

Otway Gas Plant Safety Case Summary

February 2023





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Overview

The Otway Gas Plant is located at 305 Waarre Road, Port Campbell, Victoria. It is operated by Beach Energy Limited and is a major contributor to Victoria's gas market.

The Otway 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.

This document presents a summary of the Otway 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*.

In September 2007 the Otway Gas Plant commenced production of natural gas, condensate and Liquefied Petroleum Gas (LPG) from gas fields located in the offshore Otway Basin.

The 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 products.

Beach Energy's overall Otway Gas Development includes:

- Otway Gas Plant;
- Offshore production platform called Thylacine A;
- A number of subsea wells and related infrastructure;
- Subsea pipeline system from Thylacine A to the shore crossing within the Port Campbell Rifle Range;
- Onshore Halladale, Speculant and Blackwatch (HBWS) wellsite supporting offshore wells;
- Onshore Enterprise wellsite supporting offshore well;
- Onshore pipeline systems from the shore crossing and from the HBWS and Enterprise wellsites to the Otway Gas Plant;
- Natural gas export via the South East Australian Gas (SEA Gas) pipeline into the south eastern Australian gas market; and
- Road transport of condensate and LPG to third party markets.

Otway Gas Plant Safety Case

The Safety Case is a document that describes the facility, the associated hazards and risks, and the safety management system in place to control them. 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 which include:

- Major Incidents that may arise at the facility and the hazards that may lead to a major incident are identified and understood;
- Control measures that have been adopted are adequate to reduce the risk to health and safety associated with Major Incidents so far as is reasonably practicable;

- Safety management system provides a comprehensive and integrated system for managing all aspects of the control measures so that the risk of Major Incidents is reduced to as low as reasonably practicable; and
- Safety Case has been produced with extensive involvement and consultation with employees, management and external stakeholders including neighbouring Major Hazard Facilities and Emergency Services.

The Gas Plant Safety Case was recently revised and resubmitted to WorkSafe Victoria for assessment and facility re-licensing. 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 licence is included in this summary.

WorkSafe
VIC

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

Beach Energy (Operations) Limited
Level 8/80 Flinders Street
Adelaide
SOUTH AUSTRALIA 5000
ACN: 007 845 338

and authorises the facility:

Beach Energy (Operations) Limited
Otway Gas Plant
305 Waarre Road
Port Campbell VICTORIA 3269

to operate as a Major Hazard Facility.

Licence Number	Date Granted	Effective Date	Expiry Date
MHL 046/08	16 June 2022	30 July 2022	29 July 2027

Conditions and Schedule 14 materials associated with this licence are detailed in subsequent page(s).

Director Major Hazards and Dangerous Goods
Name: Simon Farrer
15 July 2022

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Licence to operate a Major Hazard Facility

Conditions:

No Conditions

The Schedule 14 materials present or likely to be present at the facility are listed in tables 1 and 2 below

Extracted from Table 1 of Schedule 14, *Occupation Health and Safety Regulations 2017*

ITEM	MATERIAL	CAS or UN No. Included UNDER NAME
33	LP GASES	UN No. 1075 UN No. 1978
35	METHANE or NATURAL GAS, including biogas upgraded to the equivalent quality of natural gas	CAS No. 74-82-8
36	METHANOL (also known as METHYL ALCOHOL) maintained at ambient temperature and pressure	CAS No. 67-56-1

Extracted from Table 2 of Schedule 14, *Occupation Health and Safety Regulations 2017*

ITEM	MATERIAL DESCRIPTION
11	Flammable liquids, hazard category 1
13	Flammable liquids, hazard category 2 or 3 that, once ignited, sustain combustion

Note:

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

18	Chlorine	CAS No. 7782-50-5
27	Hydrogen	CAS No. 1333-74-0

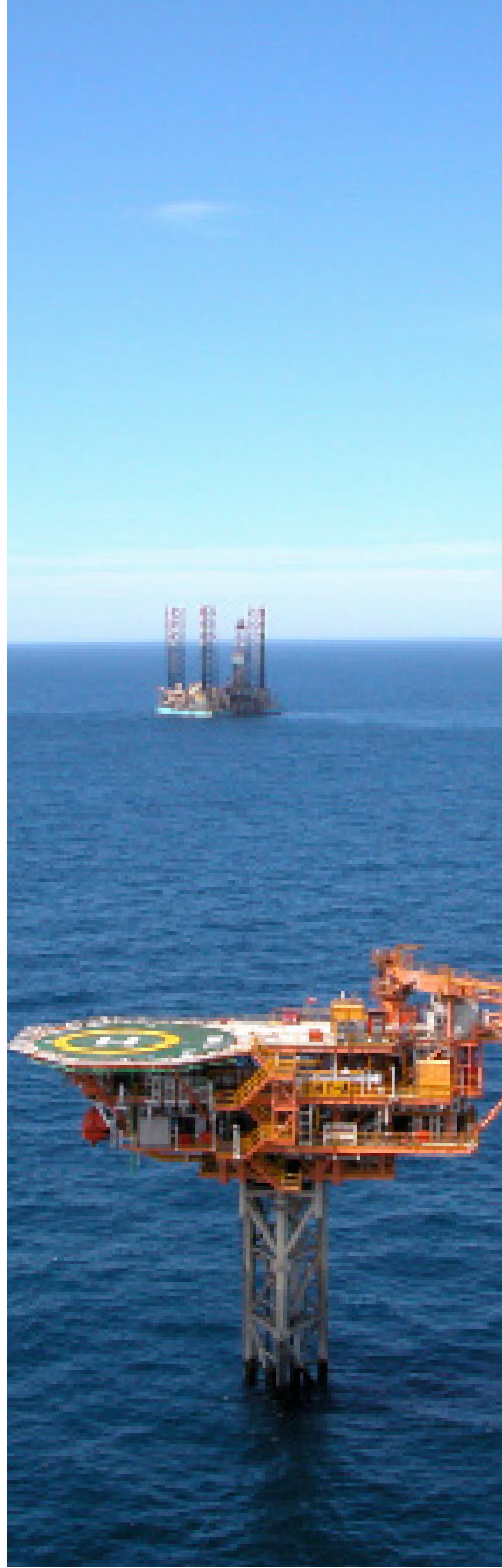
Director Major Hazards and Dangerous Goods
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Major Incident Hazards

A major incident hazard is any activity, procedure, plant, process, substance, situation or any other circumstance that could cause or contribute to causing a Major Incident. The hazards identified as a potential cause of a major incident at the Otway Gas Plant are broadly categorised as below:

- Impact/Dropped Object hazards;
- Equipment Overfill hazards;
- Over/Under Pressure hazards;
- High/Low Temperature hazards;
- Material Failures including Corrosion/Erosion Hazards;
- Mechanical Equipment Failure hazards;
- Operating or Maintenance Procedure Failure hazards;
- Equipment Start-up and Shut-down hazards;
- Utilities and Services Failure hazards;
- Natural hazards (including Bushfires, Lightning, Flooding and Earthquakes); and
- Security hazards (including unauthorised entry and cyber threats).



Major Incident Risks

A major incident is an uncontrolled incident including an emission, loss of containment, escape, fire, explosion or release of energy, that:

- involves Schedule 14 materials; and
- poses a serious and immediate risk to health and safety.

The Otway Gas Plant has the potential for a major incident due to the quantities of Schedule 14 materials present at the facility, namely quantities of liquified petroleum gas (LPG), natural gas and methanol.

A full list of Schedule 14 materials stored or handled at the facility are listed in the Major Hazard Facility Licence.

In common with other gas plants, potential major incidents at the Otway Gas Plant involve the loss of containment of Schedule 14 materials that could result in fire or explosion and have the potential for serious injury or fatalities.

All potential major incident scenarios have been reviewed and assessed in detail to understand the hazards that could lead to the major incident and to ascertain the magnitude of the consequences and the risk of occurrence.

The major incidents associated with operations at the Otway Gas Plant are low likelihood events with limited impact beyond the Otway Gas Plant site boundary.

Gas Plant Major Incidents

- Loss of containment at Slug Catcher or Import Pipeline;
- Loss of containment at Pig Receiver (Thylacine/Geographe);
- Loss of containment at Pig Receiver (HBWS);
- Loss of containment at Slug Catcher with operation of Well Clean-Up Skid;
- Loss of containment at Pig Receiver (Enterprise);
- Loss of containment from Condensate Stabilisation and Treatment section;
- Loss of containment from Flash Gas Compression section;
- Loss of containment from Gas Separation and Dehydration section;
- Loss of containment from HBWS Production Separation;
- Loss of containment from Tow Temperature Separator;
- Loss of containment from NGL Extraction section;
- Loss of containment from NGL Fractionation section;
- Loss of containment from Export Compression section;
- Loss of containment of Sales Gas Odorant (Spotleak 1005);
- Loss of containment from Fuel Gas system;
- Loss of containment from Flare and Drain system;
- Loss of containment from LPG Storage facilities;
- Loss of containment from Condensate Storage facilities;
- Loss of containment of LPG during truck loading;
- Loss of containment of LPG Odorant (Ethyl Mercaptan);
- Loss of containment of Condensate during truck loading;
- Loss of containment from Inlet Compression system;
- Loss of containment of Methanol;
- Internal tank top fire or overpressure within Produced Water and/or MEG Storage Tanks;
- Formation of flammable or explosive atmosphere due to production of hydrogen and/or hydrocarbons at the Salt Reclamation Unit;
- Formation of toxic atmosphere due to production of chlorine gas at the Salt Reclamation Unit;
- Loss of containment from and/or explosion within fired heaters; and
- Loss of containment inside Chemical Store.

Control Measures for Major Incident Risks

A comprehensive and systematic hazard identification and safety assessment process has been conducted with extensive involvement of experienced and qualified technical personnel. These assessments enabled a detailed understanding of the hazards that may lead to major incidents, their nature, likelihood and consequences, the overall risk profile and assurance that the control measures are adequate to reduce the risk so far as is reasonably practicable.

The Otway Gas Plant dedicated 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 control measures to reduce and mitigate risks were assessed. The adopted control measures were targeted towards the major risk contributors resulting in a significant reduction in total plant risk.

Controls measures can be physical equipment, process controls systems, management systems, procedures or key personnel and their actions.

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; and
- Training and Competency.

Safety Management System

The Operations Excellence Management System (OEMS) shown in figure 1 and is the framework which provides Beach employees and contractors with the basis by which it defines, aligns, standardises and implements company processes to manage risks and ensure successful outcomes in its operations.

The OEMS is integrated with all key aspects of the Safety Case to ensure it is a comprehensive safety management system for managing the adopted control measures and to provide ongoing compliance with applicable regulations.

OEMS 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; and
- Liaison with the community and key stakeholders through regular Otway Gas Plant Community Reference Group meetings.



Figure 1 - OEMS Management System Structure

Community Notifications

In the event of an emergency at the Otway 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 unlikely event that a major incident has an impact beyond the Otway Gas Plant site boundary, the relevant Emergency Service agency responsible for public safety would issue notifications and instructions for community members to follow.

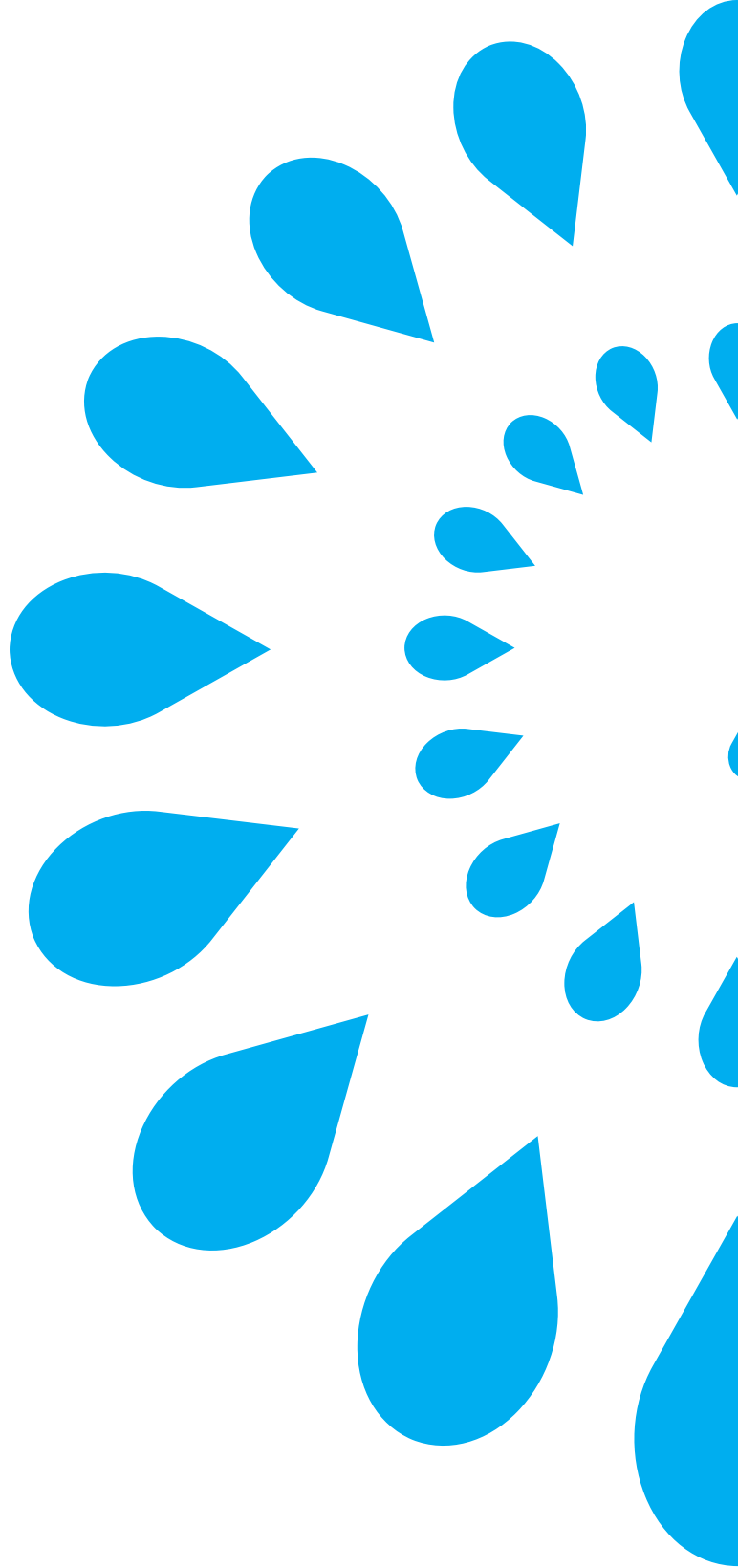
In the unlikely event of a major incident within the Otway Gas Plant site, after the Emergency Response Team Leader has established safety of site personnel and incident control, a community notification will be issued to advise that an incident has occurred, followed by updates as relevant.

This will be done via mobile phone short message service (SMS) to community members and other stakeholders who have subscribed to the service in advance. Replies with questions or relevant information can be made to the SMS and they will be answered when appropriate.

Any community member wishing to subscribe to the SMS service, or existing subscribers who wish to check or update their details, should contact the phone number or email address over the page.

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 active participants in the emergency exercises and have been consulted in the development of the Emergency Response Plan.





More Information

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

Beach Energy

Community Relations Manager (Victoria)

1800 678 151

community@beachenergy.com.au

