LOADING AND OFFLOADING VEHICLES

PURPOSE AND SCOPE

This HS+E information provides additional direction and guidance on safe loading and offloading of vehicles. The principles of this information document shall be applied. However, the practical application in the field may differ according to circumstance providing the standards are not lowered or safe outcomes are potentially compromised.

1.0 PLANNING FOR DELIVERIES TO AND FROM OTHER LOCATIONS

Prior to receiving or distributing deliveries, you must plan ahead by:

- Risk Assess the process and communicate this to all those involved in the task
- No chemical, hazardous or dangerous goods are to be transported without the consent of the receiving location, and without the applicable permits
- Communicate the site / workplace requirements to relevant parties in the transport chain of command
- Preparing loading, offloading and storage areas to ensure they suit the:
  - Nature of the loads (size, weight, content)
  - Types of delivery vehicles
  - Location of cranes or other means of mechanical loading/offloading
  - Environment (overhead obstructions & underground services)
- Consider others affected by the activity and layout of access routes i.e. pedestrians & other road users
- Ground preparation and manoeuvrability is to be assessed, the area should be on firm level ground and consideration taken of any side slope
- Assess the requirement for an Exclusion Zone (Loading, Unloading Exclusion Zones (LUEZ))
- Provide suitable access & fall protection for persons required to carry out the load or unload
- Provide the Transport Company & Select Plant Hire (if engaged through them) the specifications of the load / plant item: i.e. heights, weights, width, length and any recommended tie down points / means
- Ensure that the Transporter is aware of any restrictions on site and on any approach routes i.e. inclines, height & width restrictions, weight limits, low bridges, culverts etc.
- If the item is out of gauge the Project / Workplace must ensure that the Transporter has correct controls in place prior to leaving: i.e. escorts / road closures / flagging, and any required permits
- Supplier and receiver agreement as to the loading and offloading methods to be used including:
  - Loading and offloading sequence to reduce double-handling – e.g. pre-slung loads
  - Identify who is the Competent Person/s who is to load or off load
  - Ensure we have the knowledge and know how to safely package or store resources ready for movement i.e. stillage's, banding methods means to contain loose items etc.
- Consider how the load or equipment is going to be offloaded at its destination, the use and availability of any specialist equipment required for lifting the load(s), suitable to the size, weight and type.

2.0 LOADING, UNLOADING EXCLUSION ZONES (LUEZ)

We must as far as is reasonably practicable segregate Plant and Machinery from people and other Plant and Vehicles. A number of injuries and incidents have occurred while carrying out the loading / unloading of Plant and equipment from a vehicle. This doesn't only apply to Plant and equipment been driven/operated on and off the transport but to also to the loading / unloading using mechanical means.

There is a requirement to have a safe system of works for the delivery and loading/unloading on site. These arrangements shall be documented in the relevant site-specific SWMS. If the outcome of the Risk Assessment is that a LUEZ is required the Operator of the Plant or Machine shall establish an exclusion zone surrounding the area during loading / unloading operations. This is to be carried out with support from the Site.

Ensure that the equipment, used for loading/unloading and persons are segregated (this is to include Drivers); and that authority for the area in which the loading/unloading activity is occurring should reside with the forklift/Crane/Plant operator. If the driver, authorised person (i.e. Dogman, Rigger or Spotter) ceases to be in the direct line of sight of the operator at any stage during the activity, the loading/unloading activity should immediately STOP and not resume again until a direct line of sight is re-established between the operator and the driver or authorised person.

Where an unauthorised person is identified within the zone, the operation shall be immediately ceased until the person/s is removed. All activities associated with the loading / unloading must be contained within the delineated / identified area including all movements of equipment and/or product or combined i.e. turning circle, height, reversing etc.

Access / Exit from the Exclusion: The control / authority of the Exclusion zone rests with the loading / unloading operator at all times. Entry / exit from this area are only upon prior approval from the operator.

Clear rules need to be in place and communicated to those involved to govern the operation of the LUEZ area. The rules should include (but not limited to):

- All personnel other than the loading / unloading operator must NOT be within the LUEZ area during the process of loading / unloading. Unless an authorised person is been used in the task (the person must at all times be in view of the Operator and not been in a position where they can be effected by the task (i.e. trapped, struck, falling objects etc.).
- Personnel must remain in the safety zone or removed to another area by prior agreement with the loading / unloading operator from the LUEZ area i.e. lunch room, office etc.
- Personnel must not enter the LUEZ area without the prior authorization of the loading / unloading operator
- Upon approval and prior to entry / exit of personnel to the LUEZ, product / loads must be situated at a distance that cannot make contact with person/s
- Upon approval but prior to entry / exiting of the LUEZ, product / load and machinery must be stationary
- No movement of machinery and people at the same time within the LUEZ

IMAGE 1 - Examples of means of setting up a quick effective LUEZ demarcated in a manner which is fit for purpose for the nature of the loading/unloading environment

2.1 DRIVERS SAFETY ZONES

If the Driver is required to observe the task, a designated driver safety zones is to be established so that the driver is kept away from any movement of Plant, machinery and the Load. To enhance compliance with these zones the driver remains in them at all times during the task / plant movement, it is recommended that they are located to allow the driver to clearly observe the loading operation. Again these zones should be demarcated in a manner which is fit for purpose for the nature of the loading/unloading environment.

IMAGES 2 – DRIVER SAFETY ZONE

3.0 GENERAL SAFETY REQUIREMENTS

In general, when loading and offloading vehicles, you must:

- Use only suitably competent operators for any transport vehicle or lifting plant used
- Have supervision in controlling the task
- Never overload a vehicle or the lifting plant
- Evenly distribute load
- The vehicle being loaded/offloaded must be parked in a fundamentally safe manner that prevents any inadvertent runaway, with wheels chocked if necessary
- Where the mobile equipment is wider than the vehicle deck, a widening low loader, outriggers or extensions should be used for maximum support. At least 75% of the normal contact area of equipment, tyres or tracks should be supported. Any unsupported tyre or track should not project more than 150 mm beyond the vehicle deck or extension.
- Use an agreed method of loading / unloading (i.e. do not push or pull the item from the transport vehicle so the load goes into free fall)
- When loading / unloading an item i.e. EWP or formwork shutters they are to have clearly identifiable lifting points which have been certified in the manual by the Original Equipment Manufacturer (OEM) or in writing by a Competent Engineer. The points are to be inspected as per the OEM / Engineer statement of requirements and visually inspected prior to been lifted by a competent person (i.e. Rigger/Dogman).
- Ensure drivers and operators are responsible for securing their load before moving
- Ensure covers are used on Tipper trucks to control Dust and Spills
- Ensure that communication between those involved in the load / unload is agreed and understood
- No one is to be in the radius of the plant used to load or unload, stand in a location where the operator can clearly see you
- Don't stand near side or on the far side of the truck while been unloaded (load movement / collapse - been struck while unstrapping)

- Drivers must observe and adhere to the direction of any Traffic Controller or other Laing O'Rourke employees with regards to the Site Traffic Management Plan
- Not project loads beyond the sides or back of the transporting vehicle – where some degree of overhang is unavoidable, ensure that:
  - Overhang is visibly marked by approved signage i.e. red flags, marker boards (Transporter must refer to the state or territory guidelines with regards to width, heights, lengths & weights)
  - Use additional lighting
  - Necessary authorities are formally notified
  - There is a warning vehicle in attendance
- When loading, driver can only remain inside the vehicle if the driver can be protected from the risk of falling objects/materials
- When offloading, ropes & fixes must be removed with caution as loads may move when unsecured
- Loads of structural steel must have restraining spikes fitted to the truck to prevent them falling when the securing chains or straps are removed
- Preference is given to using mechanical means over manual handling, refer to Hazardous Manual Tasks Code of Practice and Laing O'Rourke **Primary Standard Manual Handling**
- Particularly where mechanical means are not possible, provide safe access to loads
- Protect persons from risk of falls by applying the height risk hierarchy and following methods, in priority

IMAGE 3 - Poor practice – no safe access for the Dogman

IMAGE 4 - Good practice – can be removed by Forklift or Crane with suitable platform provided by the Project / Workplace

IMAGE 5 - Wheel chock in place

4.0 METHODS FOR SECURING LOADS

IMAGE 6 - Fibre slings with a variety of attachment methods

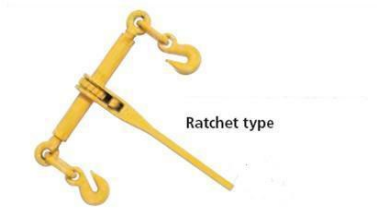

IMAGE 7 - Ratchet Type chain binder are preferred for use with chains

IMAGE 8 - Spring load chain binders are not to be used

5.0 LOADING AND OFFLOADING AT HEIGHTS

The hierarchy of controls must be considered for all loading and offloading activities.

Table 1 Hierarchy of Controls

EFFECTIVENESS	CONTROL	EXPLANATION
Highest level of health and safety protection / Most reliable	**ELIMINATION**	Eliminate or remove the hazard
	SUBSTITUTION	Replace with less hazardous conditions, practice or process
	ISOLATION	Isolate the hazard from anyone that could be harmed
	ENGINEERING	Physical change that reduces exposure, isolates worker from the hazard
	ADMINISTRATIVE	Improvements in the way the work is done
Lowest level of health and safety protection / Least reliable	**PERSONAL PROTECTIVE EQUIPMENT**	Protect worker with PPE

Loading/offloading activities must first be avoided at height where possible.

Where loading or unloading cannot be carried out at ground level, measures that prevent a fall (e.g. guardrails, safe working platforms) are given priority over those that minimise the height and consequences of a fall (fall arrests).

Following that, collective protective measures must always be given priority over personal protective measures.

The following is a summary of the recommended risk hierarchy:

APPLICATION OF THE HEIRARCHY OF CONTROLS	POSSIBLE SAFE SYSTEMS OF WORK
Elimination of Work at Height where Possible	• Methods not requiring access to the vehicle • Pre slung loads accessible from ground level; • Grab system on machine boom • Forks, forklifts and tele-handlers • Sidelifters & Demountable Trailers • Straddle Carriers & Electromagnetic lifting
Use of Engineered Equipment to Prevent Fall **(including guardrails or safe working platforms)**	• Loading Pits and Loading Docks • Side Gantries / Static access platforms • Dock Levellers / Hydraulic Lifts & Ramps • Mobile Access Platforms • Elevated Working Platform (EWP) • Load Bed Barriers / Advanced guardrail systems • Work Restraint Systems preventing access to edge
Work equipment to minimise height and consequence of fall	• Collective Fall Arrest including: • High level safety nets rigged close to the work • Air bags tight and close to working level
Personal Fall Protection Equipment	• Personal Fall Protection Equipment (PFPE) • (The use of PFPE is a last resort as it is heavily dependent on management, supervision, training and attitude of users to work effectively)

6.0 LOADING AND OFFLOADING MOBILE PLANT

The competent operator must load the vehicle safely onto the transport vehicle (under the direction of a guide to a position on the vehicle agreed by the transporter driver who will take final responsibility). The operator must also ensure the correct stowage of any attachments and ancillaries.

The Transporter / Driver must meet the following requirements.

6.1 USE OF RAMPS

- Ramps are to be secure and long enough to keep the ramp at a low angle. (The ramps are to be an integral part of the vehicle / trailer. If the ramps are removable they must be supplied by a manufacture which are suitable for the Vehicle or trailer & the load) designed, load rated, approved and fit for purpose.
- Always check the ramps prior to use for any damage
- Always use the securing components (such as pins and R-clips) that are supplied or recommended by the ramp manufacturer
- Follow the manufacturer's instructions for correctly installing and using the recognised securing systems
- Ensure that the ramps are load rated and suitable for the item being loaded or unloaded (including any additional attachments)

6.2 PREPARE FOR LOADING AND OFFLOADING

Before driving the mobile plant on or off the vehicle, the mobile plant operator must:

- Confirm with site management that the approved location for loading/offloading area is sufficient to accommodate the movement of the plant without causing hazards
- The transporter is on firm, level ground and correctly positioned with its brakes on & with no side slope
- Any ramps are secured and long enough to keep the ramp angle low
- The mobile plant transmission, clutches, brakes, etc. are working correctly – where the plant is inoperable, the transporter must use a loading winch for the task
- Due to the increased grade and the potential for brake failure the Plant must be secured during loading and unloading operations when using a Tilt Tray Truck. This can be achieved by securing a Flexible Steel Wire Rope (FSWR) attached to a mechanically operated winch to the item. Use of the winch is to be carried out by the Driver and the brakes are to be disengaged. Refer to the OEM manual / guidance.
- Prior to loading or off-loading a method is to be agreed on how activity will take place, this needs to take place considering: the Environment, type of plant, access, fall protection, the OEM recommendations, SWMS/Risk Assessment, the vehicle & ramp specifications

6.3 LOAD AND OFFLOAD PLANT SAFELY

When loading or offloading, the mobile plant operator must ensure:

- The mobile plant is lined up with the ramps so that no steering of the plant is needed in the process
- Use fitted seatbelts
- Loading or offloading is carried out at the slowest possible speed, particularly at any point of balance
- Any necessary movement of the mobile plant whilst on the transporter (e.g. to centre it), is carefully executed

When a mobile plant is loaded onto a transporter and positioned to the satisfaction of the transporter driver, every precaution must be taken to ensure that the vehicle cannot change its position during transit. The mobile plant operator and transport Driver must ensure that the mobile plant:

- Has the brakes engaged
- Is securely lashed
- Has any loose items (e.g. spare buckets) securely lashed
- Has slewing arms or other movable parts secure and cannot become dislodged during transport
- Wheels are chocked
- All recommendations from the OEM Manual have be implemented

6.4 UNLOADING OF PRE-CAST PANELS

- When unloading panels the vehicle should be located on firm, level ground. The side slope should be minimal and should not exceed 2 degrees (after completing a Risk Assessment and the site is not level, unloading should be commenced from the low side, taking care to prevent tipping when partially unloaded).
- It is advisable to chock the wheels of the vehicle, in addition to applying the park brake. The trailer should be unloaded in a progressive manner that ensures any tilt of the trailer is kept to a minimum. For example, on an A-frame where there is more than one panel on each side, one panel should be removed from one side then one removed from the other side. If panels are removed so that the trailer tilts, other panels on the trailer may fall. It may be necessary to lower the front support legs of the semi-trailer prior to removing the panels - this will help to reduce movement of the trailer.
- Panels shall be inspected before lifting for damage, particularly around cast-in lifting inserts. Any such damage shall be referred to the designer for action and, where appropriate, approval of repairs.
- The semi-trailer should never be moved after the restraint system is released
- Restraints shall not be removed until the crane takes the initial weight
- No lifting of panels can start until the driver has finished releasing the load restraint for the panel to be lifted, which includes packing up the chains and straps. The truck driver should move out of the work area and directly signal the crane crew that lifting can start.
- During unloading, only persons involved in the unloading should be in the area around the vehicle, and others should be excluded. No persons are to stand beside the vehicle in an area where they would be struck by a panel if knocked or move.
- Where the unloading sequence may lead to instability of load, panels shall be individually restrained and the loading configuration shall be checked to ensure that removing individual panels does not result in instability of the load and/or the vehicle
- The support feet on the A-frame should have high friction rubber between them, the concrete panels and the trailer floor
- Ensure that the A-frames are not twisted or placed on an uneven floor otherwise the load may rock and move
- A-frames must be secured to the vehicle

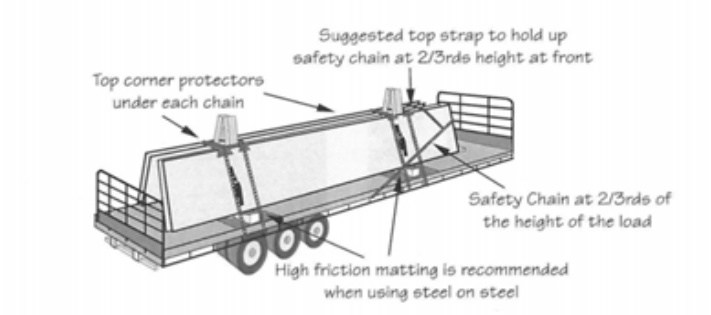

Figure 1 Precast Concrete Good Practice

7.0 ADDITIONAL GUIDELINES

- National Transport Commission (Load Restraint Guide)
- Primary Standard Chain of Responsibility
- Primary Standard Logistics
- Primary Standard Pre-Cast Tilt Up Concrete

8.0 REGULATIONS & CODES

- National Code of Practice for Precast Tilt-Up and Concrete Elements in Building Construction
- Tilt-up and Pre-cast Construction Code of Practice 2003 (Queensland)
- Industry Standard (Victorian Code) Precast & Tilt-up Concrete For Buildings