

Clyde Terminal Safety Case Summary

2021



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**Safety is a core value for
Viva Energy and is always
our highest priority.**

GoalZero

Achieving Goal Zero

We are committed to not harming people, respecting our neighbours, managing safety as a critical business activity, and publically reporting our performance. Goal Zero is our belief that all accidents and injuries are preventable and it is a commitment that extends throughout every level of our business.

Our Clyde Terminal holds a Major Hazard Facility (MHF) operational licence. As a MHF, we are required to submit a Safety Case for assessment by Safework NSW. This outlines the stringent processes and procedures that allow us to safely import, store and distribute petroleum products to thousands of customers across NSW. This document is a summary of that Safety Case and explains how we manage and minimise the risk of potential significant impacts of our terminal operations on our neighbours and the community.

Across Viva Energy we take a systematic approach to managing safety and preventing incidents. This means that at all of our facilities, including the Clyde Terminal, safety is embedded into everything we do. All of our equipment is maintained in top condition and operated within equipment limits. The mechanical integrity of our equipment and pipework is maintained through inspection programs and safety critical equipment is routinely maintained and tested. We have systems, processes and barriers to ensure safe and reliable operations and we train our people and empower them to stop work and address any safety issues identified.

Our commitment to safety and a Goal Zero mindset along with our Safety Management System drive us to continuously improve our safety performance. This means we actively pursue opportunities to further reduce our risk so far as reasonably practical. Our stated aim is to have a safety performance we can be proud of, to earn the confidence of customers, shareholders and communities in our safety record, and to be a good neighbour.



Scott Wyatt
Chief Executive Officer



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BACKGROUND

What is a Safety Case?

Viva Energy's overarching objective is to provide a safe work place for workers, contractors, visitors, neighbouring properties and businesses. The objectives of the Safety Case are to demonstrate that Viva Energy has:

- » Established a robust Safety Management System;
- » Identified all potential major incidents relating to the facility's operations and all hazards and threats that could lead to a major incident;
- » Conducted a comprehensive and systematic Safety Assessment of identified potential major incidents;
- » Established control measures to eliminate or reduce risk to health and safety to so far as reasonably practicable (SFARP);
- » Implemented an Emergency Plan to control and minimise any major incident with potential onsite and/or offsite effects; and
- » Established a review mechanism to ensure that control measures are continually assessed and updated as necessary.





What is the Safety Case Summary (this document)?

The purpose of this document is to explain safety processes and controls, as well as the potential impact of the facility on neighbours and the community in the unlikely event of a major incident occurring.

The document will be updated as required to ensure it continues to accurately reflect and appropriately inform the community about the operations of the Clyde Terminal.

What is a Major Incident?

A major incident is an uncontrolled event that involves, or potentially involves, a Scheduled Material and poses a serious and immediate risk to the health and safety of people.

What is a Scheduled Material?

Scheduled materials are hazardous chemicals that characterise a workplace as a facility for the purpose of the Work Health and Safety Regulation 2017 (the WH&S Regulations). For instance, explosive, flammable, oxidising and toxic materials.

About Viva Energy

Viva Energy is a leading energy company that supplies about a quarter of Australia's fuel requirements. We make, import, blend and deliver fuels, lubricants, solvents and bitumen through our extensive national and international supply chains.

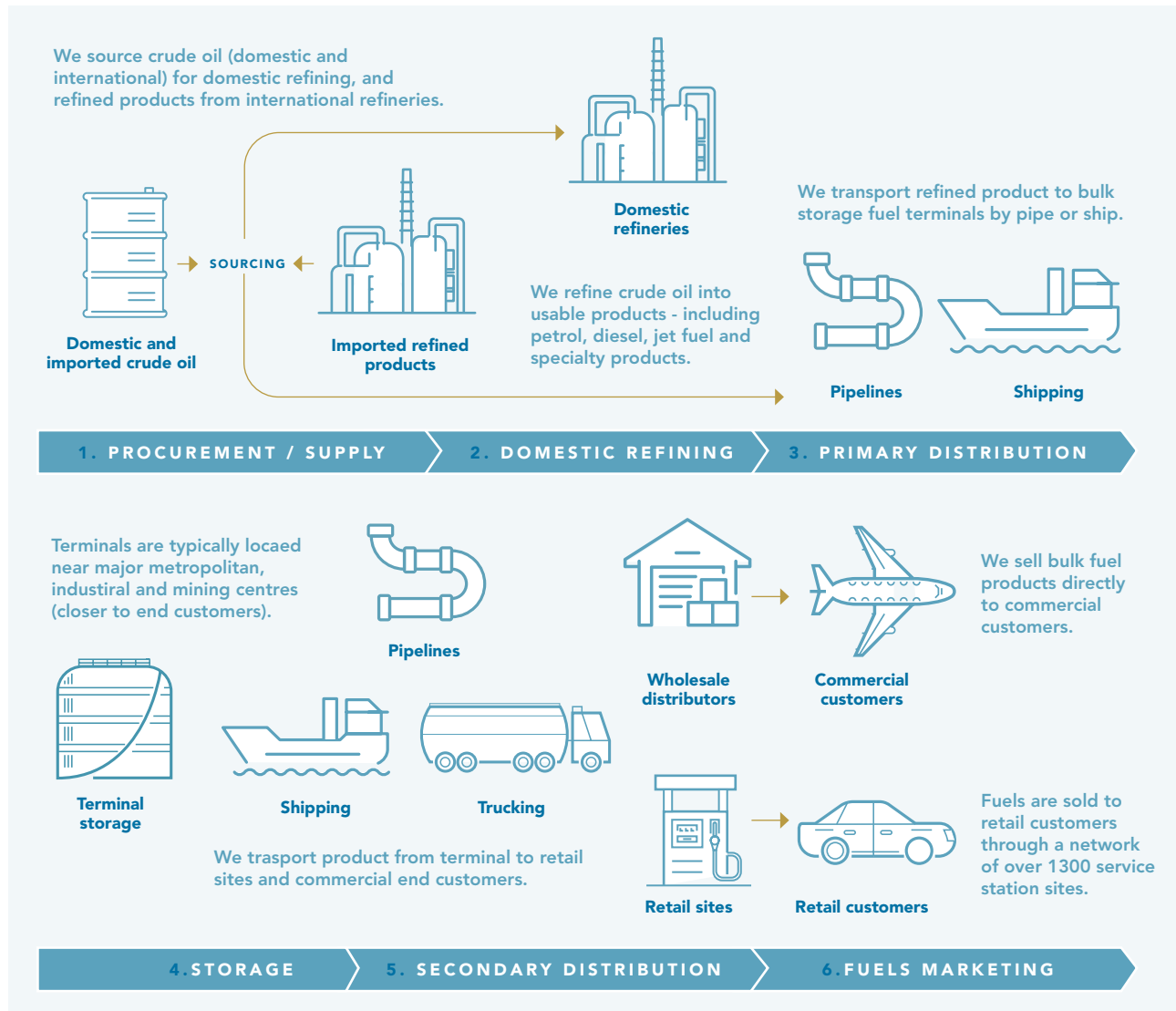


Figure 1 An overview of our supply chain

The Australian economy relies on the products we supply, our experience in operating supply chains safely and reliably, and our commitment to helping Australian motorists, businesses and industries.

We are a vital part of our country's economic prosperity and current and future energy security as our products are supplied to and used in the transport, aviation, marine, agriculture, mining, industrial, defence and resources sectors. As the exclusive licensee of the Shell brand in Australia, fuels manufactured and imported by Viva Energy are also sold to consumers and customers through Shell and Liberty branded retail sites. In addition to this retail network, we own and/or operate more than 20 fuel import and storage terminals across Australia.

Our operations in NSW comprise of our Gore Bay Port Facility in Greenwich (approximately seven kilometers north-west from the Sydney CBD) and our Clyde and Parramatta storage and distribution facilities in Western Sydney.

There are approximately 250 Shell branded service stations across NSW. Viva Energy's operations also comprise of a bitumen import facility in Port Botany and diesel storage at the Stolthaven Terminal in Newcastle.

Facility Description

Clyde Terminal is Viva Energy's largest fuel storage and distribution facility in New South Wales. The facility is located in an industrial area at Rosehill approximately 3.5 km to the east of the Parramatta Central Business District (CBD) and about 16 kilometres west of Sydney's CBD, at the junction of Parramatta River and Duck creek (see Figure 2).

Viva Energy owns approximately 100 hectares of land in this location with the boundary of the facility covering the operational areas and a surplus land area where the former Clyde Refinery was located in the western part of the site.

SITE LOCATION



KEY

- Current Clyde Terminal Site Boundary
- Surplus area under redevelopment

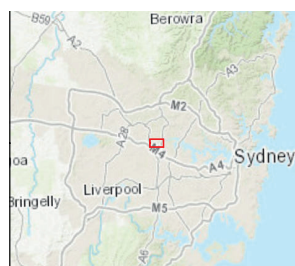


Figure 2

Clyde Terminal Supply Chain

Viva Energy owns approximately 100 hectares of land in this location with the boundary of the facility covering the operational areas and a surplus land area where the former Clyde Refinery was located in the western part of the site.

It imports its petroleum products, including gasoline, diesel and Jet Fuel, via a pipeline from the Gore Bay Port Facility (also owned and operated by Viva Energy). These products are distributed into a total of 22 liquid flammable and combustible above ground vertical storage tanks storing a total of approximately 277ML (i.e. including slops).

It is then exported to Parramatta Terminal (also owned and operated by Viva Energy) for distribution throughout NSW. Jet fuel is also exported via pipeline to the Sydney Airport fuel facility. This supply chain is depicted in Figure 3 below. **Clyde and Parramatta terminals operate 24 hours a day, 7 days a week.**

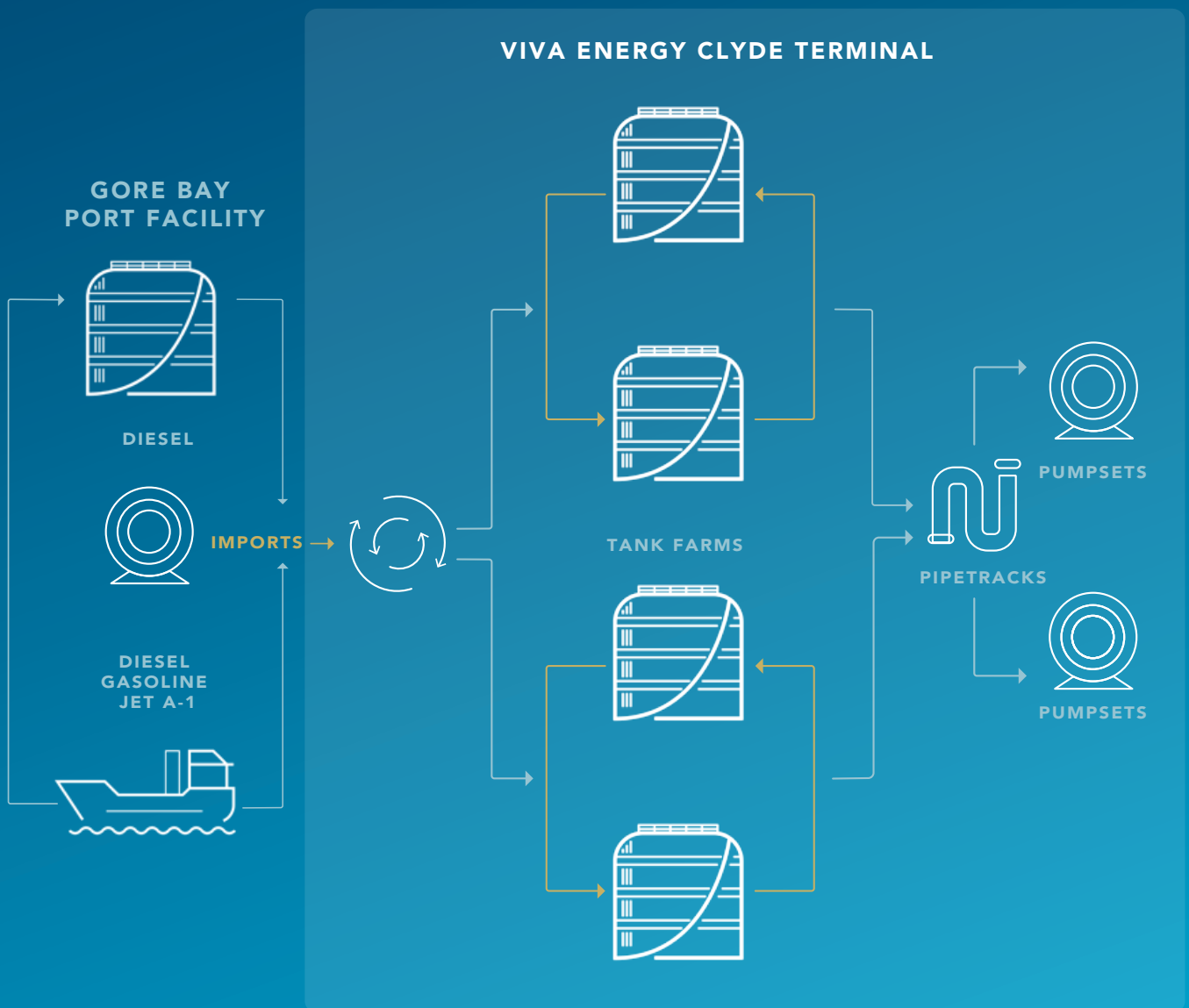


Figure 3



Safety Assessment

A safety assessment involves an analysis of the potential major hazards and major incidents to provide a detailed understanding of all aspects of risk to health and safety associated with major incidents.

The safety assessment was undertaken in accordance with published guidance from SafeWork NSW which involves the process outlined below:

- » Identify the Scheduled Materials on the site;
- » Identify all of the potential major incidents (those which pose a serious and immediate risk to health and safety) that could occur involving these materials;
- » Identify all of the things that could go wrong that could cause these incidents to occur;
- » Identify the equipment, systems and procedures (control measures) in place to ensure those incidents don't eventuate;
- » Identify those measures in place to minimise the impact of an incident should it arise;
- » Assess the robustness of the identified control measures;
- » Demonstrate that all control measures in place are adequate to pass the test of reducing risk so far as is reasonably practicable (SFARP);
- » Identify any remedial actions that may be required to introduce new or improve existing control measures; and,
- » Ensure the emergency plan addresses all of the possible types of potential major incidents and complies with the WH&S Regulations.

These assessments are carried out by Viva Energy staff across all levels, including shift operators, health and safety representatives, engineers and managers. The process is reviewed by Safework NSW and approved as part of the Safety Case Review and the renewal of the MHF license. All assessments are carried out on the basis of the worst-case scenarios whereas the actual risk of a major incident is extremely low.

Scheduled Materials

Viva Energy's Clyde Terminal store flammable liquids (i.e. gasoline and jet fuel), which are classified as Scheduled Materials under the WH&S Regulations.

These products are stored in tanks in the tank farm area and transferred via pipelines to both the Mascot Airport Fuel Facility and the Parramatta truck loading gantry for distribution throughout New South Wales and interstate.

All materials, whether scheduled or otherwise hazardous, are stored in specifically designed facilities, taking into consideration the properties of the materials.

Handling of these materials is undertaken according

to documented practices and protocols supported by instrument control systems designed to ensure equipment is operated within its designed parameters. Emergency shutdown systems are installed throughout the facility and an emergency response plan with appropriate fire protection systems is in place.





A **HAZARD** IS ANYTHING IN THE WORKPLACE THAT HAS THE POTENTIAL TO HARM PEOPLE



A **RISK** ARISES WHEN IT'S POSSIBLE THAT A HAZARD WILL ACTUALLY CAUSE HARM

Hazards, Threats and Control Measures

In the bulk storage of hazardous chemicals and dangerous goods, potential hazards involve a loss of containment of hazardous material and the potential for fire or explosion. Control measures to manage these hazards are the equipment, systems and procedures in place to prevent this occurring.

Potential threats to control measures that could potentially lead to a hazard being realised to cause an incident include: corrosion; equipment failure that causes leaks; over-pressuring or over-filling; failure of operating or maintenance procedures and mechanical impact and vibration. The Control measures in place to protect against these hazards, also called preventative measures, include:

- Equipment design specifications;
- Instrumented control and trip systems;
- Leak detection systems;
- Pressure relief systems;
- Detailed inspection strategies and schedules;
- Operating and maintenance procedures and training; and
- Permit to work procedures; and site access controls.

Control measures are also in place to ensure that in the unlikely event of an incident, it is detected and controlled quickly to minimise the likelihood that it will become serious. These are called recovery measures.

Recovery measures include:

- Site layout and equipment separation;
- Emergency shutdown devices;
- Site alarms; automated water and firefighting foam deluge systems;
- Fixed fire-fighting facilities; and
- A comprehensive emergency response plan

Viva Energy's Clyde Terminal has dedicated fire protection system consisting of:

- Firewater storage tanks and pumps;
- Fixed fire monitors and hydrants;
- Heat and gas detection;
- Foam and deluge provisions; and
- Automated call out to FRNSW.

These systems are supplemented by the town water system for fire response purposes. All of these control measures are fully documented in the site Safety Management System and are subject to performance assessment and ongoing monitoring to ensure they are reliable and robust.

Impact of a Potential Major Incident

The potential major incidents that have been identified for the terminal are associated with a liquid hydrocarbon release, fire and vapour cloud explosion. The risk of this occurring is reduced to so far as is reasonably practicable by comprehensive systems and procedures. The impact from a release of flammable liquids and any potential subsequent fire is expected to be contained within Clyde Terminal, although it is possible that a vapour cloud explosion could have a significant impact on surrounding industrial areas. In the unlikely event that the effects of an incident go beyond the perimeter of our site the emergency services and local council will work with Viva Energy to manage the impacts to the community.

Safety Management System

Viva Energy has a systematic approach to Health, Safety, Security and Environmental (HSSE) management in order to achieve continuous performance improvement. To this end, Viva Energy manage these matters as critical business activities, sets standards and targets for improvement, measures, appraises and reports on performance, and supports active discussion to promote learning and continuous improvement.

The HSSE Management System provides an essential reference document for personnel in the planning, implementation and operation of business activities and ensures that the necessary processes are in place to meet HSSE objectives. The HSSE Management System has been designed to be used by the operators as the primary means of ensuring the safe operation of the Facility.

Table 1 list the elements of the HSSE Management System and the purpose of each element

ELEMENT	PURPOSE IS TO:
1 Leadership and Commitment	Create and sustain a culture that drives our commitment to no harm to people and protect the environment.
2 Policy and objectives	Support the implementation of Viva Energy HSSE Policy with objectives, targets and plans.
3 Organisation, Responsibilities, Resources, Standards and Documents	Establish and maintain an organisation that complies with the HSSE MS standards and is resourced effectively to meet these goals and expectations.
4 Risk Management	Establish a process to identify HSSE hazards and reduce the risks to SFARP.
5 Planning and Procedures	Integrate the requirements of the HSSE Management System into Business Plans and procedures.
6 Implementation, monitoring and reporting:	
a. Implementation of the HSSE MS	Implement HSSE requirements embedded in plans/ procedures, and take corrective action when necessary.
b. Performance Reporting	Report relevant, consistent, transparent, accurate and complete HSSE performance data for internal review and oversight.
c. Procedure for Incident Notification, Investigation and Reporting	Log, investigate and learn from incidents.
7 Assurance	Provide assurance that the HSSE MS requirements are implemented and effective.
8 Management Review	Review the HSSE MS's effectiveness, adequacy and appropriateness, and take action to improve. The Management Review process also informs the business planning process, as part of continuous improvement.



Continuous Improvement

Viva Energy is committed to continuous improvement in order to constantly strive to improve safety and minimise risks.

Some examples of current improvement activities include:

Improvements to process control systems including:

- » An upgraded Safe Guarding System;
- » Site wide shutdown and Manual Call Points with automated escalation to FRNSW in case of emergency; and
- » Installation of additional CCTV cameras for monitoring site operational safety and security.

Improvements to tanks, tank bunds, valves, and pipework including:

- » Installation of hydrocarbon leak detection;
- » Installation of linear heat detection on flammable finished product tanks; and
- » Tank TPSV (fail safe valves) on tank export/delivery lines.

Improvements to Foam and Fire Water systems including:

- » Installation of two new 4600m³ fire water tanks along with new electric fire pumps;
- » Installed smoke and heat detection system to substation and control rooms;
- » Installation of automated foam systems, and
- » Installation of additional dual firewater/foam monitors.



Emergency Response

The Clyde Terminal Emergency Response Plan (ERP) has been developed in conjunction with Fire and Rescue New South Wales (FRNSW) as the designated combat agency. The Clyde Terminal has an on-site alarm and when activated, there is an automatic call-out to them.

Staff at the Clyde Terminal are trained in first response as well as inter-agency interaction. Training exercises, both desktop and simulations of various incident scenarios are undertaken on a regular basis. This involves staff from the site and other combat agencies.

In the unlikely event of a major incident, FRNSW will lead the response and will closely liaise with Viva Energy and other emergency services and agencies services such as NSW Police, Safework NSW and the EPA. Emergency services representatives will notify and inform affected neighbours of any actions required to be taken, as well as any potential disruptions such as road closures. Refer to the Clyde Terminal alarms information on Figure 4.

Fire Fighting & Deluge Systems

All storage tanks containing scheduled materials 15 products are fitted with Automated Foam/Water deluge systems in the unlikely event of fire. Additional foam and water firefighting facilities are located strategically around the facility.



Firefighting and deluge systems are regularly inspected and tested to ensure they operate when needed. FRNSW, as the control agency, directs firefighting response, with support from Viva Energy personnel.





Clyde Terminal Alarms

The alarms at Clyde and Parramatta Terminals are a vital way of ensuring that our people on-site respond to incidents quickly and safely. There are two types of alarms:



GENERAL ALARM

30 seconds of intermittent pitch of the alarm (high pitch followed by low muffled pitch). This signifies that an on-site incident has occurred that requires attention by terminal personnel.



ALL CLEAR

30 seconds of continuous sounding of the siren. This signifies that an incident is under control.



The alarms are tested at 12 noon every Tuesday. An alarm heard any other time means an on-site incident has occurred that requires attention by terminal personnel.

The community does not need to take action when an alarm sounds unless instructed by the Police or Emergency Services. In the event of an emergency please call 000.

Appendix 1

Our Commitment to Health, Safety, Security and the Environment.



Our commitment to health, safety, security and environment

We believe every incident is preventable and are committed to pursuing the goal of no harm to people and protecting the environment.

We call this Goal Zero.

"You have my full support to stop operations at any time if you are concerned about the safety of yourself or others."

A handwritten signature in black ink, appearing to read "Scott Wyatt".

Scott Wyatt
CEO
Viva Energy Australia

To make this commitment we will:

- Demonstrate visible and felt leadership for health, safety and the environment
- Ensure that our business plans consider associated HSSE risks including potential impact
- Create targets that measure, assess and report to reduce incidents
- Audit and maintain systems to identify and manage risks and prevent incidents
- Provide appropriate information, instruction, training and supervision
- Comply with our legal obligations and company procedures
- Communicate, support and consult with employees, contractors and stakeholders
- Encourage people to intervene, report unsafe situations and have positive conversations
- Conduct regular reviews and share learnings to continuously improve our performance

vivaenergy.com.au

More Information

This information brochure presents a summary of the Safety Case for the Clyde Terminal.

Further details may be obtained by contacting:

Trent Youlten, Clyde and Parramatta Terminal Manager



Viva Energy Australia Pty Ltd

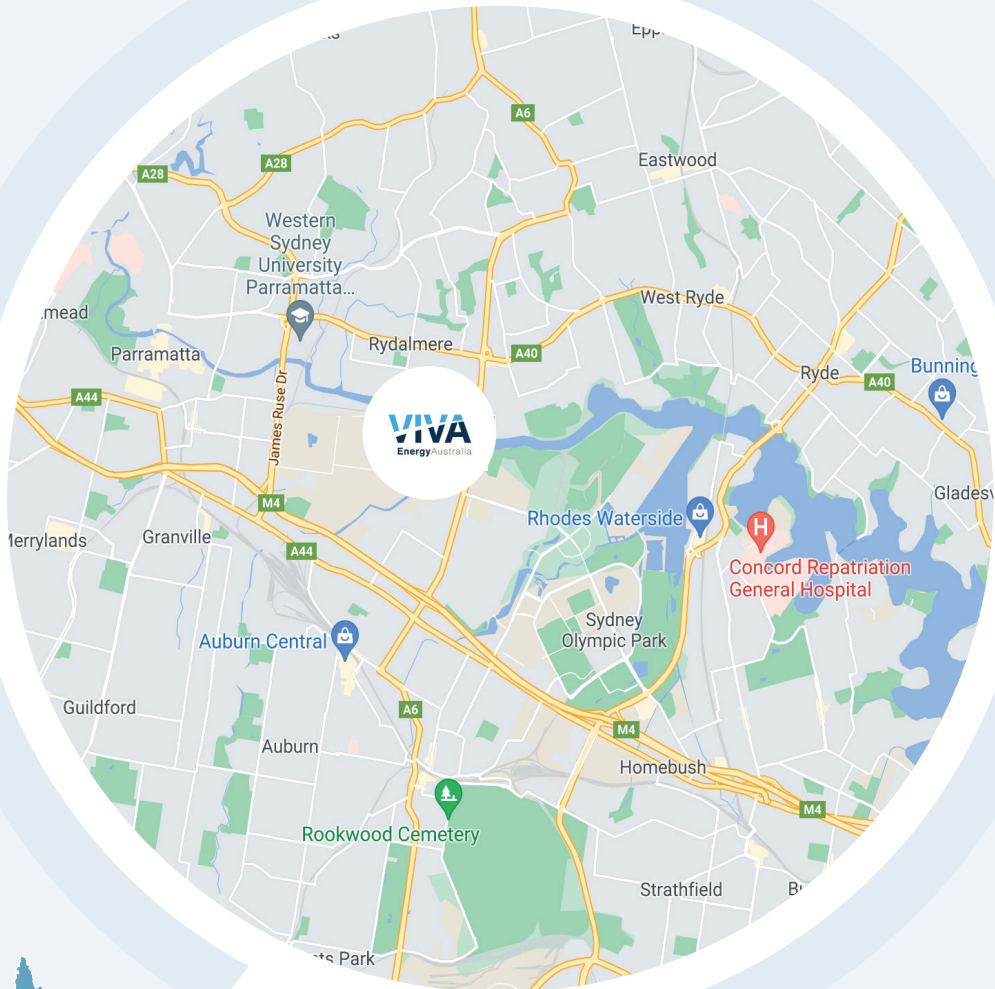
Clyde and Parramatta Terminal

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More information regarding the requirements for Major Hazard Facilities is available from the Safework NSW website: www.safework.nsw.gov.au



Clyde and Parramatta Terminal

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