

RISK & ENVIRONMENTAL ASSESSMENT FOR: LIFTING OPERATIONS WITH OVERHEAD CRANES

PROBABILITY			
Common Occurrences	Has Happened	Could Occur	Not likely To occur

DATE:		Risk & Environmental Assessment Register no:	TH	BREA 03	REV	03	A	B	C	D
Risk Assessment Team:	6(1)/2.6.1 Contractors Signature:		SEVERITY	R500 000 & More			1	2	4	7
1. E. Silveiro				R200 000 TO R500 000			3	5	8	12
2. R. Olwagen	Safety Co-ordinator/Officer:			R50 000 TO R200 000			6	9	13	17
3.				R10 000 TO R50 000			10	14	18	21
4.				R10 000 & Less			15	19	22	24
5.	Accepted on behalf of Client:		Accepted on behalf of Client:			High Risk				
6.						Medium Risk				
7.						Low Risk				
For Quality Risk Refer to Work Instruction for the Various Departments.										

Task	Potential Hazard and Loss Exposure	Probability	Risk Safety Rating	Control Measures in place or to be implemented	Short Comings	Persons responsible for Implementation and Supervision.
Crane operator must be trained, certified and legally appointed.	Untrained and uncertified crane operators can lead to incidents causing injuries and damage to property.	C	8	All crane operators must be trained by an Accredited Institution and certified.	Untrained crane operators are used.	Site Manager, Safety Officer & Supervisory staff are to enforce that Mobile cranes are only operated by trained and certified personnel.
	Legal exposure due to Legal appointments not being in place.	C	18	Operators of Mobile Lifting Equipment must be appointed as per the General Machinery regulations.	Operators are not legally appointed thus leading to Legal non-compliance by the Company.	Site Manager & Safety officer to ensure that all the required legal appointments are in place and filed as per Company SHE Procedure Manual
Rigger to be trained, certified, legally appointed and identified.	Untrained and uncertified Riggers carrying out lifts that require a qualified Rigger as per the Company SHE Procedure Manual can lead to incidents causing injuries and damage to property.	C	8	All Riggers must be trained by an Accredited Institution and certified. All Certified Riggers are to wear black hardhats for identification purposes.	Unqualified Riggers are used to carry out big lifts or complicated lifts.	Site Manager & Supervisors are to ensure that all lifts that require a qualified Rigger as per the Company SHE Procedure Manual are so carried out.

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3.			Lost Time Injury		R10 000 TO R50 000			15	19	22	24
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Rigger to be trained, certified, legally appointed and identified. (Conti.)	Legal exposure due to Legal appointments not being in place.	C	18	Qualified Riggers must be appointed as per the General Machinery regulations.	Operators are not legally appointed thus leading to Legal non-compliance by the Company.	Site Manager & Safety officer to ensure that all the required legal appointments are in place and filed as per Company SHE Procedure Manual
The correct overhead crane for the mass of the load is to be used.	Overloading crane can lead to equipment failure.	C	13	The SWL displayed on the overhead crane should be adhered to at all times.	The SWL of Cranes are ignored.	Site Manager, Rigger and Supervisor are to ensure that the SWL of overhead cranes are adhered.

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The correct overhead crane for the mass of the load is to be used. (Conti.)	Uncertified crane is used which could lead to equipment failure and subsequent injuries and/or damage to property.	B	9	All Lifting Equipment is to be tested and certified by an Authorised Inspection Authority once a year or when repaired or modified. This includes all integral parts of the said Lifting equipment e.g. hooks, crane rope etc. Each crane is to have is own Logbook as set out in the Companies SHE Procedure Manual.	Cranes are not tested and certified as per the Legal requirement.	The Company Plant Manager, Site Manager are to ensure that these requirements are met prior to any Lifting Equipment being put into service.
Pre-use check to be done on overhead crane before use.	Faulty lifting machinery can lead to injuries and damage.	B	9	A pre-use check is to be done on the crane by the operator and any faults must be reported to the Site Manager. The pre-use checklist is to be kept with the operator for the period they are valid and then to be handed to the Safety Officer for the issue of a new checklist.	Daily pre-use checklist for cranes are not done or not done correctly	Site Manager & Supervisor is to ensure that the operators meet the requirements.

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Task	Potential Hazard and Loss Exposure	Probability	Risk Safety Rating	Control Measures in place or to be implemented	Short Comings	Persons responsible for Implementation and Supervision.
Pre-use check to be done on overhead crane before use. (Conti.)	Operator falling from elevated area while doing pre-use inspection.	C	13	Operator is to make use of the safe access provided to overhead cranes. He is also to make use of a safety harness so that he can attach himself to secure structure while on the elevated area. He must ensure that he does not attach himself to the any moving part of the overhead crane or the crane rail.	Safe access is not used or the operator fails to attach himself or attaches himself incorrectly.	Site Manager and supervisors are to ensure that operators are trained in the use of safety harness's and are attached correctly at all times.

See Risk Assessment TH BREA 008 – Working On Elevated Areas for lists associated Tasks, Hazards, Risk Matrix, Control Measures and Responsibilities.

Obtain lifting equipment from the stores.	Incorrect lifting tackle is obtained which could lead to equipment failure and subsequent injuries and damages.	B	9	Only qualified Riggers or trained semi-skilled riggers/banksman are to book out rigging tackle.	Incompetent staff are permitted to book out rigging equipment from the stores.	Site Manager, Supervisor and store man are to ensure that this is complied with.
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Obtain lifting equipment from the stores. (Conti.)	Damaged equipment can lead to equipment failure.	B	14	<p>All lifting equipment is to be inspected and certified annually by an Authorised Inspection Authority.</p> <p>All lifting equipment is to be numbered and registered and is to be inspected monthly by the Appointed Lifting Tackle Inspector and colour coded as per the monthly colour codes.</p> <p>All user of lifting equipment are to do a pre use inspection of the equipment prior to use.</p>	Lifting tackle is not inspected, certified.	Site manager, Safety Officer and Appointed Lifting Tackle Inspector are to ensure that this complied with.

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Task	Potential Hazard and Loss Exposure	Probability	Risk Safety Rating	Control Measures in place or to be implemented	Short Comings	Persons responsible for Implementation and Supervision.
Slinging of load and attaching guide ropes.	No qualified Rigger is used for all major lifts or the load presents a degree of difficulty.	B	9	A qualified rigger is to be used for all lifts as specified in the Company's SHE Procedure Manual. In the case of small lifts a trained semi skilled rigger/banksman can be used. The crane operator and rigger/semi-skilled rigger can be the same person provided that he has been trained to do both tasks as stated earlier in this Risk Assessment.	Unqualified employees are allowed to carry out major or difficult lifts.	Site Manager and Supervisors to ensure that this does not occur.
	The area is not barricaded off and/or no symbolic signs used	B	5	When ever any lifting operation is taking place the area is to be barricaded with black& yellow barrication tape and no entry signs put in place. Rigger or semi-skilled rigger is to ensure no-one enters the area and none of his rigging team goes under the load.	No barrication is used or is ignored by others.	Site Manager, Safety Officer, Rigger and supervisors to ensure that this is in place.

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Task	Potential Hazard and Loss Exposure	Probability	Risk Safety Rating	Control Measures in place or to be implemented	Short Comings	Persons responsible for Implementation and Supervision.
Slinging of load and attach guide ropes. (Conti.)	Incorrect slinging methodology can lead to equipment failure and/or load failing.	C	13	Only qualified Riggers or trained semi-skilled riggers/banksman are to sling loads.	Incompetent staff carryout slinging operations.	Site Manager, Riggers and supervisors to ensure that control measures are adhered to.
	No safe access is given to staff to gain access to the top of load to carry out rigging & slinging operations	C	18	A ladder is to be used to obtain access to the top of load.	Staff climb onto load without proper and safe access or fail to use the safe access provided.	Site Manager, Rigger are to ensure that safe access is available and used.
	Hands caught in lifting tackle.	B	14	The use of PPE must be enforced at all times.	Staff fail to use their PPE.	Site Manager, Safety Officer & Supervisory staff are to enforce the use of PPE by firstly educating staff and then disciplinary action if necessary.

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Lift load to required elevation.	Unbalanced load could lead to lifting tackle failure and uncontrolled lift.	B	9	The correct lifting methodology is to be used by competently trained rigging crew. The rigger or semi-skilled rigger is to check all rigging and is to lift the load just off the ground to check for the balance of the load.	The load is not balanced correctly.	Rigger, Semi-skilled riggers and supervisors to ensure that loads are balanced before the lift takes place.
	People walking under the load	B	5	The area is to be barricaded off and no entry symbolic signs are to be used. The Rigger or semi-skilled rigger is to use a whistle to warn every one in the vicinity that the load is being lifted in addition to the overhead crane sirens.	No barrication or symbolic signs are used or ignored. The people in the area are not warned of the intended lift.	Rigger, semi-skilled rigger and supervisors are to ensure that these measures are in place.

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Move load to position.	The load can swing and collide with existing structures.	B	14	<p>Guide ropes are to be used during lifting operations.</p> <p>In the case of piping or loads that due to their weight, shape and/or surface area are prone to swing more than one guide rope is to be used.</p> <p>Guide ropes are to be used under the direct instruction of the rigger or semi-skilled rigger.</p>	<p>No guide ropes or insufficient guide ropes are used.</p> <p>Guide ropes not used correctly.</p>	Rigger, semi-skilled rigger and supervisors are to ensure the use of guide ropes.
	Guide ropes can come into contact with existing moving machinery in the area and lead to damage.	B	9	Ensure that the guide rope is long enough so that it does not go into any moving machinery and is under control at all times or ensure that the load is lifted in such a manner that the guide rope cannot come into contact with any moving machinery.	No precautions are taken regarding guide ropes.	Rigger/semi-skilled rigger, supervisor and crane operators are to ensure that precautions are taken.

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Move load to position. (Conti.)	Where the crane operator and Rigger/semi-skilled rigger are not the same person, instruction given to the crane operator by different people could lead to confusion and have disastrous consequences. Poor communication between Rigger and crane operator could lead to confusion, injuries and damage to property.	B	5	Where the crane operator and Rigger/semi-skilled rigger are not the same person, only the Rigger/semi-skilled rigger in charge of the lift is to give instructions to the crane operator. The Rigger or semi-skilled rigger and the crane operator are to ensure that there is proper communication between them at all times. If visible or electronic communication is interrupted, the crane operator is to stop operations until communication is re-established.	Everyone on the scene gives instructions to the crane operator or there is no proper communication between Rigger/semi-skilled rigger and crane operator.	Rigger, semi-skilled rigger and supervisors are to ensure that these measures are in place at all times.
	Crane operator slipping or tripping over loose objects in his path.	B	14	The crane operator is to check the path that he intends to walk while moving the load to ensure that he cannot slip or trip and fall.	Operator does not plan his path or fails to inspect it.	Rigger/semi-skilled rigger (if present) and the supervisor is to ensure that operator carries such inspection.

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Lower the load very slowly into position.	No safe access is given to employees to gain access to elevated areas where the load is to be positioned.	C	8	Employees are to gain safe access to elevated areas by means of existing safe access, scaffolding or boatswain chair. The employees are then to use safety harness either attached to approved lifelines or a secure structure.	Staff climb onto elevated areas without proper and safe access or fail to use the safe access provided.	Site Manager, Rigger are to ensure that safe access is available and used.
	Employees awaiting the load are not aware of the position of the load.	D	17	Rigger or semi-skilled rigger is to ensure that the employees awaiting the load are aware of its position before lowering it into position. These employees are to use the guide ropes to control the load.	The load is lowered into position without awaiting employees being aware of its position.	Rigger, semi-skilled rigger and supervisors are to ensure that these measures are in place at all times.
	Damaged caused to overhead crane mechanism due to pulling load to the sides from the vertical angle.	B	9	No rigging will be done with overhead cranes that will cause the ropes of the crane to be pulled away from the vertical angle of the rope. The overhead crane ropes must be vertical at all times.	Loads are pulled to the sides while suspended.	Site Manager, Rigger/semi-skilled rigger, supervisor and operators are to ensure that this does not occur.

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Lower the load very slowly into position. (Conti.)	Hand or body parts being injured due to employees coming between the load and its final resting place.	C	13	Employees must ensure that they do not hold onto the load or climb onto it until it is in position. Guide ropes are to be used. If load is to be manhandled employees must ensure that they have no body part that can be jammed between the load and the surrounding existing structures.	Employees fail to take precautions against this hazard.	Rigger, semi-skilled rigger and supervisors are to ensure that employees are aware of the hazards.
	Hand injuries caused by sharp edges of load.	A	10	The use of PPE must be enforced at all times.	Staff fail to use their PPE.	Site Manager, Safety Officer & Supervisory staff are to enforce the use of PPE by firstly educating staff and then disciplinary action if necessary.
When in position, lifting tackle slackened and removed from load.	No safe access is given to staff to gain access to the top of load to remove lifting tackle	C	8	Employees are to gain safe access to top of by means of existing safe access, ladder or boatswain chair.	Staff climb onto load without proper and safe access or fail to use the safe access provided.	Site Manager, Rigger are to ensure that safe access is available and used.

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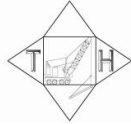
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	Lifting tackle gets hooked when the crane repositions boom.	C	13	Employees at the load must ensure that lifting tackle is properly disengaged and will not catch onto any item in the immediate facility before notifying the Rigger/semi-skilled rigger that the lifting tackle can be lifted. Employees are to ensure that lifting tackle does not get damaged due to working in haste.	No precautions are taken to prevent lifting tackle getting hooked or damaged.	Rigger, semi-skilled rigger and supervisors to ensure that all precautions are taken.

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DATE:		Risk & Environmental Assessment Register no:	TH	BREA 03	REV	03	A	B	C	D
Risk Assessment Team:	6(1)/2.6.1 Contractors Signature:		SEVERITY	R500 000 & More		1	2	4	7	
1. E. Silveiro				R200 000 TO R500 000		3	5	8	12	
2. R. Olwagen	Safety Co-ordinator/Officer:			R50 000 TO R200 000		6	9	13	17	
3.				R10 000 TO R50 000		10	14	18	21	
4.				R10 000 & Less		15	19	22	24	
5.	Accepted on behalf of Client:			Accepted on behalf of Client:		High Risk				
6.					Medium Risk					
7.					Low Risk					
					For Quality Risk Refer to Work Instruction for the Various Departments.					

Task	Potential Hazard and Loss Exposure	Probability	Risk Safety Rating	Control Measures in place or to be implemented	Short Comings	Persons responsible for Implementation and Supervision.
Return lifting tackle to store when all lifting tasks are completed.	Tackle left lying around can lead to tripping hazard or equipment can be damaged.	A	15	Lifting tackle must be kept clean and stored on suitable hooks and shelves off the ground in a clean and dry area.	Lifting tackle is left lying around and not stored correctly.	Site Manager, Safety Officer, Riggers, Supervisors and store man are to ensure that this is done.
	Dragging of lifting tackle can lead to damage to equipment.	A	15	Employees are to ensure that lifting tackle is transported or carried in such a way that it will not damage the equipment.	No care is taken to safe guard lifting tackle.	Rigger, semi-skilled rigger and supervisors to ensure that all precautions are taken.
Lock out the overhead crane.	Unauthorised use of the crane by incompetent employees.	B	9	If the overhead crane is not going to be used any further the crane must be locked out at the power source to prevent unauthorised use thereof.	Unauthorised use of overhead crane due to it not being locked out.	Site Manager, Safety Officer and Supervisor to ensure that a lock out system is implemented.

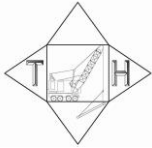


RISK & ENVIRONMENTAL ASSESSMENT FOR: LIFTING OPERATIONS WITH OVERHEAD CRANES

Risk & Environmental Assessment Register no:				TH	BREA 03	REV	03	SIGNIFICANCE EVALUATION						
DATE: 11/10/05		6(1)/2.6.1 Contractors Signature:		Legal Compliance		Yes (1)			No (20)					
Assessment Team:				Extent		Local (1)		Site (2)		Region (3)		National (4)		
				Duration		Short Term (1)		Medium term (2)		Long Term (3)		Permanent (4)		
1. E. Silveiro		Safety Co-ordinator/Officer:		Intensity		Low/Minor (1)		Medium (2)		Major (3)		High (4)		
2. R. Olwagen				Probability		Improbable (1)		Probable (2)		Highly probable (3)		Definitely (4)		
3.				Accepted on behalf of Client:		Stakeholders Expectation		No Influence (1)		Neutral (2)		Negative Influence (3)		Legal Implication (4)
4.						Significance Value		Low 5-9		Medium 10 - 14		High 15 - 20		
5.														
6.														
7.		Accepted on behalf of Client:												
8.														
9.														

Activity	Environmental Aspect	Environmental Impact	L	E	D	I	P	S	SV	Control Measures to mitigate Impact	Persons responsible
Use of the overhead crane.	Energy consumption - Electricity	Socio- economic effects	1	1	1	1	1	1	6	<p>Only the amount electricity required to complete the job is to be used.</p> <p>Unnecessary use of the overhead crane must be monitored. Equipment and/or material that can be moved but other effective means are to be used.</p>	Supervisor is to ensure that he monitors and controls this.

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TUBULAR HOLDINGS (Pty) Ltd.

Reg. No. 2001002519/07

RISK & ENVIRONMENTAL ASSESSMENT FOR:

LIFTING OPERATIONS WITH OVERHEAD CRANES

METHOD STATEMENT

1.	Crane operator must be trained, certified and legally appointed.
2.	Rigger to be trained, certified, legally appointed and identified.
3.	The correct overhead crane for the mass of the load is to be used.
4.	Pre-use check to be done on overhead crane before use.
5.	Obtain lifting equipment from the stores.
6.	Slinging of load and attach guide ropes.
7.	Lift load to required elevation.
8.	Move load to position.
9.	Lower the load very slowly into position.
10.	When in position, lifting tackle slackened and removed from load.
11.	Return lifting tackle to store when all lifting tasks are completed.

HAZARDS IDENTIFICATION

1.	Untrained and uncertified crane operators can lead to incidents causing injuries and damage to property.
2.	Legal exposure due to Legal appointments not being in place.
3.	Untrained and uncertified Riggers carrying out lifts that require a qualified Rigger as per the Company SHE Procedure Manual can lead to incidents causing injuries and damage to property.
4.	Legal exposure due to Legal appointments not being in place.
5.	Overloading crane can lead to equipment failure.
6.	Uncertified crane is used which could lead to equipment failure and subsequent injuries and/or damage to property.
7.	Faulty lifting machinery can lead to injuries and damage.
8.	Operator falling from elevated area while doing pre-use inspection.
9.	See Risk Assessment TH BRE 008 – Working in Elevated Areas for lists associated Hazards.
10.	Incorrect lifting tackle is obtained which could lead to equipment failure and subsequent injuries and damages.
11.	Damaged equipment can lead to equipment failure.
12.	No qualified Rigger is used for all major lifts or the load presents a degree of difficulty.
13.	The area is not barricaded off and/or no symbolic signs used
14.	Incorrect slinging methodology can lead to equipment failure and/or load failing.
15.	No safe access is given to staff to gain access to the top of load to carry out rigging & slinging operations
16.	Hands caught in lifting tackle.
17.	Unbalanced load could lead to lifting tackle failure and uncontrolled lift.
18.	People walking under the load
19.	The load can swing and collide with existing structures.
20.	Guide ropes can come into contact with existing moving machinery in the area and lead to damage.
21.	Where the crane operator and Rigger/semi-skilled rigger are not the same person,

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	instruction given to the crane operator by different people could lead to confusion and have disastrous consequences.
22.	Poor communication between Rigger and crane operator could lead to confusion, injuries and damage to property.
23.	Crane operator slipping or tripping over loose objects in his path.
24.	No safe access is given to employees to gain access to elevated areas where the load is to be positioned.
25.	Employees awaiting the load are not aware of the position of the load.
26.	Damaged caused to overhead crane mechanism due to pulling load to the sides from the vertical angle.
27.	Hand or body parts being injured due to employees coming between the load and its final resting place.
28.	Hand injuries caused by sharp edges of load.
29.	No safe access is given to staff to gain access to the top of load to remove lifting tackle
30.	Hands caught in lifting tackle.
31.	Lifting tackle gets hooked when the crane repositions boom.
32.	Tackle left lying around can lead to tripping hazard or equipment can be damaged.
33.	Dragging of lifting tackle can lead to damage to equipment.

ENVIRONMENTAL ASPECTS

1.	Energy consumption - Electricity
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