

## 13 ENVIRONMENTAL MONITORING AND AUDIT REQUIREMENTS

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### 13.1 Introduction

This section provides descriptions of the environmental parameters to be monitored, and the purpose for which each should be monitored, e.g. as an indication of general background conditions or as an indicator of unacceptable environmental impact.

In accordance with the requirements as stipulated in Annex 21 of the TM-EIAO, it is considered necessary to conduct the Environmental Monitoring and Audit (EM&A) programme during the construction, operation, restoration and aftercare phases of the Project and to define the relevant scope of EM&A requirements, including:

- Provision of a database against which to determine any short- or long-term environmental impacts of the Project;
- Provision of an early indication that any of the environmental control measures or other operation practices are failing to achieve the required standards;
- Provision of data to determine the effectiveness of any mitigation or control measures implemented through amendments in procedures during the life of Project;
- Provision of data to enable an environmental audit of the construction, operation, restoration and aftercare works to be undertaken; and
- Assessment of compliance with the environmental and pollution control and operation requirements.

### 13.2 Project Organisation

A project organisation consisting of the Engineer's Representative(ER), Independent Environmental Checker (IEC), Environmental Team (ET), Project Proponent (HyD) and Contractor should be established to take on the responsibilities for environmental protection for the Project. The IEC will be appointed by the Project Proponent to conduct independent auditing on the overall EM&A programme including environmental and operation monitoring, implementation of mitigation measures, EM&A submissions, and any other submission required under the Environmental Permit (EP). The organisation, responsibilities of respective parties and lines of communication with respect to environmental protection works are given in the EM&A Manual.

### 13.3 EM&A Manual and Implementation Schedule

EM&A is an important aspect in the EIA process which specifies the timeframe and responsibilities for the implementation of environmental mitigation measures. The requirements on environmental monitoring (including baseline and impact monitoring) are given in the EM&A Manual.

A project specific EM&A Manual to the Project has been prepared with reference to the latest design information available and EPD's generic EM&A Manual. The project specific EM&A Manual highlights the following issues:

- Organisation, hierarchy and responsibilities of the Contractor, the Engineer or ER, ET and IEC with respect to the EM&A requirements during construction phase of the Project;
- Information on project organisation and programming of construction activities for the project;
- Requirements with respect to the construction schedule and necessary EM&A programme to track the varying environmental impacts;
- Full details of methodologies to be adopted, including all field, laboratory and analytical procedures, and details on quality assurance;
- Procedure for undertaking on-site environmental audits;
- Definition of Action and Limit Levels;
- Establishment of Event and Action Plans;
- Requirements of reviewing pollution sources and working procedures required in the event of non-compliance of environmental criteria and complaints;
- Requirements for reviewing the implementation of mitigation measures, and effectiveness of environmental protection and pollution control measures adopted; and
- Presentation of requirements for EM&A data and appropriate reporting procedures.

An Environmental Mitigation Implementation Schedule (EMIS) has been prepared and included in the EM&A Manual to summarise all the required mitigation measures need to be implemented during the design, the construction and operational phases of the Project. The implementation responsibilities are also identified in the EMIS. The EM&A Manual will also present the requirements for environmental monitoring and auditing (e.g. monitoring and audit frequency), throughout the entire construction phase.

The Contractor should review the mitigation measures and EMIS with respect to the design developments and construction methodology. In case the Contractor needs to update the mitigation measures and EMIS, the EM&A Manual should be updated accordingly.

## **13.4 Amendments to EM&A Manual**

The Contractor shall be requested to review the mitigation measures and EMIS with respect to the design developments and construction methodology. In case when the Contractor needs to update the mitigation measures and the EMIS, an updated EM&A Manual shall be submitted to the EPD for approval. The Contractor shall seek EPD's prior approval on these amendments before construction commences.

## 13.5 EM&A Programme

The Contractor will be requested to implement and operate a monitoring programme throughout the entire construction period of the Project. This mechanism will include a system to report the monitoring results on the Project Proponent's website within a period of time, to be agreed by EPD, after the relevant monitoring data are collected. In cases where exceedance is found, the Contractor and ET should take immediate actions to implement remediation measures following the procedures specified in the EM&A Manual.

Detailed requirements of the EM&A programme are described in the EM&A Manual. Measurements and activities that shall be conducted in accordance with the requirements in the EM&A Manual are summarised as follows:

- Baseline monitoring (construction dust, airborne noise and water etc.);
- Impact monitoring (construction dust, airborne noise and water etc.);
- Blasting activities regarding transport and use of explosives should be supervised and audited by competent site staff to ensure strict compliance with the blasting permit conditions.
- Remedial actions in accordance with the Event and Action Plan within the timeframe in case the specified criteria in the EM&A Manual were exceeded;
- Logging and keeping records of monitoring results; and
- Preparation and submission of Baseline, Monthly and Final EM&A Reports.

## 13.6 Environmental Management Plan

A systematic Environmental Management Plan (EMP) shall be set up by the Contractor to ensure effective implementation of the mitigation measures, monitoring and remedial requirements presented in the EIA, EM&A and EMIS. The Project Proponent and IEC will audit the implementation status against the EMP and advise the necessary remedial actions required. These remedial actions shall be enforced by the Engineer's Representative through contractual means.

The EMP will require the Contractor (together with its sub-contractors) to define in details how to implement the recommended mitigation measures in order to achieve the environmental performance defined in the Hong Kong environmental legislation and the EIA documentation. The EMP would also need to include a Waste Management Plan to demonstrate the Contractor's proposal to minimise the waste generation and maximise the re-use of spoil as far as practicable.

The review of on-site environmental performance shall be undertaken by The Project Proponent and IEC through a systematic checklist and audit once the project commences. The environmental performance review programme comprises a regular assessment on the effectiveness of the EMP.