

**5.6.3** The requirement for biogas monitoring during the operational phase of the development should be established based on the detailed design of the development and the borehole monitoring results. Consultation with EPD to set up the requirement would be necessary.

## 5.7 Limit Levels and Action Plan for Biogas Monitoring

**5.7.1** Table 5.1 summarises the limit levels and action plan for biogas monitoring during construction.

Table 5.1 Limit Levels and Action Plan for Biogas Monitoring during Construction Phase

Parameter	Limit Level	Action
Methane	> 0.5% v/v (or > 10% LEL)	<ol style="list-style-type: none"> <li>1. Prohibit smoking, all fires and naked flames.</li> <li>2. Post warning signs.</li> <li>3. Increase ventilation to lower the methane level to less than 0.5% v/v.</li> </ol>
	> 1% v/v (or > 20% LEL)	<ol style="list-style-type: none"> <li>1. Stop all the construction activities in the affected area.</li> <li>2. Evacuate personnel who are working in the affected area.</li> <li>3. Prohibit entry to the affected area.</li> <li>4. Increase ventilation to lower the methane level to less than 0.5% v/v.</li> </ol>
Carbon Dioxide	> 0.5% v/v	<ol style="list-style-type: none"> <li>1. Increase ventilation to lower the carbon dioxide level to less than 0.5% v/v.</li> </ol>
	> 1.5 % v/v	<ol style="list-style-type: none"> <li>1. Extinguish all fires and naked flames.</li> <li>2. Stop all the construction works in the affected area.</li> <li>3. Evacuate personnel in the affected area.</li> <li>4. Prohibit entry to the affected area.</li> <li>5. Increase ventilation to lower the carbon dioxide level to less than 0.5% v/v.</li> </ol>
Oxygen	≤ 18% v/v	<ol style="list-style-type: none"> <li>1. Stop all the construction activities in the affected area.</li> <li>2. Evacuate personnel in the affected area.</li> <li>3. Prohibit entry to the affected area.</li> <li>4. Increase ventilation to increase the oxygen level to above 18% v/v.</li> </ol>

## 5.8 Biogas Mitigation Measures

**5.8.1** Mitigation measures for control of biogas would be required for no dredged reclamation and minimum dredged reclamation. The recommended environmental mitigation measures for the sediment treatment are presented in **Appendix A** of the EM&A Manual and the provision therein would be properly enforced. Relevant mitigation measures are also detailed as follows:

### **No Dredged Reclamation**

#### ***No Sediment Treatment***

**5.8.2** Precaution measures for construction site:

- Provision of safety measures for works to be carried out in confined space;
- Monitoring of the methane, carbon dioxide and oxygen levels in excavated areas and areas below ground;
- Provision of adequate ventilation in temporary structures;
- No smoking and open fire in region where drilling activities are carried out; and
- Provision of vent pipes to collect and vent off the accumulated methane gas to atmosphere should high methane concentrations be detected.