ENVIRONMENTAL MONITORING AND AUDIT PLAN FOR THE HONG KONG DISNEYLAND RESORT (REVISION H)

Prepared by
ENVIRONMENTAL RESOURCES MANAGEMENT, HONG KONG
UNDER
EP-01/059/2000/C

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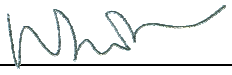
Certified By	:	Ms Winnie Ko
Signed	:	
Position	:	ET Leader
Date	:	21 June 2013

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1. INTRODUCTION

1.1 Background

The Hong Kong Disneyland Resort was considered a Designated Project under the Environmental Impact Assessment Ordinance (EIAO) and was assessed under the Environmental Impact Assessment (EIA) for "*Construction of an International Theme Park in Penny's Bay of North Lantau and its Essential Associated Infrastructures*" (EIA Report). Annex N of the EIA report is an Environmental Monitoring and Audit Manual (EM&A Manual) prepared as part of the EIA outlining the operational environmental requirements for the Project.

Following approval of the EIA Report, an Environmental Permit (EP) was issued to the Civil Engineering Department (CED), now Civil and Engineering Development Department (CEDD). Pursuant to that EP, Hongkong International Theme Park (HKITP) had subsequently applied for and was issued a Further Environmental Permit (FEP) in July 2000 (FEP-01/59/2000). Following the issuance of FEP, HKITP applied for variations and an Environmental Permit (EP) was issued in October 2005 (EP-01/059/2000/B) which contains the requirements and obligations for the resort operations. A new version of the EP (EP-01/059/2000/C) was issued in October 2012.

HKITP commenced operation of a Disney-branded theme park and resort, and associated complex and infrastructure at Penny's Bay, Hong Kong (the "Resort") on 12 September 2005. The location and general layout plan of the Resort is depicted in Figure 1.1. This Operational Environmental Monitoring and Audit (EM&A) Plan was prepared in accordance with the EP requirement and the EIA recommendations for the management and implementation of the Resort, of which excluding the operation of a Water Recreation Centre (WRC) which is a designated project covered under a different EP. The environmental monitoring and audit plan for the WRC is prepared and submitted to Environmental Protection Department (EPD) under a separate submission.

1.2 Geographical Scope of the EM&A Programme

This EM&A Plan covers the operations of the Resort in the following areas:

- Theme Park and its Back-of-House Area
- Hotels within the Resort
- Public Transport Interchange (PTI)
- Car and Coach Park
- Government Landscaped Area (GLA)
- Ferry Pier

The PTI, GLA and Ferry Pier are Government Areas entrusted to HKITP for its operation.

Areas within the Theme Park resort area that are not covered under this EM&A plan include Water Recreation Centre (a licensed area to HKITP under a separate environmental permit and

is addressed in a separate submission) and Government management area such as Western Resort Road, utility yard and some landscape berms along the public roads. The environmental monitoring and audit plan for the water recreation centre was covered under a separate submission as discussed in Section 1.1 above.

1.3 Permit Requirements

Under Condition 3.2 of the EP-01/059/2000/C, it states that "*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*".

Also, under Conditions 5.1 and 5.2 of the aforementioned EP, it is stated that "*the EM&A Plan approved under Condition 3.2 of this Permit shall be implemented. Any proposed changes to the EM&A details shall be justified by the ET Leader as having regard to the requirements set out in the EM&A Plan, and shall be submitted to the Director for approval*" and "*the EM&A Plan shall contain monitoring locations, monitoring schedules, methodology and qualification of monitoring team members. Monitoring shall be conducted in accordance with the EM&A Plan unless with prior approval from the Director. Monitoring details and results shall be recorded in reports submitted in accordance with the EM&A Plan. A hard copy and a soft copy of the reports shall be deposited with the Director within two weeks of each reporting period as specified in the EM&A Plan. The reports shall be certified by the ET Leader before deposit with the Director"*.

1.4 Purpose and Content of the Plan

In accordance with the requirements of the EIA Report, the EM&A Plan has been developed using the framework set forth in the EM&A Manual (Annex N to the EIA Report) albeit recognising that the EM&A Plan must be specific to the resort operations. This plan sets out the arrangements for environmental monitoring and auditing, the organisational arrangement of responsible personnel, the mechanisms for ensuring that the recommended mitigation measures are fully and effectively implemented, and the actions to be taken in the event of any exceedances of the event or action limits. The EM&A Plan is a dynamic and live document and HKITP will review and update the plan at least on an annual basis.

The primary purposes of this EM&A Plan are: -

- to provide reference and instruction to those charged with environmental duties during the resort operations;
- to set forth the EM&A Programme developed by HKITP and verified by the IEC; and
- to set forth systematic procedures for the monitoring, auditing and remedying of potential adverse environmental impacts that may arise from the resort operations.

1.5 Objectives of EM&A Programme

The general objectives of the EM&A Programme are: -

- to provide a database against which any short or long-term environmental impacts arising out of the resort operations can be determined;
- to provide an early indication should any of the environmental control measures or practices fail to achieve the acceptable standards;
- to monitor the implementation of mitigation measures,
- to determine environmental compliance with regulatory requirements, standards and government policies;
- to take remedial action if unexpected problems or unacceptable environmental impacts arise; and
- to provide data against which environmental audits may be undertaken.

1.6 Scope of EM&A Programme

The scope of this EM&A programme is:

- to establish baseline air quality at specified locations;
- to implement operational monitoring and inspection programmes for fireworks air quality, fireworks noise and theme park fixed plant noise;
- to implement inspection and audit requirements for waste management;
- to identify and resolve environmental issues as they may arise from the operation;
- to check and quantify the overall environmental performance, the implementation of Event Action Plans (EAPs) and remedial actions taken to mitigate adverse environmental effects as they may arise from the operation;
- to conduct monthly reviews of monitored data as the bases for assessing compliance with the defined criteria and to ensure that necessary mitigation measures are identified and implemented, and to undertake additional ad hoc monitoring and auditing as required by special circumstances;
- to evaluate and interpret all environmental monitoring data to provide an early indication should any of the environmental control measures or practices fail to achieve the acceptable standards, and to verify the environmental impacts predicted in the EIA report;
- to conduct regular site inspections of a formal or informal nature to assess:
  - The implementation of the recommendations of the EIA report;
  - The performance as measured by the EM&A;
  - The need for specific mitigation measures to be implemented or the continued usage of those previously agreed; and

  - To advise the operation team of any identified potential environmental issues.
- Submit monthly EM&A reports which summarise project monitoring and auditing data, illustrating the acceptability or otherwise of any environmental impacts and identification or assessment of the implementation status of agreed mitigation measures.

1.7 Structure of the EM&A Plan

Following this introductory chapter, the remainder of the EM&A plan is set out as follows:

- *Chapter 2* outlines the EM&A Requirement from the permit and EIA report
- *Chapter 3* outlines the EM&A strategy in terms of the organisation of parties involved in the EM&A process and the definition use of Action/ Limit levels
- *Chapter 4* details the technical requirements and procedures for air quality monitoring
- *Chapter 5* details the technical requirements and procedures for noise monitoring
- *Chapter 6* describes the audit procedures related to waste management issues
- *Chapter 7* describes the arrangement for monitoring and audit for Terrestrial Ecology
- *Chapter 8* describes the arrangement for monitoring and audit for Marine Ecology
- *Chapter 9* outlines the scope of site auditing and complaint handling procedures
- *Chapter 10* details the EM&A reporting requirements

2. EM&A REQUIREMENT

It was recommended in the EIA Report that operation monitoring associated with Theme Park operation should be conducted for the following parameters:

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

The EIA findings and the associated EM&A recommendations are summarised in the following paragraphs for the above parameters.

2.1 Fireworks Air Quality

The EIA reported on the assessments of the fireworks displays which drew on modelling techniques and literature reviews. The EIA demonstrated that based on the Respirable Suspended Particulates (RSPs) modelling and the low percentage of heavy metals in the fireworks, "impact from heavy metals is not expected". Potential odour from the fireworks (hydrogen sulphide) was also modelled and reported in the EIA to be within the acceptable criteria at the ASRs. Fireworks displays would not be a significant source of atmospheric emissions of dioxins and VOC. In summary, the EIA concluded that the fireworks displays emissions impact on air quality would only contribute to marginal increase in the air pollutant levels in the atmosphere (Section 3.8.8 of the EIA Report).

Under Condition 3.1 of the EP-01/059/2000/C it is stated that "*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*". The details of the trial and monitoring programme were submitted to DEP and were approved on 27 April 2005. Trial displays and associated air quality and noise monitoring were carried out on 6 May 2005 and a backup monitoring was conducted on 7 May 2005. The results of the trial fireworks displays were submitted to DEP and ACE on 29 June 2005. ACE consultation was undertaken on 11 July 2005. The trial displays monitoring results show that all measured pollutants were well below the respective air criteria which concur with the EIA prediction that the fireworks program would not cause any significant impacts to the surrounding environment.

Furthermore the EIA also concluded that the *"firework emission assessments predicts that fireworks would only contribute to marginal increase in the air pollutant levels in the atmosphere; operation monitoring for the first operational year is proposed for verification purposes"*. The verification process for such a statement is detailed in *Chapter 4* of this EM&A Plan.

2.2 Fireworks Noise

The EIA did not predict any adverse impact at the defined Noise Sensitive Receivers (NSRs) in Discovery Bay and Peng Chau. Noise generated by evening firework displays was predicted in the EIA to achieve the $L_{eq,15min}$ 55dB(A) limit. Noise monitoring was however recommended to check compliance with relevant criteria. In addition, EP condition 3.3 suggests that noise monitoring shall be carried out at Discovery Bay and Peng Chau during the fireworks displays to ensure compliance with the suggested limit in EIA. The noise monitoring arrangement is described in Chapter 5.

2.3 Fixed Plant Noise from Theme Park

The operational noise assessment did not predict any exceedance of the relevant noise criteria due to the operation of the Theme Park and associated developments. Despite this finding, noise monitoring is recommended during the operational phase to ensure compliance with the applicable noise criteria. For fixed plant noise contribution, noise monitoring was suggested to comprise monitoring at the perimeter of the Theme Park to ensure compliance with the noise criterion of 75 dB(A), to assess the cumulative noise contribution from the fixed plant within the resort.

2.4 Waste Management

An estimate of the municipal wastes arising was included in the EIA Report based on experience at other international Theme Parks. This forecast has been reviewed and incorporated into the Operations Waste Management Plan (OWMP) which is under separate submission to DEP. Recycling options were also discussed and are covered in the OWMP. The EIA concluded that waste management issues "are not anticipated during the operation phase".

2.5 Terrestrial Ecology

The EIA summarised that during the operational phase there exists the potential impact, which may include noise from the laser shows (which will not be undertaken on opening day program), fireworks displays and operational plant, to the White Bellied Sea Eagles (WBSE). 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 displays.

It has been agreed between HKITP, CEDD and EPD that monitoring of WBSE 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, and therefore the potential disturbance from the reclamation works no longer exists. Monthly terrestrial ecological monitoring by CEDD was terminated after completion of the construction works in February 2008 with the approval from EPD. The monitoring program for WBSE required under the construction phase of Penny's Bay Reclamation Stage 2 has already covered the operational phase of the Hong Kong Disneyland Resort for more than 2 years since its commencement on 12 September 2005 and no adverse impact to WBSE was noted.

Future monitoring requirements of WBSE after the completion of Penny's Bay Reclamation Stage 2 have been discussed between EPD, AFCD and HKITP. It has been agreed that monitoring of WBSE will be conducted for a 2-year period when the Theme Park Phase II fireworks displays are launched. The monitoring requirements for WBSE will be proposed by the ET and agreed with Agriculture, Fisheries and Conservation Department (AFCD) prior to the commencement of Theme Park Phase II fireworks displays.

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 inclusion 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. The monitoring programme for the dolphins/porpoises was carried out by CEDD during the construction of Penny's Bay Reclamation Stage 2 contract. Monthly marine ecological monitoring by CEDD was terminated after completion of the marine works for the reclamation project in December 2007 with the approval from EPD. HKITP continued to undertake the dolphin/porpoise monitoring for one more year. The summary of findings for the agreed one-year monitoring period was included in the forty-sixth Environmental Monitoring and Audit (EM&A) report and was submitted to EPD and AFCD for review and comment on 6 August 2009.

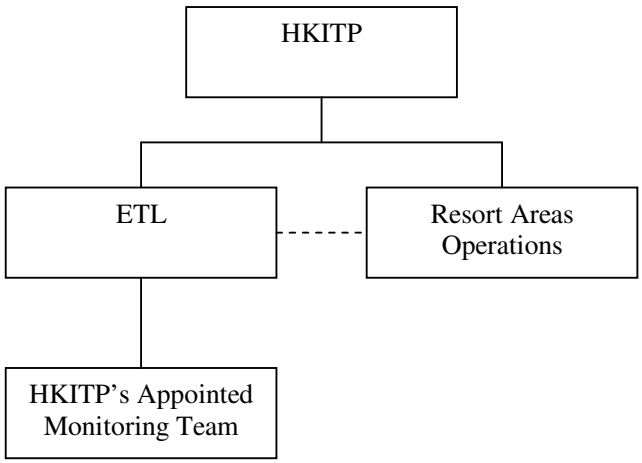
Based on the monitoring results, there was no evidence of disturbance of or impact on dolphins/porpoises from the operation of the Hong Kong Disneyland Resort and therefore, there is no longer a specific need to continue the monitoring of marine mammals. With the support of the extensive field data obtained, HKITP has proposed, in consultation with AFCD, to terminate the monitoring of marine mammals after July 2009. Findings are detailed in *Chapter 8* of this EM&A Plan.

3. EM&A STRATEGY

3.1 Organisation

The organisation and lines of communication with respect to environmental matters are shown in Figure 3.1. An Environmental Team (ET) will be established by HKITP. The ET will consist of qualified environmental personnel supervised by an ET Leader (ETL) who has at least 7 years' experience in EM&A or environmental management. The ETL together with the monitoring team will be responsible for the implementation of the EM&A programme in accordance with this plan.

Figure 3.1 HKITP Environmental Team Organisation Structure



3.2 Duty of Environmental Team

The duties of the ET are:

a. sampling, analysis and statistical evaluation of monitoring parameters with reference to the EIA/EP recommendations and requirements;

b. environmental site surveillance;

c. audit of compliance with environmental protection, and pollution prevention and control regulations;

d. monitor the implementation of environmental mitigation measures;

e. complaint investigation, evaluation and identification of corrective measures;

f. liaison with EPD on all environmental performance matters;

g. advice to the HKITP on environmental improvement, awareness, enhancement matters, etc on the Resort;

h. timely submission of the EM&A report to HKITP and the Director of Environmental Protection.

3.3 Action & Limit Levels / Event & Action Plans

"Action and Limit Levels" ("A/L Levels") are defined levels of impact recorded by the environmental monitoring activities that represent levels at which a prescribed response is required. These levels are quantitatively defined later in the relevant Parts of this EM&A Plan, but can be described in principle: -

- Action Limits are those limits beyond which there is a clear indication of a deteriorating ambient environment for which appropriate remedial actions are likely to be necessary to prevent environmental quality from falling outside the Limit Levels, which would be unacceptable; and

- Limit Levels are those statutory and/or agreed contract limits stipulated in the relevant pollution control ordinances, the HKPSG or the Environmental Quality Objectives established by the EPD such that, if exceeded, works should not proceed without appropriate remedial action, including a critical review of plant and working methods.

"Event and Action Plans" (EAP's) provide, in association with the monitoring and audit activities, procedures for ensuring that if any significant adverse environmental incident caused accidentally or through inadequate implementation of mitigation measures the cause will be immediately identified and remediated, and risk of a similar event occurring reduced or removed (and shall also apply to exceedances of A/L criteria).

4. AIR QUALITY

4.1 Introduction

The EIA stated that several air quality parameters would be monitored during the fireworks show throughout the first operational year for verification purposes. Air quality monitoring during the first operational year has been 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 quality monitoring were conducted in the first year of operation. During the second year operation, HKITP voluntarily extended the monitoring program and quarterly RSP monitoring was conducted. All monitoring results are available in the web-site (http://www.themeparkatpennysbay-op.com.hk/). The air quality monitoring has been conducted over the two-year period under a variety of meteorological conditions including wind speed and direction.

4.2 Summary of Air Quality Monitoring for Baseline and First and Second Operational Years

4.2.1 Baseline Monitoring

Baseline monitoring was undertaken at Rooftop of Crestmont Villa Management Office, Discovery Bay (AM1) and Rooftop of Peng Lai Court, Peng Chau (AM2) to collect background data in the absence of fireworks display. The monitoring was conducted from 27 July 2005 for seven consecutive days. Samples for RSP, barium (Ba), copper (Cu), and dioxin, were collected over a continuous 24-hour period whereas samples of hydrogen sulfide were collected over a 1-hour period during the approximate time of the firework displays. The Baseline Monitoring Report has been submitted to EPD and is available in the web-site (http://www.themeparkatpennysbay-op.com.hk/).

4.2.2 Sampling Parameters and Analytical Methods

Baseline air quality monitoring was conducted following United States Environmental Protection Agency (USEPA) protocols. The full description of these methodologies can be found on the USEPA air quality website (http://www.epa.gov/ttnamti1/inorg.html). Except for hydrogen sulfide, sampling was occurred over a 24 hr period.

Respirable Suspended Particles (RSP)

As noted in the EIA (Sect. 5.2.3), total RSP was quantified using a high volume sampler (HVS) run continuously over a 24 hr period. The following specifications were required:

- 0.6-1.7 m^3/min (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;
- ability to hold and seal the filter paper to the sampler housing at horizontal position.

Barium and Copper

Barium (Ba) and copper (Cu) were collected from the RSP filter samples used in the high volume samplers. The analytical methods followed EPA methods IO-2.1 and IO-3.5. Briefly, the procedure was: Aliquots from the RSP sample was analyzed for barium and copper. After samples were returned to the laboratory, an inductively coupled plasma mass spectrophotometer (ICP/MS) was used to quantify Ba and Cu concentrations.

Dioxins

Total dioxins were measured during both the baseline and operational sampling periods using a separate high volume sampler equipped with a quartz fibre filter and polyurethane foam (PUF) adsorbent at each selected location for sampling of 325 to 400 m^3 air over 24 hours (USEPA, Method TO-9A).

Hydrogen Sulfide

The Hydrogen Sulfide (H_2S) concentrations were determined on-site using an impinger with the methylene blue spectrophotometric method. H_2S was measured once per 24-hour period. The measurement occurred over a period of one hour during the anticipated fireworks display.

4.2.3 First Operational Year Monitoring

Air quality monitoring during the first operational year has been 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, in accordance with the schedule as presented in Table 4.1. Air samples analyzed for hydrogen sulfide has also be collected over a 1-hour period during the firework show. Analysis of air sampling was conducted in accordance with Section 4.2.2. A total of eight sets of air quality monitoring were conducted in the first year of operation and the monitoring results are available in the web-site (http://www.themeparkatpennysbay-op.com.hk/). The measurement results of all 24-hour monitoring parameters including barium, copper, dioxins and 1-hour H_2S were either low or not detected at AM1 and AM2. The measured 24-hour RSP results are also comparable to the 24-hour RSP recorded at the EPD's air quality monitoring stations (AQMS) at Tung Chung and Tap Mun. The measured air quality monitoring results are therefore considered to be most likely reflecting the general background concentrations and verify that fireworks displays emissions did not affect ambient air quality at ASRs.

Table 4.1 Sampling Schedule during First Year Operational Monitoring

Parameters	Sampling Time (hours)	Methodology	Frequency	Locations
RSP	24	USEPA Method IO-2.1	Once every 2 weeks for the first 2 months of operation, thereafter once every three months through the first year of operation	AM1 & AM2
Ba & Cu	24	USEPA Method IO-2.1 & IO3.3		
Dioxins	24	USEPA Method TO-9A		
H_2S	1 (during fireworks displays)	Methylene Blue		

4.2.4 Second Operational Year Monitoring

24-hour Respirable Suspended Particulates (RSP) monitoring was conducted at the frequency of once every three months during the second operational year. A total of four sets of air quality monitoring were conducted in the second year of operation and the monitoring results are available in the web-site (http://www.themeparkatpennysbay-op.com.hk/).

The measured 24-hour RSP results obtained during the second operational year are comparable to the 24-hour RSP recorded at the EPD's air quality monitoring stations (AQMS) at Tung Chung and Tap Mun. Based on the comparison, the measured air quality monitoring results are considered representative of the general background concentrations and serve to verify that the emissions from the fireworks displays did not affect ambient air quality at the ASRs.

4.3 Air Quality Monitoring in Future

The first and second year air quality monitoring results are considered to be representative for the verification of the predicted impact at the ASRs. The monitoring results [(1)] during the first year air quality monitoring indicated that the monitoring programme is no longer required from the second year of operation. However, considering the increased awareness on the air quality in Hong Kong, HKDL is voluntarily extending the quarterly monitoring of RSP (as an indicator of local air quality) to cover the second and third years of operation. Future air quality monitoring programme will be further reviewed after the completion of the third operational year. The air quality monitoring will therefore be conducted in the third year in accordance with the following methodology.

4.3.1 Air Quality Monitoring Station

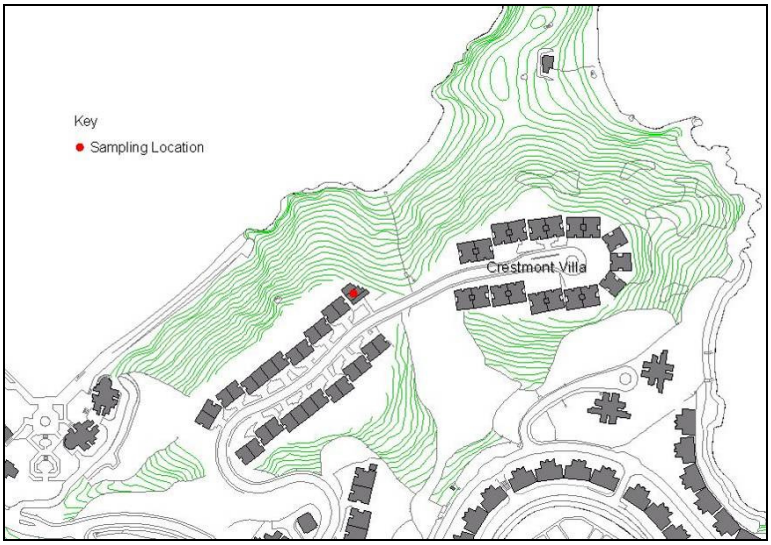
EP-01/059/2000/C requires that air quality monitoring for fireworks displays to be conducted with monitoring stations located at Discovery Bay and Peng Chau. In response to this requirement, air quality monitoring stations were installed and operated at Crestmont Villa of Discovery Bay and Peng Lai Court of Peng Chau, respectively. During the second operational year, objection was received from the Owners' Corporation of the Peng Lai Court on continuing the operation of the air quality monitoring station at their premises. A search was conducted but no alternative location that met the requirements as a replacement for Peng Lai

(*1*) Monitoring Results are available in the web-site (http://www.themeparkatpennysbay-op.com.hk/).

Court could be used (1). In the absence of a suitable replacement for Peng Lai Court and any evidence that the HKDL firework displays had caused any increase in RSP levels measured at the Air Sensitive Receivers (ASRs) during the first and second operational years, it was agreed with EPD that RSP monitoring at Peng Lai Court would discontinue from the start of the third operational year.

RSP monitoring will continue at Discovery Bay, which is located closer to the Theme Park, and the monitoring results is considered to be sufficiently representative for identifying potential air quality impacts from the firework displays. The location of AM1 is illustrated in Figure 4.1a.

Figure 4.1a AM1 –Air Quality Monitoring Station in Discovery Bay



4.3.2 Sampling Parameter and Analytical Method

The sampling parameter and analytical method are described below and summarized in Table 4.2.

Table 4.2 Proposed Sampling Schedule

Parameter	Sampling Time (hours)	Methodology	Frequency	Locations
RSP	24	USEPA Method IO-2.1	Once every three months	AM1

A total RSP will be quantified using a high volume sampler (HVS) run continuously over a 24 hr period. The following specifications were required:

(*1*) Possible locations in Peng Chau (including Peng Chau Fire Station, Peng Chau Municipal Building, Peng Chau Refuse Transfer Station (RTS), Kam Ping House, Sea Crest Villa and village houses located south of Peng Lai Court) were explored. The use of Peng Chau Fire Station was rejected by the Fire Services Department (FSD) due to security reasons. Peng Chau Municipal Building is located very close to the Peng Chau Pier and the air emissions from ferries would affect the monitoring results. The waste tipping at the tipping hall and the operation of the RTS would also give rise to dust and may affect the RSP reading. The side walls of the rooftop of Kam Ping House are high and would act as barriers deviating the pollutant dispersion during the sampling. Sea Crest Villa is a private property and the rooftop is occupied making it impossible to accommodate any monitoring equipment. The village houses located south of Peng Lai Court are low-rise buildings and would be screened by Peng Lai Court and Kam Ping House. Based on the above mentioned observations reason, no location is considered suitable as a replacement for Peng Lai Court for air quality monitoring in Peng Chau.

- 0.6-1.7 m^3/min (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;
- ability to hold and seal the filter paper to the sampler housing at horizontal position.

4.3.3 Compliance Assessment

The Action and Limit Levels for air quality monitoring are presented in Table 4.3.

Table 4.3 Action and Limit Levels

Monitoring Station	**24-hour RSP (μg/m3)**	
	Action Level	**Limit Level**
AM1	106	180

4.4 Event Action Plan

In the event that the RSP samples indicate an exceedance to the Action and Limit Levels given in Table 4.4, HKITP will implement the following actions of the Event and Action Plan (EAP) as shown in Table 4.4.

Table 4.4 Event Action Plan for Air Quality

Exceedance	Environmental Team Leader	HKITP
Action Level for RSP		
1. Exceedance for one sample	1. Notify HKITP and EPD 2. Repeat measurement to confirm findings 3. Identify the source(s) of impact 4. If source of impact confirmed to be from HKITP operation, increase monitoring frequency to monthly 5. If exceedance stops, cease additional monitoring	1. Check monitoring data submitted by ETL. 2. Notify operation unit responsible for fireworks show 3. Review the operation of the fireworks show
2. Exceedance for two or more consecutive samples	1. Notify HKITP and EPD 2. Repeat measurement to confirm findings 3. Identify the source(s) of impact 4. If source of impact confirmed to be from HKITP operation, increase monitoring frequency to weekly 5. Discuss with HKITP remedial actions required 6. If exceedance stops, cease additional monitoring	1. Check monitoring data submitted by ETL. 2. Notify operation unit responsible for fireworks show 3. If source of impact confirmed to be from HKITP operation, develop proposals for remedial measures within three working days of notifications 4. Implement the agreed proposals
Limit Level for RSP		
1. Exceedance for one sample	1. Notify HKITP and EPD 2. Repeat measurement to confirm findings 3. Check monitoring data trends and HKITP operations 4. Identify the source(s) of impact 5. If source of impact confirmed to be from HKITP operation, increase monitoring frequency to monthly 6. Assess the efficacy of HKITP's remedial actions and keep EPD informed of the results 7. If exceedance stops, cease additional monitoring	1. Check monitoring data submitted by ETL. 2. Notify operation unit responsible for fireworks show 3. If source of impact confirmed to be from HKITP operation, develop proposals for remedial measures within three working days of notifications 4. Implement the agreed proposals
2. Exceedance for two or more consecutive samples	1. Notify HKITP and EPD 2. Repeat measurement to confirm findings 3. Check monitoring data trends and HKITP operations 4. Identify the source(s) of impact 5. If source of impact confirmed to be from HKITP operation, increase monitoring frequency to weekly 6. Discuss remedial actions required with HKITP & EPD. 7. Assess the efficacy of HKITP's remedial actions. 8. If exceedance stops after the implementation of the mitigation measures, cease additional monitoring.	1. Check monitoring data submitted by ETL. 2. Notify operation unit responsible for fireworks show 3. If exceedance confirmed to be associated with HKITP's operations, take immediate action to avoid further exceedance. 4. Develop proposals for remedial actions within three working days of notification. 5. Implement the agreed proposals 6. Should exceedance continue after implementation of remedial measures, stop the relevant portions of the fireworks displays until the exceedance is abated.

5. NOISE

5.1 Introduction

The operational noise assessment contained in the EIA did not predict any exceedance of the relevant noise criteria due to the operation of the Theme Park and associated developments. Despite this finding, noise monitoring was recommended in the EIA to ensure compliance with the operational noise criteria. The EIA further recommended that noise monitoring should be undertaken during the fireworks display to ensure that the resulting noise level does not exceed the required criteria.

5.2 Methodology and Criteria

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. For the monitoring of fireworks noise, the appropriate criteria will be the $L_{Aeq,15min}$ 55dB(A) whereas $L_{Aeq,30min}$ 75dB(A) will be for the fixed plant noise.

Following any significant changes to the park's operations (such as the introduction of a new ride or attraction) fixed plant noise will be undertaken once every six days for one month to ensure compliance with the noise criteria. Similarly, fireworks noise monitoring will be undertaken once every six days for one month following any significant changes to the park's fireworks display (such as increase in the type or number of fireworks included within the display). At all other times, throughout the operational lifetime of the Theme Park, noise monitoring of fixed plant and fireworks noise will be undertaken once a month.

5.3 Monitoring Equipment

Sound level meters and calibrators will comply with the *International Electrotechnical Commission (IEC) Publication 651 : 1979 (Type 1) and 804 : 1985 (Type 1)* specification as referred to in the GW-TM. The sound level meters will be supplied and used with the manufacturers recommended wind shield and with a tripod.

The calibration of the sound level meters will be carried out in accordance with the manufacturer's requirements. The sound level meters, including the calibrators, will be verified by the manufacturers once every two years to ensure that they perform to the same level of accuracy as stated in the manufacturers specifications. Calibrated hand-held anemometers capable of measuring the wind speed in ms^{-1} will also be provided for the measurement of wind speeds during noise monitoring periods. The anemometers will be used and calibrated in accordance with the manufacturers recommendations.

Sound level meters will be calibrated using a portable calibrator before and after each measurement. The calibration levels will be noted with the measurement results and where the difference between the calibration levels is greater than 1 dB(A) the measurement will be repeated.

The ETL will ensure the equipment will be kept in a good state of repair in accordance with the manufacturer's recommendations and maintained in proper working order with sufficient spare equipment available in the event of breakdown to maintain the planned monitoring

programme.

Noise measurements should not be made in the presence of fog, rain, wind with a steady speed exceeding 5 ms^{-1} or wind with gusts exceeding 10 ms^{-1}. The wind speed will be checked with the hand-held anemometers.

5.4 Monitoring Locations

Noise monitoring should be conducted at the designated noise monitoring locations as summarised in Table 5.1 and presented in Figures 5.1a, 5.1b and 5.2a. NM1 and NM2_1(1) have been approved by EPD for fireworks noise monitoring while NM4 (2) has been approved by EPD for fixed plant noise monitoring.

Table 5.1 Noise Monitoring Locations

Noise Monitoring Stations	Identity/Description	Parameters
NM1	Rooftop of Cherish Court, Discovery Bay	Noise from Fireworks Displays
NM2_1	Sea Crest Villa Block D, Peng Chau	
NM4	Rooftop of the Central Maintenance Building	Fixed plant noise

In the future, should there be difficulties in obtaining site access to the above locations or should the above locations become inappropriate for ongoing impact monitoring, alternative locations will be proposed for EPD's agreement.

(1) The fireworks noise monitoring station (NM2) at Peng Chau Refuse Transfer Station in the previous EM&A Plan (Revision G) became inaccessible since 28 April 2013. As a replacement for NM2, an alternative fireworks noise monitoring station was proposed at Sea Crest Villa Block D (NM2_1) (see Figure 5.1b) and the proposed replacement was approved by the EPD on 14 June 2013.

(2) Site visit was conducted on 6 September 2005 to identify a suitable location for the fixed plant noise monitoring. During the site visit, it was noted that all berms were covered by dense vegetation, and no unshielded position could be identified. As no appropriate location can be identified at the berm, an alternative location (the rooftop of the Central Maintenance Building) is proposed (see Figure 5.2a). The Central Maintenance Building is about 9m above ground levels and has an unshielded position overlooking the Theme Park. In addition, the Central Maintenance Building is located adjacent to the berm, so it is anticipated that the noise levels perceived at the Central Maintenance Building is similar to the berm. It is therefore recommended that fixed plant noise measurement be carried out at the rooftop of the Central Maintenance Building.

Figure 5.1a NM1 – Designated Noise Monitoring Station at Discovery Bay

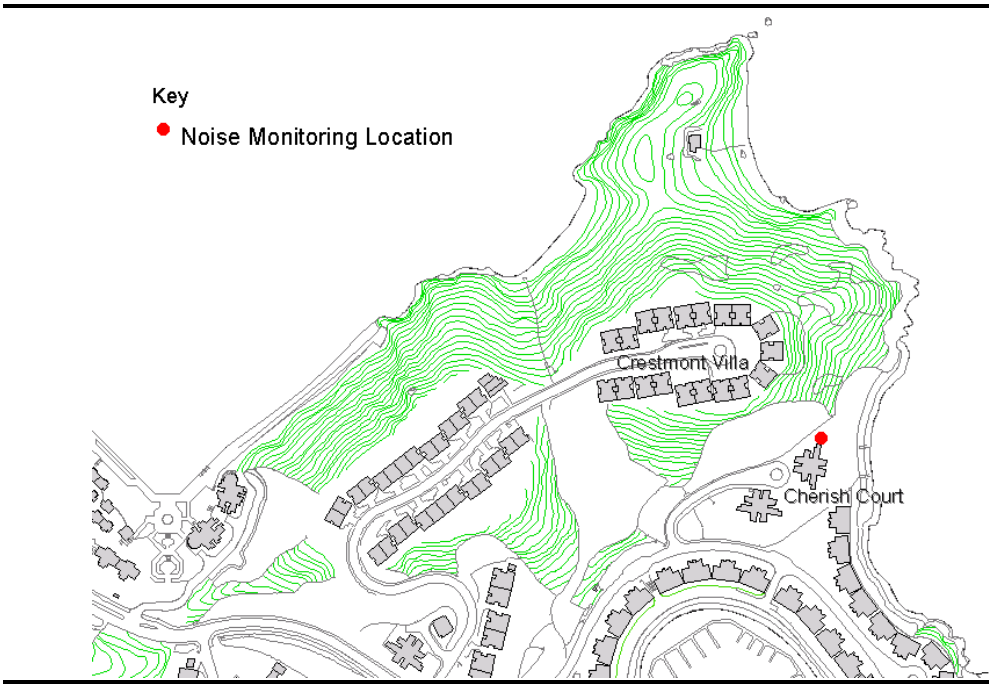


Figure 5.1b NM2_1 – Designated Noise Monitoring Station at Sea Crest Villa Block D, Peng Chau

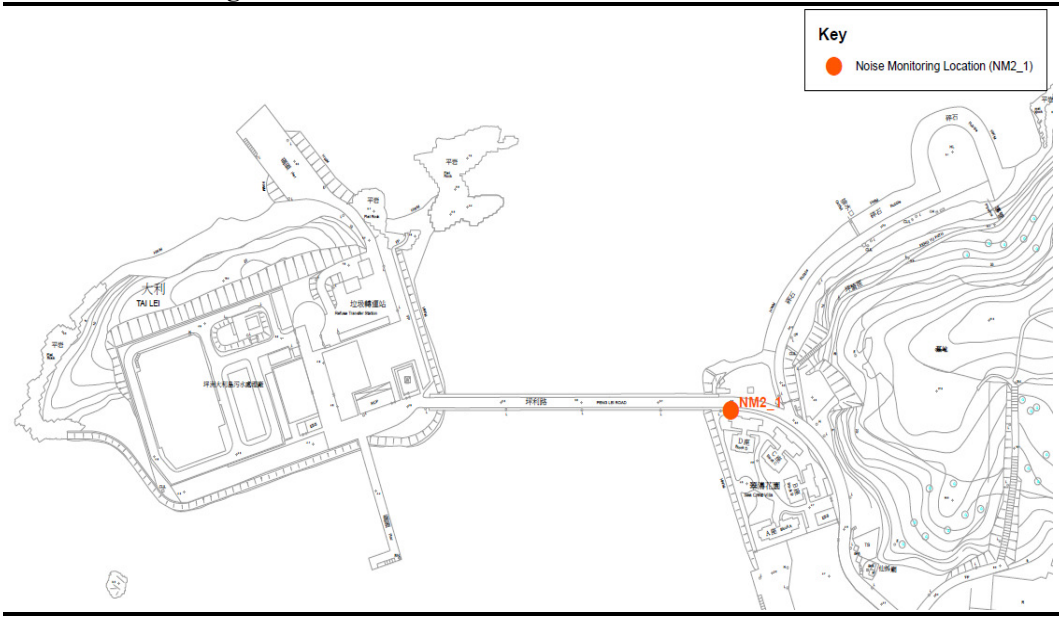


Figure 5.2a NM4 – Proposed Noise Monitoring at Central Maintenance Building

5.5 Baseline Monitoring

The EIA suggested that fireworks baseline monitoring will be undertaken at the designated noise monitoring stations, prior to the opening of the Theme Park (and avoiding any times of atypical noise generation) over one consecutive 7-day calendar week at a minimum logging interval of 15 minutes. As discussed and agreed with EPD, the baseline fireworks noise monitoring approach has been revised. Two $L_{eq,15mins}$ ambient measurements will be taken on the same day when fireworks noise monitoring is conducted. The first $L_{Aeq\ 15mins}$ measurement will be taken immediately prior to the fireworks show and the second immediately following the show. These two ambient measurements will be averaged together to form the Background Noise Level.

Section 6.3.5 of Annex N of EIA specified that no baseline monitoring is required at the theme park berm, hence no baseline noise monitoring will be conducted for fixed plant noise from theme park operation.

5.6 Impact Monitoring

5.6.1 Fixed Plant Noise

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

5.6.2 Fireworks Noise

For fireworks noise, a $L_{Aeq,15mins}$ measurement will be taken for the 15 minutes timeframe that will include all fireworks noise levels. During the measurement, an editing will be made where appropriate to allow for any significant influence on the measured firework noise level, in accordance with standard acoustical principles and practices. The result of this edited measurement will be the Measured Noise Level.

The Corrected Noise Level created by the fireworks will be computed based on the Background Noise Level and Measured Noise Level.

5.7 Compliance Assessment

5.7.1 Fixed Plant Noise

As suggested in the EIA, HKITP will adopt the maximum fixed plant site perimeter noise level (ie Limit Level) of $L_{Aeq,\ 30mins}$ 75 dB(A) at the perimeter of the Theme Park (NM4). HKITP will follow the Action and Limit (A/L) Levels as suggested in EIA which are summarised in Table 5.2.

Table 5.2 Action and Limit Levels

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

5.7.2 Fireworks Displays

During monitoring, an editing will be made where appropriate to allow for any significant influence on the measured firework noise level (such as significant noise created by aircraft, boat engines, boat horn, etc.), 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 $L_{Aeq,\ 15\ min}$ 55dB(A) at NM1 and NM2 as suggested in the EIA. HKITP will follow the Limit (A/L) Levels as suggested in EIA which is $L_{Aeq,\ 15\ min}$ 55dB(A).

5.8 Event and Action Plan

In the event that the noise from the fireworks displays and fixed plant exceed the noise limit identified above, HKITP will strictly observe the relevant actions of the Event and Action Plan (EAP) as shown below.

Table 5.3 Event and Action Plan for Fixed Plant Noise

Exceedance	Environmental Team Leader	HKITP
Action Level		
	1. Notify HKITP and EPD 2. Carry out investigation 3. Report the results of investigation to HKITP and EPD 4. If complaint deemed valid, discuss with HKITP and formulate remedial measures 5. Carry out monitoring to check mitigation effectiveness	1. Review the analysed results and investigation report submitted by ETL. 2. Develop remedial measures if complaint deemed valid after investigation 3. Implement remedial measures
Limit Level		
1. Exceedance for one sample	1. Notify HKITP and EPD 2. Repeat measurement to confirm findings 3. Check monitoring data trends and HKITP operations 4. Identify the source(s) of impact 5a. During the period of noise monitoring conducted once every six days - If source of impact is confirmed to be from HKITP operation, increase monitoring frequency to once per three days 5b. During the period of noise monitoring conducted once per month - If source of impact is confirmed to be from HKITP operation, increase monitoring frequency to weekly 6. Assess the efficacy of HKITP's remedial actions and keep EPD informed of the results 7. If exeedance stops, cease additional monitoring	1. Check monitoring data submitted by ETL. 2. If source of impact confirmed to be from HKITP operation, develop proposals for remedial measures within three working days of notifications 3. Implement the agreed proposals
2. Exceedance for two or more consecutive samples	1. Notify HKITP and EPD 2. Repeat measurement to confirm findings 3. Check monitoring data trends and HKITP operations 4. Identify the source(s) of impact 5a. During the period of noise monitoring conducted once every six days - If source of impact is confirmed to be from HKITP operation, increase monitoring frequency to once per three days 5b.During the period of noise monitoring conducted once per month - If source of impact is confirmed to be from HKITP operation, increase monitoring frequency to weekly 6. Discuss remedial actions required with HKITP & EPD 7. Assess the efficacy of HKITP's remedial actions. 8. If exceedance stops after the implementation of the mitigation measures, cease additional monitoring	1. Check monitoring data submitted by ETL. 2. If exceedance confirmed to be associated with HKITP's operations, take immediate action to avoid further exceedance. 3. Develop proposals for remedial actions within three working days of notification. 4. Implement the agreed proposals 5. Should exceedance continue after implementation of remedial measures, stop the relevant portions of the theme park operation until the exceedance is abated.

Table 5.4 Event and Action Plan for Fireworks Noise

Exceedance	Environmental Team Leader	HKITP
Limit Level		
1. Exceedance for one sample	1. Notify HKITP and EPD 2. Repeat measurement to confirm findings 3. Check monitoring data trends and HKITP operations 4. Identify the source(s) of impact 5a. During the period of noise monitoring conducted once every six days - If source of impact is confirmed to be from HKITP operation, increase monitoring frequency to once per three days 5b. During the period of noise monitoring conducted once per month - If source of impact is confirmed to be from HKITP operation, increase monitoring frequency to weekly 6. Assess the efficacy of HKITP's remedial actions and keep EPD informed of the results 7. If exeedance stops, cease additional monitoring	1. Check monitoring data submitted by ETL. 2. Notify operation unit responsible for fireworks show 3. If source of impact confirmed to be from HKITP operation, develop proposals for remedial measures within three working days of notifications 4. Implement the agreed proposals
2. Exceedance for two or more consecutive samples	1. Notify HKITP and EPD 2. Repeat measurement to confirm findings 3. Check monitoring data trends and HKITP operations 4. Identify the source(s) of impact 5a. During the period of noise monitoring conducted once every six days - If source of impact is confirmed to be from HKITP operation, increase monitoring frequency to once per three days 5b. During the period of noise monitoring conducted once per month - If source of impact is confirmed to be from HKITP operation, increase monitoring frequency to weekly 6. Discuss remedial actions required with HKITP & EPD 7. Assess the efficacy of HKITP's remedial actions 8. If exceedance stops after the implementation of the mitigation measures, cease additional monitoring	1.Check monitoring data submitted by ETL 2. Notify operation unit responsible for fireworks show 3. If exceedance confirmed to be associated with HKITP's operations, take immediate action to avoid further exceedance. 4. Develop proposals for remedial actions within three working days of notification. 5. Implement the agreed proposals 6. Should exceedance continue after implementation of remedial measures, stop the relevant portions of the fireworks displays until the exceedance is abated

6. WASTE MANAGEMENT

6.1 Introduction

The potential environmental impacts associated with the handling and disposal of waste arising from the resort operations have been assessed in the EIA. The EIA Report and EP recommended that an Operational Waste Management Plan (OWMP) shall be prepared and submitted to EPD for approval. The OWMP shall include 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.

6.2 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 will cover the wastes handling, recycling and disposal procedures within the Resort, as well as off-site sorting facility and the composting facility. The results of the waste management audit will be reported monthly in the Monthly EM&A report. Records identifying the waste arising, the nature and composition of materials, the quantities of wastes as well as the volumes or tonnes of reduced, reused, recycled and otherwise recovered materials would be kept for monitoring to check the effectiveness of waste reduction measures implemented.

7. TERRESTRIAL ECOLOGY

7.1 Introduction

Monitoring requirements of White Bellied Sea Eagles (WBSE) after the Penny's Bay Reclamation Stage 2 have been discussed between EPD, AFCD and HKITP. It has been agreed that monitoring of WBSE will be conducted for a 2-year period when the Theme Park Phase II fireworks displays are launched. The monitoring requirements for WBSE will be proposed by the ET and agreed with AFCD prior to the commencement of Theme Park Phase II fireworks displays.

8. MARINE ECOLOGY

8.1 Introduction

The EIA proposed dolphin/porpoise monitoring programme be established for the construction and operational phases to evaluate whether the associated works/activities have any effect on the mammals. The monitoring programme for the dolphins/porpoises was carried out by CEDD during the construction of Penny's Bay Reclamation Stage 2 contract. Monthly marine ecological monitoring conducted by CEDD was terminated after the completion of the marine works for the reclamation project in December 2007 with approval from EPD.

HKITP continued to undertake the dolphin/porpoise monitoring for one more year starting from the 35th reporting period to the 46th reporting period (inclusive) following the monitoring methodology adopted by CEDD.

The summary of findings for the agreed one-year monitoring period was included in the forty-sixth Environmental Monitoring and Audit (EM&A) report and was submitted to EPD and AFCD on 6 August 2009. No dolphin/porpoise was observed in the twelve months monitoring period except the 41st reporting month (ie, 12 January 2009 to 11 February 2009), during which only one dolphin with no specified behaviour was observed. Based on the monitoring results, there was no evidence of disturbance of or impact on dolphins/porpoises from the operation of the Hong Kong Disneyland Resort. These findings are consistent with those of the dolphins/porpoises monitoring presented in the Final EM&A Summary Report for Penny's Bay Reclamation Stage 2.

It is reasonable to anticipate that further monitoring of marine mammals in the same area will yield similar results, and therefore there is no longer a specific need to continue the monitoring of marine mammals. With the support of the extensive field data obtained, HKITP has proposed, in consultation with AFCD, to terminate the monitoring of marine mammals after July 2009.

9. AUDITING

9.1 Site Inspections

Site inspections provide a direct means to track and ensure the enforcement of specified environmental protection and pollution control measures. The ET will undertake site inspections at regular intervals to ensure that the compliance of the conditions of the EP and relevant EIA findings and recommendations are being checked and audited. Additionally, the ETL shall be responsible for defining the scope of the inspections, detailing any deficiencies that are identified, and reporting any necessary action or mitigation measures that were implemented as a result of the inspection.

During the first two months of the operation, the ET has carried out weekly site inspections to check the implementation status of the environmental protection and mitigation measures. The site inspections revealed that all of the applicable mitigation measures summarised in Appendix A have been implemented by the HKITP. As the operations of the Resort will not change significantly on a weekly basis, it is recommended that the ET to conduct monthly site inspection.

The focus of the monthly site audit will include:

- the general environmental conditions in the Resort; and
- the measures recommended in the implementation schedule of the EIA report and the EPs applicable to HKITP's operation of the Resort, which are summarized in Appendix A.

During such inspections, the ET may make reference to any or all of the following:

- the EIA Report and its EM&A recommendations on environmental protection and pollution control mitigation measures;
- ongoing results of the EM&A programme;
- the relevant environmental protection and pollution control laws; and
- results of previous site inspections undertaken.

Following each such inspection, the ET will: -

- provide the audit results and the associated recommendations to the relevant operations manager as appropriate, for reference and for taking of immediate action

Ad hoc site inspections will also be carried out by the ET if significant environmental problems are identified during the regular inspections. Inspections may also be conducted subsequent to receipt of an environmental complaint, or as part of the associated investigation work.

9.2 Environmental Complaint

The following procedures apply when complaints are received: -

- all enquiries concerning the environmental effects of the Project, irrespective of how they are received, must be addressed immediately to HKITP's ET; and

- other formal written complaints will be referred by to HKITP's ETL, who will co-ordinate investigations, in accordance with procedures to be set up by HKITP's ET for handling, investigation and storage of same.

HKITP's ETL will implement the following complaint investigation procedures upon receipt thereof: -

- HKITP's ETL will endeavour to investigate and identify the source of the problem and to determine its validity and source;

- HKITP's ETL will log the complaint and date of receipt into his complaint database;

- HKITP's ETL will investigate the complaint to determine its validity, and to assess whether the source of the problem is due to resort operations;

- if a complaint is valid and due to resort operations, HKITP'ETL will identify mitigation measures and propose the measures to EPD for approval;

- if HKITP's ETL considers additional monitoring to be necessary, will ensure that such is undertaken to verify the existence and severity of the alleged complaint;

- if the complaint is transferred from EPD, submit interim report to EPD on status of the complaint investigation and follow-up action within the time frame assigned by EPD; and

- HKITP's ETL will record each complaint, investigation, subsequent actions and results in the monthly EM&A Reports.

10. REPORTING

10.1 General

Reporting will be derived from the results of the established monitoring and audit programme and will be recorded through written correspondence, Site inspections and minutes/notes of meetings.

In accordance with the requirement of Environmental Permit (EP-01/059/2000/C), the following reporting mechanism will be put in place:-

- *To enable the public inspection of the Baseline Monitoring Report, monthly EM&A Reports and monitoring results during operational via the EIAO Internet Website and at the EIAO Register Office, electronic copies of monthly EM&A Reports will be prepared in Hyper Text Markup Language (HTML) (version 4.0 or later) and in Portable Document Format (PDF version 4.0 or later), unless otherwise agreed by the Director and will be submitted at the same time as the hard copies as described in Conditions 4.4, 4.5 and 5.2 of Environmental Permit (EP) (EP-01/059/2000/C). For the HTML version, a content page capable of providing hyperlink to each section and sub-section of the EM&A Reports will be included in the beginning of the document. Hyperlinks to all figures, drawings and tables in the EM&A Reports will be provided in the main text from where the respective references are made. All graphics in the report will be in interlaced GIF format unless otherwise agreed by the Director. The content of the electronic copies of the monthly EM&A Reports must be the same as the hard copies. The website address has been established and will be maintained through the operational phase.*

10.2 Baseline Monitoring Report

Baseline monitoring was conducted from 27 July 2005 for seven consecutive days at AM1 and AM2 to collect background data in the absence of fireworks display. The Baseline Monitoring Report has been submitted to EPD and is available in the web-site (http://www.themeparkatpennysbay-op.com.hk/).

10.3 Monthly EM&A Reports

The results and findings of all EM&A work required by this EM&A Plan will be recorded in the "Monthly EM&A Reports" prepared by HKITP's ETL.

The first Monthly EM&A Summary will include the following as relevant to the Project: -

- an executive summary (1-2 pages) describing and/or providing: -
  - Breaches of A/L Levels;
  - a copy of the Complaint Log;
  - notifications of any summons and successful prosecutions;
  - reporting changes; and
  - future key issues; and
- Basic Project Information, including: -

- Project organisation including key personnel contact names and telephone numbers;
- management structure;

- Environmental Status, including: -
  - description of the location of any environmental sensitive receivers and monitoring and control stations
- Summary of EM&A requirements, including: -
  - All monitoring parameters;
  - environmental quality performance limits (A/L Levels);
  - Event-Action Plans;
  - environmental mitigation measures, as recommended in the EIA Report; and
- Monitoring Results for monitoring undertaken with the following information: -
  - monitoring methodology;
  - name of laboratory and types of equipment used and calibration details;
  - parameters monitored;
  - monitoring locations (and depth/height);
  - monitoring date, time, frequency, and duration;
  - weather conditions during the period;
  - graphical plots of trends of monitored parameters in the month annotated against;
  - the major activities being carried out on-Site during the period;
  - weather conditions that may affect the results;
  - any other factors which might affect the monitoring results;
  - QA/QC results and detection limits;
  - report on non-compliance, complaints, notifications of summons and successful prosecutions;
  - record of all non-compliance (exceedances) of the environmental quality performance limits (A/L Levels);
  - record of all complaints received (written or verbal), including locations and nature of complaint investigation, liaison and consultation undertaken, actions and follow-up procedures taken, results and summary;
  - record of notifications of summons and successful prosecutions for breaches of the current environmental protection/pollution control legislation, including locations and nature of the breaches, investigation, follow-up actions taken, results and summary;
  - review of the reasons for and the implications of non-compliance, complaints, summons and prosecutions including review of pollution sources and working procedures; and
  - description of the actions taken in the event of non-compliance and deficiency reporting and any follow-up procedures related to earlier non-compliance.

The subsequent Monthly EM&A Reports will include the following as relevant to the Project:

- an executive summary (1-2 pages) describing and/or providing: -
  - Breaches of A/L Levels;
  - a copy of the Complaint Log;
  - notifications of any summons and successful prosecutions;
  - reporting changes; and
  - future key issues.
- Monitoring Results for monitoring undertaken with the following information: -
  - monitoring methodology;
  - name of laboratory and types of equipment used and calibration details;
  - parameters monitored;
  - monitoring locations (and depth/height);
  - monitoring date, time, frequency, and duration;
  - weather conditions during the period;
  - graphical plots of trends of monitored parameters in the month annotated against;
  - the major activities being carried out on-Site during the period;
  - weather conditions that may affect the results;
  - any other factors which might affect the monitoring results;
  - report on non-compliance, complaints, notifications of summons and successful prosecutions;
  - record of all non-compliances (exceedances) of the environmental quality performance limits (A/L Levels);
  - record of all complaints received (written or verbal), including locations and nature of complaint investigation, liaison and consultation undertaken, actions and follow-up procedures taken, results and summary;
  - record of notifications of summons and successful prosecutions for breaches of the current environmental protection/pollution control legislation, including locations and nature of the breaches, investigation, follow-up actions taken, results and summary;
  - review of the reasons for and the implications of non-compliance, complaints, summons and prosecutions including review of pollution sources and working procedures; and
  - description of the actions taken in the event of non-compliance and deficiency reporting and any follow-up procedures related to earlier non-compliance.

Appendix A

Implementation Schedule

APPENDIX A – MEASURES RECOMMENDED IN THE EP AND EIA THAT ARE APPLICABLE TO THE OPERATION OF THE THEME PARK

Permit Ref.*	EM&A Log Ref†	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Remarks
AIR QUALITY - Operational Phase				
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 submitted the details and design of the fireworks displays 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	Both results of the Trial Fireworks Displays conducted in May 2005 and 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 was submitted to the EPD on 6 September 2005 for the unleaded gasoline-powered vehicles to be operated within the Resort.
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 were implemented during the design and construction of the Resort.

* Ref. to EP-01/059/2000/C. 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	Remarks
NOISE - Operational Phase				
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 with the 150m requirement and field measurement methodology of the bursting height of fireworks displays was developed and agreed with the Commissioner of Mines (CoM) of the Civil Engineering and Development Department (CEDD).
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.
Fixed Plant noise from Theme Park operation				
-	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.	Berms of 5m to 9m height were constructed.
-	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.
WATER QUALITY- Operational Phase				
Marine Water Quality				
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 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^{-1} at the boundary of the 200-metre mixing zone shall be allowed or no discharge of any water from the attraction rides within the Theme Park with chlorine concentration higher than 0.1 mg L^{-1} shall be allowed.	To be implemented throughout the full operational lifetime of the Theme Park	Monitoring will be conducted prior to discharge of the disinfected water.
3.16	C7	Pesticides and herbicides used in the Project shall be biodegradable and with half-lives of three days or less, or approved by the Director.	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

Permit Ref.*	EM&A Log Ref†	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Remarks
				within the Resort. Variation of this condition was 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.
WASTE - Operational Phase				
Waste Management Plan				
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, 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.	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.
Waste Avoidance Measures				
	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.
		• 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;		
		• 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;		
		• 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;		
		• hamburgers will be wrapped in paper or equally environmentally acceptable material		

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		instead of in polystyrene clamshells;		
		• 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; • excess water-based paints will be reused as far as practical; • plastic drink cup lids will be supplied to guests upon their request when purchasing beverages; • fast-food service trays in selected locations will be washed and reused (instead of using disposable cardboard carry-out trays); and • souvenir, booklets, dining-ware, etc. which are recyclable should have appropriate instruction and signs printed on the surface;		
		• waste recycling bins for paper, aluminium cans, plastic bottles, etc. should be provided throughout the Theme Park to promote waste separation at source; • all products sold in the Theme Park should be packed in minimal amount of packaging materials; • pallets made of more durable and reusable materials plastics than wood should be used in transportation of food, drinks, etc;		
		• the distribution centre of the Theme Park will utilise reusable shipping containers as far as practical instead of cardboard boxes for internal routing' • fabric fender instead of tropical hardwood fender should be used at the proposed piers; and • the hoarding of the proposed piers should be metal (aluminium, alloy etc) instead of wood.		
Materials Recovery and Recycling Programme				
		The Theme Park Operator shall implement a Materials Recovery and Recycling Programme which shall include the following aspects:		Waste minimization measures have been implemented in accordance with the OWMP.
	E4	*Papers*: 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	
	E5	*Glass Bottles and Glass Jars*: 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	
	E6	*Aluminium Cans*: 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	*Plastics*: The Theme Park will implement a source separating programme for polyethylene terapthalate (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.	To be implemented throughout the full operational life-time of the Theme Park	

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		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.		
	E8	*Kitchen Grease*: 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	
	E9	*Scrap Metal*: 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	
	E10	*Laser Printer Toner Cartridges*: 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	*Green Waste*: 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	
	E12	*Scrap Lumber*: 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	
	E13	*Asphalt*: 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	
Chemical Waste				
	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 was 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: • be suitable for the substance they are holding, resistant to corrosion, maintained in a good condition, and securely closed; • have a capacity of less than 450 L unless the specifications have been approved by the EPD; and • display a label in English and Chinese in accordance with instructions prescribed in Schedule 2 of the Regulations.	To be implemented prior to and throughout the full operational life-time of the Theme Park	

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	E16	The storage area for chemical wastes should be: • by clearly labelled and used solely for the storage of chemical waste; • be enclosed on at least 3 sides; • have an impermeable floor and bunding, of capacity to accommodate 110% of the volume of the largest container or 20% by volume of the chemical waste stored in that area, whichever is the greatest; • have adequate ventilation; • be covered to prevent rainfall entering (water collected within the bund must be tested and disposed as chemical waste if necessary); and • be arranged so that incompatible materials are adequately separated.	To be implemented prior to and throughout the full operational life-time of the Theme Park	
	E17	Disposal of chemical waste shall: • be via a licensed waste collector; • 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.	To be implemented prior to and throughout the full operational life-time of the Theme Park	*Waste Disposal Ordinance* *Code of Practice on the Packaging, Handling and Storage of Chemical Wastes* Waste Disposal (Chemical Waste) (General) Regulation
TERRESTRIAL ECOLOGY - Operational Phase				
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.
MARINE ECOLOGY AND FISHERIES - Operational Phase				
Marine Ecological Resources: Marine Mammals				
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	Not applicable. No ferries and vessels are currently operated by HKITP.
	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. No ferries and vessels are currently operated by HKITP.
		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. No ferries and vessels are currently operated by

Permit Ref.*	EM&A Log Ref†	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Remarks
				HKITP.
		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 the operational period of the Theme Park	Monitoring of dolphin/porpoise monitoring has been conducted for one year (2008-2009). HKITP has proposed, in consultation with AFCD, to terminate the monitoring of marine mammals after July 2009. Proposal for termination of dolphin/porpoise monitoring was submitted to EPD and AFCD on 6 August 2009.
HAZARD - Operational Phase				
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 to EPD in June 2005.
Fireworks Storage, Transport & Display				
	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.
	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.

Permit Ref.*	EM&A Log Ref†	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Remarks
	H7	Mobile phones, walkie-talkies should not be carried by persons handling fireworks.	During operation	Procedures have been developed and are implemented by Firework Team.
	H8	Fireworks store should be kept closed during fireworks display.	During operation	Procedures have been developed and are implemented by Firework Team.
	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-rigging 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. No 4" and 5" shells are currently used in the fireworks show.
	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.
	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.
EM&A REQUIREMENTS - Operational Phase				

Permit Ref.*	EM&A Log Ref†	Environmental Protection Measures	Location/Duration of Measures/Timing of Completion of Measures	Remarks
Air Quality and Noise				
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 of the Trial Fireworks Displays were submitted to EPD and provided to ACE for consultation. .
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 B) was approved by the EPD on 26 January 2007. EM&A Plan (Revision C) was approved by the EPD on 19 December 2007. EM&A Plan (Revision D) was approved by the EPD on 11 August 2008. EM&A Plan (Revision E) was approved by the EPD on 21 November 2008. EM&A Plan (Revision F) was approved by the EPD on 9 November 2009. EM&A Plan (Revision G) was approved by the EPD on 11 April 2012.
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 1st operational year and throughout the duration of the operational phase respectively	Air quality and noise monitoring should be conducted in accordance with the requirement specified in the approved EM&A Plan. Alternative monitoring station at Sea Crest Villa Block D, Peng Chau has been approved by the EPD on 14 June 2013 and revised in the EM&A Plan (Revision H).
Terrestrial Ecology - White-bellied Sea Eagle				
3.4		Monitoring of the White-bellied Sea Eagles (WBSE) 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 prior to the operation of Phase II fireworks displays.	Monitoring of WBSE will be conducted for a 2-year period when the Theme Park Phase II fireworks displays are launched. The monitoring requirements for WBSE will be proposed by the ET and

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				agreed with AFCD prior to the commencement of Theme Park Phase II fireworks displays.
Marine Ecology				
	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.	During the operational period of the Theme Park	Monitoring of dolphin/porpoise monitoring has been conducted for one year (2008-2009). HKITP has proposed, in consultation with AFCD, to terminate the monitoring of marine mammals after July 2009. Proposal for termination of dolphin/porpoise monitoring was submitted to EPD and AFCD on 6 August 2009.