

12 REPORTING

12.1 General

12.1.1 The following reporting requirements are based upon a paper documented approach. However, the same information can be provided in an electronic medium upon agreeing the format with the Franchisee's Site Representative (FSR). The reports are required to be prepared by the Environmental Specialist (ETL).

12.2 Documentation

12.1.2 All documentation is required to be filed in a traceable and systematic manner. Site documentation, including monitoring field records, laboratory analysis records, meeting minutes, correspondences etc.(some examples are provided in Appendix B) shall be cross-referenced by the ETL and be ready for inspection upon request. All EM&A results and findings shall be documented in the respective construction and operational phase EM&A reports prepared by the ETL and endorsed by the Independent Environmental Checker (IEC) prior to dissemination to the Contractor, the FSR and EPD. All reports including details of water quality monitoring, ecology, landscape and visual and archaeological EM&A shall also be issued to the AFCD, the AMO and the PlanD/LPU as appropriate.

12.1.3 All documentation shall be in paper form and/or electronic (in an agreed format) upon request. All documents and data shall be kept for at least one year after the completion of the operational phase EM&A works. All submissions (reports, data and correspondences etc.) shall be liable to free use for the purposes of communicating environmental data and the owner of information shall claim no copyright. Any request to treat all or part of a submission in confidence will be respected, but if no such request is made it will be assumed that the submission is not intended to be confidential.

12.1.4 Real time reporting of the monitoring data shall also be provided for the project through the dedicated internet website.

12.3 Design Audit Report

12.3.1 The Design Audit Report shall provide the means for the Franchisee undertaking the detailed design of the project to certify that the completed environmental design elements have been completed in accordance with the EIA requirements. The Consultant shall include in the report a signed off proforma (see Appendix B) to confirm that there are no outstanding environmental measures, identified as requiring design phase audit, that require further action. The Design Audit Report shall be prepared by the Consultants and issued to EPD, the AFCD and the PlanD/LPU, as appropriate, prior to the commencement of the construction period.

12.4 Baseline Monitoring Report

12.4.1 In respect of the construction phase EM&A works, the ETL shall prepare and submit a Baseline Environmental Monitoring Report within 10 working days of completion of baseline monitoring for water quality. Copies of the Baseline Environmental Monitoring

Report shall be submitted to the following: the Contractor, the IEC, the FSR, EPD, the AFCD, the AMO and the PlanD/LPU, as appropriate. The ETL shall liaise with the relevant parties on the exact number of copies required.

12.4.2 The baseline monitoring reports for the construction phase shall include at least the following:

- (i) Up to half a page executive summary.
- (ii) Background information.
- (iii) Drawings showing locations of the baseline monitoring stations.
- (iv) An updated construction programme with milestones of environmental protection/mitigation activities annotated.
- (v) Monitoring results (in both hard and diskette copies) together with the following information:
 - ◆ monitoring methodology;
 - ◆ name of laboratory and equipment used and calibration details;
 - ◆ parameters monitored;
 - ◆ monitoring locations (and depth);
 - ◆ monitoring date, time, frequency and duration; and
 - ◆ QA/QC results and detection limits.
- (vi) Details on influencing factors, including:
 - ◆ major activities, if any, being carried out on the site during the period;
 - ◆ weather conditions during the period; and
 - ◆ other factors which might affect the results.
- (viii) Determination of the Action and Limit Levels for each monitoring parameter and statistical analysis of the baseline data.
- (ix) Revisions for inclusion in the EM&A Manual.
- (x) Comments and conclusions.

12.5 EM&A Reports

12.5.1 The results and findings of all construction phase EM&A work required in this Manual shall be recorded in the EM&A Reports prepared by the ETL on a monthly basis and endorsed by the IEC. The EM&A Reports shall be prepared and submitted within 10 working days of the end of each reporting month, with the first report due one month and 10 days after construction commences.

12.5.2 A maximum of 4 copies of each EM&A Report shall be submitted to each of the following parties: the Contractor, the IEC, the FSR, EPD, the AFCD, the AMO and the PlanD/LPU, as appropriate. Before submission of the first EM&A Report, the ETL shall

liaise with the parties on the exact number of copies and format of the reports in both hard copy and electronic medium.

- 12.5.3 The operational phase EM&A works will be undertaken on a two monthly basis for a period of one year after the commission of the project. The ETL shall prepare operational phase EM&A Reports on a bi-monthly basis to be submitted within 10 working days of the end of the reporting period. The reports shall be submitted to the Contractor, the IEC, the FSR, EPD and PlanD/LPU, as appropriate.

12.6 First EM&A Report

- 12.6.1 The first EM&A report for the construction phase shall include at least the following:

- (i) 1-2 pages executive summary, comprising:
 - ◆ breaches of AL levels;
 - ◆ complaint Log;
 - ◆ notifications of any summons and successful prosecutions;
 - ◆ reporting Changes; and
 - ◆ future key issues.
- (ii) Basic Project information including a synopsis of the Project organisation (including key personnel, contact names and telephone numbers), a drawing of the Project area showing the environmentally sensitive receivers and the locations of monitoring and control stations, programme, management structure and the work undertaken during the month.
- (iii) Environmental Status, comprising:
 - ◆ works undertaken during the month with illustrations (such as location of works, daily dredging/filling rates, percentage fines in the fill material used); and
 - ◆ drawing showing the project area, any environmental sensitive receivers and the locations of the monitoring and control stations.
- (iv) A brief summary of EM&A requirements including:
 - ◆ all monitoring parameters;
 - ◆ environmental quality performance limits (Action and Limit levels);
 - ◆ Event-Action Plans;
 - ◆ environmental mitigation measures, as recommended in the Project EIA study final report; and
 - ◆ environmental requirements in contract documents.
- (v) Advice on the implementation status of environmental protection and pollution control/mitigation measures as recommended in the Project EIA study report and summarised in the updated implementation schedule.

- (vi) Monitoring results (in both hard and diskette copies) together with the following information:
 - ◆ monitoring methodology;
 - ◆ name of laboratory and equipment used and calibration details;
 - ◆ parameters monitored;
 - ◆ monitoring locations (and depth);
 - ◆ monitoring date, time, frequency, and duration; and
 - ◆ QA/QC results and detection limits.
- (vii) Graphical plots of trends of monitored parameters at the representative monitoring stations annotated against the following:
 - ◆ major activities being carried out on site during the period;
 - ◆ weather conditions during the period; and
 - ◆ any other factors which might affect the monitoring results;
 - ◆ QA/QC results and detection limits.
- (viii) Advice on the solid and liquid waste management status.
- (ix) A summary of noncompliance (exceedances) of the environmental quality performance limits (Action and Limit levels).
- (x) A review of the reasons for and the implications of noncompliance including a review of pollution sources and working procedures.
- (xi) A description of the actions taken in the event of noncompliance and deficiency reporting and any follow-up procedures related to earlier noncompliance.
- (xii) A summary record of all complaints received (written or verbal) for each media, including locations and nature of complaints, liaison and consultation undertaken, actions and follow-up procedures taken and summary of complaints.
- (xiii) A summary of notifications of summons, successful prosecutions for breaches of environmental protection/pollution control legislation and actions to rectify such breaches.
- (xiv) An account of the future key issues as assessed from the works programme and work method statements.
- (xv) Advice on the solid and liquid waste management status.
- (xvi) Comments, recommendations and conclusions for the monitoring period.
- (xvii) Submission of implementation status proforma, proactive environmental protection proforma, regulatory compliance proforma, site inspection proforma, data recovery schedule and complaint log summarizing the EM&A of the period.

12.7 Subsequent EM&A Reports

12.7.1 The subsequent EM&A reports prepared by the ETL for the construction phase shall include the following as appropriate:

- (i) Title page.
- (ii) Executive summary (1-2 pages), including:
 - ◆ breaches of all Action and Limit levels;
 - ◆ complaint log;
 - ◆ notifications of any summons and successful prosecutions;
 - ◆ reporting changes; and
 - ◆ future key issues.
- (iii) Contents page.
- (iv) Environmental status, comprising:
 - ◆ drawing showing the Project area, any environmental sensitive receivers and the locations of the monitoring and control stations;
 - ◆ summary of non-compliance with the environmental quality performance limits; and
 - ◆ summary of complaints.
- (v) Environmental issues and actions, comprising:
 - ◆ review issues carried forward and any follow-up procedures related to earlier non-compliance (complaints and deficiencies);
 - ◆ description of the actions taken in the event of noncompliance and deficiency reporting;
 - ◆ recommendations (should be specific and target the appropriate party for action); and
 - ◆ implementation status of the mitigatory measures and the corresponding effectiveness of the measures.
- (vi) Future key issues.
- (vii) Appendices, including:
 - ◆ action and limit levels;
 - ◆ graphical plots of trends of monitored parameters at key stations over the past four reporting periods for representative monitoring stations annotated against the following: major activities being carried out on site during the period; weather conditions during the period; and any other factors which might affect the monitoring results;
 - ◆ monitoring schedule for the present and next reporting period;
 - ◆ cumulative complaints statistics; and

- ◆ details of complaints, outstanding issues and deficiencies.

12.8 Quarterly EM&A Summary Reports

12.8.1 The ETL shall submit Quarterly EM&A Summary Reports for the construction phase EM&A works only. These reports should be around 5 pages (including about three pages of text and tables and two pages of figures) and shall contain at minimum the following information:

- (i) Up to half a page executive summary.
- (ii) Basic Project information including a synopsis of the Project organisation, programme, contacts of key management, and a synopsis of work undertaken during the quarter.
- (iii) A brief summary of EM&A requirements including:
 - ◆ monitoring parameters;
 - ◆ environmental quality performance limits (Action and Limit levels); and
 - ◆ environmental mitigation measures, as recommended in the Project EIA study final report.
- (iv) Advice on the implementation status of environmental protection and pollution control/mitigation measures as recommended in the Project EIA study report and summarised in the updated implementation schedule.
- (v) Drawings showing the Project area, any environmental sensitive receivers and the locations of the monitoring and control stations.
- (vi) Graphical plots of the trends of monitored parameters over the past 4 months (the last month of the previous quarter and the present quarter) for representative monitoring stations annotated against:
 - ◆ the major activities being carried out on site during the period;
 - ◆ weather conditions during the period; and
 - ◆ any other factors which might affect the monitoring results.
- (vii) Advice on the solid and liquid waste management status.
- (viii) A summary of noncompliance (exceedances) of the environmental quality performance limits (Action and Limit levels).
- (ix) A brief review of the reasons for and the implications of non-compliance including review of pollution sources and working procedures.
- (x) An assessment of the construction impacts on suspended solids, including but not limited to, a comparison of the difference between the quarterly mean and the 1.3 times the ambient mean value, the latter being defined as a 30% increase of the baseline data or EPD data, using appropriate statistical procedures.

Suggestions of appropriate mitigation measures shall be made if the quarterly assessment analytical results demonstrate that the quarterly mean is significantly higher than the 1.3 ambient mean value ($p \leq 0.05$).

- (xi) A summary description of the actions taken in the event of non-compliance and any follow-up procedures related to earlier non-compliance.
- (xii) A summary record of all complaints received (written or verbal) for each media, liaison and consultation undertaken, actions and follow-up procedures taken.
- (xiii) Comments (e.g. effectiveness and efficiency of the mitigation measures), recommendations (e.g. any improvement in the EM&A programme) and conclusions for the quarter.
- (xiv) Proponents' contacts and any hotline telephone number for the public to make enquiries.

12.9 Annual/Final EM&A Review Reports

12.9.1 An annual EM&A report should be prepared by the ES at the end of each construction year during the course of the project. A final EM&A report should be prepared by the ES at the end of both the construction and operational phases. The annual/final EM&A reports should contain at least the following information:

- (i) Executive Summary (1-2 pages).
- (ii) Drawings showing the project area any environmental sensitive receivers and the locations of the monitoring and control stations.
- (iii) Basic project information including a synopsis of the project organization, contacts for key management staff and a synopsis of work undertaken during the course of the project or past twelve months.
- (iv) A brief summary of EM&A requirements including:
 - ◆ environmental mitigation measures as recommended in the project EIA study final report;
 - ◆ environmental impact hypotheses tested;
 - ◆ environmental quality performance limits (Action and Limit Levels);
 - ◆ all monitoring parameters; and
 - ◆ Event-Action Plans.
- (v) A summary of the implementation status of environmental protection and pollution control/mitigation measures as recommended in the project EIA study report and summarised in the updated implementation schedule.
- (vi) Graphical plots and the statistical analysis of the trends of monitored parameters over the course of the projects including the post-project monitoring (or the past

twelve months for annual reports) for all monitoring stations annotated against the following:

- ◆ the major activities being carried out on site during the period;
 - ◆ weather conditions during the period;
 - ◆ any other factors which might affect the monitoring results; and
 - ◆ the return of ambient environmental conditions in comparison with baseline data.
- (vii) A summary of noncompliance (exceedances) of the environmental quality performance limits (Action and Limit levels).
- (viii) A review of the reasons for and the implications of non-compliance including review of pollution sources and working procedures as appropriate.
- (ix) A description of the actions taken in the event of non-compliance.
- (x) A summary record of all complaints received (written or verbal) for each media, liaison and consultation undertaken, actions and follow-up procedures taken.
- (xi) A summary record of notifications of summonses and successful prosecutions for breaches of the current environmental protection/pollution control legislations, locations and nature of the breaches investigation, follow-up actions taken and results.
- (xii) A comparison of the EM&A data with the EIA predictions with annotations and explanations for any discrepancies, including a review of the validity of EIA predictions and identification of shortcomings in the EIA recommendations.
- (xiii) A review of the monitoring methodology adopted and with the benefit of hindsight, comment on its effectiveness, including cost effectiveness;
- (xiv) A review of the success of the EM&A programme, including a review of the effectiveness and efficiency of the mitigation measures, and recommendations for any improvements in the EM&A programme.
- (viii) A clear cut statement on the environmental acceptability of the project with reference to specific impact hypotheses and a conclusion to state the return to ambient and/or the predicted scenario as the EIA findings.

12.10 Data Keeping

12.10.1 The site documents such as the monitoring field records, laboratory analysis records, site inspection forms, etc. are not required to be included in the EM&A Reports for submission. However, the documents shall be kept by the ES and be ready for inspection upon request. All relevant information shall be clearly and systematically recorded in the documents. The monitoring data shall also be recorded in magnetic media, and the software copy shall be available upon request. All the documents and data shall be kept for at least one year after the completion of the operational phase EM&A works.

12.11 Interim Notifications of Environmental Quality Limit Exceedances

12.11.1 With reference to Event/Action Plans, when the environmental quality limits are exceeded, the ETL shall immediately notify the Contractor, the FSR, EPD and the AFCD as appropriate. The notification shall be followed up with advice to each party on the results of the investigation, proposed action and success of the action taken, with any necessary follow-up proposals. A sample template for the interim notifications is shown in Figure 12.1.

Figure 12.1 Sample Template for Interim Notifications of Environmental Quality Limits Exceedances

Incident Report on Action Level or Limit Level Non-compliance

Project	
Date	
Time	
Monitoring Location	
Parameter	
Action & Limit Levels	
Measured Level	
Possible reason for Action or Limit Level Non-compliance	
Actions taken / to be taken	
Remarks	

Location Plan

Prepared by : _____

Designation : _____

Signature : _____

Date : _____

