



Logistics Management Plan (LMP) – Oil-Filled Transformers

Project/Site:

Prepared by:

1. Purpose

The purpose of this Logistics Management Plan (LMP) is to define the processes, responsibilities, and controls for the safe, compliant, and efficient transport, handling, storage, and delivery of oil-filled transformers, including those containing mineral oil and synthetic insulating oils. The plan ensures compliance with:

- Chain of Responsibility (CoR) obligations under the Heavy Vehicle National Law (HVNL)
- WHS Act and Regulations
- Dangerous Goods (DG) transport requirements
- Environmental protection requirements for spill prevention and emergency response
- ISO 9001, ISO 14001 and ISO 45001 integrated management system processes

2. Scope

This plan applies to:

- All oil-filled transformers (new, refurbished, or decommissioned) transported or handled by the company
- Works involving loading, unloading, rigging, crantage, and installation
- External transport contractors engaged by the company
- On-site storage and staging prior to commissioning
- Environmentally hazardous oil types including mineral, silicone, and ester-based oils

3. Definitions

Oil-Filled Transformer:

Electrical transformer containing insulating oil used for cooling and dielectric purposes.

PCBs (Polychlorinated Biphenyls):

Legacy contaminant sometimes present in older transformers. Modern equipment is typically non-PCB; verification is required where applicable.

DG (Dangerous Goods):

Substances or articles classified as dangerous for transport under the ADG Code.

CoR (Chain of Responsibility):

Legal framework under HVNL that places obligations on all parties in the heavy vehicle transport supply chain.

HVNL (Heavy Vehicle National Law):

Legislation governing the operation of heavy vehicles, including mass, dimension, fatigue and load restraint requirements.

4. Responsibilities

Roles and responsibilities relevant to this LMP are defined below.

Role	Responsibilities
Project Manager	Approve logistics planning; select and approve transport contractors; ensure CoR and WHS requirements are met; coordinate with client and key stakeholders.
Logistics Coordinator	Manage route planning, scheduling, permits, DG documentation, and vehicle requirements; ensure pre-transport checks are completed; maintain logistics records.
Transport Contractor	Provide suitable vehicles and competent drivers; ensure load restraint compliance;

	maintain vehicle roadworthiness; comply with DG and CoR obligations.
Site Supervisor	Manage on-site traffic control; oversee unloading, lifting, and staging; establish exclusion zones; ensure site induction for drivers and crane crews.
Environmental Manager	Ensure spill response controls are in place; arrange waste management for oil-contaminated materials; monitor compliance with environmental requirements.
WHS Manager	Facilitate risk assessments and SWMS; verify competencies and licenses; monitor WHS performance during logistics activities.

5. Regulatory Requirements

The logistics activities covered by this plan shall comply with (as applicable to the jurisdiction):

- ADG Code – classification, packaging, marking and transport of dangerous goods
- Heavy Vehicle National Law (HVNL) – Chain of Responsibility obligations
- Work Health and Safety (WHS) Act and Regulations – plant, hazardous chemicals, and general risk management
- Environmental protection legislation – spill prevention, reporting, and waste management
- Local Government and Road Authority requirements – oversize/over mass permits, route approvals, and curfews

Note: Oil-filled transformers may be classified as UN 3082 – Environmentally Hazardous Substance, Liquid, N.O.S., depending on the oil type and quantity. Classification is to be confirmed for each transformer.

6. Pre-Transport Requirements

6.1 Equipment Condition Verification

- Confirm transformers are free of visible leaks and structural defects.
 - Verify PCB status and obtain test certificate where applicable.
 - Check oil level, bushing protection, and that radiators and fittings are secured for transport.
 - Install transport bracing and protective covers as required by manufacturer.

6.2 Documentation

The following documents shall be prepared and available prior to transport:

- Consignment note / transport docket
- Safety Data Sheet (SDS) for the insulating oil
- Transport emergency response (TREM) card or equivalent
- Lifting plan and rigging schedule
- Oversize/overmass permits (if applicable)
- Route assessment and risk controls
- SWMS/JSA for loading, securing, and unloading
- Evidence of CoR and DG compliance for the transport contractor

6.3 Contractor Pre-Qualification

- Verify driver license class (HR/HC/MC) and DG license if required.
- Confirm contractor CoR management system and training.
- Review vehicle inspection and maintenance records.
- Confirm load restraint capability and rated anchor points.
- Verify fatigue management systems and driver scheduling.

7. Loading and Handling Controls

7.1 Lifting and Rigging

- Select cranes and rigging gear to suit transformer mass, dimensions, and center of gravity.
- Use only manufacturer-designated lifting points and follow lifting instructions.

- Establish and maintain exclusion zones around lifting operations.
- Conduct pre-lift meeting/toolbox talk to confirm roles, signals, and communication.

7.2 Load Restraint

- Comply with the Load Restraint Guide and any applicable local requirements.
- Use chains, dogs, binders, blocking and chocks suitable for the transformer mass and geometry.
- Confirm restraint is adequate for acceleration, braking, cornering and road conditions.
- Inspect and re-tension restraints after a short distance from departure and periodically during transit.

7.3 Fire and Spill Prevention

- Position drip trays or absorbent mats under oil-filled equipment during staging where practicable.
- Ensure spill kits are available at loading, staging, and unloading areas.
- Restrict hot works in the vicinity of transformers and oil storage.
- Keep appropriate fire extinguishers (e.g. foam or dry-chemical) readily accessible.

8. Transport Requirements

8.1 Vehicle Selection

- Use low-loader or float trailers that are rated for transformer mass and dimensions.
- Ensure certified tie-down and restraint points are available.
- Provide escort/pilot vehicles where required by permit or road authority.
- Verify ground clearance, turning radius, and height against route constraints.

8.2 Route Planning

- Select routes that avoid low-clearance bridges, steep grades and weight-restricted roads where possible.
- Consider local traffic conditions, curfews, and sensitive receptors (schools, hospitals, residential areas).
- Identify high-risk intersections, narrow sections, and structures in advance and plan controls.
- Document the approved route and any alternative routes.

8.3 Driver Requirements

- Comply with fatigue management requirements and drive/rest schedules.
- Conduct pre-departure walk-around inspection of vehicle and load.
- Re-check restraints at designated stops.
- Report any vehicle or load issues immediately to the Logistics Coordinator.

9. On-Site Receiving and Unloading

9.1 Site Preparation

- Establish traffic management and pedestrian segregation.
- Prepare crane pads and confirm ground-bearing capacity where cranes are used.
- Confirm that temporary staging and final transformer location are level and suitable.
- Ensure emergency spill response equipment is available at the unloading area.

9.2 Unloading Controls

- Conduct a pre-task briefing/toolbox talk with all personnel.
- Verify weather and wind conditions are within crane operating limits.
- Use tag lines where appropriate to control load swing.
- Maintain required clearances from overhead powerlines and other services.
- Inspect the transformer on arrival for damage or oil leaks and record findings.

9.3 Storage Requirements

- Place staged transformers on bunded hardstand or within a containment system where practicable.
- Protect from weather exposure where required by manufacturer.
- Apply lockout/tagout where transformers are not yet commissioned or energised.
- Maintain clear access for inspection and emergency response.

10. Environmental Protection

10.1 Spill Management

- Provide oil-specific spill kits at all loading, staging and unloading areas.
- Train relevant personnel in spill response and reporting.



- In the event of a spill, stop the source where safe to do so, contain the spill, and protect stormwater drains.
- Dispose of contaminated materials as regulated/hazardous waste via a licensed contractor.

10.2 Leak Detection

- Inspect staged transformers daily for signs of leakage.
- Record inspection results and report any leaks to the Project Manager and Environmental Manager.
- Implement corrective actions, including repair, containment or replacement of equipment as required.

11. Emergency Response

11.1 Key Scenarios

Key emergency scenarios include:

- Transport accidents involving the transformer
- Oil spill during loading, transport or unloading
- Fire involving transformer oil or vehicle
- Crane failure or dropped load
- Structural damage to the transformer or containment

11.2 Required Actions

In the event of an emergency:

1. Stop working immediately and secure the area.
2. Raise the alarm and notify the Site Supervisor and emergency services (000) where required.
3. Implement spill or fire response as per site procedures.
4. Protect stormwater and sensitive environmental receptors.
5. Record the incident and commence investigation in accordance with company IMS.
6. Do not re-commence work until authorised by the Site Supervisor/Project Manager.

11.3 Emergency Contacts

Emergency Services (Police/Fire/Ambulance): 000

Environmental Hotline:

Company WHS Manager:

Logistics Manager:

Site Supervisor:

12. Risk Assessment Summary

The following table summarises key logistics risks and controls for oil-filled transformers.

Hazard	Risk	Controls
Oil spill	Environmental contamination; slip hazard; fire risk	Bunded storage, spill kits, trained personnel, inspection regime, emergency spill procedure.
Load shift during transport	Load falling, vehicle rollover, injury/fatality	Engineered load restraint, certified anchor points, driver checks, route planning, speed management.
Fire involving transformer oil	Burns, smoke inhalation, asset damage	No ignition sources near staging, fire extinguishers available, emergency response plan, vehicle maintenance.
Crane failure/dropped load	Serious injury/fatality, equipment damage, spill	Competent crane operator and dog man, lift planning, exclusion zones, equipment inspection and certification.
Traffic accident	Injury/fatality, DG spill, property damage	Route selection, escort vehicles where required, fatigue management, driver

13. Monitoring and Reporting

- Pre-trip inspections and checklists shall be completed and retained.
- Deviations from planned routes or schedules shall be reported to the Logistics Coordinator.
- Incidents, near misses, and nonconformances shall be reported and investigated.
- Transport contractors shall be audited periodically for CoR, WHS and environmental performance.

14. Waste Management

- Oil-contaminated absorbents, soil and PPE shall be classified and managed as hazardous/regulated waste.
- Waste shall be stored, labelled and transported in accordance with regulatory requirements.
- Waste tracking documentation shall be completed and retained in line with legislative requirements.
- Waste minimisation opportunities shall be reviewed during project close-out.

15. Review and Continuous Improvement

This Logistics Management Plan shall be reviewed:

- At project completion
- Following any significant incident involving transformer logistics
- At least annually as part of the Integrated Management System review
- When relevant legislation, standards, or the ADG Code are updated

16. Risk Assessment Matrix

The following qualitative 5×5 risk assessment matrix may be used to assess logistics risks. Consequence is read across the top, likelihood down the side.

Likelihood / Consequence	Insignificant (1)	Minor (2)	Moderate (3)	Major (4)	Severe (5)
Rare (1)	L (1)	L (2)	L (3)	L (4)	M (5)
Unlikely (2)	L (2)	L (4)	M (6)	M (8)	H (10)
Possible (3)	L (3)	M (6)	M (9)	H (12)	H (15)
Likely (4)	L (4)	M (8)	H (12)	H (16)	E (20)
Almost Certain (5)	M (5)	H (10)	H (15)	E (20)	E (25)

Appendices

- Appendix A – Example Lifting Plan
- Appendix B – Transformer Oil SDS
- Appendix C – Route Assessment Map
- Appendix D – Spill Response Procedure
- Appendix E – Contractor CoR Compliance Checklist
- Appendix F – Pre-Transport Inspection Form
- Appendix G – Delivery Receipt Form