

Hongkong International Theme Parks Ltd

Environmental Monitoring and  
Audit for the Operation of The  
Hong Kong Disneyland Resort:  
*Monthly Environmental Monitoring  
and Audit Report for 30<sup>th</sup> Operating  
Month (12 February 2008 – 11 March 2008)*

March 2008

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MONTHLY ENVIRONMENTAL  
MONITORING & AUDIT REPORT

Hongkong International Theme Parks Ltd

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31<sup>th</sup> March 2008

Reference 0055800

For and on behalf of Environmental Resources Management
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Date: <u>31 March 2008</u>

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## **EXECUTIVE SUMMARY**

Hongkong International Theme Parks Ltd (HKITP) started the operation of the Hong Kong Disneyland Resort on 12 September 2005. This is the thirtieth monthly Environmental Monitoring and Audit (EM&A) report presenting the EM&A works carried out during the period from 12 February 2008 to 11 March 2008 in accordance with the Operational EM&A Plan approved under EP-01/059/2000/B.

### Summary of Major Activities during Reporting Period

The major activities undertaken in the Theme Park were operation of theme attractions, rides, fireworks displays, ancillary restaurants, retail shops and servicing facilities. Office works and regular maintenance of machinery within the Theme Park were also undertaken in the Back-of-House Area.

### Changes Identified in the Reporting Period

There were no changes in the provision of service and environmental condition.

### Summary of Breaches of A/L Levels

No exceedance of Action and Limit Levels for fireworks noise and fixed plant noise monitoring were recorded during the reporting period.

### Waste Management

HKITP has followed the approved Operational Waste Management Plan (OWMP) for handling of municipal solid waste, chemical waste, grease trap wastes, food waste, green waste and fireworks waste. A recycling programme has been implemented to collect various types of recyclables. HKITP has also implemented different waste minimisation measures for preventing waste generation at source.

### Environmental Site Auditing

A joint environmental site audit was carried out by the representatives of the HKITP and ET in the reporting period. The environmental performance for the different environmental issues (including air, water, noise, ecology and waste/chemical waste management) complied with environmental requirements and all necessary mitigation measures are properly implemented. No non-compliance in relation to the EIA recommendations was identified during the site inspection in the reporting period.

### Environmental Complaint

No environmental complaint was received in this reporting period.

### Environmental Non-compliance

No non-compliance associated with the operation of the resort was recorded in this reporting period.

No environmental summons was received in this reporting period.

### Future Key Issues

Entertainment facilities and associated services within the Theme Park that will be provided in the coming monitoring period are the same as that provided in this reporting period. No potential environmental impacts are anticipated in the coming monitoring period.

# 1 INTRODUCTION

## 1.1 PURPOSE OF THE REPORT

This is the thirtieth Environmental Monitoring and Audit (EM&A) report which summarizes the monitoring results and audit findings for the EM&A programme for the operation of the Hong Kong Disneyland Resort (the Resort) during the reporting period from **12 February 2008** to **11 March 2008**.

## 1.2 PROJECT INFORMATION

The project background, duration, site description and management structure are all detailed in Section 2 of the first Monthly EM&A Report, and the organization and lines of communication with respect to environmental matter are shown in Section 1 of the fourteenth Monthly EM&A Report.

## 1.3 STRUCTURE OF THE REPORT

The structure of the report is as follows:

### Section 1 : **Introduction**

details the scope and structure of the report.

### Section 2 : **Environmental Monitoring Requirement**

summarizes the monitoring parameters, locations, dates, times, frequencies and durations, monitoring methodology in accordance with the requirement stipulated in the EIA report and Operational EM&A Plan.

### Section 3 : **Monitoring Results**

summarizes the monitoring results, weather conditions, QA/QC results and the data analysis for the reporting period.

### Section 4 : **Environmental Site Auditing**

summarizes the audit findings of the monthly site inspection undertaken within the reporting period and future key issues.

### Section 5 : **Environmental Non-conformance**

summarizes any monitoring exceedance, non-compliances, environmental complaints and environmental summons within the reporting period.

### Section 6 : **Conclusions and Recommendations**

It was recommended in the Environmental Impact Assessment for “Construction of an International Theme Park in Penny’s Bay of North Lantau and its Essential Associated Infrastructures” (EIA Report) and stated in the Operational EM&A Plan (Revision C) that operation monitoring associated with Resort operation should be conducted for the following parameters:

- Fireworks Air Quality for the first year of the operation
- Fireworks Noise and Fixed Plant Noise from Resort
- Waste Management
- Terrestrial Ecology (White Bellied Sea Eagles) for the first 2 years of the operation
- Marine Ecology (Dolphins and Porpoise)

The EM&A requirements for these parameters are summarised in this section.

## 2.1 FIREWORKS AIR QUALITY

Air quality monitoring during the first operational year was conducted once every 2 weeks in the first 2 months of operation and once every three months thereafter. Samples for RSP, barium, copper, and dioxins were collected over a 24-hour period, the same as in the baseline sampling. A total of eight sets of air monitoring were conducted in the first year of operation and the monitoring results are available on the Operational EM&A web-site for the Resort (<http://www.themeparkatpennysbay-op.com.hk/>). As recommended in the EIA Report, future monitoring programme after the first operational year should be developed based on the monitoring results in the first year of operation.

The Annual Review Report for the first year of operation with respect to air quality and the proposal of the monitoring program for the second year of operation was submitted to the Environmental Protection Department (EPD) on 21 November 2006, and the revised Operational EM&A Plan (Revision B) was approved by the EPD on 26 January 2007. Air quality monitoring during the third year of operation has been reviewed and the revised Operational EM&A Plan (Revision C) was approved by the EPD on 19 December 2007. The following sections describe the proposed monitoring programme for air quality during the third operational year of the Resort.

### 2.1.1 Monitoring Locations

The designated air quality monitoring locations are described in *Table 2.1*.

*Table 2.1 Air Quality Monitoring Location*

Station ID	Description
AM1	Rooftop of Crestmont Villa Management Office, Discovery Bay
AM2	Rooftop of Peng Lai Court, Peng Chau <sup>(1)</sup>

Station ID	Description
Remark:	(1) The Owners' Corporation of Peng Lai Court recently refused the Environmental Team to conduct any air quality monitoring at Peng Lai Court in future with residents expressed concern on the nuisance from the operation of the high volume sampler. An alternative location for this air quality monitoring station is being investigated by the Environmental Team. Approval for the alternative location will be sought from the EPD once identified and access is granted by the owner.

*AM1 - Crestmont Villa Management Office, Discovery Bay*

Crestmont Villa Management Office (AM1) is a single storey high building, located approximately 2.7 km from the main launch area. The monitoring location was set at the rooftop approximately 5 m above the ground level, as shown in *Figure 2.1*.

**Figure 2.1** *AM1 - Air Quality Monitoring Location at Discovery Bay*

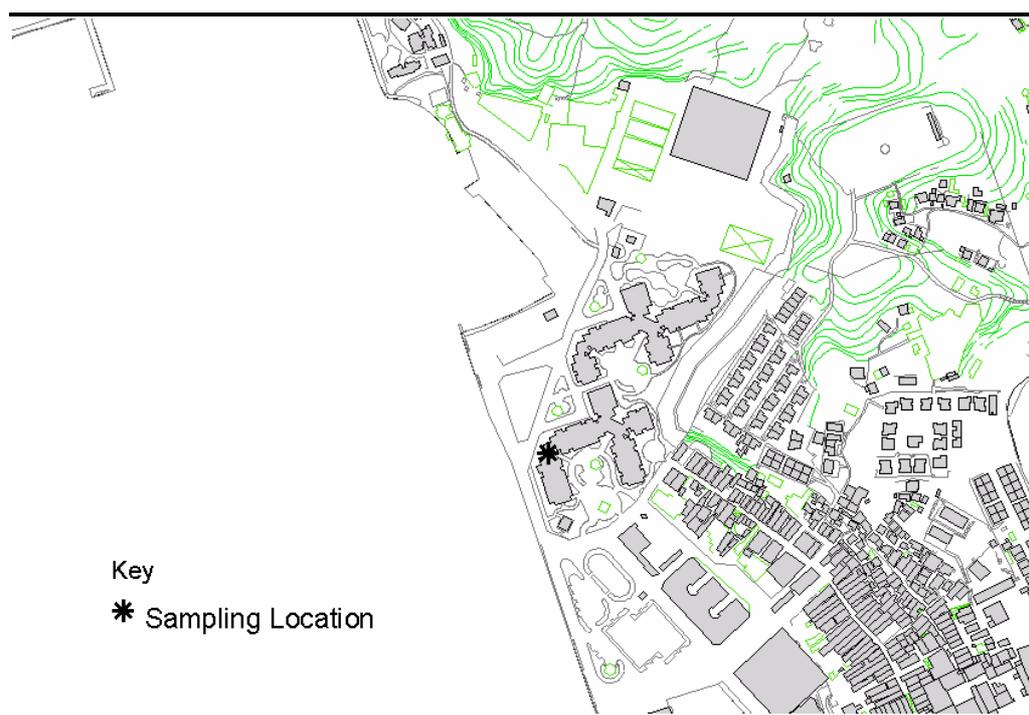


*AM2 - Peng Lai Court, Peng Chau*

Peng Lai Court (AM2) is a 5 to 6 storey high building, located approximately 2.8km from the main launch area. The monitoring location was set at the rooftop approximately 15 m above the ground level, as shown in *Figure 2.2*.

The Owners' Corporation of Peng Lai Court recently refused the Environmental Team to conduct any air quality monitoring at Peng Lai Court in future with residents expressed concern on the nuisance from the operation of the high volume sampler. An alternative location for this air quality monitoring station is being investigated by the Environmental Team. Approval for the alternative location will be sought from the EPD once identified and access is granted by the owner.

Figure 2.2 AM2 - Air Quality Monitoring Location at Peng Chau



**2.1.2 Monitoring Parameter and Equipment**

*Respirable Suspended Particulates*

24-hour Respirable Suspended Particulates (RSP) monitoring will be performed using an Anderson High Volume Sampler (HVS) equipment with PM<sub>10</sub> inlet located at the designated monitoring location in Discovery Bay.

**2.1.3 Monitoring Frequency and Duration**

Sample for RSP will be collected over a 24-hour period in accordance with the schedule as presented in *Table 2.2*.

**Table 2.2 Sampling Schedule for Air Quality Monitoring**

Parameters	Sampling Time (hours)	Methodology	Frequency	Locations
RSP	24	USEPA Method IO-2.1	Once every three months throughout the third year of operation	AM1 & AM2

**2.1.4 RSP Sampling and Analytical Method**

The measurement of RSP will be conducted in accordance with USEPA method IO-2.1 <sup>(1)</sup>. A total RSP will be quantified using a high volume sampler (HVS) run continuously over a 24 hr period. The following specifications are required:

<sup>(1)</sup> Reference to <http://www.epa.gov/ttn/amtic/files/ambient/inorganic/mthd-2-1.pdf>

- 0.6-1.7 m<sup>3</sup>min<sup>-1</sup> (20-60 SCFM) adjustable flow range;
- timing/control device for 24 hr operation (+/- 2 min accuracy);
- elapsed timer for 24 hr operation (+/- 2 min accuracy);
- minimum exposed area of 406 cm (63 in');
- flow control accuracy of +/- 2.5% deviation over 24 hr period;
- electronic mass flow rate controller;
- flow recorder for continuous monitoring;
- peaked roof inlet;
- incorporated with a manometer; and
- ability to hold and seal the filter paper to the sampler housing at horizontal position.

## 2.2 COMPLIANCE ASSESSMENT

The Action and Limit levels for 24-hour RSP monitoring are presented in *Table 2.3*.

*Table 2.3 Action and Limit Levels for Air Quality Monitoring*

Monitoring Station	24-hour RSP (µg/m <sup>3</sup> )	
	Action Level	Limit Level
AM1	106	180
AM2	104	180

## 2.3 FIREWORKS NOISE AND FIXED PLANT NOISE

During the operational phase, it is recommended that noise monitoring is undertaken at one on-site location and two off-site locations in order to assess fixed plant noise and noise from the fireworks displays respectively. The following sections describe the requirements for noise monitoring during the operational phase of the park.

### 2.3.1 Monitoring Locations

The noise monitoring locations are summarised in *Table 2.4*.

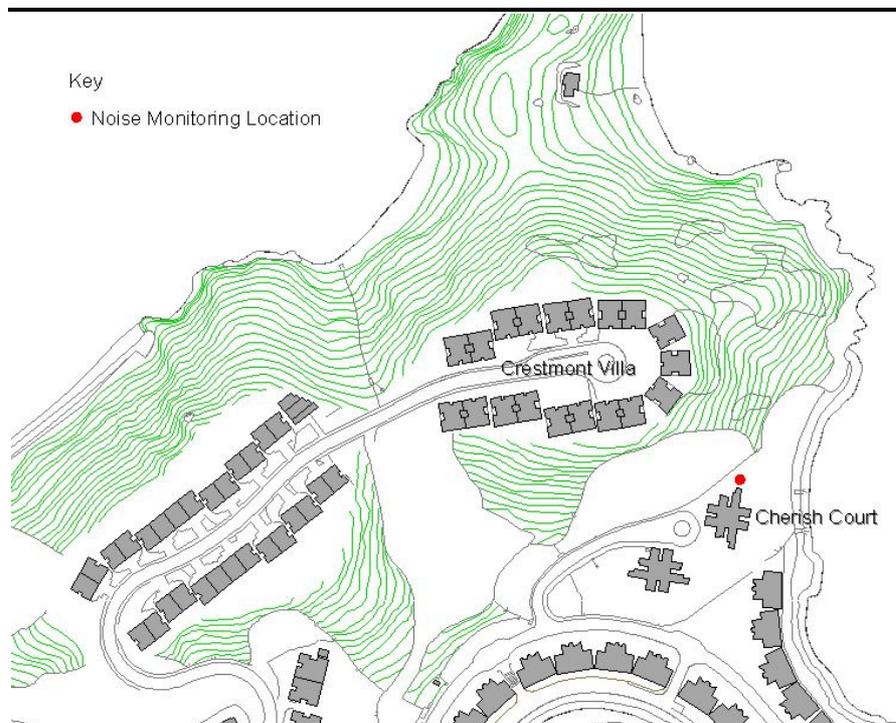
*Table 2.4 Noise Monitoring Station*

NSR No.	Identity/Description	Parameters
NM1	Rooftop of Cherish Court, Discovery Bay	Noise from Fireworks
NM2	Tai Lei, Peng Chau	Noise from Fireworks
NM4	Rooftop of the Central Maintenance Building	Fixed plant noise

*NM1 - Rooftop of Cherish Court, Discovery Bay*

Cherish Court is located approximately 2.4 km from the main launch area. The façade measurement location was set at rooftop of Cherish Court approximately 53 m above the ground level, with an unobstructed view over looking HKDL. The monitoring location of the equipment set up is presented in *Figure 2.3*.

**Figure 2.3** *NM1 – Rooftop of Cherish Court, Discovery Bay*



*NM2 - Tai Lei, Peng Chau*

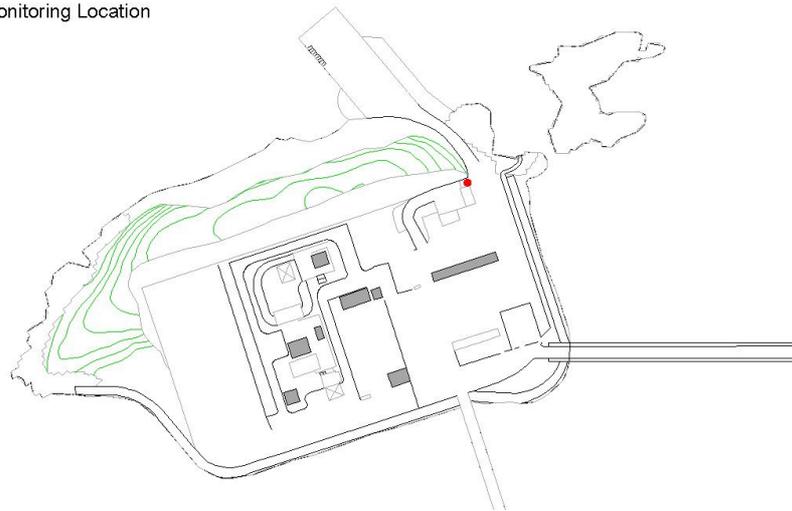
The Tai Lei, Peng Chau is located approximately 2.7 km from the main launch area. The façade measurement location was set at 1.2 m above the ground level with a direct view over looking HKDL. The monitoring location of the equipment set up is presented in *Figure 2.4*.

**Figure 2.4**    *NM2 – Tai Lei, Peng Chau*

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Key

• Noise Monitoring Location



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*NM4 – Rooftop of the Central Maintenance Building*

The rooftop of the Central Maintenance Building is about 9m above ground levels and will have an unshielded position overlooking the Resort. The monitoring location of the equipment set up is presented in *Figure 2.5*.

Figure 2.5 NM4 – Rooftop of Central Maintenance Building



### 2.3.2 Monitoring Parameters

#### *Fixed Plant Noise*

For fixed plant noise, six consecutive monitoring of  $L_{Aeq, 5 \text{ min}}$  reading were carried out to calculate the  $L_{Aeq, 30 \text{ min}}$  noise level.

#### *Fireworks Noise*

For fireworks noise, a  $L_{Aeq, 15 \text{ min}}$  measurement was taken for the 15 minutes timeframe that included all fireworks noise levels. Any significant influences on the measured noise levels were taken into account in accordance with standard acoustical principles and practices. The Corrected Noise Level created by the fireworks was computed based on the Background Noise Level and Measured Noise Level.

### 2.3.3 Monitoring Frequency and Duration

Following any significant changes to the park's operations or fireworks displays (such as the introduction of a new ride or a change in the type or number of fireworks included within the display), fixed plant noise and fireworks noise monitoring will be undertaken once every six days for one

month to ensure compliance with the noise criteria. At all other times, noise monitoring of fixed plant and fireworks noise will be undertaken once a month.

The monitoring programme is presented in *Table 2.5*.

**Table 2.5** *Sampling Schedule for Noise Monitoring*

Parameters	Sampling Time	Methodology	Frequency	Locations
Firework Noise	$L_{Aeq, 15min}$ before, during and after the firework show within the period of 19:00 to 21:30	IEC 651:1979 and 804:1985 (Type 1)	<ul style="list-style-type: none"> <li>once every 6 days for the first month of operation, thereafter once every month throughout the first year of operation.</li> <li>monitoring will be undertaken once every six days for one month when there is a new ride or a change in the type or number of fireworks included within the display</li> </ul>	NM1 & NM2
Fixed Plant Noise	6 consecutive monitoring of $L_{Aeq, 5 min}$ before 19:00	IEC 651:1979 and 804:1985 (Type 1)		NM4

### 2.3.4 *Monitoring Methodology*

Facade noise measurements were carried out at NM1 and NM2. The sound level meters and calibrator used for the noise monitoring, as listed in *Table 2.6* below, complies with IEC 651: 1979 and 804:1985 (Type 1) specification. Both microphones were positioned at 1m from a facade, which have a direct line of sight to the Resort perimeter.

Fixed plant noise monitoring was conducted within non-fireworks hours in accordance with the methodology stated in the Operational EM&A Plan (Revision C).

**Table 2.6** *Noise Measurement Equipments*

Monitoring Location	Monitoring Equipment
NM1 Cherish Court, Discovery Bay	Solo 01 Premium Sound Level Meter SVAN SV30A calibrator
NM2 Tai Lei, Peng Chau	SVAN 949 Sound Level Meter B&K 4231 calibrator
NM4 Central Maintenance Building	Solo 01 Premium Sound Level Meter B&K 4231 calibrator

Noise monitoring was conducted with reference to the calibration and measurement procedures as stated in the *Technical Memorandum for the Assessment of Noise from Places other than Domestic Premises, Public Places or Construction Sites (IND-TM)*. Immediately prior to and following each noise measurement the accuracy of the monitoring equipments was checked using an acoustic calibrator generating a known sound pressure level at a known frequency. Measurements were accepted as the calibration level from before and after the noise measurement agree to within 1.0 dB.

The sound level meters and acoustic calibrator were frequently calibrated in HOKLAS accredited laboratory for every two years. Calibration certifications are presented in *Annex A*.

Noise measurements were made without the presence of fog and rain, and with steady wind speed and gusts not exceeding 5m/s and 10m/s, respectively in accordance with international standards and practices<sup>(1)</sup>. Broadband measurement of  $L_{Aeq}$ ,  $L_{10}$ ,  $L_{90}$ ,  $L_{max}$  and  $L_{min}$  has been recorded at 100ms interval.

### 2.3.5 *Compliance Assessment*

#### *Fireworks Displays*

During monitoring, a detailed log of noise event was undertaken to record down any significant extraneous noise activities. The noise measurement was conducted in accordance with the agreed monitoring methodology which was adopted in the monitoring during trial fireworks displays. Any significant influences on the measured noise levels were taken into account in accordance with standard acoustical principles and practices. The corrected noise level, which will be the noise level created by the Fireworks Show at HKDL, will then be compared against the maximum noise level of  $L_{eq, 15 \text{ min}}$  55dB(A) at NM1 and NM2 as recommended in the EIA and stated in the Operational EM&A Plan (Revision C). HKITP will adopt  $L_{eq, 15 \text{ min}}$  55dB(A) as the Limit Level.

#### *Fixed Plant Noise*

As recommended in the EIA and stated in the Operational EM&A Plan (Revision C), HKITP will adopt the maximum fixed plant site perimeter noise level (ie Limit Level) of  $L_{eq(30 \text{ minute})}$  75 dB(A) at the perimeter of the Resort (NM4). HKITP will follow the Action and Limit (A/L) Levels as recommended in EIA which are summarised in *Table 2.7*.

<sup>(1)</sup> ISO 11819-1:1997 and ISO/FDIS 13472-1:2001

**Table 2.7 Action and Limit Levels for Fixed Plant Noise Monitoring**

Parameter	Action Level	Limit Level
Fixed Plant Noise	When one documented complaint is received from any one of the sensitive receivers	$L_{eq(30\text{ min})}$ 75 dB(A)

**2.4 WASTE MANAGEMENT**

The potential environmental impacts associated with the handling and disposal of waste arising from the resort operations have been assessed in the EIA. In accordance with the requirement stipulated in Condition 3.21 of the EP-01/059/2000/B, an Operation Waste Management Plan (OWMP) shall be submitted to EPD for approval at least one month before the Project commences operation. The OWMP was prepared by the HKITP and submitted to EPD and obtained approval on 12 August 2005. The OWMP included waste avoidance measures, material recovery and recycling programme and waste management audit framework. With the implementation of the OWMP, the EIA has concluded that minimal environmental impacts are anticipated for the handling, storage, treatment and disposal of waste arising from the Resort operations.

**2.4.1 Monitoring and Audit on the Implementation of Mitigation Measures**

It is recommended that auditing of each waste stream should be carried out periodically to determine if wastes are being managed in accordance with the approved OWMP. The objectives of the waste management monitoring and audit are:

- to ensure the wastes are handled, collected, stored and transferred and disposed of in compliance with the Waste Disposal Ordinance and the relevant regulations, and
- to ensure the waste management plan, in particular the environmental mitigation measures, is implemented properly and effectively.

The monitoring and audit covered the wastes handling, recycling and disposal procedures within the Resort, as well as off-site sorting facility and the composting facility. Records identifying the waste arisings, the nature and composition of materials, the quantities of materials reduced, reused, recycled and otherwise recovered were kept for monitoring to check the effectiveness of waste reduction measures implemented. Summary of the waste monitoring and audit results for the reporting period is given in *Section 3.3*.

**2.5 TERRESTRIAL ECOLOGY**

The EIA summarised that during the operational phase there exists the potential for the White-bellied Sea Eagles to abandon their nesting site due to noise from the laser shows (which will not be undertaken on opening day program) and the fireworks shows. The EIA also stated that “human

interference impact identified may be mitigated by the further prohibition of human access during Project operation by secure fencing of the site". It was also recommended to extend the monitoring programme to monitor the reaction of these birds to the fireworks shows.

It has been agreed between HKITP, CEDD and EPD that monitoring of White-bellied Sea Eagle will be conducted by CEDD and the monitoring results will be distributed to HKITP until completion of Government's works in the Penny's Bay Development Area. Construction works for Penny's Bay Reclamation Stage 2 were completed in February 2008. Monthly terrestrial ecological monitoring by CEDD was terminated after February 2008 with the approval from EPD. The need for continued monitoring of White-bellied Sea Eagles by HKITP after completion of CEDD's works is being discussed with Agriculture, Fisheries and Conservation Department (AFCD).

## 2.6

### *MARINE ECOLOGY*

The EIA concluded that operational impacts to marine ecological resources may occur through disturbances to water quality due to changes in the hydrodynamic regime (note however that the water quality assessment in the EIA predicted "no adverse impacts"). It was also predicted in the EIA that there will be an increase in the number of vessels travelling between Victoria Harbour and Penny's Bay. The EIA concluded that these vessels will not be travelling at high speed and as the area is not identified as critical habitat to the Indo-Pacific Humpback Dolphin, unacceptable impacts are not predicted with the implementation of mitigation measures.

The EIA proposed a construction/operation dolphin/porpoise monitoring programme be established to evaluate whether the works had any effect on the mammals. It has been agreed between HKITP, CEDD and EPD that monitoring of dolphin/porpoise will be conducted by CEDD and the monitoring results will be distributed to HKITP until completion of Government's works in the Penny's Bay Development Area. Dredging activities for Penny's Bay Reclamation Stage 2 was completed in December 2005. Filling of sand and sorted public fill was also completed on 30 July 2007 and 13 June 2007 respectively. Monthly marine ecological monitoring by CEDD was terminated after December 2007 with the approval from EPD. The need for continued monitoring of marine mammals by HKITP after the completion of CEDD's works is being discussed with Agriculture, Fisheries and Conservation Department (AFCD).

### 3.1 AIR QUALITY

No air monitoring was scheduled during the reporting month. The trend of monitoring results since the operation of the Hong Kong Disneyland Resort is plotted in *Annex B*.

### 3.2 FIREWORKS NOISE AND FIXED PLANT NOISE

In accordance with the sampling schedule for noise monitoring as presented in *Table 2.4*, one round of fireworks and fixed plant noise monitoring was conducted during the reporting period.

The fireworks and fixed plant noise levels at the monitoring locations are given in *Tables 3.1* and *3.2* and graphically presented in *Annexes C* and *D* respectively.

No exceedance of the Action and Limit Level of fireworks noise and fixed plant noise was recorded at the monitoring stations during the reporting period.

*Table 3.1 Fireworks Noise Monitoring Results*

Location	Date	Time Period, hrs	$L_{eq\ 15mins}$	$L_{eq\ 15mins}$	$L_{eq\ 15mins}$	$L_{eq\ 15mins}$	$L_{eq\ 15mins}$
			dB(A) - ambient before	dB(A) - ambient after	dB(A) - average ambient	dB(A) - Measured noise level	Corrected noise levels
NM1 - Cherish Court Discovery Bay	6 Mar 2008	19:47:00 – 20:32:00	55.7	55.8	55.7	57.7	53.2
NM2 - Tai Lei, Peng Chau	6 Mar 2008	19:48:30 – 20:33:30	53.0	55.1	54.2	54.7	45.4

*Table 3.2 Fixed Plant Noise Monitoring Results*

Location	Date	Time Period, hrs	Measured Noise Levels, dB(A)				
			$L_{Aeq}$	$L_{min}$	$L_{max}$	$L_{90}$	$L_{10}$
NM4 - Central Maintenance Building	10 Mar 2008	15:24:49 – 15:54:49	61.2	55.3	76.7	57.3	63.5

### 3.3 WASTE MONITORING

HKITP has followed the approved Operational Waste Management Plan (OWMP) on procedures for handling of municipal solid waste, chemical waste, grease trap wastes, food waste, green waste and fireworks waste.

Reference has been made to the waste flow tables prepared by waste collectors and the quantities of different wastes collected, disposed of or recycled are summarized in *Table 3.3*.

Apart from the above quantities of waste recycled, HKITP has implemented various waste minimisation measures from the start of operation, which prevented waste generation at source. These contributed to the overall amount of waste “diverted” from landfill disposal. These measures include use of reusable utensils, tablewares & trays instead of disposables in some of the fast-food outlets; use of fast-action hand dryers in lieu of paper towels in most public wash room facilities; use of reusable delivery cages, totes and wagons as opposed to wooden pallets and paper cardbox for distribution of merchandise and food materials from the central distribution center to various outlets within the Theme Park; use of rechargeable batteries rather than disposable ones wherever possible; and recycle used rechargeable batteries; etc.

**Table 3.3** *Quantities of Different Waste*

Month / Year	Quantity, tonnes / litres				
	Municipal Solid Waste	Recyclable Materials (b)(f)	Wastes collected for Composting <sup>(c)(g)</sup>	Wastes Avoided <sup>(d)</sup>	Chemical Waste <sup>(e)</sup>
4 Feb 08 – 2 Mar 08 <sup>(a)</sup>	304.6 tons	52.1 tons	26.2 tons	5.1 tons	0 kg

Notes:

- (a) Waste disposal reports were provided by HKITP’s waste management vendor on bi-weekly basis.
- (b) Recyclable materials (paper, cardboard, plastics, metals, used kitchen oil, toner cartridges) were collected by third party recyclers.
- (c) Food waste and green waste were collected for composting.
- (d) The quantity of wastes avoided in the reporting period is estimated based on a few selected representative measures being implemented which include: the use of reusable containers instead of disposables in the fast food outlets; minimisation of packaging provided for the merchandise items; and the provision of electric hand dryers instead of paper towels in washrooms in the theme park.
- (e) A registered chemical waste collector has been engaged for the collection of chemical wastes for disposal or recycling at licensed facilities.
- (f) The quantity of confidential documents destructed for recycling use during the period from 12 May 2006 to 16 January 2008 is reported to be 7.6 tons, which has not been reported in previous monthly EM&A reports.
- (g) The quantity of wastes collected for composting during the period from 12 November 2007 to 3 February 2008, in which the composter broke down for 2 weeks, is now made available and it is reported to be 43.4 tons.

### 3.4 TERRESTRIAL ECOLOGY

Construction works for Penny’s Bay Reclamation Stage 2 were completed in February 2008. Monthly terrestrial ecological monitoring by CEDD was terminated after February 2008 with the approval from EPD, and therefore no terrestrial ecological monitoring was carried out in the reporting month. The need for continued monitoring of White-bellied Sea Eagles by HKITP is being discussed with Agriculture, Fisheries and Conservation Department (AFCD).

Dredging activities for the Penny's Bay Reclamation Stage 2 was completed in December 2005. Filling of sand and sorted public fill was already completed on 30 July 2007 and 13 June 2007 respectively. Monthly marine ecological monitoring by CEDD was terminated after December 2007 with the approval from EPD, and therefore no marine mammal monitoring was carried out in the reporting month. There were no marine works/activities associated with the operation of HKITP, and therefore no disturbances to the marine mammals were anticipated. The need for continued monitoring of marine mammals by HKITP is being discussed with AFCD.

Based on the Operational EM&A Plan (Revision C), site inspection was carried out by the ET once per reporting period. A joint environmental site inspection was carried out by the representatives of the HKITP and ET on 10 March 2008.

The major activities undertaken in the Theme Park were operation of theme park attractions, rides, fireworks displays, ancillary restaurants, retail shops and servicing facilities. Office works and regular maintenances of machinery within Theme Park were also undertaken in the Back-of-House Area.

The environmental performance for the different environmental issues (including air, water, noise, ecology and waste/chemical management) complied with environmental requirements and all necessary mitigation measures are properly implemented. The HKITP has implemented environmental mitigation measures and requirements as stated in the EIA Report, the Environmental Permit and Operational EM&A Plan (Revision C). The implementation status of recommended mitigation measures under the EP during the reporting period is summarized in *Annex E*.

The major findings during the site inspection are summarized as follows:

- Special containers were provided in the kitchens of the outdoor vending building for collecting food wastes. The food wastes were collected and delivered to the off-site recycling facility for composting.
- Central Chemical Wastes Store was inspected. Chemical Wastes were handled, stored and disposed in accordance with the *Code of Practice on the Packaging, Labelling and Storage of Chemical Waste*.

No non-compliance in relation to the EIA recommendations was identified during the site inspection in the reporting period and therefore no further recommendation is required. The ET will keep track on the EM&A programme to ensure compliance of environmental requirements and the proper implementation of all necessary mitigation measures.

#### 4.1

##### *FUTURE KEY ISSUES*

Entertainment facilities and associated services within Hong Kong Disneyland Resort to be provided in the coming monitoring period will be the same as that provided in this reporting period. No potential environmental impacts are anticipated in the next monitoring period.

## 5 ENVIRONMENTAL NON-CONFORMANCE

### 5.1 SUMMARY OF MONITORING EXCEEDANCE

No monitoring exceedance was recorded in this reporting period.

### 5.2 SUMMARY OF ENVIRONMENTAL COMPLAINT

No environmental complaint was received in this reporting period.

### 5.3 SUMMARY OF ENVIRONMENTAL SUMMON AND SUCCESSFUL PROSECUTION

No summons was received in this reporting period.

## CONCLUSIONS

The Environmental Monitoring and Audit (EM&A) Report presents the EM&A works undertaken during the period from 12 February 2008 to 11 March 2008 in accordance with Operational EM&A Plan (Revision C) and the requirement under Environmental Permit EP-01/059/2000/B.

Firework noise and fixed plant noise monitoring were carried out at designated monitoring stations during the reporting period and there were no monitoring exceedances recorded in this reporting period.

Waste management procedures recommended in the approved Operational Waste Management Plan (OWMP) were implemented.

The environmental performance for the different environmental issues (including air, water, noise, ecology and waste/chemical waste management) complied with environmental requirements and all necessary mitigation measures are properly implemented. No non-compliance in relation to the EIA recommendations was identified during the site inspection in the reporting period. No complaint and summons /prosecution was received during the reporting period.

Annex A

## Calibration Certificates for Sound Level Meters



# Calibration Certificate

Certificate No. **64007A**

Page 1 of 3 Pages

**Customer :** Environmental Resources Management

**Address :** 21/F, Lincoln House, 979 King's Road, Taikoo Place, Island East, Hong Kong.

**Order No. :** Q61577

**Date of receipt :** 4-Sep-06

## Item Tested

**Description :** Sound Level Meter

**Manufacturer :** 01dB

**Model :** Solo

**Serial No. :** 10896

## Test Conditions

**Date of Test :** 5-Sep-06

**Supply Voltage :** --

**Ambient Temperature :** (23 ± 3)°C

**Relative Humidity :** (50 ± 25) %

## Test Specifications

Calibration check.

Calibration procedure : Z01.

## Test Results

All results were within the IEC 651 Type 1 & IEC 804 Type 1 specification.

The results are shown in the attached page(s).

Test equipment used:

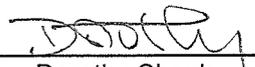
<u>Equipment No.</u>	<u>Description</u>	<u>Cert. No.</u>	<u>Due Date</u>	<u>Traceable to</u>
S017	Function Generator	C051022	21-Mar-07	SCL-HKSAR
S024	Sound Level Calibrator	62691	22-Apr-07	NIM-PRC & SCL-HKSAR

The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI).

The test results apply to the above Unit-Under-Test only

**Calibrated by :**   
P.F. Wong

**Approved by :**   
Dorothy Cheuk

**Date:** 11-Sep-06



# Calibration Certificate

Certificate No. **64007A**

Page 2 of 3 Pages

Results :

## 1. SPL Accuracy

UUT Setting			Applied Value (dB)	UUT Reading (dB)
Level Range (dB)	Weight	Response		
20 - 140	L <sub>A</sub>	Fast	94.07	94.0
		Slow		94.0
	L <sub>C</sub>	Fast	94.07	94.0
		Slow		94.0
	L <sub>A</sub>	Fast	113.95	113.9
		Slow		113.9
	L <sub>C</sub>	Fast	113.95	113.9
		Slow		113.9

IEC 651 Type 1 Spec. :  $\pm 0.7$  dB

Uncertainty :  $\pm 0.2$  dB

## 2. Level Stability : 0.0 dB

IEC 651 Type 1 Spec. :  $\pm 0.3$  dB

Uncertainty :  $\pm 0.01$  dB

## 3. Frequency Weighting

A weighting

Frequency	Attenuation (dB)	IEC 651 Type 1 Spec.
31.5 Hz	- 39.1	- 39.4 dB, $\pm 1.5$ dB
63 Hz	- 25.9	- 26.2 dB, $\pm 1.5$ dB
125 Hz	- 15.9	- 16.1 dB, $\pm 1$ dB
250 Hz	- 8.5	- 8.6 dB, $\pm 1$ dB
500 Hz	- 3.2	- 3.2 dB, $\pm 1$ dB
1 kHz	0.0 (Ref.)	0 dB, $\pm 1$ dB
2 kHz	+ 1.2	+ 1.2 dB, $\pm 1$ dB
4 kHz	+ 0.8	+ 1.0 dB, $\pm 1$ dB
8 kHz	- 1.8	- 1.1 dB, + 1.5 dB ~ - 3 dB
16 kHz	- 12.1	- 6.6 dB, + 3 dB ~ $\infty$

Uncertainty :  $\pm 0.1$  dB



# Calibration Certificate

Certificate No. 64007A

Page 3 of 3 Pages

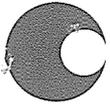
## 4. Time Averaging

Applied Burst duty Factor	Applied Leq Value (dB)	UUT Reading (dB)	IEC 804 Type 1 Spec.
continuous	40.0	40.0	--
1/10	40.0	40.0	± 0.5 dB
1/10 <sup>2</sup>	40.0	39.9	
1/10 <sup>3</sup>	40.0	39.9	± 1.0 dB
1/10 <sup>4</sup>	40.0	39.9	

Uncertainty : ± 0.1 dB

- Remark : 1. UUT : Unit-Under-Test  
2. The uncertainty claimed is for a confidence probability of not less than 95%.  
3. Atmospheric Pressure : 995 hPa.  
4. This Certificate supersedes our former certificate no. 64007.

----- END -----



# Calibration Certificate

Certificate No. **73347**

Page 1 of 4 Pages

**Customer :** Environmental Resources Management

**Address :** 21/F, Lincoln House, 979 King's Road, Taikoo Place, Island East, Hong Kong.

**Order No. :** Q71338

**Date of receipt :** 18-Jul-07

## Item Tested

**Description :** Digital Sound Level Meter

**Manufacturer :** SVAN

**Model :** 949

**Serial No. :** 8194

## Test Conditions

**Date of Test :** 19-Jul-07

**Supply Voltage :** --

**Ambient Temperature :**  $(23 \pm 3)^{\circ}\text{C}$

**Relative Humidity :**  $(50 \pm 25) \%$

## Test Specifications

Calibration check.

Calibration procedure : Z01.

## Test Results

All results were within the IEC 651 Type 1, IEC 804 Type 1 & IEC 1260 Class 1 specification after adjustment. The results are shown in the attached page(s).

Main Test equipment used:

<u>Equipment No.</u>	<u>Description</u>	<u>Cert. No.</u>	<u>Due Date</u>	<u>Traceable to</u>
S017	Multi-Function Generator	C071115	14-Mar-08	SCL-HKSAR
S024	Sound Level Calibrator	71791	16-Jul-08	NIM-PRC & SCL-HKSAR

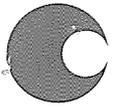
The values given in this Calibration Certificate only relate to the values measured at the time of the test and any uncertainties quoted will not include allowance for the equipment long term drift, variations with environmental changes, vibration and shock during transportation, overloading, mis-handling, or the capability of any other laboratory to repeat the measurement. Hong Kong Calibration Ltd. shall not be liable for any loss or damage resulting from the use of the equipment.

The test equipment used for calibration are traceable to International System of Units (SI).  
The test results apply to the above Unit-Under-Test only

**Calibrated by :**   
P.F. Wong

**Approved by :**   
Dorothy Cheuk

**Date:** 19-Jul-07



# Calibration Certificate

Certificate No. **73347**

Page 2 of 4 Pages

Results :

## 1. SPL Accuracy

UUT Setting				Applied Value (dB)	UUT Reading (dB)	
Level Range	Octave Filter	Weight	Response		Before Adjust.	After Adjust.
105 dB	OFF	A	Fast	94.07	* 91.1	94.0
			Slow		--	94.0
		C	Fast		--	94.0
	ON (1/1)	A	Fast		--	94.0
	ON (1/3)	A	Fast		--	94.0
130 dB	OFF	A	Fast	94.07	* 91.1	94.0
			Slow		--	94.0
		C	Fast		--	94.0
	ON (1/1)	A	Fast		--	94.0
	ON (1/3)	A	Fast		--	94.0
	OFF	A	Fast	113.95	* 111.1	113.9
			Slow		--	113.9
	C	Fast	--		113.9	
	ON (1/1)	A	Fast		--	113.9
	ON (1/3)	A	Fast		--	113.9

IEC 651 Type 1 Spec. :  $\pm 0.7$  dB

Uncertainty :  $\pm 0.1$  dB

## 2. Level Stability : 0.0 dB

IEC 651 Type 1 Spec. :  $\pm 0.3$  dB

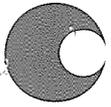
Uncertainty :  $\pm 0.01$  dB

## 3. Linearity

Differential level linearity

UUT Range	Applied Value (dB)	UUT Rdg (dB)	Variation (dB)	IEC 651 Type 1 Spec.
130	84.0	84.0	0.0	$\pm 0.4$ dB
	94.0	94.0	0.0	
	95.0	95.0	0.0	$\pm 0.2$ dB
	104.0	104.0	0.0	$\pm 0.4$ dB
	105.0	105.0	0.0	
	114.0	114.0	0.0	$\pm 1.0$ dB

Uncertainty :  $\pm 0.1$  dB



# Calibration Certificate

Certificate No. 73347

Page 3 of 4 Pages

## 4. Frequency Weighting

A weighting

Frequency	Attenuation (dB)	IEC 651 Type 1 Spec.
31.5 Hz	- 39.4	- 39.4 dB, $\pm 1.5$ dB
63 Hz	- 26.1	- 26.2 dB, $\pm 1.5$ dB
125 Hz	- 16.2	- 16.1 dB, $\pm 1$ dB
250 Hz	- 8.7	- 8.6 dB, $\pm 1$ dB
500 Hz	- 3.2	- 3.2 dB, $\pm 1$ dB
1 kHz	0.0 (Ref)	0 dB, $\pm 1$ dB
2 kHz	+ 1.2	+ 1.2 dB, $\pm 1$ dB
4 kHz	+ 1.1	+ 1.0 dB, $\pm 1$ dB
8 kHz	- 1.0	- 1.1 dB, + 1.5 dB $\sim -3$ dB
16 kHz	- 6.9	- 6.6 dB, + 3 dB $\sim -\infty$

Uncertainty :  $\pm 0.1$  dB

## 5. Time Averaging

Applied Burst duty Factor	Applied Leq Value (dB)	UUT Reading (dB)	IEC 804 Type 1 Spec.
continuous	50.0	50.0	--
1/10	50.0	50.0	$\pm 0.5$ dB
1/10 <sup>2</sup>	50.0	50.0	
1/10 <sup>3</sup>	50.0	50.0	$\pm 1.0$ dB
1/10 <sup>4</sup>	50.0	49.9	

Uncertainty :  $\pm 0.1$  dB



# Calibration Certificate

Certificate No. 73347

Page 4 of 4 Pages

## 6. Filter Characteristics

### 6.1 1/1 – Octave Filter

Frequency	Attenuation (dB)	IEC 1260 Class 1 (dB)
125 Hz	- 71.4	< - 61
250 Hz	- 65.9	< - 42
500 Hz	- 27.5	< - 17.5
707 Hz	- 3.0	- 2 ~ - 5
1 kHz (Ref)	--	--
1.414 kHz	- 3.0	- 2 ~ - 5
2 kHz	- 29.2	< - 17.5
4 kHz	- 73.5	< - 42
8 kHz	- 73.3	< - 61

Uncertainty :  $\pm 0.25$  dB

### 6.2 1/3 – Octave Filter

Frequency	Attenuation (dB)	IEC 1260 Class 1 (dB)
326 Hz	- 61.6	< - 61
530 Hz	- 43.5	< - 42
772 Hz	- 21.2	< - 17.5
891 Hz	- 3.0	+ 0.3 ~ - 5.0
1 kHz (Ref)	--	--
1.122 kHz	- 2.9	+ 0.3 ~ - 5.0
1.296 kHz	- 39.1	< - 17.5
1.887 kHz	- 66.9	< - 42
3.070 kHz	- 79.5	< - 61

Uncertainty :  $\pm 0.25$  dB

Remarks : 1. UUT : Unit-Under-Test

2. The uncertainty claimed is for a confidence probability of not less than 95%.

3. Atmospheric Pressure : 997 hPa.

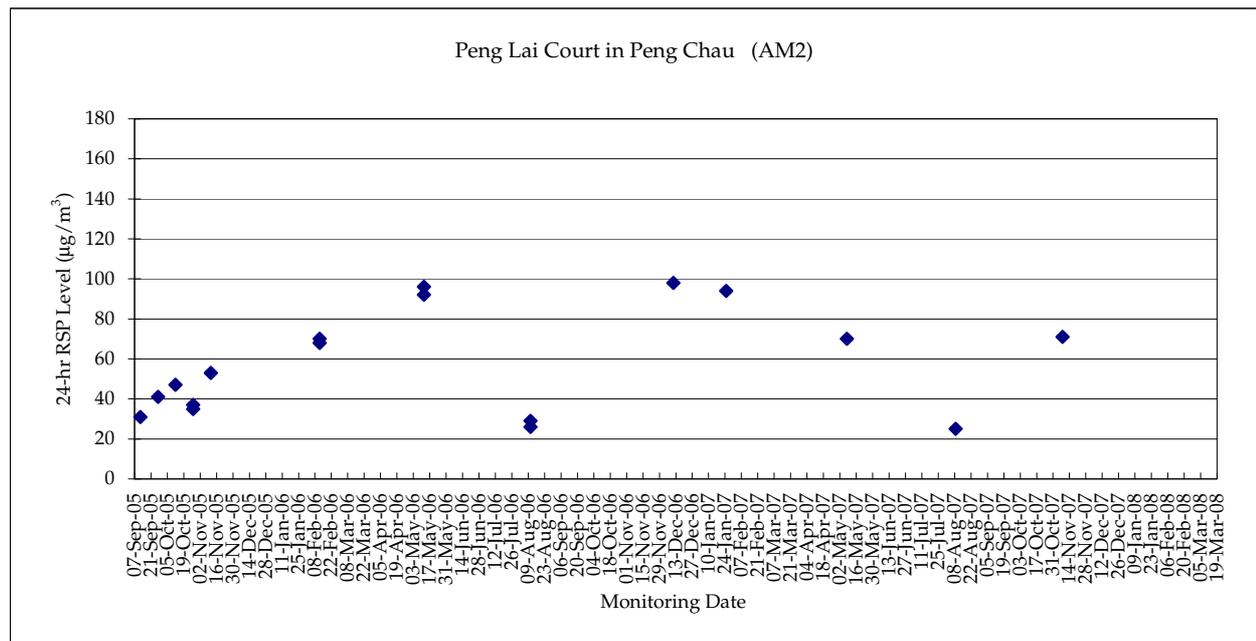
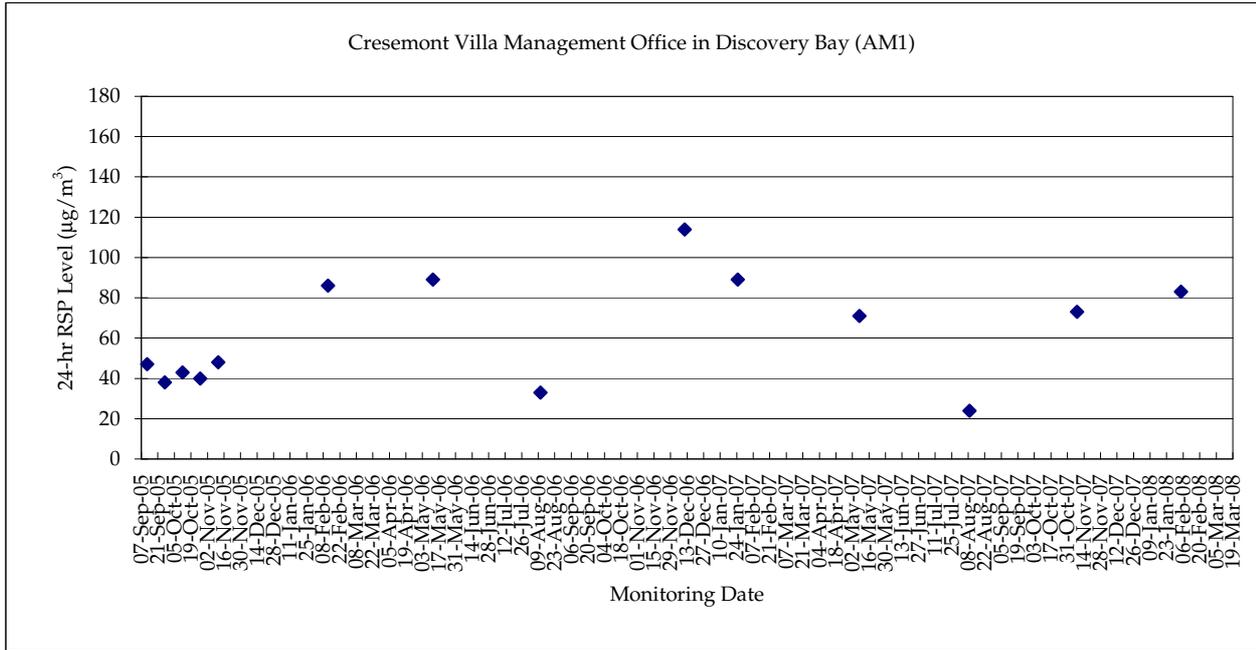
4. \* Out of Specification.

----- END -----

Annex B

## Graphical Presentation of the Air Quality Monitoring Results

## 24-hr RSP Monitoring



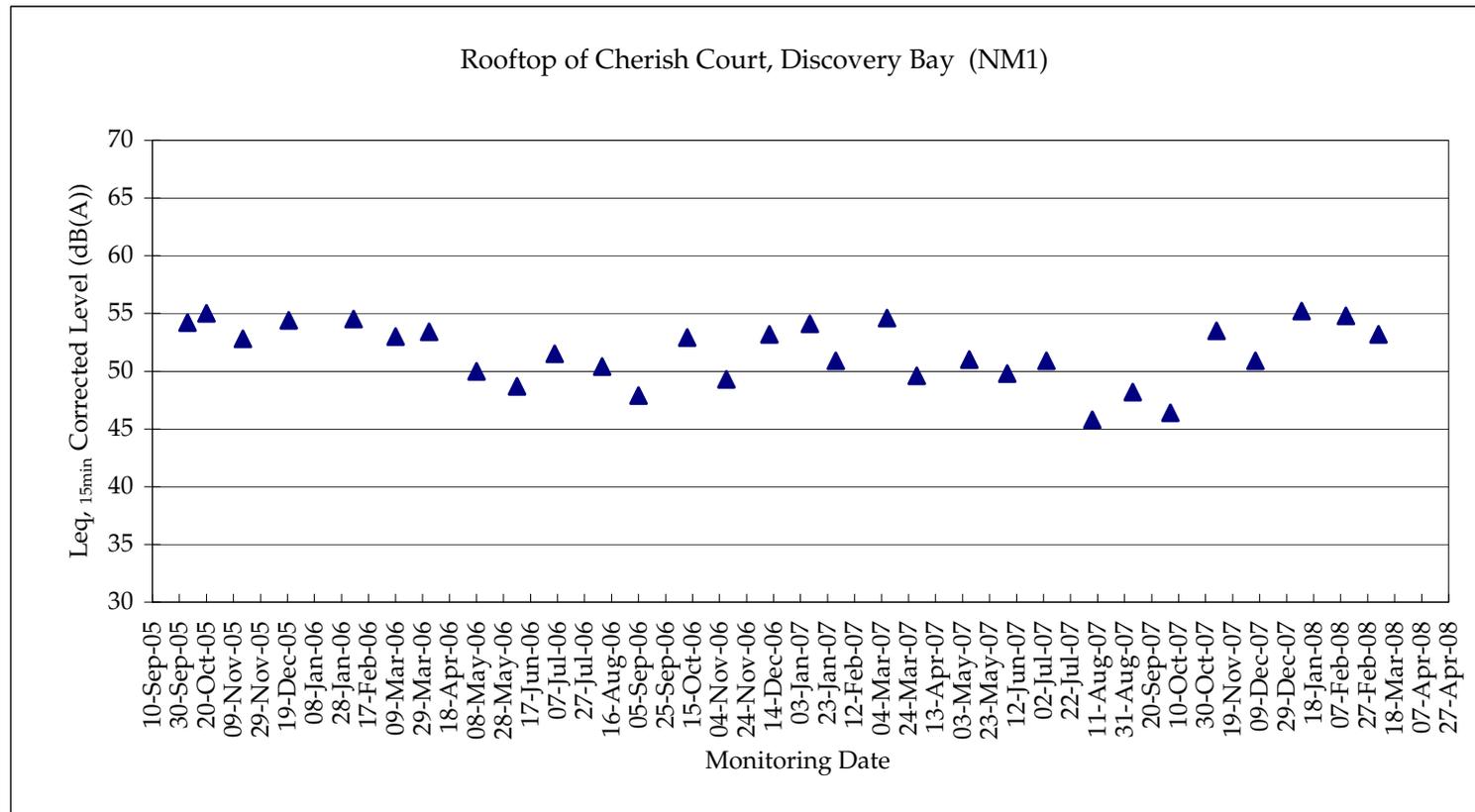
### Remark:

- 1) Field duplicate was taken at Peng Lai Court (AM2) on 27 Oct 2005.
- 2) Field blank was taken at Peng Lai Court (AM2) on 11 Nov 2005.
- 3) Field blank and field duplicate were taken at Peng Lai Court (AM2) on 12 Feb, 12 May & 11 August 2006.

Annex C

# Graphical Presentation of the Fireworks Noise Monitoring Results

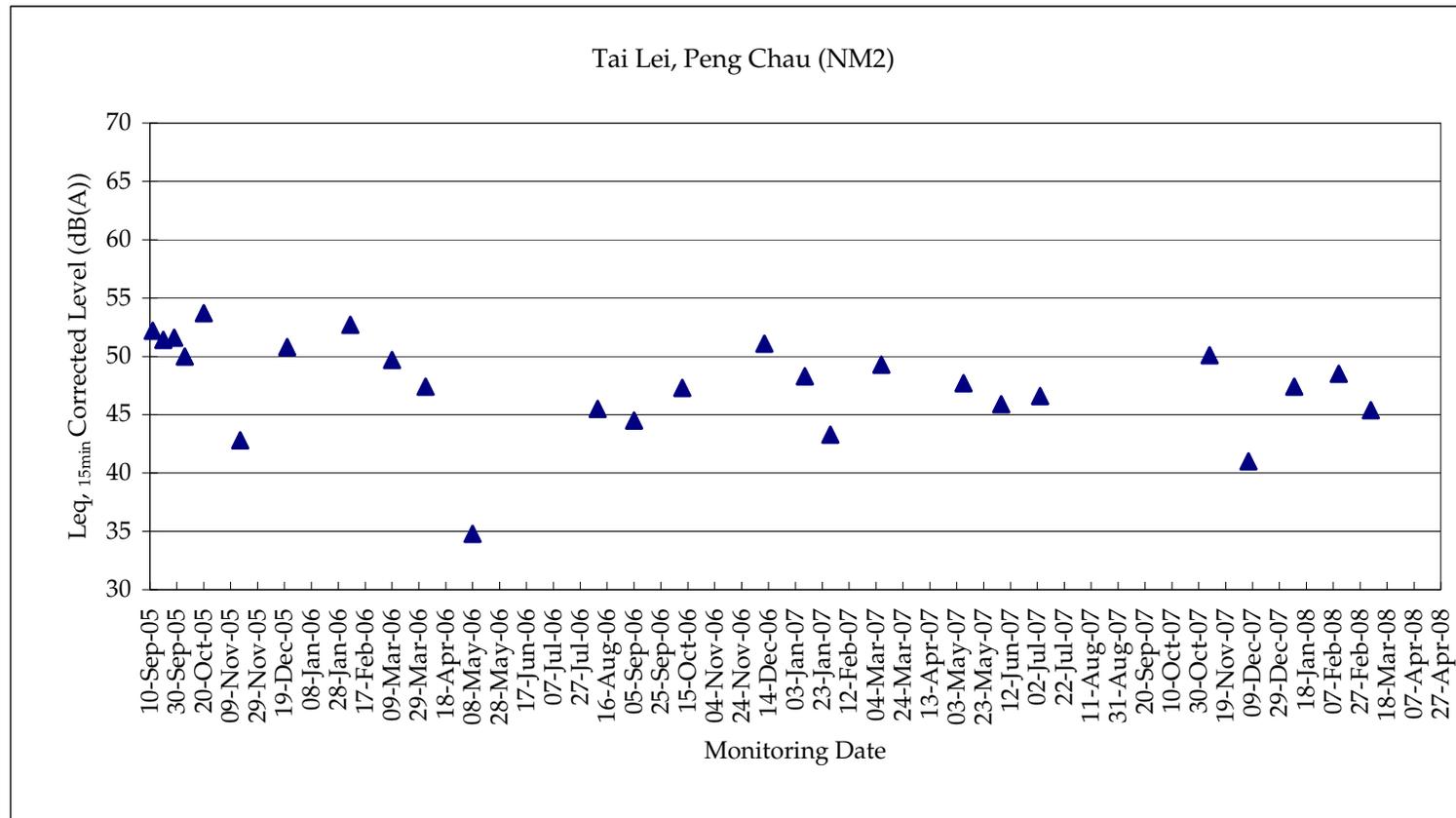
## Fireworks Noise Monitoring



### Remark:

(1) Measured Firework noise levels at Cherish Court (NM1) and Tai Lei (NM2) on 30 September 2005 and 11 May 2006 are less than 30dB(A) and therefore the results are not shown in the graph.

## Fireworks Noise Monitoring



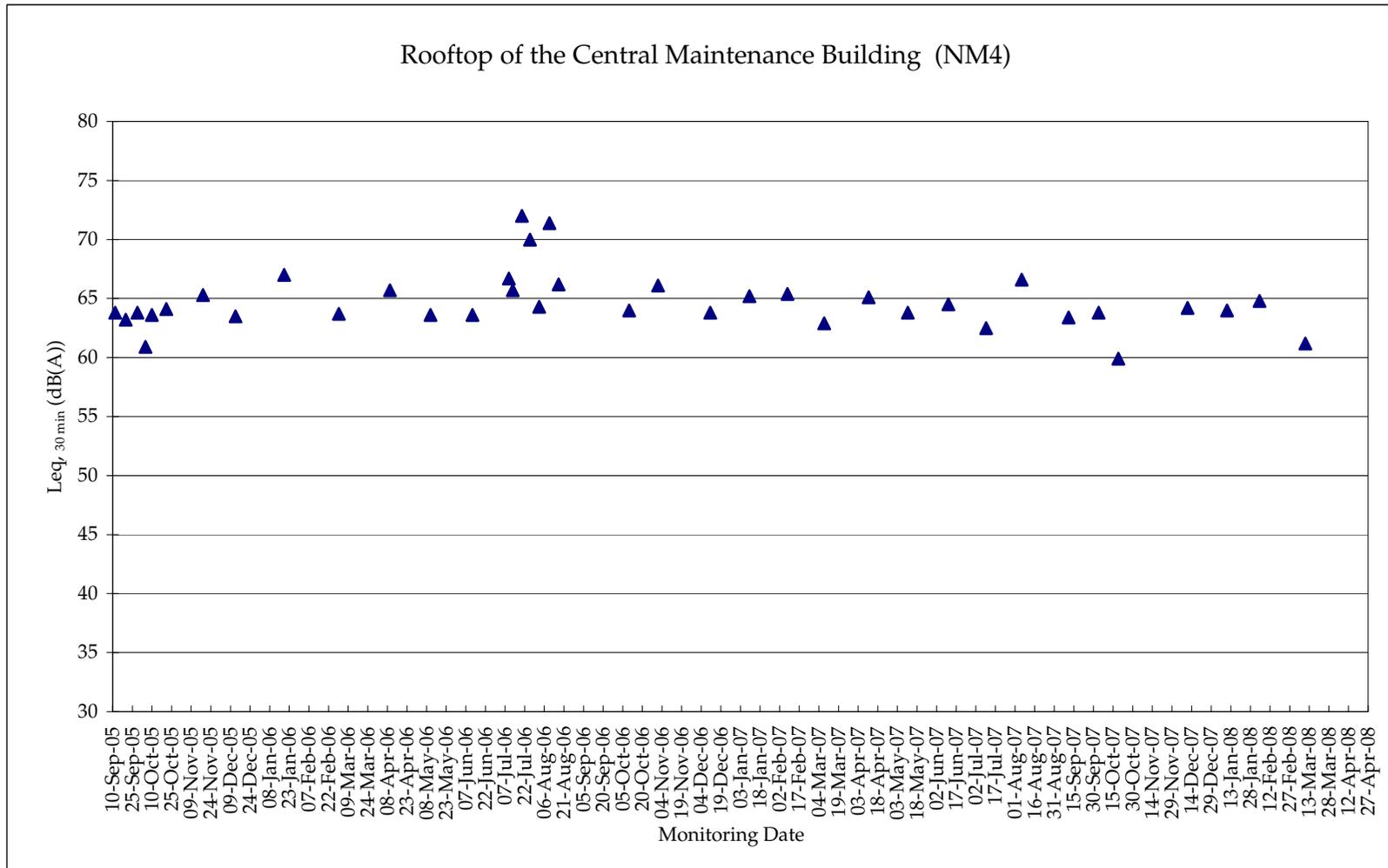
### Remark:

(1) Measured Firework noise levels at Tai Lei (NM2) on 7 June, 5 July and 9 Nov 2006, 30 Mar, 7 Aug, 6 Sept and 4 Oct 2007 are less than 30dB(A), and therefore the result is not shown in the graph.

Annex D

## Graphical Presentation of the Fixed Plant Noise Monitoring Results

## Fixed Plant Noise Monitoring



Annex E

## Summary of Implementation Status

## ANNEX E – Summary of Implementation Status

Permit Ref.*	EM&A Log Ref <sup>†</sup>	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Status as Audited in the Reporting Period
<i>AIR QUALITY - Operational Phase</i>				
3.5	A3	Pyrotechnics or fireworks that contain chromium, lead, mercury, arsenic, manganese, nickel or zinc shall not be used for any display in the theme park.	Fireworks launching site / during fireworks display	Pyrotechnics or fireworks that contain chromium, lead, mercury, arsenic, manganese, nickel or zinc are not used for any display in the Resort.
3.6	-	Before the operation of the Project, the Permit Holder shall deposit with the Director the details and design of the fireworks displays for the Theme Park. Any changes to the details or design of the fireworks displays shall be reviewed by the ET Leader and deposited with the Director.	Fireworks launching site / prior to the commencement of operations at the Theme Park, and deposit the details when there are any changes to the details of design of the fireworks displays	HKITP has submitted the details and design of the fireworks displays for the Resort to EPD on 6 September 2005.
3.7	-	To mitigate air quality impacts, fireworks displays shall be designed and conducted to achieve the air quality criteria adopted in the EIA Report.	Fireworks launching site / during fireworks display	Results provided in the Results of the Trial Fireworks Displays conducted in May 2005 and Results of the Trial Fireworks Displays conducted in August 2005 demonstrated compliance.
3.8	A1	The Permit Holder shall not operate diesel- or petrol-powered vehicles for internal traffic solely within the Theme Park area, except provided herein or otherwise approved by the Director under this condition. The Permit Holder shall provide written notice at least 24 hours in advance to the Director whenever a diesel- or petrol-powered vehicle is placed into operation, state the application for which that vehicle was placed into operation, and why a compressed natural gas (CNG), liquefied petroleum gas (LPG), electric or other clean fuel vehicle was not practicable for that particular application. This condition shall not apply to emergency vehicles, and shall not apply to vehicles not operated by the Permit Holder.	Within the Theme Park for the full duration of its operating lifetime.	Written notice has been submitted to the EPD on 6 September 2005 for the unleaded gasoline-powered vehicles to be operated within the Resort.

\* Ref. to EP-01/059/2000/B. The EP takes precedence whenever there is a similar requirement listed in both the EP and the EIA implementation schedule.

† Ref. to Table 16.1p of the EIA report.

Permit Ref.*	EM&A Log Ref†	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Status as Audited in the Reporting Period
3.9	A2	To mitigate the air quality impacts from the Penny's Bay Gas Turbine Plant (GTP), building height within the Theme Park shall be restricted at 50 metres above ground within 500 metres from the chimneys of the GTP and restricted at 100 metres above ground between 500 metres and 1,000 metres from the chimneys of the GTP, unless the Permit Holder can demonstrate to the Director's satisfaction that the buildings shall not affect the dispersion of the emissions from the GTP and shall not cause adverse air quality impacts.	Within the Theme Park for the full duration of its operating lifetime.	The mitigation measures have been implemented during the design and construction of the Resort.
<i>NOISE - Operational Phase</i>				
3.10	B7	The bursting height of fireworks displays within the Theme Park shall not exceed 150 meters above Principal Datum.	Fireworks launching site / during fireworks display	All manufacturers supplying fireworks product to HKITP complied to the 150m requirement and field measurement methodology of the bursting height of fireworks displays has been developed with CoM.
3.11	B5	Hotels within the Project shall not rely on openable windows for ventilation.	At the resort hotels / throughout the operation of the hotels.	The ventilation systems of the hotels have been designed and constructed to not rely on openable windows for ventilation.
<i>Fixed Plant noise from Theme Park operation</i>				
-	B1	5 m to 9 m earth berm encircling the Theme Park. (Figure 2.7b in EIA Report refers)	Encircling the Theme Park / throughout the operation of the Theme Park.	The berm in 5m to 9m high has been constructed by CEDD.
-	B2	A reference noise source level of 75 dB(A) at the Theme Park perimeter	At unshielded position along the top of the 9 m high perimeter earth berm / throughout the operation of the Theme Park.	Noise monitoring was conducted to monitor the fixed plant noise from Resort operation and results demonstrated compliance.
<i>WATER QUALITY- Operational Phase</i>				
<i>Marine Water Quality</i>				
3.13	C1	All storm water shall flow through silt traps within the Project prior to entering the stormwater system.	To be implemented throughout the full operational lifetime of the Theme Park	Silt traps were constructed and all storm water will flow through silt traps prior to entering the

Permit Ref.*	EM&A Log Ref†	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Status as Audited in the Reporting Period
				stormwater system.
3.14	C2	Spent fireworks shall be collected immediately after the completion of the firework displays. The collection and disposal of spent fireworks shall be in accordance with the waste management plan for the operational stage approved under Condition 3.21 of this Permit.	To be undertaken after all fireworks displays throughout the full operational lifetime of the Theme Park	Spent fireworks are collected in accordance with the approved Operational Waste Management Plan.
3.15	C3	Monitoring of residual chlorine concentration in disinfected water shall be conducted prior to discharge of the disinfected water. No discharge of any water with chlorine concentration higher than 0.01 mg L <sup>-1</sup> shall be allowed.	To be implemented throughout the full operational lifetime of the Theme Park	Not applicable as there was no discharge in the reporting period.
3.16	C7	Pesticides and herbicides used in the Project shall be biodegradable and with half-lives of three days or less.	To be implemented throughout the full operational lifetime of the Theme Park	Pesticides and herbicides with half-lives of three days or more has not been used in the landscaped areas within the Resort. Variation of this condition has been submitted to the EPD and EP-01/059/2000/B was issued on 19 October 2005. The condition was changed to "Pesticides and herbicides used in the Project shall be biodegradable and with half-lives of three days or less, or approved by the Director".
3.17	C8	A log book shall be kept in the Theme Park to record the application of any pesticides or herbicides, date and time, location of application, quantities applied, pesticide/herbicide used and weather conditions. The logbook shall always be readily available for inspection by the Director throughout the operation stage.	Prior to and throughout the use of pesticides and herbicides	A log book was kept in the Resort to record the application of any pesticides or herbicides, date and time, location of application, quantities applied, pesticide/herbicide used and weather conditions.
<i>WASTE - Operational Phase</i>				
<i>Waste Management Plan</i>				
3.21	E1	Three sets of waste management plan for the operational phase of the Project shall be submitted to the Director for approval at least one month before the Project commences operation. The plan shall be certified by the IEC as having regard to Section 6.7 and Section 16 of the EIA Report. The plan shall include details of how the mitigation measures of operational waste management will be implemented,	To be produced prior to the commencement of operations at the Theme Park, and to be implemented throughout the full operational life-time of the Theme Park	Operational Waste Management Plan (OWMP) has been submitted to the EPD and approved in September 2005.

Permit Ref.*	EM&A Log Ref†	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Status as Audited in the Reporting Period
		together with the arrangements for avoidance, minimization, material recovery/recycling, collection, transportation and disposal of various types of waste generated during the operation of the Theme Park.		
<i>Waste Avoidance Measures</i>				
	E3	The Theme Park Operator shall implement a waste avoidance programme to minimise the production of waste. The waste avoidance programme may consist of the following components:	To be developed prior to the commencement of operations at the Theme Park, and to be implemented throughout the full operational life-time of the Theme Park	Operational Waste Management Plan included waste minimization measures and HKITP has incorporated the proposed waste minimization measures as far as practicable. Please refer to the Operational WMP.
		<ul style="list-style-type: none"> <li>• electronic communications (ie voice mail and email); message boards, routing slips and double-sided copying will be used, as far as practical, to reduce the quantities of paper that otherwise would require disposal at landfill;</li> </ul>		
		<ul style="list-style-type: none"> <li>• worn linens to the maximum extent feasible based upon available markets and third-party recycling facilities be used to make scarves and aprons for cast members;</li> </ul>		
		<ul style="list-style-type: none"> <li>• soft drinks to the maximum extent feasible based upon available markets and third-party recycling facilities be served in souvenir cups that are taken home by guests for reuse as opposed to being discarded at the Theme Park as waste, appropriate recycling bins should be set up to recover these cups for reuse or recycling if the visitors choose not to take them home;</li> </ul>		
		<ul style="list-style-type: none"> <li>• hamburgers will be wrapped in paper or equally environmentally acceptable material instead of in polystyrene clamshells;</li> <li>• unused prepared food will be sent to a food bank, and distributed to the needy, to the maximum extent feasible based upon available markets and third-party recycling facilities;</li> </ul>		
		<ul style="list-style-type: none"> <li>• excess water-based paints will be reused as far as practical;</li> <li>• plastic drink cup lids will be supplied to guests upon their request when purchasing beverages;</li> <li>• fast-food service trays in selected locations will be washed and reused (instead of using disposable cardboard carry-out trays); and</li> <li>• souvenir, booklets, dining-ware, etc. which are recyclable should have appropriate instruction and signs printed on the surface;</li> </ul>		
		<ul style="list-style-type: none"> <li>• waste recycling bins for paper, aluminium cans, plastic bottles, etc. should be provided throughout the Theme Park to promote waste separation at source;</li> </ul>		

Permit Ref.*	EM&A Log Ref†	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Implementation Status as Audited in the Reporting Period
		<ul style="list-style-type: none"> <li>all products sold in the Theme Park should be packed in minimal amount of packaging materials;</li> <li>pallets made of more durable and reusable materials plastics than wood should be used in transportation of food, drinks, etc;</li> </ul>		
		<ul style="list-style-type: none"> <li>the distribution centre of the Theme Park will utilise reusable shipping containers as far as practical instead of cardboard boxes for internal routing'</li> <li>fabric fender instead of tropical hardwood fender should be used at the proposed piers; and</li> <li>the hoarding of the proposed piers should be metal (aluminium, alloy etc) instead of wood.</li> </ul>		
<i>Materials Recovery and Recycling Programme</i>				
		The Theme Park Operator shall implement a Materials Recovery and Recycling Programme which shall include the following aspects:		
	E4	<i>Papers:</i> Recycling bins will be provided at shops and food service locations to collect cardboard containers. Personnel in every office will be provided with individual bins to recycle office paper. Large containers for recycling paper will be placed next to photocopy machines. The collected paper will be transported to RCPs at the back of house for sorting and baling.	To be implemented throughout the full operational life-time of the Theme Park	Sufficient recycling bins are provided within Resort.
	E5	<i>Glass Bottles and Glass Jars:</i> Recycling bins will be placed in the service areas next to the restaurants. The collected glass bottles and jars will be transported to the RCP for processing and recycling.	To be implemented throughout the full operational life-time of the Theme Park	Sufficient recycling bins are provided within Resort.
	E6	<i>Aluminium Cans:</i> Aluminium can recycling bins will be placed at all break areas and pantries. The collected aluminium cans will be transferred to the RCP for baling.	To be implemented throughout the full operational life-time of the Theme Park	
	E7	<i>Plastics:</i> The Theme Park will implement a source separating programme for polyethylene teraphthalate (PET), high-density and low-density polyethylene (HDPE & LDPE). The PET and HDPE bottles collected will be transferred to the RCPs for collection by the recyclers. LDPE will also be recycled. Shrink wrap will be recovered and delivered to the RCPs. Once sufficient material is accumulated to fill a truck, the recycler will be called in to collect the material. The recycling programme may extend to cover other types of plastics or to recycle mixed plastic if the technology is available to make the plastic recycling programme more efficient and cost-effective.	To be implemented throughout the full operational life-time of the Theme Park	Plastics have been collected as recyclables.
	E8	<i>Kitchen Grease:</i> Should there be a market for kitchen grease in Hong Kong, the Theme Park Operator will consider establishing a kitchen grease recycling programme in Hong Kong.	To be implemented throughout the full operational life-time of the Theme Park	Used kitchen oil has been collected and recycled.

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	E9	<i>Scrap Metal:</i> Scrap metal will be generated and separated at the machine, welding, automotive and sheet metal shops. Scrap metal will also be collected, when feasible, on construction and demolition and rehabilitation projects. Scrap metal will be placed in roll on/off containers. Once the containers is full, the recycler will be called in to remove the loaded container and return an empty one.	To be implemented throughout the full operational life-time of the Theme Park	The HKITP has incorporated the proposed waste minimization measures as far as practicable.
	E10	<i>Laser Printer Toner Cartridges:</i> The Theme Park will make arrangements with the toner cartridge suppliers to collect and recycle all the used toner cartridges for laser printers and avoid disposal of the cartridges at the WENT landfill as far as practical.	To be implemented throughout the full operational life-time of the Theme Park	
	E11	<i>Green Waste:</i> As the handling capacity of the existing Sha Ling composting facility is limited (about 15 to 20 tpd) and is unlikely to be able to handle the additional green waste generated from the Theme Park. Should there be a market or facility which could process the green waste arising from the Theme Park, HKITP will consider establishing a recycling programme for green waste.	To be implemented throughout the full operational life-time of the Theme Park	A recycling programme for green waste was developed such that compost material can be reused for landscaping requirements.
	E12	<i>Scrap Lumber:</i> Broken pallets, wooden scrap and lumber from demolition projects will be collected and recycled as far as practical. Currently, there is a market for scrap lumber and it is anticipated that the scrap lumber generated from the Theme Park could be adsorbed by the local market.	To be implemented throughout the full operational life-time of the Theme Park	No scrap lumber was generated in this reporting month.
	E13	<i>Asphalt:</i> The Theme Park will require contractors to reuse and recycle as much as practical of the used asphalt generated from the construction and rehabilitation of asphalt roadways and parking lots. Any surplus used asphalt will be delivered to public filling facilities instead of landfill.	To be implemented throughout the full operational life-time of the Theme Park	No asphalt was generated in this reporting month.
<i>Chemical Waste</i>				
	E14	Wherever practicable, processes which generate reduced quantities or no chemical waste, or less dangerous types of chemical waste, shall be used.	To be implemented prior to and throughout the full operational life-time of the Theme Park	Chemical Waste Store has been constructed in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Waste. The temporary storage of the chemical wastes was also provided in accordance with the Code of Practice on the Packaging, Labelling and Storage of Chemical Waste.
	E15	Containers used for storage of chemical wastes shall: <ul style="list-style-type: none"> <li>• be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed;</li> <li>• have a capacity of less than 450 L unless the specifications have been approved by the EPD; and</li> <li>• display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Regulations.</li> </ul>	To be implemented prior to and throughout the full operational life-time of the Theme Park	
	E16	The storage area for chemical wastes should be: <ul style="list-style-type: none"> <li>• by clearly labelled and used solely for the storage of chemical waste;</li> <li>• be enclosed on at least 3 sides;</li> <li>• have an impermeable floor and bunding, of capacity to accommodate 110% of</li> </ul>	To be implemented prior to and throughout the full operational life-time of the Theme Park	

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		<p>the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest;</p> <ul style="list-style-type: none"> <li>• have adequate ventilation;</li> <li>• be covered to prevent rainfall entering (water collected within the bund must be tested and disposed as chemical waste if necessary); and</li> <li>• be arranged so that incompatible materials are adequately separated.</li> </ul>		
	E17	<p>Disposal of chemical waste shall:</p> <ul style="list-style-type: none"> <li>• be via a licensed waste collector;</li> <li>• be to a facility licensed to receive chemical waste, such as the Chemical Waste Treatment Facility which also offers a chemical waste collection service and can supply the necessary storage containers; or be to a re-user of the waste, under approval from the EPD.</li> </ul>	To be implemented prior to and throughout the full operational life-time of the Theme Park	
<i>TERRESTRIAL ECOLOGY - Operational Phase</i>				
3.18	F1	To minimize the disturbance to the White-bellied Sea Eagles at Pa Tau Kwu, no fireworks shall be launched within 800 metres from the Pai Tau Kwu headland, unless otherwise approved by the Director.	Within Theme Park prior to and during the fireworks and laser show for the full operational period of the Theme Park	No fireworks were launched within 800 metres from the Pai Tau Kwu headland.
3.19	F2	To protect the White-bellied Sea Eagles, laser effects used in the Project shall utilize lasers of power range not greater than 30 Watt and any laser beam shall not be directed towards the Pa Tau Kwu area. All laser effects shall be terminated against fixed, non-reflective objects within the Project to prevent any impacts on people and terrestrial faunal species.	Within Theme Park prior to and during the fireworks and laser show for the full operational period of the Theme Park	No laser is planned to be used for the opening day configuration of the Resort.
	F3	Fence off the public land access from the Theme Park to prevent human disturbance to the White-bellied Sea Eagle.	North side of the Theme Park close to Pa Tau Kwu secondary woodland, during and throughout the operational period of the Theme Park	Public land access from the Theme Park was fenced off.
<i>MARINE ECOLOGY AND FISHERIES - Operational Phase</i>				
<i>Marine Ecological Resources: Marine Mammals</i>				
3.20	G1	The speed of ferries and vessels of the Theme Park shall not exceed 10 knots when passing through an area within 500 metres from the reclamation limit.	During and throughout the operational period of the Theme Park	No ferries and vessels of the Theme Park are available at this stage.
	G1	The following mitigation measures shall be implemented to minimize potential operational impacts on dolphins and porpoises:		
		1. The vessel operators shall be required to use predefined and regular routes, as these will become known to dolphins and porpoises using these waters;	During and throughout the operational period of the Theme Park	Not applicable.

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		2. The vessel operators shall be required to control and manage all effluent from vessels;	During and throughout the operational period of the Theme Park	Not applicable.
		3. Operation-phase dolphin/porpoise monitoring shall be conducted by a qualified research team, to evaluate whether there have been any effects on the animals. The resulting data should be compatible with, and should be made available for, long-term studies of small cetacean ecology in Hong Kong.	During and throughout the operational period of the Theme Park	It has been agreed that CEDD will undertake the monitoring work on dolphins and porpoise until they finished their work of Phase II infrastructure in Penny's Bay.
<i>HAZARD - Operational Phase</i>				
3.12		The Hazard Management Plan as submitted on 14 July 2000 shall be fully implemented.		The Hazard Management Plan has been reviewed in the EIA Review Report which was submitted in June 2005.
<i>Fireworks Storage, Transport &amp; Display</i>				
	H1	The fireworks store will be constructed in accordance with the requirements specified in the Dangerous Goods Regulations, CAP 295 and any additional requirements as specified by the Commissioner of Mines and the Director of Fire Services. Such requirements include for example, separation distance of 101m to spectator areas within the Theme Park, 101m to buildings and high occupancy sites outside the Theme Park and 50m to public roads and low occupancy areas outside the Theme Park.	During design	The fireworks store has been constructed in accordance with the stipulated requirements.
	H2	The fireworks display including mid-level shows, low-level shows and stage shows shall be designed and conducted in accordance with the requirements of NFPA 1123 and 1126. This may include for example, separation distance of 107m from the firing site (for mid-level show) to public areas (both Theme Park visitors and off-site public) and separation distance of 214m from the firing site to other dangerous goods stores. Any additional requirements on fireworks display as specified by the Secretary of Home Affairs, Fire Services Department, Commissioner of the Television and Entertainment Licensing Authority will also be adopted. The specific distances above may vary based on maximum shell size as the distances above assume five inch (125 millimetre) shells.	During design and operation	The fireworks display including mid-level shows, low-level shows and stage shows have been designed and conducted in accordance with the requirements of NFPA 1123 and 1126.
	H4	A chain link fence will be installed around the firing site as a ballistic barricade to catch and deflect low trajectory shells (typically less than 15 degrees from horizontal and which have potential to burst near spectators under normal burst times) fired from a disrupted mortar such that they cannot travel towards spectators or members of the public.	During design	A chain link fence has been installed.

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	H5	The launch system (for mid-level display) will be designed such that mortars will remain in upright position following the failure of any given mortar or even otherwise.	During design	The proposed launch system has been designed and constructed.
	H6	Identify agencies to be contacted and establish mechanisms for reporting incidents of non-recoverable load in the event of load fall into sea while unloading at the jetty.	During operation	Agency has been identified for reporting incidents.
	H7	Mobile phones, walkie-talkies should not be carried by persons handling fireworks.	During operation	Mobile phones, walkie-talkies were not be carried by persons handling fireworks.
	H8	Fireworks store should be kept closed during fireworks display.	During operation	Fireworks store was kept closed during fireworks display.
	H9	Ensure igniters are not stored with the bulk of fireworks/pyrotechnics.	During design and operation	Igniters are not stored with the bulk of fireworks/pyrotechnics.
	H10	The site for manipulation of fireworks need to be identified. The site shall be located at adequate safety distance from the store and public areas.	During design and operation	It is not required to manipulate the fireworks on-site.
	H11	Procedures to be developed to minimise unnecessary handling/sorting of products for fireworks show inside the store. This should include adequate labelling of both outer packaging and product to aid easy identification.	During operation	Procedures have been developed and are implemented by Firework Team.
	H12	If vehicles such as fork lift trucks are used for transfer of goods from store to pre-ripping area or display site, it should meet appropriate specifications as identified by the Division of Mines. When feasible, forklifts shall operate in reverse when carrying fireworks.	During design and operation	Procedures have been developed and are implemented by Firework Team.
	H14	Disney's vendor supply of 4" and 5" shells must ensure items destined for other Disney locations are not delivered by error to this site unless conforming to requirements of this site.	During operation	Not applicable at this stage.
	H15	Procedures to be developed if trailers are to be used for mortar installation.	During operation	Mortars have been permanently installed.
	H16	Any mechanical system designed for varying mortar orientation should be such that it does not result in mortars orientated towards spectators.	During design and operation	Mortars have been permanently installed.
	H17	Use of permanently installed mortars or other similar or safer alternatives to be considered.	During design and operation	Mortars have been permanently installed.
	H18	Design and position of fence to ensure containment of low trajectory shells towards spectators as well as road (off-site).	During design and operation	Position of fence has been properly designed and constructed.
	H19	The weather conditions under which fireworks display need to be moderated should be identified in procedures based on site layout and weather data. The procedures should also identify persons responsible for making such decisions.	During operation	Procedures have been developed and are implemented by Firework Team.

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	H20	Procedures for safe handling and disposal of unfired and misfired items to be developed.	During operation	Procedures have been developed and are implemented by Firework Team.
	H21	Procedures to be established for sweeping site after display.	During operation	Procedures have been developed and are implemented by Firework Team.
	H22	Separation distances as specified in NFPA 1123 and 1126 for 'other fireworks items' (ie, other than aerial shells) used for mid-level, low-level and stage shows will be adopted.	During operation	Procedures have been developed and are implemented by Firework Team.
	H23	Members of the audience will not be invited on stage during the course of discharge of fireworks or pyrotechnics.	During operation	Audiences were not invited on stage during the course of discharge of fireworks or pyrotechnics.
	H25	Quality control measures to ensure that offspec. fireworks items are not received/used at displays/shows.	During operation	Procedures have been developed and are implemented by Firework Team.
<i>EM&amp;A REQUIREMENTS - Operational Phase</i>				
<i>Air Quality and Noise</i>				
3.1		Before the operation of the Project, the Permit Holder shall carry out trial firework displays and associated air quality and noise monitoring. The details of the trial and monitoring programme shall be submitted to the Director for agreement at least one month prior to the trial fireworks displays. The results of the trial fireworks displays shall be submitted to the Director for agreement prior to the operation of the Project. The results of the trial tests and associated air quality data shall be provided to the Advisory Council on the Environment for consultation, as directed by the Director.	During trial fireworks displays only	Trial firework displays and associated air quality and noise monitoring have been conducted. Results provided in the <i>Results of the Trial Fireworks Displays conducted in May 2005</i> and <i>Results of the Trial Fireworks Displays conducted in August 2005</i> .
3.2		No later than one month before the operation of the Project, the Permit Holder shall submit for the Director's approval an Operational Environmental Monitoring and Audit (EM&A) Plan for the operation of the Project. Before the submission to the Director, the EM&A Plan shall be certified by the IEC as having regard to Annex N of the EIA Report. All measures recommended in the approved EM&A Plan shall be fully and properly implemented in accordance with the requirements and time schedule(s) set out in the EM&A Plan. The Operational Environmental Monitoring and Audit Plan approved under this condition shall hereinafter be referred to as the "EM&A Plan".	To be produced prior to the commencement of operations at the Theme Park, and to be implemented throughout the full operational life-time of the Theme Park	EM&A Plan (Revision C) was approved by the EPD on 26 January 2007.

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3.3		Air quality and noise monitoring on fireworks displays, including monitoring stations to be located at Discovery Bay and Peng Chau and to be agreed with by the Director, shall be conducted during the operation of the Project. On the basis of such findings, mitigation measures, if needed, shall be implemented to the satisfaction of the Director. The details of the monitoring shall be included in the EM&A Plan.	At specified air and noise monitoring locations for the 1 <sup>st</sup> operational year and throughout the duration of the operational phase respectively	Air quality and noise monitoring on fireworks displays was conducted at the agreed monitoring stations during the operation of the Project.
<i>Terrestrial Ecology</i>				
<i>White-bellied Sea Eagle</i>				
3.4		Monitoring of the White-bellied Sea Eagles at Pa Tau Kwu shall be carried out for a period of two years during the operational phase of the Theme Park. The two years monitoring period shall commence at the time when all reclamation works under the Environmental Permit No. VEP-18/2000/A/EP-054 are completed. The details of the monitoring shall be included in the EM&A Plan.	The two years monitoring period shall commence at the time when all reclamation works under the Environmental Permit No. VEP-18/2000/A/EP-054 are completed. Field surveys should be undertaken twice per month during periods of breeding activity for a period of two years. At other times of the year (outside of periods of breeding activity) the field surveys should be undertaken once per month.	It has been agreed that CEDD will undertake the monitoring work on White-bellied Sea Eagles until they finished their work of Phase II infrastructure in Penny's Bay.
<i>Marine Ecology</i>				
	J4	Subject to the Environmental Protection Department's (EPD's) agreement, operational phase monitoring of the dolphin/porpoise population shall be conducted by a qualified research team in accordance with the recommendations of Section 10 of the EM&A Manual.	Throughout the operation of the Theme Park, whenever there is the potential to affect dolphin/porpoise populations	It has been agreed that CEDD will undertake the monitoring work on dolphins and porpoise until they finished their work of Phase II infrastructure in Penny's Bay.