

**Key Control Data Sheet**

Procedure Number: RSK-PRO-KCD-005

Scope of Application: Ok Tedi Mining Limited

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Document Owner: Manager – OHS & Training

**Why is the Control Important** – End stops, and anti-fall devices such as drop plates or anti derailment plates prevent bridge and gantry crane hoist trolleys or carriages running off the beam and causing injuries to personnel.

**Exemption** – Nil exemptions permitted.

**Operational Requirements**

## Performance Metrics

|  |  |
| --- | --- |
| End stops provided on crane carriage or bridge runway or rails and hoist trolley tracks or beam to prevent equipment running off the end of the rail or track.  | Anti-fall devices such as drop plates or anti derailment plates are used to keep the trolley assembly on the beam to prevent falls of plant in the event of failure. A top-running crane, under-running crane, wheel- or rail-mounted gantry crane, and monorail hoist has a means to limit the drop of the crane, trolley and bridge truck frames if a tyre, wheel or axle fails. |
| Operators are trained, competent and hold the required licences. | Unsafe bridge and gantry cranes are appropriately disabled, tagged out, electrically isolated and not operated. |
| Bridge and gantry cranes are operated within their travel limits so that end stops are not repeatedly impacted during operation. | When not in use bridge and gantry cranes are driven to the designated parking area and parked. |

## Utilisation

A bridge crane (or overhead travelling crane) is defined as a crane comprising a bridge beam or beams mounted to end carriages at each end, capable of travelling along elevated runways and having one or more hoist trolley mechanisms arranged across the bridge.

A gantry crane comprises a bridge beam or beams, which are supported at one or both ends by legs mounted to end carriages, capable of travelling along runways and has one or more hoist trolley mechanisms.

## Safety Critical Defeat Requirements

No defeats permitted.

## Testing & Verification

Before operating crane:

* Check condition of all end stops and bumpers for damage.

Drop plates must be able to support the trolley, bridge and gantry with the crane or hoist loaded to its rated capacity and must be certified to be able to do so by the original equipment manufacturer or a professional engineer.

Bridge or carriage, or trolley end stops and the crane support structure must be capable of resisting end stop loads and must be certified to be able to do so by the original equipment manufacturer or a professional engineer.

Documentation available for the crane and the crane support structure to show system capable of resisting end stop loads.

## 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.

Hoists 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.

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 | Arrange inspection, assessment and maintenance of end stops to ensure their integrity.  | Check condition of end stops and bumpers as part of crane pre-start inspection. |
| 2 | Verify operators trained and competent in crane operation and hold required licences.  | Report defective plant to the supervisor and note defect in the crane logbook. Do not use defective equipment until it has been inspected by a competent person and assessed safe to use. Unsafe bridge and gantry cranes are appropriately disabled, tagged out, electrically isolated and not operated. |
| 3 |  | Operate bridge and gantry cranes within their travel limits so that end stops are not repeatedly impacted during operation. |
| 4 |  | Park bridge and gantry cranes in the designated parking area on the beam. |

## Skills Requirements

Crane licence to operate bridge or gantry crane maybe required depending on the size and complexity of the crane and hoisting mechanism.

Competent professional Mechanical Engineer to assess design and specify load testing of end stops and to assess design of anti-fall devices.

## Permits

No additional requirements.

## Task Specific PPE Requirements

No additional requirements.

## Special Task Related Tooling

No additional requirements.

**Design Requirements**

## Design Standard

Cranes must comply with:

* AS 2550.1 Cranes, hoists and winches – safe use – general requirements
* AS 2550.3 Cranes, hoists and winches – safe use – Bridge, gantry, portal (including container cranes), jib and monorail cranes
* AS 1418.3 Cranes, hoists and winches – Bridge, gantry, portal (including container cranes), jib and monorail cranes
* AS 1418.1 Cranes, hoists and winches – general requirements
* AS 1418.12 Cranes (including hoists and winches) – crane collector systems
* AS 1418.14 Cranes (including hoists and winches) – requirements for cranes in arduous working conditions

Bridge or carriage, or trolley end stop designs include an assessment of the factored load that end stop and the rest of the supporting crane structure have the capability of stopping and must be certified to be able to do so by the original equipment manufacturer or a professional engineer in accordance with local regulations or standards.

For example, under ASME B30.2 Overhead and Gantry Cranes (Top Running Bridge, Single or Multiple Girder, Top Running Trolley Hoist) in the US this maximum load capability must be at least:

* 20% of rated load speed for bridge bumpers have the capability of stopping the bridge when travelling with power off in either direction
* One third of rated load speed for hoist trolley have the capability of stopping the trolley when travelling with power off in either direction

**Hoist Trolley stops**

Stops shall be provided at the limits of travel of the hoist trolley.

Stops shall engage the bumpers or bumper pads mounted on the hoist trolley.

The stops must contact the truck frame or be of a height of at least 1/2 the diameter of the wheels if the wheels contact the stops.

Stops shall be designed to withstand the forces applied by the bumpers, as specified.

**Bridge or carriage stops**

Stops shall be provided at the limit of travel of the bridge.

Stops shall engage the bumpers or bumper pads mounted on the bridge.

The stops must contact the truck frame or be of a height of at least 1/2 the diameter of the wheels if the wheels contact the stops.

Stops shall be designed to withstand the forces applied to the bumpers, as specified.

## Safety Parameters

Not applicable.

## Design Life

Not applicable.

## Safe Separation

Not applicable.

## Special Requirements

No additional requirements.