Altona Refinery 2017 Safety Case Summary

Contents

Glossary

ALARP "As Low As Reasonably Practicable". Measure of risk after implementation of control measures that eliminate or reduce risks to as low as practicable. Is applied consistent with the definition "so far as is reasonably practicable" (SFARP) used in the MHF Regulations.

BLEVE Acronym for "boiling liquid expanding vapour explosion"; a type of explosion that can occur when a vessel containing a pressurised liquid is heated by exposure to an external fire and ruptures.

Catalytic Reforming A refinery process where straight chain molecules are converted to cyclic molecules using a catalyst to increases the octane rating and make the material more valuable as a gasoline component.

Consequence The outcome of an event or incident expressed qualitatively or quantitatively, being loss, injury, disadvantage or gain.

Control Measure The equipment, systems and procedures used to prevent Major Incidents from occurring or to reduce the potential consequence of a Major Incident.

Crude Naturally occurring mixture of hydrocarbons that is the main feedstock for the refinery.

Flash point The flash point of a flammable liquid is the lowest temperature at which it can form an ignitable mixture in air.

Hazard Hazards are those things that could go wrong, leading to an escape of material and potential fire or explosion.

Hazid Hazard Identification.

Hydrogen Hydrogen is colourless, odourless, flammable gas that is present in some refinery processes.

Hydrogen Sulphide (H2s) Hydrogen sulphide is on odorous and toxic gas generated as the by-product of the sulphur removal from crude. It is commonly known as 'rotten egg gas'.

Hydrotreating Hydrotreating processes are used in the refinery to remove sulphur compounds from products.

Incident A specific event or extended situation that has an undesirable and unintended impact on the safety or health of people, on property, or on the environment.

Kerosene Kerosene is a flammable liquid obtained by distilling crude and is used for jet fuel and heating oil.

Layers of Protection Analysis (LOPA) Risk assessment technique used in the safety assessment to identify preventive and mitigative control measures that reduce risk.

Likelihood A qualitative description of probability and frequency.

Liquefied Petroleum Gas (LPG) LPG is a colourless, odourless, flammable material used for heating and transport purposes. It is the generic name for propane, propylene, butane and mixtures of these.

Local Community Local community includes members of the general public who reside in, or are located in the area surrounding the refinery, whose health or safety could be adversely affected by a Major Incident at the facility.

Major Incident An uncontrolled incident, including an emission, loss of containment, escape, fire, explosion or release of energy, that –

a) involves Schedule 14 materials; and

b) poses a serious and immediate risk to health and safety.

MFESB Metropolitan Fire and Emergency Services Board.

MHF Major Hazard Facilities.

MHF Regulations Part 5.2 of the Occupational Health and Safety Regulations 2017.

Natural Gas Natural gas (predominantly methane) is a colourless, odourless, flammable gas used as fuel for fired heaters in the refinery processes.

Mitigation Measures implemented in advance of an unplanned event aimed at decreasing or eliminating its impacts.

OHS Regulations Occupation Health and Safety Regulations 2017 (Victoria).

OIMS Operations Integrity Management System.

Risk A product of the likelihood of a potential Major Incident and the severity of associated consequences to persons both on site and offsite.

Safety Case Means a Safety Case prepared or revised under Part 5.2 of the Occupational Health and Safety Regulations 2017.

Safety Assessment A process consisting of the following:Potential

a) Major Incident and hazard (cause) identification (HAZID)

a) Risk Assessment

a) Control Measures analysis

a) ALARP Assessment.

SHE Safety, health and environment.

SMS A comprehensive and integrated management system for all aspects of risk control measures used as the primary means of ensuring the safe operation of the Major Hazard Facility.

Schedule 14 Materials Listing of materials (and their threshold quantity) used in the MHF Regulations to define applicability.

SFARP So Far As is Reasonably Practicable.

Vapour Cloud Explosion (VCE) An explosion occurring in a partially confined area such as a process unit that results from the ignition of the accidental release of a flammable gas, vapour or liquid.

WAG The Westernport Altona Geelong Pipeline that transports crude from the Gippsland processing facility to the refinery.

Worksafe Victoria Safety regulator in Victoria that is responsible for licensing MHFs.

Message from the Altona Refinery Manager

We at the Altona Refinery are committed to operating our plant in a manner that is compatible with the environmental and economic needs of our community, while protecting the safety, security, and health of our employees, contractors, and the public.

We have a highly skilled workforce that rigorously employs proven management systems in all work processes and at all levels. These systems enable us to continuously improve our personnel safety, process safety, security, health, and environmental performance.

Personal leadership drives our culture of excellence and the behaviours that sustain our high operational standards. We are proud of this culture, which is reflected in everything we do. It's a culture that has been built over decades by men and women dedicated to doing the right things in the right way. It's a culture that also extends to our contractors, as we partner and share our vision with them.

As a licensed Major Hazard Facility, Altona Refinery must regularly develop a Safety Case and submit it for assessment by WorkSafe as part of the process for renewing our licence to operate. This document provides a summary of our Safety Case and explains the potential impact of the refinery on the local community.

It explains how we identify the hazards inherent in our businesses, look to understand the associated consequences, and implement safeguards to eliminate or mitigate them to an acceptable level.

Everything we do is subject to our Operations Integrity Management System (OIMS). This is the cornerstone of our approach to managing safety, security, health, and environmental risks.

We gain insights by analysing incidents, near-misses, or potential events – including industry events – in order to ensure that our operations and risk reduction measures remain consistent with industry best practice. This commitment to continuous improvement is reflected in or operational policies and in our Safety Case.

We have a dedicated team here at the refinery, and we are all committed to providing essential fuel supplies for our community in a safe, responsible, and efficient manner.

Riccardo Cavallo
Manager Refining, Australia and New Zealand
Mobil Refining Australia Pty. Ltd.

Foreword

The purpose of this document is to provide information to the community regarding the management of process safety at Altona Refinery. In doing so, this document fulfils the requirements of the Occupation Health and Safety (Major Hazard Facilities) Regulations 2017 (the MHF Regulations) in relation to informing the community about the potential Major Incidents that could occur at the refinery and any possible impacts these may have on the community.

The Safety Case covers the three major hazard facilities, as defined by the MHF regulations, managed by the refinery:

- Mobil Altona Refinery Main Site – Corner Kororoit Creek and Millers Roads, Altona.
- South Crude Tank Farm – Kororoit Creek Road (between JT Gray Reserve and Techno Park Drive) Williamstown.
- Gellibrand Tank Farm – Nelson Parade (Corner of Nelson Place and Battery Road) Williamstown.

The Safety Case was first submitted in 2002, underwent a major revision in 2005 (following implementation of a major reconfiguration of the refinery) and was resubmitted in 2007, 2012 and 2017, consistent with the regular review required by the MHF regulations.

Mobil is committed to operating the Altona Refinery safely at all times, in a manner which is sensitive to potential environment and community impacts.

Development of the Safety Case has provided an opportunity for the refinery to critically examine all aspects of its operation and enhance its commitment to flawless operation. The Safety Case serves to assure the community that the refinery has the necessary processes in place and the equipment and trained personnel available to operate safely and meet all statutory requirements.

Implementation of the opportunities identified through the development of the Safety Case will ensure the refinery continues to operate to very high standards of reliability, safety and environmental performance.

Should more information be required, or if there are any questions in relation to this document, please contact:

David Schuller
Security, Safety, Health and Environment Manager

Mobil Altona Refinery

Address:	Corner Kororoit Creek and Millers Roads
	PO Box 40 Altona 3018
Tel (Security):	(03) 9217 5300

Or the Altona Refinery Community Hotline that provides contact 24 hours a day:

Telephone:	1800 659 527

Distribution of Safety Case Summary and Custodianship

Copies of this document are provided to:

1. **Hobsons Bay City Council**
   Corporate Centre
   115 Civic Parade, Altona 3018

2. **Williamstown Library**
   104 Ferguson St,
   Williamstown 3016

3. **Altona Library**
   123 Queen St,
   Altona 3018

4. **Newport Library**
   13 Mason St,
   Newport 3015

5. **Altona North Community Library**
   Corner of Millers and McArthurs Roads,
   Altona North 3025

6. **Altona Meadows Library and Learning Centre**
   Central Square Shopping Centre
   2 Newham Way,
   Altona Meadows 3028

7. **WorkSafe**
   Hazardous Industries and Industry Practice Division
   Level 24,
   222 Exhibition St,
   Melbourne 3000

or otherwise on request.

The Occupational Health and Safety (Major Hazard Facilities) Regulations

The Victorian Occupational Health and Safety (Major Hazard Facilities) Regulations 2017 (the MHF Regulations) came into operation on 1 July 2017. These regulations can be viewed online from the WorkSafe website (www.workcover.vic.gov.au).

The objective of the Major Hazard Facilities (MHF) Regulations is to provide for the safe operation of major hazard facilities in order to:

(a) Eliminate where possible and otherwise to reduce the likelihood of a Major Incident occurring;

(b) Reduce the consequences to health and safety and damage to property in the event of a Major Incident.

The Altona Refinery, South Crude Tank Farm and Gellibrand Tank Farm are licensed under these regulations as Major Hazard Facilities (MHF) due to the volume of liquefied petroleum gas and flammable liquids stored and processed at the Refinery.

The MHF Regulations require the operator of each MHF to inform their local community about the safety of the facility's operations. Regulation 394 (Information to local community) and regulation 395 (content of information) outline in detail the information to be provided. This Safety Case Summary document fulfils this requirement in respect of Altona Refinery and provides the local community with a general description of the refinery's operations and major incidents that could occur, the hazards that could cause those incidents and the control measures that are in place to prevent or minimise the consequences of any major incidents.

Major Hazard Facilities

A MHF is defined as an industrial site or facility that contains hazardous material above defined threshold quantities as detailed in Schedule 14 of the OHS Regulations. In summary, such facilities store, handle or process large quantities of hazardous chemicals and dangerous goods such as petroleum products. Examples of MHFs include oil refineries, chemical manufacturing sites and some warehouses and transport depots. All Major Hazard Facilities are required to be licensed by WorkSafe. The Altona Refinery has been a licensed MHF since 2002 when it was granted a five year unconditional licence that was renewed in 2007, 2012 and most recently in 2017.

Major Incident

A Major Incident (MI) is an uncontrolled incident, including an emission, loss of containment, escape, fire, explosion or release of energy that involves a scheduled material and poses a serious and immediate risk to the health and safety.

Scheduled Material

Schedule 14 of the OHS Regulations 2017 defines what materials must be considered in the scope of the Safety Case. Materials that fall within this definition are called "Scheduled Material" within the Safety Case documentation.

Safety Case

To obtain a licence, each MHF is required to submit a document (called the Safety Case) to the regulator that demonstrates that the operator of the facility has a comprehensive safety management system in place to ensure the safety of the facility, and has:

1. Implemented the safety management system.
2. Identified all potential Major Incidents relating to operation of the facility.
3. Identified all hazards and threats that could result in the identified Major Incidents at the facility.
4. Conducted a comprehensive and systematic safety assessment of identified potential Major Incidents.
5. Identified and implemented control measures to eliminate or reduce risk of a major incident occurring "so far as reasonably practicable".
6. Implemented an emergency plan to control and minimise any Major Incident with potential on-site and/or off-site effects.
7. Established a protocol to assess and update as required both the safety case and control measures.

The Safety Case has to be prepared with the involvement of and in consultation with, employees and their health and safety representatives.

Scope of the Altona Refinery Safety Case

The Altona Refinery Safety Case covers the Altona Refinery (inclusive of the main processing site, the Blending Area and the North Crude Tank Farm), as well as the South Crude Tank Farm and the Gellibrand Tank Farm.

HAZOP-LOPA Workshop

Refinery Overview

Altona Refinery currently produces about half of Victoria's petroleum fuel requirements from processing a combination of Gippsland crude and various imported crude oils. To accomplish this, the refinery has over 350 employees across a diverse range of functions.

Crude Oil: The Building Block

All of the refinery's products start their journey as crude oil thousands of metres underground. Crude oil began forming millions of years ago as plant and animal remains decayed in sediment at the bottom of oceans, lakes and streams. Massive pressures and high temperatures converted this organic matter into oil and gas. In rare circumstances, rock formations trapped large accumulations of crude oil that can be extracted in commercial amounts.

Crude oil is essentially a combination of two elements - hydrogen and carbon. The atoms of these two elements combine in many ways to form thousands of molecules called hydrocarbons. Crude oil varies from oil field to oil field and can range in colour and composition from light yellow, like olive oil, to thick black, like treacle. Although no two crude oils are exactly the same, modern refining and petrochemical technology is capable of transforming most crudes into literally hundreds of common useful products, including fuels, plastics, waxes and lubricants.

The Altona Refinery processes a range of foreign and domestic crude oils. The refinery receives approximately twenty percent of its crude oil from Bass Strait (Gippsland), delivered direct to the refinery via pipeline. The refinery also receives small road tanker loads of condensate via a new Tanker load-in facility in the North Crude Tank Farm. The remainder of the refinery's crude oil comes from international sources. International crude oil arrives on large marine tankers at the Gellibrand Marine Facility at Williamstown, where it is stored in tanks or sent directly to the refinery via pipeline.

Refinery Overview

Altona Refinery

The Refining Process

The refining process is sophisticated and complex, requiring a highly skilled workforce and a diverse range of engineering and business skills to manage the operations. Heat, pressure and chemical reactions are used to transform crude oil into products including petrol, diesel, jet fuel and LPG.

The refining of crude oil takes place in a number of units, linked by hundreds of kilometres of pipes and regulated by thousands of valves. The process is governed by instruments on every unit, linked to a highly sophisticated process control computer system. Through computer consoles, refinery technicians constantly monitor, regulate and optimise the process. The processes used to manufacture the various products are outlined below. The Refinery Process Flow Diagram and Site Layout Plans are shown in Appendix 1, 2 and 3.

Refining begins by processing the crude oil through a 'pipestill' or crude distillation tower. Intense heat is used to vapourise most of the oil and, as the vapours rise inside the tower, different compounds cool and separate. Heavier molecules rise a short distance, while lighter ones rise farther. As the various 'fractions' condense to liquid form, they accumulate on collection trays at varying heights inside the tower. This process separates crude oil into its various components based upon the relative weights of their molecules. The refinery recently commissioned a 'Pre-Flash' unit which removes some of the 'naphtha' fraction from condensates and light crudes, prior to them being processed in the crude distillation tower. This improves the separation efficiency in the crude tower and is more energy efficient.

'Catalytic cracking' is used to break apart or 'crack' heavier, lower value hydrocarbon molecules into lighter, and more useful molecules. The cracking process takes place at high temperatures using a sophisticated alumina-silicate catalyst to aid the process. This catalyst resembles a fine powder.

Altona Refinery Fluidised Catalytic Cracking (FCC) Unit – Being Shown To Students By Mobil Refinery Process Engineer

Refinery Overview




Other processes and technologies including catalytic reforming, alkylation, hydrotreating, alkali treating and benzene saturation are used to further refine and upgrade the hydrocarbon compounds.

Some processes use a combination of heat and pressure to break larger, heavier molecules into smaller, lighter ones. Others, such as alkylation, convert light gases into heavier, more valuable liquid fuels.

A Range of Essential Products

The refinery produces up to 14 million litres of refined products per day - enough to fill more than 330,000 cars.

Petrol represents approximately 60 percent of production, with diesel representing a further 30 percent and jet fuel around 10 percent. The refinery also produces petrochemical feedstocks and Liquefied Petroleum Gas (LPG). The percentage of each product depends on the type of feedstock used - different types of crude oil, for example, will produce more or less LPG from the refining process.

The refinery supplies the Qenos Plant with LPG which in turn supplies feedstocks to a number of petrochemical manufacturing plants at Altona which produce a multitude of consumer products including adhesives, plastics, film, wire insulation, radio and TV cabinets, car batteries and tyres.

Storage and Distribution

After processing, refined products are pumped into storage tanks to await distribution. There are almost 100 storage tanks at the Altona Refinery and in the adjacent tank farm. Around 90 percent of products are transported by pipeline from the refinery to ExxonMobil's Yarraville Terminal for distribution by road and rail. LPG is transported directly from the refinery by road.

Safety Case Summary

As indicated previously in this document the MHF Regulations require operators of Major Hazard Facilities (MHFs) to prepare and regularly update a Safety Case.

The Safety Case for Altona Refinery demonstrates that the refinery is being managed to ensure that health and safety risks of a major incident are reduced "so far as is reasonably practicable (SFARP)" and the potential damage to community property is minimised. In developing the Safety Case, we have used the following approach:

- Identify all hazards that may lead to a potential Major Incident
- Assess the likelihood and consequences of the potential Major Incident
- Document the controls in place to prevent and mitigate the potential Major Incident and identify any additional controls needed to reduce the risk of a Major Incident occurring SFARP
- Ensure that the Safety Management System (SMS) controls and monitors these control measures and risks
- Ensure the refinery emergency plan addresses the possible potential Major Incidents

The assessments were carried out by Altona Refinery personnel with the assistance of specialized consultants and included refinery process shift operators, maintenance technicians and engineers.

The Safety Case includes the following main components:

1. Facility Description – Details the processes in the MHF installation
2. Safety Management System Description
3. Safety Assessment – Details what the potential Major Incidents, risks and controls are
4. Safety Controls – Details the current and future control measures and how their effectiveness is maintained
5. Emergency Response – Details action to be taken in the event of a Major Incident

Offsite risks to the nearby community who could be impacted by a potential Major Incident are also examined in the Safety Case.

In addition, the Altona Refinery Safety Case includes an assessment of the potential for other "coordinated MHF sites" to impact the safety of the Mobil Altona Refinery or any impact on those sites from the Altona Refinery. The "coordinated sites" (including those nominated by WorkSafe) are:

- Esso's Long Island Point facility, at Hastings
- The Qenos Altona facility
- Mobil's Yarraville Terminal
- Caltex's Newport Terminal
- Viva Energy's Newport Terminal and Geelong Refinery

Yarraville Terminal

Long Island Point

Safety Case Summary

Hazardous Materials

Altona Refinery stores or processes a variety of materials that are classified as Schedule 14 materials under the OHS Regulations and are briefly described below. All hazardous materials at the refinery are processed and stored in equipment specifically designed for that material and the refinery's maintenance and operating procedures are also designed to ensure that the operation is within the mechanical design of the equipment. Where necessary, emergency shutdown and pressure relief systems are installed.

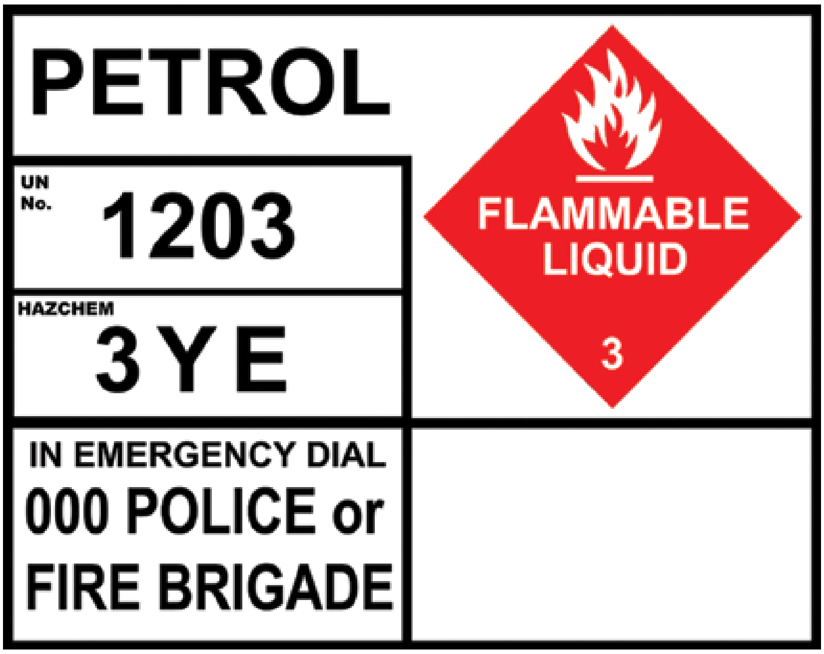
Hydrogen: a colourless, odourless, flammable gas produced in the catalytic reforming process and used in the refinery hydrotreating units to remove sulphur compounds from products. There is no storage of hydrogen at the refinery as it is continuously produced in some process units and consumed in other process units.

Liquefied Petroleum Gas (LPG): a colourless, odourless, flammable material; generic name for materials such as propane, propylene, butane and mixtures thereof. LPG is stored as a liquid under pressure and quickly vaporises on release to atmosphere.

Hydrogen Sulphide (H2S): a highly odorous toxic gas generated as the by-product of the hydrotreating processes. There is no storage of H2S in the refinery. Streams containing H2S are treated to remove the H2S and the H2S converted into elemental sulphur that is sold as a by-product.

Methane or Natural Gas: colourless, odourless, flammable gas used predominantly as fuel for the refinery process furnaces. The refinery operations generate off-gas streams that contain methane as well as other hydrocarbon gases and hydrogen. These off-gas streams, supplemented as necessary by natural gas imported from the State distribution grid, are used as the primary fuel for the refinery process furnaces. Methane and natural gas are not stored on-site but collected and burnt continuously.

Crude Oil and Flammable Hydrocarbon Products: crude oil and refinery products such as petrol and kerosene are low flashpoint flammable hazardous materials. These materials are stored in vessels and other equipment throughout the process units, sometimes at elevated temperature and pressure, or in atmospheric storage tanks specifically designed for them.



Example of Schedule 14 Material

Safety Case Summary

Safety Assessment

The focus of the safety assessment is to comprehensively investigate hazards that may lead to potential Major Incidents. All aspects of risk to health and safety and damage to property associated with potential Major Incidents are considered in the safety assessment. The objective of the safety assessment is to reduce the risk of major incident across the site "so far as is reasonably practicable" (SFARP).

The safety assessment starts by identifying the hazards that exist in the facility. A hazard is a potential physical or chemical process, procedure or circumstance which could result in a potential Major Incident. Examples of hazards that could lead to a Major Incident include the following: over-pressuring of equipment, over-filling of tanks; equipment failure that causes leaks; corrosion; failure of operating or maintenance procedures, mechanical impact and excessive vibration.

In order to ensure the Major Incidents are adequately controlled and to determine additional controls that may be deemed necessary; a Layers Of Protection Analysis (LOPA) is conducted for each identified Major Incident. This involves a thorough analysis of all existing controls and identifies any need for additional controls. This analysis is a systematic way of reviewing the control measures to ensure they are linked to the causes and hazards that make up a Major Incident as well as the consequences of the Major Incident. The LOPA can be represented as a bowtie diagram, as shown in Figure 1 below:

The layers of control on the left hand side of Figure 1, the preventive controls, are in place or proposed to prevent the initiating event from occurring. Controls on the right hand side of Figure 1, the mitigative controls, are in place to prevent or limit escalation of the initiating incident and lower the consequence of the Major Incident. Hence, the LOPA represents a review that focuses on the preventative and mitigtive controls and examines the risk control measures that are currently in place, ensuring a robust systematic approach to identify if the controls are sufficient and effective or where the inclusion of additional controls or changes in the existing controls will reduce the risk associated with the Major Incident SFARP.

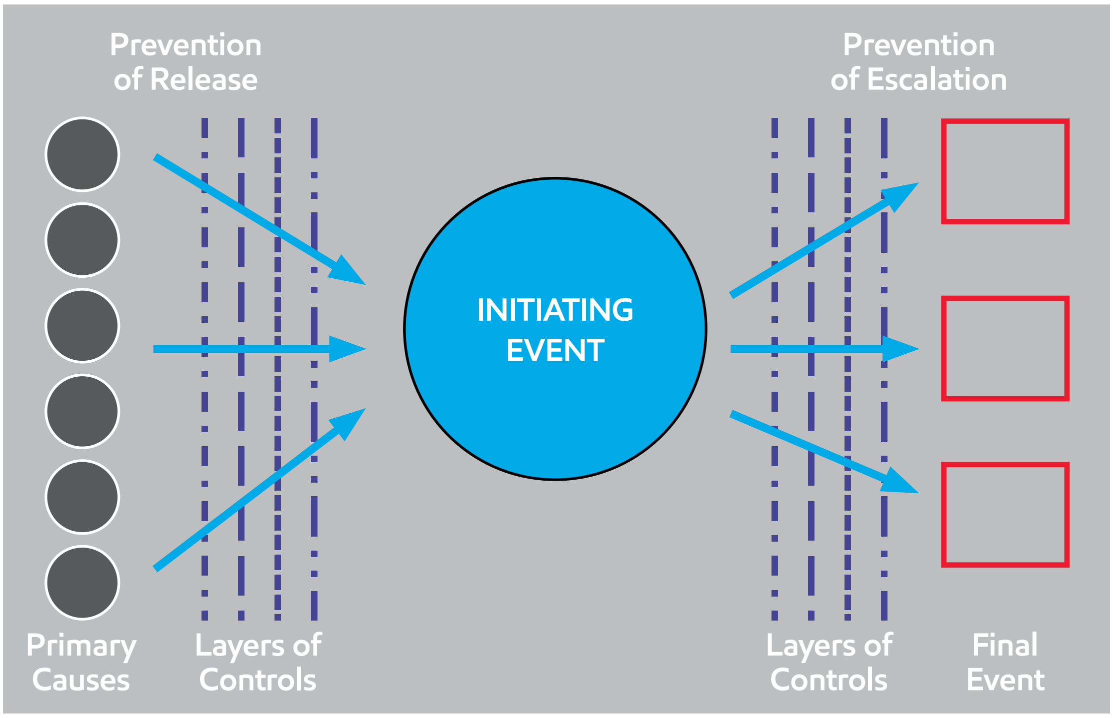


Figure 1: Idealised Bowtie Diagram

Safety Case Summary

Control Measures

Broadly speaking, control measures are the equipment, systems and procedures that reduce the risk of a Major Incident occurring or minimise its severity.

Preventive controls are designed to stop a potential Major Incident from occurring. Examples of preventive controls include: equipment design specifications, instrumented control systems, emergency shutdown systems, pressure relief systems, equipment inspection strategies and schedules, operating procedures, vessel isolation procedures, maintenance procedures, permit to work procedures, and training.

Mitigative controls are designed to reduce the severity of the consequences. These are control measures that ensure that if there is an incident, it is detected and controlled quickly to minimise the likelihood that it will escalate and become serious. Examples of mitigative controls include the following: site layout and equipment separation, gas detection systems, site alarms, fireproofing, automated water deluge systems, fixed fire fighting systems, tank fire fighting foam injection facilities and emergency response procedures.

All control measures are fully documented in the Altona Refinery safety management system and are subject to regular performance assessment and ongoing auditing to ensure they are effective, reliable and robust.

Safety Management System

As mentioned previously in this document, Altona Refinery uses the ExxonMobil Operations Integrity Management System (OIMS) as its safety management system. ExxonMobil's approach to managing the operations of all Company facilities in a manner that is sensitive to safety, health, and the environment (SHE) issues is embedded in OIMS. OIMS conforms to all requirements of AS/NZS ISO 9002: Quality Systems - Model for quality assurance in production, installation and servicing.

OIMS is used both to ensure compliance with laws and regulations and to drive SHE improvements of a non-regulatory nature sought by management. OIMS consists of 11 primary elements shown in Figure 2 below:

Figure 2: OIMS Elements

Safety Case Summary

Within these elements, ExxonMobil has specified over sixty expectations regarding the standards and practices for a refinery. To meet these OIMS expectations, the Mobil Altona Refinery has developed twenty-one systems, as follows:

Management Commitment:
Processes to achieve common and sustainable SH&E management processes and leadership.

Regulatory Compliance:
Processes by which regulatory compliance is achieved.

Personnel:
Processes for employee selection, personnel changes, placement and ongoing assessment.

Training:
Processes for the identification of individual training needs of all levels of employees and the development of programs to satisfy these.

Community Awareness:
Processes for ensuring effective community consultation and interaction.

Operations Interface Management:
Processes for the identification and assessment of all interfaces with other ExxonMobil or third party assets.

Incident Investigation and Analysis:
Incident reporting and investigation processes

Environmental Protection:
Processes for the management and minimisation of wastes and emissions, and processes for environmental improvement.

Occupational Health:
Processes for the management of occupational health risks

Third Party Services:
Processes that ensure contractors are aligned with the refinery's SHE standards and work to them.

Personnel Safety:
Processes to ensure safe work practices.

Work Permit:
The process for the proactive identification and management of potential hazards prior to the commencement of maintenance work.

Information and Documentation:
Processes to ensure employees have access to engineering drawings and other information regarding unit operation and potential hazards.

Operations and Maintenance Procedures:
Processes to ensure operations are within defined operational and regulatory limits; includes Operating and Maintenance Procedures, Operating Limits, Shift Hand-Over, Alarm Management, Internal Interfaces and Site Security.

Mechanical Integrity:
Processes for the inspection of and ensuring the reliability of refinery fixed and rotating equipment.

Critical Equipment:
Processes for the identification, testing and periodic maintenance of refinery SHE critical equipment.

Management of Change:
The process to manage changes and provides a structure for understanding the effects of change.

Risk Management:
Processes for the identification and management of potential hazards.

Emergency Response:
Processes to ensure emergency scenarios are considered and adequate capability is available for all foreseen emergencies/incidents.

OIMS Assessment and Improvement:
The processes and assessment requirements to achieve continuous OIMS improvement.

Facilities Design and Construction:
The process for identification, assessment and reduction of risks throughout the facilities design and construction phase.

Incident Preparedness and Response

Altona Refinery has detailed plans in place to respond in the unlikely event of a Major Incident occurring. Critical to the refinery's response strategy are regular emergency response exercises and annual exercise that are conducted in collaboration with the Metropolitan Fire and Emergency Services Board (MFB), the local council and Victoria Police.

Potential Major Incidents

The potential Major Incidents identified at the refinery are extremely unlikely to have offsite consequences. The controls and training in place at the refinery ensure any potential for offsite consequence is minimised. Potential Major Incidents and their worst case consequences that may occur at the refinery relate to flammable material release or toxic releases and are summarised in the table below:

Hazards	Magnitude of Major Incidents	Potential Off-site Consequences
Flammable liquid release	Fire expected to be contained within the specific plant area	Exposure to materials that may involve mild transient health effects (e.g., short term respiratory difficultly) that will not impair an individual's ability to take protective actions. Other impacts such as smoke, visible flaring, noise and/or public disruption (actions by emergency services, e.g., road closure or evacuation).
Flammable gas release	Fire/explosion likely to only have localised impact; depending on wind direction and strength could impact nearby residential and commercial operations including the railway line	Injuries as a result of damage to windows and/or internal/external building damage from an explosion (Vapour Cloud Explosion or BLEVE). Injuries sustained may require medical treatment. Exposure to materials that may involve mild transient health effects (e.g., short term respiratory difficultly) that will not impair an individual's ability to take protective actions. Other impacts such as smoke, visible flaring, noise, and/or public disruption (actions by emergency services, e.g., road closure or evacuation).
Toxic gas release containing H_2S	Release with potential to impact off-site	Depending on wind direction and strength, an H_2S release could result in off-site odours and in a worst-case scenario have minor short-term health effects on nearby residential and commercial neighbours.

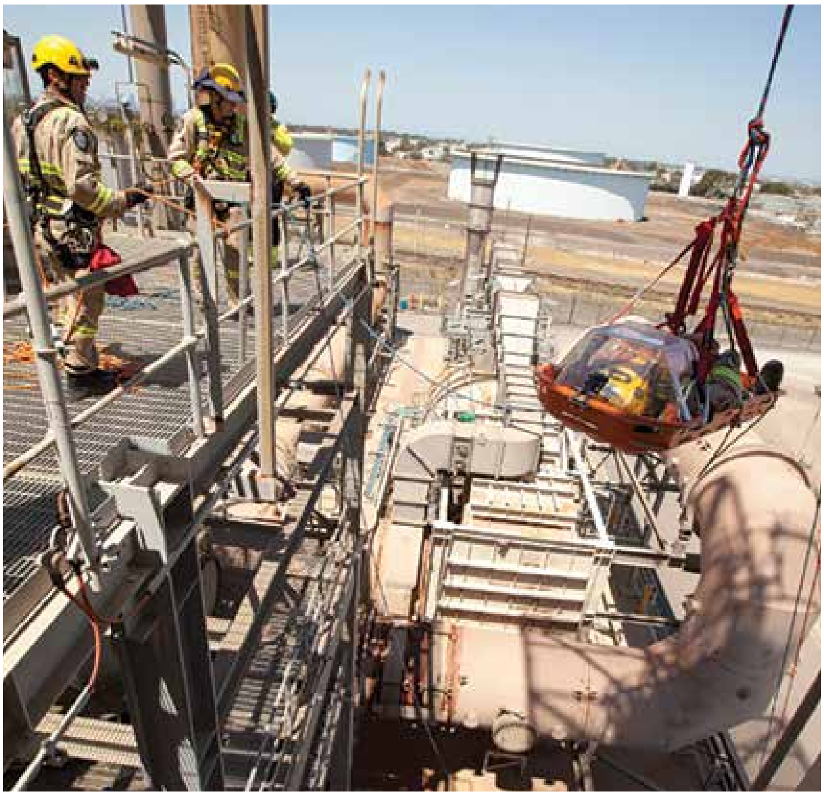
Incident Preparedness and Response

Training

Emergency Preparedness & Response training is designed and implemented to equip relevant refinery personnel with the knowledge and skills required for appropriate first response. Training schedules are developed to ensure effective implementation occurs across all areas of the refinery and includes:

- field & desktop exercises
- emergency response equipment familiarisation sessions
- integrated exercises between operations first response teams and incident support teams
- integrated exercises with external emergency services personnel
- emergency response training including refinery major incident scenario exercises

To ensure the continued effectiveness of response plans, procedures and training, a comprehensive review of completed training and any actual emergency incidents is undertaken and opportunities for improvement are identified.



Annual Major Hazard Facility Exercise with Emergency Services

ER Equipment Familiarisation Sessions with the MFB

Incident Preparedness and Response

Altona Refinery Emergency Response Equipment Deployment with the MFB

Equipment and Facilities

Equipment and facilities available at the refinery for use in an emergency include:

- communications equipment
- incident support centre from which incident support is co-ordinated
- fixed and mobile fire ER equipment (e.g., foam tenders, foam dispensing equipment, ER breathing apparatus and fire water systems)
- fire tenders
- ancillary equipment (eg. personal protective equipment)

To ensure that all refinery emergency response equipment and facilities are available and effective when called on for use, an on going program of inspection, testing, maintenance and replacement is in place.

Altona Refinery Deluge System Test

Incident Preparedness and Response

Collaborative Arrangements

A key element in the successful response to a refinery emergency is the role of the MFB. Altona Refinery has built strong ties with the MFB; jointly undertaking integrated planning, training and information sharing.

The refinery also maintains relationships with other key organisations likely to be involved in an emergency response incident, such Victoria Police, EPA, Port of Melbourne, Ambulance Victoria, WorkSafe and Hobsons Bay City Council (HBCC). For example, the Complex Emergency Response Team (CERT) is chaired by HBCC Municipal Emergency Response Officer; this team meets quarterly and holds an annual ER exercise. This exercise is held with local industry partners, HBCC and emergency services (e.g. MFB, Vic Police, SES, Ambulance Vic). Resources, for example foam, are also available on a mutual aid basis from organisations such as Qenos.

Mobil Altona Refinery is also represented on the HBCC Municipal Emergency Management Planning Committee (MEMPC), which meets quarterly to share incidents and discuss any relevant issues or changes affecting the group.

Community Notification and Response

In the event of an incident occurring with potential off-site impact, the Victoria Police has responsibility for notification and management of evacuation of the community, if necessary, in consultation with the refinery and the MFB Incident Controller. If needed, the police, will use the electronic media including radio stations 3AW (693 AM), ABC (774 AM) and local community radio station Stereo 974 (97.4 FM) to broadcast information and advice to the community. Typical instructions may include "shelter in place" which could include closing doors and windows and turning off air conditioning systems in the event of smoke to prevent it from entering properties. If an evacuation is required Victoria Police will notify and coordinate with the local community directly.

The refinery has a process for notifying key community contacts including local schools and kindergartens. Hobsons Bay City Council is kept informed of incidents and can provide information. Community feedback on incident investigations is given as part of the regular quarterly Altona Refinery Community Liaison Committee (CLC) meetings. The CLC includes representatives from Hobsons Bay City Council, local residents and the refinery.

The refinery has a SMS Alert process in place to notify local residents and others in the community of incidents or other changes to refinery operations.

Contact can also be made via the 24 hour Community Hotline (1800 659 527)

Siren

Community members should be aware that the main evacuation siren at the Mobil Altona Refinery is tested and sounded weekly to alert on site personnel only. People in the community do not need to take action in response to the sounding of this siren. In the case of emergency, Police and Emergency services personnel will direct community members if any action is required.

Refinery Flare

The refinery flare is an important safety mechanism and works much like a home gas heater. A pilot light burns all the time and ignites any gas which may be collected and sent to the flare when there is an interruption to the normal operational processes. Burning the excess gas ensures that it does not escape into the atmosphere creating a possible safety and environmental hazard.

Altona Refinery Flare

Safety, Health and Environment Policies

The Altona Refinery is wholly owned by Mobil Refining Australia Pty Ltd which is a subsidiary of Exxon Mobil Corporation, USA ("the Company")

Safety

It is the Policy of the Company and its affiliates to conduct business in a manner that protects the safety of employees, others involved in its operations, customers, and the public.

The Company and its affiliates will strive to prevent all accidents, injuries, and occupational illnesses through the active participation of every employee. The Company and its affiliates are committed to continuous efforts to identify and eliminate or manage safety risks associated with its activities.

Accordingly, the policy is to:

- Design and maintain facilities, establish management systems, provide training and conduct operations in a manner that safeguards people and property;
- Respond quickly, effectively, and with care to emergencies or accidents resulting from its operations, cooperating with industry organisations and authorised government agencies;
- Comply with all applicable laws and regulations, and apply responsible standards where law and regulations do not exist;
- Work with government agencies and others to develop responsible laws, regulations, and standards based on sound science and consideration of risk;
- Conduct and support research to extend knowledge about the safety effects of its operations, promptly applying significant findings and, as appropriate, sharing them with employees, contractors, government agencies, and others who might be affected;
- Stress to all employees, contractors, and others working in its behalf their responsibility and accountability for safe performance on the job and encourage safe behaviour off the job;
- Undertake appropriate reviews and evaluations of its operations to measure progress and to ensure compliance with this policy.

Health

It is the Policy of the Company and its affiliates to:

- Identify and evaluate health risks related to its operations that potentially affect its employees, contractors or the public;
- Implement programs and appropriate protective measures to control such risks, including appropriate monitoring of its potentially affected employees;
- Communicate in a reasonable manner to potentially affected individuals or organisations and the scientific community, knowledge about health risks gained from its health programs and related studies;
- Determine at the time of employment and thereafter, as appropriate, the medical fitness of employees to do their work without undue risk to themselves or others;
- Provide or arrange for medical services necessary for the treatment of employee occupational illness or injuries and for the handling of medical emergencies;
- Comply with all applicable laws and regulations, and apply responsible standards where laws and regulations do not exist;
- Work with government agencies and others to develop responsible laws, regulations and standards based on sound science and consideration of risk;
- Conduct and support research to extend knowledge about the health effects of its operations;
- Undertake appropriate reviews and evaluations of its operations to measure progress and to ensure compliance with this policy;
- Provide voluntary health promotion programs designed to enhance employees' well-being, productivity, and personal safety. These programs should supplement, but not interfere with, the responsibility of employees for their own health care or their relationship with personal physicians. Information about employees obtained through the implementation of these programs should be considered confidential and should not be revealed to non-medical personnel except: at the request of the employee concerned, when required by law, when dictated by overriding public health considerations, or when necessary to implement the guidelines of the Alcohol and Drug Use Policy.

Environment

It is the Policy of the Company and its affiliates to conduct business in a manner that is compatible with the balanced environmental and economic needs of the communities in which they operate.

The Company and its affiliates are committed to continuous efforts to improve environmental performance throughout its operations.

Accordingly, the policy is to:

- Comply with all applicable environmental laws and regulations and apply responsible standards where laws and regulations do not exist;
- Encourage concern and respect for the environment, emphasise every employee's responsibility in environmental performance and ensure appropriate operating practices and training;
- Work with government and industry groups to foster timely development of effective environmental laws and regulations based on sound science and considering risks, costs and benefits, including effects on energy and product supply;
- Manage its business with the goal of preventing incidents and of controlling emissions and wastes to below harmful levels; design, operate and maintain facilities to this end;
- Respond quickly and effectively to incidents resulting from its operations, cooperating with industry organisations and authorised government agencies;
- Conduct and support research to improve understanding of the impact of its business on the environment, to improve methods of environmental protection, and to enhance its capability to make operations and products compatible with the environment;
- Communicate with the public on environmental matters and share its experience with others to facilitate improvements in industry performance;
- Undertake appropriate reviews and evaluations of its operations to measure progress and to ensure compliance with this policy.

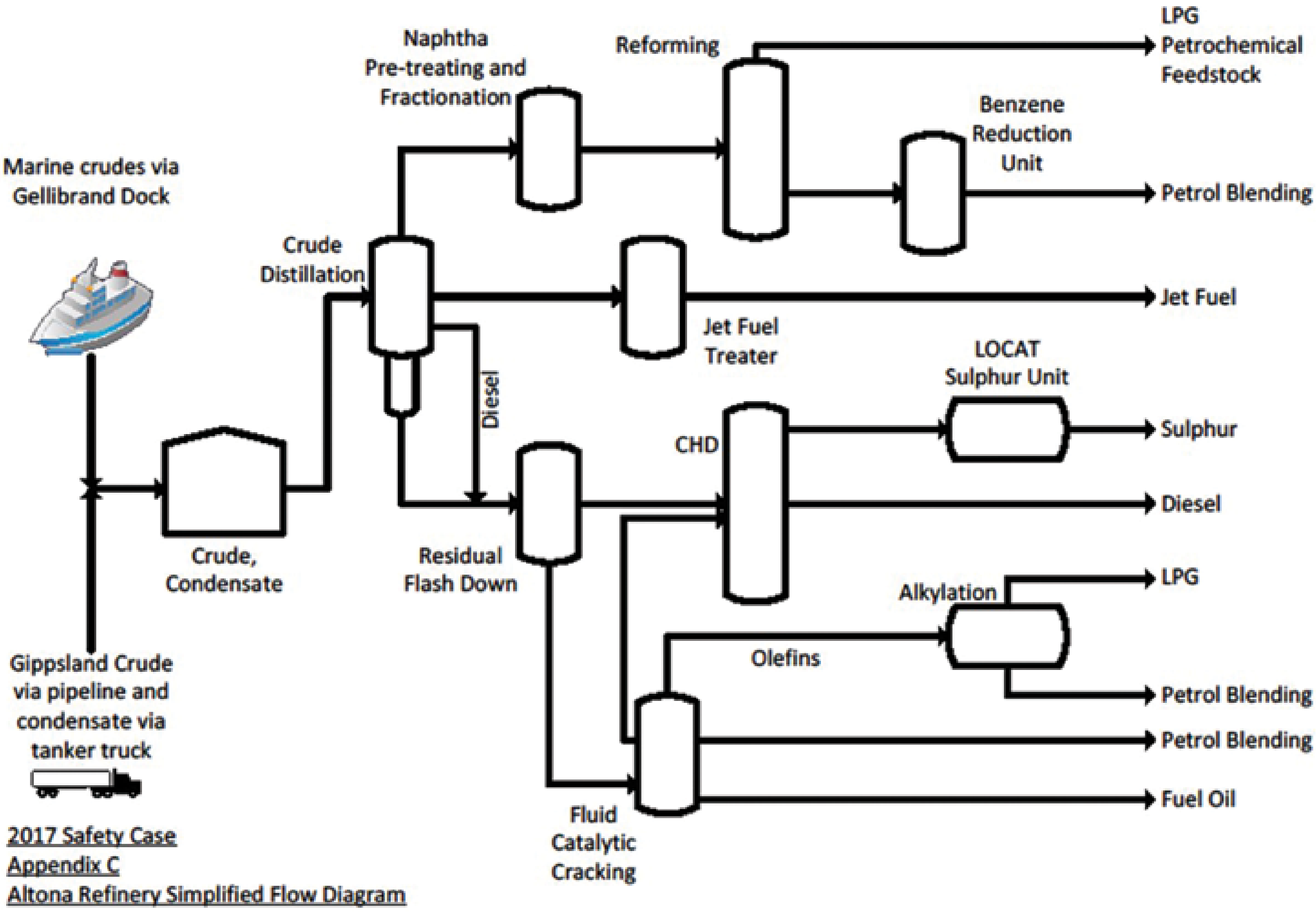
Product Safety

It is the Policy of the Company and its affiliates to:

- Identify and manage risks associated with its products and not manufacture or sell products when it is not possible through proper design, procedures, and practices to provide an appropriate level of safety for people and the environment;
- Specify precautions required in handling, transporting, using, and disposing of its products and take reasonable steps to communicate them to employees, customers, and others who might be affected;
- Comply with all applicable laws and regulations and apply responsible standards where laws and regulations do not exists;
- Work with government agencies and others, as appropriate, to develop responsible laws, regulations, and standards based on sound science and consideration of risk;
- Include identification and control of potentially adverse health, safety, and environmental effects as priority considerations in the planning and development of products;
- Conduct and support research to extend knowledge about the health, safety and environmental effects of its products, promptly applying significant findings and, as appropriate, sharing them with its employees, contractors, customers, the scientific community, government agencies, and the public;
- Undertake appropriate reviews and evaluations of its operations to measure progress and to ensure compliance with this policy.

Appendix 1

Altona Refinery – Simplified Process Flow Diagram



Appendix 2

Locality Plan – Refinery Areas

Appendix 3

Locality Plan – Gellibrand Tank Farm

Appendix 4 Altona Refinery MHF Licences

WorkSafe VICTORIA

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

Mobil Refining Australia Pty Ltd
12 Riverside Quay
Southbank
Victoria 3006

ACN: 004 300 163

and authorises the facility located at

Gellibrand Tank Farm
Nelson Parade
Williamstown
Victoria 3016

to operate as a Major Hazard Facility.

The Schedule 9 materials present or likely to be present at the facility are specified in Attachment 1.

Licence Number	Date Granted	Effective Date	Expiry Date
MHL 012/04	19 September 2017	25 October 2017	24 October 2022

Conditions:

No Conditions.

Michael Coffey	[signature]	Head of Hazardous Industries & Industry Practice	17 October 2017

MH/INT/02/298
FOR 9.400 / 16 August 17

VICTORIA

Licence to operate a Major Hazard Facility

Attachment 1 to MHL 012/04

List of Schedule 9 materials present or likely to be present at the facility

Extracted from Table 1 of Schedule 9
Occupational Health and Safety Regulations 2007

MATERIAL	UN Nos INCLUDED UNDER NAME
Nil	Nil

Extracted from Table 2 of Schedule 9
Occupational Health and Safety Regulations 2007

MATERIAL	DESCRIPTION
Flammable Materials	Liquids which meet the criteria for Class 3 Packing Group I Materials
Flammable Materials	Liquids which meet the criteria for Class 3 Packing Group II or III

Note:

The small quantities of other Schedule 9 materials that may be present at the facility mentioned in the Safety Case are noted.

Michael Coffey		Head of Hazardous Industries & Industry Practice	17 October 2017

MH/INT/02/298
FOR 9.490 / 16 August 17

Appendix 4 Altona Refinery MHF Licences

WorkSafe VICTORIA

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

Mobil Refining Australia Pty Ltd
12 Riverside Quay
Southbank
Victoria 3006

ACN: 004 300 163

and authorises the facility located at

South Crude Tank Farm
Kororoit Creek Road
Altona
Victoria 3018

to operate as a Major Hazard Facility.

The Schedule 9 materials present or likely to be present at the facility are specified in Attachment 1.

Licence Number	Date Granted	Effective Date	Expiry Date
MHL 013/04	19 September 2017	25 October 2017	24 October 2022

Conditions:

No Conditions.

Michael Coffey   Head of Hazardous Industries & Industry Practice   17 October 2017

MH/INT/02/298
FOR 0.490 / 16 August 17

VICTORIA

Licence to operate a Major Hazard Facility

Attachment 1 to MHL 013/04

List of Schedule 9 materials present or likely to be present at the facility

Extracted from Table 1 of Schedule 9
Occupational Health and Safety Regulations 2007

MATERIAL	UN Nos INCLUDED UNDER NAME
Methane or Natural Gas	1971, 1972

Extracted from Table 2 of Schedule 9
Occupational Health and Safety Regulations 2007

MATERIAL	DESCRIPTION
Flammable Materials	Liquids which meet the criteria for Class 3 Packing Group I Materials
Flammable Materials	Liquids which meet the criteria for Class 3 Packing Group II or III

Note:

The small quantities of other Schedule 9 materials that may be present at the facility mentioned in the Safety Case are noted.

Michael Coffey	[signature]	Head of Hazardous Industries & Industry Practice	17 October 2017

MH/INT/02/298
FOR 9.490 / 16 August 17

Appendix 4 Altona Refinery MHF Licences

WorkSafe VICTORIA

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

Mobil Refining Australia Pty Ltd
12 Riverside Quay
Southbank
Victoria 3006

ACN: 004 300 163

and authorises the facility located at

Altona Refinery
Corner of Kororoit Creek and
Millers Road
Altona
Victoria 3018

to operate as a Major Hazard Facility.

The Schedule 9 materials present or likely to be present at the facility are specified in Attachment 1.

Licence Number	Date Granted	Effective Date	Expiry Date
MHL 023/04	19 September 2017	5 December 2017	4 December 2022

Conditions:

No Conditions.

Michael Coffey	[signature]	Head of Hazardous Industries & Industry Practice	17 October 2017

MH/INT/02/298
FOR 9.490 / 16 August 17

VICTORIA

Licence to operate a Major Hazard Facility

Attachment 1 to MHL 023/04

List of Schedule 9 materials present or likely to be present at the facility

Extracted from Table 1 of Schedule 9
Occupational Health and Safety Regulations 2007

MATERIAL	UN Nos INCLUDED UNDER NAME
Hydrogen	1049
Hydrogen Sulfide	1053
LP Gases	1011, 1012, 1075, 1077, 1978
Methane or Natural Gas	1971, 1972

Extracted from Table 2 of Schedule 9
Occupational Health and Safety Regulations 2007

MATERIAL	DESCRIPTION
Flammable Materials	Liquids which meet the criteria for Class 3 Packing Group I Materials
Flammable Materials	Liquids which meet the criteria for Class 3 Packing Group II or III
Compressed and liquefied gases	Compressed or liquefied gases of Class 2.1 or Subsidiary Risk 2.1
Flammable materials	Liquid with flashpoints < 61°C, kept above their boiling points at ambient conditions

Note:

The small quantities of other Schedule 9 materials that may be present at the facility mentioned in the Safety Case are noted.

Michael Coffey	Head of Hazardous Industries & Industry Practice	17 October 2017

MH/INT/02/298
FOR 9.490 / 16 August 17

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