



DROPS

DROPPED OBJECTS
PREVENTION SCHEME

Recommended Guidelines Pre-task DROPS Assessments, Checks and Precautions

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1 INTRODUCTION

All installations and facilities should adequately identify and assess the potential for dropped objects, and implement effective preventive and mitigating control measures through a formal Dropped Object Management System.

Although the Dropped Object Management System is the primary tool in preventing dropped objects, there is also a fundamental requirement that all personnel remain vigilant and considerate of dropped object hazards before, during and after every task performed.

These guidelines detail some important considerations, precautions, checks and procedures. They are not exhaustive and should be supplemented with additional checks and processes specific to the individual location, task and environment.

2 STATIC AND DYNAMIC DROPPED OBJECTS

There are two types of dropped objects; static and dynamic; and their classification is defined as follows:

- Static – any object that falls from its previous static position under its own weight.
- Dynamic – any object that falls from its previous static position due to applied force from equipment/machinery or moving object.

Static and dynamic dropped objects demand differing approaches in respect of their preventive controls and mitigating measures. Tables 1 and 2 present the common measures and controls for each type with reference to relevant procedures / guidance.



STATIC DROPPED OBJECTS
Preventive Controls
Preventive Maintenance Tasks (ref DROPS Best Practice) Calendar-based Dropped Objects Inspections (ref DROPS Best Practice) Primary Fixing and Secondary Retention Devices (ref DROPS Reliable Securing Booklet) Independent Dropped Object Surveys (ref DROPS Best Practice) Dropped Object Inspection (Picture) Books (ref DROPS Best Practice)
Mitigating Measures
Safety Securing (ref DROPS Reliable Securing Booklet) Effective Use of Barriers (ref DROPS Best Practice) Restricted Access Areas (ref DROPS Guidelines for Restricted Access Areas)

Table 1 Static Dropped Objects - Preventive Controls and Mitigating Measures



DYNAMIC DROPPED OBJECTS
Preventive Controls
Individual Awareness Effective Task Planning (incl Lift Plans) Collision Checklists Pre-task Assessment and Checks (ref DROPS Prompt Card) Observation and Vigilance (ref DROPS Training and Hazard Hunts) Management of Change Time Out For Safety (TOFS) Management of Distractions Tools Aloft Log Book (ref DROPS Guidelines for Tools at Height) Subcontractor Equipment Inspections
Mitigating Measures
Individual Awareness Use of Approved Tools for Working at Height (ref DROPS Guidelines for Tools at Height)) PA Announcements / Warnings (eg overhead operations, crane operations, work in derrick, etc) Effective Use of Barriers (ref DROPS Campaign Workpack) Restricted Access Areas (ref DROPS Guidelines for Restricted Access Areas)

Table 2 Dynamic Dropped Objects - Preventive Controls and Mitigating Measures

In the case of static dropped objects, it is clear that a Dropped Objects Management System is the most effective preventive tool. Over recent years, most organizations have now implemented some form of Dropped Objects Management System and this has resulted in a significant reduction in static dropped objects throughout the Oil & Gas and Marine Industries.

However, with dynamic dropped objects, we have not witnessed the same decline in frequency. This is because the preventive controls and mitigation measures for dynamic dropped objects are far more behaviour-based. They rely on the individual vigilance, caution, planning and awareness of each of us.

3 TASK PLANNING

For all tasks, routine or otherwise, a plan should be developed with appropriate assessment of the risk of potential dropped objects and other hazards. The plan should identify all potential dropped objects and implement preventive and mitigating controls to prevent their occurrence.



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The plan should provide for continuous observation and monitoring of the task, as well as 'Time Out for Safety' (planned or unplanned).

While undertaking the task, changes must be monitored, evaluated and appropriately responded to. This may require revision of the plan or development of a new plan, but in all cases work should be suspended if the task cannot be safely continued.

4 BEFORE STARTING WORK

Before commencing any task and even with the task plan in place (see Task Planning), it is important to consider the potential for dropped objects:

- Consider the environment where you will perform the task and any other activities that may be going on around you.
- Review any Lift Plan or Collision Checklist, as appropriate.
- Visually inspect the work area for loose items and debris. Check the equipment and structures in the work area to ensure that any fasteners, bolting, covers etc are properly secured.
- Check that secondary retention is in place for all items secured above the work area, eg lighting, PA equipment etc.

See Appendix 1 – DROPS Pre-task Checklist.

5 WORKING AT HEIGHT

When working at height, the potential for dropped objects is greater and continuous vigilance is critical:

- Use only tools and equipment approved for work at height, including the appropriate lanyards and toolbags, and always log tools in and out on the tool register.
- Set up barriers beneath the work area and ensure the extent of the barriered zone is appropriate to the work height, with due consideration of the potential deflection or 'bounce' of a dropped object.
- Check grating is secure and use mats where there is the potential for small items to fall through grating.
- Where a scaffolding platform is employed, ensure toe-boards are installed.
- Remain vigilant of other activities going on around you and below you.



6 TASKS INVOLVING LOADING OR LIFTING

Where the task involves loading or lifting, a Lifting Plan may be necessary as part of the pre-task planning process and additional checks will be required:

- Ensure the lifting equipment, carrier or packaging is appropriate for the task and in good order.
- Ensure containerized loads are properly stacked, stored and secured.
- Check tubulars for items left inside and employ cap ends, where practicable.
- Check tops of containers and fork lift pockets for loose items and debris.

For tasks involving packing and handling of cargo, refer to Appendix 5 – Example Packing and Handling Checklist.

7 TASK COMPLETION

On completion of the task, it is essential to leave the worksite safe and tidy:

- Clear all scrap, debris and loose items from the worksite.
- Return all tools and complete the Tools Aloft Log.
- Remove all temporary barriers and signage.
- Note and communicate any lessons learned in undertaking the task.

8 LIFT PLANS

Prior to any lifting operation, it is essential that certain precautions are taken. For routine lifts, these precautions are detailed in our documented procedures, but for all non-routine activities, a Lifting Plan and an associated risk assessment must be developed. See Appendix 4.

As well as assuring that all personnel involved in the lift are clearly aware of the operation and their roles / responsibilities, these procedures and Lift Plans ensure that:

- Checks are always carried out in accordance with industry standards
- Lifting equipment is certified for current use
- Restrictions and fastenings are removed
- Effective communication systems are in place
- There is adequate light and space to undertake the activity.



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A toolbox talk must always be held before any lifting operation to discuss the task in detail and identify all potential hazards and mitigate the risks, including the potential for dropped objects.

9 COLLISION CHECKLISTS

Collision checklists are recommended for installations and facilities with cranes, derricks, towers or tall structures housing moving equipment. For a typical drilling rig or offshore installation, it is recommended that a Crane Operator's Collision Checklist is developed for each crane along with a Driller's Collision Checklist. See Appendices 2 and 3 for examples.

The Collision Checklist is effectively a prompt card for the equipment operator to review before undertaking a task. It highlights all possible obstructions that may result in a dynamic dropped object if there were a collision.

For cranes, the Collision Checklist should identify any equipment that a load could collide with during a lifting operation. The checklist may be organized by boom angles and it must be readily available at the crane controls.

For Drilling, the Collision Checklist should include any equipment that may obstruct the path of the blocks and any equipment suspended from the blocks. This includes equipment that is normally out of the path, but may be moved into a position where a collision may occur. The Driller's Collision Checklist must be readily available at the Driller's and Assistant Driller's controls.



**APPENDIX 1
DROPS PRE-TASK CHECKLIST**

BEFORE YOU START ANY TASK, CONSIDER THE POTENTIAL FOR DROPPED OBJECTS:

Even if your task is not at height, consider the environment where you will perform the task and any other activities that may be going on around you.

Before work commences, visually inspect the work area for loose items and debris

Check the equipment and structures in the work area to ensure that any fasteners, bolting, covers etc are properly secured.

Check that secondary retention is in place for all items secured above the work area, eg lighting, PA equipment etc

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WHEN WORKING AT HEIGHT:

Use only tools and equipment approved for work at height, including the appropriate lanyards and toolbags, and always log tools in and out on the tool register

Set up barriers beneath the work area and ensure the extent of the barriered zone is appropriate to the work height

Check that grating is secure and use mats where there is the potential for small items to fall through grating

Where a scaffolding platform is employed, ensure toeboards are installed.

Remain vigilant of other activities going on around you and below you

WHERE THE TASK INVOLVES LOADING OR LIFTING:

Ensure the lifting equipment, carrier or packaging is appropriate for the task and in good order.

Ensure containerised loads are properly stacked, stored and secured

Check tubulars for items left inside and employ cap ends where practicable

Check tops of containers and fork lift pockets for loose items and debris

WHEN WORK IS COMPLETE:

Clear all scrap, debris and loose items from the worksite and return all tools, before removing barriers



APPENDIX 2
EXAMPLE DRILLER'S COLLISION CHECKLIST

Driller's Collision Checklist	
<input type="checkbox"/>	Crown (Crown Saver)
<input type="checkbox"/>	Upper PRS Racking Arms (forward)
<input type="checkbox"/>	Upper PRS Racking Arms (aft)
<input type="checkbox"/>	Monkeyboard
<input type="checkbox"/>	Casing Stabbing Board
<input type="checkbox"/>	Racking Board Fingers
<input type="checkbox"/>	Casing Stabbing Arm
<input type="checkbox"/>	Lower PRS Racking Arms (forward)
<input type="checkbox"/>	Lower PRS Racking Arms (aft)
<input type="checkbox"/>	Floor Mounted Manipulator Arm
<input type="checkbox"/>	Iron Roughneck
<input type="checkbox"/>	Rotary (Floor Saver)

IMPORTANT: The above checklist is an example only. It is imperative that a specific Driller's Collision Checklist is developed (through formal risk assessment) for each individual installation.



APPENDIX 3

EXAMPLE CRANE OPERATOR'S COLLISION CHECKLIST

Operator's Collision Check List	
Port Crane	
40 - 60 ft Radius	
<input type="checkbox"/>	Drill Floor Stairs
60 - 80 ft Radius	
<input type="checkbox"/>	Derrick
<input type="checkbox"/>	Gantry Crane
<input type="checkbox"/>	Port Flare Boom
80 - 125 ft Radius	
<input type="checkbox"/>	Derrick
<input type="checkbox"/>	Gantry Crane
<input type="checkbox"/>	Port Flare Boom
<input type="checkbox"/>	Catwalk
<input type="checkbox"/>	Aft Lifeboats
<input type="checkbox"/>	Accommodation Block
<input type="checkbox"/>	Accommodation Stairs
<input type="checkbox"/>	Communications Mast

IMPORTANT: The above checklist is an example only. It is imperative that a specific Crane Operator's Collision Checklist is developed (through formal risk assessment) for each individual crane.



**APPENDIX 4
EXAMPLE LIFT PLAN TEMPLATE**

LIFT PLAN Part 1 (To be completed by the Competent Person)		
Installation/Ship/Barge/Other:	Location (main deck, back deck, quayside etc):	
Permit to Work No:	Risk Assessment No:	Lift Plan Number:
Weight of Load, <u>Actual</u> or <u>Assessed</u> (delete as applicable):		
DESCRIPTION OF LIFTING OPERATION		
POSSIBLE CONSIDERATIONS (not exhaustive)		
<i>(Tick if relevant and address each point in 'Step-by-Step' section below)</i>		
<input type="checkbox"/> Weight not verified	<input type="checkbox"/> Lifting of chemicals	<input type="checkbox"/> Conflicting tasks in area
<input type="checkbox"/> High centre of gravity	<input type="checkbox"/> Load on pallet requires securing	<input type="checkbox"/> Dynamic factors involved
<input type="checkbox"/> Stability of load	<input type="checkbox"/> Seafastening removed	<input type="checkbox"/> Hazards to personnel in the area
<input type="checkbox"/> Awkward size/shape/sharp edges	<input type="checkbox"/> Restricted headroom or confined work area	<input type="checkbox"/> Communication requirements
<input type="checkbox"/> No dedicated lifting points on the load	<input type="checkbox"/> No lifting point directly above the load	<input type="checkbox"/> Adequate lighting and visibility
<input type="checkbox"/> No certified suspension points for the lifting equipment	<input type="checkbox"/> Appropriate and correctly installed lifting equipment and accessories	<input type="checkbox"/> Is the use of tag lines required? Then consider personnel positioning
ROUTE TO BE TRAVELLED AND LAYDOWN AREA		
<i>(If you can't answer either, address in the 'Step-by-Step' section)</i>		
1) Are the route and laydown area clear of obstructions?	YES	NA
2) Is the laydown/landing area adequate in terms of size and load-bearing ability?	<input type="checkbox"/>	<input type="checkbox"/>
3) Is suitable packing available for protection of the load, lifting equipment, slings etc?	<input type="checkbox"/>	<input type="checkbox"/>
4) Have barriers been positioned to prevent access by unauthorised personnel?	<input type="checkbox"/>	<input type="checkbox"/>
5) Have you confirmed that the laydown area is within the operating limits/radius of the equipment?	<input type="checkbox"/>	<input type="checkbox"/>
6) Have environmental conditions been considered with regards to the safety of the lifting operation?	<input type="checkbox"/>	<input type="checkbox"/>
7) Will the Lifting Equipment Operator be able to see the Banksman throughout the operation, or has another suitable, risk-assessed means of communication been checked and made available (eg radios)?	<input type="checkbox"/>	<input type="checkbox"/>
8) Are there hazardous process plant or materials in the area?	<input type="checkbox"/>	<input type="checkbox"/>
STEP-BY-STEP DETAILS OF THE LIFTING OPERATION		(Person Responsible)

Ship Change in Safety - Lifting and Mechanical Handling Guidelines - This form is available on the ShipChange in Safety Website: www.shipchangeinsafety.net



APPENDIX 5 EXAMPLE PACKING AND HANDLING CHECKLIST

BOXED / CONTAINER CARGO:

- Check suitability and integrity of box/palette/container.
- Check Forklift Pockets are clear of debris (rocks, gravel etc)
- Check top of load/container for unsecured items (left tools, wooden chocks etc)
- Check all horizontal ledges of load/container for unsecured items and debris (wood, litter, tools etc)
- Check all lids/covers are closed and secured
- Check all retaining covers/nets are in place and secure
- Check excessive ice and water has been cleared

OPEN FRAMED LIFTS

- Check in and around the structure/base of open framed lifts (left tools, plugs, litter etc)
- Check for protruding items that can be snagged/sheared (couplings, eyes etc).
- Check all valve caps/screw caps are closed and secured.
- Check all lids/covers are closed and secured
- Check all retaining covers/nets are in place and secure
- Check excessive ice and water has been cleared.

TUBULARS AND OTHER SPECIAL LOADS

- Check pipe bundles internally and remove debris (wooden pieces, litter, left tools etc).
- Check all end caps and thread protectors are securely fastene
- Check all lids/covers are closed and secured.
- Check all retaining covers/nets are in place and secure.
- Check all load bundles externally for unsecured items (left tools, wooden chocks etc)
- Check excessive ice and water has been cleared



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NOTES:

1. Additional checks to be carried out by truck drivers, crane operators, ships masters etc in accordance with industry standards to ensure all cargo freight is properly secured during transit.
2. Prior to carrying out any lifting operations, always refer to documented procedures for routine lifts or the lifting plan and associated risk assessment for non-routine activities.
3. Checks must always be carried out in accordance with industry standards to ensure all lifting equipment is certified for current use, restrictions and fastenings are removed, effective communication systems are in place and there is adequate light and space to undertake the activity.
4. A toolbox talk will be held before any lifting operation to discuss the task in detail and identify all potential hazards and mitigate the risks, including the potential for dropped objects controls.