Terminals New Zealand Limited
Mount Maunganui
Safety Case Summary

Revision 3

Contents

1. Glossary

Abbreviation/Term	Meaning
AGO	Automotive Gas Oil (diesel)
HSAW	Health and Safety at Work
LOPA	Layers of Protection Analysis
MHF	Major Hazard Facility
MI	Major Incident
MIH	Major Incident Hazard
Process Safety	A disciplined framework for managing the integrity of operating systems and processes handling hazardous substances by applying good design principles, engineering, and operating practices. It deals with the prevention and control of incidents that have the potential to release hazardous materials or energy[1] .
RON	Research Octane Number
SCE	Safety Critical Elements
SFAIRP	So Far As Is Reasonably Practicable
TNZ	Terminals New Zealand Limited

2. Foreword

The purpose of this document is to provide information to the community regarding the management of process safety at Terminals New Zealand (TNZ). In doing so, this document fulfils the requirements of the Health and Safety at Work Act (Major Hazard Facilities) Regulations 2016, Section 66, in relation to informing the community about the potential Major Incidents that could occur at the terminal and any possible impacts these may have on the community.

2.1. What is a Major Hazard Facility?

A Major Hazard Facility is defined Health and Safety at Work (Major Hazard Facilities) Regulations 2016, in summary, they are industrial sites that store, handle or process large quantities of hazardous chemicals and dangerous goods. This includes petroleum products such as petrol but excludes diesel.

Because of the volume of petrol stored on site, TNZ is classified as an 'Upper Tier' Major Hazard Facility, and as such is required to submit a Safety Case.

2.2. What is a Major Incident?

Throughout TNZ's Safety Case, there is frequent reference to a 'Major Incident'.

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

2.3. What is a Safety Case?

A Safety Case is a written demonstration that an Upper Tier Major Hazard Facility the ability and means to effectively control major incident hazards. This document is submitted to WorkSafe NZ for assessment, and if satisfied, will issue a 'license to operate' to the facility.

To obtain a licence to operate, TNZ is required to demonstrate it has…

- Established a robust safety management system
- Identified all potential major incidents relating to operation of the facility
- Identified all hazards and threats that could result in the identified major incidents at the facility
- Conducted a comprehensive and systematic safety assessment of identified potential major incidents
- Established control measures to eliminate or minimise the risks of major incidents So Far As Is Reasonably Practicable
- Understood and effectively managed process safety hazards
- A well-planned, effective, and practised emergency plan to control and minimise any major incident with potential on-site and/or off-site effects
- Demonstrated and documented worker engagement and consultation with:
    - Neighbouring Major Hazardous Facilities
    - Emergency services
    - The local community
    - Local authorities, and
- Established a review mechanism to ensure the Safety Case and control measures are continually assessed and updated as necessary.

TNZ submitted its first Safety Case to WorkSafe NZ for review on the 23 March 2018.

2.4. Review and maintenance of TNZ's Safety Case

TNZ's Safety Case is a living document and is continuously being reviewed and updated to reflect the terminal's operations.

A requirement of the Health and Safety at Work Act (Major Hazard Facilities) Regulations 2016, is that every five years the Safety Case is formally reviewed, updated, and resubmitted to WorkSafe NZ for review and re-approval.

TNZ submitted its second Safety Case to WorkSafe NZ for review on 11 June 2024; whereafter, WorkSafe NZ assessed the safety case and approved it on 16 December 2024 for a further five years.

3. TNZ overview

TNZ is situated on a 3.9 hectare tract of land located at 131 Hewletts Road, Mount Maunganui, Tauranga. The terminal receives, stores, and distributes refined petroleum products, with a throughput currently of approximately 600 million litres of products per year.

The land for the terminal was acquired in 1998 to provide access to port, storage, distribution, and retail facilities for entry into the New Zealand petroleum market. Operations officially commenced at the terminal in 1999. In July 2017, TNZ and Gull New Zealand Ltd. were purchased by Caltex Australia Limited.

On 27 July 2022 Allegro Funds Pty Ltd acquired TNZ and Gull New Zealand Ltd from Ampol Limited (Caltex Australia Limited changed their name to Ampol Limited in May 2020).

Refined petroleum products are loaded into six bulk storage tanks from ships which berth at the Port of Tauranga via a dedicated and mostly underground, 1.5 km long pipeline which is owned by TNZ. TNZ also stores ethanol, which is stored in an above ground tank, but is in the process of removing ethanol from site.

In March 2025, a vapour recovery unit was installed at the TNZ site. The unit will remove fuel vapour from air during loading and unloading activities, whereafter the vapour will be converted into liquid fuel.

The terminal operates 24 hours a day, 365 days of the week, with the refined petroleum products being loaded into the road tankers for supply to petrol stations. Six products regularly distributed are Regular Unleaded Petrol (91RON), Premium Unleaded Petrol (95RON), occasional selling Gull Force Pro (E85), BP Unleaded Petrol (91RON), BP Unleaded Petrol (98RON), and Diesel fuel (AGO). Currently the petrol is supplied to Gull service stations as well as to other petroleum fuel suppliers.

4. Hazardous substances stored at TNZ

Schedule 2 of the Health and Safety at Work (Major Hazard Facilities) Regulations 2016, specifies the various hazardous substances and the volumes stored on site to be classified as an Upper Tier Major Hazard Facility. At TNZ these are…

Petrol

A volatile, water insoluble, highly flammable liquid with gasoline odour. Light yellow (95 Octane); Purple/pink (91 Octane) in colour. Used in motor fuel spark ignition engines.

Ethanol

A clear, water soluble, colourless, slightly sweet alcohol smelling, flammable liquid. TNZ is in the process of removing Ethanol from site, which should be completed by end 2025.

Diesel

Light yellow in colour, water insoluble, with a mild characteristic oil odour. The product has a high flash point, making it difficult to ignite under normal circumstances. Used in compression ignition diesel engines.

5. Safety Case Summary

5.1. Safety Assessment

The focus of a safety assessment at TNZ is to identify high-consequence and low probability events, which are often referred to as 'process safety' events as well as lower consequence but higher probability events, along with environmental and product quality risks. In general, the hazard identification process identifies all major incidents hazards that could occur, including those relating to the security of the facility. The primary aim of the assessment is to identify the Major Incident Hazards at the terminal and demonstrate the associated risks have been reduced to' So Far As Is Reasonably Practicable' (SFAIRP).

Examples of hazards that could lead to a Major Incident include the following, but are not limited to…

- Escape, spillage, or leakage of a substance (e.g. damage, overfill),
- Implosion (e.g. vacuum from cooling materials),
- Explosion (e.g. ignition of a petrol), and
- Fire (e.g. loss of containment which could lead to fire, pool fire, jet fire, flash fires, fireball etc.).

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) was 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 following formal safety assessment studies have been carried out for TNZ as part of its Safety Case development…

- Major Incident Hazard (MIH) Identification
- BowTie (Refer figure 1 for schematic of process)

- Fire and Explosion Assessment
- Hazard Operability Analysis (HAZOP)
- Layers of Protection Analysis (LOPA)
- SFAIRP Demonstration Workshop

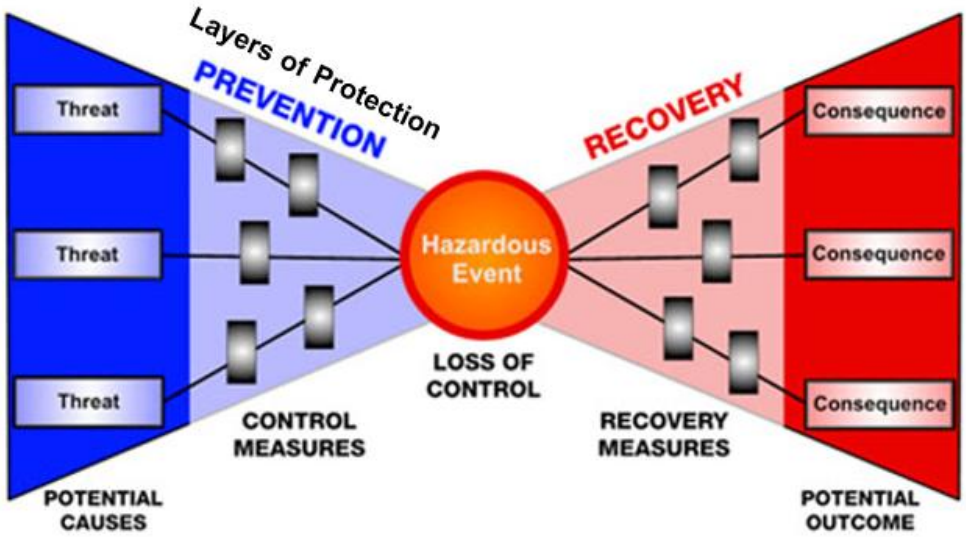

Figure 1: Schematic of BowTie Safety Assessment Process

5.2. Major Incident Hazards

A total of nine Major Incidents were identified as part of the Safety Case development. These are…

- MI-01: Loss of containment of gasoline from wharf pipeline
- MI-02: Loss of containment from gasoline storage tank
- MI-03: Loss of containment from ethanol storage tank
- MI-04: Full surface fire on gasoline storage tank
- MI-05: Full surface fire on ethanol storage tank
- MI-06: Loss of containment of gasoline from product transfer pump and piping
- MI-07: Loss of containment of gasoline to road tanker at the loading gantry
- MI-08: Loss of containment of ethanol from product transfer pump and piping
- MI-09: Loss of containment of ethanol to road tanker at the loading gantry
- MI-10: Escalation to TNZ facilities from external site/ neighbouring major hazard facility.

5.3. Control Measures

Control measures are the equipment, systems and procedures which reduce the risk from a Major Incident.

Preventive controls are designed to stop a potential Major Incident from occurring. Examples of some of the preventive controls used at TNZ include…

- Equipment and design specifications
- Equipment control systems
- Emergency shutdown systems
- Pressure relief systems

- Equipment inspection and maintenance programmes
- Operating procedures
- Vessel isolation procedures
- Permit to work procedures, and
- Training programmes

Mitigative and recovery measures are designed to reduce the severity of the consequences. These are control measures ensuring that if there is a Major Incident, it is quickly detected and effectively controlled to minimise the likelihood it will escalate and become a significant event.

Examples of mitigative and recovery controls include…

- Site layout and equipment separation
- Gas detection systems
- Site alarms
- Fire water cooling systems
- Tank fire fighting foam injection facilities, and
- Emergency preparedness and response procedures.

Figure 2: Fire water cooling system in operation

5.3.1. Safety Critical Elements

Following the identification of the Major Incident scenarios, a programme was undertaken for the identification of Safety Critical Elements (SCE). A Safety Critical Element is any part of the facility or its plant that…

a) Have the purpose of preventing, or limiting the effect of a major incident; and
b) The failure of which could cause or contribute substantially to a major incident.

Examples of a SCE include…

- A high level alarm system that sounds when a bulk fuel tank has been overfilled
- A gas detection system that will shut down the terminal if petrol vapours are detected
- Relief valves to prevent the over pressurisation of pipes.

On identifying a SCE, a review was undertaken to ensure the item has been maintained to the correct standard and frequency, inspection was being undertaken by a qualified person and was then independently verified.

5.3.2. TNZ's Safety Management System

TNZ's Health, Safety, Environmental and Quality Management System takes a structured approach for managing business activities to meet the requirements of New Zealand's Health and Safety at Workplace Act and in particular, the regulations pertaining to 'Major Hazard Facilities' and 'General Risk and Workplace Management', using an integrated methodology built upon a platform of recognised national and international Standards, namely:

ISO 9001	Quality Management System (QMS)
ISO 14001	Environmental Management System (EMS)
ISO 31000	Risk Management
AS/NZS 4801	Occupational Health and Safety Management System (OSH MS)
NZS 7901	Safety Management System for Public Safety (SMS PS)
ISO 27000	Information Security Management System

The management system is divided into twenty-two System elements. Each element sets out the minimum requirements to achieve a specific objective to enable a business or facility to best identify and manage its operational HSEQ threats and opportunities. Many of these elements are inter-related.

HSEQ System	Title
1	HSEQ MS and Policies
2	Management, leadership, accountability, and performance
3	Process assessment and improvement
4	HSEQ hazard identification, risk assessment and management
5	Incident reporting, investigation, and management
6	HSEQ training and competency
7	HSEQ legislative compliance
8	HSEQ information and documentation
9	Emergency preparedness and response
10	Community and government agencies
11	General safety
12	Industrial hygiene and environmental monitoring
13	Operational and maintenance procedures
14	Safe design, procurement, and disposal of assets
15	Personal, public safety and asset security
16	Staff wellness and medical management
17	Contractor safety management
18	Work permit system
19	Management of hazardous products
20	Management of change
21	Waste management, minimisation, and sustainability
22	Quality Control

5.3.3. TNZ's Emergency Preparedness and Response Plan

Emergency Response Procedures have been developed to respond to the identified Major Incident Hazards. This plan has been developed in consultation with…

- Fire and Emergency New Zealand
- Bay of Plenty Emergency Management
- Bay of Plenty Regional Council
- St. John Ambulance
- Tauranga Police, and
- Port of Tauranga

In the event of a major incident, Fire and Emergency New Zealand will take charge of the incident and liaise with TNZ and other emergency agencies.

In addition to the Major Incident scenarios, TNZ has also developed Emergency Response Plans for…

- Fire emergency at the tanker berth
- Product release at the tanker berth
- Fuel spill to ground (outside bunded area)
- Tsunami or flood
- Earthquake
- Volcanic eruption
- Bomb threat
- Confined space recovery
- Fire in adjacent log yard or explosion at near-by Major Hazardous Facility
- Personal decontamination – contact with fuels
- Civil Disturbance, and
- Aircraft fire or low flying object.

The terminal has an emergency siren, which is clearly audible to nearby businesses and residential areas. The emergency plan includes contact details for all businesses that may be impacted in the event of an incident, and all Major Hazard Facilities within two kilometres of the TNZ facility. Communication with these parties in the event of an emergency is through a mass texting notification system.

On at least an annual basis, TNZ personally visits businesses within 150 m (inside a 7 kPa blast radius where an ignition point is within the Terminal's bund). Businesses are supplied with copies of the most recent version of "TNZ's Community fact sheet and emergency response actions for neighbours" and directed to TNZ's community website page[1]. As part of this visit, it is confirmed that neighbouring businesses are familiar with the terminal's emergency alarm and are aware of the actions they should take if the alarm is activated. The information provided to businesses in the fact sheet includes information on TNZ's activities, hazards, what to do in an emergency, and what to do if they see or smell anything unusual. Contact details of the neighbours within 380 m of the facility (based on the consequence modelling results are included as an appendix in TNZ's Emergency Preparedness and Response Plan).

[1] https://terminals.nz/community

5.3.4. What to do in the event of an emergency?

In the unlikely event of a major emergency, on hearing the terminal's sirens with the audible 'evacuation' instruction, neighbours of the terminal should…

1. Turn off all electrical equipment, heaters, gas pilot lights and extinguish all ignition sources (e.g. cigarettes, vapes, oxy-acetylene torches etc.).
2. Close all external doors and windows.
3. Take note of the wind direction, and immediately proceed to move at least 1 km upwind of the terminal.
4. Listen to a local radio station to obtain up to date information relating to the emergency.
5. Wait for the "all clear" message from emergency services before returning to your workplace.

Emergency services (Bay of Plenty Emergency Management) are responsible for communicating with the community and providing up-to-date information to the community in the event of an emergency with immediate threat.

Please cooperate fully with the instructions given by emergency services.

5.3.5. What should you do if you see, smell, or hear anything unusual?

The terminal is manned Monday to Friday from 7:30 am to 5:00 pm.

Should you see, smell, or hear anything unusual, immediately call the terminal on (07) 572 3806.

After hours, calls should be made to 021 444 966.

When making a call be prepared to provide the following the information…

1. Your name and contact details.
2. What you have seen, smelled, or heard.
3. The time and where specifically you noted the unusual occurrence.
4. Any other activities which may be occurring in the immediate area.

If there is an immediate emergency (i.e. fire or spill), call 111, and request Fire and Emergency services.

6. TNZ's Safety, Health, and Environment Policy

Terminals New Zealand Limited (TNZ) is an upper tier, major hazard facility.

The management of TNZ is committed to delivering and recognising excellence in health, safety, and environmental performance.

It is line management's responsibility to promote a continual improvement approach to health, safety, and environmental performance and to effectively manage and control safety critical assets and activities through the delivery of our Health, Safety, Environment and Quality Management System. Terminals New Zealand Limited will…

- Ensure activities are conducted with full concern for the safety and health of customers, employees, contractors and members of the community and protection of the environment.
- Identify major incident hazards associated with our operations and implement effective controls to reduce and control their associated risks to as low as reasonably practicable.
- Establish annual and long-term health, safety, and environmental objectives.
- Annually review managers' performance against measurable objectives and targets.
- Hold managers and supervisors responsible for the health, safety, and environmental performance of those working under their direction and for the effective management of safety critical assets and activities.
- Engage and communicate with employees and committees in managing workplace health, safety, and environmental issues.
- Ensure adequate resources are provided to achieve our health, safety, and environmental objectives
- Promote a culture where employees are responsible for their own health and safety and those around them, both on and off the job.
- Comply with legislation, regulations, Approved Codes of Practice, industry standards and safe operating procedures relevant to our business.
- Effectively respond to emergencies.
- Ensure management, employees and contractors are trained, competent, adequately informed and instructed on the hazards and controls associated with their work.
- Require contractors to demonstrate the same level of commitment to excellence in health, safety, and environmental management.
- Encourage accurate and timely reporting of health, safety and environmental incidents and undertake investigations to prevent their reoccurrence.
- Promote early reporting of pain or discomfort and encourage the safe and early return to work of injured employees
- Develop and maintain operations to ensure health, safety and environmental considerations receive priority during design, operation, maintenance, and change.
- Manage waste in an environmentally sound manner and pursue the efficient use of energy and other natural resources.