Australian Explosives Industry and Safety Group (AEISG)

Code of Practice Mobile Processing Units 4th edition

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 4th edition is available for cross referencing and further detail on the exact requirements. Electronic copies of AEISG Codes of Practice are freely available at www.aeisg.org.au

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.		
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.		
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.		
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.		
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.		
5.2.8.1 Tanks	Reference to the following tank requirements is recommended for guidance on design:		
	AS2809.4 is referenced to provide guidance on materials of construction, tank supports, and attachments, because it accommodates products with a higher specific gravity		
	Where segregation of product in adjoining compartments is necessary as outlined in section 7, the compartments shall be fitted with double bulkheads.		

	Tanks must be provided with suitable venting devices where necessary.		
	All valves and fittings to the tanks should be protected from being damaged in the event of an accident. Fittings to the tops of tanks containing liquids should be protected by roll over coamings.		
	Pressure vessels must comply with the relevant requirements of AS1210.		
5.2.8.2 Bulk container	Design requirements for bulk containers: BK1 or BK2 assigned Filling and discharge devices protected from damage during transport and manufacturing operations.		
5.2.9.1 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		

5.2.9.2 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.		
5.2.9.3 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.		
5.2.9.4 Electrical circuit protection	Electrical circuits protected by an appropriately rated fuse, manual reset circuit breaker or other mechanism that provides an equivalent function.		
5.2.10 Rear impact protection	The vehicle must be provided with a system of bumpers / barriers to protect the tank / bulk container from rear impact.		

5.2.11 Emergency stop	The mixing and delivery systems must be fitted with an emergency stop, appropriately labelled and easily accessible.		
	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.		
5.2.12 Elevated work platform	If fitted, EWP must conform to relevant parts of AS1418 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.		
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).		
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. Hoses should be tagged with date of supply / installation and have a unique identifying number that is captured in maintenance documentation.		
7 SEGREGATION			
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.		
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.		

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<tr>
<td>8.2.1 Fire extinguishers</td>
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<table>
<tr><th>Application</th><th>Minimum Extinguishers Required</th></tr>
<tr><td>In cabin</td><td>One x 10 B Dry Powder</td></tr>
<tr><td>MPU ≤ 10,000kg</td><td>One x 30B Dry Powder +
One x 9L Water or Foam</td></tr>
<tr><td>MPU > 10,000kg</td><td>One x 60B Dry Powder +
One x 9L Water or Foam</td></tr>
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Fire extinguishers fitted as per table above. Located so as readily accessible for use, and securely mounted in quick release brackets. Inspected and tested in accordance with AS 1851.1.
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<td>8.2.2 Safety and PPE</td>
<td>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.</td>
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<tr>
<td>8.2.3 First Aid Kit</td>
<td>Recommended that a first aid kit is carried on the MPU in a readily accessible location.</td>
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<td>8.3 Transfer Operations and Equipment</td>
<td>Operational observations and checks.</td>
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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).		
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.		-