

## INSTRUCTIONS FOR USING THE RISK ASSESSMENT FORM

1. Envisage the task in hand and identify the hazards associated with carrying out the task. These hazards are to be listed and addressed individually in the risk assessment form.
2. Once the hazard has been identified, based on the combination of the likelihood and severity/consequence of the hazard, the risk evaluation score is to be assigned using the risk evaluation matrix on the last page. For example, a hazard which has a likelihood of 'unlikely' and a severity/consequence of 'harmful', the risk evaluation score would be 4 (moderate risk).
3. With the determination of the risk evaluation score, using the recommended response table on the last page, appropriate action is to be planned and implemented.
4. Using the above example of a risk evaluation score of 4 (moderate risk), appropriate controls must be applied to the risk and these must be listed out accordingly in the form along with the person responsible of applying the control and the completion date.
5. Once the controls have been applied, the risk must be reassessed as a whole taking into account the applied controls and once again using the risk evaluation matrix on the last page, a residual score must be obtained.
6. If the residual risk on reassessment is 'Trivial' or 'Tolerable' (scores 1 and 2), then no additional controls are required and only effective monitoring of the task to ensure compliance with procedures is necessary.
7. However if the reassessment of the risk again is 'Moderate', 'Substantial' or 'Intolerable' and yields a score higher than 2, it implies that the applied controls are not sufficient to address the associated hazards and therefore do not bring the risk to a safe level. This would require additional controls to be applied and steps 4 and 5 to be followed once again.
8. This process would continue until the residual risk is eventually brought down to an acceptable level (scores 1 or 2).
9. Effective supervision of the task to be carried out is necessary to ensure that there are no unauthorised and unsafe diversions which could effectively change the entire risk assessment therefore making it inappropriate for the current task.

This form is for guidance purposes only and does not replace any company procedures or applicable statutory regulations.

VESSEL NAME:	ACTIVITY: Deck Mooring/Unmooring operation	PERSONNEL INVOLVED IN THE TASK: Master, Chief Officer, Deck Officers and Deck Crew
--------------	--	--

HAZARD CATEGORY	POTENTIAL HAZARDS IDENTIFIED	RISK EVALUATION SCORE (refer page 6)	POSSIBLE CONTROL MEASURES REQUIRED (including existing & proposed)	ACTION		RESIDUAL RISK SCORE (Refer page 2)
				PERSON RESPONSIBLE	DATE COMPLETED	
Crew injury	Crew injured by hitting / bumping head/body on obstructions or equipment on the mooring deck.	Likely (3) x Harmful (2) = 6 Substantial	<ul style="list-style-type: none"> <li>Crew to be suitably familiarised and trained in the safe use of mooring equipment and fittings.</li> <li>Work areas to be inspected prior commencement of operations – to be free of any unwanted / loose material.</li> <li>Adequate illumination to be provided; no dark areas or shadow sectors.</li> <li>All immovable obstructions to be highlighted by tiger stripes and/or signage.</li> <li>Adequate personal protective equipment (PPE) to be worn by the crew.</li> <li>All necessary equipment such as mooring ropes/wires, stoppers, heaving and messenger lines and tools for mooring such as the axe, knife, crowbar etc, to be laid out in such a manner that they do not constitute any tripping hazard.</li> <li>Adequate supervision provided of the operation.</li> <li>Prominent display of snap back zone signage at entry points to the mooring areas.</li> <li>Tool box meeting to be conducted with all relevant crew and the task discussed with the aid of a mooring arrangement plan where appropriate.</li> <li>Surfaces to have non-slip coating as appropriate.</li> </ul>	Chief Officer/Deck Officers/Deck Crew		Unlikely (2) x Slightly Harmful (1) = 2 Tolerable (example only)

Crew injury	Crew injury/fatality while handling mooring lines leading to abrasions, crushing/breaking of limbs, maiming or death	(To be assessed and completed)	<ul style="list-style-type: none"> <li>• Adequate crew to carry out the operation in a safe manner.</li> <li>• Adequate personal protective equipment (PPE) to be worn by the crew.</li> <li>• Constant supervision for proper co-ordination between the winch operator and the crew to prevent excessive tension on mooring lines or accidental operation of winches while the lines are being handled.</li> <li>• Briefing of the dangers associated with working in snap back zone areas including those of mooring ropes and stoppers such as standing within a bight etc.</li> <li>• Mooring ropes and wires to be properly inspected, maintained and replaced as appropriate to reduce the possibility of the lines parting during the operation.</li> <li>• Life vests to be donned where there is a risk of crew falling overboard during mooring operations.</li> </ul>	Chief Officer/Deck Officers/Deck Crew		(To be assessed and completed)
-------------	--	--------------------------------	--	---------------------------------------	--	--------------------------------

Third party injury	Damage to assisting tug/ injury to tug's crew	(To be assessed and completed)	<ul style="list-style-type: none"> <li>• Sequence of mooring operations to be discussed during the Master-Pilot interface and communicated to the mooring teams.</li> <li>• Continuous communication between shipboard mooring team and assisting tug.</li> <li>• Tug's crew to be positioned in a safe zone prior passing the heaving line.</li> <li>• 'Monkeys fist' on heaving lines constructed of rope or another safe alternative to prevent injury.</li> <li>• Lines being heaved in must be monitored to ensure the line does not snag on the tug's propeller or part of its structure.</li> <li>• Casting off tug lines to be done in a controlled manner and not simply unhooked and allowed to freely run out.</li> </ul>	Chief Officer/Deck Officers/Deck Crew		(To be assessed and completed)
Third party damage	Damage to fixed and floating objects on account of mooring lines failure, bad weather	(To be assessed and completed)	<ul style="list-style-type: none"> <li>• Emergency systems and emergency stops to be tested prior to the operation.</li> <li>• Crew to be trained in the event of a mooring failure and other associated emergencies by way of regular drills.</li> <li>• Weather forecasts to be obtained and reviewed to allow preparation for adverse weather conditions in good time.</li> <li>• Regular inspections and maintenance of mooring lines to be carried out.</li> </ul>	Chief Officer/Deck Officers/Deck Crew		(To be assessed and completed)

	Communication failure between the bridge team/ pilot, bridge team/ deck mooring crew and between the deck mooring crew / assisting tug crew.	(To be assessed and completed)	<ul style="list-style-type: none"> <li>• Only experienced and responsible persons to be assigned the task of communications.</li> <li>• Backup communication systems to be pre-determined, tested and available.</li> <li>• Hand signals to be agreed for key operations in case of total audio communication failure.</li> </ul>			(To be assessed and completed)
Crew injury and third party damage	Failure/parting of mooring lines due to poor management	(To be assessed and completed)	<ul style="list-style-type: none"> <li>• Proper protection and storage of mooring lines to preserve their design life. This should minimize the effect of things such as UV light, water, chemicals, cargo and extreme temperature.</li> <li>• Procedures in place to allow for the identification and control of mooring lines.</li> <li>• The periodic inspection of mooring lines to be included in the vessel's maintenance plan (or equivalent planned maintenance management system).</li> <li>• Procedures that outline the maintenance measures appropriate to the mooring lines provided on board, including replacement of in-service lines and the rotation of mooring lines.</li> <li>• Lines which are assessed as no longer suitable for use should be removed from service prior to failure and in accordance with criteria provided by the manufacturer.</li> </ul>			(To be assessed and completed)

Crew injury and third party damage cont.		(To be assessed and completed)	<ul style="list-style-type: none"> <li>• The inspection and maintenance of associated mooring equipment and fittings should be included in the vessel's maintenance plan (or equivalent planned maintenance management system), in accordance with the manufacturers recommendations.</li> <li>• Information marked on equipment (such as safe working load SWL and winch controls) should be preserved.</li> <li>• Records of inspection, maintenance, design concept, arrangement and specification should be retained on board.</li> <li>• Consider what aspects are appropriate (e.g., breaking strength, environmental conditions, composition) when assessing the replacement of mooring lines, equipment and fittings.</li> <li>• Records and documentation (such as certificates) should be retained on board.</li> <li>• Due regard should be had for any change in equipment which would necessitate amendment to the towing and mooring arrangement plans.</li> </ul>			(To be assessed and completed)
	Date:		Name/Rank/Sign:			

## RISK EVALUATION MATRIX TO OBTAIN SCORE

		Severity/Consequence		
		Slightly Harmful (1)	Harmful (2)	Extremely harmful (3)
Likelihood	Highly Unlikely (1)	Trivial Risk (Score 1)	Tolerable risk (Score 2)	Moderate Risk (Score 3)
	Unlikely (2)	Tolerable Risk (Score 2)	Moderate Risk (Score 4)	Substantial Risk (Score 6)
	Likely (3)	Moderate Risk (Score 3)	Substantial Risk (Score 6)	Intolerable risk (Score 9)

THE TABLE BELOW INDICATES THE RECOMMENDED RESPONSE IN EACH CASE.

Trivial	No action is required.
Tolerable	No additional controls are required. Monitoring is required to ensure control is maintained.
Moderate	Efforts are required to reduce risk. Controls are to be implemented within a specified time.
Substantial	New work not to start until risk reduced. If work is in progress, urgent action to be taken. Considerable resources may be required.
Intolerable	Work shall not be started or continued until the risk has been reduced. If reduction is not possible, the activity shall be prohibited.

This form is for guidance purposes only and does not replace any company procedures or applicable statutory regulations.