

**Key Control Data Sheet**

Procedure Number: RSK-PRO-KCD-188

Scope of Application: Ok Tedi Mining Limited

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Document Owner: Manager – OHS & Training

**Why is the Control Important** – Injuries resulting from dropped loads or overturning cranes can be prevented by use of properly maintained and certified lifting equipment operated within the load chart capacity or Safe Working Load (SWL) limits. Cranes are operated by competent and trained operators. Loads are slung and guided by competent and trained Riggers and Dogmen. A lift plan is in place and followed for critical lifts. Exclusion zones are controlled under and in the path of lifting operations to prevent access.

**Exemption** – Hoists - Devices used for raising and lowering a load or people, vertically and without slewing which includes a mast climbing work platform, personnel and materials hoist (a builder's hoist by which goods or materials and personnel may be hoisted and where the car, bucket or platform is cantilevered from, and travels up and down externally to, a face of the support structure or is a tower hoist or a multiple winch operation), and devices used for lifting and lowering loads through chains or ropes wrapped around a pulley or drum where the load is attached to a hook e.g. block and tackle. This includes hoists mounted to beams via a trolley or a monkey where the hoist is moved horizontally along the beam manually.

Vehicle recovery winches.

**Operational Requirements**

## Performance Metrics

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| Approved Lift Plan in place and being followed as per KCDS 041 Lift Plans for Fixed and Mobile Cranes. | Crane operators trained and competent and licensed. Crane operated within manufacturers load charts or guidelines. Crane operated within gradient limits. Crane operated within wind speed limits. Correct counterweights used for selected load chart. |
| Outrigger / stabilizer legs are deployed on mobile cranes including placement of footplates / steel bog mats/ ground support timbers under legs for additional support and to reduce pressure applied by crane. | Personnel required to sling loads (where operator required to exercise judgement in the selection of sling, weight of load or its centre of gravity) or to direct crane operator in movement of the load are trained and competent. |
| Crane operator always has control of load. No rapid slewing of load leading to uncontrolled swinging or bouncing.  | Auxiliary lifting equipment (crane load line, hook, block and rigging equipment) is checked before each use to ensure required maintenance and inspections have been carried out. Equipment not damaged or worn. Damaged or defective equipment or equipment outside its inspection date is withdrawn from service and not used. |
| Safe working load (SWL) and load chart capacities are marked on lifting equipment. A crane with a boom that can swing and operate at various extensions and angles has a load chart(s). Bridge and gantry cranes have a maximum rated capacity or SWL marked on the crane | OTML-owned auxiliary lifting equipment/ gear used for slinging of crane loads must be: a) uniquely identified, b) marked or coded to identify its inspection status or when it is next due for inspection, c*)* listed in a register, |
| Auxiliary lifting equipment/ gear used for slinging crane loads (any rope, chain, wire rope, shackle, eyebolt, sling or other item used for attaching a load to a hoist, crane or any item of lifting equipment)must be marked with a SWL. | OTML owned cranes have the following documentation: a) Third party/ statutory inspection / test certificates, b) Operating instructions and limitations, c) Load chart, d) Maintenance records – log book or maintenance manual, e) Licensing requirements for operator, f) Crane design registration |
| Exclusion zone under and in the path of lifting operations controlled to prevent access e.g. barriers, spotters, signage | Contracted crane service providers (for wet hire where the Company supplies the crane, crane operator and support crew) supply OTML with the following documentation: a) Third party / statutory inspection / test certificates, b) Load chart, c) Crane operators, riggers and dogmen qualifications Note: Supplier is responsible for inspecting and maintaining the crane |

## Utilisation

Crane is a device used for moving loads in different directions both vertically and horizontally under power. Where a hoist forms part of the lifting mechanism for a crane it is covered by this KCDS.

Some examples of types of cranes are:

* **Tower crane** - jib or boom crane mounted on a tower structure, demountable or permanent, including both horizontal and luffing jib types.
* **Self-erecting tower crane** - crane where the tower structure and boom/jib elements are not disassembled into component sections, which can be transported between sites as a complete unit, and where the erection and dismantling processes are an inherent part of the crane's function.
* **Derrick crane** - slewing strut-boom crane with its boom pivoted at the base of a mast which is either guyed (guy-derrick) or held by backstays (stiff-legged derrick) and which is capable of luffing under load.
* **Portal boom crane** - boom crane or jib crane mounted on a portal frame, which is supported on runways along which the crane travels.
* **Bridge and gantry crane** – cranes consisting of a bridge or beams that are mounted to end carriages, or by legs mounted on end carriages at each end that travel along elevated runways with an elevating hoist that can traverse along the runway.
* **Vehicle loading crane** - crane mounted on a vehicle to move a load onto or from the vehicle, including the application of load estimation and slinging techniques to move a load.
* **Non-slewing mobile crane** - mobile crane that incorporates a boom or jib which includes articulated type mobile cranes and locomotive cranes but does not include vehicle tow trucks.
* **Slewing mobile crane** - mobile crane that incorporates a boom or jib which can rotate includes articulated type mobile cranes and locomotive cranes.
* Backhoes, front end loaders, excavators, forklifts and telehandlers can be used as mobile cranes where the load is suspended from the boom or tynes or jib attachment by means of a chain, wire rope or sling

## Safety Critical Defeat Requirements

Backhoes, front end loaders, excavators, forklifts and telehandlers can be used as mobile cranes where the load is suspended from the boom or tynes or jib attachment by means of a chain, wire rope or sling without provision of:

1. Third party/ statutory inspection / test certificates.
2. Load charts.

## Testing & Verification

Lifting equipment and cranes must have its safety and operational condition checked and recorded before use, at least once per day, e.g. a pre-start inspection.

At least every 6 months Supervisor to:

* verify crane operators are competent and licensed
* verify personnel slinging and guiding loads are competent and licensed
* check inspection status of lifting equipment in site register.

External third-party inspections of lifting equipment and cranes including statutory certification.

## Maintenance

Auxiliary lifting equipment/ gear and cranes maintained according to the manufacturer’s specifications by suitably qualified and trained person including external third-party inspections. In harsh operating environments more frequent servicing maybe required.

Cranes must be inspected annually.

Auxiliary lifting gear must be inspected annually.

OTML-owned Lifting Equipment must be:

* uniquely identified;
* inspected by suitably trained and competent personnel
* marked or coded to identify its inspection status or when it is next due for inspection;
* listed in a register.

Records of maintenance of auxiliary lifting equipment/ gear and cranes must be kept.

Damaged or unserviceable equipment must be removed from service.

## Training & Competency

Employees and contractors must be competent to recognise and understand Safe Working Loads on Lifting Equipment and cranes.

Employees and contractors operating Lifting Equipment and in specialist roles in Lifting Operations, e.g. crane operator, rigger, dogman must be authorised as competent and, as required, licensed.

Crane operators must be trained on the type of equipment they operate including:

* Design
* Layout
* Operating functions
* Limitations of use
* Safety features
* Maintenance and inspection requirements
* Emergency procedures

Training recorded in crane operators log book.

Inspections, maintenance and repairs of Lifting Equipment and cranes must be conducted by competent personnel authorised by the Responsible Engineer.

**Task Requirements**

The following are the key day to day requirements operators/maintainers and supervisors must follow to ensure the control is being used correctly.

## Task Requirements

|  |  |  |
| --- | --- | --- |
| No. | Supervisor | Operator/Maintainer |
| 1 | Verify that any person required to operate a crane is trained and assessed competent in conduct of those operations. | Operate crane within technical capabilities and limitations of the crane for the load/ weight distribution. Do not operate equipment if not trained. |
| 2 | Verify that any person required to sling or guide a crane load are trained and assessed competent in conduct of those operations. | Do not sling loads or direct movement of a crane load unless trained and assessed competent in conduct of those operations. |
| 3 | Prepare Lift Plan as required for non–standard lifts as per KCDS 041 Lift Plans for Fixed and Mobile Cranes.  | Follow approved Lift Plan |
| 4 | Obtain test/ inspection certificates and load charts (where required for preparation of Lift Plan) for contracted crane on wet–hire. | Position outrigger / stabilizer legs on mobile cranes as required including placement of footplates / steel bog mats / ground support timbers for poor ground conditions. |
| 5 | Maintain test/ inspection certificates, operating instructions and limitations, load charts and maintenance records (log book and maintenance manual) and design registration for OTML owned cranes.  | Check crane load line, hook, block and rigging equipment before use for damage or wear. Damaged or defective equipment removed from service and not used. Check correct counterweights fitted to crane for load size. |
| 6 | Ensure traffic controls in place around lifting operations. | Check gross load does not exceed crane load chart rating at maximum required lift radii.  |
| 7 |  | Check required boom angle does not exceed safe limits for crane.  |
| 8 |  | Check crane turntable or boom truck frame level.  |
| 9 |  | Maintain limits of approach to overhead and underground services.  |
| 10 |  | Stop work if personnel enter exclusion zone under suspended load. |

## Skills Requirements

Crane operator authorised as competent and, as required, licensed.

Rigger slinging crane loads authorised as competent and, as required, licensed.

Dogman directing crane loads authorised as competent and, as required, licensed.

## Permits

Permit to Work required for lifts using mobile crane or non-routine lifts using other cranes.

## Task Specific PPE Requirements

No additional requirements.

## Special Task Related Tooling

Footplates/ steel bog mats/ ground support timbers for mobile crane outrigger leg feet.

**Design Requirements**

## Design Standard

Cranes must comply with:

* AS 2550 Cranes, hoists and winches – safe use, and
* AS 1418 Cranes, hoists and winches

## Safety Parameters

Check pressure applied by crane to ground does not exceed ground bearing capacity for heavy lifts.

## Design Life

Not applicable.

## Safe Separation

Not applicable.

## Special Requirements

No additional requirements.