Lang Lang Gas Plant

Safety Case Summary

June 2019

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Background

The Lang Lang Gas Plant is located at 5775 South Gippsland Highway, Lang Lang, Victoria, 80 km south-east of Melbourne CBD. It is operated by Lattice Energy Limited and is a major contributor to Victoria's gas market.

Lattice Energy is a wholly owned subsidiary of Beach Energy Limited, an Australian oil and gas company listed on the Australian Stock Exchange.

The Lang Lang Gas Plant is licensed as a Major Hazard Facility (MHF) in accordance with the Victorian Occupational Health and Safety (OH&S) Regulations and is required to have a Safety Case in place. The Safety Case is assessed by WorkSafe Victoria and provides the basis for the facility licensing decision. Safety of onsite personnel and the community is the first priority in operating the Lang Lang Gas Plant.

This document presents a summary of the Lang Lang Gas Plant Safety Case and is provided to the local community and municipal councils in accordance with the requirements of the *Victorian OH&S Regulations 2017.*

Lang Lang Gas Plant Overview

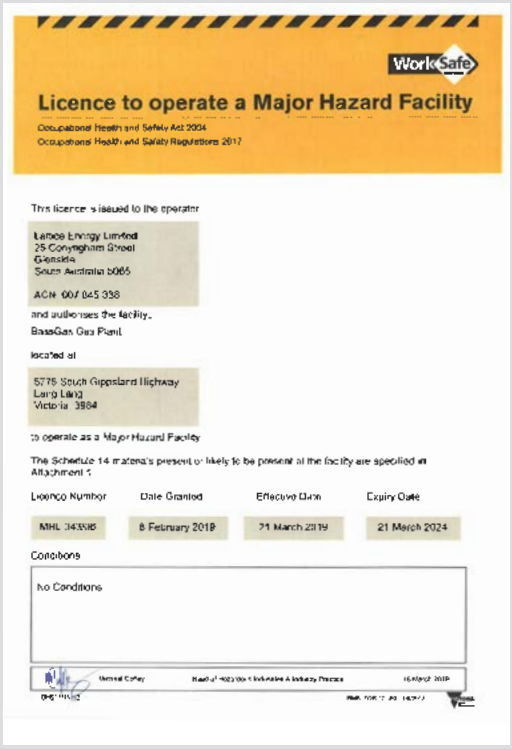
Lattice Energy's BassGas asset extracts hydrocarbon gas and liquids from the Yolla gas field located in Bass Strait. This raw gas product is delivered to shore from an offshore production platform, Yolla A, via a subsea pipeline, crossing land near Kilcunda. From there, the buried raw gas pipeline travels a further 34 kilometres to the processing plant at Lang Lang where the raw gas is processed to deliver sales gas (commonly known as natural gas), condensate and liquefied petroleum gas (LPG) products, and sent to the South Eastern domestic gas market.

The Lang Lang Gas Plant processes raw gas by separating the hydrocarbon fluids into gas and liquid streams. Gas treatment units remove carbon dioxide (CO2), water, hydrogen sulphide (H2S), and impurities, and recover natural gas and hydrocarbon liquids. Liquid treatment units break up the hydrocarbon liquids into stabilised condensate, propane and butane. Liquids storage and tanker loading facilities are included on-site at the gas plant for all these products.

Production from the BassGas asset commenced on 14th May, 2006.

Beach Energy's BassGas asset includes:

- Offshore production platform called Yolla A and offshore wells
- Subsea pipeline system from Yolla A to the shore crossing near Kilcunda
- Onshore raw gas pipeline system from the shore crossing to the Lang Lang Gas Plant
- Lang Lang Gas Plant
- Onshore sales gas pipeline commencing at the Gas Plant and connecting to the Longford to Dandenong Gas Transmission Pipeline near Pakenham
- Road transport of condensate to Victorian refineries and LPG to third party markets.



Licence to operate a Major Hazard Facility

Occupational Health and Safety Act 2004
Occupational Health and Safety Regulations 2017

This licence is issued to the operator

Lattice Energy Limited
25 Conyngham Street
Glenside
South Australia 5065

ACN 007 845 338

and authorises the facility

BassGas Gas Plant

located at

5775 South Gippsland Highway
Lang Lang
Victoria 3984

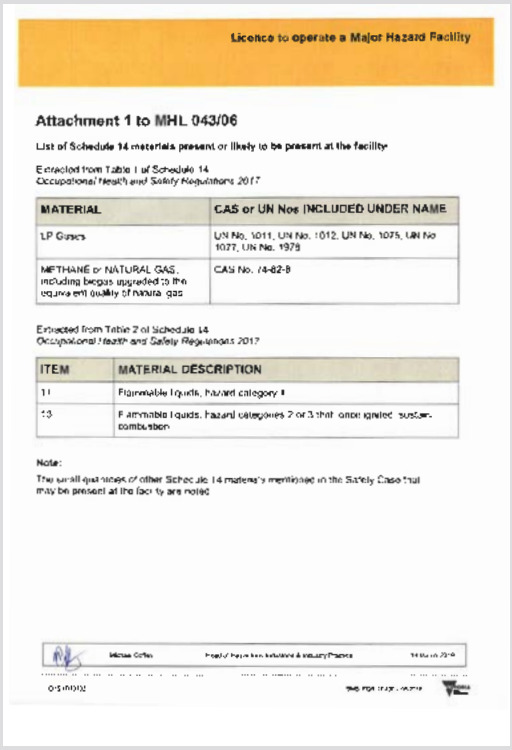
to operate as a Major Hazard Facility

The Schedule 14 materials present or likely to be present at the facility are specified in Attachment 1

Licence Number	Date Granted	Effective Date	Expiry Date
MHL 043/06	8 February 2019	21 March 2019	21 March 2024

Conditions

No Conditions



Licence to operate a Major Hazard Facility

Attachment 1 to MHL 043/06

List of Schedule 14 materials present or likely to be present at the facility

Extracted from Table 1 of Schedule 14
Occupational Health and Safety Regulations 2017

MATERIAL	CAS or UN Nos INCLUDED UNDER NAME
LP Gases	UN No. 1011, UN No. 1012, UN No. 1075, UN No 1077, UN No. 1978
METHANE or NATURAL GAS, including biogas upgraded to the equivalent quality of natural gas	CAS No. 74-82-8

Extracted from Table 2 of Schedule 14
Occupational Health and Safety Regulations 2017

ITEM	MATERIAL DESCRIPTION
11	Flammable liquids, hazard category 1
13	Flammable liquids, hazard categories 2 or 3 that undergo sustained combustion

Note:

The small quantities of other Schedule 14 materials mentioned in the Safety Case that may be present at the facility are noted

Lang Lang Gas Plant Safety Case

The Safety Case is a document that describes the Gas Plant, the associated hazards and risks, and the safety management system in place to control and manage these risks. The Safety Case is revised every 5 years in support of the renewal of the Major Hazard Facility Licence. The purpose of the Safety Case is to demonstrate that the facility complies with the relevant requirements of the *Victorian OH&S Regulations 2017* and, in particular, that:

- Major Incidents that may arise at the facility and the hazards that may lead to a Major Incident are identified and understood;
- Control measures in place for preventing and mitigating a major incidents are adequate;
- The safety management system provides an integrated and comprehensive system for managing all aspects of the control measures so that the risk of major incidents are reduced so far as is reasonably practicable;
- The Safety Case has been produced with extensive involvement and consultation with employees, management and external stakeholders such as Regulators and Emergency Services.

The Gas Plant Safety Case was recently revised and submitted to WorkSafe Victoria for assessment to support re-licensing of the Gas Plant as a Major Hazard Facility. The licence to operate a Major Hazard Facility was granted for the maximum term of 5 years and without any special licence conditions. A copy of the new Major Hazard Facility Licence is included in this summary.

Major Incident Risks

The Lang Lang Gas Plant has the potential for a Major Incident due to the quantities of flammable liquid, LPG and natural gas present at the facility. The Gas Plant stores and processes quantities of dangerous goods above the threshold quantities listed in Schedule 14 of the *Occupational Health and Safety Regulations 2017* and is therefore required under those regulations to identify all scenarios that could lead to a Major Incident occurring. The Major Incidents are low likelihood events with no expected risk beyond the Lang Lang Gas Plant site boundary.

In common with other gas plants in Victoria, potential Major Incidents at the Lang Lang Gas Plant involve the loss of containment of dangerous goods that could result in fire or explosion and which have the potential for serious injury or fatalities to personnel on site. All potential Major Incidents have been assessed in detail to determine the extent of the consequences and the risk of occurrence. Beyond visible smoke or odour, no Major Incidents at the Gas Plant are predicted to affect the local population offsite.

A comprehensive and systematic safety assessment has been conducted with extensive involvement of experienced and qualified workgroups to identify the credible scenarios that could result in a Major Incident. The safety assessment starts by identifying the hazards that exist in the facility. A hazard means an activity, procedure, plant, process, substance, situation or any other circumstance that could cause or contribute to causing a Major Incident. Examples of hazards that could lead to a Major Incident at this facility include the following: over-pressuring of equipment, over-filling of tank, equipment failure that causes leaks, corrosion, failure of operating or maintenance procedures, mechanical impact and excessive vibration.

The groups involved in the safety assessment include engineers, operations and maintenance personnel, technical specialists and Beach Energy management. The safety assessment enabled a detailed understanding of the hazards that may lead to Major Incidents, their nature, likelihood and consequences and the overall risk profile. The safety assessment ultimately determined that the control measures are adequate to reduce the risk so far as is reasonably practicable.

Gas Plant Major Incident

- Loss of containment of hydrocarbons from Slug Catcher or Raw Gas Pipeline
- Loss of containment of hydrocarbons at Pig Receiver
- Projectile from Pig Receiver
- Loss of containment of hydrocarbons at Inlet Separation or Gas Sweetening Systems
- Loss of containment of hydrocarbons at TBX Compressor Discharge or Molecular Sieves
- Loss of containment of hydrocarbons at LPG Recovery System
- Loss of containment of hydrocarbons at LPG Fractionation System
- Loss of containment of hydrocarbons at Sales Gas Compression and Export Systems
- Loss of containment of hydrocarbons at Condensate Storage
- Tank top fire or explosion within Condensate Storage Tank
- Loss of containment of hydrocarbons at LPG Storage
- Loss of containment of hydrocarbons from Fuel Gas System (including Power Generators)
- Loss of containment of hydrocarbons at LPG Loadout Facility
- Loss of containment of hydrocarbons at Condensate Loadout Facility
- Loss of containment of hydrocarbons from the Flare or Drain Systems
- Loss of containment involving mercaptan odorant
- Loss of containment of methanol

Control Measures for Major Incident Risks

The Lang Lang Gas Plant design is based on extensive gas plant design experience and the use of comprehensive sets of standards and codes that represent best practice in the oil and gas industry.

At each stage of the design, potential hazards were identified, and options to reduce and mitigate risks were assessed and agreed. The adopted improvements were targeted towards the major risk contributors resulting in a significant reduction in total plant risk.

Key Control Measures

- Pressure Safety Valves (PSVs)
- Safety Instrumented Systems
- Emergency Shut Down (ESD) System
- Fire and Gas Detection Systems
- Fire Water System
- Emergency Response Plan
- Permit to Work System
- Safe Operating Procedures
- Asset Integrity Management
- Management of Change Procedure
- Training and Competency

Safety Management System

The Health, Safety and Environment Management system (HSEMS) is integrated with all key aspects of the Safety Case to ensure it is a comprehensive system for managing the adopted control measures and to provide for the ongoing compliance with applicable regulations.

HSEMS Priorities

- Comprehensive training program for all employees
- Additional supervision and monitoring of potential high risk activities on site
- Hazard identification and risk assessment of all high-risk activities
- Timely development and review of operating procedures
- Progressive refinement of performance indicators for critical controls
- Audit of operational activities
- Liaison with the community and stakeholders through regular Lang Lang Gas Plant Environment Liaison Group (ELG) meetings

Community Notifications

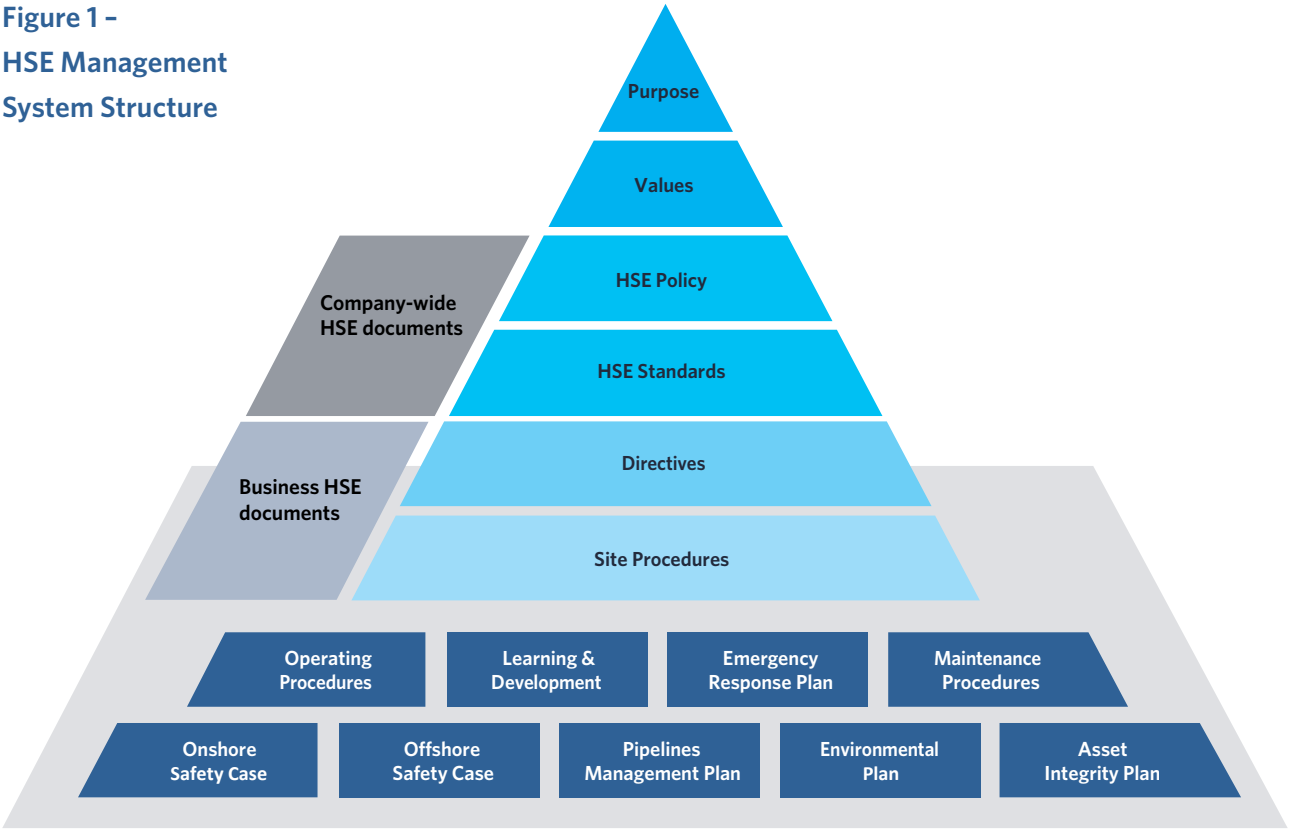
In the event of an emergency at the Lang Lang Gas Plant, the Emergency Response Plan will be immediately activated under the direction of the Emergency Response Team Leader. Safety of onsite personnel and the community is the first priority.

In the event of a Major Incident occurring at the Lang Lang Gas Plant site, the Emergency Response Team Leader will first establish the safety of site personnel and commence incident control. Emergency services will then be notified. If required, the relevant Emergency Service agency responsible for public safety would issue notifications and instructions for community members via mobile phone short message service (SMS) to all mobile phones within the geographical area. Updates as relevant would follow. In these instances, it is expected that SMS will be sent out by the State Emergency Service.

As no offsite safety hazards are predicted from Major Incidents at the Gas Plant, if a Major Incident occurs at the Gas Plant, members of the local community should therefore monitor their mobile phones for SMS from local emergency services and take action as advised by those emergency services.

The Emergency Response Plan for the facility is regularly tested through the conduct of emergency exercises and drills. This provides assurance of emergency preparedness should an incident occur at the Gas Plant. Emergency Services including the Victoria Police and CFA are participants in selected emergency exercises and have been consulted in the development of the Emergency Response Plan.

Figure 1 – HSE Management System Structure



More Information

For further information on the Lang Lang Gas Plant, details of the Safety Case, or subscription to the SMS service, please contact:

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beach

In January 2018, Beach Energy acquired Lattice Energy Limited (Lattice). Lattice is the licenced operator of the Lang Lang Gas Plant.

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