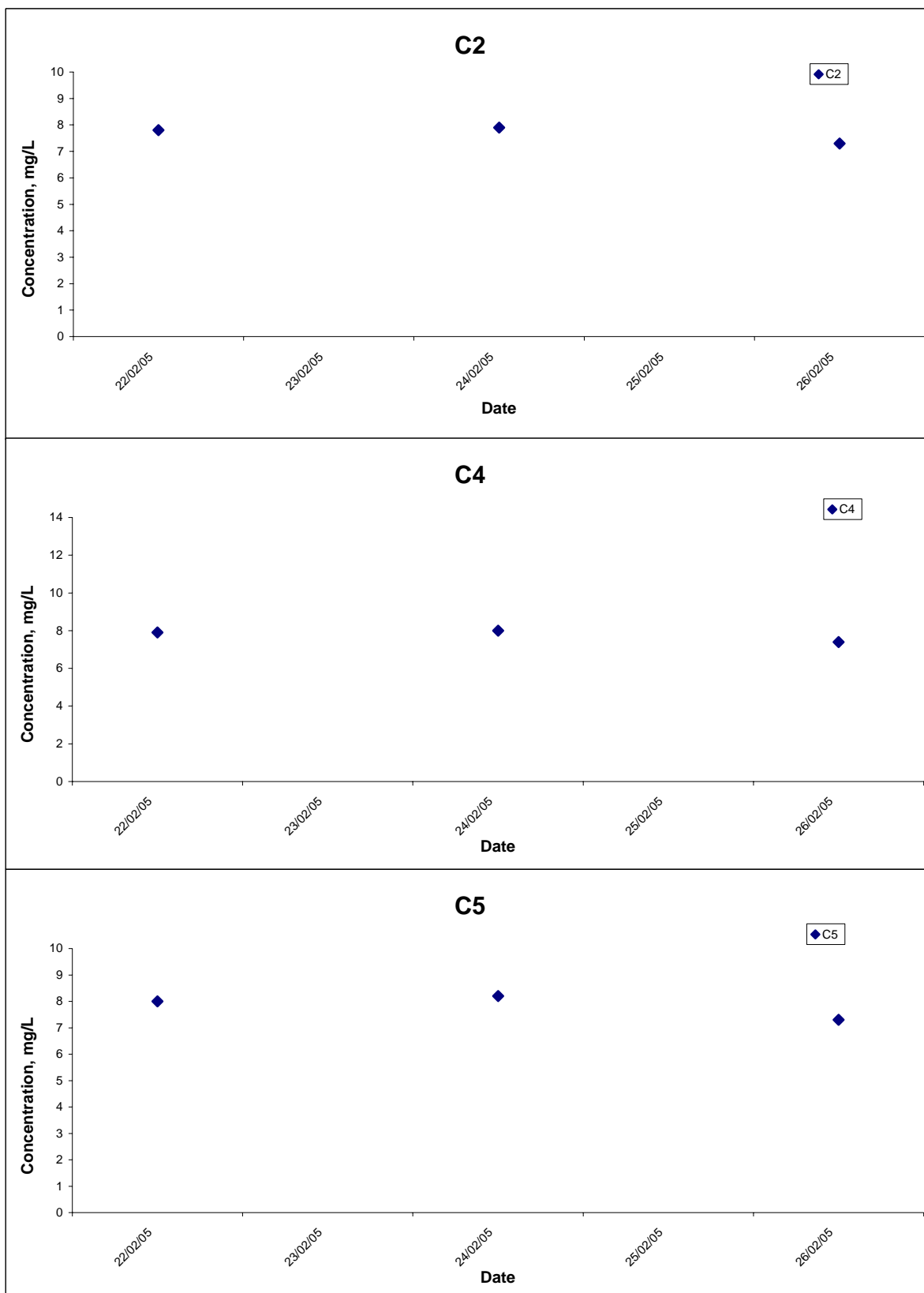
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		Date	Feb 05	Appendix	C	

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



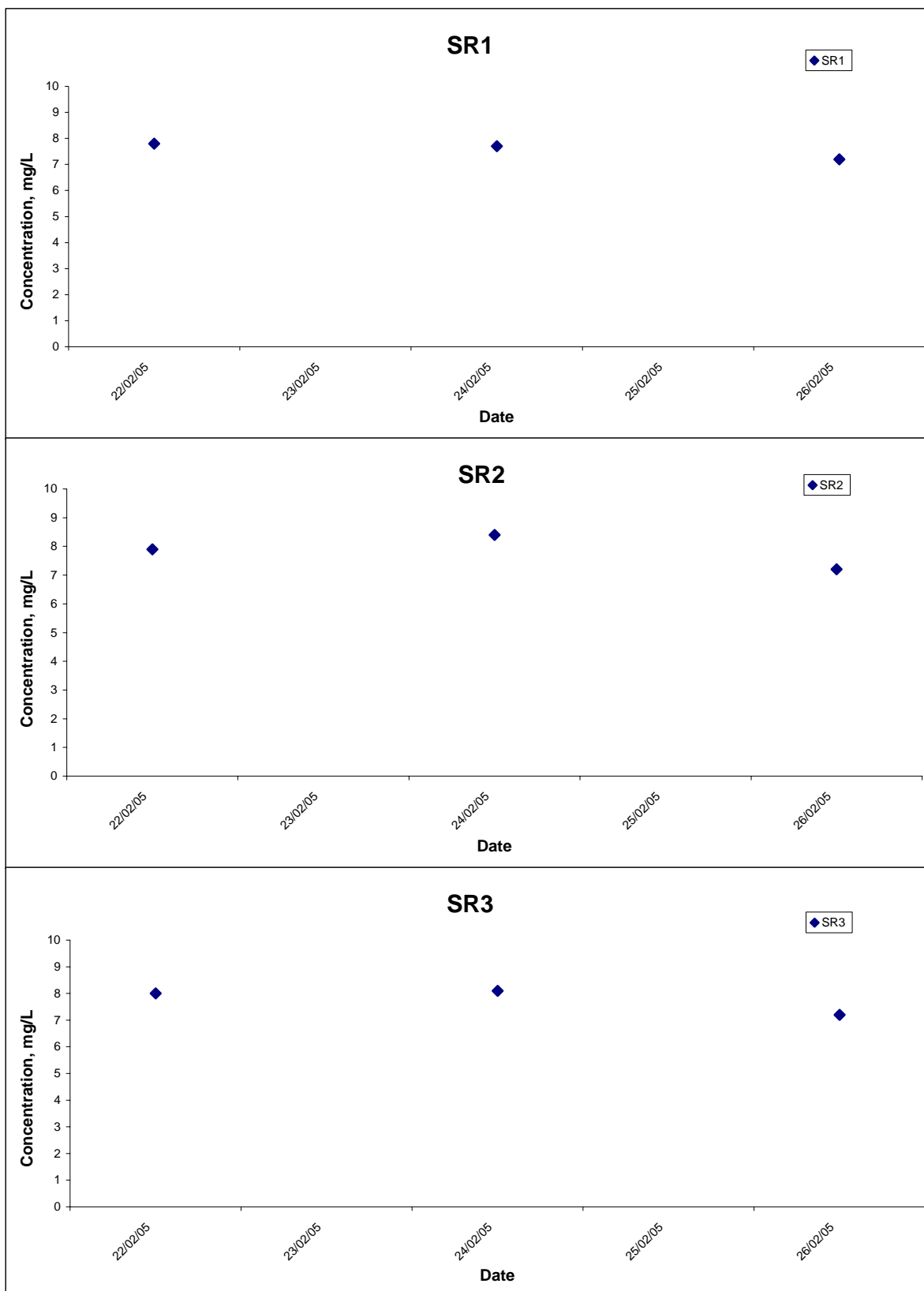
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		Date	Feb 05	Appendix	C	

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



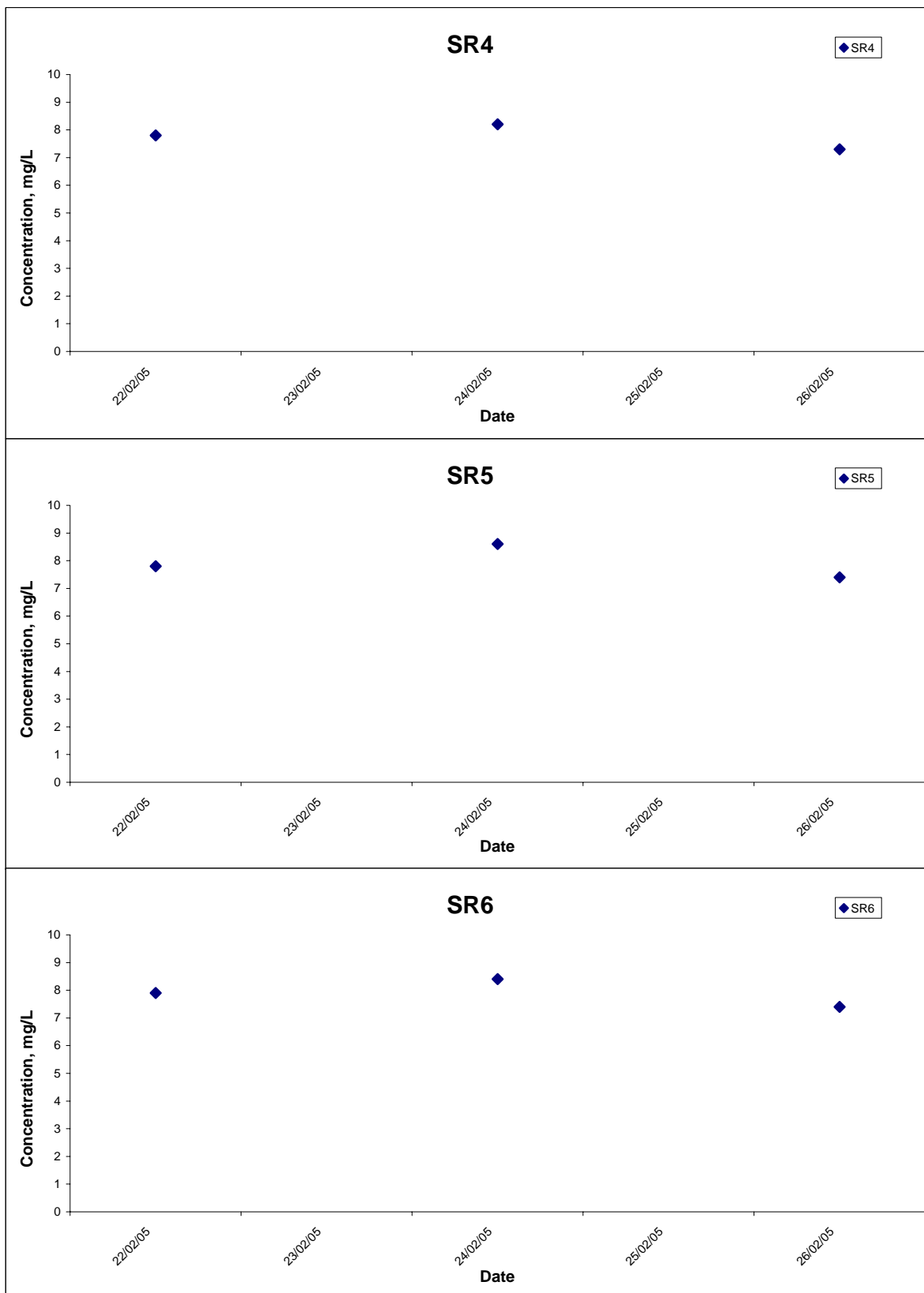
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	Graphical Presentation of Water Quality Monitoring Results		Date	Feb 05	Appendix	C	

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



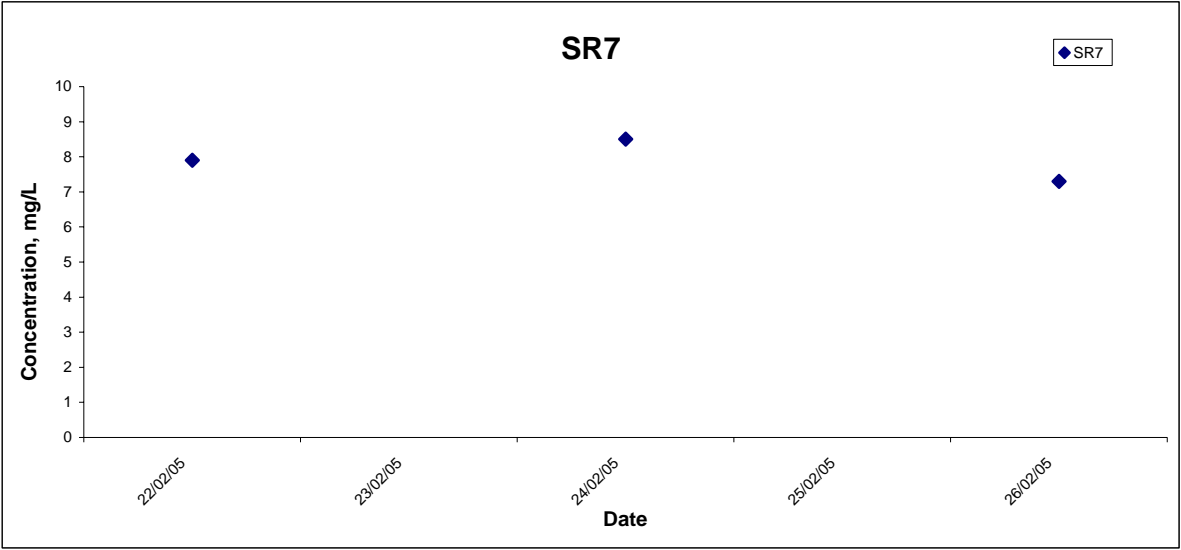
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	Graphical Presentation of Water Quality Monitoring Results		Date	Feb 05	Appendix	C	

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



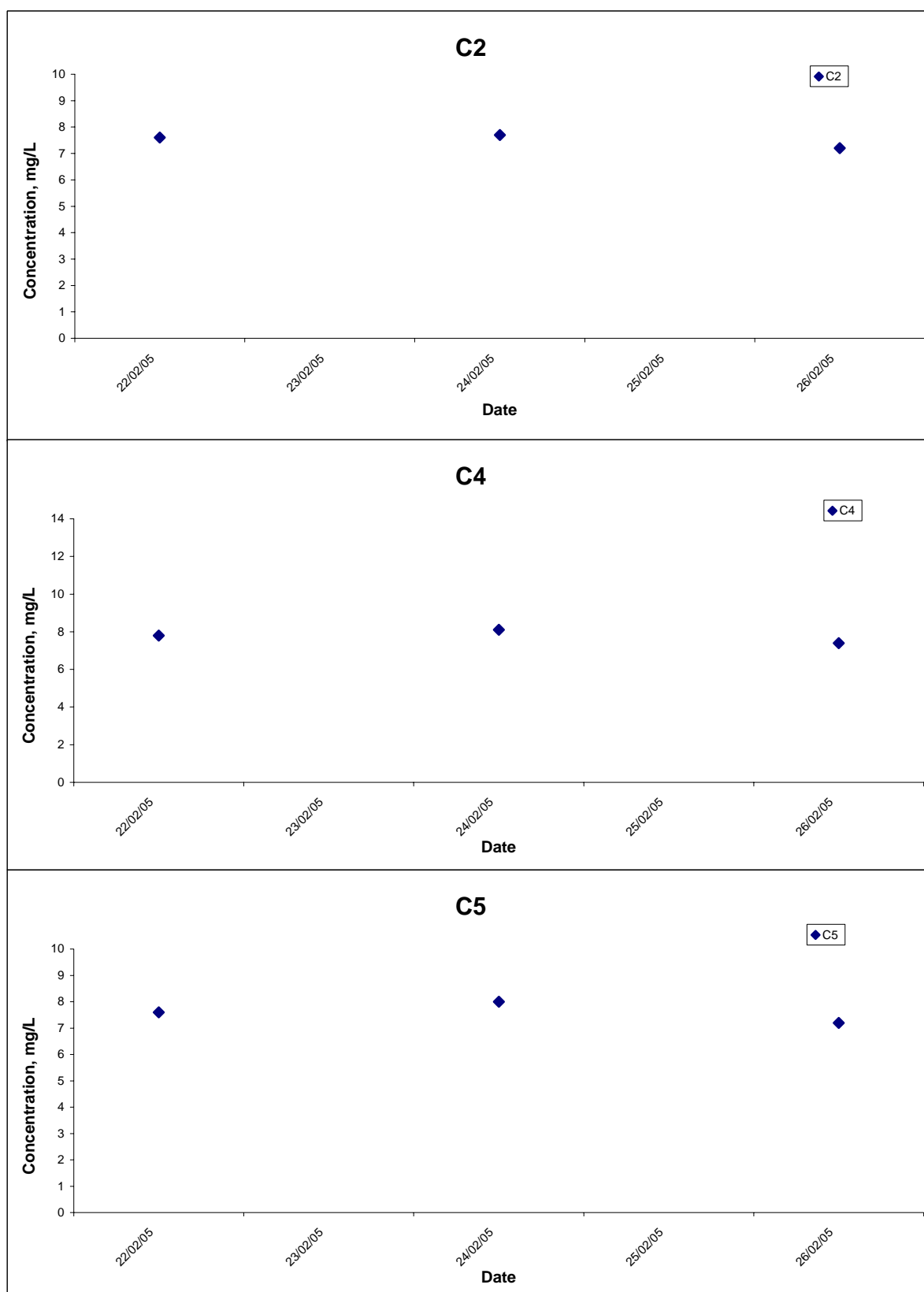
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	Graphical Presentation of Water Quality Monitoring Results		Date	Feb 05	Appendix	C	

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



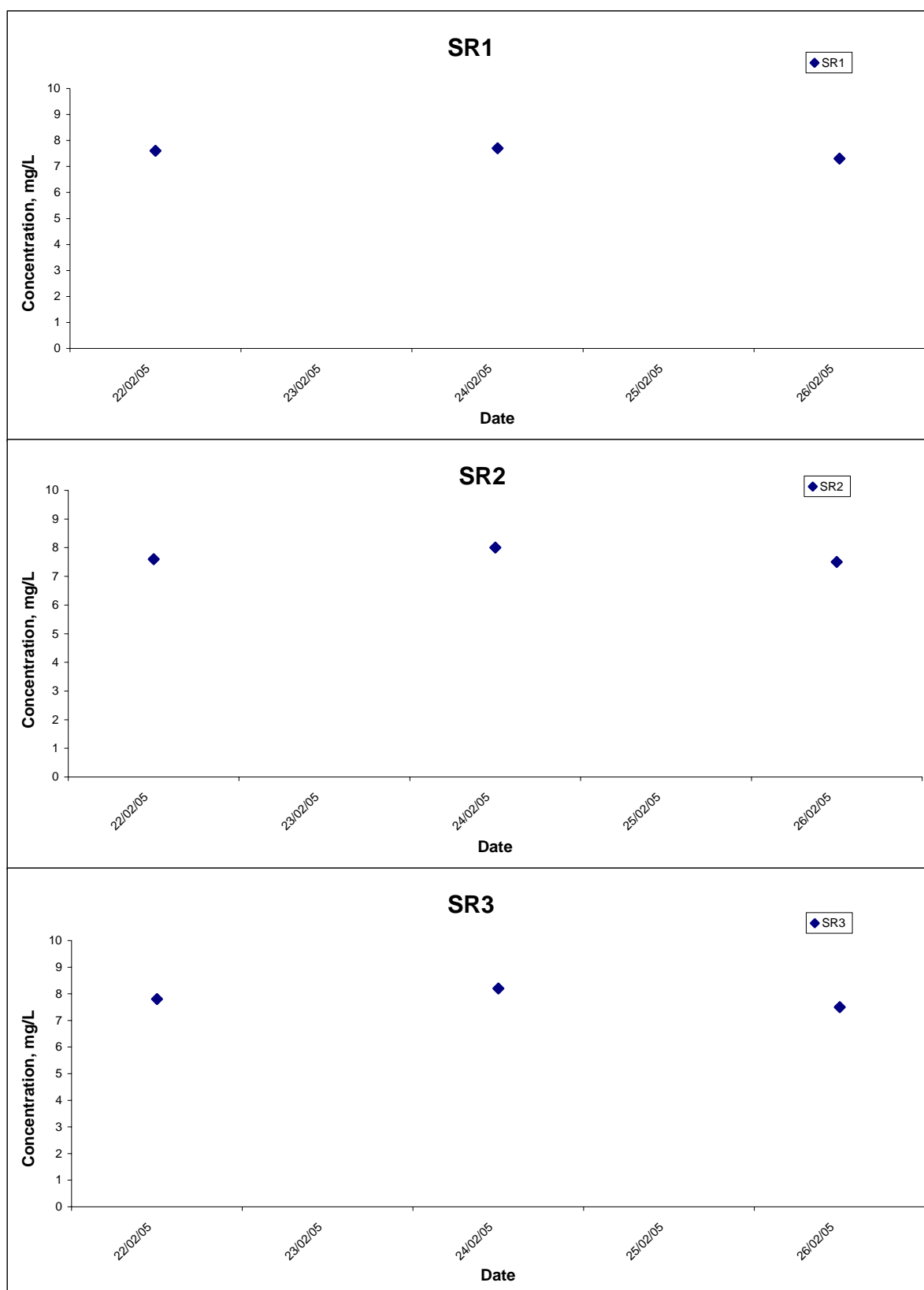
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		Date	Feb 05	Appendix	C	

Dissolved Oxygen (Bottom) at Mid-Ebb Tide



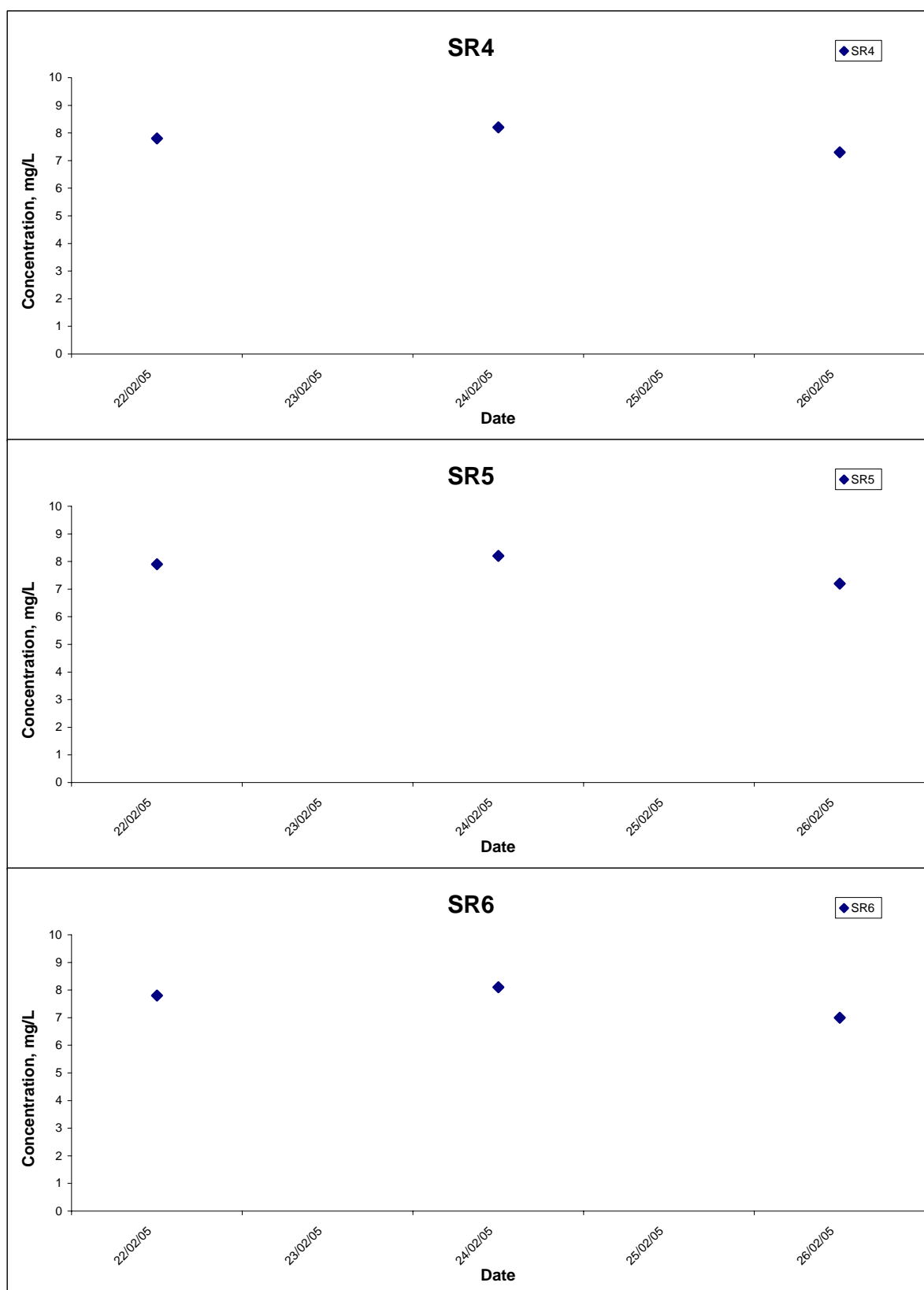
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	Graphical Presentation of Water Quality Monitoring Results	Date	Feb 05	Appendix	C	

Dissolved Oxygen (Bottom) at Mid-Ebb Tide



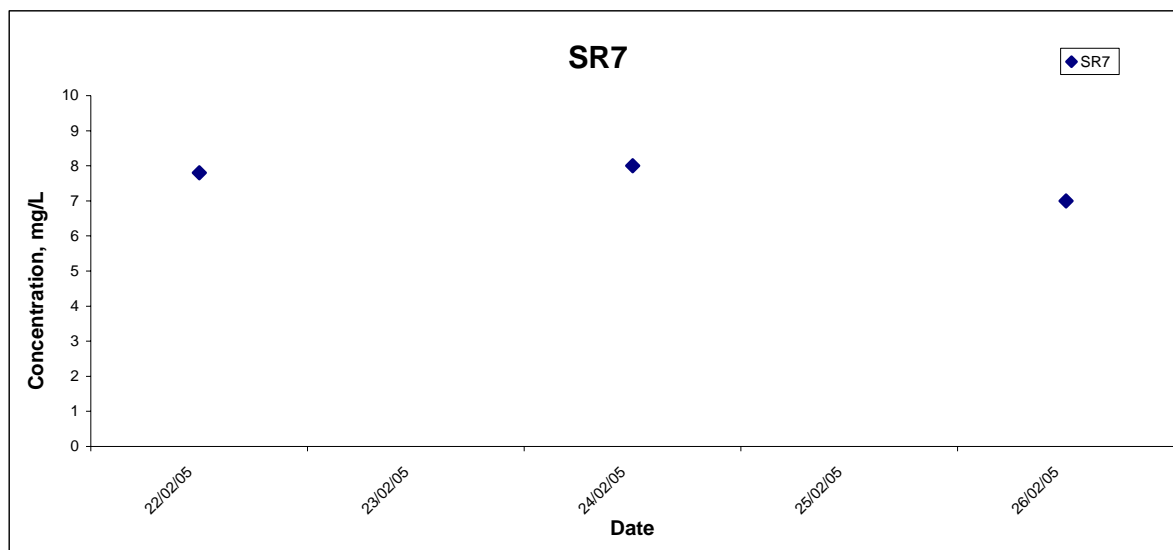
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	Graphical Presentation of Water Quality Monitoring Results		Date	Feb 05	Appendix	C	

Dissolved Oxygen (Bottom) at Mid-Ebb Tide



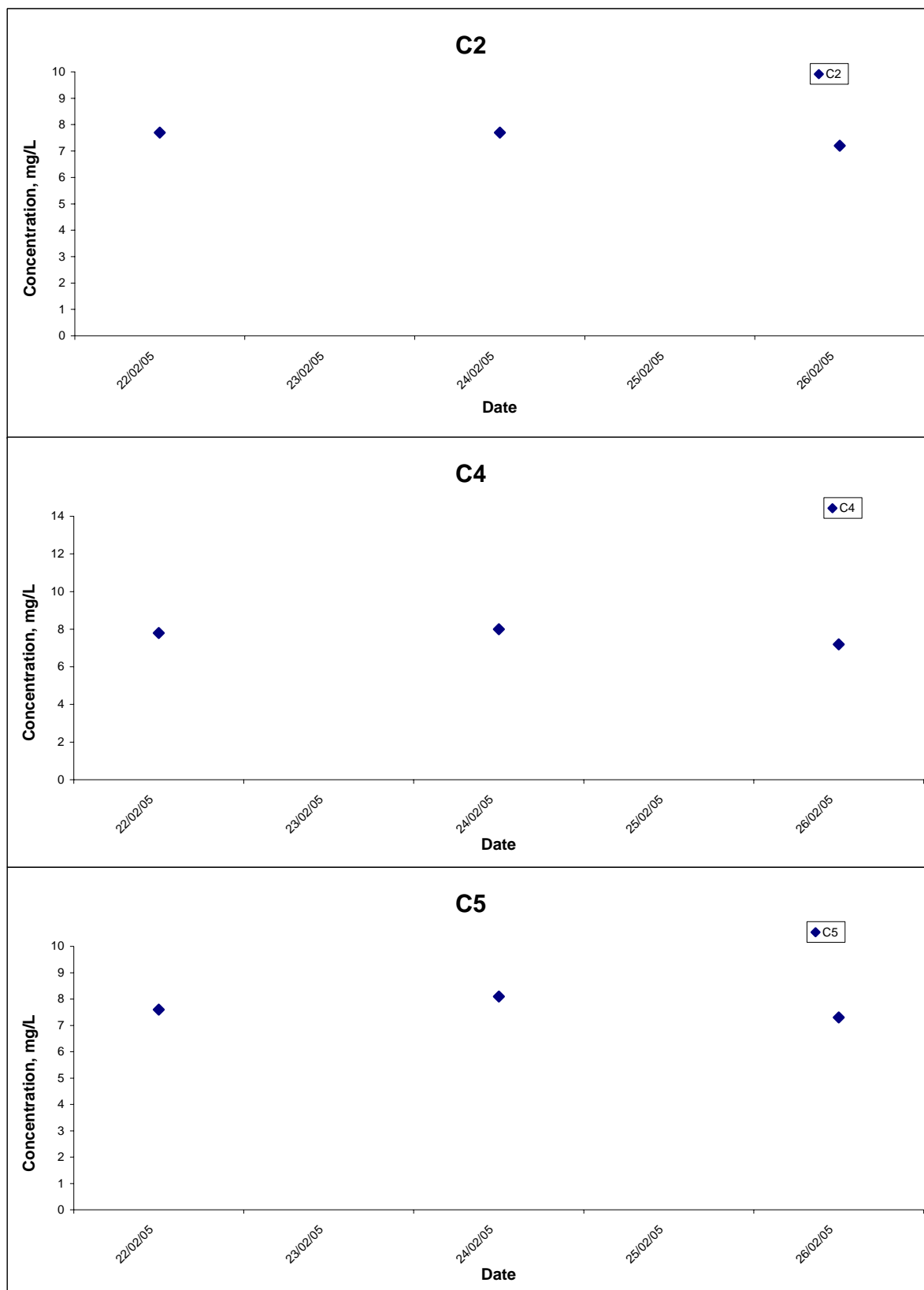
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	Graphical Presentation of Water Quality Monitoring Results	Date	Feb 05	Appendix	C	

Dissolved Oxygen (Bottom) at Mid-Ebb Tide



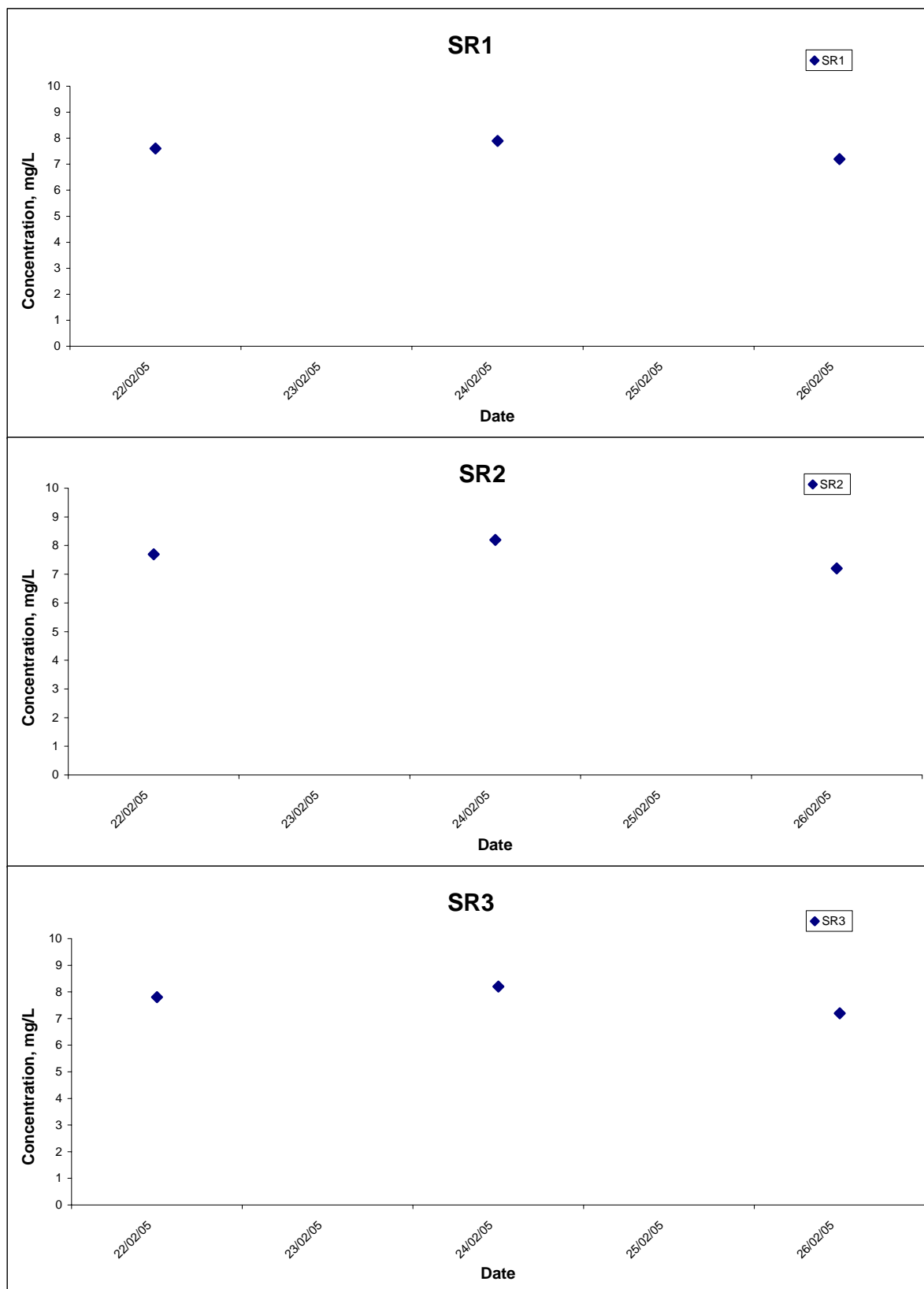
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	N.T.S	No. MA4017	
	Date	Appendix	
	Feb 05	C	

Dissolved Oxygen (Bottom) at Mid-Flood Tide



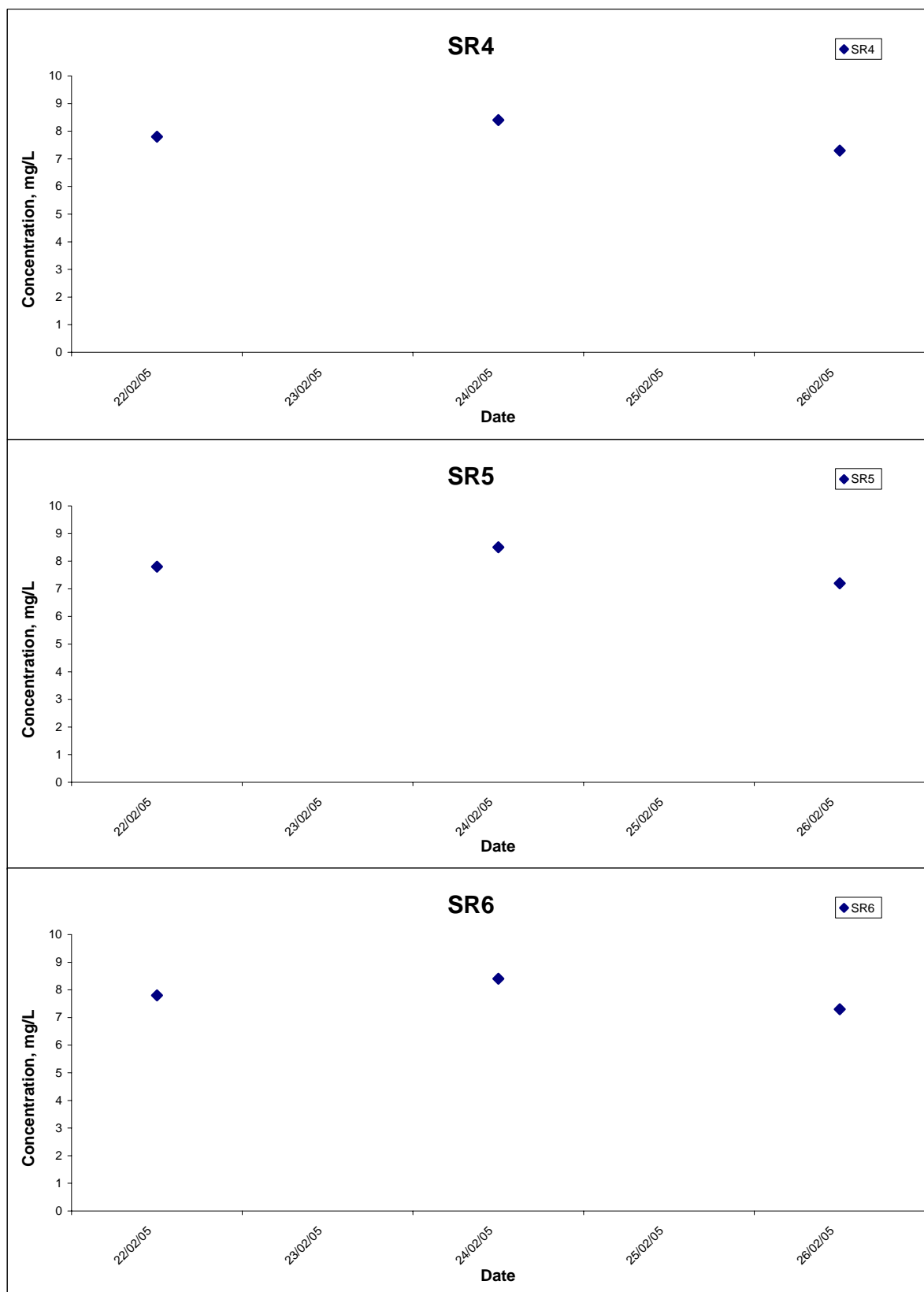
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	Graphical Presentation of Water Quality Monitoring Results		Date	Feb 05	Appendix	C	

Dissolved Oxygen (Bottom) at Mid-Flood Tide



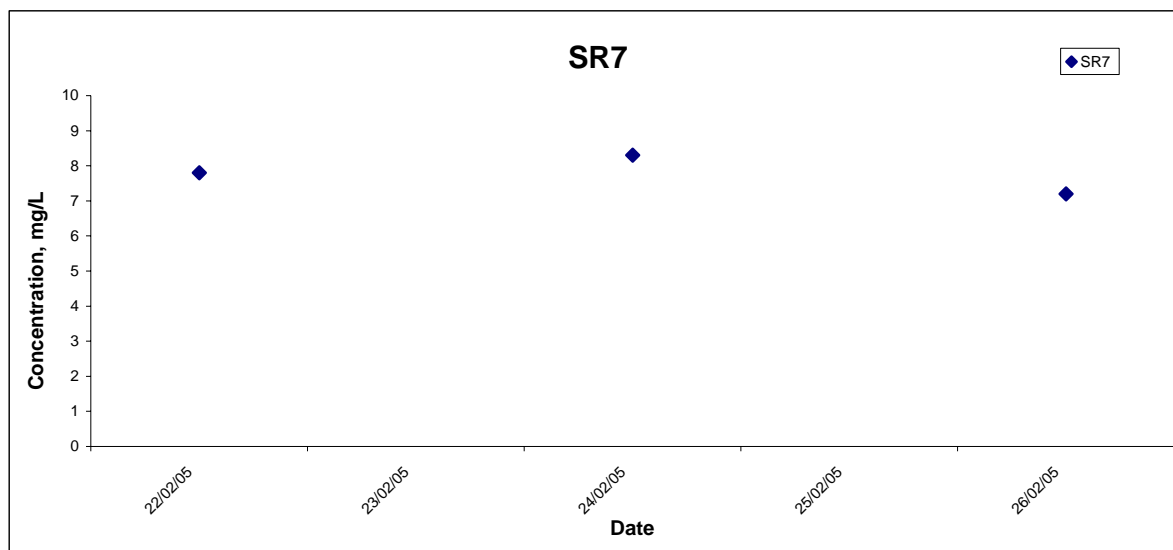
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	Graphical Presentation of Water Quality Monitoring Results		Date	Feb 05	Appendix	C	

Dissolved Oxygen (Bottom) at Mid-Flood Tide



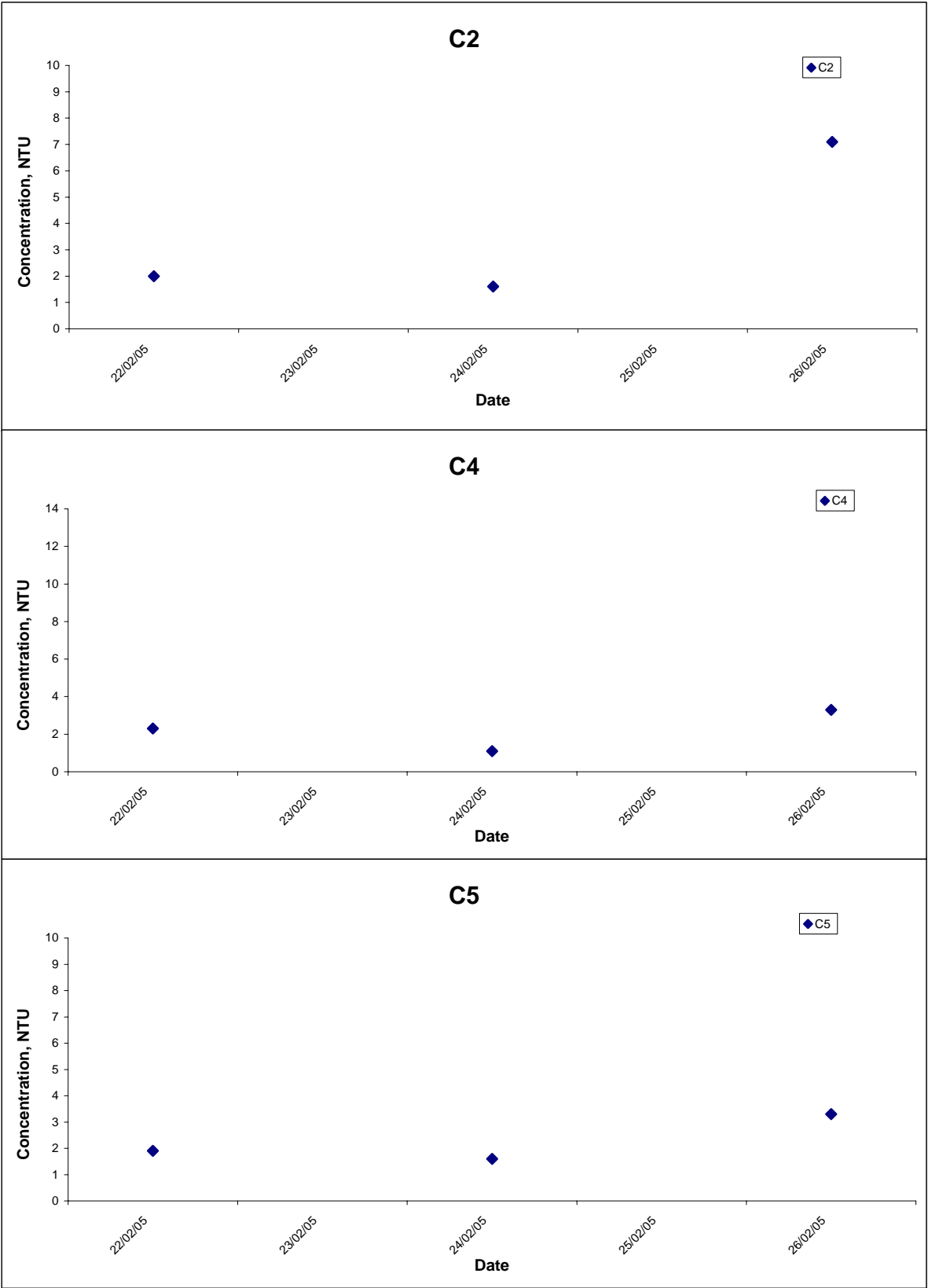
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	Graphical Presentation of Water Quality Monitoring Results		Date	Feb 05	Appendix	C	

Dissolved Oxygen (Bottom) at Mid-Flood Tide



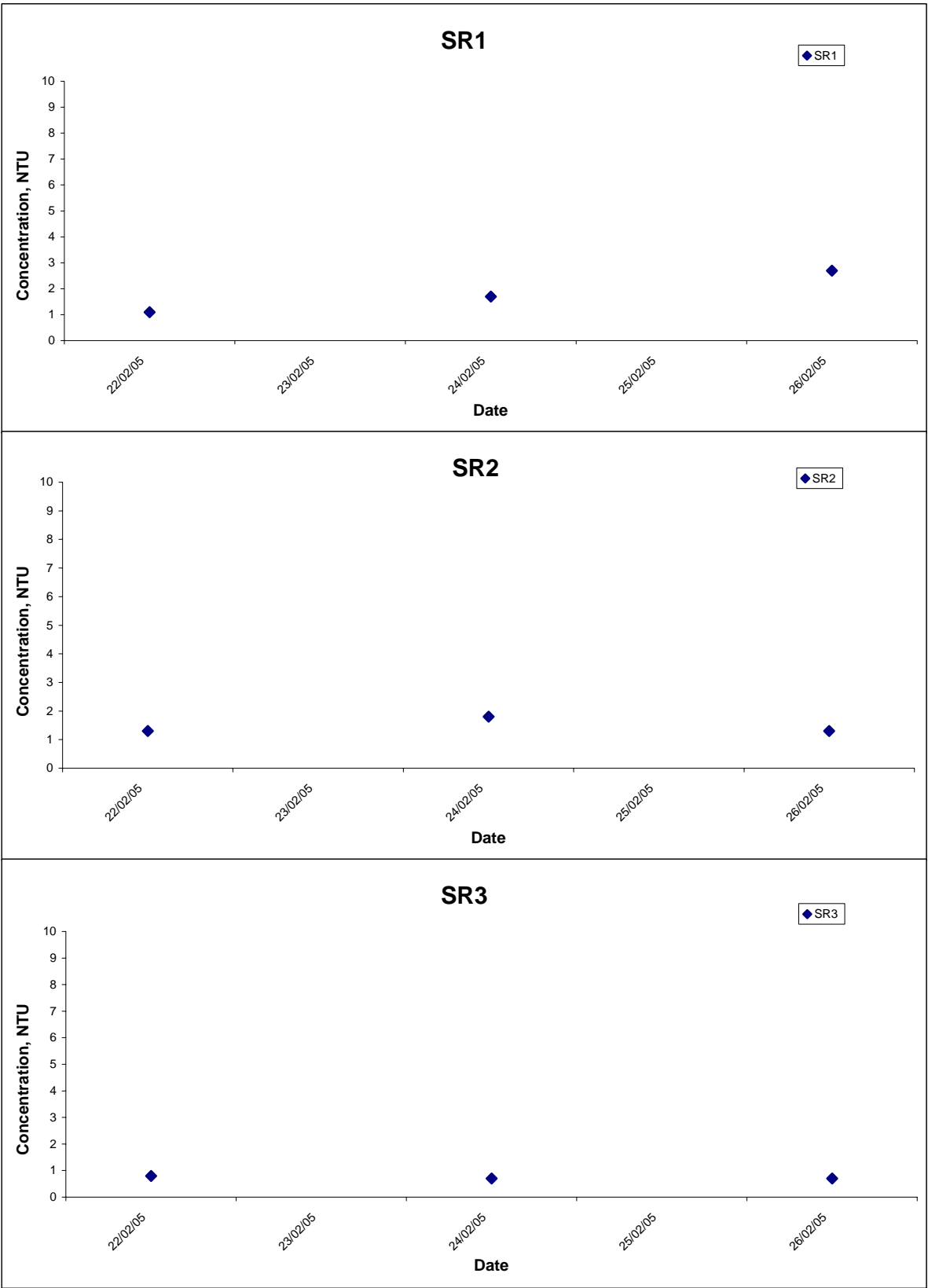
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	N.T.S	No. MA4017	
	Date	Appendix	
	Feb 05	C	

Turbidity at Mid-Ebb Tide



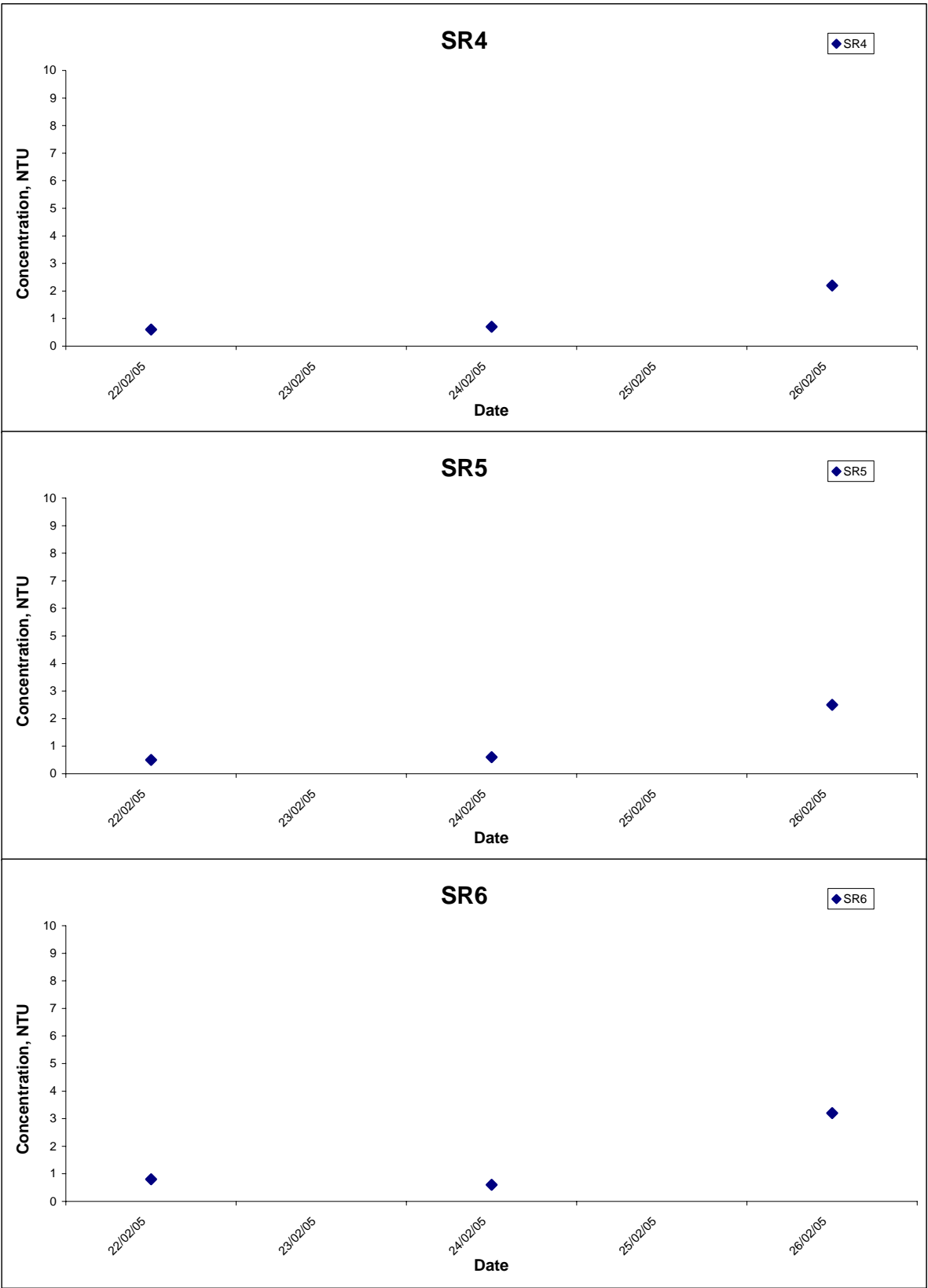
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		Date	Feb 05	Appendix	C	

Turbidity at Mid-Ebb Tide



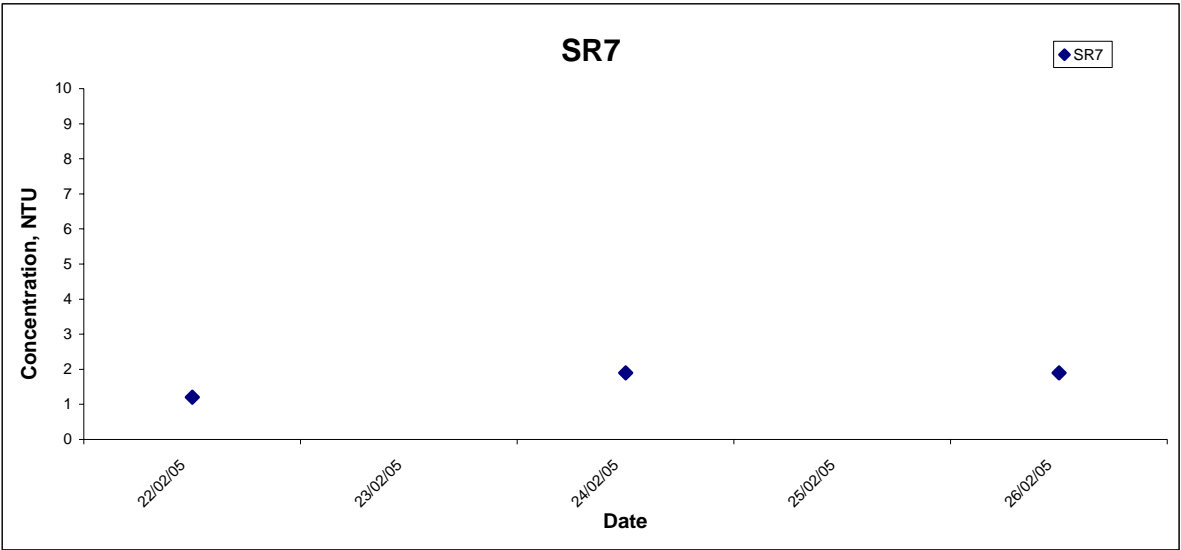
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	Graphical Presentation of Water Quality Monitoring Results	Date	Feb 05	Appendix	C	

Turbidity at Mid-Ebb Tide



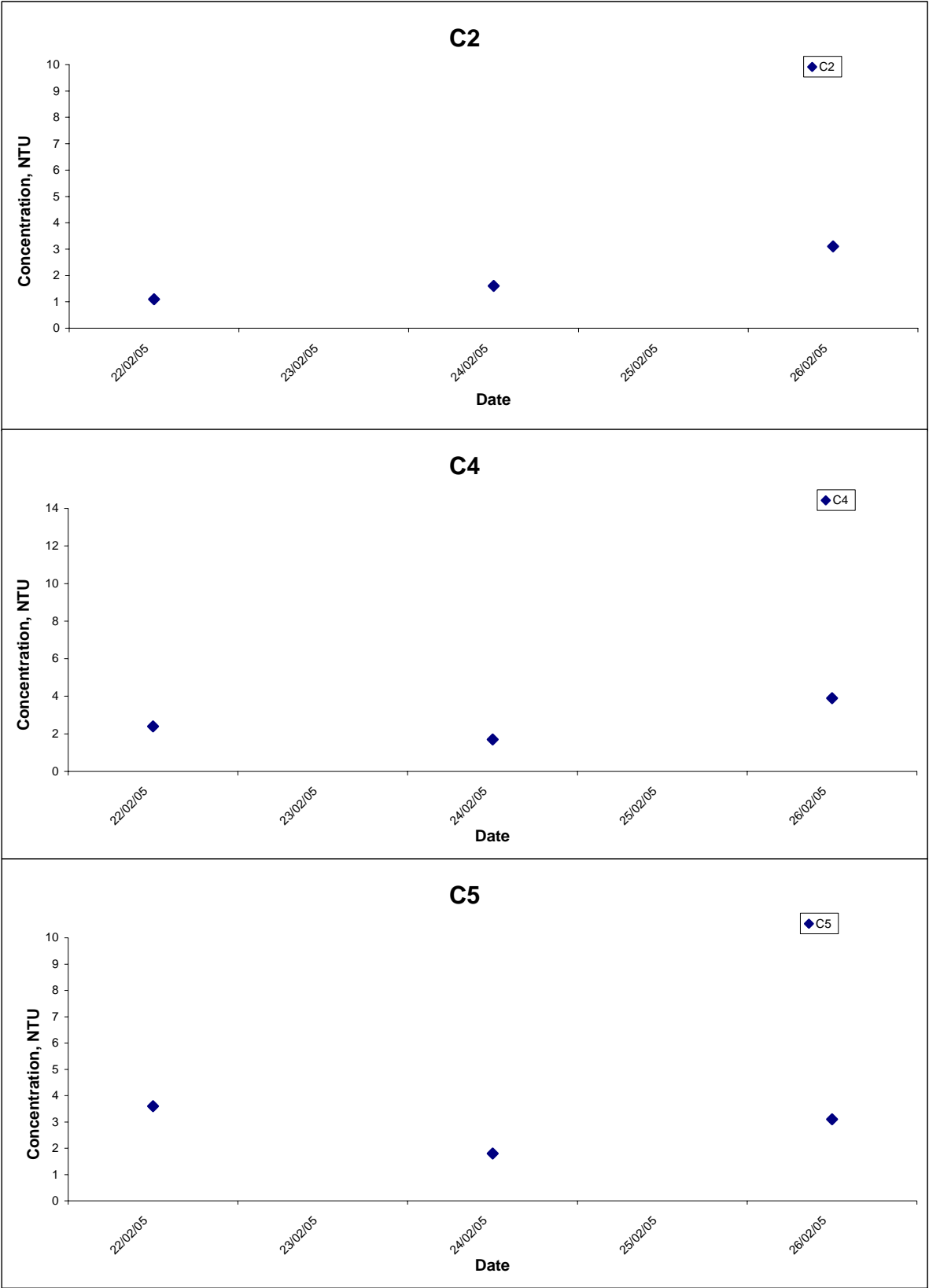
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		Date	Feb 05	Appendix	C	

Turbidity at Mid-Ebb Tide



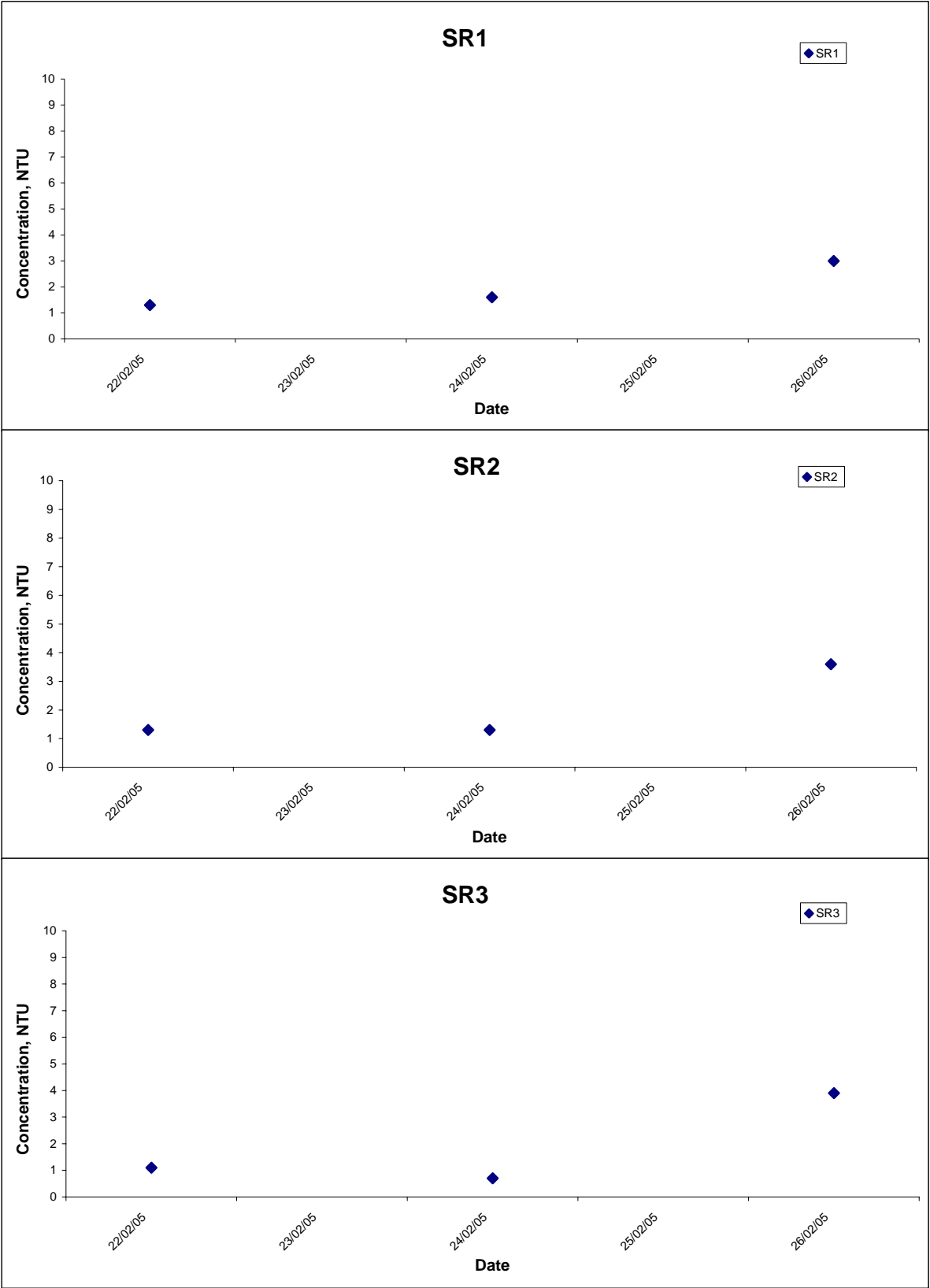
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		Date	Feb 05	Appendix	C	

Turbidity at Mid-Flood Tide



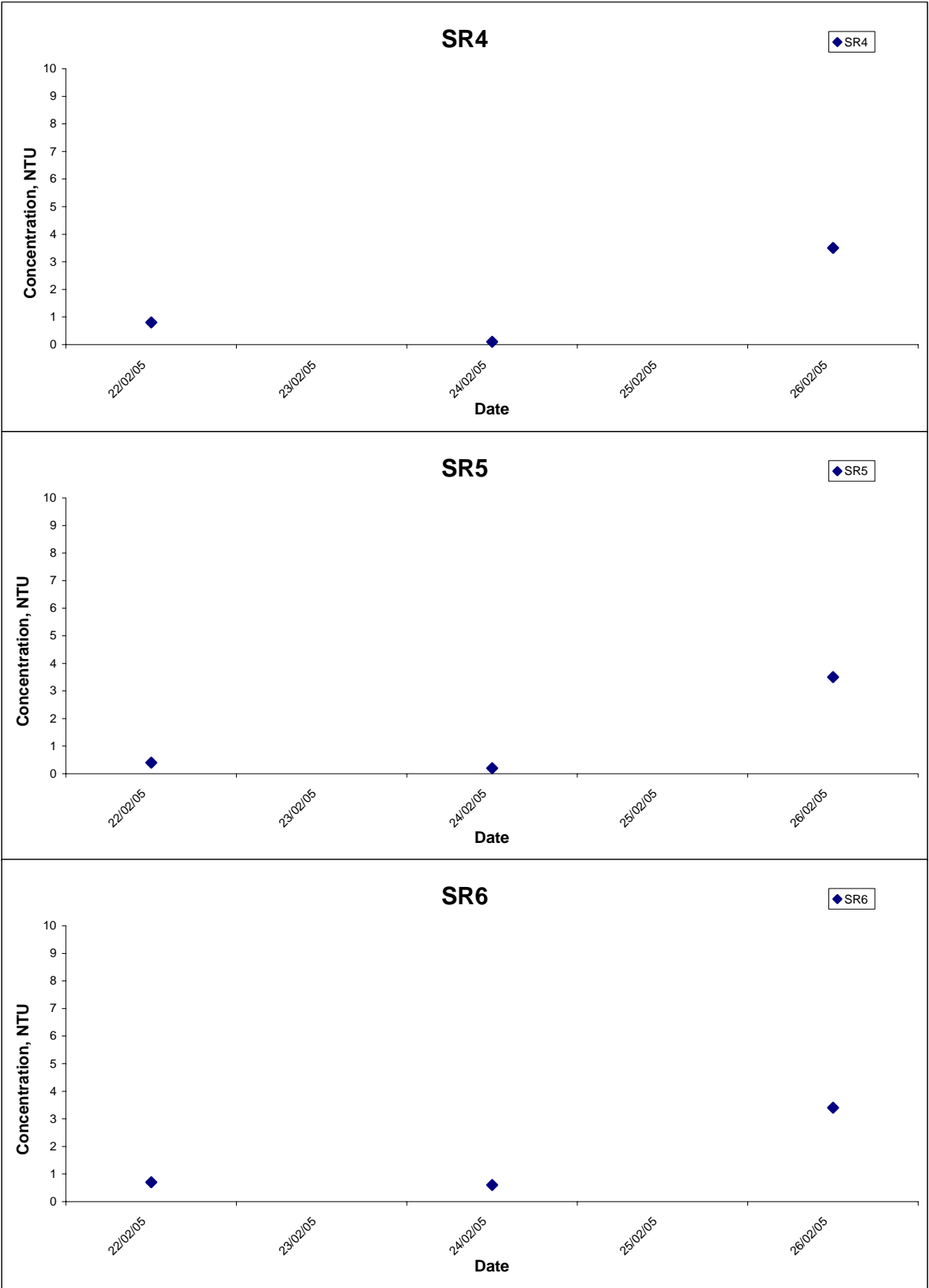
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		Date	Feb 05	Appendix	C	

Turbidity at Mid-Flood Tide



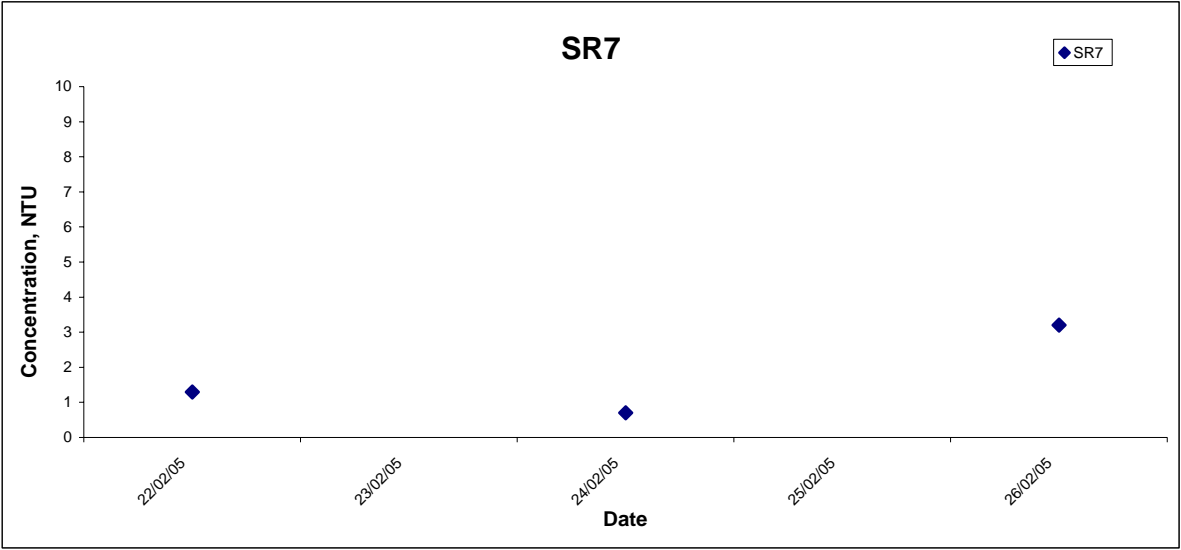
Title	Lamma Power Station Extension – Supply and Installation of Submarine Gas Pipeline		Scale	N.T.S	Project No.	MA4017	CINOTECH
	Graphical Presentation of Water Quality Monitoring Results		Date	Feb 05	Appendix	C	

Turbidity at Mid-Flood Tide



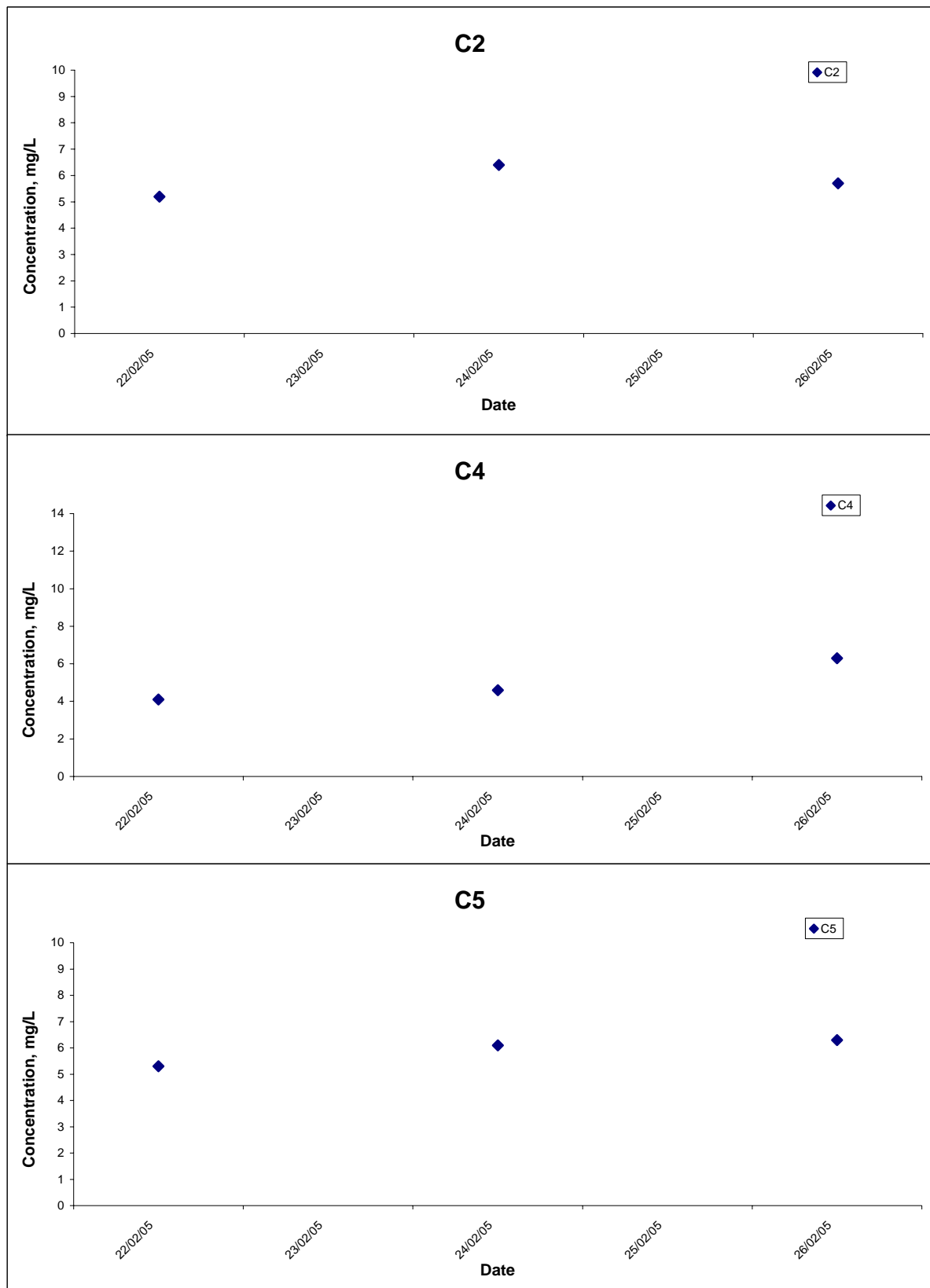
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Turbidity at Mid-Flood Tide



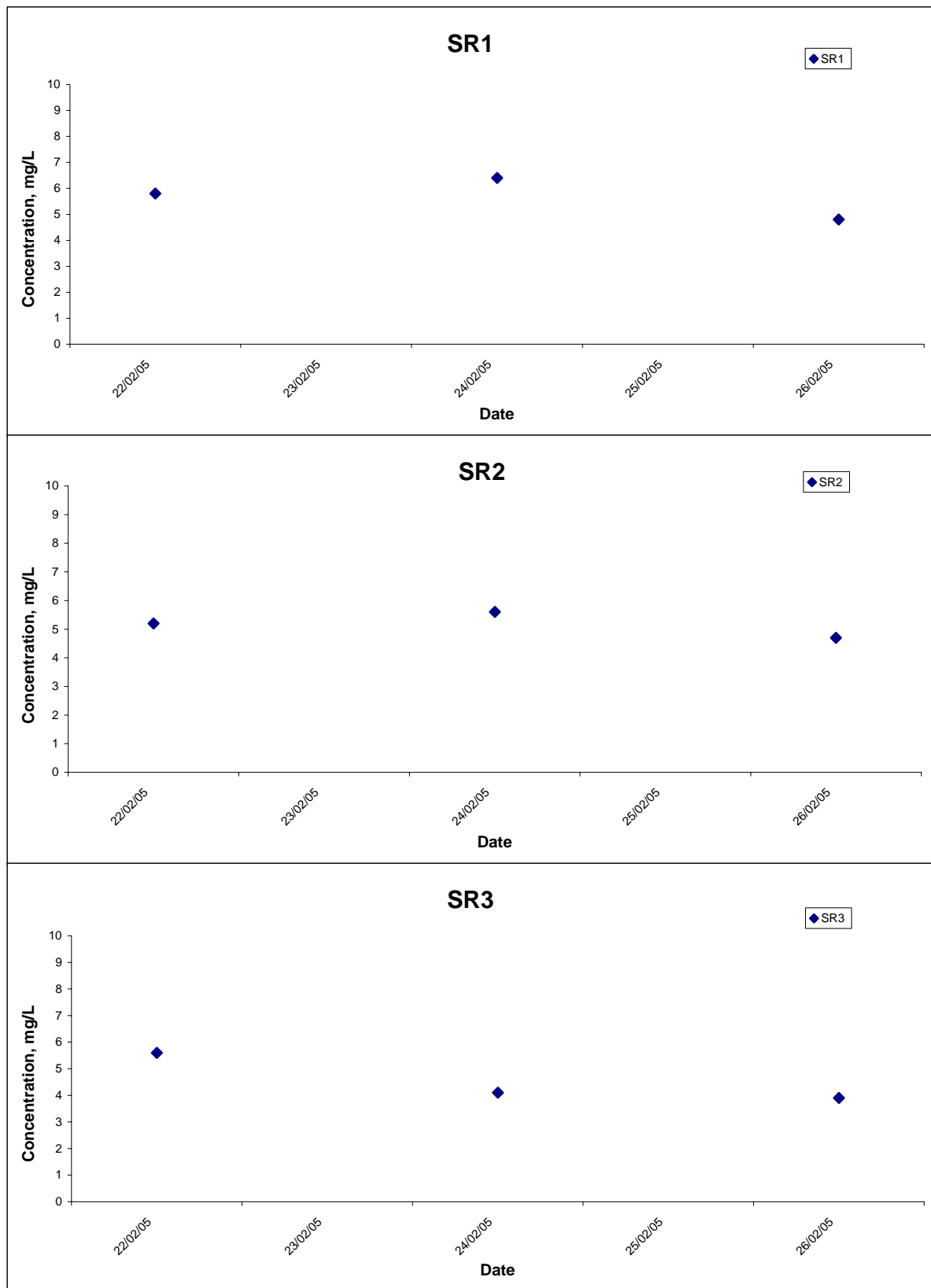
Title	Lamma Power Station Extension – Supply and Installation of Submarine Gas Pipeline Graphical Presentation of Water Quality Monitoring Results	Scale	N.T.S	Project No.	MA4017	CINOTECH
		Date	Feb 05	Appendix	C	

Suspended Solids at Mid-Ebb Tide



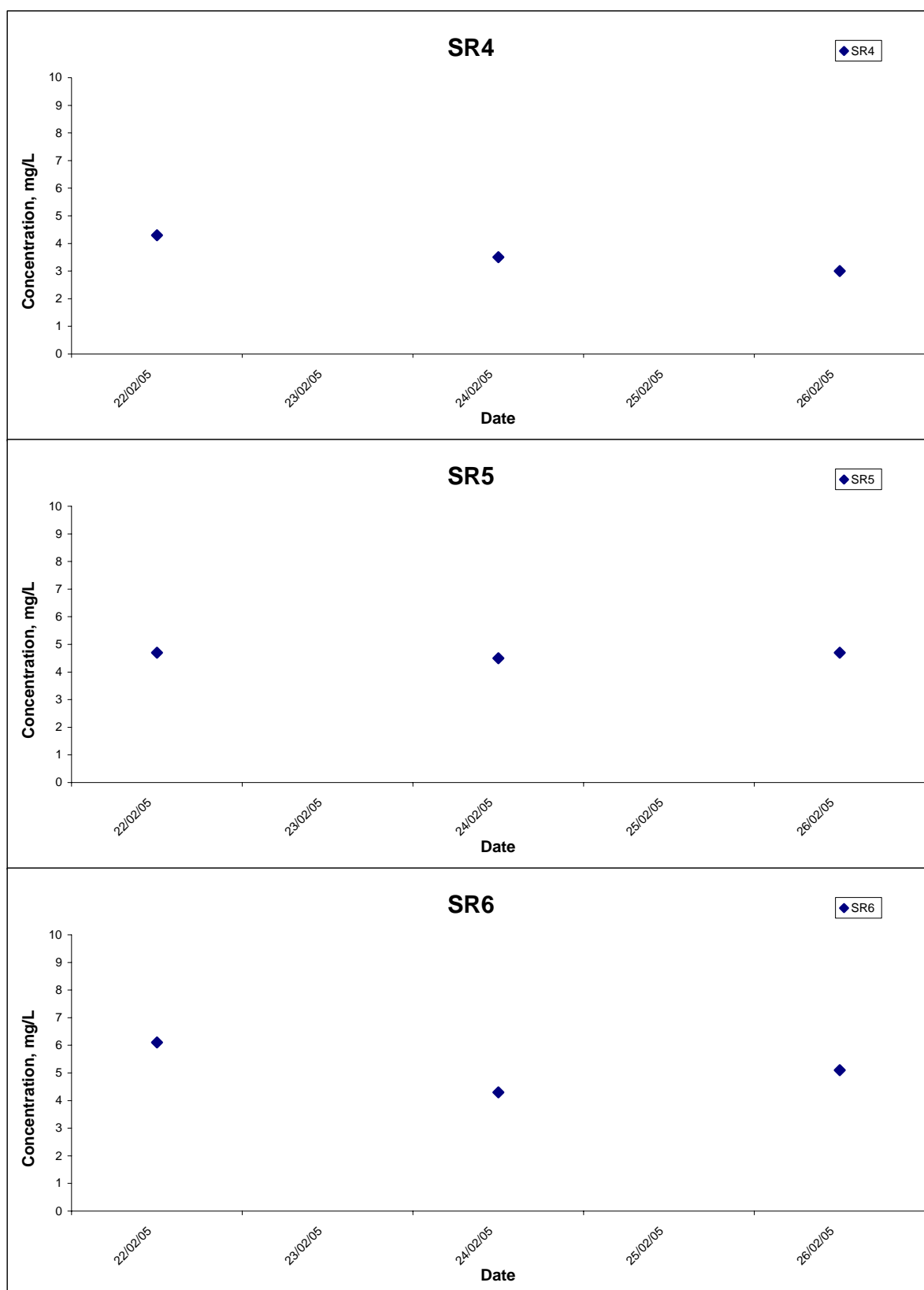
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	Graphical Presentation of Water Quality Monitoring Results		Date	Feb 05	Appendix	C	

Suspended Solids at Mid-Ebb Tide



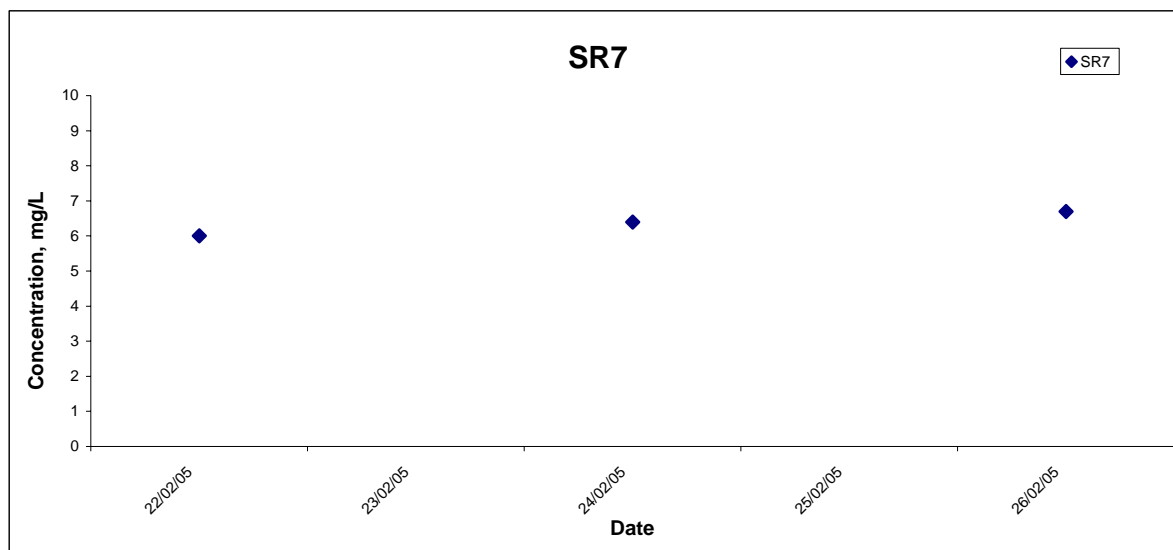
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Suspended Solids at Mid-Ebb Tide



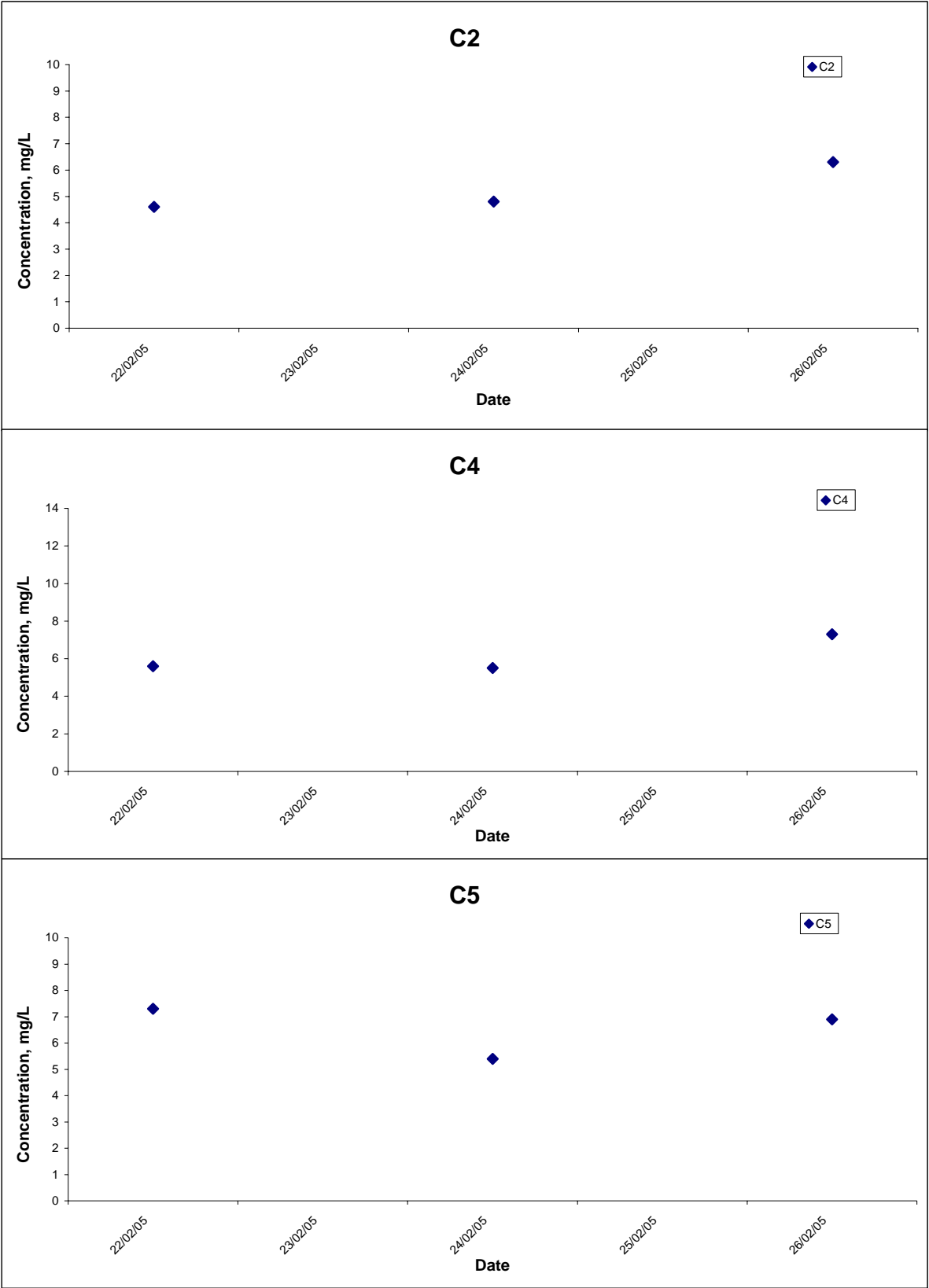
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Suspended Solids at Mid-Ebb Tide



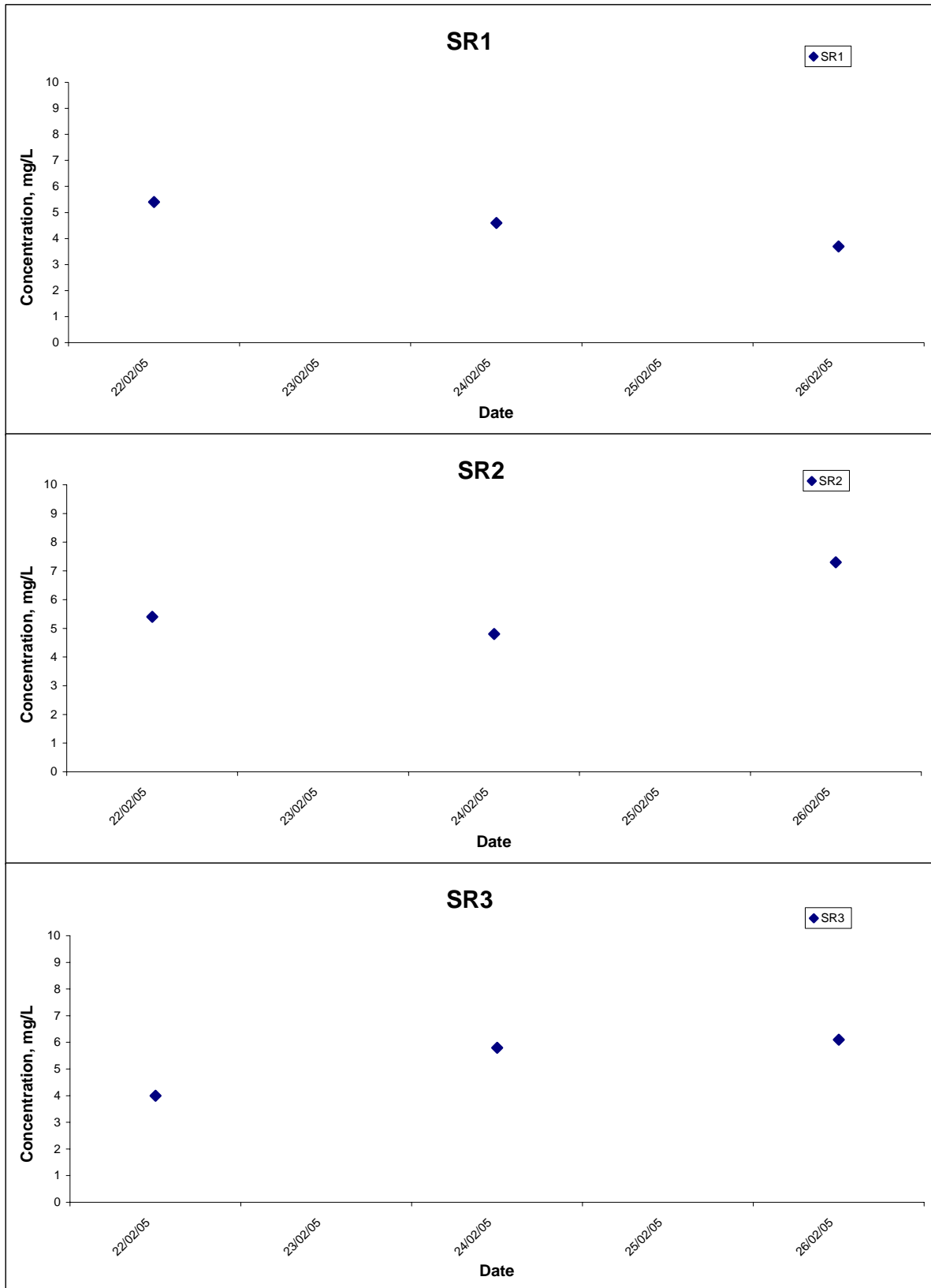
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	Date Feb 05	Appendix C	

Suspended Solids at Mid-Flood Tide



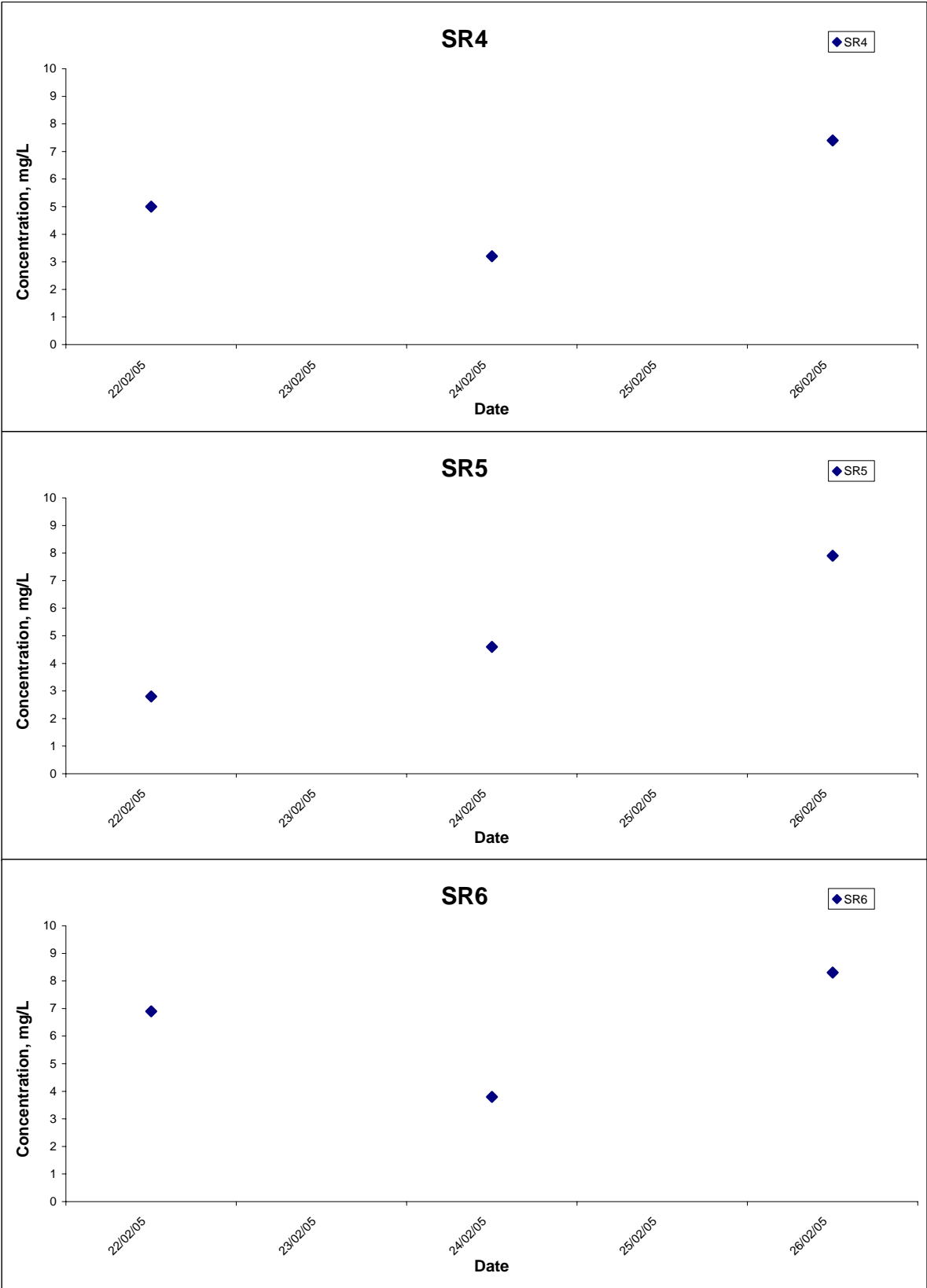
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Suspended Solids at Mid-Flood Tide



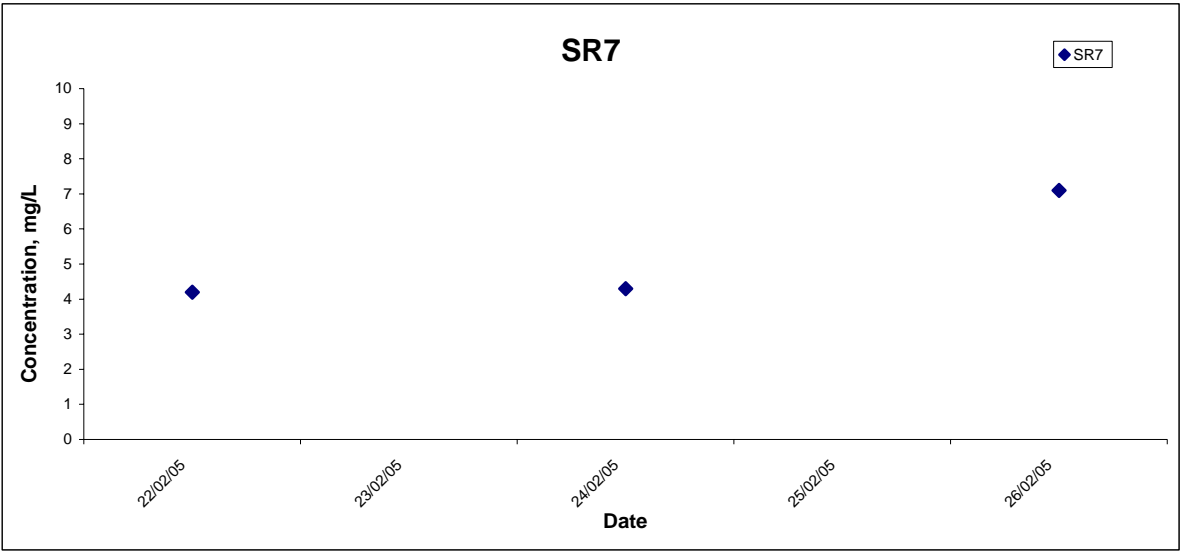
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		Date	Feb 05	Appendix	C	

**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	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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	<ol style="list-style-type: none"> 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 	<ol style="list-style-type: none"> 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. 	<ol style="list-style-type: none"> 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: <ul style="list-style-type: none"> corrosion-preventing coatings on the pipeline; welded pipe joints; and laying of pipeline below sea bed such that it is well protected from potential damages by marine activities. 	C
		C
		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: <ul style="list-style-type: none"> a single small grab dredger with a maximum daily rate of working of 2,400m³ maximum forward speed of the jetting machine should be 1m per minute. 	C
		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: <ul style="list-style-type: none"> reducing the speed of the water jetting machine; and temporary suspension of the works. 	NA
		NA
	MARINE ECOLOGICAL IMPACTS	
S1	It is recommended that to avoid disruption to the <i>Neophocaena phocaenoides</i> 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