

13 Environmental Monitoring and Audit Requirements

13.1 Introduction

13.1.1 This section summarizes the environmental monitoring and audit (EM&A) requirements for the Project during the construction and operational phases with reference to the assessment results of various environmental issues presented in this EIA Report. Details of the EM&A requirements and the implementation schedule of mitigation measures are provided in a stand-alone EM&A Manual.

13.2 Air Quality Impact

Construction Phase

13.2.1 Dust monitoring is recommended during the construction phase to verify the air quality compliances at representative air sensitive receivers. Regular environmental site audit should also be undertaken to ensure the proper implementation of proposed mitigation measures during the construction period.

Operational Phase

13.2.2 It is recommended to conduct Hydrogen Sulphide (H₂S) monitoring at the inlet and outlet of the deodorizers upon commissioning to determine whether it can meet the odour removal performance requirement. Odour patrol is also proposed during the period of maintenance or cleaning of the deodorization system for the Project.

13.2.3 Measurement of the Respirable Suspended Particulates (RSP), Nitrogen Dioxide (NO₂) and Sulphur Dioxide (SO₂) emissions from the combined heat and power unit is recommended during the commissioning stage to demonstrate that the process/facility is operated properly and the design emission limits assumed in this EIA can be achieved.

13.3 Water Quality Impact

Land-based Construction Works

13.3.1 Only land-based construction works will be carried out under the Project. The potential water quality impact from the land-based construction works can be controlled by the recommended mitigation measures. Regular environmental site audit should be undertaken during the Project construction to ensure that the recommended mitigation measures are properly implemented. Discharge license(s) should be obtained under the Water Pollution Control Ordinance (WPCO) if there are any construction site discharges. Monitoring of the construction site effluent shall be carried out in accordance with requirements stipulated in the WPCO discharge license(s).

Normal Operation

Effluent Monitoring

13.3.2 The effluent of the existing Tai Po Sewage Treatment Works (TPSTW) and Sha Tin Sewage Treatment Works (STSTW) are being routinely monitored by DSD. It is recommended that the existing effluent monitoring programme of DSD should be continued for the upgraded TPSTW and the future Sha Tin Cavern Sewage Treatment Works (CSTW). Monitoring of the treated effluent from the Project should also be carried out in accordance with the requirements stipulated in the WPCO discharge license.

River and Marine Water Quality Monitoring in Victoria Harbour

13.3.3 Under normal operation of Tolo Harbour Effluent Export Scheme (THEES), the effluent from the

Project would be transported to the Kai Tak River (KTR) and then to the Kai Tak Approach Channel and Kwun Tong Typhoon Shelter for discharge in the Victoria Harbour. A one-year impact water quality monitoring programme covering dry and wet seasons is proposed for KTR at a frequency of once per month after commissioning of the New West Plant of this Project. The monitoring results should be compared with the routine river water quality monitoring data collected by EPD to verify whether there is any adverse water quality impact at KTR as compared to that before the implementation of this Project.

- 13.3.4 Marine water quality monitoring is also recommended in Victoria Harbour. A one-year baseline monitoring programme covering dry and wet seasons is proposed at a frequency of twice per month to establish the baseline water quality conditions at selected monitoring points. The baseline monitoring programme should be carried out prior to the commissioning of the New West Plant. A one-year impact monitoring in Victoria Harbour covering dry and wet seasons should be conducted twice per month after commissioning of the New West Plant. The impact monitoring results shall be compared with the baseline monitoring results to verify whether there is any adverse marine water quality impact in Victoria Harbour as compared to that before the implementation of this Project.
- 13.3.5 Where necessary, the available effluent data routinely collected by DSD should be used to assist in identification of the potential water quality impact in KTR and Victoria Harbour. After completion of the one-year impact monitoring programme for KTR and Victoria Harbour, a review shall be conducted by DSD to determine whether such monitoring shall be continued. The review results shall be submitted to EPD. Any amendment on the river and marine water quality monitoring programme shall be agreed by EPD.

THEES Maintenance and Emergency Discharge

- 13.3.6 Marine water quality monitoring is recommended in Tolo Harbour for any THEES maintenance event or emergency discharge event. A one-year baseline monitoring programme covering both dry and wet seasons is proposed at a frequency of twice per month to establish the baseline water quality conditions at selected monitoring points. The baseline monitoring programme should be carried out prior to the construction phase of this Project.
- 13.3.7 In case of THEES maintenance during the construction phase of this Project and after commissioning of the New West Plant, marine water quality in Tolo Harbour should be monitored daily during and after the maintenance period. The monitoring should be carried out until the baseline water quality is restored for at least 2 consecutive days or at least 4 weeks after termination of the effluent bypass (whichever is longer). The effluent flow and quality of the THEES maintenance discharge (from the existing / upgraded TPSTW and the existing STSTW / CSTW) should also be monitored daily during the THEES maintenance period.
- 13.3.8 In case of emergency discharge during the construction phase of this Project and after commissioning of the New West Plant, marine water quality in Tolo Harbour should be monitored daily throughout the emergency discharge period until the baseline water quality is restored for at least 2 consecutive days or at least 1 week after termination of the discharge (whichever is longer). The effluent flow and quality of the emergency discharge should also be monitored daily during the emergency discharge period.
- 13.3.9 The monitoring programme for the THEES maintenance and emergency discharge events should be carried out during construction phase of the Project as well as in the first 3 years after commissioning of the New West Plant. After the first 3 years of the New West Plant operation, a review shall be conducted by the Project Proponent to determine whether such monitoring shall be continued. The review results shall be submitted to EPD, Agriculture, Fisheries and Conservation Department (AFCD), Water Supplies Department (WSD) and other relevant parties. Any amendment on the monitoring programme shall be agreed by EPD, AFCD and WSD.

13.4 Ecological Impact

Terrestrial Ecology

- 13.4.1 The EIA concluded that the overall impacts on terrestrial ecology would be acceptable with the implementation of mitigation measures. The proposed ecological mitigation measures to avoid, minimize and compensate the identified impacts arising from the proposed Project should be audited regularly during the construction phase.

Monitoring of Compensation for Occasional Ardeid Night Roost

- 13.4.2 Prior to the site clearance works, tree assessment to the tree group (i.e. the identified occasional night roost for ardeids) within the TPSTW shall be conducted by a qualified botanist/ plant ecologist. Transplantation Proposal shall be prepared to confirm the location, quantity and condition of the trees within the tree group, and propose methodology and receptor site(s) to transplant any of these trees that are to be affected by the construction works. The conditions of the transplanted trees shall be closely monitored at monthly basis throughout the construction period of the Project.
- 13.4.3 Compensatory planting of suitable trees within TPSTW shall be implemented if transplanting the identified tree group is impracticable based on the tree assessment. A detailed Compensation Plan shall be prepared by a qualified botanist/ plant ecologist with relevant experience. The Plan shall include proposals on site preparation works, planting design and layout, planting period, planting methodology, site supervision of planting, post-planting monitoring and maintenance programme.
- 13.4.4 The Transplantation Proposal and Compensation Plan shall be submitted to AFCD for agreement prior to removal of the concerned tree group. The post-transplanting or post-planting monitoring shall be carried out by the qualified botanist/plant ecologist(s) of the ET and the results shall be submitted to AFCD on a monthly basis throughout the monitoring programme.
- 13.4.5 Given the sporadic use of the site by night roosting ardeids, no night roosting bird monitoring is proposed.

Monitoring of Disturbance Impacts during Construction Phase

- 13.4.6 Monthly ecological monitoring, focusing on avifauna species of conservation importance (e.g. Collared Crows and ardeids) utilizing habitats within 500m from the Project site, should be conducted during construction phase to monitor the effectiveness of proposed mitigation measures and detect any unpredicted indirect ecological impacts arising from the proposed Project. Remedial actions can then be recommended, where appropriate, based on the impact monitoring results.
- 13.4.7 Whilst the roosting sites of Collared Crow and roosting sites of Black Kites were identified within SWRL, which are separated from the Project site by the existing topography, monitoring of the pre-roost and night roost of Collared Crows is recommended given its importance.

Monitoring of Disturbance Impacts during Operational Phase

- 13.4.8 Monthly ecological monitoring, focusing on avifauna species of conservation importance (e.g. Collared Crows and ardeids) utilizing habitats within the Project site, should be conducted during operational phase to monitor any changes in foraging habitats by the proposed Project. Remedial actions can then be recommended, where appropriate, based on the impact monitoring results. The monthly ecological monitoring focusing on avifauna species of conservation importance shall be conducted in the first 3 years after commissioning of the Project.

Marine Ecology

- 13.4.9 Water quality monitoring and audit programme is recommended as discussed in Section 13.3. The monitoring and audit programme on water quality can also serve to protect the marine ecology. Marine ecological monitoring is not proposed.

13.5 Fisheries Impact

- 13.5.1 No unacceptable fisheries impact is expected from the Project. No monitoring specific for fisheries is required. Monitoring of water quality and audit requirements as discussed in Section 13.3 is considered sufficient to protect the fisheries.

13.6 Landscape and Visual Impact

Baseline Review for Landscape Impact

- 13.6.1 Baseline review to check, record and report the status of the Landscape Resources (LR) and Landscape Character Areas (LCA) within the construction works sites and works areas shall be conducted prior to commencement of any construction works making reference to the LR and LCA maps included in the EIA Report. Any significant change to the status of LR and LCA since the EIA shall be identified. The recommended mitigation measures shall be reviewed if such change warrants a change in the design of the mitigation measures.

Audit Requirements

- 13.6.2 Regular site inspections and audit shall be carried out to ensure the proper implementation of the recommended mitigation measures during construction phase and 12-month establishment period during operational phase.
- 13.6.3 The conditions and growth performance of the implemented compensatory planting should be regularly checked and monitored by a qualified plant specialist of the ET to ensure the effectiveness of the mitigation measures.

13.7 Hazard to Life Impact

- 13.7.1 The EIA concluded that no unacceptable risks are foreseen as a result of the construction and operation of the Project. Safeguard measures are recommended during construction and operational phase of the Project. Implementation of the recommended safeguard measures should be regularly audited during the construction phase.

13.8 Landfill Gas Hazard

- 13.8.1 The overall potential hazard for the proposed Project associated with the Shuen Wan Restored Landfill would be Low to Medium for both construction and operation of the Project. Safety measures and landfill gas monitoring are recommended during the construction phase.
- 13.8.2 During the operational phase, gas detection systems with audio alarm and forced ventilation should be provided in the areas at or below the ground floor of new permanent building structures of the Project if provision of natural ventilation is not feasible in such areas. Monitoring and safety requirements are also recommended for entry and works in confined spaces.

13.9 Waste Management Implications

- 13.9.1 Regular audit of the waste materials generated from construction activities and waste management practice is recommended during the construction phase of the Project to determine if waste is being managed in accordance with prescribed waste management

procedures in the EIA Report and the Waste Management Plan (WMP), as part of the Environmental Management Plan (EMP). The audits should examine all aspects of waste management including waste generation, storage, recycling, treatment, transportation, and disposal.

13.9.2 No monitoring and audit is considered required during the operational phase of the Project.

13.10 Land Contamination

13.10.1 The potential contaminative areas identified in the Project site were in operation at the EIA stage. Site Investigation (SI) at these areas was not possible at the EIA stage. After decommissioning of the relevant existing facilities and before the commencement of the construction work at these areas, site re-appraisal and preparation of a supplementary Contamination Assessment Plan (CAP) should be undertaken for EPD endorsement. Land contamination SI should be conducted in accordance with the endorsed supplementary CAP. A Contamination Assessment Report (CAR) shall be prepared to summarize the results of the SI and confirm the extent of land contamination. If land contamination is identified, Remediation Action Plan(s) (RAP(s)) shall be prepared to provide details of the remediation methods. Remediation action, if necessary, should be carried out according to EPD endorsed RAP(s) and Remediation Report(s) (RR(s)) should be submitted after completion of the remediation action. The RR(s) should be endorsed by EPD prior to the commencement of construction works at the respective identified contaminated areas (if any).

13.10.2 Mitigation measures as recommended in this EIA and in the future EPD endorsed RAP should be implemented during the soil remediation works if required. The EM&A requirements for the land contamination aspect should be in the form of regular site inspection to ensure that the recommended mitigation measures are properly implemented.

13.11 Noise Impact

13.11.1 Since no existing, committed or planned NSR is identified within the assessment area, noise monitoring is considered unnecessary. Regular site audits should be carried out to ensure that the recommended mitigation measures and good site are properly implemented.