# 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**

| | |
|---|---|
| Report Title | Monthly EM&A Report (November 2003) |
| Date | 11 December 2003 |
| Certified by | (Mr. IP Tat-Yan, Environmental Team Leader) |
| Verified by | (ERM - Hong Kong Ltd, Independent Environmental Checker) |

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## EXECUTIVE SUMMARY

This is the thirty-second 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 November 2003.

After successful completion of post-project monitoring in September 2002, no further marine water quality monitoring for the reclamation works would be required. Besides, as there were no activities for the laying of the gas pipeline in the reporting month, no water quality impact monitoring at the relevant stations was carried out.

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 |
|---|---|
| Site Formation | Rockfilling, seawall construction, superstructure for link bridges, C.W. intake & outfall construction, slurry ash piping & filling, surcharge removal and drainage construction. |
| Transmission System | No construction activities. |

### Environmental Monitoring Works

All monitoring work at designated stations was performed as scheduled satisfactorily.

*Air Quality*

Action level Exceedances on 24-hour TSP were recorded at all air quality monitoring stations (viz AM1, AM2, AM3 & AM4) on 2 November 2003. After investigation, it was found that the high TSP readings were not related to the site activities but due to hazy weather on that day.

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

*Noise*

The hoarding works for the construction of transmission system were completed on 11 May 2002. The civil works would tentatively commence in early 2005. As there was no construction work in this reporting month, manual noise measurements for the construction of transmission system was suspended.

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 was recorded in the month.

**Site Environmental Audit**

EPD officials from Local Control Office visited Lamma Power Station on 11/11/2003. They inspected the Lamma Extension Construction Site. There was no adverse comment from EPD regarding the construction site.

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 commencement of construction works of Transmission System had been deferred to early 2005, the weekly inspection for the site was suspended in the reporting month.

**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-UW0276-03 | 10/09/03 | 09/03/04 | Contractor | 09/09/03 |

**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:

Site Formation

- to continue monitoring the noise level during construction and to ensure compliance with the CNP's already obtained;
- to continue the preventive measures for 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 closely monitor the construction activities, if any, 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 November 2003.

## 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 undertaken during the reporting month for site formation were rockfilling, construction of seawall, superstructure for link bridge, C.W. intake & outfall construction, slurry ash piping & filling, sand bund and drainage construction. There was no construction activity for Unit L9's associated transmission system. Layout plans for site formation and transmission system are shown in Figure 1.1 and Figure 1.2 respectively.

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** |
|---|---|---|
| **Site Formation** | | |
| 1 | Rockfilling & Seawall Construction | **Noise**<br>– General noise mitigation measures employed at all work sites throughout the construction phase.<br><br>**Waste Management**<br>– Waste Management Plan submitted and implemented.<br><br>**Marine Ecology**<br>– All construction related vessels approached the site from the designated route/channel to avoid possible disturbance to the finless porpoise. |
| 2 | Superstructure for Link Bridge | **Noise**<br>– General noise mitigation measures implemented and silent type equipment deployed. |
| 3 | C.W. Intake & Outfall | **Noise**<br>– General noise mitigation measures implemented and silent type equipment deployed. |
| 4 | Slurry ash piping & filling | **Noise**<br>– General noise mitigation measures implemented and silent type equipment deployed. |

| Item | Construction Activities | Environmental Mitigation Measures |
|---|---|---|
| 5 | Sand Bund Construction | **Noise**<br>– General noise mitigation measures implemented and silent type equipment deployed.<br><br>**Air**<br>– Dust suppression measures implemented. |
| 6 | Drainage Construction | **Air**<br>– Dust suppression measures implemented. |
| **Construction of Transmission System** | | |
| 6 | No construction activities | **Terrestrial Ecology**<br>– Special care and close monitoring to avoid disturbances to the rare plant species.<br>– Temporary fire fighting equipment provided within the work area during construction. |

## 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.

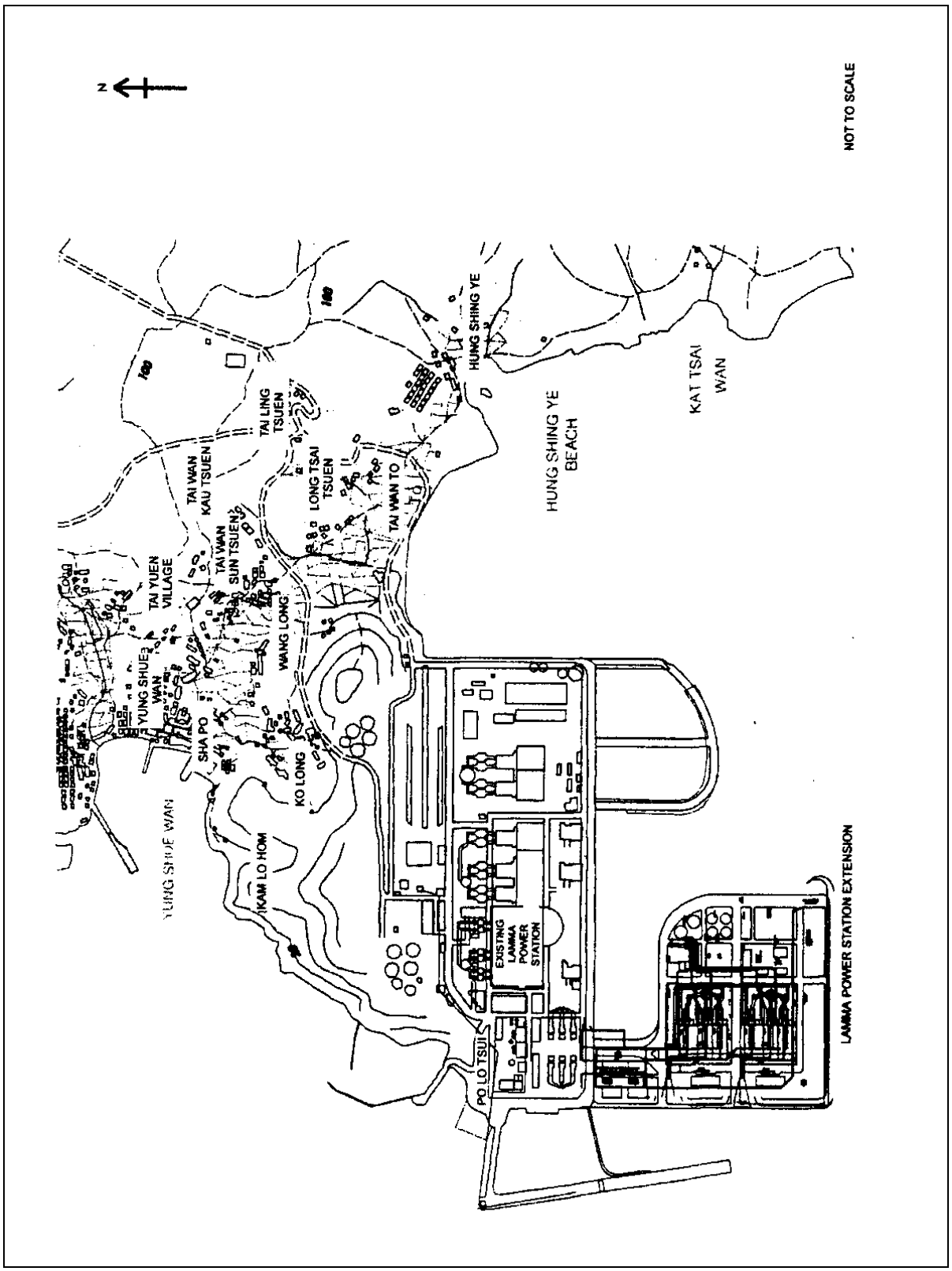



Figure 1.1 Layout of Work Site

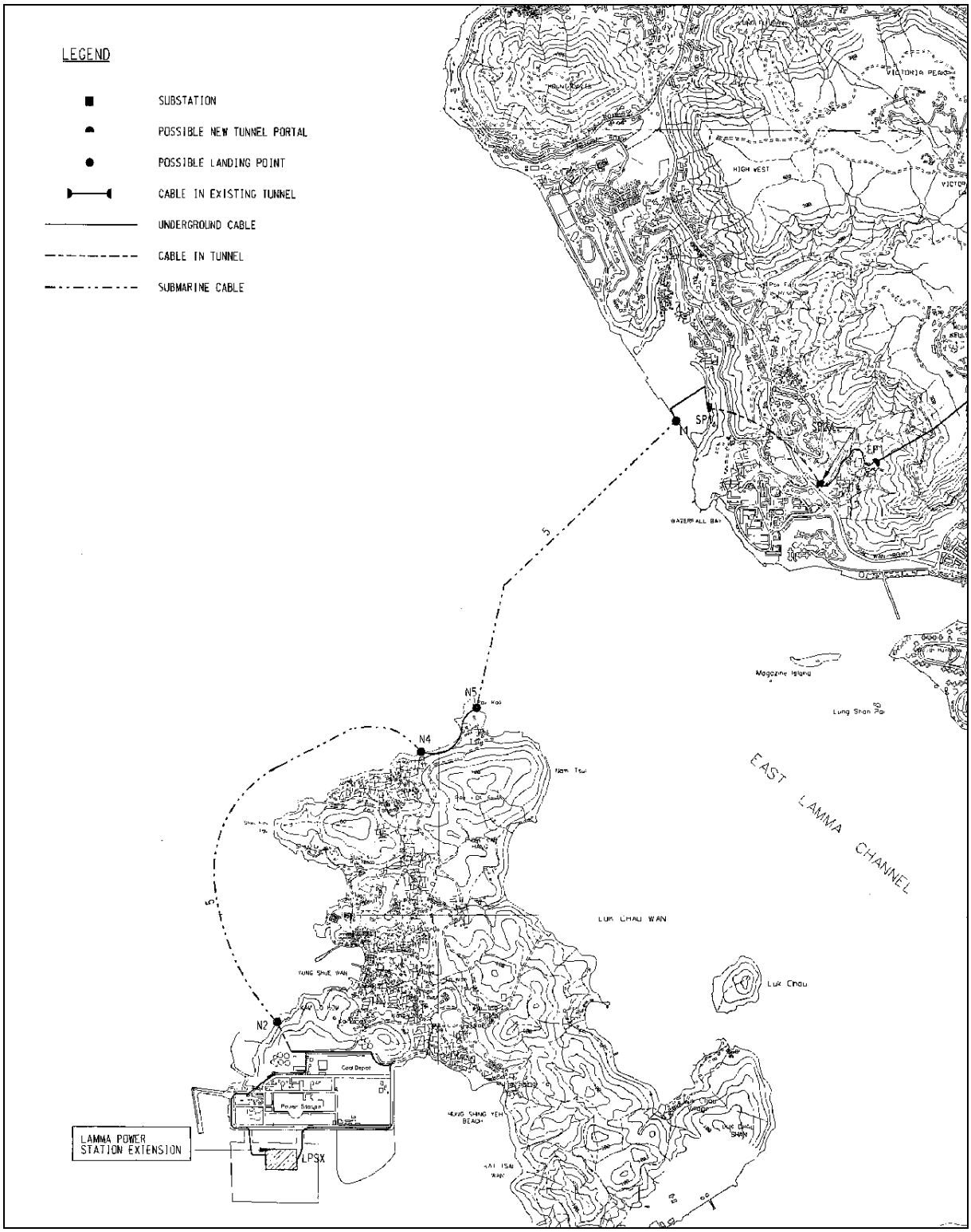



Figure 1.2 Cable Route of Transmission System

# 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 |
|---|---|
| *24-hour sampling:* | |
| HVAS Sampler | Model GS2310<br>Anderson Instruments Inc. |
| Partisol Air Sampler | Partisol Model 2000<br>Rupprecht & Patashnick |
| MINIVOL Portable Sampler | AIRMETRICS |
| *1-hour sampling:* | |
| Continuous TSP Dust Meter | TEOM Model 1400a<br>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 labelled 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, ± 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

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*

Action level Exceedances were recorded at all air quality monitoring stations (viz AM1, AM2, AM3 & AM4) on 2 November 2003. After investigation, it was found that some of the Air Pollution Index (API's) was at "very high level" in Hong Kong on 2 November 2003. The high API's were mainly caused by the suspended particulates. This suggested that the background TSP concentration levels had already been high. As no significant dusty activity was carried out in Lamma Extension construction site on that day, it is considered that all the action level exceedances were not related to the site activities but owing to hazy weather. In this regard, no further action is required.

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

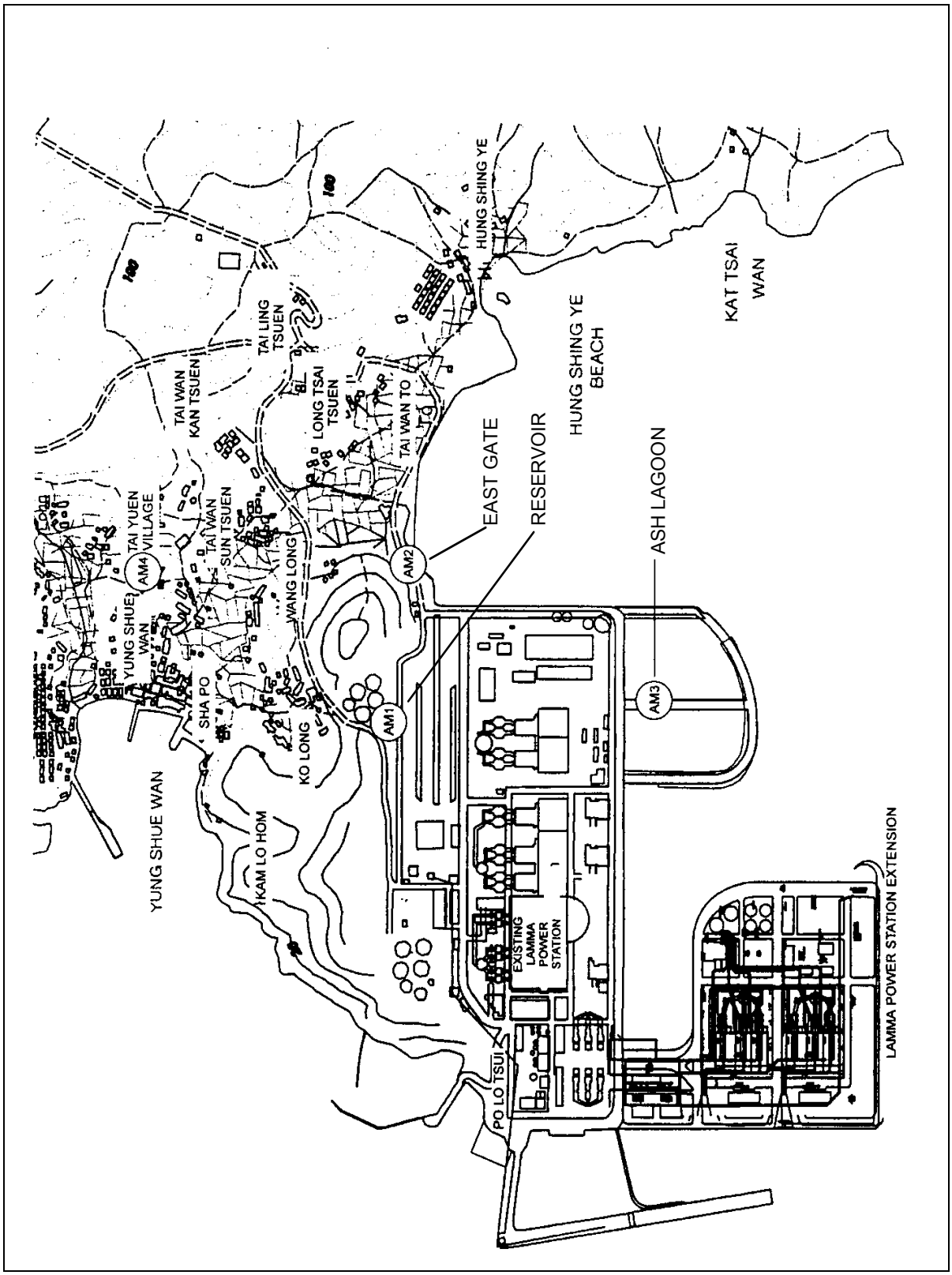



Figure 2.1 Location of Air Quality Monitoring Stations

# 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. 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.

The hoarding works for the construction of transmission system were completed on 11 May 2002. The civil works would tentatively commence in early 2005. As there was no construction work in November 2003, manual noise measurements at Pak Kok Tsui residences was suspended in this reporting month.

## 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.

Table 3.1 Noise Monitoring Locations

| **Purpose of noise monitoring** | **Monitoring Location** |
|---|---|
| Lamma Extension | Ash Lagoon |
| Lamma Extension | Ching Lam |

## 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** |
|---|---|
| Sound level meter | Rion NA-27/B&K 2238F |
| Sound level calibrator | Rion NC-74 |

## 3.4 Monitoring Parameters, Frequency and Duration

Continuous alarm monitoring of A-weighted Leq levels was carried out at Ash Lagoon and Ching Lam. 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<br><br>Ching Lam | Daytime:<br>0700-1900 hrs on normal weekdays | Daytime:<br>30 minutes | 30-min $L_{Aeq}$ |
| | Evening-time & holidays:<br>0700-2300 hrs on holidays; and 1900-2300 hrs on all other days | Evening-time & holidays:<br>5 minutes | 5-min $L_{Aeq}$ |
| | Night-time:<br>2300-0700 hrs of next day | Night-time:<br>5 minutes | 5-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.

*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. 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. All monitoring results and their graphical presentations are provided in Appendix E

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

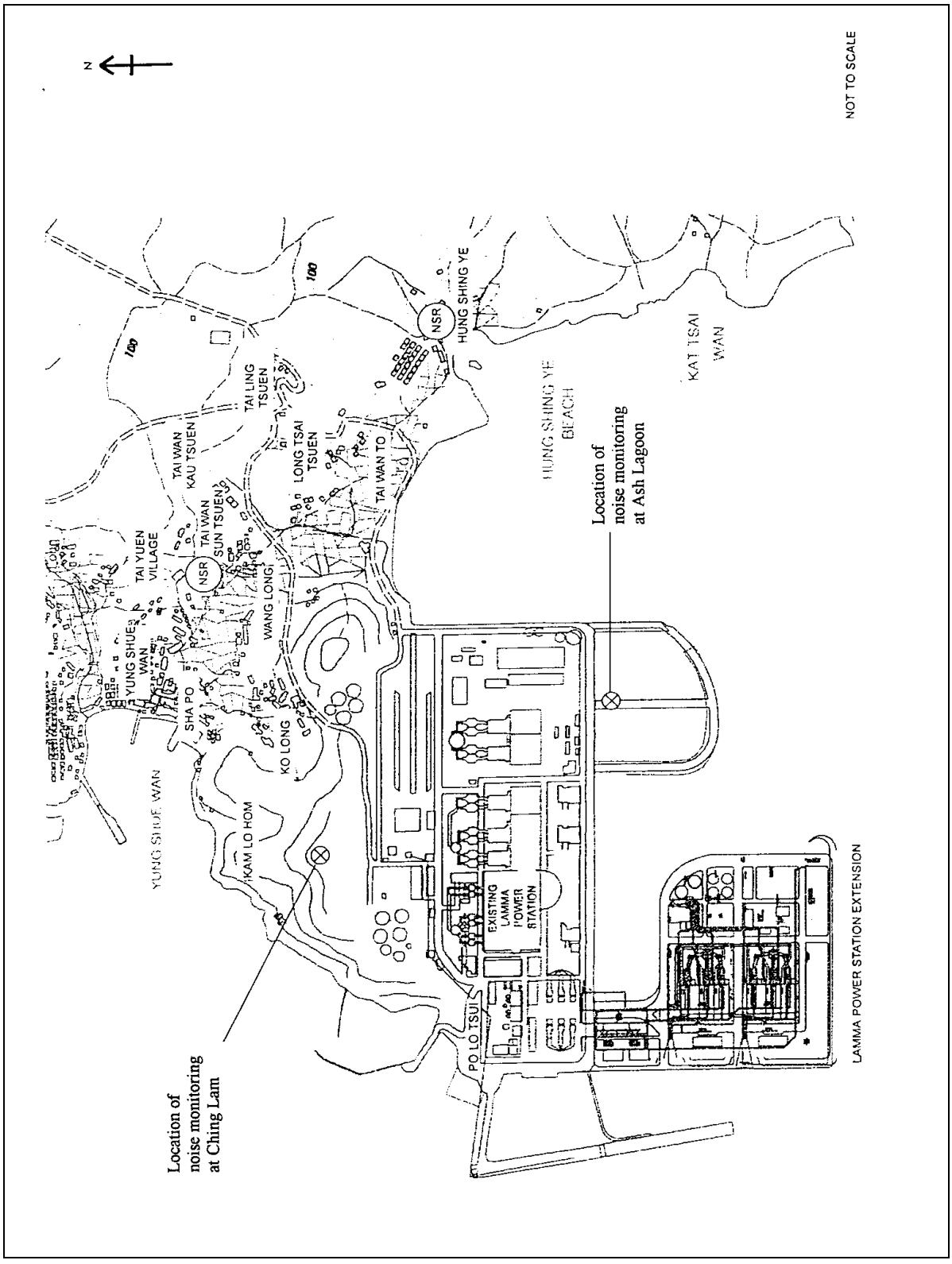



Figure 3.1 Location of Noise Monitoring Stations

# 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) | 01/11/03-30/11/03 | 4 | 0 | The exceedances were considered not related to the construction activities. Please refer to section 2 of the report for details. |
| 2 | Ambient TSP (1-hour) | 01/11/03-30/11/03 | 0 | 0 | |
| Noise | | | | | |
| 1 | Noise level at the critical NSR's predicted by the noise alarm monitoring system | 01/11/03-30/11/03 | 0 | 0 | |
| 2 | Manual noise monitoring at the Pak Kok Tsui residences | 01/11/03-30/11/03 | N/A | N/A | Hoarding works at Pak Kok Tsui were completed on 11/5/2002. Civil works would tentatively commence in early 2005. Manual noise monitoring was suspended during the period from 12/5/2002 to 30/11/2003. |

*Waste Management Records*

The estimated amounts of different types of waste generated in November 2003 are shown in Table 4.2.

Table 4.2 Estimated Amounts of Waste Generated in November 2003

| Waste Type | Examples | Estimated Amount |
|---|---|---|
| Construction Waste | Concrete waste, used formwork | 24 Tonne |
| General Refuse | Domestic wastes collected on site | 12 Tonne |

## 4.3 Site Environmental Audit

EPD officials from Local Control Office visited Lamma Power Station on 11/11/2003. They inspected the Lamma Extension Construction Site. There was no adverse comment from EPD regarding the construction site.

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 commencement of construction works of Transmission System had been deferred to early 2005, the weekly inspection for the site was suspended in the reporting month.

## 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 |

| Description | Permit No. | Valid Period | | Highlights | Status |
|---|---|---|---|---|---|
| | | From | To | | |
| Construction Noise Permit | GW-UW0276-03 | 10/09/03 | 09/03/04 | 9 groups (1-9) of PME's are assigned.<br><br>Only one group can be used. Groups 7, 8 and 9 are not used between 11:00pm and 7:00am on next day. | 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 November 2003, no complaint against the construction activities was received.

Table 4.4 Environmental Complaints / Enquiries Received in November 2003

| 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 Received Before

| 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:

Site Formation

*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.

Transmission System

*Terrestrial Ecology Impact*

- To closely monitor the construction activities, if any, 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

The hoarding works for the construction of transmission system at Pak Kok Tsui were completed on 11/5/2002. The civil works would tentatively commence in early 2005. As there was no construction work during the period from 12/5/2002 to end November 2003, the manual noise monitoring at Pak Kok Tsui was suspended in November 2003.

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 tentative construction program for the next 3 months is shown in Appendix J.

# 6. CONCLUSION

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.

Action level Exceedances on 24-hour TSP were recorded at all air quality monitoring stations (viz AM1, AM2, AM3 & AM4) on 2 November 2003. After investigation, it was found that the high TSP readings were not related to the site activities but due to hazy weather on that day.

No exceedance of Action/Limit levels on 1-hour TSP and Limit level on 24-hour TSP for air quality 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

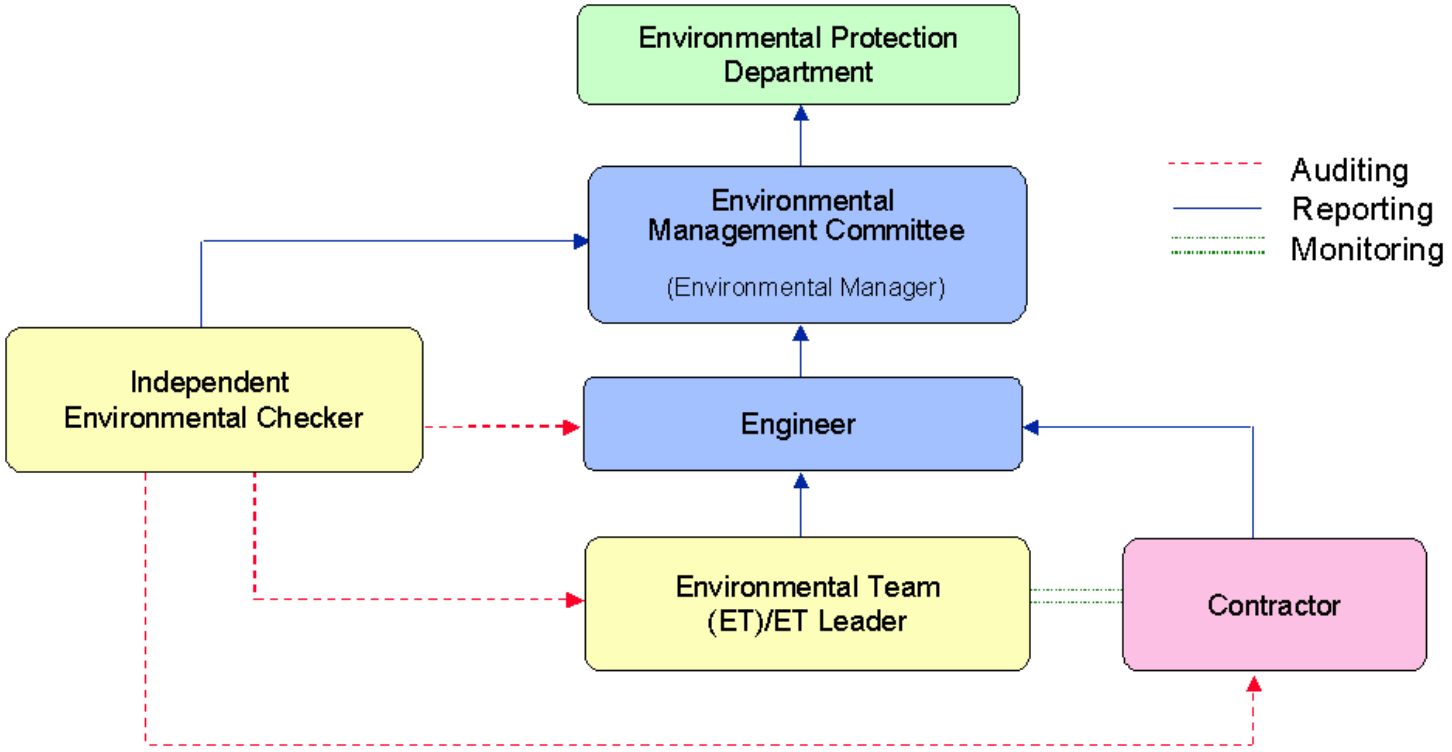



**Figure A.1 Organisation of EM&A Programme at Construction Phase**

## 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, $\mu g/m^3$ | Limit Level, $\mu g/m^3$ |
|---|---|---|
| 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 $L_{Aeq,30\ min}$ (07:00-19:00 hrs on normal weekdays) (Note 1)<br>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 $L_{Aeq,5\ min}$<br>c. subject to statutory control under the Noise Control Ordinance (23:00-07:00 hrs of next day). Set to 45 dB(A) in $L_{Aeq,5\ min}$ |
| Manual noise monitoring at the nearest Pak Kok Tsui residences to cable landing points N4 and N5 | | |
| Note:<br>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 (November 2003 to February 2004)

| 24hr TSP Monitoring | 1hr TSP Monitoring |
|---|---|
| 02/Nov/2003 | 02/Nov/2003 1500hr to 1800hr |
| 08/Nov/2003 | 08/Nov/2003 1500hr to 1800hr |
| 14/Nov/2003 | 14/Nov/2003 1500hr to 1800hr |
| 20/Nov/2003 | 20/Nov/2003 1500hr to 1800hr |
| 26/Nov/2003 | 26/Nov/2003 1500hr to 1800hr |
| 02/Dec/2003 | 02/Dec/2003 1500hr to 1800hr |
| 08/Dec/2003 | 08/Dec/2003 1500hr to 1800hr |
| 14/Dec/2003 | 14/Dec/2003 1500hr to 1800hr |
| 20/Dec/2003 | 20/Dec/2003 1500hr to 1800hr |
| 26/Dec/2003 | 26/Dec/2003 1500hr to 1800hr |
| 01/Jan/2004 | 01/Jan/2004 1500hr to 1800hr |
| 07/Jan/2004 | 07/Jan/2004 1500hr to 1800hr |
| 13/Jan/2004 | 13/Jan/2004 1500hr to 1800hr |
| 19/Jan/2004 | 19/Jan/2004 1500hr to 1800hr |
| 25/Jan/2004 | 25/Jan/2004 1500hr to 1800hr |
| 31/Jan/2004 | 31/Jan/2004 1500hr to 1800hr |
| 06/Feb/2004 | 06/Feb/2004 1500hr to 1800hr |
| 12/Feb/2004 | 12/Feb/2004 1500hr to 1800hr |
| 18/Feb/2004 | 18/Feb/2004 1500hr to 1800hr |
| 24/Feb/2004 | 24/Feb/2004 1500hr to 1800hr |

Table C.2 Manual Noise Monitoring Schedule for Transmission System Construction

The hoarding works for the construction of transmission system at Pak Kok Tsui were completed on 11/5/2002. The civil works would tentatively commence in early 2005. As there would be no construction work during the period from 12/5/2002 to early 2005, the manual noise monitoring at Pak Kok Tsui would temporarily be suspended within this period.

## APPENDIX D AIR QUALITY MONITORING RESULTS

Site: Lamma Power Station Extension

Month: November 2003

24 hour TSP Measurement:-

| Date | TSP concentration (μg/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. (%) |
| 02/11/2003 (2) | 204 | 193 | 230 | 246 | 6.9 | 010 | 75 |
| 08/11/2003 | 21 | 20 | 20 | 11 | 30.1 | 040 | 92 |
| 14/11/2003 | 76 | 75 | 81 | 76 | 29.3 | 070 | 75 |
| 20/11/2003 | 31 | 32 | 37 | 38 | 13.4 | 070 | 92 |
| 26/11/2003 | 61 | 62 | 62 | 69 | 25.0 | 080 | 72 |

1 hour TSP Measurement:-

| Date | Time | TSP concentration (μg/m$^3$) | | |
|---|---|---|---|---|
| | | Reservoir (AM1) | East Gate (AM2) | Ash Lagoon (AM3) |
| 02/11/2003 | 15:00-15:59 | 238 | 264 | 235 |
| | 16:00-16:59 | 285 | 289 | 232 |
| | 17:00-17:59 | 272 | 276 | 297 |
| 08/11/2003 | 15:00-15:59 | 0 | 0 | 0 |
| | 16:00-16:59 | 9 | 19 | 13 |
| | 17:00-17:59 | 6 | 0 | 4 |
| 14/11/2003 | 15:00-15:59 | 70 | 68 | 76 |
| | 16:00-16:59 | 71 | 73 | 67 |
| | 17:00-17:59 | 66 | 57 | 67 |
| 20/11/2003 | 15:00-15:59 | 39 | 36 | 43 |
| | 16:00-16:59 | 43 | 39 | 45 |
| | 17:00-17:59 | 41 | 36 | 47 |
| 26/11/2003 | 15:00-15:59 | 87 | 81 | 70 |
| | 16:00-16:59 | 72 | 82 | 66 |
| | 17:00-17:59 | 74 | 68 | 77 |

Remark:

(1) The monitoring stations, Reservoir, East Gate & Ash Lagoon are located within Lamma Power Station.

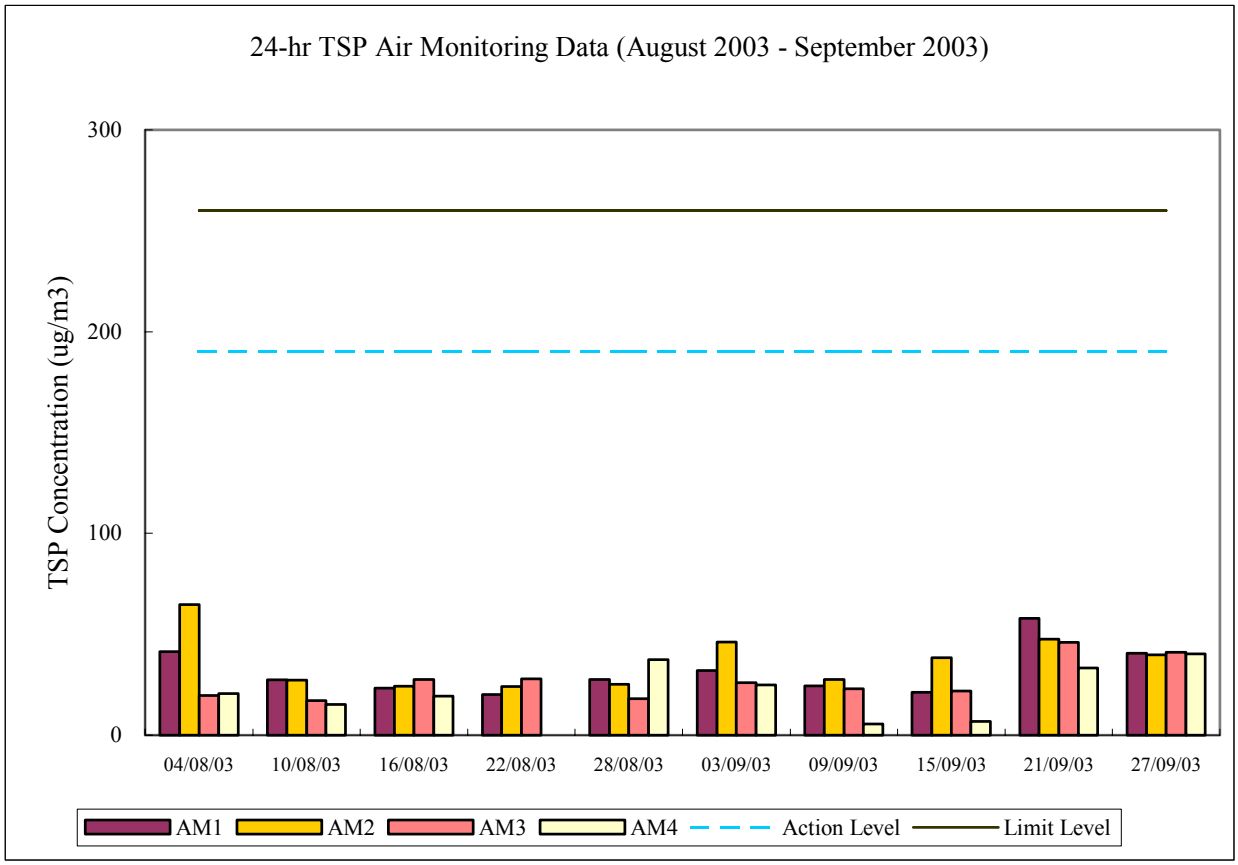
(2) As the general APIs were high and no significant dusty site activity was carried out on 2/11/2003, it is considered that the high TSP recorded at various stations were not related to the site activities but owing to hazy weather. Hence no further action is required.

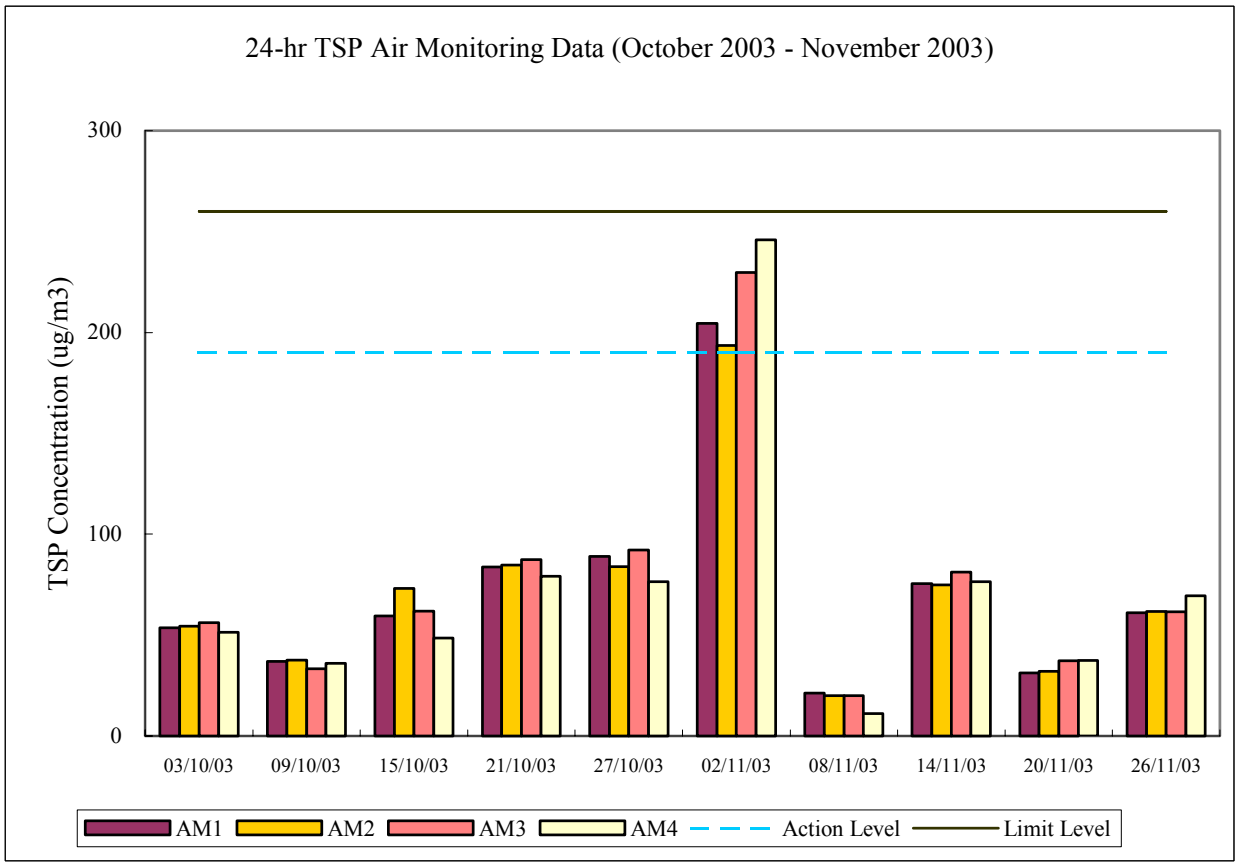
| | 1-hr TSP (μg/m$^3$) | 24-hr TSP (μg/m$^3$) |
|---|---|---|
| Action Level | 340 | 190 |
| Limit Level | 500 | 260 |

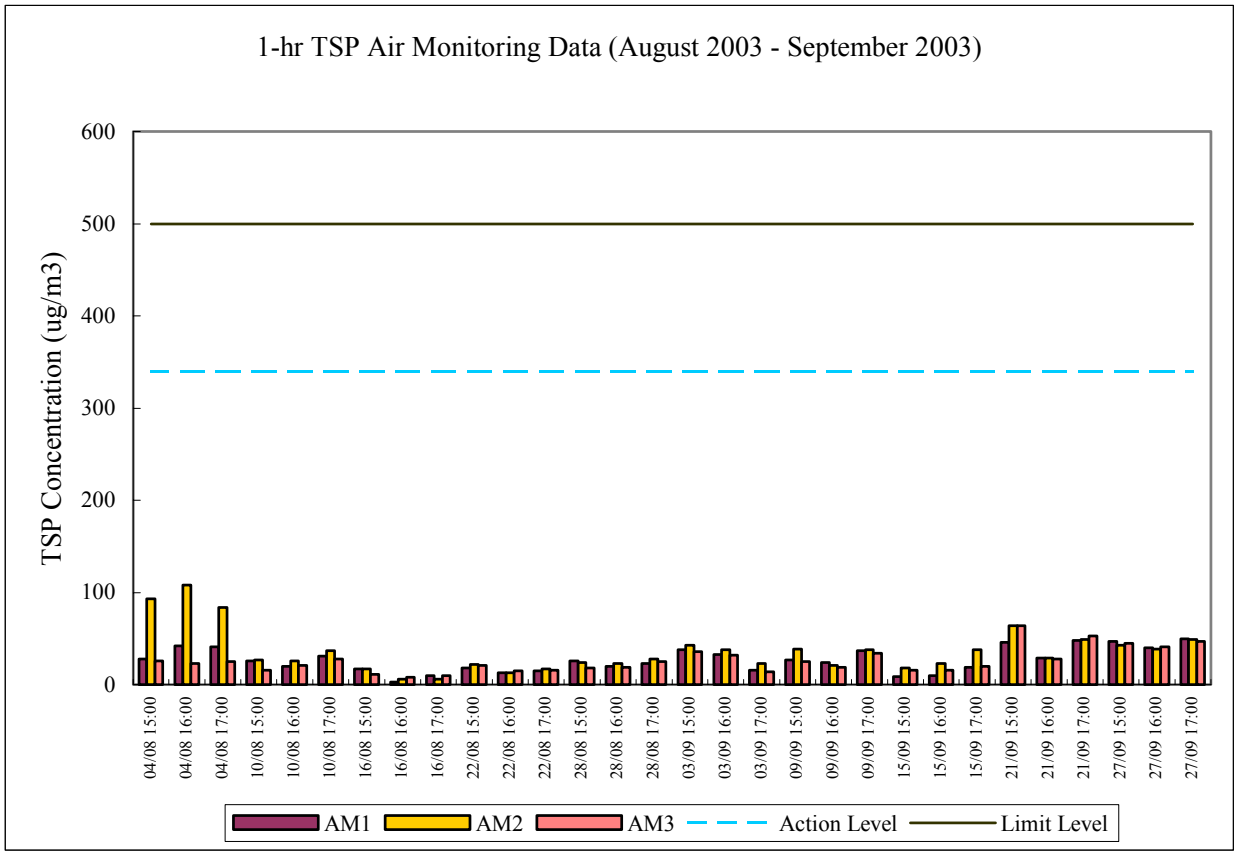
Calibration: Calibration details are shown in appendix F.

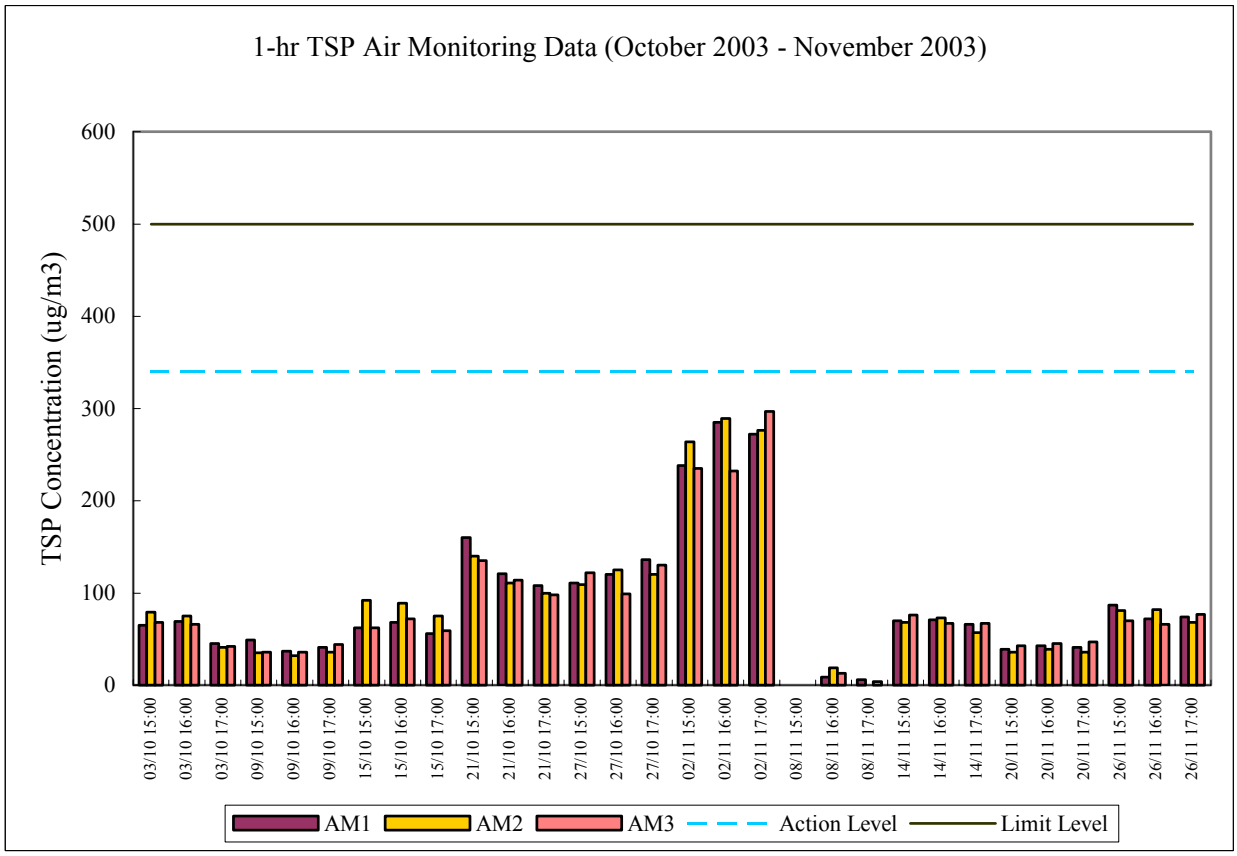
Equipment used:

| 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 (August 2003 - September 2003)
TSP Concentration (ug/m3)
300
200
100
0
04/08/03
10/08/03
16/08/03
22/08/03
28/08/03
03/09/03
09/09/03
15/09/03
21/09/03
27/09/03
AM1
AM2
AM3
AM4
Action Level
Limit Level


24-hr TSP Air Monitoring Data (October 2003 - November 2003)
TSP Concentration (ug/m3)
300
200
100
0
03/10/03
09/10/03
15/10/03
21/10/03
27/10/03
02/11/03
08/11/03
14/11/03
20/11/03
26/11/03
AM1
AM2
AM3
AM4
Action Level
Limit Level


1-hr TSP Air Monitoring Data (August 2003 - September 2003)
TSP Concentration (ug/m3)
600
500
400
300
200
100
0
04/08 15:00
04/08 16:00
04/08 17:00
10/08 15:00
10/08 16:00
10/08 17:00
16/08 15:00
16/08 16:00
16/08 17:00
22/08 15:00
22/08 16:00
22/08 17:00
28/08 15:00
28/08 16:00
28/08 17:00
03/09 15:00
03/09 16:00
03/09 17:00
09/09 15:00
09/09 16:00
09/09 17:00
15/09 15:00
15/09 16:00
15/09 17:00
21/09 15:00
21/09 16:00
21/09 17:00
27/09 15:00
27/09 16:00
27/09 17:00
AM1
AM2
AM3
Action Level
Limit Level


1-hr TSP Air Monitoring Data (October 2003 - November 2003)
TSP Concentration (ug/m3)
600
500
400
300
200
100
0
03/10 15:00
03/10 16:00
03/10 17:00
09/10 15:00
09/10 16:00
09/10 17:00
15/10 15:00
15/10 16:00
15/10 17:00
21/10 15:00
21/10 16:00
21/10 17:00
27/10 15:00
27/10 16:00
27/10 17:00
02/11 15:00
02/11 16:00
02/11 17:00
08/11 15:00
08/11 16:00
08/11 17:00
14/11 15:00
14/11 16:00
14/11 17:00
20/11 15:00
20/11 16:00
20/11 17:00
26/11 15:00
26/11 16:00
26/11 17:00
AM1
AM2
AM3
Action Level
Limit Level

## Appendix E.1 Continuous Noise Monitoring Results for November 2003

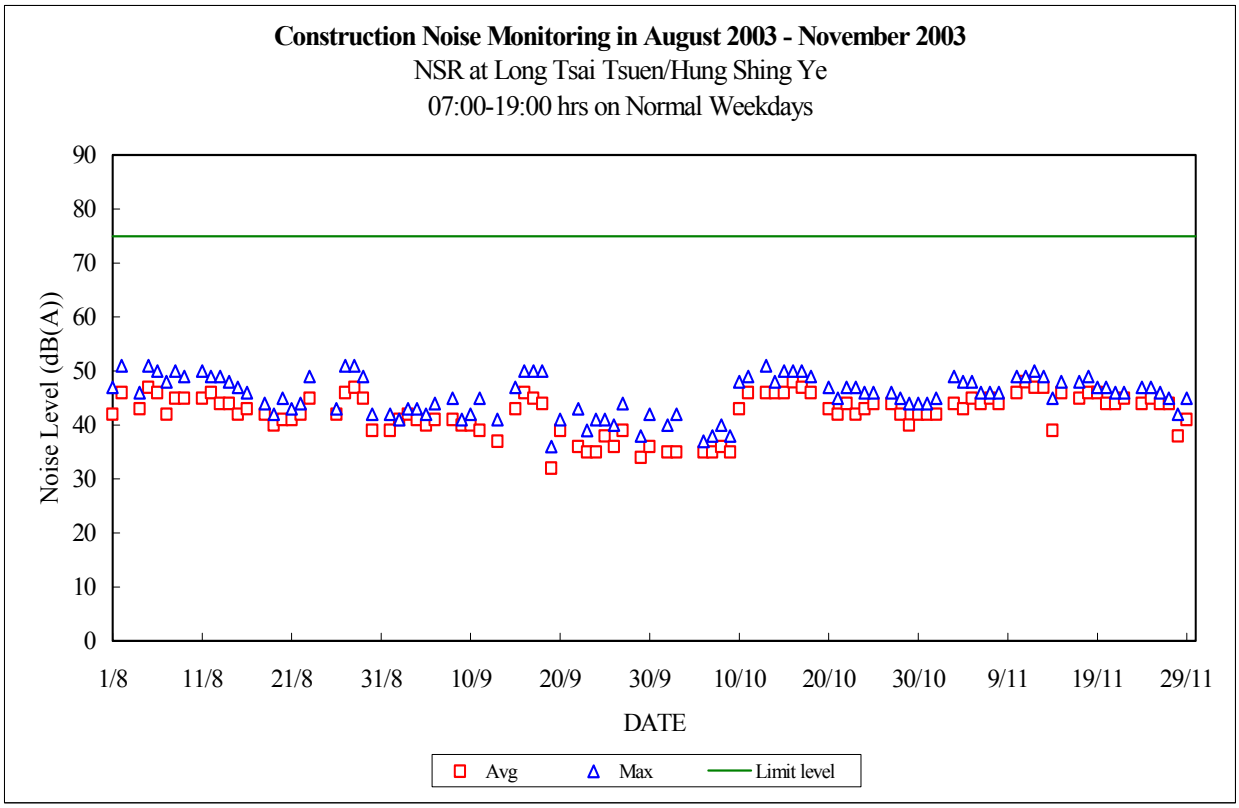
Site: Lamma Power Station Extension – Site Formation
Measurement Location: Ash Lagoon and Ching Lam
Measurement Parameter: 30-min Leq (07:00-19:00 hrs on normal weekdays)
5-min Leq (07:00-23:00 hrs on holidays and 19:00-23:00 hrs on all other days, and 23:00-07:00 hrs of next day)
Noise Equipment Used: 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 - 25/02/2003
B&K 2238F sound level meter - 19/12/2002
Rion NC-74 calibrator - 24/02/2003

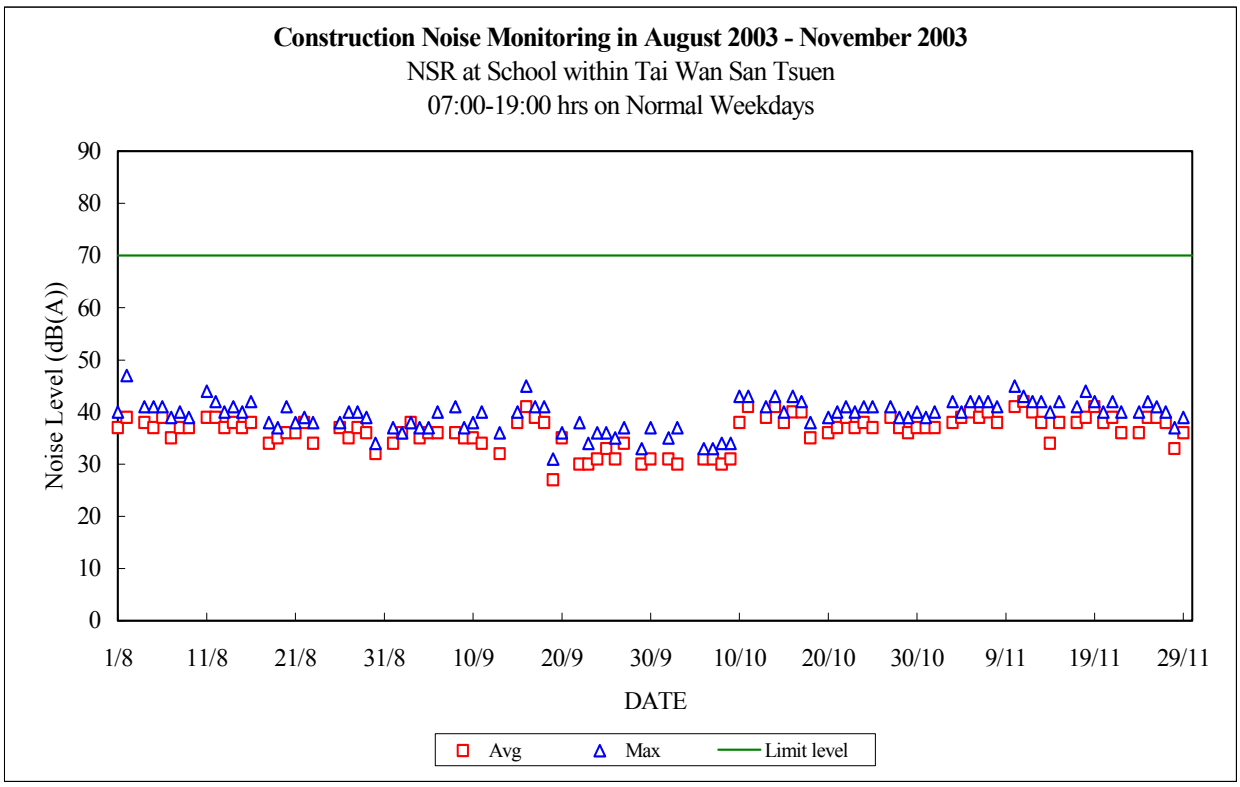
| Date | Time | Calculated Noise Level at NSR at Long Tsai Tsuen/Hung Shing Ye (dB(A)) | | Limit Noise Level (dB(A)) | Calculated Noise Level at NSR at the school within Tai Wan San Tsuen (dB(A)) | | Limit Noise Level (dB(A)) |
|---|---|---|---|---|---|---|---|
| | | Max | Avg | | Max | Avg | |
| 01/11/2003 | 07:00-19:00 | 45 | 42 | 75 | 40 | 37 | 70 |
| 01/11/2003 | 19:00-23:00 | 46 | 43 | 60 | 41 | 38 | 60 |
| 01/11/2003 | 23:00-07:00 | 36 | 27 | 45 | 31 | 23 | 45 |
| 02/11/2003 | 07:00-23:00 | 46 | 43 | 60 | 39 | 35 | 60 |
| 02/11/2003 | 23:00-07:00 | 42 | 30 | 45 | 33 | 24 | 45 |
| 03/11/2003 | 07:00-19:00 | 49 | 44 | 75 | 42 | 38 | 70 |
| 03/11/2003 | 19:00-23:00 | 47 | 45 | 60 | 43 | 40 | 60 |
| 03/11/2003 | 23:00-07:00 | 37 | 30 | 45 | 32 | 25 | 45 |
| 04/11/2003 | 07:00-19:00 | 48 | 43 | 75 | 40 | 39 | 70 |
| 04/11/2003 | 19:00-23:00 | 45 | 43 | 60 | 40 | 39 | 60 |
| 04/11/2003 | 23:00-07:00 | 32 | 28 | 45 | 27 | 23 | 45 |
| 05/11/2003 | 07:00-19:00 | 48 | 45 | 75 | 42 | 40 | 70 |
| 05/11/2003 | 19:00-23:00 | 44 | 43 | 60 | 40 | 39 | 60 |
| 05/11/2003 | 23:00-07:00 | 36 | 30 | 45 | 31 | 25 | 45 |
| 06/11/2003 | 07:00-19:00 | 46 | 44 | 75 | 42 | 39 | 70 |
| 06/11/2003 | 19:00-23:00 | 45 | 44 | 60 | 40 | 39 | 60 |
| 06/11/2003 | 23:00-07:00 | 39 | 34 | 45 | 34 | 29 | 45 |
| 07/11/2003 | 07:00-19:00 | 46 | 45 | 75 | 42 | 40 | 70 |
| 07/11/2003 | 19:00-23:00 | 46 | 46 | 60 | 41 | 40 | 60 |
| 07/11/2003 | 23:00-07:00 | 30 | 25 | 45 | 26 | 21 | 45 |
| 08/11/2003 | 07:00-19:00 | 46 | 44 | 75 | 41 | 38 | 70 |
| 08/11/2003 | 19:00-23:00 | 48 | 46 | 60 | 43 | 40 | 60 |
| 08/11/2003 | 23:00-07:00 | 40 | 30 | 45 | 36 | 26 | 45 |

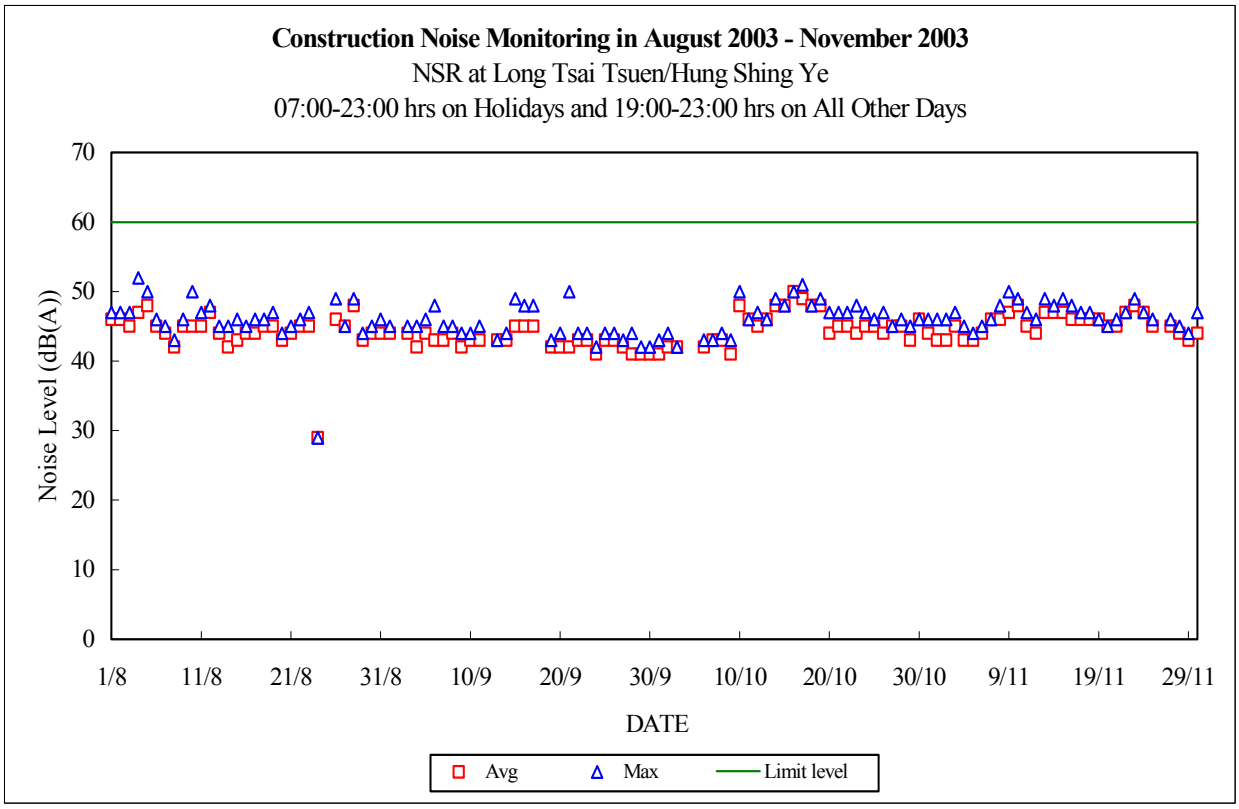
| Date | Time | Calculated Noise Level at NSR at Long Tsai Tsuen/Hung Shing Ye (dB(A)) | | Limit Noise Level (dB(A)) | Calculated Noise Level at NSR at the school within Tai Wan San Tsuen (dB(A)) | | Limit Noise Level (dB(A)) |
|---|---|---|---|---|---|---|---|
| | | Max | Avg | | Max | Avg | |
| 09/11/2003 | 07:00-23:00 | 50 | 47 | 60 | 41 | 37 | 60 |
| 09/11/2003 | 23:00-07:00 | 36 | 29 | 45 | 31 | 24 | 45 |
| 10/11/2003 | 07:00-19:00 | 49 | 46 | 75 | 45 | 41 | 70 |
| 10/11/2003 | 19:00-23:00 | 49 | 48 | 60 | 44 | 44 | 60 |
| 10/11/2003 | 23:00-07:00 | 34 | 30 | 45 | 29 | 26 | 45 |
| 11/11/2003 | 07:00-19:00 | 49 | 48 | 75 | 43 | 42 | 70 |
| 11/11/2003 | 19:00-23:00 | 47 | 45 | 60 | 42 | 40 | 60 |
| 11/11/2003 | 23:00-07:00 | 35 | 32 | 45 | 30 | 27 | 45 |
| 12/11/2003 | 07:00-19:00 | 50 | 47 | 75 | 42 | 40 | 70 |
| 12/11/2003 | 19:00-23:00 | 46 | 44 | 60 | 41 | 39 | 60 |
| 12/11/2003 | 23:00-07:00 | 37 | 32 | 45 | 32 | 27 | 45 |
| 13/11/2003 | 07:00-19:00 | 49 | 47 | 75 | 42 | 38 | 70 |
| 13/11/2003 | 19:00-23:00 | 49 | 47 | 60 | 42 | 39 | 60 |
| 13/11/2003 | 23:00-07:00 | 36 | 34 | 45 | 31 | 29 | 45 |
| 14/11/2003 | 07:00-19:00 | 45 | 39 | 75 | 40 | 34 | 70 |
| 14/11/2003 | 19:00-23:00 | 48 | 47 | 60 | 43 | 41 | 60 |
| 14/11/2003 | 23:00-07:00 | 37 | 30 | 45 | 32 | 25 | 45 |
| 15/11/2003 | 07:00-19:00 | 48 | 46 | 75 | 42 | 38 | 70 |
| 15/11/2003 | 19:00-23:00 | 49 | 47 | 60 | 44 | 38 | 60 |
| 15/11/2003 | 23:00-07:00 | 35 | 29 | 45 | 30 | 24 | 45 |
| 16/11/2003 | 07:00-23:00 | 48 | 46 | 60 | 42 | 36 | 60 |
| 16/11/2003 | 23:00-07:00 | 38 | 31 | 45 | 33 | 26 | 45 |
| 17/11/2003 | 07:00-19:00 | 48 | 45 | 75 | 41 | 38 | 70 |
| 17/11/2003 | 19:00-23:00 | 47 | 46 | 60 | 42 | 39 | 60 |
| 17/11/2003 | 23:00-07:00 | 43 | 33 | 45 | 38 | 29 | 45 |
| 18/11/2003 | 07:00-19:00 | 49 | 46 | 75 | 44 | 39 | 70 |
| 18/11/2003 | 19:00-23:00 | 47 | 46 | 60 | 42 | 40 | 60 |
| 18/11/2003 | 23:00-07:00 | 32 | 28 | 45 | 28 | 24 | 45 |
| 19/11/2003 | 07:00-19:00 | 47 | 46 | 75 | 42 | 41 | 70 |
| 19/11/2003 | 19:00-23:00 | 46 | 46 | 60 | 42 | 40 | 60 |
| 19/11/2003 | 23:00-07:00 | 32 | 28 | 45 | 27 | 23 | 45 |
| 20/11/2003 | 07:00-19:00 | 47 | 44 | 75 | 40 | 38 | 70 |
| 20/11/2003 | 19:00-23:00 | 45 | 45 | 60 | 41 | 40 | 60 |
| 20/11/2003 | 23:00-07:00 | 44 | 32 | 45 | 39 | 27 | 45 |

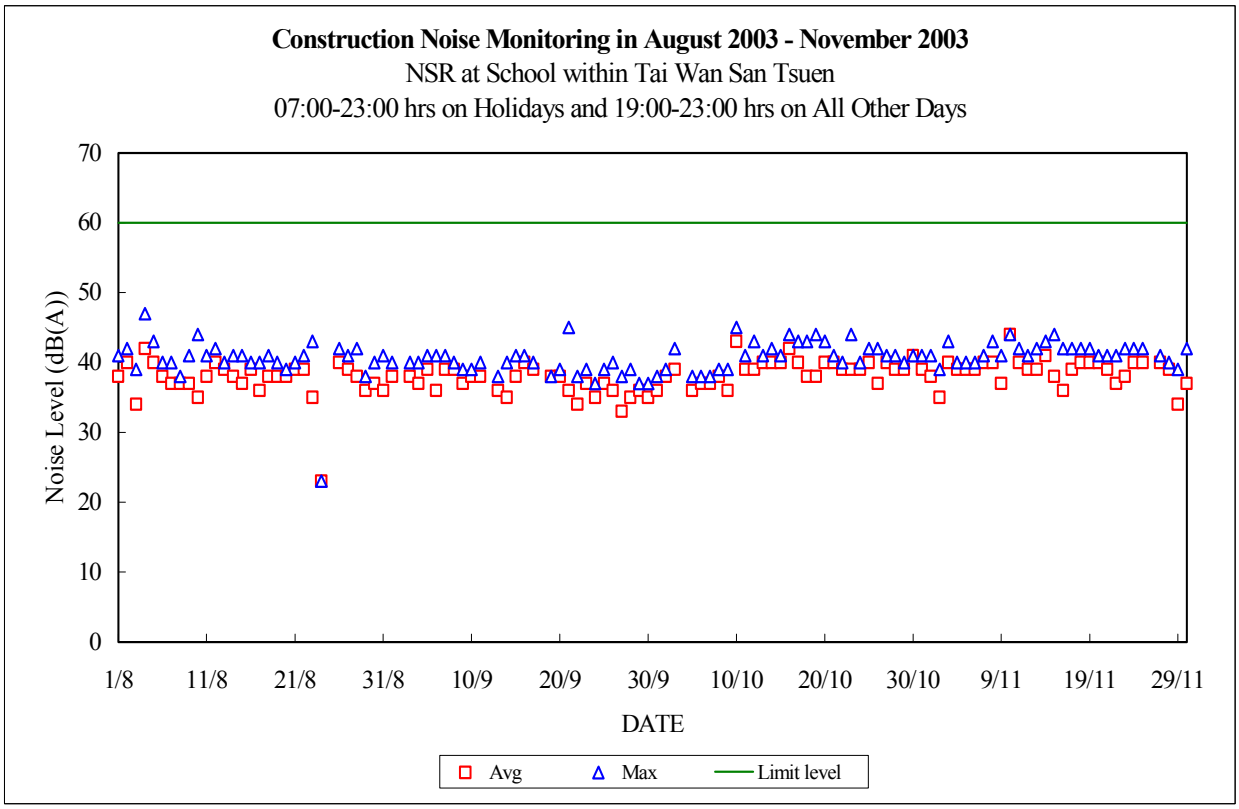
| Date | Time | Calculated Noise Level at NSR at Long Tsai Tsuen/Hung Shing Ye (dB(A)) | | Limit Noise Level (dB(A)) | Calculated Noise Level at NSR at the school within Tai Wan San Tsuen (dB(A)) | | Limit Noise Level (dB(A)) |
|---|---|---|---|---|---|---|---|
| | | Max | Avg | | Max | Avg | |
| 21/11/2003 | 07:00-19:00 | 46 | 44 | 75 | 42 | 39 | 70 |
| 21/11/2003 | 19:00-23:00 | 46 | 45 | 60 | 41 | 39 | 60 |
| 21/11/2003 | 23:00-07:00 | 38 | 29 | 45 | 34 | 24 | 45 |
| 22/11/2003 | 07:00-19:00 | 46 | 45 | 75 | 40 | 36 | 70 |
| 22/11/2003 | 19:00-23:00 | 47 | 47 | 60 | 41 | 37 | 60 |
| 22/11/2003 | 23:00-07:00 | 28 | 28 | 45 | 24 | 24 | 45 |
| 23/11/2003 | 07:00-23:00 | 49 | 48 | 60 | 42 | 38 | 60 |
| 23/11/2003 | 23:00-07:00 | 43 | 36 | 45 | 39 | 32 | 45 |
| 24/11/2003 | 07:00-19:00 | 47 | 44 | 75 | 40 | 36 | 70 |
| 24/11/2003 | 19:00-23:00 | 47 | 47 | 60 | 42 | 40 | 60 |
| 24/11/2003 | 23:00-07:00 | 36 | 30 | 45 | 31 | 25 | 45 |
| 25/11/2003 | 07:00-19:00 | 47 | 45 | 75 | 42 | 39 | 70 |
| 25/11/2003 | 19:00-23:00 | 46 | 45 | 60 | 42 | 40 | 60 |
| 25/11/2003 | 23:00-07:00 | 39 | 32 | 45 | 34 | 27 | 45 |
| 26/11/2003 | 07:00-19:00 | 46 | 44 | 75 | 41 | 39 | 70 |
| 26/11/2003 | 19:00-23:00 | -- | -- | 60 | -- | -- | 60 |
| 26/11/2003 | 23:00-07:00 | 40 | 30 | 45 | 35 | 25 | 45 |
| 27/11/2003 | 07:00-19:00 | 45 | 44 | 75 | 40 | 38 | 70 |
| 27/11/2003 | 19:00-23:00 | 46 | 45 | 60 | 41 | 40 | 60 |
| 27/11/2003 | 23:00-07:00 | 33 | 28 | 45 | 29 | 24 | 45 |
| 28/11/2003 | 07:00-19:00 | 42 | 38 | 75 | 37 | 33 | 70 |
| 28/11/2003 | 19:00-23:00 | 45 | 44 | 60 | 40 | 39 | 60 |
| 28/11/2003 | 23:00-07:00 | 36 | 31 | 45 | 32 | 26 | 45 |
| 29/11/2003 | 07:00-19:00 | 45 | 41 | 75 | 39 | 36 | 70 |
| 29/11/2003 | 19:00-23:00 | 44 | 43 | 60 | 39 | 34 | 60 |
| 29/11/2003 | 23:00-07:00 | 33 | 28 | 45 | 28 | 23 | 45 |
| 30/11/2003 | 07:00-23:00 | 47 | 44 | 60 | 42 | 37 | 60 |
| 30/11/2003 | 23:00-07:00 | 37 | 31 | 45 | 32 | 27 | 45 |

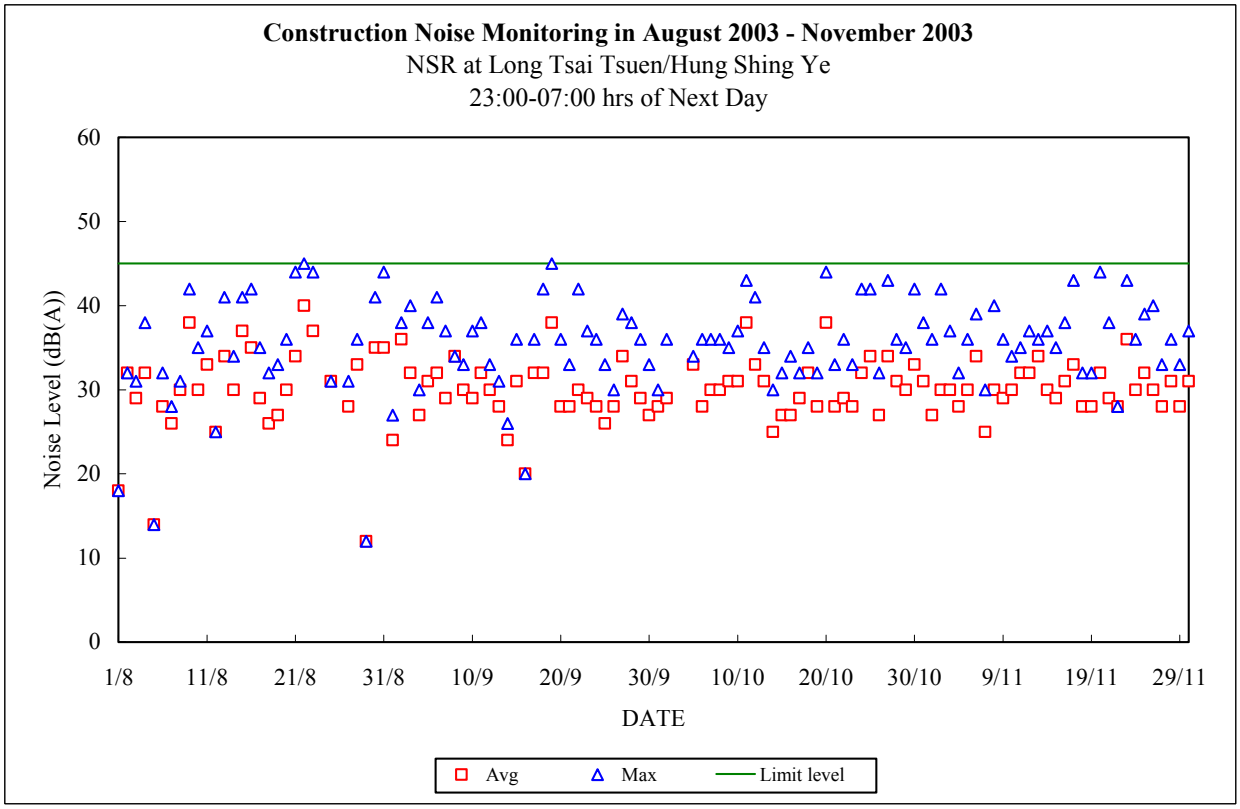
Note: "--" represents the measured noise monitoring data lower than the established notional background level/discarded under strong wind.

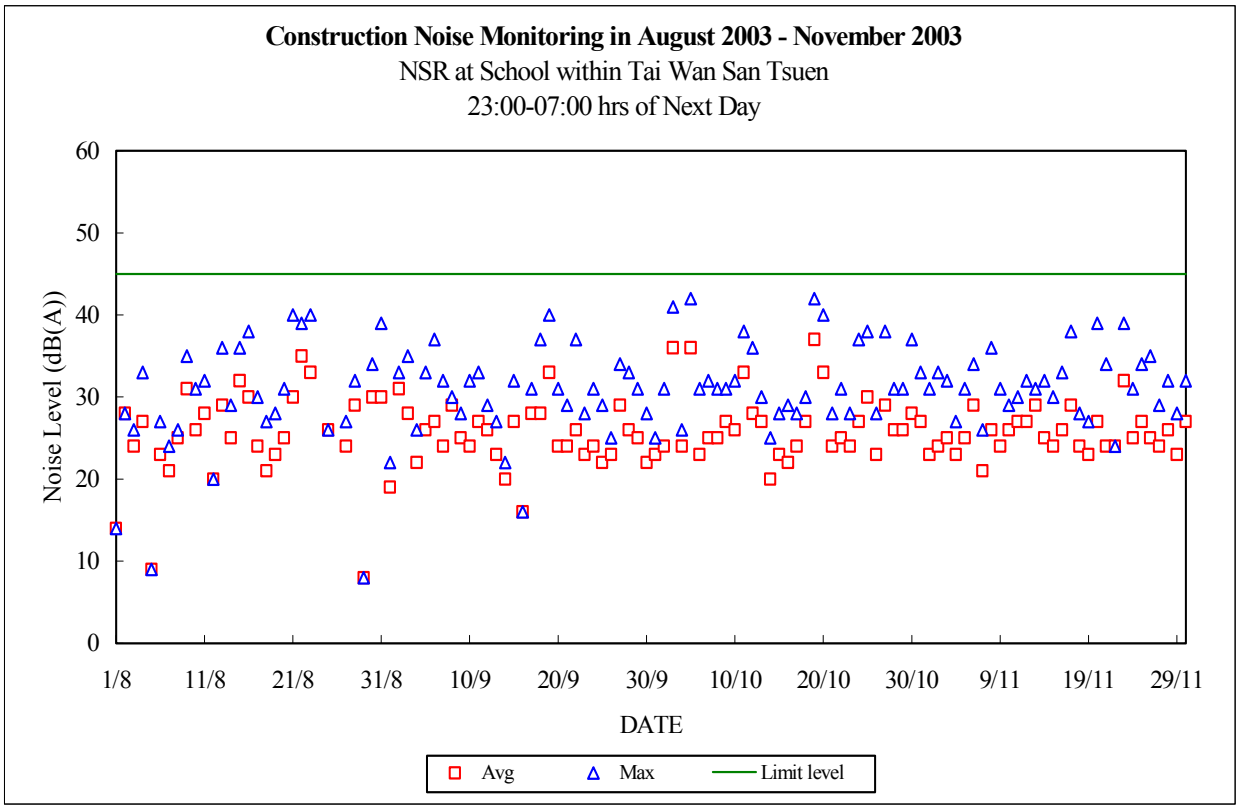

Construction Noise Monitoring in August 2003 - November 2003
NSR at Long Tsai Tsuen/Hung Shing Ye
07:00-19:00 hrs on Normal Weekdays
Noise Level (dB(A))
90
80
70
60
50
40
30
20
10
0
1/8
11/8
21/8
31/8
10/9
20/9
30/9
10/10
20/10
30/10
9/11
19/11
29/11
DATE
Avg
Max
Limit level


Construction Noise Monitoring in August 2003 - November 2003
NSR at School within Tai Wan San Tsuen
07:00-19:00 hrs on Normal Weekdays
Noise Level (dB(A))
90
80
70
60
50
40
30
20
10
0
1/8
11/8
21/8
31/8
10/9
20/9
30/9
10/10
20/10
30/10
9/11
19/11
29/11
DATE
Avg
Max
Limit level


Construction Noise Monitoring in August 2003 - November 2003
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
Noise Level (dB(A))
70
60
50
40
30
20
10
0
1/8
11/8
21/8
31/8
10/9
20/9
30/9
10/10
20/10
30/10
9/11
19/11
29/11
DATE
Avg
Max
Limit level


Construction Noise Monitoring in August 2003 - November 2003
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
Noise Level (dB(A))
70
60
50
40
30
20
10
0
1/8
11/8
21/8
31/8
10/9
20/9
30/9
10/10
20/10
30/10
9/11
19/11
29/11
DATE
Avg
Max
Limit level


Construction Noise Monitoring in August 2003 - November 2003
NSR at Long Tsai Tsuen/Hung Shing Ye
23:00-07:00 hrs of Next Day
Noise Level (dB(A))
60
50
40
30
20
10
0
1/8
11/8
21/8
31/8
10/9
20/9
30/9
10/10
20/10
30/10
9/11
19/11
29/11
DATE
Avg
Max
Limit level


Construction Noise Monitoring in August 2003 - November 2003
NSR at School within Tai Wan San Tsuen
23:00-07:00 hrs of Next Day
Noise Level (dB(A))
60
50
40
30
20
10
0
1/8
11/8
21/8
31/8
10/9
20/9
30/9
10/10
20/10
30/10
9/11
19/11
29/11
DATE
Avg
Max
Limit level

## Appendix E.2 Manual Noise Monitoring Results for November 2003

The hoarding works for the construction of transmission system at Pak Kok Tsui were completed on 11/5/2002. The civil works would tentatively commence in early 2005. As there was no construction work in November 2003, manual noise measurements at Pak Kok Tsui residences was suspended in this reporting month.

# Appendix F

## The QA/QC Procedures and Results

# HIGH VOLUME AIR SAMPLER
# SITE VISIT LOG SHEET

| | | | |
|---|---|---|---|
| Site Name: | R.E | Site No.: | AM1 |
| Date of visit: | 17-11-2003 | Hour of Visit: | 1035 |
| Staff name: | W. L. MAK | HVAS S/N: | 3198 |
| Used filter paper no.: | LQ32 | New filter paper no.: | LQ34 |
| Type of filter: | Glass-fibre | | |

I. Ambient Conditions

Temperature, $T_a$ = 273 + 22.9 = 295.9 K Pressure, $P_a$ = 1014 mb

II. Correction of manometer reading

| Calibration orifice No. | Manometer reading at site conditions corresponds to $Q_{STD}$ = 40 $ft^3$/min. (inch $H_2O$) |
|---|---|
| 1534(04/2002) | $\triangle H_a = 18.0(T_a/P_a)$ = |
| ✓ 1535(09/2003) | $\triangle H_a = 18.2(T_a/P_a)$ = 5.31 |

Manometer reading before calibration: 5.60
Adjustment of flow controller (Y/N): Y
Manometer reading after calibration: 5.30

Note: Tolerance Limit of HVAS flow: ± 1.0 $ft^3$/min. Corresponding limits for manometer : ± 0.2 inch $H_2O$

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: | 17-11-2003 | Hour of Visit: | 1120 |
| Staff name: | W L MAK/H.K TSANG | HVAS S/N: | 2195 |
| Used filter paper no.: | LQ33 | New filter paper no.: | LQ35 |
| Type of filter: | Glass-fibre | | |

## I. Ambient Conditions

Temperature, $T_a$ = 23.5+273 / 296.5 K Pressure, $P_a$ = 1017 mb

## II. Correction of manometer reading

| Calibration orifice No. | Manometer reading at site conditions corresponds to $Q_{STD}$ = 40 $ft^3$/min. (inch $H_2O$) |
|---|---|
| 1534(04/2002) | $\Delta H_a = 18.0(T_a/P_a)$ = |
| ✓ 1535(09/2003) | $\Delta H_a = 18.2(T_a/P_a)$ = 5.31 |

Manometer reading before calibration: 5.50
Adjustment of flow controller (Y/N): Y
Manometer reading after calibration: 5.30

Note: Tolerance Limit of HVAS flow: ± 1.0 $ft^3$/min. Corresponding limits for manometer : ± 0.2 inch $H_2O$

## III. General Conditions of HVAS

## IV. Remarks

PARTISOL TSP SAMPLER
SITE VISIT LOG SHEET

Site Name: ASH LAGOON  Site Number: AM 3

Date of Visit: 17-11-2003  Hour of Visit: 1145

Staff Name: W. L. MAK  Partisol S/N: 2000B20[1001

Used Filter No.: PB 66  New Filter No.: PB67

Ambient temperature: 23.9  Ambient pressure: 1017

I. General Services

1. Replace control unit Large In-line Filter X
2. Clean the sample inlet head ✓
3. Clean sample tube ✓
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 ± 2°C)**

_____ °C Calibration: ~~Y~~ / **N** _____ °C
Before After

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

_____ mbar Calibration: **Y / N** _____ mbar
Before After

3. Flow Check **(16.7± 1.1 litre/min)**

_____ l/min Calibration: **Y / N** _____ l/min
Before After

III. Remarks

_____

_____

_____

_____

MINI VOLUME AIR SAMPLER

SITE VISIT LOG SHEET

| | | | |
|---|---|---|---|
| Site Name: | TY V | Site No.: | AM4 |
| Date of visit: | 17-11-03 | Hour of Visit: | 10:55 |
| Staff name: | H.K.TSANG | MINIVOL S/N: | 903 |
| Used filter paper no.: | M646 | New filter paper no.: | M645 |

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

5035 Before 5000 After

II. General Service of Mini Vol Air Sampler

1. Clean Rotameter: ✓
2. Clean / replace Pump Valves: X
3. Clean / replace Pump Diaphragms: X
4. Clean Impaction Inlet: X
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 : NOV Year : 2003

| 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) |
| 2-11-03 | 253.84 | 0.033 | 4 | 1.00 | 15.68 |
| 8-11-03 | 253.43 | 0.034 | 4 | 1.00 | 15.67 |
| 14-11-03 | 253.13 | 0.036 | 4 | 1.00 | 15.69 |
| 20-11-03 | 254.53 | 0.034 | 4 | 1.00 | 15.68 |
| 26-11-03 | 254.54 | 0.037 | 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) |
| 2-11-03 | 248.24 | 0.047 | 4 | 0.99 | 15.64 |
| 8-11-03 | 247.58 | 0.035 | 4 | 1.00 | 15.63 |
| 14-11-03 | 247.29 | 0.039 | 4 | 1.00 | 15.63 |
| 20-11-03 | 247.00 | 0.046 | 4 | 0.99 | 15.63 |
| 26-11-03 | 247.04 | 0.035 | 4 | 1.00 | 15.65 |

| 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) |
| 2-11-03 | 254.94 | 0.043 | 4 | 0.99 | 15.64 |
| 8-11-03 | 254.31 | 0.045 | 4 | 0.99 | 15.64 |
| 14-11-03 | 254.05 | 0.042 | 4 | 1.00 | 15.64 |
| 20-11-03 | 253.35 | 0.044 | 4 | 0.99 | 15.64 |
| 26-11-03 | 253.03 | 0.034 | 4 | 0.99 | 15.64 |

| 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:

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 14-11-03 Time 11:25

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

Serial Number 00~~111465/00111466/00111467*~~ 2343838

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

1. Calibration

   Acoustic calibrator used 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 17-11-03 Time 10:20

Equipment Rion NA-27 Sound Level Meter

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

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

1. Calibration

   Acoustic calibrator used 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

## 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<br>Inform Engineer and IEC verbally<br>Repeat measurement to confirm finding | Check monitoring data submitted by ET and advise Engineer. | Notify Contractor<br>Checking monitoring data and contractor's working methods | Rectify any unacceptable practice<br>amend any working methods if appropriate |
| Exceedance of two or more consecutive samples | Identify source<br>Inform Engineer and IEC verbally<br>Repeat measurement to confirm finding<br>Increase monitoring frequency<br>Discuss with Engineer and Contractor on remedial actions required<br>If exceedance continues, arrange meeting with Engineer<br>If exceedance stops, discontinue additional monitoring | Check monitoring data submitted by ET and advise Engineer.<br>Provide feedback to the Engineer on the remedial actions proposed by the ET / Contractor<br>Advise Engineer on the effectiveness of the proposed remedial measures<br>Verify the implementation of the remedial measures | Confirm receipt of notification of failure in writing<br>Notify contractor<br>Checking monitoring data and contractor's working methods<br>Discuss proposed remedial actions with the ET and Contractor<br>Ensure remedial actions properly implemented | Submit proposals for remedial actions to Engineer within 3 working days of notifications<br>Implement the agreed proposals<br>Amend proposal if appropriate |
| **Limit level** | | | | |
| Exceedance of one sample | Repeat measurement to confirm finding.<br>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.<br>Increase monitoring frequency to daily<br>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<br>Provide feedback to the Engineer on the remedial actions proposed by the ET / Contractor<br>Advise Engineer on the effectiveness of the proposed remedial measures<br>Verify the implementation of the remedial measures | Confirm receipt of notification of failure in writing<br>Notify Contractor<br>Checking monitoring data and Contractor's working method<br>Discuss with ET and Contractor on remedial actions to be provided<br>Ensure remedial measures properly implemented | Take immediate action to avoid further exceedance<br>Submit proposals for remedial actions to Engineer within 3 working days of notifications<br>Implement the agreed proposals<br>Amend proposal if appropriate |

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

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.<br><br>If the complaint is valid, inform Engineer and IEC verbally.<br><br>Identify the source(s) of the noise.<br><br>Discuss remedial actions required with Contractor and Engineer.<br><br>Increase manual monitoring frequency to assess efficacy of remedial measures.<br><br>If exceedance continues, review implementation of appropriate mitigation measures. | Review the analysed results submitted by the ET.<br><br>Review the remedial measures proposed by the Contractor and advise the Engineer and ET accordingly.<br><br>Verify the implementation of the remedial measures. | Notify Contractor of the complaint if proven.<br><br>Check Contractor's working methods and advise IEC and ET accordingly.<br><br>Remind the Contractor of his contractual obligations and discuss remedial actions.<br><br>Keep the Contractor informed of the efficacy of remedial actions. | Submit proposals for remedial actions to Engineer.<br><br>Amend proposals if required by the Engineer.<br><br>Implement the remedial actions immediately upon instruction from the Engineer.<br><br>Liaise with the Engineer to optimise the effectiveness of the agreed mitigation. |
| **Limit Level** | Repeat manual measurement/check monitoring data to confirm findings.<br><br>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.<br><br>Discuss remedial actions required with Engineer.<br><br>Increase manual monitoring frequency to assess efficacy of remedial measures. | Agree potential remedial actions with Engineer, ET and Contractor.<br><br>Review Contractor’s remedial actions / measures to ensure their effectiveness and advise the Engineer and ET accordingly.<br><br>Verify the implementation of the remedial measures | Notify Contractor of exceedance.<br><br>Check Contractor's working methods and advise IEC and ET accordingly.<br><br>Discuss with Contractor the remedial actions to be implemented.<br><br>Keep the Contractor informed of the efficacy of remedial actions.<br><br>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 | Take immediate action to avoid further exceedance.<br><br>Submit proposals for remedial actions to Engineer.<br><br>Amend proposals if required by the Engineer.<br><br>Implement remedial actions immediately upon instruction from the Engineer.<br><br>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 | Verbally inform the Contractor, and IEC.<br>Repeat in-situ measurement to confirm findings;<br>Identify source(s) of impact;<br>Check monitoring data, all plant, equipment and Contractor's working methods;<br>Discuss mitigation measures with Engineer and Contractor;<br>Repeat measurement on next day of exceedance. | Provide feedback to the Engineer on the remedial actions proposed by the ET / Contractor<br>Advise Engineer on the effectiveness of the proposed remedial measures<br>Verify the implementation of the remedial measures | Discuss with Contractor the proposed mitigation measures;<br>Make agreement on the mitigation measures to be implemented;<br>Assess the effectiveness of the implemented mitigation measures. | Inform the Engineer and confirm notification of the non-compliance in writing;<br>Rectify unacceptable practice;<br>Check all plant and equipment;<br>Consider changes of working methods;<br>Propose and discuss mitigation measures with Engineer;<br>Implement the agreed mitigation measures. |
| Action level exceeded on more than one consecutive sampling day | Repeat in-situ measurements to confirm findings;<br>Identify source(s) of impact;<br>Inform Contractor and IEC;<br>Check monitoring data, all plant, equipment and Contractor's working methods;<br>Discuss mitigation measure with Engineer and Contractor;<br>Ensure mitigation measures are implemented;<br>Prepare to increase the monitoring frequency to daily;<br>Repeat measurement on next day of exceedance. | Provide feedback to the Engineer on the remedial actions proposed by the ET / Contractor<br>Advise Engineer on the effectiveness of the proposed remedial measures<br>Verify the implementation of the remedial measures | Discuss with ET and Contractor on the proposed mitigation measures;<br>Make agreement on the mitigation measures to be implemented;<br>Assess the effectiveness of the implemented mitigation measures. | Inform the Engineer and confirm notification of the non-compliance in writing;<br>Rectify unacceptable practice;<br>Check all plant and equipment; Consider changes of working methods;<br>Propose mitigation measures to Engineer within 3 working days and discuss with ET and Engineer;<br>Implement the agreed mitigation measures. |

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

# 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: 5/11/03 Time: 15:00 Inspected By: ET: C. F. Lee; Contractor: Dennis Liu

Site: LMX - Site Formation

Weather

Condition: [/] Sunny [ ] Fine [ ] Overcast [ ] Hazy [ ] Drizzle [ ] Rain [ ] Storm

Temperature: [25] °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?<br>a) Mitigation by portable noise barriers at noise sources or<br>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) | ☐ Traffic | ☑ Construction activities inside the site | | | |
| | | ☐ Construction activities outside the site | ☐ Others _____ | | | |

**Abbreviation**

| | | | |
|---|---|---|---|
| VEP: | Varied Environmental Permit | | |
| WMP: | Waste Management Plan | EM&A: | EM&A Manual (Construction Phase) |
| Cap311R: | APC (Construction Dust) Regulation | NCO: | Noise Control Ordinance |
| Cap311O: | APC (Open Burning) Regulation | WDO: | Waste Disposal Ordinance |
| 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: | (Name in Block letters: |
| C. F. Lee ) | 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: 12/11/03 Time: 15:00 Inspected By: ET: C.F. Lee; Contractor: W.K. Lai

Site: LMX - Site Formation

## Weather

Condition: [✓] Sunny [ ] Fine [ ] Overcast [ ] Hazy [ ] Drizzle [ ] Rain [ ] Storm

Temperature [25] °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?<br>a) Mitigation by portable noise barriers at noise sources or<br>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) | ☐ Traffic | ☑ Construction activities inside the site | | | |
| | | ☐ Construction activities outside the site | ☐ Others _____ | | | |

**Abbreviation**

| | | | |
|---|---|---|---|
| VEP: | Varied Environmental Permit | | |
| WMP: | Waste Management Plan | EM&A: | EM&A Manual (Construction Phase) |
| Cap311R: | APC (Construction Dust) Regulation | NCO: | Noise Control Ordinance |
| Cap311O: | APC (Open Burning) Regulation | WDO: | Waste Disposal Ordinance |
| 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 |
|---|---|
| (Name in Block letters: | (Name in Block letters: |
| C.F. Lee | HUI WAI KWONG |

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: 19/11/03 Time: 15:00 Inspected By: ET: C.F. Lee; Contractor: W.K. Hui

Site: LMX - Site Formation

## Weather

Condition: [✓] Sunny [ ] Fine [ ] Overcast [ ] Hazy [ ] Drizzle [ ] Rain [ ] Storm

Temperature: 24 °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?<br>a) Mitigation by portable noise barriers at noise sources or<br>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): ☐ Traffic | | ☐ Construction activities inside the site | | | |
| | ☐ Construction activities outside the site | | ☐ Others _____ | | | |

**Abbreviation**

| | | | |
|---|---|---|---|
| VEP: | Varied Environmental Permit | | |
| WMP: | Waste Management Plan | EM&A: | EM&A Manual (Construction Phase) |
| Cap311R: | APC (Construction Dust) Regulation | NCO: | Noise Control Ordinance |
| Cap311O: | APC (Open Burning) Regulation | WDO: | Waste Disposal Ordinance |
| 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: | (Name in Block letters: |
| C.F. Lee | HUI WAI KWONG |

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: 26/11/03 Time: 15:00 Inspected By: ET: THOMAS LI; Contractor: BEN CHAN

Site: LMX - SITE FORMATION

## Weather

Condition: [ ] Sunny [/] Fine [ ] Overcast [ ] Hazy [ ] Drizzle [ ] Rain [ ] Storm

Temperature: 22 °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?<br>a) Mitigation by portable noise barriers at noise sources or<br>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) ☐ Traffic | ☑ Construction activities inside the site | | | | |
| | ☐ Construction activities outside the site | ☐ Others _____ | | | | |

**Abbreviation**

| | | | |
|---|---|---|---|
| VEP: | Varied Environmental Permit | | |
| WMP: | Waste Management Plan | EM&A: | EM&A Manual (Construction Phase) |
| Cap311R: | APC (Construction Dust) Regulation | NCO: | Noise Control Ordinance |
| Cap311O: | APC (Open Burning) Regulation | WDO: | Waste Disposal Ordinance |
| 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 |
|---|---|
| ...e in Block letters: | (Name in Block letters: |
| THOMAS LI | [illegible] |

11th November 2002

# 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 or 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 | 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:<br>• reducing the number of dredgers working at any one time;<br>• reducing the rate of working of the dredgers;<br>• temporary suspension of operations;<br>• phasing of the works so that dredging / filling is only undertaken at certain stages of the tidal cycle. | N/A |
| B7 | In addition to the above specific measures the following general working procedures shall be adopted. | |
| | • fully-enclosed or watertight grabs shall be used to minimise loss of sediment during the raising of loaded grabs through the water column; | N/A |
| | • the descent speed of grabs shall be controlled to minimise the seabed impact speed and to reduce the volume of over dredging; | N/A |
| | • barges shall be loaded carefully to avoid splashing of material; | N/A |
| | • 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; | N/A |
| | • 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; | N/A |
| | • the speed of trailer dredgers shall be controlled to prevent propeller wash from stirring up the sea bed sediments; | N/A |
| | • "rainbowing" sand fill from trailer dredgers shall not be permitted; and | N/A |
| | • 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. | 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 PMEs 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: | |
| | • Use rubble mound seawall along south and west edges of the reclamation to provide a more natural look. | N/A |
| | • Break the mass of main buildings by varying the height/division into smaller units. | N/A |
| | • Plant trees and vegetation for screening. | N/A |
| | • Adopt colour scheme to blend the buildings into the scenery. | 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 |
| | *Dredging Waste* | |
| 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 |
| | *Storage, Collection and Transport of Waste* | |
| E3 | • Minimise windblown litter and dust during transportation by either covering trucks or transporting wastes in enclosed containers. | N/A |
| | • 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. | C |
| | • Disposal of waste at Licensed sites; | C |
| | • 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; | N/A |
| | • Segregate and sort the waste materials into 3 categories:<br>  • public fill (e.g. concrete and rubble) for re-use on-site or disposal at a public filling area;<br>  • re-use and/or recycling waste (e.g. steel and other metals);<br>  • waste which cannot be re-used and/or recycled (e.g. wood, glass and plastic) for landfill disposal.<br>  • 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. | N/A |
| | • Maintain records of the quantities of wastes generated and disposed off-site for each category of waste. | 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: | |
| | • all debris or materials shall be either covered or stored in a debris sheltered collection area; | N/A |
| | • prior to any material handling, all dusty material shall be sprayed with water. | N/A |
| | | |
| | **WATER QUALITY** | |
| K1 | No mitigation measures are considered necessary. | N/A |
| | | |
| | **NOISE** | |
| L1 | N4-N5 Cable Route<br>Selection and use of quiet PMEs, or use of modest source noise controls with standard PMEs | N/A |
| L2 | N5 Landing Point<br>Selection and use of quiet PMEs (particularly the barge-mounted crane), or use of comparably effective source noise controls with the PMEs; | N/A |
| 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**<br>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 *Celtis biondii, Pteris dispar* and *Ardicia pusilla*, and the restricted plants *Vitis balansaeana, Pterospermum heterophyllum* and *Rhapis excelsa*, 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 | The proposed landing points N2, N4 and N5, the following landscaping mitigation measures are recommended to minimize the potential impacts: | |
| | • 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. | N/A |
| | • 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. | N/A |
| | • Appropriate compensatory landscaping shall be provided for any disruption to existing vegetation to blend in with the surrounding setting. | N/A |
| | • 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 |

Remarks:

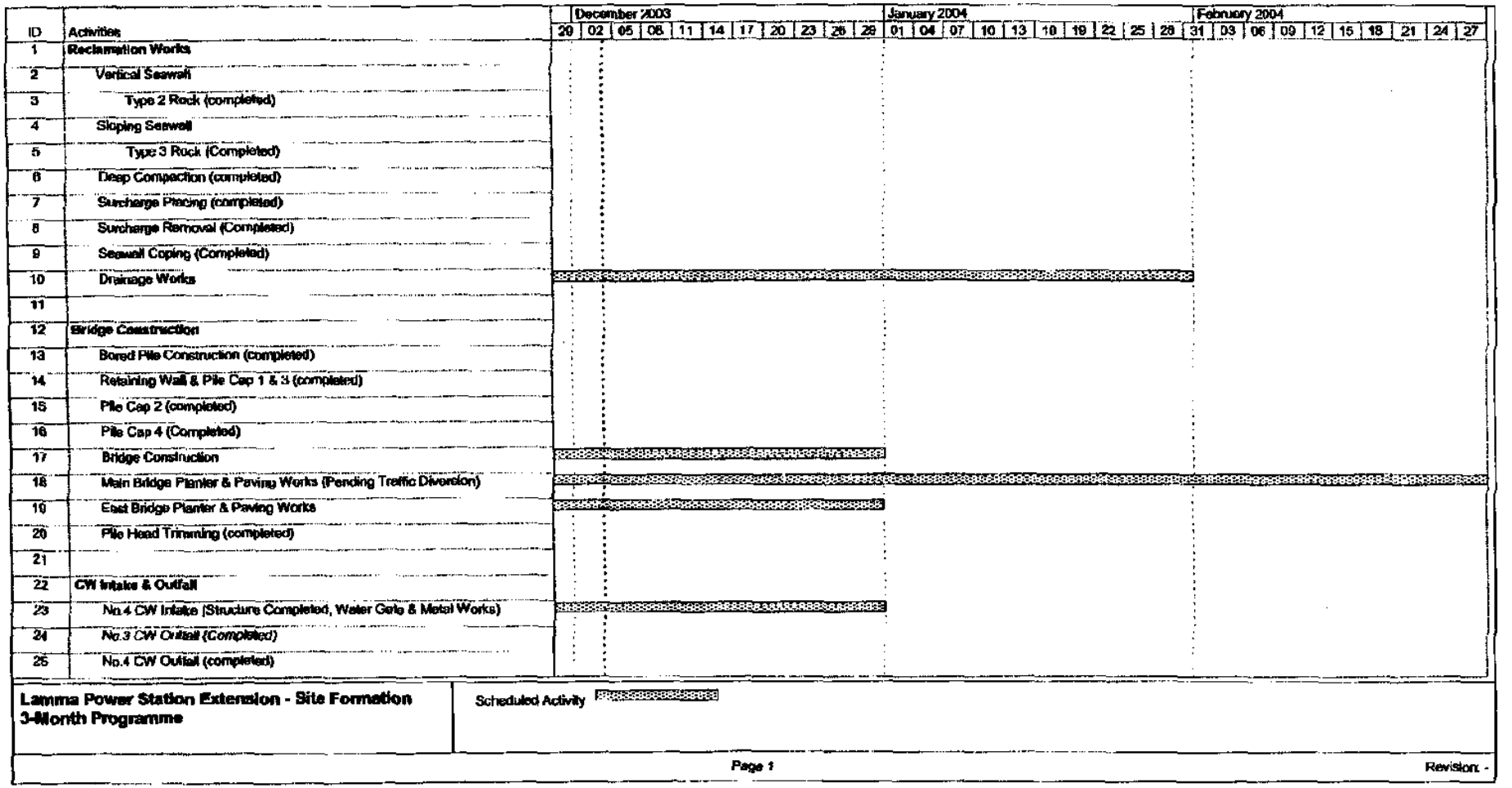
C - Compliance with mitigation measure

NC - Non-compliance with mitigation measure

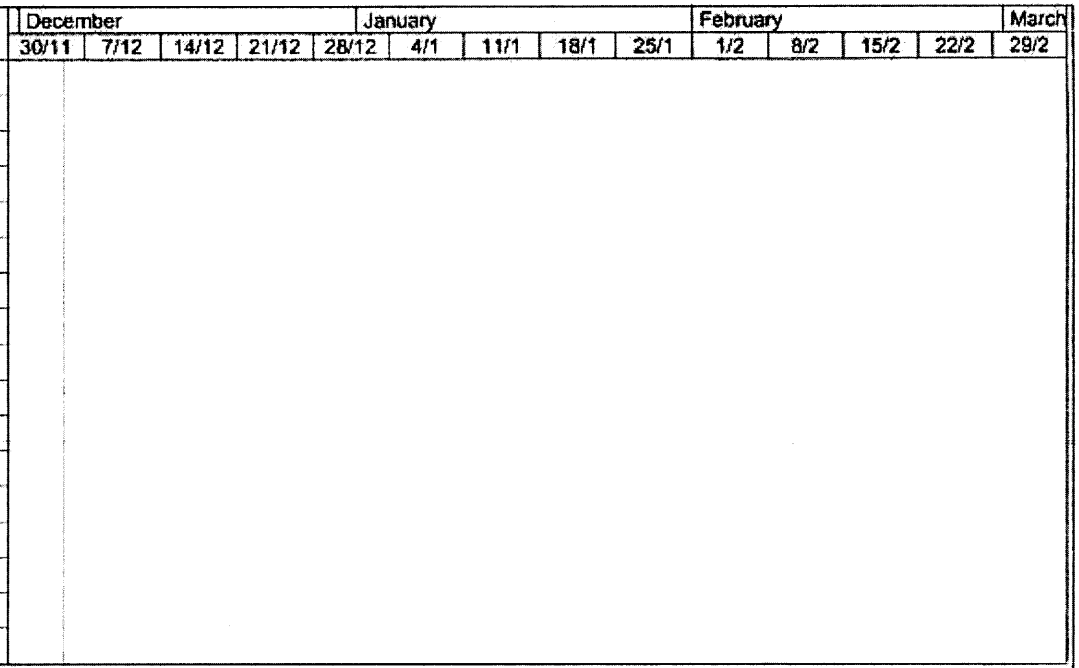
N/A - Not Applicable

# Appendix J

## Tentative Construction Programme


ID
Activities
December 2003
January 2004
February 2004
20 02 05 08 11 14 17 20 23 26 29 01 04 07 10 13 16 19 22 25 28 31 03 06 09 12 15 18 21 24 27
1 Reclamation Works
2 Vertical Seawall
3 Type 2 Rock (completed)
4 Sloping Seawall
5 Type 3 Rock (Completed)
6 Deep Compaction (completed)
7 Surcharge Placing (completed)
8 Surcharge Removal (Completed)
9 Seawall Coping (Completed)
10 Drainage Works
11
12 Bridge Construction
13 Bored Pile Construction (completed)
14 Retaining Wall & Pile Cap 1 & 3 (completed)
15 Pile Cap 2 (completed)
16 Pile Cap 4 (Completed)
17 Bridge Construction
18 Main Bridge Planter & Paving Works (Pending Traffic Diversion)
19 East Bridge Planter & Paving Works
20 Pile Head Trimming (completed)
21
22 CW Intake & Outfall
23 No.4 CW Intake (Structure Completed, Water Gate & Metal Works)
24 No.3 CW Outfall (Completed)
25 No.4 CW Outfall (completed)
Lamma Power Station Extension - Site Formation
3-Month Programme
Scheduled Activity
Page 1
Revision -

| ID | Task Name | Start | Finish |
|---|---|---|---|
| 1 | **Civil Works** | | |
| 2 | Within Lamma Power Station | | |
| 3 | Construction of Cable Ducts | Sat 1/1/05 | Tue 31/10/06 |
| 4 | Construction of Cable Duct North Portal | Sat 15/4/06 | Mon 15/5/06 |
| 5 | | | |
| 6 | Yung Shue Wan South | | |
| 7 | Construction of Cable Landing Points | Sat 1/1/05 | Mon 31/10/05 |
| 8 | Construction of Cable Ducts South Portal | Sat 15/4/06 | Tue 31/10/06 |
| 9 | | | |
| 10 | Pak Kok San Tsuen | | |
| 11 | Construction of Cable Landing Points | Sat 1/1/05 | Mon 31/10/05 |
| 12 | Construction of Cable Trenches | Sat 15/4/06 | Thu 31/8/06 |
| 13 | Construction of Cable Duct & South Portal | Sat 1/1/05 | Fri 30/6/06 |
| 14 | | | |
| 15 | Pak Kok Tsui | | |
| 16 | Construction of Cable Landing Points | Sat 1/1/05 | Tue 31/10/06 |
| 17 | Construction of Cable Ducts North Portal | Mon 3/7/06 | Tue 31/10/06 |




Additional Transmission System for Lamma Power Station
275kV Cable Route from Lamma Island to Cyberport
3-Month Programme

Task
Split
Progress
Milestone
Summary
Project Summary
External Tasks
External Milestone
Deadline