

Capco 青山發電有限公司
Castle Peak Power Company Limited

Hong Kong Offshore LNG Terminal Project

Emergency Response Plan for the Subsea Gas Pipeline for Black Point Power Station (BPPS) and the Associated Gas Receiving Station in BPPS

1 December 2022

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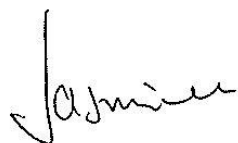
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Hong Kong Offshore LNG Terminal Project

Emergency Response Plan for the Subsea Gas Pipeline for Black Point Power Station (BPPS) and the Associated Gas Receiving Station in BPPS



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Hong Kong Offshore LNG Terminal - Works associated with the subsea gas pipeline for Black Point Power Station (BPPS) and the associated Gas Receiving Station (GRS) in BPPS
Environmental Certification Sheet
FEP-03/558/2018/B


Reference Document/Plan

Document/ Plan to be Certified/ Verified:	Emergency Response Plan for the Subsea Gas Pipeline for Black Point Power Station (BPPS) and the Associated Gas Receiving Station in BPPS
Date of Report:	1 December 2022
Date received by ET:	1 December 2022
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Reference EP Requirement

EP Condition:	Condition No. 4.5 of FEP-03/558/2018/B
Content:	<i>Emergency Response Plan</i>
<p>The Permit Holder shall implement measures to prevent accidental spillage or leakage of gas, oil and chemicals during operation of the Project and contingency measures to respond the accidental spillage or leakage in order to avoid and minimize the potential environmental impacts. The Permit Holder shall, no later than 3 months before the commencement of operation of the Project, deposit with the Director 3 hard copies and 1 electronic copy of an emergency response plan. The emergency response plan shall include but not limited to information relating to preventive measures to prevent accidental spillage or leakage of gas, oil and chemicals, contingency measures and procedures to handle the accidental spillage or leakage, rehearsal arrangements for the contingency measures and procedures and reporting arrangements for the accidental spill event.</p>	

ET Certification

I hereby certify that the above referenced document/ plan complies with the above referenced condition of FEP-03/558/2018/B.	
Mr Raymond Chow, Environmental Team Leader:	 Date: 1 December 2022

IEC Verification

I hereby verify that the above referenced document/ plan complies with the above referenced condition of FEP-03/558/2018/B.	
Ms Lydia Chak, Independent Environmental Checker:	 Date: 2 December 2022

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1. INTRODUCTION

1.1 Background

To support the increased use of natural gas in Hong Kong from 2020 onwards, Castle Peak Power Company Limited (CAPCO) and The Hong Kong Electric Co., Ltd. (HK Electric) have identified that the development of an offshore liquefied natural gas (LNG) receiving terminal in Hong Kong using Floating Storage and Regasification Unit (FSRU) technology ('the Hong Kong Offshore LNG Terminal Project') presents a viable additional gas supply option that will provide energy security through access to competitive gas supplies from world markets. The Project will involve the construction and operation of an offshore LNG import facility to be located in the southern waters of Hong Kong, a double berth jetty, and subsea pipelines that connect to the gas receiving stations (GRS) at the Black Point Power Station (BPPS) and the Lamma Power Station (LPS). The location plan is shown in **Figure 1.1**.

The Environmental Impact Assessment (EIA) Report for the Project was submitted to the Environmental Protection Department (EPD) of the Hong Kong Special Administrative Region Government in May 2018. The EIA Report (EIAO Register No. AEIAR-218/2018) was approved by EPD and the associated Environmental Permit (EP) (EP-558/2018) was issued in October 2018. An application for Further Environmental Permits (FEP) was made on 24 December 2019 to demarcate the works between the different parties. The following FEPs were issued on 17 January 2020 and the EP under EP-558/2018 was surrendered on 5 March 2020:

- the double berth jetty at LNG Terminal under the Hong Kong LNG Terminal Limited, joint venture between CAPCO and HK Electric (FEP-01/558/2018/A)⁽¹⁾;
- the subsea gas pipeline for the BPPS and the associated GRS in the BPPS under CAPCO (FEP-03/558/2018/B)⁽²⁾; and
- the subsea gas pipeline for the LPS and the associated GRS in the LPS under HK Electric (FEP-02/558/2018/A)⁽³⁾.

In accordance with Condition 4.5 of the FEP of the subsea gas pipeline for the BPPS and the associated GRS in the BPPS (FEP-03/558/2018/B) ('the Project'):

FEP No. FEP-03/558/2018/B, Condition 4.5:

"The Permit Holder shall implement measures to prevent accidental spillage or leakage of gas, oil and chemicals during operation of the Project and contingency measures to respond the accidental spillage or leakage in order to avoid and minimize the potential environmental impacts. The Permit Holder shall, no later than 3 months before the commencement of operation of the Project, deposit with the Director 3 hard copies and 1 electronic copy of an emergency response plan. The emergency response plan shall include but not limited to information relating to preventive measures to prevent accidental spillage or leakage of gas, oil and chemicals, contingency measures and procedures to handle the accidental spillage or leakage, rehearsal arrangements for the contingency measures and procedures and reporting arrangements for the accidental spill event."

- (1) Application for variation of an environmental permit for FEP-01/558/2018 was undertaken and the latest FEP (FEP-01/558/2018/A) was issued on 6 November 2020.
- (2) Application for variation of an environmental permit for FEP-03/558/2018/A was undertaken and the latest FEP (FEP-03/558/2018/B) was issued on 25 August 2021.
- (3) Application for variation of an environmental permit for FEP-02/558/2018 was undertaken and the latest FEP (FEP-02/558/2018/A) was issued on 22 December 2020.

Legend

- Boundary of HKSAR
- Proposed GRS Location at BPPS
- Proposed GRS Location at LPS
- Proposed Route of BPPS Pipeline
- Proposed Route of LPS Pipeline
- Proposed Site for LNG Terminal
- Proposed LNG Terminal Safety Zone

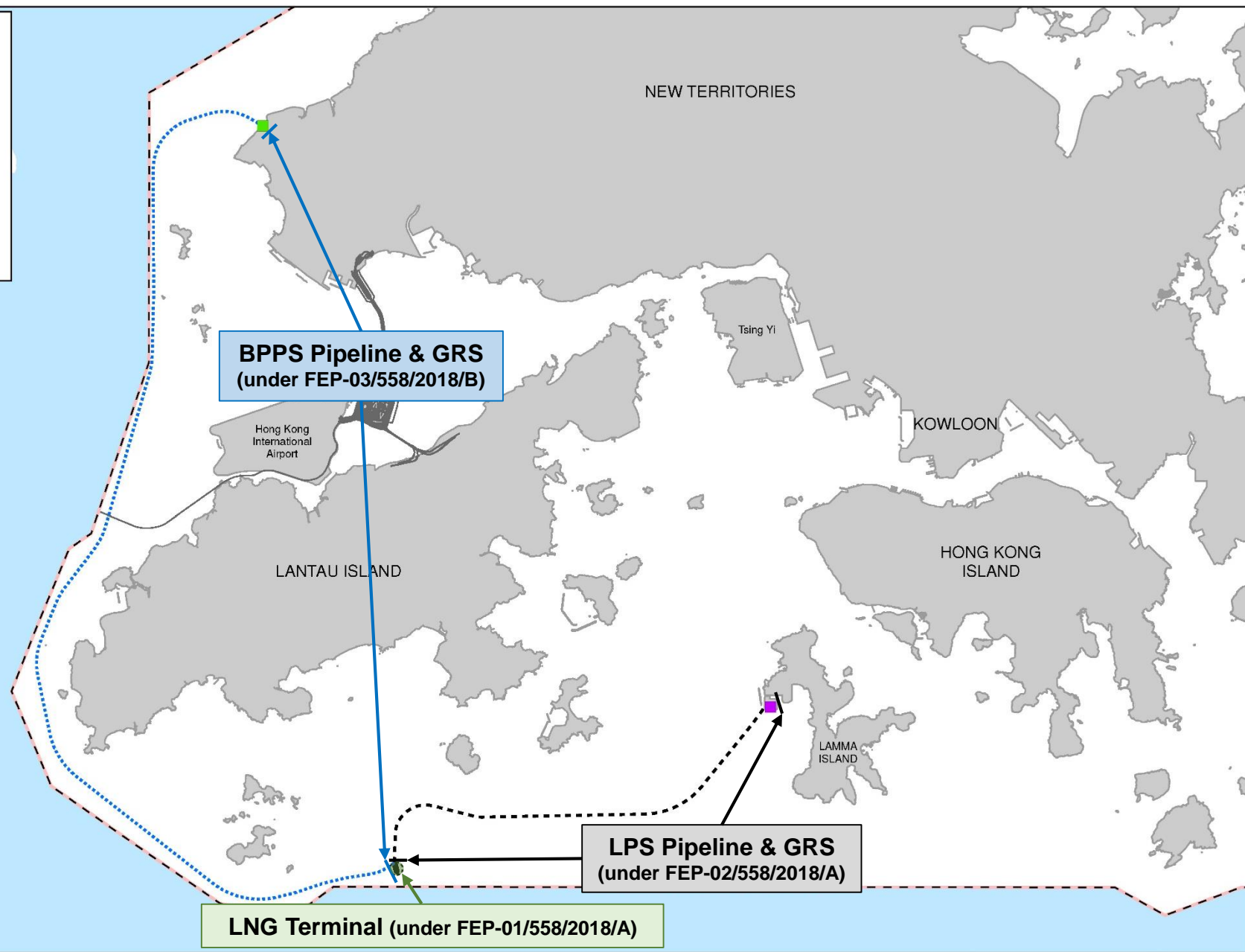


Figure 1.1

Indicative Location of Key Project Components

1.2 Objectives of the Emergency Response Plan

As stated in Condition 4.5 of the FEP, this Emergency Response Plan presents the information relating to preventive measures to prevent accidental spillage or leakage of gas, oil and chemicals, contingency measures and procedures to handle the accidental spillage or leakage, rehearsal arrangements for the contingency measures and procedures and reporting arrangements for the accidental spill event. It should be noted that no oil or chemicals are used in the subsea gas pipeline and the equipment in the GRS and therefore no oil or chemical spillage will be expected under the Project. Therefore, this Emergency Response Plan will focus on the information relating to accidental spillage or leakage of gas under the Project.

1.3 Structure of the Emergency Response Plan

The remainder of this Emergency Response Plan is set out as follows:

- **Section 2** presents the preventive measures to prevent accidental spillage or leakage of gas;
- **Section 3** describes the contingency measures and procedures to handle the accidental spillage or leakage and the rehearsal arrangements for the contingency measures;
- **Section 4** presents the procedures and reporting arrangements with regular review and revision for accidental spill event.

2. PREVENTIVE MEASURES FOR ACCIDENTAL SPILLAGE OR GAS LEAKAGE

This section describes potential natural gas incidents and proposes precautions to be taken in dealing with these scenarios. It also proposes mitigation measures that could be applied to minimize the effects of the incident and to prevent escalation, precautions to be taken to prevent further casualties arising, with reference to various Generation Business Group (GBG) Management System standard, Generation Business Group Instructions (GBGI), as well as the Generation Business Group Procedures (GBGP) ⁽⁴⁾ relevant to the existing facilities and the new facilities of the BPPS of the Project.

It should be noted that the following approaches have been applied to the BPPS Pipeline as the preventive measures for accidental spillage or gas leakage:

- **Protection of the BPPS Pipeline by Rock Armour:** It is a requirement that all subsea pipelines in HKSAR waters must be buried below the seabed. Burial depth when considered with rock armour provides the required level of pipeline protection. The actual burial depth below seabed is dependent on the marine and subsoil conditions along the pipeline routes. For areas that are considered to pose a threat to the integrity of the pipeline through anchor drop/drag, additional protective measures are required such as rock armour placement. The BPPS Pipeline is externally coated with an anti-corrosion coating and is concrete weight coated.
- **Cathodic Protection of the Onshore Pipeline at BPPS:** The onshore pipeline at the BPPS is coated with protective coating and provided with cathodic protection.

2.1 Major Scenarios of Emergency

Major gas emergencies which apply to the natural gas pipeline include:

- Loss of containment, in not more than 1 hour in any place, 500 Kg of natural gas (it corresponds to approximately 600 standard m³ of our natural gas supply);
- Explosion damage caused by gas where the damage extends beyond the immediate source of the explosion;
- Explosion damage to any modifiable gas installation where repair is required; irrespective of whether such installation is rendered inoperable by such explosion;
- Any casualty, whether fatal or non-fatal as a result of the gas incident including the cases due to inhalation of unburnt gas or the products of the combustion of gas.

2.2 Safety Guidelines

The implementation and functioning of the following GBG Management System with linkages to the GBG Emergency Response System provide safety guidelines that are applied in the event that a natural gas leak or fire occurs, as summarized in **Table 2.1**.

(4) Generation Business Group (GBG) of CLP Power Hong Kong Limited (CLP Power) covers three power stations, i.e. Black Point Power Station, Castle Peak Power Station and Penny's Bay Power Station. The GBG Management System ensures the incorporation of safety precaution and requirements in the special procedures or instruction in compliance with relevant statutory requirements and the CLP Power Safety Rules.

Table 2.1 Summary of GBG Management System with linkages to the Emergency Response System

GBG System	Description
Security Management	<ul style="list-style-type: none"> ▪ Establish emergency response plan covering all sites and provides effective emergency response to events that threaten site security.
Risk Management	<ul style="list-style-type: none"> ▪ Establish activities to identify potential losses, so that emergency control plans are developed for those activities.
Project Management	<ul style="list-style-type: none"> ▪ Ensure emergency response plan is in place for project activities.
Hazardous Materials Management	<ul style="list-style-type: none"> ▪ Provide hazardous materials information to handle emergency situation safely.
Training and Authorization	<ul style="list-style-type: none"> ▪ Persons involved in emergency response teams must be adequately trained. This training must include basic actions to control the incident / emergency area and first aid.
Operations	<ul style="list-style-type: none"> ▪ Establish procedures for emergency operations of power stations.
Community Awareness	<ul style="list-style-type: none"> ▪ Ensure proper information is communicated with the community and necessary actions are taken in case a major emergency occurs.

2.3 Safety Precautions

In general, the following precautions should be taken in preventing natural gas incidents:

- DO NOT extinguish a gas fire if the gas supply is not isolated, unless there is imminent danger to life or plant by flame impingement. A gas fire will be extinguished when the gas system is depressurised to nearly atmospheric;
- DO NOT carry out a close inspection of the damaged gas transmission pipeline or gas manifold before the pipeline pressure is reduced to 85% of the operating pressure;
- In case of a gas leakage, vehicular access shall be prohibited;
- Control the ignition sources at the gas incident site (extinguish and prevent generation);
- Evacuate gas incident site and limit access under Incident Commander;
- BPPS Duty Senior Shift Manager has control of and coordinates the actions that will affect GRS;
- Activate Emergency Control Team (ECT) or Emergency Management Team (EMT) according to GBG Instruction or GBG Procedure when appropriate.

Depending on the type of natural gas incident, the following precautions should also be taken:

- A gas leakage:
 - Alert the personnel in the vicinity to retreat to a safe location;
 - Box up the electrical equipment that has been opened if time permits;
 - Ensure your safe location is away from the possible explosion arising from ignition of the gas cloud; and
 - Note that the clearance from the safe location to the leakage source depends on the topography of the leak site, the ventilation and the severity of the leakage.
- A gas fire:
 - Retreat to a safe location away from the heat and radiation of the luminous gas fire;
 - Activate the nearest fire alarm; and

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Emergency Response Plan for the Subsea Gas Pipeline for Black Point Power Station (BPPS) and the Associated Gas Receiving Station in BPPS

- Ensure isolation is in effect before attempting to put the fire out.
- A gas explosion:
 - Retreat to safe location; and
 - Note that even if there is no gas fire, when the gas facility is not isolated, there is a danger of gas leakage and further explosion.

In all the scenarios, do not attempt to put out a gas fire before isolation is in effect.

3. CONTINGENCY MEASURES AND PROCEDURES FOR EMERGENCY SCENARIOS

The following initial actions to be taken in major emergency scenarios (i.e. accidental spillage or leakage) is reported, the rehearsal arrangements including training, authorization and drills for the contingency measures refer to various GBG Management System standard, GBGI, as well as the GBGP relevant to the existing facilities and the new facilities of the BPPS of the Project.

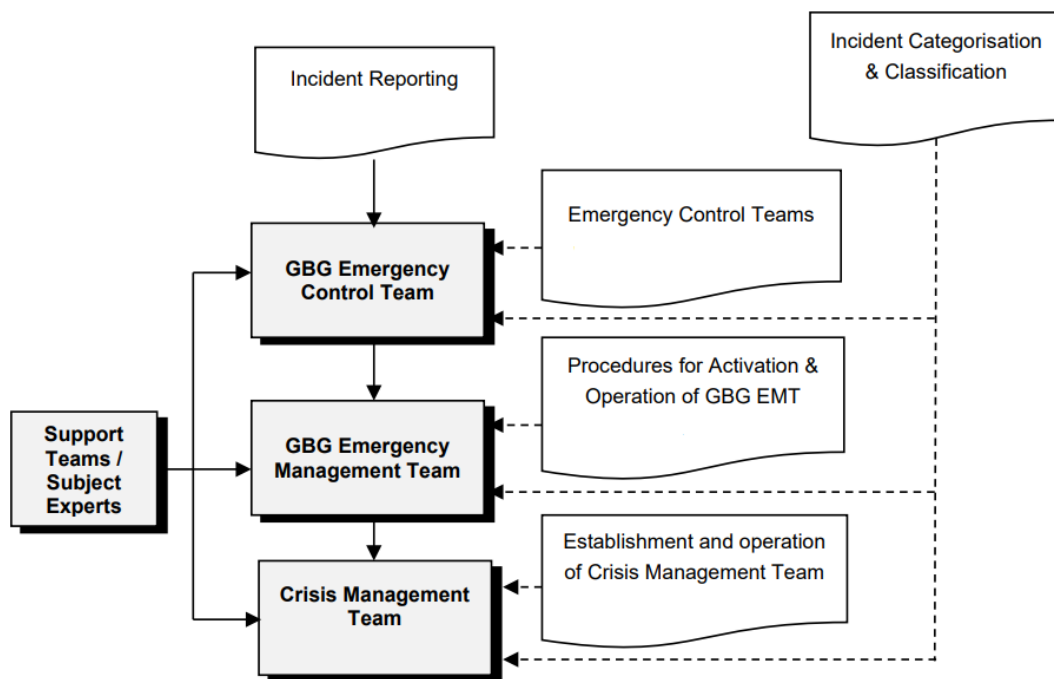
3.1 Emergency Management Organization Structure

3.1.1 GBG Emergency Management

A Three-tiered Emergency or Business Recovery Management Organization, at Department - Business Group - Corporate Levels, shall be established to address different levels of emergencies. Associated procedures shall be established for the effective operation of the Organization.

Figure 3.1 below shows the overall Emergency Management Organization structure.

Figure 3.1 Emergency Organization Structure



The GBG Emergency Management Team (EMT) is in charge of managing emergencies which conceivably might arise in GBG/GBG neighbourhood and that have reasonable potential to affect health, safety, security or environmental aspects of the company operations including protection of company assets, personnel and public.

Emergency Control Teams (ECTs) are established at business unit level or at specific locations in meeting the operational needs. The ECTs are responsible for on-site incident control in conjunction with or without external emergency services. Duty Security staff are members of the ECTs in each power station. Upon receiving emergency call from the Emergency Control Centre, they report and work under the instruction of Incident Commander to tackle different kinds of emergency.

Crisis Management Team (CMT) is a senior management team established within CLP Power Hong Kong Limited for proper handling of all probable crisis situations in accordance with the Corporate

Safety, Health, Environment, & Quality (SHEQ) Instruction - Establishment and Operation of Crisis Management Team.

Department Managers are responsible for developing and communicating procedures for Administration of Emergencies within their departments, maintaining the Department emergency plan for the various department facilities, and ensuring that all employees receive appropriate training on emergency procedures.

Table 3.1 below summarizes the roles and responsibilities for the Emergency Response Procedure in the event of natural gas incident, involving the Procedure Owner, the Procedure Administrator and the Procedure Reviewer.

Table 3.1 Roles & Responsibilities of Emergency Response Procedure

Roles	Responsibilities
<p>Procedure Owner: Director-BPPS</p>	<ul style="list-style-type: none"> ▪ Ensure that appropriate and effective systems are in place for the project handling of serious emergency situations affecting the GBG; ▪ Ensure the document is reviewed and updated; ▪ Set up effective measures for monitoring the performance of the Emergency Procedure; ▪ Monitor the overall progress and effectiveness of the procedure and related programs, ensure all deviations are identified, controlled and rectified; ▪ Prepare a critique of the response and the procedures within one month on the conclusion of any emergency that involved the activation of the EMT.
<p>Procedure Administrator: Principal Production Manager-BPPS</p>	<ul style="list-style-type: none"> ▪ Planning and co-ordination of training and practical drills for the GBG EMT as a whole and its individual members; ▪ Co-ordination of drills for ECTs and EMTs where these may involve more than one Business Group and/or the CMT; ▪ Initiate plans and proposals for sub-systems and programs; ▪ Identifying appropriate resources for the implementation of approved programs; ▪ Identifying specialist advice and support services for line departments in implementing the approved programs; ▪ Provide information and the necessary support to Procedure Owner.
<p>Procedure Reviewer</p>	<ul style="list-style-type: none"> ▪ Provide technical advice on his area of expertise; ▪ Comment on the Emergency Response Procedure; ▪ Review adequacy and effectiveness of the Emergency Response Procedure.

3.1.2 Emergency Control Team (ECT)

The BPPS ECT is responsible for on-site incident control upon receiving emergency call from the Emergency Control Centre and tackle different kinds of emergency under the instruction of Incident Commander.

Table 3.2 below shows the composition of BPPS ECT and the responsibilities responding to the accidental spill/leakage events.

Table 3.2 Roles and Responsibilities of Emergency Control Team (ECT)

Roles	Responsibilities
<p>ECT Leader: Duty Senior Shift Manager</p>	<ul style="list-style-type: none"> ■ Immediately go to the Central Control Room (CCR) and ensure that the correct actions have been taken by the CCR Duty Shift Engineer; ■ Take charge of plant operations and coordination of activities from the CCR; ■ Inform the Director (BPPS) and Principal Production Manager of the incident; ■ Activate Evacuation Signal if the situation dictates that the station evacuation is required; ■ If external emergency support such as Fire Brigade or ambulance is required, dial '999' to call for help; ■ Keep System Control Centre informed of the situation with particular regard to any loss of, or threat to, station output; ■ Decide when the incident is over and give the 'All Clear' for staff to resume their normal duties; ■ After the incident is over, prepare a written chronological account of the events and actions taken during the incident, and complete the incident report; ■ Summarise the events for the Director (BPPS) and the Principal Production Manager.
<p>Incident Commander: Duty Shift Engineer I</p>	<ul style="list-style-type: none"> ■ Check for the information of the incident. If no message is received, contact the CCR to find out the location of the incident and the designated muster point for the Emergency Control Team; ■ Go to the scene of the incident to assess the situation; ■ Maintain contact with the CCR by radio and keep the duty Senior Shift Manager informed of any changes in the location or extent of the incident; ■ Advise the duty Senior Shift Manager of any threats to the safety or availability of plant, or safety of persons; ■ Determine immediately the requirement for emergency support or external rescue resources and advise the duty Senior Shift Manager for the appropriate arrangement; ■ Communicate with the Officer In-charge of the external Emergency Teams when they arrive, and hand over on site; ■ Ensure the safety of the Emergency Control Team, and take head count of the team members prior to dismissal.
<p>Incident Coordinator / Fire Fighter</p>	<ul style="list-style-type: none"> ■ Stay in the CCR to assist the CCR operations or help to tackle the incident under the instruction of the Incident Commander as instructed; ■ Continue to operate the units in a safe manner and stand by to take emergency action to safeguard life or plant; ■ Check for the information of the incident. If no message is received, contact the CCR to find out the designated Emergency Control Team muster point; ■ Proceed to the designated ECT muster point and report to the Incident Commander; ■ Carry out any instruction given by the Incident Commander to assist in firefighting.
<p>Evacuation Coordinators</p>	<ul style="list-style-type: none"> ■ Act as overall evacuation coordination; ■ Keep close communication with the Duty Senior Shift Manager on the head count progress in all muster points; ■ Collect information to identify any missing person;

Roles	Responsibilities
	<ul style="list-style-type: none"> ▪ Declare cancellation of evacuation upon receipt instruction from the Duty Senior Shift Manager.
Security staff	<ul style="list-style-type: none"> ▪ Report immediately all details of the reported incident to the CCR Engineer if the report is not received from them; ▪ Check immediately that the main station access road is clear and (standby) to control traffic to ensure easy access to the Station and the scene of the fire by the fire brigade and the emergency teams. Set up road blocks as instructed by the Incident Commander; ▪ If the evacuation siren has been activated, control traffic and crowd at the two muster areas; ▪ Send at least two Security staff to the designated Emergency Control Team muster point to provide assistance, including firefighting and crowd control, as instructed by the Incident Commander; ▪ Instruct one Security staff to standby at the gatehouse to guide the external emergency teams or the Emergency Support Team from Castle Peak Power Station (CPPS) if necessary.
Safety Officer	<ul style="list-style-type: none"> ▪ Check for the information of the incident. If no message is received, contact the CCR to find out the designated muster point; ▪ Proceed to the designated ECT muster point and report to the Incident Commander or his delegate; ▪ Carry out any instruction given by the Incident Commander to assist in firefighting or first aid treatment as requested by the Site Nurse.
First Aider: Site Nurse	<ul style="list-style-type: none"> ▪ Proceed to the scene of the fire by the site ambulance; ▪ Commence treating any injured persons, and moving them out of the danger area; or, ▪ Remain on standby near the scene of the incident.

3.2 General Reporting Procedures

Any person observes or suspects any gas incident in BPPS, the following steps should be taken:

- Immediately retreat to an open and safe location;
- Report to Central Control Room (CCR) by:
 - Direct wire telephone, or
 - Intrinsically safe trunk radio, or
 - Dialling PAX 700;
- Report the following information:
 - Location of the incident,
 - Your name and position,
 - Nature of the gas incidents (e.g. gas leak, gas fire, or pipeline damage, etc.),
 - Severity of the incident,
 - Any injuries,
 - Endangered plant or structure, and
 - Contact telephone number;
- Follow the instruction of responsible officer to safeguard self and alert other in the vicinity.

Do NOT use mobile or fixed telephone in areas affected by the gas incidents.

The Central Control Room (CCR) will normally be the report centre for the public to report a gas incident. The public will contact the CCR directly, if the telephone number on the pipeline marker plate is used. The Duty Senior Shift Manager will start to log down the information and then log sheet will be used as a check sheet and preliminary record for the incident.

3.2.1 Actions for Responsible Officer

The BPPS Duty Senior Shift Manager is the Responsible Officer and should follow the actions below in receiving report on gas incidents or events of spillage:

- Start a chronological log on the incident;
- Raise the appropriate alarms and sirens (gas leak, fire, first aid and/or evacuation);
- Send Site Incident Commander to the scene to verify and command local actions;
- Alert all personnel in the affected area through the intrinsically safe trunk radio, when identified by the access records;
- Inform Senior Operation Director (SOD), Director-BPPS and Fuel & GRS Engineer. In case Gas Leak found, Duty Senior Shift Manager has the authority to shut down gas supply system.
- According to the information from site Incident Commander, assess the severity level and take appropriate action as required by reference to GBG Procedure - Procedure for Activation & Operation of GBG EMT and GBG Instruction - Station Emergency Response Plan;
- Organize resources for the Site Incident Commander, recruit external resources when necessary;
- Communicate with other control centres, including SOD, Fire Service Control Centre and Police of the gas incident as required;
- For case of gas transmission pipeline or gas manifold damage without gas leakage, arrange to reduce the pipeline pressure to 85% of the operating pressure, with reference to GBG procedure, for close inspection by the maintenance team;
- For case of incidents happened at public area, GBG Spoke Persons (i.e. Senior Director – Generation and Public Affair Manager or GBG Community Relations Officer) should be informed;
- For gas incidents within BPPS gas facilities, arrange to isolate and purge the affected systems at a safe operating location and refer to relevant procedures as required;
- For major gas emergency, remind Director-BPPS to inform Gas Standard Officer;
- Report the incident with reference to the Corporate SHEQ Instructions - Incident Notification and Reporting. Attach the checklist to the report and retain for not less than 2 years.

3.2.2 Actions for Incident Commander

The Incident Commander should then follow the actions below in receiving report on gas incidents:

- Verify and identify the plant items involved;
- Assess the severity of the gas incident or event of spillage according to its location, size of leakage/damage and impact on surrounding area, and report to Responsible Officer;
- Establish the area affected by the incident;
 - For case of gas leakage, 20% LEL is recommended as the inner zone to be cordoned off; Always use an approved portable gas detector for the LEL measurement;
 - For case of gas fire, warm and cold zone should be set up to restrict ECTs' members (e.g. nurse) not on direct combating from the warm zone; The criteria of setting up the warm and cold zone are based on the judgement of Incident Commander or as suggested by FSD;

- If required, cordon off and evacuate the affected area, prohibit vehicular access, with assistance from emergency team and outside resources;
- Remove ignition sources in affected area, if possible;
- Report site conditions and coordinate actions with Responsible Officer;
- If required, coordinate rescue, first aid and firefighting activities with civil emergency services;
- If required, assist to isolate and de-pressurize the pipeline, upon Responsible Officer's instruction;
- If required, put out the gas fire when pipeline de-pressurized and secure the leakage point if possible to prevent air ingress into pipeline.

3.2.3 Evacuation

An evacuation plan showing the designated muster points and route of evacuation is posted at strategic points such as main entrance and site notice board of BPPS in order to facilitate employees to evacuate. All personnel shall proceed to their designated muster point in a calm, prompt and orderly manner by using the direct route available.

3.2.4 Search & Rescue

The search for missing persons will be coordinated by the Incident Commander with the assistance of ECT and the Public Emergency Services reporting to the scene.

The followings are the procedures that need to be aware of during search of missing persons:

- Do not use lifts during evacuation;
- Do not call BPPS CCR unless important and urgent information need to be reported;
- Do not go into BPPS CCR unless being instructed to do so;
- Discontinuation of the evacuation siren does not mean that the incident is under control and clearance of the station evacuation;
- Do not return to work until clearance of the station evacuation is issued by respective Evacuation coordinators;
- 'ALL CLEAR AND RETURN TO WORK' statement will be given by Evacuation Coordinators to Fire Wardens after confirmation from BPPS Duty Senior Shift Manager.

3.2.5 Emergency Communication

Each of the stations shall have an emergency phone directory which contains names/ charges/ entities/ offices and home phone number and radio channel of the persons or entities that should be informed according to the relevant emergency response procedure.

Communication links among the control centres or rooms are provided through:

- Direct wire telephone;
- Commercial phone line;
- CLP trunk radio system: Range 9 - Channel GBPS-EMERG;
- Internet Protocol (IP) Phone.

External communications including Government and Regulatory Authorities. In case of carrying out emergency exercises near Lung Kwu Tan Road, advance notice should be given to the Lung Kwu Tan village elders through Community Relations Officer in order not to surprise the villagers.

A report will be compiled by Principal Production Manager on the exercise. Recommendation will be made to improve the emergency response if necessary. Focus is on the effectiveness of all parties on:

- Communication;
- Coordination;
- Correct use of relevant procedure;
- Use of safety equipment.

3.3 Emergency Trainings

Persons involved in emergency response teams must be adequately trained. This training must include basic actions to control the incident / emergency area and first aid.

Specific skill and knowledge are required to be developed / enhanced for appropriate staff in GBG in order to implement Emergency Response system, its related sub-systems and programmes in a professional and effective manner. Four levels of training and exercise are identified:

- Call Out and Mobilization Exercise:
 - An unannounced and out of hours' call out of the entire EMT or ECT with all the support functions and the setting up of the facility with displays, communications etc.;
- Mobilization and Desktop Exercise:
 - During the desktop 'time outs' may be taken to discuss issues which arise. It is a useful opportunity to brief newcomers to the team;
- Desk Top Exercise:
 - There will be considerable participation by role players, including role players from the emergency services and authorities, but role players will be located together to allow a greater degree of control by the Exercise Director. The exercise will be conducted in real time and last for a minimum of six hours. A post exercise report will be produced.

Before the commercial operations of GRS and the BPPS subsea pipeline, training for the operation and maintenance staff have to be completed. Other than basic Safety, Health and Environment induction training, newly recruited staffs will go through the BPPS operator certificate check book system to acquire relevant knowledge on GRS and BPPS subsea pipeline. For new operators, GBG instructions on operator competency are applied and relevant training is provided per training needs analysis outcome.

3.4 Emergency Drills

Emergency response plan shall be tested regularly to ensure it is current, comprehensive, and effective. Annual coordinated drill with local authorities and stakeholders, e.g., Fire Service Department, Marine Department, Marine Police, shall also be arranged.

An Annual Master Drill & Exercise Plan will be developed to verify Emergency Plans according to the most important risks, depending on the possibility of occurrence and the magnitude of the emergency which could occur. The drill shall include Desktop drill, physical Site Muster.

The Annual Master Drill & Exercise Plan should also be updated in monthly basis and discussed during the monthly Safety meeting. Summary of total number of drills implemented versus planned shall be shared during the monthly meeting.

Table 3.3 below illustrates the emergency drills in BPPS related to leakage of gas.

Table 3.3 Emergency Drills in BPPS and the associated GRS in BPPS

Type of Drills	Frequency	Description
Fire/Evacuation Drill	Twice every year	One of these two drills is to be held with the participation of Fire Services Department. Safety & Health Manager of SHEQ Department or Station SHE officer is responsible to make co-ordination with any outside authorities as well as internal parties in Black Point to involve on the drill.
Shift Emergency Drill	According to annual drill plan	Duty Senior Shift Manager is responsible to conduct this drill under regular frequencies. The drill is to be involved with other relevant parties within GBG such that the involvement of other parties can be practiced on a regular basis.
Gas Pipeline Leak Simulation Drill	Once every year	BPPS Fuel and Gas Team is responsible to co-ordinate and makes arrangement for the drill.

Table-top drill will be conducted by BPPS as for staff familiarization on the BPPS subsea pipeline emergency response plan actions before the commercial operations.

4. PROCEDURES AND REPORTING ARRANGEMENTS FOR EMERGENCY

This section states the procedures for reporting of, and investigation into accidental spillage events, major gas emergencies and gas incidents. In the case where a gas emergency/incident occurs during the commissioning of the gas facilities, including the BPPS Pipeline and the associated GRS of the Project, BPPS Duty Senior Shift Manager has control of and coordinates the actions that will affect GRS and the Emergency Control Team or Emergency Management Team will be activated according to GBG Instruction or GBG Procedure when appropriate.

The Corporate Safety System – Crisis and Emergency Management System also provides guidelines to follow if the gas incident involves facility inside the GRS.

4.1 Statutory Reporting Requirements

According to Clause 15.a to 15.c of Chapter 51 of Gas Safety (Registration of Gas Supply Companies) Regulations, the Director or his delegated representative shall, on a major gas emergency:

- Report the emergency to the Gas Standard Office (GSO) within 2 hours;
- Provide the GSO with such information and details in relation to the emergency as he requires;
- Furnish a written report on gas emergency no later than 28 days after the incident.
- Immediate verbal report (per Clause 15a) and written report (per Clause 15c), on gas emergency to the GSO should be directed to The Gas Standard Office, Electrical and Mechanical Services Department.

Besides, the reporting also needs to satisfy the requirements of the Electrical and Mechanical Services Department (EMSD) on reporting gas incidents to the Gas Authority, also the requirements of Marine Department Maritime Rescue Coordination Centre (MRCC) for marine-related spillage.

4.2 Response System Procedure

Following are the major components of the task procedures for the Emergency Response system:

- Establish Emergency Plan and associated Emergency Management Organization;
 - To control emergencies which conceivably might arise in GBG/neighbourhood and having impact on GBG;
- Establish Emergency & Business Continuity Plan;
 - To address the major risks identified as part of the risk mitigation measures, and to minimize losses which affect people, equipment, materials, and the environment as well as to expedite business recovery;
- Establish Business Recovery Management Organization;
 - To associate the procedures for the effective operation of the Organization;
- Perform Risk Assessment;
 - In accordance with GBG Risk Management System;
- Plan for the Simulations & Drills;
 - To plan and execute testing exercise of the emergency response in the respective areas;
- Communicate Externally & Internally;
 - To distribute the information to employees and inform significant contractor(s), Government and Regulatory Authorities or an emergency;

- Establish procedures for the Activation of the Management Organization for Emergency Response and/or Business Recovery;
 - To define the criteria based on the incident category and classification;
 - All personnel with key roles in responding to an emergency be familiarized with emergency incident severity assessment to ensure the prompt and effective activation of the emergency response procedures;
 - Appropriate business continuity plan will also be taken into action;
- Emergency Response for Security Incidents;
 - Formulate a Security Master Plan to define the response matrix in accordance with different threat levels.

4.3 Incident Reporting & Investigation Procedure

CLP Group Health, Safety, Security and Environment Management System – Incident Reporting and Investigation Standard and Corporate Instruction - Incident Reporting and Investigation set out the requirements for incident classification, notification, investigation, action management, Lessons Learn and Training & Competency.

The CLP Incident Reporting and Analysis System (IRAS) is used to report incidents and track follow-up actions for all the documentation maintenance.

Incidents are categorized into 4 incident class with different notification time limit as shown below:

- Minor (Level 0): no later than the next business day;
- Major (Level 1): within 24 hours;
- Critical (Level 2): within 24 hours;
- Catastrophic (Level 3): Immediately.

Any reclassification of incidents or near miss must have a documented justification and approved by the CLP Head of SHEQ or Respective Business Groups (BG) Senior Director.

Persons involved in investigation of incident should possess the investigation skill and good knowledge on the operation involved in the incident. The Chairman of the investigation team must be a trained incident investigator. Incident investigator should have received proper incident investigation.

The investigation team should use the standard template for capturing the investigation findings, the causes of the incident, recommended actions and proposed action plan. Following are the major steps in the investigation:

- Collect evidence and information;
- Identify witness and gather data;
- Interview witnesses;
- Root cause analysis;
- Human factor analysis;
- Recommendations and Improvement Actions;
- Submit report to stakeholders.

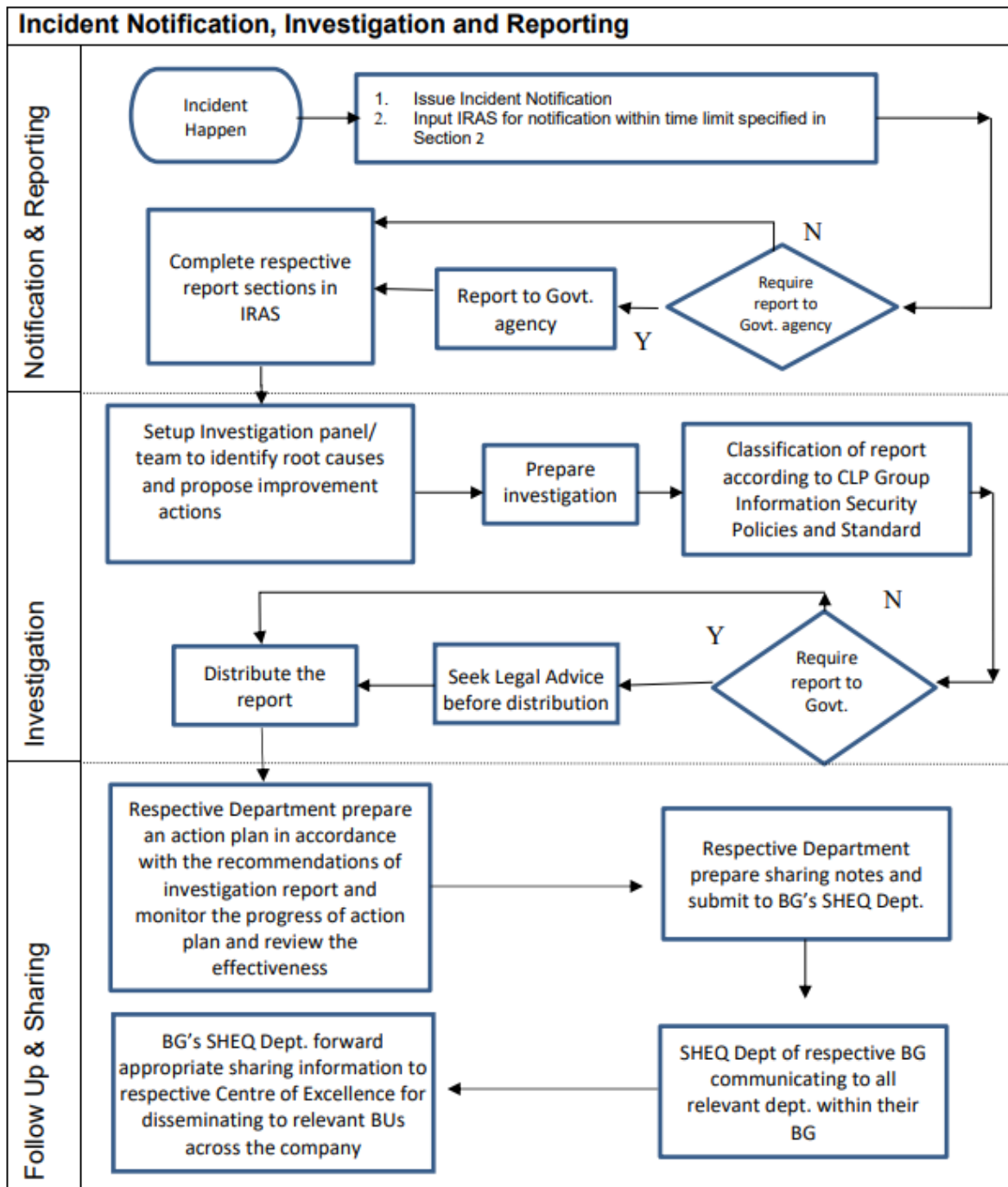
The investigation findings are retained and collective incident data is periodically analysed to determine where improvements to practices, standards, procedures, programs, plant facilities etc. are warranted.

Lessons learned from incidents shall be shared amongst respective departments and with other BG as appropriate.

Respective Department is responsible to evaluate and implement corrective actions as appropriate. Follow-up actions and recommendations shall be closely monitored by SHEQ department of respective BG.

Figure 4.1 below summaries the key processes for incident notification and reporting, investigation, analysis, sharing and follow-up.

Figure 4.1 Incident Reporting & Investigation Process Flowchart



HONG KONG OFFSHORE LNG TERMINAL PROJECT

Emergency Response Plan for the Subsea Gas Pipeline for Black Point Power Station (BPPS) and the Associated Gas Receiving Station in BPPS

All incidents related to gas plant must be documented, investigated and corrective actions followed up and implemented. This information should then be generally circulated and used for training of personnel.