Australasian Explosives Industry Safety Group Inc.

Code of Practice

MOBILE PROCESSING UNITS

Edition 5

October 2025

Australasian Explosives Industry Safety Group Inc.

CODE OF PRACTICE

MOBILE PROCESSING UNITS

Edition 5

October 2025

About AEISG

The Australasian Explosives Industry Safety Group (AEISG) is an incorporated association of leading Australasian explosives manufacturers and suppliers originally formed in 1994.

Since then, AEISG membership has grown substantially to include most of the Australasian explosives industry. A full list of all current member organisations can be found on the AEISG website, www.aeisg.org.au

The goal of AEISG is to continuously improve the level of safety and security throughout the industry in the manufacture, transport, storage, handling and use of explosives and related materials.

One of the strategies adopted by AEISG in this regard is to identify areas where improved and consistent standards of operational safety and security need to be applied, and then develop appropriate codes which reflect industry best practice in these areas.

AEISG codes of practice are adopted by members for the benefit of their employees, their customers and the general community. In the interest of promoting safety and security, the codes are freely available on the AEISG website.

To keep abreast of technological advancements, industry progress and regulatory changes, AEISG codes of practice are subject to regular review and updated through the issue of amendments or revised editions as necessary. It is important that users ensure they are in possession of the latest edition and aware of any amendments. References to superseded versions should be updated accordingly.

Contact Details: info@aeisg.org.au

Copyright

© AEISG Inc. 2025

This document is subject to copyright. No parts of it should be reproduced without the written consent of copyright owner.

ISBN 978-1-921308-31-4

Disclaimer

AEISG Inc has taken reasonable care in the preparation of the information contained in this code and believes it to be accurate. However, AEISG Inc does not guarantee or warrant the accuracy, completeness or currency of the information contained in this code. As AEISG Inc cannot anticipate or control the conditions under which this information may be used, each user should review the information in the specific context of the intended application. Under no circumstances will AEISG Inc or any of its members be responsible for, or accept liability for, any loss, expense, cost or damage of any nature resulting from the use of or reliance upon the information contained in this code. To the fullest extent permitted by law, AEISG Inc disclaims all warranties, whether express, implied, statutory or otherwise, in relation to the information contained in this code.

Contents

PUBLICATION HISTORY **5**

SUMMARY OF CHANGES **6**

1.0 SCOPE AND APPLICATION **7**

1.1 Scope 7
1.2 General Description of Mobile Processing Units 7
1.2.1 Definition of a Mobile Processing Unit 7
1.2.2.1 ANFO Units 8
1.2.2.2 Emulsion / Watergel Units 8
1.2.2.3 Bulk Emulsion / Watergel Delivery Units 8
1.2.2.4 Bowl Trucks 8
1.2.2.5 Kettles / Charge Car Units 8
1.3 Definitions 9
1.4 List of Codes, Standards, Rules and Other Instruments referenced in this Code 11
1.5 New Designs and Innovations 11

2.0 REGULATORY AND OTHER REQUIREMENTS **12**

2.1 General Requirements 12
2.2 Insurance and Public Liability 12

3.0 PLACARDING OF MPUS **14**

3.1 Scope 14
3.2 General Requirements 14
3.3 Details of Placards 14
3.4 Placarding Requirements 15

4.0 DOCUMENTATION **17**

4.1 General 17
4.2 Transport Documentation 17
4.3 Emergency Information 18
4.3.1 Required emergency information 18
4.3.2 Format of emergency information 18
4.3.3 Location of transport documentation and emergency information 18

5.0 MPU DESIGN **19**

5.1 Scope 19
5.2 Requirements for MPUs 19
5.2.1 General Requirements 19
5.2.2 Vehicle Selection 20
5.2.3 Vehicle Load Limits 20
5.2.4 Vehicle Gradeability and Startability 20
5.2.5 Vehicle Stability 20
5.2.6 Propulsion engine and exhaust 21
5.2.7 Auxiliary engine and exhaust 21
5.2.8 Electric Vehicles 21
5.2.9 Tank and Bulk Container Requirements 22
5.2.9.1 Tanks 22
5.2.9.2 Bulk Containers 22
5.2.10 Electrical Requirements 22
5.2.10.1 Vehicle batteries 22
5.2.10.2 Battery Isolation Switch and Vehicle Rollover Device 23
5.2.10.3 Electrical Cabling 23
5.2.10.4 Electrical Circuit Protection 23

5.2.11 Rear Impact Protection 23
5.2.12 Emergency Stop 23
5.2.13 Elevated Work Platforms 24
5.3 Trailer Mounted MPUs 24
5.4 Modification of MPUs 24
5.5 Engineering certification 24
5.6 Identification Plate 24

6.0 MIXING AND TRANSFER EQUIPMENT 26

6.1 General Requirements 26
6.1.1 High Friction and 'Dead Spots' 26
6.1.2 Suitability for Purpose 26
6.2 Pumps 26
6.2.1 Pump Protection Systems 26
6.2.2 One Way Operation 27
6.3 Augers 27
6.3.1 Hollow Shafts 27
6.3.2 Bearings 27
6.4 Blowers 27
6.5 Product Delivery / Transfer Hoses 28

7.0 SEGREGATION 29

7.1 Scope 29
7.2 Range of Raw Materials carried in MPUs 29
7.2.1 UN Division 5.1 Oxidising Substances 29
7.2.2 Combustible Liquids 29
7.2.3 Solid Fuels 29
7.2.4 Effect Materials 29
7.2.5 ANFO Mixtures 29
7.2.6 UN Class 1 Explosives 30
7.2.7 Other Raw Materials 30
7.3 Segregation Requirements 30
7.3.1 UN Division 5.1, ANFO Mixtures and UN Class 1 30
7.3.2 Combustible Liquids 30
7.3.3 Solid Fuels 30
7.3.4 Effect Materials and Water 31
7.3.5 Detonators and Other Class 1 Explosives 31
7.4 Modification of container or compartment contents 31

8.0 OPERATIONAL REQUIREMENTS 32

8.1 Operating Manual 32
1. the safe operation of the equipment fitted to the MPU; 32
2. procedures to manufacture explosives for that particular MPU design; and 32
3. emergency procedures for the MPU. 32
8.2 Safety Equipment 32
8.2.2 Safety Equipment 32
8.2.3 First Aid Kit 33
8.3 Transfer Operations and Equipment 33
8.4 Power Take Off Units 33
8.5 Ullage Requirements 34
8.6 Auditing 34
8.7 Training 34
8.8 Inspection and Maintenance 34
8.8.1 Pre-start / Pre-operation Checks 34
8.8.2 Maintenance 34
8.9 Communication Equipment 35

9.0 TRANSPORT PROCEDURES 36

9.1 SCOPE 36
9.2 BREAKDOWNS 36
9.3 PASSENGERS 36
9.4 PARKING REQUIREMENTS 36
9.5 SELECTION OF ROUTES 37
9.6 CUSTOMER SITES 37
9.7 EMERGENCIES 37

10.0 SECURITY 39

10.1 GENERAL REQUIREMENTS 39
10.1.1 UN CLASS 1 LOADS 39
10.1.2 UN DIVISION 5.1 LOADS 39

APPENDIX 1: EXAMPLE DECONTAMINATION SCHEDULE 40

APPENDIX B: COMPLIANCE CHECKLIST 41

Publication History

Date	Edition	Details
1999	Edition 1	The first MPU Code was issued in 1999 by the Australian Explosives Manufacturers' Safety Committee (AEMSC), the forerunner of AEISG. It was called 'Code of Good Practice Mobile Processing Units'.
September 2004	Version 1.1	AEISG took this Code and issued its first in 2004 – the version 1.1
February 2005	Version 1.2	Version 1.2 issued. Revised version.
March 2007	Version 1.2	Reformatted and reprinted.
October 2011	Edition 2	Previous edition
June 2014	Edition 3	Previous edition
September 2018	Edition 4	Previous edition
October 2025	Edition 5	Current edition

Summary of Changes

Section	Summary of Changes
Definitions	Some definitions have been updated
5.2.8 Electric Vehicles	A new section (5.2.8) has been added to address the use of electric vehicles, including risk assessments for fire hazards and wiring integrity.
Fire Extinguishers	The requirements for fire extinguishers have been updated, including the addition of fixed water or foam systems for MPUs using public roads.
Placarding	Clarifications have been made regarding placarding requirements for different MPU configurations, including skid-mounted and underground units.
Battery Isolation Switch:	Additional details have been provided for the installation and operation of battery isolation switches and vehicle rollover devices.
Compliance Checklist	An appendix (Appendix B) has been added, providing a compliance checklist for the MPU Code.

1.0 Scope and Application

1.1 Scope

This Code sets out the requirements for the design and operational management of Mobile Processing Units (MPUs) used in the manufacture and blast-hole delivery of explosives used in surface and underground blasting as well as other operations, including field packaging.

Unless otherwise specified, this Code applies to the operational transport, manufacture and delivery of products using MPUs on public roads and private property throughout Australia, including mining leases. It includes the on-site[1] carriage of small quantities of detonators and boosters intended for immediate use in tasks directly related to the operation of the MPU. It also includes the carriage of small quantities of explosives samples[2] returned for quality monitoring purposes.

This Code does not apply to the transport of dangerous goods in vehicles or equipment not specifically covered or included by definition. The intent of this Code is to ensure a level of consistency in the design and operational management of MPUs, and further the objective of increased safety across the commercial explosives industry.

Due to the specialised application of MPUs, this Code was developed to cover a gap between the ADG Code and AEC. Design changes in this revised version are not intended to be applied retrospectively.

[1] In this context 'on-site' means within the boundaries of the mine or quarry site.

[2] These are cup samples of manufactured product and would typically be less than 5 kg in total.

1.2 General Description of Mobile Processing Units

This section covers the definition of an MPU and describes typical configurations for a range of standard applications.

1.2.1 Definition of a Mobile Processing Unit

For the purposes of this Code an MPU means a vehicle-mounted processing plant which carries raw materials required to manufacture or blend a Class 1 explosive and incorporates a blast-hole delivery system for the finished product. It includes charge cars and kettles used mainly in underground applications to charge blast-holes.

Note:

(i) The definition excludes bulk transport vehicles that do not include a manufacturing, blending and/or blast-hole charging capacity. These vehicles are covered under the ADG Code or AEC (e.g., road tank vehicles for transporting bulk ammonium nitrate emulsions or suspensions).

(ii) MPUs are typically configured as:

- an integrated self-propelled vehicle, processing plant and blast-hole delivery system (e.g., a cab/chassis combination);
- a self-propelled vehicle with the processing plant and blast-hole delivery system as a demountable unit (e.g., a flatbed rigid truck with a skid mounted plant); or
- a trailer mounted processing plant and blast-hole delivery system designed to be towed.

1.2.2.1 ANFO Units

ANFO units mix ammonium nitrate prill and a fuel oil, usually diesel oil, to manufacture an explosive. Additional raw materials such as aluminium powder and polystyrene beads may be added. The mixing process is typically achieved by a mixing auger. The delivery system is usually an auger, a slide or a pneumatic blow loading arrangement.

1.2.2.2 Emulsion / Watergel Units

Emulsion / Watergel units carry ammonium nitrate emulsion or suspension, ammonium nitrate prill and fuel oil in containers such as tanks, bins and bowls. These are mixed on the MPU to produce the explosive. Mechanical processing and/or additional products such as effect materials or surfactants may be used to modify the properties of the final product (e.g., increase sensitivity). Typically, these units can produce a range of explosives by varying the ratio of raw materials.

These units have a number of trade and generic names, including but not limited to, Triple T, Triple P, Mobile Sensitising Unit (MSU), Mobile Manufacturing Unit (MMU), Bulk Explosives Vehicle (BEV).

1.2.2.3 Bulk Emulsion / Watergel Delivery Units

These vehicles carry ammonium nitrate emulsion or suspension in tanks and separate containers of effect materials. The effect materials are mixed with the emulsion as part of the process system to deliver the blended final product.

1.2.2.4 Bowl Trucks

Bowl trucks carry only minor quantities of raw materials during their journey from depot to the initial point of delivery. The majority of materials are loaded on-site and batch mixed in the bowl for delivery to blast-holes as required.

It is a feature of bowl trucks that after batch mixing they change from essentially a non-dangerous goods vehicle to an explosives vehicle ready to deliver into blast- holes.

1.2.2.5 Kettles / Charge Car Units

These units are smaller and specialised delivery units mounted on integrated carriers. They are typically used in underground applications to carry either unsensitised product or pre-blended bulk explosives to the charge site where the product is pumped into blast holes. These may also be referred to as ‘Underground Units’

1.3 Definitions

For the purpose of this Code, the following definitions apply unless a contrary intention is stated:

Term	Definition
ADG Code	Australian Code for the Transport of Dangerous Goods by Road and Rail
AEC	Australian Code for the Transport of Explosives by Road and Rail
ANE	Ammonium nitrate emulsion, suspension or gel classified as UN Division 5.1 and assigned to UN3375
ANFO	Ammonium Nitrate Fue Oil - A mixture of ammonium nitrate with a suitable fuel, typically diesel. Classified as a UN Division 1.1 explosive and assigned to UN0082.
approved	Approved by the relevant Competent Authority
authorised explosive	An explosive defined and classified in accordance with the laws relating to explosives in a State or Territory
authorised officer	A person appointed by the Competent Authority to exercise statutory powers for the regulation of Mobile Processing Units
bulk container	A container (including any liner or coating) with a capacity not less than 1.0 m^3, intended for the transport of solid substances which is in direct contact with the containment system. It does not include IBCs, large packagings and portable tanks. Examples of bulk containers are freight containers, offshore bulk containers, skips, bulk bins and load compartments of vehicles
Code	AEISG Code of Practice for Mobile Processing Units unless otherwise intended
Competent Authority	The authority with statutory responsibility for the regulation of Mobile Processing Units
container	see definition for packaging
dangerous goods	Goods that have been defined as dangerous goods under the ADG Code
effect materials	Materials used to control the final properties of the manufactured explosives e.g., gasser solutions, surfactants, cross-linkers and pH modifiers
EWP	Elevated Work Platform
field packaging	The on-site discharge of a finished product into approved packaging or separate loading equipment which is intended for immediate use or temporary storage in a ready to use or working party magazine
incompatible	Relates to goods which when mixed or otherwise brought into contact with each other, are likely to interact and increase risk because of the interaction
raw materials	Is a generic term used in this Code to include all oxidisers, fuels, effect materials, sensitisers, crosslinkers and any other items which are consumed in the manufacture and/or delivery of explosives
liquids	Are goods which at 50 deg C have a vapour pressure of not more than 300kPa (3 bar) which are not completely gaseous at a temperature of 20 deg C and a pressure of 101.3 bar, and which have a melting point or initial melting point of 20 deg C or less at a pressure of 101.3 kPa. A viscous substance for which a specific melting point cannot be determined should be subjected to the ASTM 4359-90 test; or to the test for determining fluidity (penetrometer test) prescribed in Section 2.3.4 of Annex A of the European Agreement concerning the International Carriage of Dangerous Goods by Road
MPU	Mobile Processing Unit, see section 1.2
package	the complete product of the packing of the goods for transport, and consists of the goods and their packaging
packaging	The container in which the goods are received or held for transport and includes anything that enables the containers to receive or hold the good; or to be closed
PBS	Performance Based Standards is a vehicles standard scheme administered by the Australian National Heavy Vehicle Regulator catering for innovative and optimised heavy vehicle design

portable tank	A multimodal tank that is designed primarily to be loaded onto a vehicle or ship; has a capacity of more than 450 L; is equipped with skids, mountings, stabilisers and accessories to facilitate manual handling; is capable of being loaded or unloaded without removing its service or structural equipment; and is capable of being lifted when full. It does not include road tank vehicles, rail tank wagons, non-metallic tanks, gas cylinders, large packagings, and IBCs
power take off	A mechanical device driven by the propulsion or auxiliary engine which provides power to drive auxiliary equipment such as hydraulic pumps
prime contractor	The person, in conducting a business for or involving the transport of dangerous goods by road, undertakes to be responsible, or is responsible, for the transport of the goods by road
public road	An area that is open to or used by the public and is developed for, or has as one of its main uses, the driving or riding of motor vehicles.
residue	Nominal amount of product remaining in tanks and pipework that the transfer system cannot remove
SRT	Static Rollover Threshold is a measure used to determine a vehicles potential to roll over (technical information on the SRT index is available in the PBS Vehicle Standards)
TACN	Tetra-Amine Copper Nitrate is an impact sensitive explosive compound formed when copper is exposed to ammonium nitrate or products containing ammonium nitrate. Ammonium Nitrate can also react with other metals such as Zinc, that may lead to a violent rection.
tank	A receptacle in the form of a shell fitted with service and structural equipment necessary to receive and contain dangerous goods, includes storage tank, potable tanks and cargo receptacles of road tank vehicles but not IBCs or bulk containers complying with the ADG Code
trailer	A vehicle that is designed to be towed, or is towed, by another road vehicle but it does not include a road vehicle propelled by a motor that forms part of the vehicle
ullage	The difference between the total capacity of a container and the net contents of the container, calculated as a percentage of the total capacity
vehicle	A road vehicle including an articulated or combination vehicle

1.4 List of Codes, Standards, Rules and Other Instruments referenced in this Code

ADG Code	Australian Code for the Transport of Dangerous Goods by Road and Rail [7th ed.]
ADR	Australian Design Rules
AEC	Australian Code for the Transport of Explosives by Road and Rail [3rd ed.]
AS 1210	Pressure Vessels
AS 1418	Cranes, Hoists and Winches – General Requirements
AS 1851	Routine service of fire protection systems and equipment
AS 2053	Conduits and fittings for electrical installations
AS 2550	Cranes, Hoists and Winches – Safe Use
AS 2809.1	Road tank vehicles for dangerous goods – Part 1: General requirements
AS 2809.2	Road tank vehicles for dangerous goods – Part 2: Tankers for flammable liquids
AS 2809.4	Road tank vehicles for dangerous goods – Part 4: Road tank vehicles for toxic, corrosive or ammonium nitrate emulsion, suspension or gel cargoes
AS 3790	Portable warning triangles for motor vehicles
HB 76	Dangerous Goods – Initial Emergency Response Guide
MDG15	Guideline for Mobile and Transportable Equipment for Use in Mines
National Code of Practice	Heavy Vehicle Modifications – Bulletin No 6.
UN3375 Code	AEISG Code of Practice - Ammonium Nitrate Emulsions, Suspensions, or Gels – ANEs (UN3375)

1.5 New Designs and Innovations

This Code does not prevent the use of materials, design, procedures and the like that are not mentioned or do not comply with the specific requirements of this Code, provided that they achieve a performance standard and level of safety that is equal to, or greater than, that specified in this Code.

2.0 Regulatory and Other Requirements

2.1 General Requirements

The owner and/or operating entity of an MPU must abide by the relevant legislation including any referenced codes and standards for the transportation, storage, handling and use of raw materials and manufactured products.

The owner or operating entity must also ensure that the MPU meets the requirements of this Code, is operated in accordance with this Code and the operating manual. and is suitable for the intended raw materials carried and explosive product to be manufactured.

2.1.1 Legislation applicable to MPUs is administered by various State and Territory government agencies and it is the responsibility of the MPU owner and/or operating entity to determine and comply with all requirements relevant to their operations.

2.1.2 Typically, some or all of the following licences and authorisations are required:

1) a vehicle licence to transport dangerous goods or explosives;

2) a licence to manufacture explosives;

3) a licence to drive a vehicle transporting dangerous goods and/or explosives;

4) security clearances / authorisations for operators;

5) an explosives authorisation for each manufactured product; and

6) appropriate vehicle registration.

Note: Licensing requirements are administered on a state/territory basis. The requirements for each state may vary and clarification should be sought from the relevant Competent Authority.

2.1.3 The manufacturer or supplier of raw materials must ensure that the products have been properly classified and Safety Data Sheets are provided.

2.1.4 The operator of an MPU must only operate on sites and/or for customers holding appropriate licences / approvals where necessary.

2.1.5 The operating entity must ensure that all MPU operators have been adequately trained and deemed competent to operate the vehicle and equipment.

2.2 Insurance and Public Liability

2.2.1 The owner and operating entity of an MPU must ensure that an MPU is covered by a policy of insurance or other form of indemnity in respect of:

1) property damage, personal injury, (excepting consequential economic loss) arising out of any fire, explosion, leakage, or spillage of dangerous goods in, on or from the MPU or a container transported on the MPU; and

2) Costs incurred by or on behalf of a government authority in a cleanup resulting from an event of any kind referred to in 2.2.1(1).

2.2.2 Minimum insurance amounts are specified in legislation for the transport of dangerous goods and in the AEC for the transport of explosives.

3.0 Placarding of MPUs

3.1 Scope

This section sets out the requirements for placarding of MPUs aligned with the principles set out in the AEC and ADG Code. Placarding applies to MPUs transporting dangerous goods on public roads and the placarding information will vary depending on the materials being transported. Note that in certain configurations (skid mounted units, underground units) full placarding is not practical due to size and space limitations. These units are restricted to site operations and must be placarded so that the hazard is clearly conveyed. The full placarding requirements will apply to the vehicles that transport these units on public roads. Further information on the Hazchem Codes can be found in the ADG Code.

3.2 General Requirements

3.2.1. MPUs must be placarded in accordance with this section unless they have been cleaned or freed of all dangerous goods.

3.2.2. For MPUs transporting dangerous goods other than Class 1 on public roads, the dimensions of placards and their location must be in accordance with the ADG Code unless otherwise approved.

3.2.3. For MPUs transporting dangerous goods of Class 1 on public roads, the requirements for placarding must be in accordance with the AEC unless otherwise approved.

3.2.4. For all MPUs (including MPUs that are not transporting dangerous goods on public roads), containers, bins and tanks on the MPU must be clearly marked to indicate their contents.

3.3 Details of Placards

The information to be displayed on Emergency Information Panels will depend on the dangerous goods being carried. Note that this placarding information is specific to Australia and local regulatory requirements may differ.

The following table contains details for typical MPU configurations:

Dangerous Goods / Raw Materials being transported	Proper Shipping Name (1)	UN No (2)	HAZCHEM (3)	Class Label (4)
AN Prill UN1942 Combustible Liquid C1	AMMONIUM NITRATE	1942	1YE	5.1
AN Prill UN1942 AN Emulsion UN3375 or AN Suspension UN3375 Combustible Liquid C1 Effect Materials	AMMONIUM NITRATE PRODUCTS	1942/3375	1YE	5.1
AN Emulsion UN3375 or AN Suspension UN3375 Effect Materials	AMMONIUM NITRATE EMULSION	3375	1YE	5.1
Class 1 Bulk Explosives AN Emulsion UN3375 or AN Suspension UN3375 AN Prill UN1942 Combustible Liquid C1	EXPLOSIVES	Blank	E	1.1D

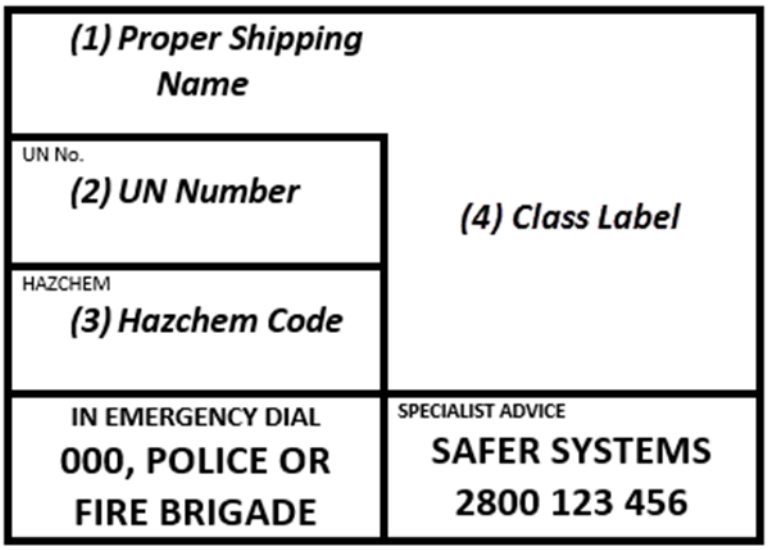

Figure 1: Example of a blank Emergency Information Panel – the information required in the numbered spaces correspond to the information in the table above.

Figure 2: Example of an Emergency Information Panel for MPUs carrying both UN3375 & UN1942

Note that the term 'AMMONIUM NITRATE PRODUCTS' is not technically a 'proper shipping name' however it is used in preference over the term 'MULTI-LOAD' based on the recommendation of the Australasian Fire and Emergency Services Authorities Council.

3.4 Placarding Requirements

1) The placards must be securely fixed to the vehicle and displayed in a substantially vertical plane.
2) The placards must not be obscured.
3) The placards must be durable and weather resistant.
4) The letters and numerals on the placards must be legible.
5) The lowest edge of a placard must be at least 450mm above the ground.

6) Where an Emergency Information Panel cannot be mounted on the rear of a vehicle due to obstructions, the panel may be divided vertically into two parts and mounted on either side of the obstruction.

7) The dimensions of placards and class labels should be reduced on MPUs where it is not possible to fit full size placarding due to space limitations. This would apply to specialised MPUs that only operate on mine sites such as skid-mounted and underground units.

4.0 Documentation

4.1 General

Transport documentation and emergency information as prescribed below must be carried in an emergency information holder on an MPU transporting dangerous goods on public roads. The information in the transport documentation must be in English, easy to identify, legible and durable, and must be carried in the vehicle in hard copy form.

Transport documentation is not required when the MPU is operating on a mining lease or quarry site however it is recommended that an abbreviated document such as a manifest is carried which reflects products and quantities.

4.2 Transport Documentation

Transport documentation must include the consignor's name, address and telephone number. This should be the number of the telephone advisory service or a number at which a person is accessible to answer questions relating to the goods consigned.

The transport documentation should also include the consignee name and delivery address. Each type of dangerous goods being transported must be described as follows:

1) the UN number of the goods;
2) the proper shipping name or authorised/technical name of the goods;
3) the class or division of the goods;
4) the subsidiary risk (if any) of the goods;
5) the packing group (if any) of the goods;
6) a description of the package or receptacle in which the goods are transported; and
7) the aggregate quantity of the goods.

When dangerous goods are being transported on a combination road vehicle, the transport documentation must indicate what dangerous goods is stowed in each vehicle forming part of the combination.

The transport documentation may contain additional information about the goods being transported if the information is not inconsistent with, and is placed after, the dangerous goods information required above.

Where a part load of an MPU is delivered, the transport documentation must, to the extent practicable, be amended to reflect the revised aggregate quantities of goods remaining on the vehicle.

For MPUs that are nominally empty but not cleaned of dangerous goods, the transport documentation should be amended to reflect this, for example, the words ''EMPTY UNCLEANED' or 'RESIDUE LAST CONTAINED' should be legibly noted on the documentation – this will facilitate an appropriate incident response.

4.3 Emergency Information

4.3.1 Required emergency information

The following emergency information must be carried in an emergency information holder on an MPU transporting dangerous goods on public roads:

1) either an emergency procedure guide in relation to a MPU vehicle fire, and emergency procedure guides for each type of dangerous goods being transported on the MPU; or

2) a copy of the Dangerous Goods – Initial Emergency Response Guide HB76.

4.3.2 Format of emergency information

The 'Emergency Procedure Guide' in relation to dangerous goods, is a guide outlining procedures to be taken in the event of an emergency, which is either:

1) in the form, or substantially in the form, of an emergency procedure guide for the goods published by NTC (ANZER Guidebook) or Standards Australia (HB76); or

2) in a form approved by a Competent Authority.

4.3.3 Location of transport documentation and emergency information

The transport documentation and emergency information must be in an emergency information holder which meets the following requirements.

1) of a size and shape suitable for holding the transport documentation and emergency information.

2) marked with the words 'Emergency Procedure Guides' or 'Emergency Information' in red letters at least 10mm high on a white background.

3) securely located on the inside of a door of the cabin or immediately adjacent to a door of the cabin. If the construction of the MPU does not allow the holder to be attached to the door or adjacent to the door – it can be located elsewhere in the cabin provided that it is visible and accessible, and the position is identified on a notice fixed to the inside of the driver's door.

5.0 MPU Design

5.1 Scope

This section sets out the requirements for the design of MPUs and associated equipment. Note that the design requirements below may not be applicable across all MPUs (e.g., skid mounted and underground units).

5.2 Requirements for MPUs

5.2.1 General Requirements

1) Documented hazard identification, risk assessment and compliance processes must be carried out on MPU designs. The hazard identification and risk assessment should cover vehicle selection, tanks, bins, process equipment and operation, segregation of raw materials during transport, as well as requirements for fall protection if the design requires working at heights. The compliance process must document how the relevant requirements of this Code have been addressed. The documentation must have engineering certification in accordance with clause 5.5.

2) The means of attachment of tanks and bulk containers should be treated for design purposes as tank or bulk container supports. Reference should be made to Section 3.3 of AS2809.4 and the vehicle manufacturer's body building guide to ensure that attachment to the vehicle is compliant.

3) Service equipment including pipes, fixed fittings and other items must not protrude beyond the nominal width of the vehicle. Items such as swing augers that have the potential to be a hazard in transit must have a primary and secondary restraint system to ensure that it remains stowed and secured in the designated position when in transit.

4) Concealed hollows should be avoided in the design (e.g., steel tubing with sealed ends). Where concealed hollows are unavoidable, provision for inspection, venting and decontamination must be provided.

5) The use of copper, zinc and their alloys on an MPU should be avoided unless there are no alternatives e.g., copper in electrical wiring. Any such copper containing components must be protected from contact with ammonium nitrate based products to minimise the potential for the formation of TACN.

6) Consideration of protrusions under the vehicle, e.g., steps, tanks, bumper systems, etc., to ensure that they are not potential snag points for surface lines and down lines during on-bench operations.

7) Vehicle modifications shall conform to the requirements of the National Code of Practice for Heavy Vehicle Modifications. Compliance with Australian Design Rules and Vehicle Standards Regulations is required for vehicles intended to be registered for use on public roads.

8) Where an MPU is not capable of being registered for use on public roads, the relevant sections of MDG15 should be taken into consideration for design.

Note: Hazard identification and risk assessment tools must be of a recognised industry standard. Examples include: Hazard and Operability Studies AS IEC 61882-2003; Design Review AS IEC 611160-2008; Quantitative Risk Assessment; Bow Tie Analysis; Fault Tree Analysis AS IEC 61025; Failure Mode and Effects Analysis AS IEC 60812.

5.2.2 Vehicle Selection

Vehicles must be suitable for transporting dangerous goods and must be free of any defects that are likely to create a risk in transporting the goods. In selecting an appropriate vehicle as a platform on which the tanks, bulk containers and/or process equipment will be mounted, consideration must be given to the likely application of the MPU.

Typical operational conditions include:

1) minor off-road – travelling on public roads with short off-road travel into quarries or construction sites, operating in relatively good conditions;

2) major off-road – majority of time on mine leases with good haul roads, operating in average conditions;

3) severe off-road operations – mostly operating in severe conditions requiring all wheels to be driven; and

4) underground operations – majority of time on mine lease operating underground in potentially hazardous atmospheres.

5.2.3 Vehicle Load Limits

Vehicles intended for minor off-road use will operate under load limits specified by state and territory road authorities. Vehicles with a standard road specification chassis may be considered suitable for this type of application.

Vehicles intended for major and severe off-road use will normally operate with load limits based on the manufacturer's gross vehicle mass – this rating is noted on the vehicle compliance plate.

Vehicle braking systems, tyre load and speed ratings must be appropriate for the intended application and load limits.

Consultation with the vehicle manufacturer is recommended to confirm load ratings and ensure that the vehicle is suitable for use in an off-road environment.

5.2.4 Vehicle Gradeability and Startability

The vehicle should have a gradeability and startability rating to suit the intended operating environment. Gradeability is the ability of a vehicle to climb a grade at a set speed while startability is the ability of a vehicle to pull away from a dead stop on a grade. As well as torque for climbing, the vehicle must have retardation capabilities for long declines. Typical mine haul roads gradients can be 1:7 with bench access road gradients of 1:5.

5.2.5 Vehicle Stability

Vehicle stability is a critical concern that must be addressed at the design stage considering the intended operating environment. There are numerous factors that impact vehicle stability including centre of gravity, suspension, steering, axle alignment, tyres and brakes.

The stability angle (as detailed in AS2809.1) of a fully loaded vehicle should be kept as low as possible. For improved stability, consideration should be given to selecting vehicles with wider tyre track widths, stiffer suspensions, anti-roll devices, as well as electronic stability controls.

Measures such as the Static Rollover Threshold (SRT) and Load Transfer Ratio (LTR) can be used to assess vehicle stability under varying operating conditions.

A performance assessment under different load and operating scenarios is recommended to establish vehicle operating limits. The assessment should consider lane change and steady state turn manoeuvres, cross-slope operation and safe speeds under different load conditions to address on-road and off-road stability.

Instruments such as inclinometers, accelerometers and ball bank indicators should be used to aid vehicle operation within the established limits. When used in conjunction with in-vehicle monitoring systems, they provide an additional level of control by alerting the operator when exceptions or programmed operating limits are reached.

Additional information on SRT and LTR performance levels can be accessed through the PBS Scheme – The Standards and Vehicle Assessment Rules, available at the National Heavy Vehicle Regulator website: www.nhvr.gov.au.

5.2.6 Propulsion engine and exhaust

The propulsion engine and exhaust systems must conform to the following requirements:

1) the propulsion engine must be a compression ignition engine which uses a combustible liquid as a fuel;

2) the propulsion engine exhaust shall discharge to the rear of the cabin and forward of the tanks, bins and process equipment;

3) the exhaust should discharge at a level not lower than the top of the cabin. The discharge point should be higher than any tank, bin or process equipment, and be at least 1 metre from any tank or bin opening;

4) any part of the propulsion engine or exhaust system which may be exposed to product spillage must be shielded in accordance with clause 1.7.1 of AS2809.2; and

5) where a low-level discharge exhaust is required, a detailed risk assessment must be conducted. The exhaust must be directed away from personnel, product and equipment.

5.2.7 Auxiliary engine and exhaust

If an auxiliary motor is fitted to power the mixing units and/or the transfer equipment it must be located as close as practicable to the front of the vehicle and meet the following requirements:

1) Petrol, LPG and CNG engines must not be used.

2) Any part of the auxiliary engine and exhaust system which may be exposed to product spillage must be shielded in accordance with clause 1.7.1 of AS2809.2.

3) The exhaust must be directed away from personnel, product and equipment.

5.2.8 Electric Vehicles

Despite the requirements of 5.2.6 & 5.2.7 the use of electricity in vehicles for propulsion and auxiliary power through batteries or cable, is acceptable provided that the associated hazards have been identified and addressed in a documented risk assessment as specified in 5.2.1 (1).

The assessment should consider fire risks from the electric drive motors, batteries and charging systems as well as the integrity of the wiring and control systems. This should include protection from product spills, dust, dirt and water ingress, and operating in harsh off-road conditions.

5.2.9 Tank and Bulk Container Requirements

Tanks and bulk containers must be of suitable design, construction, materials and strength for the intended service. They must be strong enough to withstand the shocks and loadings normally encountered during transport including operation on mine sites in an off-road environment.

5.2.9.1 Tanks

For the design of tanks used for ammonium nitrate emulsion, suspension or gels, the following requirements are recommended for guidance on design.

1) AS 2809.4 applies to road tankers for the transport of ammonium nitrate emulsion, suspension or gel cargoes, providing guidance on materials of construction, tank supports, and attachments

2) Where segregation of product in adjoining compartments is necessary as outlined in section 7, the compartments shall be fitted with double bulkheads. The enclosed air space must be provided with screwed openings for venting and draining. Opening on the upper surface must be plugged, those on the lower surfaces must be left unplugged.

3) MPUs should be designed to free vent and not maintain pressure in an emergency situation e.g., vehicle fire. Product loss is expected in a rollover situation as a lesser hazard.

4) All valves and fittings to the tanks should be protected from accidental damage during normal operations.

5.2.9.2 Bulk Containers

1) For solid dangerous goods to be transported in bulk containers they should have BK1 or BK2 assigned in column 10 against the relevant entry in the dangerous goods list of the ADG Code. The term bulk container is normally associated with freight containers, however bulk containers other than freight containers can be used (e.g., skips, swap bodies and load compartments of vehicles).

2) Filling and discharge devices must be constructed and arranged so that it is protected from the risk of being wrenched off or damaged during transport or manufacturing operations.

3) Any movable sections or openings (including filling and discharge openings) must be of appropriate design and fitted with locking mechanisms that prevent unintended opening. Product loss is expected in a rollover situation as a lesser hazard.

5.2.10 Electrical Requirements

5.2.10.1 Vehicle batteries

Batteries used in vehicle starting systems must:

1) be secured to prevent movement;

2) be in an accessible position; and

3) have a substantial, acid resistant and ventilated cover which is electrically insulated on the side adjacent to the battery terminals.

Vehicle mounted MPUs may have a remote battery connection point installed for jump starting. The ‘jump start’ connection point must be installed in a suitable location to avoid impact damage from road debris, etc. The connection point must be fitted with a cover to prevent the ingress of water and foreign matter.

5.2.10.2 Battery Isolation Switch and Vehicle Rollover Device

A battery isolation switch must be provided to isolate the battery from all circuits and equipment, except critical instrumentation that may require a continuous electrical supply. A means of operating the switch shall be located on the driver's side and to the immediate rear of the cabin in an easily accessible position and clearly labelled to show its function and method of use.

In addition to the battery isolation switch, a vehicle rollover cut out device must be fitted. This device is designed to isolate all power sources in the event of a rollover. The device shall activate when the angle of a vehicle is greater than 45 degrees from the vertical plane (normal upright position). The device must operate within 3 seconds, with test capability to ensure correct function.

5.2.10.3 Electrical Cabling

Electrical cabling or wiring outside and to the rear of the cabin must be installed in conduit complying with the relevant requirements of AS2053, securely fastened and located so that it is adequately protected against:

1) vibration, impact, abrasion and any other mechanical damage;

2) thermal stress; and

3) exposure to raw materials or manufactured products.

5.2.10.4 Electrical Circuit Protection

Each electrical circuit, except the headlamps, starting and ignition circuit, must be protected by an appropriately rated fuse, manual reset circuit breaker or other mechanism that provides an equivalent function. For safety reasons, headlamp circuits will typically have auto reset circuit breakers.

5.2.11 Rear Impact Protection

Rear impact protection is a requirement for vehicle mounted MPUs operating on public roads. The design must consider the risk of entanglement with surface lines on blast patterns. The vehicle must have a system of bumpers/barriers to protect the tank/bulk container from rear impact in accordance with the following requirements:

1) The impact surface must be not less than 150mm from the rearmost vertical projection of the tank/bulk container.

2) The width of the impact surface must not be less than the width of the vehicle.

3) The system must be attached to the vehicle chassis or subframe.

4) The design must be of sufficient strength to withstand an impact load without deflection to the point of contact with any part of the tank/bulk container.

5) The design load should be determined through a risk-based approach with consideration given to the contact area as well as lateral contact points, using the ultimate strength of the material.

5.2.12 Emergency Stop

The mixing and delivery systems must be fitted with an emergency stop appropriately labelled and easily accessible.

The emergency stop must be located within easy reach of the operator, e.g., at the control panel or at the discharge point. If the vehicle is fitted with in-cab process controls, an emergency stop must also be fitted inside the cabin.

The emergency stop must effectively stop the manufacturing process. When the emergency stop is reset, the equipment must not automatically restart.

5.2.13 Elevated Work Platforms

Where an MPU is fitted with an Elevated Work Platform (EWP), the EWP must conform to the applicable parts of AS 1418 and AS 2550, and comply with any relevant licensing requirements.

5.3 Trailer Mounted MPUs

Trailer mounted MPUs include skid-mounted processing units that are designed to be portable, i.e., taken on or off the trailer to suit operational requirements. In addition to complying with Australian Design Rules and the relevant parts of this Code, each trailer must also meet the following requirements.

1) Every trailer, other than a semi-trailer must:

    a) have at least two axles and at least two wheels on each axle when standing free; and

    b) remain stable under all conditions of loading.

2) Trailers must be registered and/or licensed for the carriage of dangerous goods and/or as an MPU as appropriate.

5.4 Modification of MPUs

The owner of an MPU must have documented change management procedures for modification and alterations to MPUs. The procedure must provide for:

1) assessing and managing risk associated with the modifications through documented hazard review assessments;

2) recording modifications and updating relevant drawings;

3) ensuring changes continue to meet the requirements of this Code; and

4) ensuring that any modification or alteration does not affect the validity of an existing licence issued by the relevant authority.

5.5 Engineering certification

The documented MPU design risk assessment and certification of compliance with the relevant standards and requirements of this Code must be verified and signed off by an engineer who is duly qualified and authorised for such purpose.

5.6 Identification Plate

Every MPU must be fitted with a corrosion resistant metal plate permanently attached to the MPU in a conspicuous place readily accessible for inspection. The information on the identification plate must include:

1) the name of the MPU manufacturer;

2) the date of manufacture; and

3) a unique identity / serial number.

6.0 Mixing and Transfer Equipment

6.1 General Requirements

6.1.1 High Friction and 'Dead Spots'

High friction and 'dead spots' which may result in overheating under confinement must be avoided.

Note: Examples of dead spots include hollow shafts, hollow rotors and sealing arrangements. Examples of friction include metal to metal fouling, over-tightened packed glands and high friction sealing arrangements. Consideration must also be given to failure modes.

6.1.2 Suitability for Purpose

Pumps, augers and other transfer equipment must be:

1) of an appropriate design;

2) constructed of materials that are compatible with the product being transferred;

3) of a rating that is suitable for its intended application; and

4) designed to prevent the introduction of foreign bodies into the process. This may include the use of filters or screens on inlets or on tanks supplying raw materials for the manufacturing process.

6.2 Pumps

6.2.1 Pump Protection Systems

All pumps used in the transfer of an ammonium nitrate emulsions, suspensions and solutions must have pump protection systems that are regularly inspected or tested and documented. The system must be capable of detecting and mitigating dead heading (sudden pressure rise) and dry operation (temperature rise) of the pump. Systems must be of the 'fail safe' type.

Examples of pump protective elements are:

1) thermofuse or temperature trips at the pump inlet, mid-point or outlet;

2) over-and-under pressure trips, as near as possible to the pump outlet;

3) bursting discs;

4) drive torque limit devices;

5) drive speed limiting devices;

6) feed hopper level controls;

7) no flow and low flow detection; and

8) time out or countdown automatic shutdown system.

6.2.2 One Way Operation

Pumps must be operated in one direction only unless an effective pump management system, e.g., pump monitors, interlocks, procedures, signs and operator training has been implemented to mitigate the potential hazards of reverse operation.

Pumps should be configured to have adequate Net Positive Suction Head (NPSH). Where possible, pumps should have the shaft sealing device on the suction side of the pump.

6.3 Augers

Warning signs on the dangers of moving augers and the need for eye protection should be displayed. The following wording is recommended:

'EYE PROTECTION MUST BE WORN DURING OPERATION' 'CAUTION – AUGERS MAY MOVE WITHOUT WARNING'

6.3.1 Hollow Shafts

The use of hollow shafts should be avoided where possible. If hollow shafts are used they must be set up so that:

1) ingress of ammonium nitrate and potential pressure build up is prevented (e.g., by the use of plastic plugs other suitable means); and

2) inspection and cleaning of the hollow sections can take place prior to maintenance activities – particularly those involving hot work.

6.3.2 Bearings

The use of self-aligning bearings or outrigger bearings at the ends of the shaft is recommended to address axial displacement and the potential to generate hot spots. Note that this may not always be feasible on longer shafts.

Bearings should always be selected and installed with a view to reducing the possibility of hot spots affecting raw materials or finished product in the event of a bearing failure.

The use of stand-off bearings is recommended as they allow product to escape if a seal fails. This provides early detection of seal failure and restricts product entering the bearing.

6.4 Blowers

In some MPU applications, blow loading is used to charge explosives. A rotary valve or similar device should be used to prevent the blow back of air into the ammonium nitrate. The fuel injection system should also be designed to prevent blow back.

Product delivery hoses used for blow loading must be anti-static. If a cyclone is used to direct product into the blast-holes, it should be grounded at the blast-hole and back to the MPU.

6.5 Product Delivery / Transfer Hoses

Delivery Hoses

Hoses used on MPUs to charge product into blast holes (often referred to as 'charge hoses') must be suitable for the intended application. This includes product compatibility, pumping pressures, and other considerations such as:

1) anti-wear properties to suit operating conditions;

2) anti-stretch properties for down hole delivery in deep holes; and

3) anti-static properties for blow loading applications.

As a consumable item, charge hoses do not require tagging, however they must be regularly inspected for damage and replaced where necessary.

Transfer Hoses

Flexible transfer hoses are used to transfer emulsion or watergel products from storage tanks into MPUs. They must be suitable for the intended application including delivery system design pressures. Further information on transfer hose assemblies is available in the AEISG Code of Practice for the storage and handling of UN3375.

7.0 Segregation

7.1 Scope

This section addresses segregation requirements for the raw materials carried in MPUs.

Although some of the raw materials carried on MPUs are deemed incompatible under the requirements of the ADG Code for transport operations, MPUs are special purpose vehicles designed with the sole intention of using those products being carried to manufacture and deliver explosives directly into blast-holes.

7.2 Range of Raw Materials carried in MPUs

7.2.1 UN Division 5.1 Oxidising Substances

1) Ammonium nitrate
2) Solutions of ammonium nitrate (may contain other minor ingredients)
3) Solutions of ammonium nitrate and other inorganic nitrates (may contain other minor ingredients)
4) Ammonium nitrate emulsions, suspensions and gels conforming to UN3375
5) Urea/ammonium nitrate mixtures

7.2.2 Combustible Liquids

Diesel fuel oil is commonly used as a process fuel on MPUs. Diesel formulations with a closed cup flash point greater than 60°C are not classified as dangerous goods (flammable liquids). They are classified as a C1 combustible liquid (flash point greater than 60°C but less than 93°C).

7.2.3 Solid Fuels

Typical solid fuels include:

1) Aluminium powder
2) Polystyrene beads
3) Pulverised rubber
4) 'Premix' – solid fuels for watergels
5) Other solid fuels included in authorised explosive compositions

7.2.4 Effect Materials

Effect materials that are used to control the final properties of the manufactured explosive may be carried in small quantities. Typical examples include gasser solutions, surfactants, cross-linkers and pH modifiers. Some effect materials may be classified as dangerous goods.

7.2.5 ANFO Mixtures

These mixtures of ammonium nitrate and fuel oils are Class 1 Explosives. Solid fuels may also be incorporated in the ANFO mixture.

7.2.6 UN Class 1 Explosives

Initiating explosives may be transported on site for use in loading operations. Local regulations may apply, and it is the responsibility of the operating entity to determine these and comply where relevant. Reference should also be made to the requirements of clause 7.3.5.

7.2.7 Other Raw Materials

In addition to the raw materials listed above, MPUs may also carry other materials

including, but not limited to:

1) Bulking agents (e.g., glass or plastic micro-balloons);

2) Line marking paints;

3) Quality control equipment;

4) Dyes may be added to indicate optimal mixing of raw materials in the final product; and

5) Water may be carried for cleaning and/or processing purposes.

7.3 Segregation Requirements

7.3.1 UN Division 5.1, ANFO Mixtures and UN Class 1

UN Division 5.1, ANFO mixtures and other UN Class 1 mixtures, as detailed in Sections 7.2.1 and 7.2.5 must be carried in separate tanks or containers, or in separate compartments of the same tank. The design must be such as to prevent inadvertent mixing of the different materials.

7.3.2 Combustible Liquids

Combustible liquids should be carried in a separate tank to all other materials on the MPU or a separate compartment within a tank which meets the requirements of clause 5.2.8.1.

There must be no direct piping connection between the combustible liquid tank(s)

and other tanks or containers on the MPU. Note:

(i) A combustible liquid line and a UN Division 5.1 product line may be directly connected to an inline mixer provided that adequate provision is made to prevent reverse flow in each line.

(ii) In this context, a pipe which runs from a combustible liquid tank to a mixing unit is not regarded as a direct connection if an air gap is provided at the end of the pipe and the mixing unit.

7.3.3 Solid Fuels

The compatibility of these products may not be an issue, however it is recommended that solid fuels which are not incorporated in the ANFO mixture or other manufactured products are carried in separate tanks or containers.

7.3.4 Effect Materials and Water

Individual effect materials and water should be carried in separate containers or tanks to prevent inadvertent mixing.

7.3.5 Detonators and Other Class 1 Explosives

These may only be carried when segregated by an approved segregation device. Segregation devices must comply with the requirements of the AEC.

7.4 Modification of container or compartment contents

Tanks and compartments on an MPU assigned to contain different materials should be dedicated to those materials and clearly labelled.

If changes to the contents of tanks and compartments are proposed, the proposal should be reviewed in accordance with the change management requirements of clause 5.4.

8.0 Operational Requirements

8.1 Operating Manual

Each MPU must have an operating manual that corresponds with the documented design risk assessment process outlined in clause 5.2.1. The operating manual should be available in the MPU or at the base location. The operating manual must, as a minimum cover:

1. the safe operation of the equipment fitted to the MPU;
2. procedures to manufacture explosives for that particular MPU design; and
3. emergency procedures for the MPU.

8.2 Safety Equipment

The following paragraphs set out the minimum safety equipment requirements for MPUs.

8.2.1 Fire Extinguishers

Fire extinguishers must be fitted in accordance with the following table:

Application	Minimum Extinguishers Required
In cabin	One (1) x 10B Dry Powder
MPU ≤ 10,000	One (1) x 30B Dry Powder + One (1) 9L Water or Foam
MPU > 10,000	One (1) x 60B Dry Powder + One (1) 9L Water or Foam

Fire extinguishers must be in a location that is readily accessible for use. Each fire extinguisher required in this section must be securely mounted in quick release brackets/straps.

Fire extinguishers must be inspected and tested in accordance with AS 1851.1.

For MPUs driven on public roads to access operational sites, consideration should be given to the installation of a fixed water or foam system that is suitable for fighting tyre fires.

Encapsulator Agents may be used in place of water or foam.

Note that the fire extinguishers requirements above apply to surface MPUs (vehicle mounted units). Underground units carry individual fire extinguishers, they must also be fitted with automatic fire suppression systems and are subject to site specific requirements and additional safety checks before being accepted for underground operations.

8.2.2 Safety Equipment

The safety equipment carried on an MPU must include:

1) eye wash kit of a minimum of 250ml capacity, filled and ready for use;

2) three double sided reflector signals complying with AS3790 (surface vehicle mounted MPUs only);

3) one pair of wheel chocks (wheeled MPUs only).

Note that it may be necessary to carry additional items of personal protective and safety equipment where it is specified in safety data sheets for the raw materials being transported and used.

8.2.3 First Aid Kit

It is recommended as good practice that a first aid kit is carried on the MPU in a readily accessible location.

8.3 Transfer Operations and Equipment

1) Loading of raw materials into an MPU must be done in a safe manner to prevent spillage or injury to persons.

2) Loading hoses and attachment devices must be maintained in a serviceable condition.

3) All transfer equipment, including delivery hoses, must be adequately restrained to ensure control is maintained during transfer operations and during normal transport.

4) The parking brake of the MPU must be applied when transferring products.

5) The mixing and delivery system must be designed and arranged so that the operator (from the normal operating position) can:

   a. Observe (directly or by suitable remote means) the explosive delivery process during operations, or

   b. Has adequate communication with another operator who has a suitable view of the delivery process.

6) When transferring product, the process equipment must not be left unattended.

8.4 Power Take Off Units

Where a power take-off unit (PTO) is fitted to the vehicle for the process and pumping equipment its manner of operation should be one of the following:

1) For vehicles with a manual transmission and full in-cabin controls only, the PTO may be engaged at any time.

2) For vehicles with a manual transmission and out-of-cabin controls only, the PTO may be engaged at any time, but the high idle function must not be operated until the vehicle is in neutral and the parking brake is fully applied.

3) For vehicles with an automatic transmission and in-cabin controls only, the PTO may be engaged at any time. Auxiliary controls may be operated while the PTO is engaged in gear, however the main mixing controls must not be operated unless the vehicle is in either the park or neutral position and the parking brake has been fully applied.

4) For vehicles with an automatic transmission and out-of-cabin controls only, the PTO must not be engaged unless the vehicle is in the park or neutral position and the parking brake has been fully applied.

Note: For vehicles with dual controls, the respective in cabin and out of cabin controls must be applied as appropriate.

8.5 Ullage Requirements

Ullage requirements apply to liquids only. Requirements for a large tank or compartment are specified in the ADG Code.

Note that the ullage requirements will not apply to substances with a viscosity greater than 2,680 mm2/s at 20°C (ADG Code).

8.6 Auditing

The owner or operating entity of an MPU must have a comprehensive, documented

audit program in place to ensure that:

1) the MPU is appropriately licensed;
2) the MPU is mechanically sound and can be operated safely;
3) drivers/operators are trained, competent and appropriately licensed;
4) vehicle checks are carried out at the commencement of each shift;
5) the MPU process equipment has been regularly calibrated;
6) all operational and safety equipment is effective;
7) the correct placarding and signage is displayed; and
8) the MPU continues to comply with the requirements of this Code.

MPU audits should be conducted at least annually and the results documented.

8.7 Training

The owner or operating entity must ensure that all MPU operators have been adequately trained and deemed competent to operate the vehicle and equipment. Written records must be retained as evidence of operator training and competency.

The unit of competency RIIBLA203 Conduct mobile mixing of explosives has been endorsed through the Australian National Training Framework for application in the resources and infrastructure industries. This unit covers preparing for operations; loading and mixing; transporting to delivery point; and delivery of product into blast holes.

8.8 Inspection and Maintenance

8.8.1 Pre-start / Pre-operation Checks

The owner or operating entity must ensure that a system for vehicle pre-start and / or equipment pre-operation checks is in place. This should include notification of defects and approval to operate.

8.8.2 Maintenance

The owner or operating entity must instigate an inspection and maintenance regime for each MPU at intervals that reflect the operating environment and manufacturer's recommendations.

Records of inspections and maintenance must be kept. The following points should be taken into consideration prior to commencing maintenance activities:

1) The MPU must be cleaned to a standard appropriate to the hazards of the proposed maintenance.

2) Each MPU owner or operating entity should have procedures that recognize the level of decontamination required prior to maintenance, e.g., a greater level of cleaning requirements is required prior to hot work being carried out on the MPU compared to cleaning requirements for changing a wheel.

3) The owner or operating entity of an MPU must establish their own procedures for decontamination based on hazard identification and a risk assessment of the maintenance tasks. As an example, a suggested matrix of relationships between cleanliness standards and work to be carried out is provided in Appendix 1.

4) Maintenance work must be based on a work permit or clearance system to ensure safety and compliance with procedures.

5) Due caution should be exercised where maintenance is conducted by workshops and personnel outside the control of the owner or operating entity. Potential hazards from the external maintenance environment must be clearly identified and addressed with appropriate controls.

8.9 Communication Equipment

Each MPU must be equipped with communication equipment of appropriate quality which, in an emergency, is capable of being used to communicate with the MPU's base and/or the base station of the mine or quarry on which it operates.

9.0 Transport Procedures

9.1 Scope

This section describes the requirements for operation of an MPU when in transit between loading and delivery sites. This will include transport on public roads and within mine lease boundaries.

9.2 Breakdowns

The operator of an MPU must have contingency plans for breakdowns. If an MPU constitutes a traffic hazard (e.g., disabled or stopped on a road) other road users must be alerted by:

1) the use of hazard lights;
2) use of vehicle parking lights where lighting is poor; and
3) deploying double sided reflector signals at right angles to the direction of traffic in each of the following locations;
    a) not less than 50 metres or more than 150 metres in front of the vehicle.
    b) not less than 50 metres or more than 150 metres behind the vehicle.
    c) beside the vehicle on the side closer to traffic.

9.3 Passengers

No person may ride in the cabin of an MPU carrying a placarded load apart from the following:

1) employees of, or other persons authorised by, the owner of the vehicle or the prime contractor; or
2) an authorised officer, police officer, officer of an emergency service, or person authorised to ride in the MPU by such a person.

9.4 Parking Requirements

When parking a placarded MPU:

1) the parking brake must be fully applied; and
2) the vehicle must not be parked in gear unless the vehicle is fitted with a device to prevent the engine from starting if the vehicle moves, and the device is engaged.

A placarded MPU must not be parked or left standing:

1) in a built-up area with public access;
2) within 15 metres of any building in which there is likely to be a concentration of people (other than a building or premises where the vehicle is loaded or unloaded);
3) in any other place in which there is likely to be a concentration of people;
4) within 8 metres of another vehicle which is transporting a placard load of dangerous goods; or
5) within 15 metres of a naked flame or potential ignition source.

A vehicle may be left parked or standing contrary to the circumstances mentioned above,:

1) if the vehicle is in a restricted area which is not open to public access e.g., operating on a mine or quarry site, parking and loading in a reload facility, servicing in a site workshop;
2) if the vehicle has broken down;
3) because of a dangerous situation;
4) to comply with the requirement of any law; or
5) if a relevant authority responsible for regulating the use or parking of vehicles has approved the place as a place in which an MPU may be left parked or standing.

The battery isolation switch must be left open (disconnected position) whenever the vehicle is unattended unless it is necessary to leave the vehicle lights on to prevent a traffic hazard or comply with any law. The owner or operating entity must implement appropriate safety and security procedures that address overnight parking of MPUs.

9.5 Selection of Routes

1) Routes must be selected to comply with any restrictions which have been determined by a relevant Competent Authority.

2) Wherever practical, heavily populated or environmentally sensitive areas, congested crossings, tunnels, narrow streets, alleys or sites where there is or may be a concentration of people, should be avoided.

3) Routes should be pre-planned (journey management plan) taking into account safety, fatigue, security, and checked prior to departure wherever possible.

4) Routes should be selected to minimise the risk of potential injury or harm to all persons, the environment, and property.

9.6 Customer Sites

The owner or operating entity of an MPU must conform to the transport and traffic procedures, when operating on a mine, quarry or construction site as applicable.

Routes and operation on customer sites should be risk assessed taking into consideration vehicle design limits for stability, gradeability, ground clearance, etc., against site specific conditions.

9.7 Emergencies

The owner or operating entity of an MPU must have an emergency plan for dealing with any dangerous situation that may arise from the operation of the MPU. This should include incident notification to the relevant Competent Authority and any other stakeholder.

The driver of an MPU involved in an accident that results in a dangerous situation must:

1) notify the emergency services of the incident as soon as possible;

2) notify the owner or operating entity; and

3) provide reasonable assistance to the emergency services.

The driver of the vehicle should, in a safe and practical manner:

1) carry out emergency procedures recommended in emergency information provided (e.g., emergency procedures guides);

2) carry out the local emergency plan;

3) prevent any other vehicles, dangerous goods or explosives from coming within the exclusion zone specified in the emergency information carried in the vehicle;

4) warn any person in the vicinity who may be at risk; and

5) prevent or minimise the escape of any product and its entry into the surrounding environment.

10.0 Security

10.1 General Requirements

All MPUs carry raw materials and manufacture explosives products that are categorised as security sensitive. Each jurisdiction has legislative requirements with corresponding obligations on stakeholders.

The owner or operating entity of an MPU must determine the applicable requirements and ensure that they have in place security plans that comply with their legislative obligations.

10.1.1 UN Class 1 Loads

Table 2.2 of AEC establishes quantities that are considered as High Security Risk loads of UN Class 1 and the security requirements are set out in section 8.8 of AEC.

10.1.2 UN Division 5.1 Loads

Most MPUs will be involved in the transport of UN Division 5.1 loads as raw materials (UN1942 and/or UN3375) which fall under the definition of security sensitive products. The security requirements are similar to the requirements for Class 1 loads and are based generally on the following elements:

1) control measures to ensure product security for the duration of the journey;

2) access control procedures for checking and clearing personnel for unsupervised access to the product;

3) chain of custody, consignment procedures for proof of delivery and product reconciliation; and

4) procedures for reporting of loss, theft or any other security incident involving the product.

Appendix 1: Example Decontamination Schedule

The information below is provided only as an example. The owner or operating entity of an MPU must establish their own procedures for decontamination.

The table provides suggested levels of decontamination prior to maintenance procedures being carried out on MPUs. It is not applicable for routine minor maintenance work that does not involve hot work e.g., safety checks, light bulb changes, wheel / tyre replacement tasks.

Any procedures implemented for decontamination of equipment should be based on hazard identification and risk assessments of the various scheduled and non-scheduled maintenance tasks.

Grade	Requirements
1. Non-hot work maintenance in an environment controlled by the MPU owner or operating entity.	1. Depending on the task, bins and tanks may need to be emptied 2. Outside of equipment may need to be cleaned 3. Equipment containing residual product is not opened or disconnected. Residual product may be left in hoses, augers or bins.
2. Non-hot work maintenance in an external maintenance environment not under the control of the owner or operating entity	1. As per Grade 1 with additional requirements based on a work clearance system. 2. Potential hazards from the external maintenance environment must be clearly identified and addressed with appropriate controls. 3. Equipment containing residual product must be security sealed.
3. Hot work in any environment.	1. As per Grade 2 – with the additional requirements based on a work clearance system. 2. All equipment must be cleaned of residual material using water flush or steam. 3. Equipment must be inspected for hidden cavities.
4. Disposal or shipping / transfer of equipment in any environment	1. As per Grade 3 – with any additional requirements based on a work clearance system relevant to the activity being undertaken. 2. Equipment must be clearly identified as being contaminant free.

Appendix B: Compliance Checklist

Note: The requirements noted against the various sections in this checklist are not exhaustive. It is recommended that during inspection, a copy of the MPU Code is available for cross referencing and further detail on the exact requirements.

Company Name:	
Mobile Processing Unit (MPU)	
Conducted by	
Date	

Compliance check summary:

Name of assessor/s:

Signature/s: ……

Assessment Date:

Section	Requirements	Statement on compliance	C/NC/NA
1 Scope and Definitions	Note the scope of the Code and definitions used throughout the compliance checklist.		
2 Regulatory and Other Requirements	Note the applicable regulatory requirements including approvals, licensing, authorisations, as well as insurance and other indemnities.		
3 Placarding of MPUs	MPUs must be placarded unless they have been cleaned of all dangerous goods. Placarding complies with relevant details in 3.3 as well as the requirements of 3.4 All containers, bins and tanks on the MPU should be clearly marked to indicate their contents.		
4 Documentation	Note the operational requirements for transport documentation and emergency information to be carried in the MPU.		

4.3.3 Emergency information holder	Emergency information holder to be provided, for EPGs and Transport Document. Marked 'Emergency Procedure Guides' or 'Emergency Information' in red letters at least 10mm high on a white background. Securely located on the inside of a door of the cabin or immediately adjacent to a door of the cabin.		
5 MPU DESIGN			
5.2.1 General requirements **5.2.1 (1)**	Documented hazard identification, risk assessment and compliance processes must be carried out on MPU designs. The compliance process must document how the relevant requirements of this Code have been addressed. The documentation must have engineering certification in accordance with clause 5.5.		
5.2.1 (2)	The means of attachment of tanks and bulk containers should be treated for design purposes as tank or bulk container supports. Reference should be made to Section 3.3 of AS2809.4 and the vehicle manufacturer's body building guide to ensure that attachment to the vehicle is compliant.		

Public

5.2.1 (3)	Service equipment including pipes, fixed fittings and other items must not protrude beyond the nominal width of the vehicle. Items such as swing augers that have the potential to be a hazard in transit must have a primary and secondary restraint system to ensure that it remains stowed and secured in the designated position when in transit.		
5.2.1 (4)	Concealed hollows should be avoided in the design (e.g., steel tubing with sealed ends). Where concealed hollows are unavoidable, provision for inspection, venting and decontamination must be provided.		
5.2.1 (5)	The use of copper, zinc and their alloys on an MPU should be avoided unless there are no alternatives, e.g., copper in electrical wiring. Any such copper containing components must be protected to avoid contact with any raw materials or manufactured product.		
5.2.1 (6)	Check for protrusions to avoid potential snag points for surface and down lines. Vehicle modifications shall conform to the requirements of the National Code of Practice for Heavy Vehicle Modifications.		
5.2.1 (7)	Compliance with Australian Design Rules and Vehicle Standards Regulations is required for vehicles intended to be registered for use on public roads.		

Public

5.2.1 (8)	Where an MPU is not capable of being registered for use on public roads, the relevant sections of MDG15 should be taken into consideration for design.		
5.2.2 Vehicle selection	Vehicles must be suitable for transporting dangerous goods and must be free of any defects that are likely to create a risk in transporting the goods.		
5.2.3 Vehicle load limits	Vehicles intended for minor off-road use will operate under load limits specified by state and local road authorities. Vehicles with a standard road specification chassis can be considered suitable for this type of application. Vehicles intended for major and severe off-road use will normally operate with load limits based on the manufacturer's gross vehicle mass – this rating is noted on the vehicle compliance plate.		
5.2.4 Vehicle grade-ability and start-ability	The vehicle should have a grade-ability and start-ability rating to suit the intended operating environment. As well as torque for climbing, the vehicle must have retardation capabilities for long declines.		

Public

5.2.5 Vehicle stability	The stability angle (as detailed in AS2809.1) of a fully loaded vehicle should be kept as low as possible. Measures such as the Static Rollover Threshold (SRT) and Load Transfer Ratio (LTR) can be used to assess vehicle stability under varying operating conditions.		
5.2.6 Propulsion engine and exhaust	1) the propulsion engine must be a compression ignition engine which uses a combustible liquid as a fuel.		
	2) the propulsion engine exhaust shall discharge to the rear of the cabin and forward of the tanks, bins and process equipment		
	3) the exhaust should discharge at a level not lower than the top of the cabin. The discharge point should be higher than any tank, bin or process equipment, and be at least 1 metre from any tank or bin opening		
	4) any part of the propulsion engine or exhaust system which may be exposed to product spillage must be shielded.		
	5) where a low-level discharge exhaust is required, a detailed risk assessment must be conducted. The exhaust must be directed away from personnel, product and equipment.		

Public

5.2.7 Auxiliary engine and exhaust	If an auxiliary motor is fitted to power the mixing units and/or the transfer equipment it must be located as close as practicable to the front of the vehicle and meet the following requirements:		
	Petrol, LPG and CNG engines must not be used.		
	Any part of the auxiliary engine and exhaust system which may be exposed to product spillage must be shielded.		
	Low level discharge risk assessment, exhaust must be directed away from personnel, product and equipment.		
5.2.8 Electric Vehicles	Hazard identification (fire risks) and controls		
5.2.9.1 Tanks	Reference to the following tank requirements is recommended for guidance on design:		
	AS 2809.4 is referenced to provide guidance on materials of construction, tank supports, and attachments.		

Public

	Where segregation of product in adjoining compartments is necessary as outlined in section 7, the compartments shall be fitted with double bulkheads.		
	Tanks designed to free vent. Not able to pressurise in an emergency (fire scenario).		
	All valves and fittings to the tanks should be protected from accidental damage.		
5.2.9.2 Bulk container	Design requirements for bulk containers: BK1 or BK2 assigned Filling and discharge devices protected from damage during transport and manufacturing operations.		
5.2.10.1 Vehicle batteries	Batteries must: 1) be secured to prevent movement; 2) be in an accessible position; and 3) have a substantial, acid resistant and ventilated cover which is electrically insulated on the side adjacent to the battery terminals Remote battery connection point protected from impact damage. Cover on connection point to prevent entry of foreign matter and water.		

Public

5.2.10.2 Battery isolation switch	A battery isolation switch fitted. Means of operating the switch shall be located on the driver's side and to the immediate rear of the cabin in an easily accessible position and clearly labelled to show its function and method of use. Vehicle rollover device fitted.		
5.2.10.3 Electrical cabling	Electrical cabling or wiring outside and to the rear of the cabin in conduit, securely fastened and located so that it is adequately protected against: 1) vibration, impact, abrasion and any other mechanical damage; 2) thermal stress; and 3) exposure to raw materials or manufactured products.		
5.2.10.4 Electrical circuit protection	Electrical circuits protected by an appropriately rated fuse, manual reset circuit breaker or other mechanism that provides an equivalent function.		
5.2.11 Rear impact protection	The vehicle must be provided with a system of bumpers / barriers to protect the tank / bulk container from rear impact.		
5.2.12 Emergency stop	The mixing and delivery (process) systems must be fitted with an emergency stop, appropriately labelled and easily accessible.		

Public

	If the vehicle is fitted with in-cab process controls, an emergency stop must also be fitted inside the cabin.		
	The emergency stop must effectively stop the manufacturing process. When the emergency stop is reset, the equipment must not automatically restart.		
5.2.13 Elevated work platform	If fitted, EWP must conform to relevant parts of AS 1418 and any relevant licensing requirements		
5.3 Trailer mounted MPUs	Trailer ADR compliance; Stability under all conditions of loading; Free standing - minimum of 2 axles, 2 wheels on each axle;		
5.4 Modification of MPUs	Documented change management procedures for modification and alterations to MPUs.		
5.5 Engineering certification	The documented MPU design risk assessment and certification of compliance with the relevant standards and requirements of this Code must be verified and signed off by a duly qualified and authorised engineer.		
5.6 Identification plate	Every MPU must be fitted with a corrosion resistant metal plate permanently attached to the MPU in a conspicuous place readily accessible for inspection.		

Public

6 MIXING AND TRANSFER EQUIPMENT			
6.1.1 High friction and dead spots	High friction and 'dead spots' which may result in overheating under confinement must be avoided.		
6.1.2 Suitability for purpose	Pumps, augers and other transfer equipment must be: 1) of an appropriate design; 2) constructed of materials that are compatible with the product being transferred; 3) of a rating that is suitable for its intended application; and 4) designed to prevent the introduction of foreign bodies into the process. This may include the use of filters or screens on inlets or on tanks supplying raw materials for the manufacturing process.		
6.2.1 Pump protection systems	All pumps used in the transfer of an ammonium nitrate emulsions must have pump protection systems that are regularly inspected or tested and documented (pressure and temperature) Systems must be of the 'fail safe' type.		
6.2.2 One-way operation	Pumps must be operated in one direction only unless an effective pump management system, has been implemented to mitigate the potential hazards of reverse operation. Pumps should be configured to have adequate Net Positive Suction Head (NPSH).		

Public

6.3 Augers	Warning signs on the dangers of moving augers and the need for eye protection should be displayed.		
6.3.1 Hollow shafts	The use of hollow shafts should be avoided where possible.		
6.3.2 Bearings	The use of self-aligning bearings or outrigger bearings at the ends of the shaft is recommended to address axial displacement and the potential to generate hot spots. Note that this may not always be feasible on longer shafts. Bearings should always be selected and installed with a view to reducing the possibility of hot spots affecting raw materials or finished product in the event of a bearing failure. The use of stand-off bearings is recommended as they allow product to escape if a seal fails. This provides early detection of seal failure and restricts product entering the bearing.		
6.4 Blowers	Designed to prevent blowback. Anti-static hoses, earth grounding of cyclone.		
6.5 Product transfer / delivery hoses	Hoses used on MPUs to transfer or deliver product must be suitable for the intended application.		
7 SEGREGATION			

Public

7.3.1 UN Division 5.1, ANFO Mixtures and UN Class 1	Materials carried in separate tanks / compartments to prevent inadvertent mixing.		
7.3.2 Combustible Liquids	Combustible liquids should be carried in a separate tank to all other materials on the MPU or a separate compartment within a tank which meets the requirements of clause 5.2.8.1. No direct piping connection between the combustible liquid tank(s) and other tanks or containers on the MPU.		
7.3.3 Solid Fuels	Recommended that solid fuels which are not incorporated in the ANFO mixture or other manufactured products are carried in separate tanks or containers.		
7.3.4 Effect Materials and Water	Individual effect materials and water should be carried in separate containers or tanks to prevent inadvertent mixing.		
7.3.5 Detonators and other Class 1 Explosives	These may only be carried when segregated by an approved segregation device. Segregation devices must comply with the requirements of the AEC.		

Public

7.4 Modification of container or compartment contents	Changes to the contents of tanks and compartments are proposed, the proposal should be reviewed in accordance with the change management requirements of clause 5.4.		
8 OPERATIONAL REQUIREMENTS			
8.1 Operating manual	Each MPU must have an operating manual available on the MPU or at the base location.		
8.2.1 Fire extinguishers	Fire extinguishers fitted as per requirements of 8.2.1. Located so as readily accessible for use, and securely mounted in quick release brackets. Inspected and tested in accordance with AS 1851.1.		
8.2.2 Safety and PPE	The safety and personal protective equipment carried on an MPU must include: - eye wash kit - 250ml, filled and ready for use; - torch; - 3 double sided reflector signals; - 1 pair of wheel chocks; and - chemically resistant gloves or gauntlets.		
8.2.3 First Aid Kit	Recommended that a first aid kit is carried on the MPU in a readily accessible location.		

Public

8.3 Transfer Operations and Equipment	Operational observations and checks.		-
8.4 Power Take Off Units	PTO fitment, manner of operation should be one of the following: 1) manual transmission, full in-cabin controls only, the PTO may be engaged at any time. 2) manual transmission, out-of-cabin controls only, the PTO may be engaged at any time, high idle function must not be operated until the vehicle is in neutral and the parking brake is fully applied. 3) automatic transmission, in-cabin controls only, the PTO may be engaged at any time. Auxiliary controls may be operated while the PTO is engaged in gear, the main mixing controls must not be operated unless the vehicle is in either the park or neutral position and the parking brake is fully applied. 4) automatic transmission, out-of-cabin controls only, the PTO must not be engaged unless the vehicle is in the park or neutral position and the parking brake is fully applied.		
8.5 Ullage Requirements	Ullage requirements apply to liquids only. Requirements for a large tank or compartment are specified in section 10.3 of the ADG Code. Note that the ullage requirements will not apply to substances with a viscosity greater than 2,680 mm2/s at 20oC (10.3.1.2 ADG Code).		

Public

8.6 Auditing	Operational compliance – safety management systems.		
8.7 Training	Operator training and competency assessments		
8.8 Inspection and Maintenance	Prestart and operational checks. Maintenance schedule.		
8.9 Communication Equipment	Equipped with appropriate communication equipment.		
9 TRANSPORT PROCEDURES	Operational precautions.		
10 SECURITY	Operational security requirements.		

Public

About AEISG

The Australasian Explosives Industry Safety Group (AEISG) is an incorporated association of Australasian explosives manufacturers and suppliers originally formed in 1994.

Since then, AEISG membership has grown substantially to include most of the Australasian explosives industry. A full list of all current member organisations can be found on the AEISG website, www.aeisg.org.au

The goal of AEISG is to continuously improve the level of safety and security throughout our industry in the manufacture, transport, storage, handling and use of explosives and related materials.

One of the strategies adopted by AEISG in this regard is to identify areas where improved and consistent standards of operational safety and security need to be applied, and then develop appropriate codes that reflect industry best practice in these areas.

AEISG codes of practice are adopted by members for the benefit of their employees, their customers and the general community. In the interest of promoting safety and security, the codes are freely available on the AEISG website.

To keep abreast of technological advancements, industry progress and regulatory changes, AEISG Codes of Practice are subject to regular review and updated through the issue of amendments or revised editions as necessary. It is important that users ensure they are in possession of the latest edition and aware of any amendments. References to superseded versions should be updated accordingly.

Contact Details: info@aeisg.org.au

AEISG COP Mobile Processing Units

Edition 5 October 2025