

8.1 GENERAL

This reporting requirements in this section focus on the EM&A during construction, whereas that for the operational phase is stated in *Section 6.4*. The reporting guidelines referred to in this section are based upon a paper based system, however, the same information can be provided by an electronic medium upon agreeing the format with the ER and EPD. All the monitoring data (baseline and impact) shall also be submitted in diskettes in a format shown in *Annexes A to C*.

8.2 BASELINE MONITORING REPORT

The baseline monitoring should be undertaken, completed and reported on well before the commencement of any construction works. The ET Leader shall prepare and submit a Baseline Environmental Monitoring Report within 10 working days of completion of the baseline monitoring. Copies of the Baseline Environmental Monitoring Report shall be submitted to all parties; the Contractor, the IC(E), the ER and the EPD. The format and content of the report, and the representation of the baseline monitoring data shall be in a format to the satisfaction of EPD and include, but not be limited to the following:

- up to half a page executive summary;
- brief project background information;
- drawings showing locations of the baseline monitoring stations;
- monitoring results (in both hard and diskette copies) together with the following information:
 - monitoring methodology;
 - name of laboratory and types of equipment used and calibration details;
 - parameters monitored;
 - monitoring locations (and depth);
 - monitoring date, time, frequency and duration;
- QA/QC results and detection limits;
- details on influencing factors, including:
 - major activities, if any, being carried out on the site during the period;
 - weather conditions during the period;
 - other factors which might affect the results;
- determination of the AL Levels for each monitoring parameter and statistical analysis of the baseline data; the analysis shall conclude if there is any significant difference between control and impact stations for the parameters monitored, and the following information should be recorded:

- graphical plots of monitored parameters in the month annotated against;
- the major activities being carried out on site during the period;
- revisions for inclusion in the EM&A Manual; and
- comments and conclusions, includes:
- submission of implementation status proforma, proactive environmental protection proforma, regulatory compliance proforma, site inspection proforma, data recovery schedule and complaint log summarising the EM&A period.

8.3

EM&A REPORTS

The results and findings of all EM&A work required in the Manual shall be recorded in the monthly EM&A reports prepared by the ET Leader. The EM&A report shall be prepared, endorsed by IC(E) and submitted within 10 working days at the end of each reporting month, with the first report due in the month after construction commences. Before submission of the first EM&A report, the ET Leader shall liaise with the parties on the exact number of copies and format of the monthly reports in both hard copy and electronic medium requirement. The ET Leader shall review the number and location of monitoring stations and parameters to monitor every 6 months or on as needed basis in order to cater for the changes in surrounding environment and nature of works in progress.

The report shall contain an executive summary of the project dumping activities including daily quantity and locations, exceedance of AL Levels, causes of exceedance and mitigation measures being taken; all monitoring data with the information indicating the sampling / measurement locations, and other factors which might affect the results and detailed description of the findings from auditing of monitoring data.

The raw data sheets of the monitoring data shall be maintained properly and readily and easily accessible upon request by other parties. The monitoring data shall be stored floppy disk with the format agreed with EPD. The disk shall be submitted to EPD together with the monthly report.

A report shall be made to EPD immediately by fax following exceedance of the Action Level by any parameter giving details of raw monitoring data, mitigation measures implemented and the proposed actions to ensure the reoccurrence shall be prevented.

8.3.1

First Monthly EM&A Report

The First Monthly EM&A Report shall include at least the following :

1-2 pages executive summary;

- Breaches of AL levels;
- Complaints Log;
- Notifications of any summons and successful prosecutions;
- Reporting Changes; and
- Future key issues.

Basic Project Information

- Project organisations including key personnel contact names and telephone numbers;
- Programme;
- Management structure; and
- Works undertaken during the month.

Environmental Status

- Work 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.

Summary of EM&A requirements

- All monitoring parameters;
- AL Levels;
- Event-Action Plans;
- Environmental mitigation measures, as recommended in the project EIA Report; and
- Environmental requirements in contract documents.

Implementation Status

Advice on the implementation status of environmental protection and pollution control/mitigation measures, as recommended in the project EIA Report, summarised in the updated implementation schedule (see *Section 9*);

Monitoring Results

To provide monitoring results (in both hard and diskette copies) together with the following information:

- Monitoring methodology;
- Name of laboratory and types of equipment used and calibration details;
- Parameters monitored;
- Monitoring locations (and depth);
- Monitoring date, time, frequency, and duration;
- Weather conditions during the period;
- Any other factors which might affect the monitoring results; and
- QA/QC results and detection limits.

Report on Non-compliance, Complaints, Notifications of Summons and Successful Prosecutions

- Record of all noncompliance (exceedances) of the AL Levels;
- Record of all complaints received (written or verbal) for each media, including locations and nature of complaints investigation, liaison and consultation undertaken, actions and follow-up procedures taken, results and summary;
- Record of all notifications of summons and successful prosecutions for breaches of the current environmental protection/pollution control legislations, 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 noncompliance and deficiency reporting and any follow-up procedures related to earlier noncompliance.

Others

- An account of the future key issues as reviewed from the works programme and work method statements; and
- Advice on the solid and liquid waste management status.

8.3.2

Subsequent Monthly EM&A Reports

The subsequent Monthly EM&A Reports shall include the following :

Executive Summary (1-2 pages)

- Breaches of AL levels
- Complaint Log
- Notifications of any summons and successful prosecutions;
- Reporting Changes
- Future key issues

Environmental Status

- Construction programme with fine tuning of construction activities showing the inter-relationship with environmental protection/mitigation measures for the month;
- Works undertaken during the month with illustrations including key personnel contact names and telephone number; and
- Drawing showing the project area, any environmental sensitive receivers and the locations of the monitoring and control stations

Implementation Status

Advice on the implementation status of environmental protection and pollution control/mitigation measures including measures for ecological and visual impacts, as recommended in the EIA Report, summarised in the updated implementation schedule (see *Section 9*).

Monitoring Results

To provide monitoring results (in both hard and diskette copies) together with the following information:

- Graphical plots of the monitored parameters in the month annotated against;
- The major activities being carried out on site during the period;
- Monitoring methodology
- Name of laboratory and types of equipment used and calibration details
- Parameters monitored
- Monitoring locations (and depth);
- Monitoring date, time, frequency, and duration;
- Weather conditions during the period; and
- 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 noncompliance (exceedances) of the AL Levels;
- Record of all complaints received (written or verbal) for each media, including locations and nature of complaints investigation, liaison and consultation undertaken, actions and follow-up procedures taken, results and summary;
- Record of all notifications of summons and successful prosecutions for breaches of the current environmental protection/pollution control legislations, 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
- a description of the actions taken in the event of noncompliance and deficiency reporting and any follow-up procedures related to earlier noncompliance;

Others

- An account of the future key issues as reviewed from the works programme and work method statements; and
- Advice on the solid and liquid waste management status.

Appendix

- AL 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:
 - i) major activities being carried out on site during the period;
 - ii) weather conditions during the period; and
 - iii) any other factors which might affect the monitoring results
- Monitoring schedule for the present and next reporting period
- Cumulative statistics on complaints, notifications of summons and successful prosecutions
- Outstanding issues and deficiencies

8.3.3

Quarterly EM&A Summary Reports

The Quarterly EM&A Summary Report which should generally be around 5 pages (including about 3 of text and tables and 2 of figures) should contain at least the following information. Apart from these, the first quarterly summary report should also confirm that the necessary statistical power to categorically identify or confirm the absence of impact attributable to the works.

- up to half a page executive summary;
- basic project information including a synopsis of the project organisation, programme, contacts of key management, and a synopsis of work undertaken during the quarter;
- a brief summary of EM&A requirements including:
 - monitoring parameters;
 - AL Levels; and
 - environmental mitigation measures, as recommended in the EIA Report;
 - advice on the implementation status of environmental protection and pollution control/mitigation measures, as recommended in the project EIA study report, summarised in the updated implementation schedule;
- drawings showing the project area, any environmental sensitive receivers and the locations of the monitoring and control stations;
- 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;
- advice on the solid and liquid waste management status;
- a summary of noncompliance (exceedances) of the AL Levels;
- an quarterly assessment of constructional impacts on water quality at the project site including but not limited to comparison of the difference between the quarterly mean and 1.3 times of the ambientment which is defined as 30% increase of the baseline data or EPD data of the related parameters by using appropriate statistical procedures. Suggestion of appropriate mitigation measures if the quarterly assessment analytical results demonstrate that the quarterly mean is significantly higher than the liaison water quality times of the ambient mean ($p < 0.05$);
- a brief review of the reasons for and the implications of non-compliance including review of pollution sources and working procedures;
- a summary description of the actions taken in the event of non-compliance and any follow-up procedures related to earlier non-compliance;
- a summary record of all complaints received (written or verbal) for each media, liaison and consultation undertaken, actions and follow-up procedures taken;
- 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; and
- proponents' contacts and any hotline telephone number for the public to make enquiries.

8.3.4

Annual/Final EM&A Review Reports

The Annual/Final EM&A Report should contain at least the following information:

Executive Summary (1-2 pages);

- drawings showing the project area, any environmental sensitive receivers and the locations of the monitoring and control stations;
- basic project information including a synopsis of the project organization contacts of key management, and a synopsis of work undertaken during the course of the project or past twelve months;
- a brief summary of EM&A requirements including:
- environmental mitigation measures, as recommended in the project EIA Report;
- environmental impact hypotheses tested;
- AL Levels;

- all monitoring parameters
- Event-Action Plans;
- a summary of the implementation status of environmental protection and pollution control/mitigation measures as recommended in the project EIA study report summarized in the updated implementation schedule;
- graphical plots and the statistical analysis of the trends of monitored parameters over the course of the project, including the post project monitoring (for the past twelve months for annual report) for all monitoring stations 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
- a summary of noncompliance (exceedances) of the AL Levels;
- a review of the reasons for and the implications of non-compliance including review of pollution sources and working procedures as appropriate;
- a description of the actions taken in the event of non-compliance;
- a summary record of all complaints received (written or verbal) for each media liaison and consultation undertaken, action and follow-up procedures taken;
- a summary record of notifications of summons 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;
- a review of the validity of EIA Report predictions and identification of shortcomings in EIA Report recommendations; and
- a review of the effectiveness and efficiency of the mitigation measures;
- a review of success of the EM&A programme to cost effectively identify deterioration and to initiate prompt effective mitigatory action when necessary.

8.4

DATA KEEPING

The site document such as the monitoring field records, laboratory analysis records, site inspection forms, etc. are not required to be included in the monthly EM&A reports for submission. However, the document shall be well kept by the ET Leader and be ready for inspection upon request. All relevant information shall be clearly and systematically recorded in the document. The monitoring data shall also be recorded in magnetic media form, and the software copy can be available upon request. The water quality data software format shall be agreed with EPD. All the documents and data shall be kept for at least one year after completion of the construction contract.

8.5

INTERIM NOTIFICATIONS OF ENVIRONMENTAL QUALITY LIMIT EXCEEDANCES

With reference to Event/Action Plans in the previous sections, when the environmental quality limits are exceeded, the ET Leader shall immediately notify the ER and EPD, as appropriate. The notification shall be followed up with advice to EPD on the results of the investigation, proposed action and success of the action taken, with any necessary follow-up proposals.