This HSE Procedures Manual defines our company's safety policy, organization, and high-level procedures. It serves as the central guide for how the company manages health, safety, and environmental risks, ensuring compliance with laws and standards (such as ISO 45001) while outlining roles, responsibilities, and the overall framework for safe operations

HSE MANAGEMENT MANUAL

Revision 4

April 01, 2023

1. Scope

This manual defines the Occupational Health & Safety Management System (OHSMS) for Cargolift Group and its affiliates involved in cargo handling, transportation, warehousing, and project logistics operations. It applies to all employees, contractors, and visitors.

2. Normative Reference

This system is aligned with the principles of OHSAS 18001 and general best practices for occupational health and safety management, though not intended for certification.

3. Terms and Definitions

OHSMS – Occupational Health & Safety Management System
Hazard – Source of potential harm
Risk – Likelihood and consequence of harm
Incident – Work-related event resulting in injury or potential injury

4. Context of the Organization

The company operates in freight movement including sea, land, and project cargo operations. Key risks include lifting operations, vehicle movement, cargo handling, and working at height.

5. Leadership and Commitment

The management demonstrates commitment by providing resources, enforcing safety policies, and ensuring accountability for safety performance.

6. OH&S Policy

The company is committed to:
- Providing a safe working environment
- Preventing injuries and ill health
- Complying with legal and other requirements
- Continual improvement of safety performance

7. Project-Specific Safety Protocol: Shipping & Transportation Operations

To ensure the safe and compliant execution of all shipping and transportation activities, a Project-Specific Safety Plan must be established prior to commencement. This plan outlines the unique hazards of the operation and defines the controls required to mitigate risk

8. Roles & Responsibilities

Clear assignment of safety duties ensures accountability.

- Transport Manager: Overall responsibility for compliance and resource allocation.
- Supervisor/Dispatcher: Conducts pre-trip briefings and verifies that equipment and personnel are fit for duty.
- Driver/Operator: Personally responsible for conducting pre-trip inspections, securing the load according to specifications, and adhering to all traffic laws.
- Loading Crew: Responsible for correct weight distribution and physical securing of the cargo.

9. Emergency Contacts

A single-page contact list must be in the cab of every vehicle and at the dispatch office, including:

- Internal: Project Manager, HSE Officer, Dispatch Supervisor.
- External: Local Emergency Services (Police/Ambulance), nearest hospital/trauma center.
- Specialized: Spill Response Contractor (if hauling HAZMAT) and roadside assistance provider.

10. Risk Mitigation Measures

Specific actions to address identified hazards:

- Route Hazards: For high-risk routes (e.g., mountainous terrain, urban density), a specific route survey is conducted to identify low bridges or sharp turns.
- Cargo Shift: Mitigation involves using the correct load distribution and friction materials (dunnage) to prevent movement.
- Breakdowns: Procedures for safe parking, warning device placement, and communication protocols to prevent secondary incidents.
- Weather: Implementation of stop-work authority if visibility or road conditions drop below acceptable thresholds.
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11. Method Statements

A Method Statement is a live document that details "how" a job will be done safely and efficiently. It must be specific to the operation, the equipment, and the location. The following procedures outline the key components for critical tasks.

Barge RORO (Roll-on/Roll-off) Operations

Objective: To define the sequence for safely loading or discharging wheeled cargo onto a barge via a ramp.

Procedure:

- Pre-Operation Checks: Verify barge stability (ballast), ramp angle and load capacity, and tidal/waterside conditions. Inspect the link-span or quay edge for gaps.
- Stepping Sequence: Detail the direction of traffic flow (loading vs. discharge). Specify the maximum speed limit on the barge (usually idle).
- Personnel Positioning: State that all personnel except the driver must be clear of the ramp and maneuvering area. Define the role of the banksman guiding the driver.
- Securing Handover: Once onboard, specify the procedure for handing the unit over to the lashing team, including setting the parking brake and chocking wheels before the driver dismounts.

Heavy Lift (Crane) Operations

Objective: To outline the controlled process of lifting abnormal or overweight items.

Procedure:

- Lift Plan Review: Reference the specific Lift Plan (including crane capacity chart, radius, and rigging configuration).
- Pre-Lift Brief: Mandate a Toolbox Talk with all personnel (crane operator, riggers, signal person) to confirm hand signals, lift zones, and communication methods. – *CON'T*

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- Rigging Attachment: Describe the step-by-step process of attaching certified slings/shackles to the load's designated lift points.
- Test Lift: Include a procedure for a "micro-lift" (lifting 10cm off the ground) to check balance, rigging tension, and brake function.
- Lift & Travel: Specify the path of the load, ensuring it remains clear of personnel and obstacles. Define the exclusion zone beneath the load.

Load Securing & Sea Fastening

Objective: To provide instructions for immobilizing cargo to withstand transit forces (sea or land).

Procedure:

- Material Selection: Specify the type of materials to be used (e.g., chain lashings, wire rope, welding of stoppers, dunnage) based on the calculated forces (wind, wave, motion).
- Installation Sequence:

Step 1: Place dunnage/mats to distribute point loads and prevent slippage.

Step 2: Weld or bolt steel stoppers to prevent longitudinal and transverse movement.

Step 3: Apply lashings at correct angles (preferably between 30-60 degrees). Detail the required tension and torque settings.

As-Built Check: After securing, a procedure for a final inspection and sign-off by a competent person (e.g., Chief Officer or Lashing Supervisor) must be completed before transit begins.

ODC (Over-Dimensional Cargo) Road Transport

Objective: To define the safe movement of cargo that exceeds standard legal size/weight limits.

Procedure:

- Permit Compliance: Attach or reference the specific route permit. Detail the permitted travel times (e.g., daytime only, avoiding peak hours).
- Configuration Setup: Instructions for setting up pilot/escort vehicles, including their positions (front/rear) and required lighting/signage (flags, "Wide Load" boards).
- Route Adherence: State that the driver must strictly follow the pre-planned route. Include instructions for handling specific obstacles identified in the Route Survey (e.g., how to navigate a specific roundabout or low bridge).
- Escort Communication: Define communication protocols (radio channels, hand signals) between the lead pilot, rear pilot, and driver.

Route Survey Execution

Objective: To outline the steps for physically verifying a transport route is passable.

Procedure:

- Desk Top Assessment: First, review maps and satellite imagery to identify potential obstacles (low bridges, weight-restricted bridges, sharp turns).
- Physical Survey: Detail the team and equipment needed (measuring tape, camera, height stick).
- Critical Measurement: Instruct the surveyor to physically measure all identified obstacles:
    - Height: Measure bridges and overhead cables.
    - Width: Check chicanes, toll booths, and street furniture.
    - Weight: Verify bridge weight limits with local authorities.

Documentation: The final step is to compile findings into a report, marking hazards on a map and noting any necessary mitigation (e.g., "remove traffic island bollards," or "close lane for wide turn").

13. HIRA (Hazard Identification and Risk Assessment)

Comprehensive hazard identification covering lifting, rigging, transport, marine operations, night work, and weather risks. Effective Hazard Identification is the foundation of all safety management. It involves proactively recognizing potential sources of harm before tasks begin. For shipping and transportation, hazards vary significantly between the deck, the quayside, and the road. Below is a breakdown of specific hazards associated with key operational areas.

Lifting Operations

Lifting hazards often result in struck-by or crushing injuries.

- Suspended Loads: The inherent risk of a load falling or swinging due to equipment failure, sudden movement, or snagging.
- Overloading: Exceeding the crane's Safe Working Load (SWL) or the capacity of the lifting gear, often due to incorrect weight calculations.
- Poor Visibility: The operator having obstructed views of the landing zone or personnel.
- Unstable Ground: Crane setup on uneven or soft ground leading to tipping.

Rigging Operations

Rigging hazards relate to the integrity of the gear and the security of the load.

- Sharp Edges: Cargo with sharp edges cutting into slings or webbing, causing failure under tension.
- Gear Failure: Use of damaged, kinked, or uncertified shackles, wires, or slings.
- Incorrect Angles: "Angle loading" on slings or shackles, which multiplies the tension force and can cause catastrophic failure.
- Hand Injuries: Pinch points during the connection and release of shackles, or during the adjustment of heavy rigging components.

Transport (Road & Yard)

Transport hazards focus on vehicle movement and load dynamics.

- Loss of Load: Cargo shifting or falling due to inadequate securing or incorrect weight distribution, creating road hazards or "jackknifing" risks.
- Vehicle Collision: Contact with infrastructure (low bridges, gantries), pedestrians, or other moving equipment, particularly in confined yards.
- Driver Error: Fatigue, distraction, or inexperience leading to loss of control.
- Reversing: Blind spots causing struck-by incidents with ground personnel.

Marine Operations (Barge & Ship)

Marine hazards involve the interface between the vessel, water, and shore.

- Vessel Motion: Unexpected barge movement (drift) or listing during loading/discharge due to tide changes or improper ballasting.
- Gap and Step: Tripping or falling between the vessel and the quay (gangway or ramp interface).
- Water Entry: Man-overboard situations, especially during night operations or in adverse weather.
- Stability: Compromised vessel stability during RORO operations or heavy lifts due to free surface effect or poor weight distribution.

Night Work Operations

Working in low light introduces and amplifies hazards.

- Reduced Visibility: Difficulty in identifying trip hazards, pinch points, or moving equipment. Obscured hand signals.
- Spatial Awareness: Loss of depth perception, making it hard to judge distances when guiding cranes or vehicles.
- Fatigue: Disruption to circadian rhythms leading to slower reaction times and increased error rates.
- Isolation: Reduced number of personnel available for immediate assistance in an emergency.

Weather Risks

Environmental conditions can halt operations or create new hazards.

- Wind: High winds cause suspended loads to swing uncontrollably (pendulum effect) and make vessel mooring/unmooring dangerous. Affects the stability of high-sided vehicles on the road (ODC loads).
- Rain/Fog: Reduces visibility for drivers and crane operators. Creates slippery surfaces on decks, ramps, and roads (increased stopping distance).
- Extreme Heat/Cold: Heat can cause driver fatigue and equipment overheating. Cold (ice/snow) creates slip hazards on decks and compromises vehicle traction.
- Lightning: Direct strike risk to crane operators and personnel on open decks or quaysides.

14. Permit to Work (PTW) Templates: Shipping & Transportation

A Permit to Work is a formal documented system used to control high-risk activities. It ensures that all hazards have been assessed, safety checks are complete, and authorized personnel are accountable before work begins. Below is a brief on the required templates.

Lifting Permit

Purpose: To control all non-routine or critical lifting operations, particularly those involving heavy loads, restricted areas, or multiple cranes.

Template Includes:

- Lift Details: Crane ID, SWL, actual load weight, lift radius, and configuration (e.g., main boom vs. fly jib).
- Equipment Check: Certification status of crane, slings, shackles, and spreader bars.
- Environment: Confirmation of ground stability, wind speed limits, and proximity to overhead power lines or obstructions.
- Personnel: List of competent operator, riggers, and signal person.
- Exclusion Zone: Diagram or description of the barricaded area.
- Sign-off: Authorizing signatures from the Lift Supervisor and HSE representative.

Hot Work Permit
Purpose: To prevent fires and explosions during activities that generate heat, sparks, or flame (e.g., welding, grinding, cutting) on vessels, barges, or in workshops.
Template Includes:

- Location: Specific area where hot work will occur (e.g., "main deck, starboard side, frame 20").
- Fire Prevention: Inspection of the area to confirm combustibles are removed or covered with fire blankets.
- Fire Watch: Assignment of a dedicated fire watch personnel with a fire extinguisher rated for the specific work.
- Gas Testing: (If applicable) Confirmation of atmosphere testing for flammable gases, especially in marine environments near fuel tanks or in confined spaces.
- Duration: Specific start and expiry time for the permit.
- Post-Work Check: Space for fire watch to confirm no smoldering materials remain after work ceases.

Confined Space Permit
Purpose: To protect personnel entering areas with limited entry/exit, poor ventilation, or potential hazardous atmospheres (e.g., ballast tanks, cargo holds, void spaces).
Template Includes:

- Space Identification: Name and location of the confined space (e.g., "Port side ballast tank #3").
- Atmospheric Testing: Log of pre-entry tests for Oxygen content, Lower Explosive Limit (LEL), and toxic gases (H2S, CO). Must be signed by the competent person conducting the test.
- Isolation: Confirmation that the space is isolated from hazardous energy sources (Lock-out/Tag-out of pipelines, valves, or electrical sources).
- Ventilation: Requirement for continuous forced-air ventilation.
- Communication: Method of communication between the entrant and the stand-by attendant (e.g., radio protocol, tug line signals).
- Rescue: Specific rescue plan and equipment (tripod, winch, harness) must be in place and listed.

Marine Operation Permit
Purpose: To authorize and control complex marine evolutions that could affect vessel stability or safety, such as barge loading, heavy lifts afloat, or mooring operations.
Template Includes:

- Operational Scope: Description of the evolution (e.g., "Barge RORO loading of excavators").
- Stability & Ballasting: Verification of vessel stability calculations and the ballasting/de-ballasting sequence.
- Tidal & Weather: Specific limits for tidal window and weather conditions (wind speed, wave height) within which the operation is permitted.
- Mooring Plan: Diagram of mooring line configuration and verification of mooring line integrity.
- Watertight Integrity: Confirmation that all non-essential openings (hatches, doors) are secured.
- Communication: Clear designation of the Person-in-Charge (PIC) and communication protocols with the tug master (if applicable).

Night Transport Permit

Purpose: To authorize road transport movements during hours of darkness, recognizing the increased risks of reduced visibility and driver fatigue.

Template Includes:

- Vehicle & Driver: Registration number, driver's name, and confirmation that the driver has had adequate rest (Hours of Service compliance).
- Route Verification: Confirmation that the specific route has been surveyed and is deemed safe for night travel.
- Vehicle Lighting: Checklist verifying all headlights, taillights, markers, and reflective tape are clean and functional.
- Emergency Plan: Verification that the emergency contact list and communication device (satellite phone/radio) are onboard.
- Authorized Duration: Specific departure time and estimated arrival window. Any deviation beyond this window requires re-authorization.

15. Inspection Checklists: Shipping & Transportation Equipment

Regular and documented inspections are critical to preventing equipment failure. These checklists are designed to verify that machinery and gear are in safe working condition before and during operations.

Crane Inspection Checklist

Purpose: To verify the structural integrity and functional safety of mobile, crawler, or shipboard cranes before lifting operations.

Key Inspection Points:

- Wire Rope: Check for broken wires, kinks, bird-caging, corrosion, or reduction in diameter.
- Hooks & Block: Inspect for hook deformation (throat opening), cracks, and safety latch functionality. Check sheaves for wear and smooth rotation.
- Limit Switches: Test functionality of hook raise/lower limits, boom hoist limits, and slew/radius limit switches.
- Controls & Safety Devices: Verify operation of emergency stops, load moment indicators (LMI)/rated capacity indicators (RCI), and audible alarms.
- Structural Integrity: Inspect boom, turntable, and outriggers for cracks, bent members, or weld defects.
- Outriggers & Pads: Check for hydraulic leaks, pad condition, and secure locking mechanisms.

Rigging Gear Inspection Checklist

Purpose: To ensure all lifting accessories are free from defects that could cause failure under load.

Key Inspection Points:

- Slings (Wire/Web/Chain):
- Wire: Broken wires, corrosion, crushing, or heat damage.
- Web: Cuts, abrasion, UV damage (fading), stretched stitches, or chemical burns.
- Chain: Stretched links, nicks, gouges, or wear at bearing points.
- Shackles: Check for bent pins or bows, worn threads, and deformation.
- Verify pin can be screwed in fully by hand. CON'T

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- Eye Bolts & Lifting Lugs: Ensure they are not bent, cracked, or have damaged threads.
- Spreaders & Lifting Beams: Inspect welds, attachment points, and alignment.
- Certification & Tags: Verify that all gear has a valid and legible working load limit (WLL) tag and matches certification records.

Trailers & Axles Inspection Checklist
Purpose: To confirm the roadworthiness of trailers, focusing on structural components and safety systems for heavy transport.
Key Inspection Points:

- Chassis & Deck: Check for cracks in the main beams, cross members, and decking. Look for broken welds or bent sections.
- Suspension & Axles: Inspect airbags (for cuts/leaks), shock absorbers, axle alignment, and ride height. Check for oil leaks from hubs.
- Wheels & Tires: Verify tire pressure and tread depth. Inspect rims for cracks or damage. Check all lug nuts for correct torque and missing hardware.
- Braking System: Test air system for leaks, check glad hands condition, and verify brake pad thickness and adjuster function.
- Lighting & Reflectors: Ensure all brake lights, turn signals, clearance markers, and reflectors are clean and functional.
- Landing Gear: Check for bent legs, smooth operation of the crank handle, and pad condition.

Barges & Ballast Systems Inspection Checklist
Purpose: To verify the watertight integrity and stability systems of barges prior to and during cargo operations.
Key Inspection Points:

- Hull Integrity: Inspect for visible holes, cracks, or significant corrosion on the exterior deck and hull sides (where accessible).
- Ballast System:
- Valves: Check for proper operation (open/close) and leaks.
- Pumps: Verify pump functionality and priming capability.
- Levels: Confirm manual or remote draft readings accurately reflect ballast tank levels.
- Watertight Hatches: Inspect hatch covers and gaskets for damage to ensure they close tightly and remain watertight.
- Spill Prevention: Check for oil or fuel sheen in bilge water. Verify deck scuppers are clear and plugged if required for pollution prevention
- Mooring Fittings: Inspect bitts, bollards, and fairleads for cracks or excessive wear.

Lashing & Securing Inspection Checklist
Purpose: To confirm that cargo is restrained to withstand transit forces and that securing equipment is in good condition.
Key Inspection Points:

- Lashing Gear (Chains/Straps/Wire):
- Straps: Check for cuts, fraying, and intact stitching at tensioning points.
- Chains: Inspect for stretched links, damaged hooks, or binding in the binder/handle.
- Tensioners (Binders/Ratchets): Verify they are fully functional, not bent, and can achieve and maintain the required tension.
- Securing Points (D-rings/Lashing eyes): Check that attachment points on the trailer or deck are not cracked, bent, or pulled away from the substrate.
- Dunnage & Friction Mats: Ensure dunnage is placed correctly to distribute weight and prevent movement; check friction mats are clean and undamaged.
- Final Tension Check: Verify all lashings are tight, with no loose or dangling hardware, and that binder handles are secured to prevent accidental opening.

16. Forms & Records - Documentation & Reporting

To be effective, HSE procedures must be embedded into the daily workflow. This outlines how we will implement critical reporting and documentation practices to foster a proactive safety culture and ensure regulatory compliance in shipping and transportation.

Incident Report
Objective: To ensure all workplace injuries, illnesses, and equipment damage are formally documented, investigated, and rectified to prevent recurrence.
Implementation Strategy:

- Immediate Reporting: Establish a strict rule that any incident requiring first aid or resulting in asset damage must be reported to the supervisor within 1 hour.
- User-Friendly Format: Provide a standardized one-page form (digital or paper) in all vehicle cabs and offices that focuses on the "who, what, where, when, and how."
- Investigation Protocol: Define a matrix to determine the investigation level (e.g., Supervisor-led for minor, HSE Manager-led for Lost Time Injuries or significant asset damage).
- Close-out Loop: Mandate that the report is not closed until corrective actions (CAPAs) are assigned, completed, and verified for effectiveness.

Near Miss Report
Objective: To capture and learn from unsafe conditions or actions that could have caused an incident, allowing for proactive risk reduction.
Implementation Strategy:
Positive Reinforcement: Promote a "no fault, no blame" culture specifically for near-miss reporting to encourage open communication without fear of reprisal. CON'T

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- Simplified Process: Use a simplified form (or even a QR code linked to a digital form) that takes less than 2 minutes to complete, focusing on location, hazard description, and immediate corrective action taken.
- Trend Analysis: Review near-miss data monthly in the Transport/HSE meeting to identify patterns (e.g., "three near-misses this month regarding forklift pedestrian traffic") and implement site-wide fixes.
- Visibility: Post anonymized "Near Miss of the Week" examples during toolbox talks to share lessons learned.

Toolbox Talk Record

Objective: To document that short, focused safety briefings were delivered to the workforce prior to the start of a shift or specific high-risk task.

Implementation Strategy:

- Scheduled Topics: Distribute a monthly safety calendar with pre-set topics relevant to upcoming work (e.g., "Monsoon Driving" in rainy months, "Heat Stress" in summer).
- Attendance Sheet: Use a standardized sign-in sheet for each talk. This serves as proof of training and communication.
- Two-Way Communication: The record should include a section for "Worker Feedback/Questions" to confirm it was a discussion, not just a lecture.
- Digital Library: Maintain a central folder (physical or cloud-based) where all signed records are stored for audit purposes and future reference.

Daily Safety Checklist

Objective: To provide operators and crews with a standardized method to verify that their work area, vehicle, or equipment is safe to use at the start of each shift.

Implementation Strategy:

- Role-Specific Design: Create different checklists for different roles (e.g., Driver Pre-Trip Checklist, Crane
- Operator Daily Checklist, Rigger Daily Gear Check).
- Pre-Work Requirement: Integrate the checklist into the dispatch process. The vehicle or equipment is not authorized to leave the yard or start work until the completed checklist is presented to the supervisor.
- Defect Reporting: Include a mandatory field for "Defects Found" with clear instructions on tagging the item "Out of Service" and who to notify.
- Spot Checks: Supervisors will randomly perform spot checks (e.g., 1 in every 10 checklists) to verify the quality of the inspection matches the paperwork.

Equipment Inspection Log

Objective: To maintain a comprehensive history of all periodic inspections (weekly, monthly, quarterly) for critical lifting gear, vehicles, and marine assets.

Implementation Strategy:

Unique Asset ID: Assign a unique ID number to every piece of critical equipment (e.g., crane #C-01, sling #S-102, trailer #T-45) and affix it physically. Master Register: Maintain a master log (spreadsheet or CMMS) that tracks:

- Due dates for statutory inspections (e.g., LOLER, thorough exams).
- Due dates for routine maintenance.
- Certification status and expiry.
- Colored Tagging System: Use a visual system (e.g., Green/Yellow/Red tags) on equipment to indicate "Pass/Inspection Due/Out of Service" at a glance.
- Audit Trail: Ensure the log requires the inspector's signature and captures the date of the next scheduled inspection, creating a clear audit trail for compliance.

17. Emergency Response Plan

Effective emergency response relies on preparation, not reaction. The following procedures outline how we will implement structured responses to high-consequence events in shipping and transportation, ensuring the safety of personnel and minimization of asset damage.

Crane Failure

Objective: To establish a clear protocol for safely shutting down operations and securing the area in the event of structural or mechanical crane failure.

Implementation Strategy:

- Immediate Action: Train operators and ground crews to recognize failure signs (hydraulic leaks, unusual noises, structural sagging). The operator's primary duty is to stop all movement, lower the load (if safely possible), and shut down the engine.
- Exclusion Zone: Implement an immediate expansion of the danger zone. All non-essential personnel must evacuate to a minimum radius of 50 meters (or 1.5x the boom length) from the crane.
- Competent Inspection: Post-incident, the crane must be isolated with "Out of Service" tags and locks. Only a qualified mechanical engineer or third-party inspector is authorized to conduct a forensic examination to determine the cause.
- Reporting: The incident must be reported immediately to the Project Manager and HSE Director, followed by a formal Incident Report within 24 hours.

Load Drop

Objective: To protect personnel from secondary hazards and secure the scene immediately following a dropped load during lifting operations.

Implementation Strategy:

- Emergency Shout: The signal person or nearest observer must give a verbal warning ("DROP! DROP! DROP!") and the emergency stop signal to the crane operator to prevent any further movement.
- Scene Safety & Evacuation: All personnel must evacuate the immediate impact zone. The area must be cordoned off to prevent unauthorized access, as loads may be unstable and rigging may fail further.
- Search and Rescue: A headcount must be conducted immediately to account for all personnel who were in the vicinity. If anyone is trapped, the Emergency Response Team must be activated, and heavy lifting equipment may be needed for rescue—untrained personnel must not attempt manual recovery.
- Preserve Evidence: Once casualties are clear, the scene must be preserved for investigation. Photographs must be taken before any recovery of the load begins.

Barge Instability

Objective: To prevent capsize or sinking by taking immediate corrective action when a barge lists beyond safe parameters.

Implementation Strategy:

- List Alarm/Trigger: Define a critical list angle (e.g., 5 degrees) that triggers an immediate "Stop Work" authority. All loading/discharge operations must cease instantly.
- Ballast Correction: The Barge Master or competent person must immediately assess the ballast control panel. Attempts to correct the list via counter-ballasting must be done slowly and deliberately, monitoring the effect in real-time.
- Evacuation Protocol: If the list continues to increase beyond 10 degrees, or if water ingress is observed, a "General Alarm" (one long blast) will be sounded. All non-essential personnel must evacuate via the gangway to the quay. Personnel must muster at the designated shore-side assembly point.
- Tug Assistance: If moored, standby tugs (if available) must be placed on immediate alert to push against the barge or hold it against the quay.

Fire Incident

Objective: To ensure rapid response, containment, and evacuation in the event of fire on vessels, vehicles, or in workshops.

Implementation Strategy:

- Immediate Response (R.A.C.E.):
- Remove: Remove anyone in immediate danger.
- Alert: Raise the alarm and call the emergency services/internal fire team.
- Contain: Close doors, hatches, and shut down ventilation systems if safe to do so.
- Extinguish/Evacuate: Attempt extinguishment only if the fire is incipient (small) and the correct extinguisher is available. Otherwise, evacuate immediately.
- Fuel/Power Isolation: For vehicle or equipment fires, the driver/operator must shut down the engine and, if possible, disconnect batteries.
- Muster & Headcount: All personnel must proceed to the designated Muster Point. A headcount is mandatory, and missing persons must be reported to the Incident Commander immediately.
- Coordination: The senior person on site will liaise with emergency services upon arrival, providing details on hazards (fuel types, batteries, dangerous goods).

Medical Evacuation (Medevac)

Objective: To provide rapid stabilization and transport of an injured or ill person to appropriate medical care.

Implementation Strategy:

First Aid: The closest certified First Aider must assess the casualty and provide immediate life-saving support (ABCs - Airway, Breathing, Circulation) without moving the patient unnecessarily (especially in spinal injury cases).

Communication: The site supervisor must contact the pre-identified emergency medical provider and local ambulance services, providing a clear "MIST" report:

- Mechanism of injury
- Injuries sustained
- Signs and symptoms (vitals)
- Treatment given so far
- Access & Evacuation: If the casualty is on a vessel or remote site, coordinate with marine control or aviation services for extraction. Designate a "Landing Zone" officer if a helicopter is involved, to clear the area of debris and personnel.
- Support: Assign a specific person to accompany the casualty to the hospital (if possible) and to notify the family.

Spill Response
Objective: To contain and clean up hazardous material spills to prevent environmental damage and ensure personnel safety.
Implementation Strategy:

- Initial Assessment: Identify the spilled material (if safe), the source, and the potential direction of spread (towards water drains, soil, or water bodies). Evacuate non-essential personnel from the area.
- Source Control: The first priority is to stop the flow. This may involve uprighting a drum, closing a valve, or patching a leak using the materials in the nearest Spill Kit.
- Containment: Deploy booms, socks, and absorbent pads from strategically located Spill Kits to surround the spill and prevent it from reaching drains or water.
- Notification: Immediately notify the HSE Manager and local environmental authorities as required by law (depending on the material and volume). Do not attempt to clean hazardous chemical spills without appropriate PPE and training.
- Cleanup & Disposal: Recover absorbed material using appropriate tools. All contaminated debris (pads, soil, PPE) must be disposed of as hazardous waste in sealed, labeled drums.

18.Training Matrix

A safe operation is only as strong as the competence of its people. Implementing a robust competency management system ensures that all personnel possess the required skills, knowledge, and certifications to perform their roles safely and effectively. The following defines the minimum requirements for each critical role.

Lifting Supervisor
Role Definition: The individual responsible for planning, supervising, and controlling the entire lifting operation.
Required Competencies:

- Certification: Holds a valid Lifting Supervisor certification from a recognized body (e.g., OPITO, NCCCO, or local statutory authority).
- Technical Knowledge: Proficient in calculating load weights, determining crane radius, selecting appropriate rigging gear, and understanding crane load charts.
- Risk Assessment: Demonstrated ability to conduct site-specific risk assessments and develop Method Statements (RAMS).
- Communication: Fluent in the common language of the crew and proficient in standard hand signals and radio communication protocols.
- Experience: Minimum of 2-3 years of practical experience in rigging or crane operations prior to supervisory role.

Rigger & Signalman

Role Definition: Personnel responsible for attaching/detaching loads and directing the crane operator during lifts.

Required Competencies:

- Certification: Holds a valid Rigging and Signalman certification (Basic / Intermediate / Advanced as per industry standards).
- Slinging Techniques: Knowledge of different hitch types (choker, basket, direct) and correct angle loading principles.
- Gear Inspection: Ability to visually inspect slings, shackles, and hooks for damage and confirm they are within certification date.
- Hand Signals: Mastery of standard hand signals and voice/radio communication protocols.
- Physical Fitness: Medically fit to work at heights (if required) and capable of handling rigging equipment.

Crane Operator

Role Definition: The person responsible for the safe and controlled operation of the crane.

Required Competencies:

- Certification: Holds a valid Crane Operator license/ticket specific to the type of crane being operated (Mobile, Crawler, Tower, or Overhead).
- Load Chart Interpretation: Must be able to read and understand the crane's load chart, including deductions for hook block, slings, and boom angle.
- Pre-Use Inspection: Competent in performing daily pre-operational checks (wire rope, limit switches, fluid levels, LMI/ RCI calibration).
- Spatial Awareness: Ability to operate in complex environments with obstacles and limited visibility, relying on signalman instructions.
- Emergency Procedures: Trained in emergency stop protocols, load lowering procedures in case of power failure, and emergency evacuation.

Forklift Operator

Role Definition: Operator responsible for loading, unloading, and moving cargo using forklifts or material handling equipment.

Required Competencies:

- Certification: Holds a valid Forklift Operator license for the specific type (Counterbalance, Reach, Rough Terrain) being used.
- Load Stability: Understanding of load center, weight limits, and stability triangle to prevent tipping.
- Traffic Management: Knowledge of site-specific traffic rules, speed limits, and right-of-way protocols, especially in pedestrian-heavy areas.
- Pre-Use Checks: Ability to conduct daily checks on tires, forks, mast chains, horn, and brakes.
- Safe Stacking: Competence in safe stacking heights and proper placement of loads on trailers or in storage yards.

Drivers (ODC Certified - Over-Dimensional Cargo)
Role Definition: Drivers qualified to transport cargo that exceeds standard legal dimensions (width, height, length, or weight).
Required Competencies:

- License: Holds a valid professional driving license (e.g., Class 1/ HGV/ CDL) with appropriate endorsements.
- ODC Certification: Successfully completed specialized training in Over-Dimensional Cargo transport, including permit compliance and escort vehicle communication.
- Route Adherence: Ability to strictly follow pre-surveyed routes and interpret route survey reports, recognizing low bridges, weight limits, and sharp turns.
- Load Securing: Competent in inspecting and maintaining tension on lashings during transit, understanding the principles of load distribution.
- Defensive Driving: Advanced defensive driving techniques, particularly for maneuvering oversized loads in traffic or confined areas.

Marine Crew Safety
Role Definition: Personnel working on barges, tugs, or ships, responsible for vessel safety and supporting marine operations.
Required Competencies:
STCW Certification: All marine crew must hold STCW (Standards of Training, Certification, and Watchkeeping) basic safety training, including:

- Personal Survival Techniques
- Fire Prevention and Fire Fighting
- Elementary First Aid
- Personal Safety and Social Responsibility
- Vessel Specific: Familiarity with the specific vessel's layout, ballast system, mooring winches, and emergency equipment locations.
- Mooring & Unmooring: Competence in handling mooring lines safely, using proper techniques to avoid snap-back zones and pinch points.
- Water Survival: Confidence in donning life jackets and deploying life rafts. Understanding of man-overboard recovery procedures.
- Stability Awareness: Basic understanding of vessel stability, free surface effect, and the importance of watertight integrity during loading.

Implementation Strategy

- To embed these competencies into the HSE procedure:
- Training Matrix: Maintain a master matrix tracking each employee's name, role, certification type, issue date, and expiry date.
- Pre-Employment Verification: Verify all original certificates and conduct practical assessments before assigning personnel to tasks.
- Induction & Orientation: Brief all new hires on site-specific rules and verify their competencies align with the required role.
- Refresher Training: Schedule mandatory refresher training and re-certification before expiry dates.
- Daily Verification: Supervisors must verify that the person assigned to a task holds the valid competency for that specific equipment (e.g., "Operator A is certified on Crane X").

Implementation of Internal Audit Checklist: OHSAS Alignment & Client Expectations

An internal audit is a systematic, independent examination of our HSE management system to verify that activities and results conform to planned arrangements. To be effective, the audit checklist must bridge the gap between international standards (OHSAS/ISO 45001) and the specific contractual requirements of y clients.

Objective & Scope

Objective: To ensure the HSE management system is effectively implemented, maintains compliance with OHSAS/ISO 45001 principles, and demonstrates due diligence to clients.

Scope: The audit will cover all operational areas (workshops, yards, vessels, vehicles) and supporting documentation (policies, risk assessments, training records, maintenance logs).

19. Audit & Compliance

Checklist Structure: Aligning OHSAS Principles with Client Expectations

The internal audit checklist will be divided into key clauses based on the ISO 45001 (formerly OHSAS 18001) framework. Each section will include specific questions that satisfy both the standard and typical client requirements.

Implementation Strategy

Step 1: Develop the Checklist

Create a master digital checklist (e.g., using Excel, SharePoint, or audit software) that incorporates the questions above. The checklist should include fields for:

- Audit Criteria: Reference to ISO Clause or Client Procedure.
- Findings: Conformance / Non-Conformance / Observation / Opportunity for Improvement.
- Evidence: Space to note document numbers, photos, or witness statements.
- Grading: Define severity (e.g., Major, Minor, Observation). CON'T

Step 2: Schedule & Scope Definition

- Frequency: Conduct internal audits on a quarterly basis for high-risk activities (lifting, marine) and bi-annually for administrative functions.
- Themed Audits: Occasionally conduct audits focused on specific client concerns, such as "ODC Transport Compliance" or "Barge Ballast System Integrity."

Step 3: Competent Auditors

- Assign auditors who are trained in ISO 45001 lead auditor techniques and have operational experience.
- For client-facing audits, consider using a "joint audit" format where your internal auditor and the client's HSE representative walk the site together.

Step 4: Reporting & Corrective Action

- Report Format: Within 5 days of the audit, issue a formal report summarizing:
- Strengths: What is working well (positive feedback for the team).
- Non-Conformances: Specific gaps with reference to the violated standard/procedure.
- Observations: Potential future risks or recommendations.
- Action Plan: Log all non-conformances into a tracking system with assigned owners and due dates
- Use the "Plan-Do-Check-Act" (PDCA) cycle to close them out.

Step 5: Management Review

Present a summary of audit findings (trends, recurring issues, closure rates) to top management quarterly which complies to ISO requirements and demonstrates to clients that our leadership is engaged in safety performance.

ISO 45001 Principle	Internal Audit Checklist Questions	Client Expectation Addressed
Context & Leadership (Clauses 4 & 5)	- Is the HSE Policy signed by top management and communicated? - Are client-specific HSE requirements (Project HSE Plans) reviewed and incorporated?	Evidence that management is committed to safety and that client rules are acknowledged and embedded.
Planning (Clause 6)	- Is there an up-to-date Risk Register covering all operations (lifting, transport, marine) -Have legal and regulatory requirements (permits, road transport laws) been identified and complied with?	Proactive hazard management and proof of legal compliance to protect the client from liability.
Support (Clause 7)	- Is there a Training Matrix? Verify records for Lifting Supervisors, Riggers, Drivers (ODC), and Marine Crew. '- Are communication protocols (Toolbox Talks, HSE meetings) being followed?	Assurance that only competent personnel are working on their site or project.
Operation (Clause 8)	- Are Method Statements and Risk Assessments (RAMS) available at the work site? - Verify a sample of Permits to Work (Lifting, Hot Work, Confined Space). - Conduct a physical inspection of lifting gear, vehicles, and barges against inspection logs. - Observe a live operation (e.g., crane lift) to verify adherence to procedures.	Visible proof that work is being executed as promised in the tender or contract.
Evaluation (Clause 9)	- Are inspections (Daily, Weekly, Monthly) being completed and filed? - Are incident and near-miss reports closed out with corrective actions? - Are previous audit findings resolved?	A functioning safety culture that learns from mistakes and continuously improves.
Improvement (Clause 10)	- Is there a process for management review of HSE performance? - Are lessons learned from incidents shared across the fleet or project sites?	A mature system that reduces the risk of repeat incidents on client projects.

20. Continuous Improvement

Continuous Improvement Process: Corrective Actions, Lessons Learned & Performance Tracking
A Continuous Improvement Process ensures that the HSE management system evolves based on real-world experience. It transforms data (incidents, audits, observations) into action, preventing recurrence and fostering a mature safety culture. This process follows the Plan-Do-Check-Act (PDCA) model.

Corrective Actions (Closing the Loop)

Objective: To permanently fix identified gaps and prevent the recurrence of incidents or non - conformances.

Implementation Strategy:

- Root Cause Analysis (RCA): For every significant incident or recurring non-conformance, mandate an RCA (e.g., 5-Whys, Fishbone Diagram) to identify the systemic cause, not just the immediate error.
- Action Register: Maintain a master log (digital or spreadsheet) tracking all corrective and preventive actions (CAPAs). Fields must include:
- Description of finding/non-conformance.
- Root cause summary.
- Assigned owner and due date.
- Status (Open / In Progress / Closed / Verified).
- Verification: The action is not "closed" until the HSE team or supervisor has physically verified that the fix has been implemented and is effective. This could be a spot-check or a document review.
- Escalation: Define a process for escalating overdue actions to department managers or senior leadership to ensure accountability.

Lessons Learned (Sharing Knowledge)

Objective: To disseminate knowledge gained from incidents, near-misses, and audits across the entire organization to prevent similar events elsewhere.

Implementation Strategy:

- Lesson Learned Register: Create a centralized repository (shared drive, intranet, or notice board) for "Lesson Learned" summaries. These are one-page briefs that are anonymous but describe:
- What happened? (Brief scenario)
- What was the root cause?
- What did we change? (The corrective action)
- What can you learn? (Key takeaway for other teams)
- Communication Channels:
- Safety Alerts: For high-severity lessons, issue a formal "Safety Flash" or "Alert" within 24-48 hours to all relevant project sites and vessel masters.
- Toolbox Talks: Integrate relevant lessons learned into weekly toolbox talk topics.
- Quarterly Reviews: Dedicate a segment of the quarterly HSE review meeting to discuss recent lessons learned across the fleet or project sites.
- Close the Loop: Confirm that the lesson was received and understood by requiring a sign-off or a brief discussion record from each team.

Safety Performance Tracking (Leading & Lagging Indicators)

Objective: To measure the effectiveness of the HSE system using objective data, allowing management to make informed decisions.

Implementation Strategy:

- Define Indicators: Track a balance of both Lagging and Leading indicators.
- Lagging (Reactive): Measure what has already happened.
- Total Recordable Incident Rate (TRIR)
- Lost Time Injury Frequency (LTIF)
- Number of vehicle accidents
- Number of spills
- Leading (Proactive): Measure what you are doing to prevent incidents.
- Number of near-miss reports submitted (target: increasing)
- Percentage of completed corrective actions (on-time closure rate)
- Number of safety inspections/audits conducted
- Number of safety training hours completed
- Dashboards & Reporting: Create a simple visual dashboard (updated monthly) that shows performance against targets.
- Use:Green/Yellow/Red status indicators.
- Graphs showing trends over time (e.g., "Near Misses by Month").
- Management Review: Present this dashboard to management quarterly. The review should answer:
    - "Are we getting better or worse?"
    - "Where are our weak spots?" (e.g., a spike in lifting incidents)
    - "Do we need to reallocate resources?" (e.g., more training on rigging)

Summary: The Continuous Improvement Cycle

1. Identify: Find a gap (incident, audit finding, near-miss).
2. Analyze: Find the root cause.
3. Act: Implement a corrective action.
4. Share: Communicate the lesson learned to others.
5. Track: Monitor performance indicators to see if the fix worked.
6. Review: Management checks progress and adjusts the plan as needed.

This process ensures that the organization does not just react to problems but systematically builds a safer and more efficient operation over time.

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