

APPENDIX 14A

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**Mainland EM&A  
Requirements**

## 14A.1 CONSTRUCTION PHASE

- 14A.1.1** The main objective of Mainland EM&A Plan is to determine the structure and task of EM&A team, develop the supervisory system and procedure for pollution control measures. The key is to enforce the relevant regulations and eliminate the potential pollution discharge from the accident.
- 14A.1.2** An EM&A team (or called environmental management & supervision team in mainland EIA report) would be set up during the construction phase. The team would consist of the staff from the contractor, supervising engineer and the client. Each party in the team has its own responsibilities to ensure that proposed mitigation measures are properly implemented and appropriate actions are taken when the exceedances are monitored.
- 14A.1.3** The client would determine the environmental requirements based on the current laws and regulations. The proposals submitted need to include detailed pollution control measures in the construction schedule. The contract between the client and contractor would include the pollution control clauses and punitive item when the proposed measures fail to be implemented properly.
- 14A.1.4** The contractor is responsible to provide training to its employees on environmental protection and control technology measures. The construction workers should have the knowledge on the environmental law/regulations, operation technology of the control facilities and emergency measures for any accident, etc. They need to pass the relevant examinations before start working.
- 14A.1.5** The supervision firm is responsible to check if there is any the construction technology applied failed to meet the national regulations and relevant environmental protection objective set out in the project design. The supervision firm should provide assistance to the contractor for their technology improvement when necessary. They should notify local EPB and relevant parties when exceedance is identified.
- 14A.1.6** Environmental Protection Bureau (EPB) and relevant oceanographic safety supervision department are responsible for verifying the monitoring results. When the technology adopted cannot meet the predicted pollution control target, they should be involved in process of deciding how to improve the existing technology.
- 14A.1.7** The detailed monitoring & audit plan on pollution accident, air quality, noise and water quality includes the proposed control measures, checking methods and control targets.

### *Pollution Prevention*

The contractor should apply for the approval from the oceanographic safety management and other supervision departments before they start offshore construction work. The application would include the location, date, construction machinery and type and amount of vessels used, etc. The authority would issue the permit after reviewing the application. If non compliance with the application is found, penalty will be imposed to the contractor.

Additionally the contractor should prepare and submit the emergency plan for approval. After approval by the authority, the contractor should provide the equipment required, train and examine the relevant staff, allocate the responsibility to the relevant personnel, review the procedures of the emergency plan and the method of contact to the appropriate contact person.

### *Air quality*

All necessary air pollution protection measures recommended in the EIA report need to be implemented, including coverage and storage of the dusty materials; appropriate facilities for

bitumen and concrete batching; spraying the site, roads and vehicle wheel washing; waterway transport for sand and cement; no cement and other dusty material loading/unloading when wind speed greater than 5m/s; all construction vehicles tail emission reaching national standards, etc.

The site environmental supervisor should be present on site and is responsible for monitoring the storage and loading of materials, the water spraying facilities, dust suppression and washing of the vehicles etc.

The education on environmental protection and civilized construction procedure should be provided for the construction workers.

A monitoring station on Hou Hai Ping Road would be set up to monitor the TSP concentration. The monitoring would be carried out every 2 month in order to review the dust impact during the construction phase and amend the mitigation measures if appropriate. The time and methods of monitoring should follow GB/T15432 (Ambient Air: TSP monitoring – weighted method). The Class III in the standard of “Ambient Air Quality standards” should be adopted to determine if the control measure has fully met the requirements.

The site environmental supervisor should be present and should check and monitor the situation of control measure implementation. If the monitoring results show that there is significant impact to the surrounding environment, site environmental supervisor should discuss with the EPB on possible remedial measures.

### ***Noise***

The client should submit relevant information on construction name, site, duration, potential noise level and proposed mitigation measures to local EPB 15 days before the construction starts. The contractor must follow the condition set by the EBP when they approve the application. When predicted noise level in some construction work is higher than the one approved, additional approval from EPB is required prior to implementation. The local EPB will punish the contractor if the measures listed in the submission are not properly implemented. The EM&A team is responsible for checking, monitoring and reporting activities.

The construction noise monitoring stations are proposed to set up in the residential area in close vicinity to the construction site. Leq (30min) shall be used as the monitoring parameter for the daytime between 0700-2300 while Leq (10min) shall be used for the night time between 2300-0700 and during holiday.

The measurement should follow “Method of Measuring Noise in City Region” (GB/T14623-93) and “Noise Limit on the Boundary of Construction” (GB12523/90) should be used to assess the noise level on the construction site.

In case of non-compliance with the construction noise criteria, the EM&A team should ensure that the noise mitigation measures are implemented properly and determine the responsibility. The EM&A team should also discuss with EPB on possible remedial measures until the recorded noise levels are rectified.

### ***Water quality***

The control measures would include the treatment/disposal facility for silt/sand resulting from piling activities. Routine checking and monitoring on the treatment facilities is required. Dumping the wastes to the sea directly is forbidden. If it is found, penalty will be imposed depending on the quantity dumped and damage caused.

When the construction starts, the concentration of SS would be measured in flood tide during neap tide. During construction phase, the concentration of SS would be measured in flood tide during neap tide every quarter. The monitoring locations are proposed to set up at 500m and 2000m upstream of the Bridge and 500m downstream of the Bridge. The SS concentration at 500m upstream of the Bridge should not be exceeded the concentration at 500m downstream by 100mg/l. Meanwhile, the SS concentration at 2000m upstream of the Bridge should not be exceeded the concentration at 500m downstream by 10mg/l.

The daily monitoring is conducted by checking the turbidity at 500m downstream of the Bridge. If turbidity occurs, check the treatment performance for silt/sand discharge from drilling activities immediately and implement the remedial measures if necessary. Penalty should be given to the responsible personnel.

## 14A.2 OPERATIONAL PHASE

**14A.2.1** An environmental protection management unit would be set up under the bridge and boarder checking management authorities. The responsibilities of those departments include mainly:

- Follow relevant regulations and codes on environmental protection to monitor the pollution caused by the passing vehicles and check/control/approve the dangerous goods;
- Supervise the pollution control measure implementation and wastes treatment/disposal facilities performance;
- Train employee and raise public awareness on environmental protection.
- Investigate and deal with pollution accident and public complaint, record the information and prepare reports.
- Assist local EPB to manage environment issues in the Bridge and boarder checking area;
- Implement environment monitoring plan.
- Daily monitoring work in the boarder checking area.

**14A.2.2** The environmental monitoring and control plan would be developed. It would cover:

- Set up environmental monitoring station and check the water quality in the effluent discharged from the on-site treatment facility. Check the concentration of tail emission and noise level generated by vehicles. Monitor the air quality and noise quality in the boarder checking area. Develop the treatment requirement on the vehicles when their tail emission exceed the standards, with the authorization of the local EPB;
- Set up two monitoring stations 400m away from goods vehicles inspection/waiting area and boarder checking area respectively, to monitor the concentration of NO<sub>x</sub>, THC, SO<sub>2</sub>, CO and Pb. The monitoring would be conducted in January and July each year, the time and methods of the monitoring would be based on internationally recognized practice;
- Take proactive measures to assure there is no traffic congestion based on the accumulated experience and prediction on the traffic flows;
- Set up noise monitoring stations in the following locations: 200m from access road of the Bridge; the area close to the mainland in the boarder checking area; residential areas to the west of Hou Hai Bing Road. The noise in L<sub>eq20min</sub> (dBA) in daytime and nighttime would be measured once a year;
- Set up two water quality monitoring stations before and after the treatment facility. The monitoring would be conducted once every month.