WHS- 43 Lifting Equipment Procedure

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1 Purpose

The purpose of this procedure is to clearly outline the Territory Generation procedure for managing the hazards associated with slinging and lifting loads and to give the minimum requirement for lifting and slinging safety on Territory Generation controlled sites.

2 Scope

This procedure applies to all workers on Territory Generation controlled sites conducting lifting and/or slinging activities.

3 References

- NT Work Health and Safety (National Uniform Legislation) Act Jan 2012
- NT Work Health and Safety (National Uniform Legislation) Regulations June 2013
- NSW WorkCover Rigging Guide
- NZ Approved Code of Practice for load-lifting Rigging
- Safe Work Australia DRAFT Cranes Code of Practice
- Power and Water Safety Management – DRAFT Lifting and Slinging Corporate Guideline
- Stanwell Corporation Corporate Standard – Lifting Equipment
- AS 2550.1 – 2011 Carnes, hoists and winches – Safe use Part 1 General requirements

4 Roles and Responsibilities

Role / Title	Responsibility
Chief Executive Officer	Shall ensure that : • All personnel are aware of requirements of this procedure and its management in sites under Territory Generation control. • Initiates procedure review as required.
All Managers/Site Coordinators	Shall ensure that: • This procedure is put in place at all Territory Generation controlled power stations sites. • Personnel are advised and trained as necessary in the procedure to be followed. • Contractors are informed of and follow the procedure, where applicable. • Contribute to procedure reviews
Project Officers/Contract Managers	Shall ensure that: • Contractors under their control are informed of and follow the procedure, where applicable. • Contribute to procedure reviews
All Personnel	Shall ensure that: • This procedure is followed personally and by

	contractors/visitors under their control, where applicable • Contribute to procedure reviews
Document Owner	• The position responsible for the preparation, review and accuracy of this document.
Document Sponsor	• The position responsible for the approval and use of this document

5 Definitions

Approved	Means having appropriate Territory Generation endorsement in writing.
Authorised	Means a *competent person* with technical knowledge or sufficient experience who has been *approved* to act on behalf of Territory Generation to perform the duty concerned.
Barrier	Means a physical structure which blocks or impedes something.
Barricade	Means any object or structure that creates a barrier obstacle to control, block passage or force the flow of traffic in the desired direction.
Competent Person	Means a person who has, through a combination of training, qualification and experience, acquired knowledge and skills enabling that person to correctly perform the specified task.
Dogger	Means a person who has obtained a High Risk Work License from the relevant Statutory Authority who uses techniques including the selection or inspection of lifting gear to safely sling a load or direct a crane operator in the movement of a load when the load is out of view.
Dogging Work	Means: a) The application of slinging techniques, including the selection and inspection of lifting gear, to safely sling a load; or b) The directing of a plant operator in the movement of a load when the load is out of the operators view.
Exclusion Zone	Means an area from which persons are excluded during work.
Lifting Gear	Means any device which is used to connect a load to a crane and which does not form part of the load, e.g., wire rope, chains, slings, shackles and spreader beams.

Rated Capacity	Means the maximum gross load that may be applied to the crane or lifting gear while in a particular working configuration and under a particular condition of use.
Safe Working Load (SWL)	See “Rated Capacity”.
Lifting Equipment Specialist	Means an appropriately qualified person contracted to conduct lifting equipment inspections as per legislative requirements
Task based risk assessment	Means a lower level risk assessment process used to manage the risks arising from a job or task. This process is usually conducted at the task level by the persons carrying out the work and is recorded using a job Safety Environmental analysis (JSEA); Safe Work Method Statement (SWMS) or equivalent.
Operational risk assessment	Means a higher level risk assessment process used to manage the risks arising from operational matters involving internal procedures, people and systems. This process is usually conducted by a stakeholder group as is recorded using an operational risk assessment template with a risk assessment matrix.
Rigger	Means a person who has a high risk work license to conduct the following tasks: • erecting structural steel and precast, tilt up concrete panels • installing static lines and safety nets • erecting cranes, conveyors, dredges or excavators • demolishing a building or structure • coordinating a multi-crane lift • erecting suspended or fabricated hung scaffolding.
Slinging Techniques	Means the exercising of judgement in relation to the suitability and condition of lifting gear and the method of slinging, by consideration of the nature of the load, its mass and its centre of gravity.
Work Box	Means a personnel carrying device, designed ot be suspended from a crane, to provide a working area for a person elevated and working from the device.
Working Load Limit (WLL)	See “Rated Capacity”.
Shall	Means a mandatory requirement
Should	Means an advisory requirement

6 Records

- Records of lifting equipment inspections shall be recorded on site specific Lifting Equipment Registers by the Lifting Equipment Specialist
- Completed JSEA's shall be referenced to the associated job number and stored for a period of five years. It is at the discretion of each site coordinator as to if these records are stored electronically in TRIM or as a filed hard copy.
- Completed operational risk assessments and all other related records shall be saved in TRIM and stored for a period of 5 years.

7 Planning

7.1 Risk Assessment

a) A task based risk assessment shall be prepared by a competent person(s) for any lifting or slinging activities to identify hazards associated with lifting or slinging operations, including the lifting and slinging of the appropriate lifting gear requirements and techniques to be used.

b) Risks and hazards are to be assessed prior to beginning slinging and lifting work.

c) Control measures must be implemented to reduce the risk as far as reasonably practicable in accordance with the hierarchy of control to mitigate risk.

d) The elimination of the need to work under suspended loads is to be considered. Where working under such loads is unavoidable, controls are to be put in place to eliminate or minimise the risk to workers.

e) An emergency response plan is to be documented to ensure that a rescue strategy is in place. The emergency response plan is to be fully documented on the task based risk assessment.

f) Where working at heights is identified to enable slinging or rigging operations to take place, this work shall be done in accordance with *WHS-112 Working at Heights Procedure.*

g) For complex work activities involving lifting and slinging an operational risk assessment may be conducted where appropriate, to ensure that all identified risks are assessed and reduced as far as reasonable practicable, to enable the job to be completed safely.

7.2 Risk Assessment Review

a) The task based risk assessment shall be reviewed by all persons working in the area of lifting and slinging operations prior to commencing work. Any changes in the original task based risk assessment are to be documented and any updated control measures are to be implemented.

b) Measures are to be taken to ensure all work party members understands the work to be conducted and the right training and competency levels of all persons working in the area.

8. Hazards

8.1 Considerations for safe Slinging and Lifting Techniques

In relation to safe slinging and rigging techniques, a safe system shall be implemented to control risks to health and safety arising from hazards and issues including, but not limited to:

- Inadequate Inspections;
- Inappropriate equipment selection or placement;
- Inappropriate estimation of load weight;
- Work at heights during slinging operations;
- Failure of lifting equipment; and,
- Falling objects/loads.

8.2 Lifting hazards are to be assessed and managed:

- As per the task based risk assessment for the relevant task or activity; and/or
- A Dogger/Rigger holding a current High Risk Work License.

8.3 High Risk Construction Work

The NT WHS Regulations define a number of construction activities as high risk construction work. Some examples of high risk construction work that may be related to or involve the use of cranes includes construction work that:

- Involves a risk of a person falling more than 2 metres
- Is carried out on a telecommunication tower
- Is carried out on or near energised electrical installations or services
- Involves tilt-up precast concrete
- Is carried out in an area at a workplace in which there is any movement of powered mobile plant.

A Safe Work Method Statements (SWMS) shall be prepared for high risk construction work by a competent person (Dogger or Rigger).

9. Basic Lifting and Slinging Safety

9.1 Planning to Undertake Lifting Activities

Only licensed Doggers/Riggers are to undertake the following activities as part of lifting tasks:

- Selection of lifting equipment;
- Inspection of lifting equipment;
- Placement of lifting equipment; and
- Directing a crane operator in the movement of a load.

9.2 Minimising the risk when lifting loads

Lifting loads may present a risk to the health and safety of persons in the vicinity of a crane due to:

- Damaged or inadequate lifting gear
- Unexpected crane movement while mobilising and/or slewing
- Crane overload or instability; and,
- Poorly secured and dropped loads (falling objects)

As such, barricades or other forms of barrier may be required to be erected around the drop zone of an operational crane area.

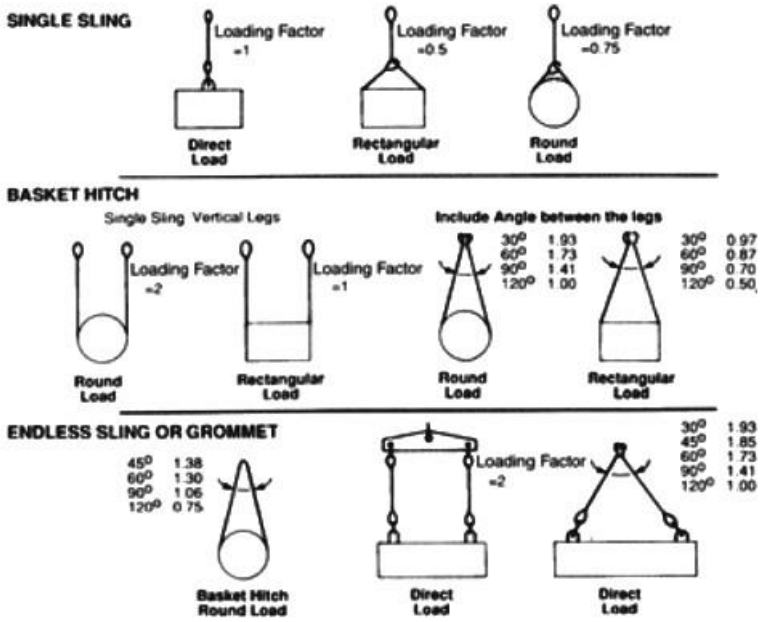
9.3 Working at Heights

Working at heights required during slinging and/or lifting operations shall be conducted in accordance with *G-WHS-112 Territory Generation Working at Heights Procedure.*

9.4 Slinging arrangements

Precautions are to be taken to ensure that the type of slinging arrangement and angle created by the positioning of lifting equipment (e.g. slings) on load does not decrease the capacity of the lifting gear such that the load exceeds the SWL of the equipment.

Examples of Reduction in Safe Working Load (SWL)



Loading factors for various slinging methods

9.5 Risk of damage to lifting equipment

Where there is a risk of damage to lifting equipment, the load being lifted, or the supporting surface, packing or dunnage is to be placed between the lifting equipment and the load, or load and supporting surface as applicable.

9.6 Use of Sling Protectors

Sling protectors are to be used to protect chains or slings which may contact sharp edges during lifting activities.

9.7 Use of higher SWL lifting gear

A larger sized chain or sling is to be used to ensure lifting equipment is adequate if / when:

- The exact weight of the load is not known;
- There is a risk of a shock loading on the lifting components;
- Conditions are abnormal or severe; and / or
- There is an increased risk to personnel.

9.8 Configuration

Lifting equipment is to be configured in such a way as to avoid slippage and to evenly balance the load.

9.9 Damaged or Malfunction Lifting Gear

Lifting equipment that is identified as being damaged or malfunctioning is to be immediately removed from service, tagged out with a 'Caution – Out of Service' tag (refer to *G-AAR-020 Territory Generation Tags Procedure* , for further details regarding safety tag requirements), and disposed of as soon as practicable. (Refer to Attachment 1 for specific requirements)

10. Types of Lifting Gear

10.1 Specification, Identification and Markings

All lifting equipment used on Territory Generation controlled sites is to be designed, tagged / marked*, and used in accordance with the Australian Standards (where applicable).

All lifting equipment used on Territory Generation controlled sites shall be inspected prior to use and any defective or non-compliant lifting equipment shall be repaired by a competent person (where applicable) or destroyed and disposed of.

Lifting equipment shall be removed from service and repaired or destroyed where:

- Markings are illegible (i.e., information on lifting equipment cannot be identified);
- There is damage to upper or lower terminal fittings (Wire rope slings);
- There is damage to rope terminations;
- A dangerous condition of the lifting equipment is suspected;
- The cover or sewn sleeve has been damaged (synthetic slings etc.);
- The stitching has been damaged (Synthetic slings);
- A protective coating has been damaged (Synthetic slings);
- Lifting equipment has been exposed to chemicals and/or acids or oils (for synthetic slings);
- Where the metal tag is missing or illegible (chain slings);
- There are ineffective safety catches and self-locking hooks (chain slings usually);
- There is wear on mechanical connecting devices at their load bearing point (chain slings);
- There is excessive play of the load in within the body halves of the connecting links (chain slings);
- There is impaired rotation of the body halves of the connecting links (chain slings);
- There are cuts, nicks, gouges, cracks, excessive corrosion, heat damage, bent or distorted links or any other defects (chain slings).

10.2 Chains

a) All chains, hooks, links and couplers are to be of the same grade, SWL and in a good state of repair.

b) Where chains are used, the responsible person shall ensure:

- Regular inspection of chains for wear, nicks, gouges, stretch, localised bending and shearing;
- Loads are to be within the SWL of the chain;
- Do not use a chain in which the links are stretched, frozen or do not move freely;
- Do not use a chain that is gouged or worn more than 10% of the diameter;
- Do not twist, kink or knot a chain for shortening purposes;
- Do not shorten a chain by using nuts and bolts;
- Do not hammer a chain to straighten the links or to force into position;
- Do not allow loads to be set onto chains, or vehicles and/or mobile plant to be driven over chains;
- Do not drag chains across the ground where they may be worn;
- Do not use a chain with a link that is cracked, or has been spot welded other than by the manufacturer of the chain;

- Do not attempt to use Herc Alloy chain when the temperature exceeds 200˚C unless heat reduction charts are used; and
- Protective padding is to be used on chains around sharp corners.

NOTE: Chains are not to be heated or heat-treated.

10.3 Steel Wire Ropes

Where steel wire ropes are to be used, the responsible person shall ensure:

- Careless uncoiling and handling of ropes is to be avoided;
- Do not kink ropes;
- Do not expose ropes to corrosive substances;
- Ropes are to be suitably oiled or greased to ensure sufficient lubrication;
- Ropes are to be fed or rolled out without slack and in a straight line from the reel to prevent kinking or disturbance of the lay;
- Reeled ropes are to be mounted on a spindle and securely anchored;
- Reels are to be effectively braked;
- Rope is not to be thrown off turns with coil or reel flat on the ground; and
- Torque of new ropes is to be regularly released under control until the rope has settled.

10.4 Sheave Blocks

Where Sheave blocks are used, the responsible person shall ensure:

- That sheave blocks are to be periodically overhauled and lubricated;
- That sheave blocks are to be used in accordance with manufacturer specifications;
- The fit of rope in the grooves of the sheaves is to be examined to ensure the grooves are correct for the rope size;
- They examine safety latches for deformation;
- They examine nut or collar of shank to ensure that it is securely fastened and free from visible defects;
- They examine shank to ensure it is not distorted and turns freely;
- They examine side straps for wear such as fractures, stretching, distortion or wastage;
- They examine side / partition plates for any signs of buckling or distortion;
- They examine sheaves for surface defects and wear or tear to the bush and axles;
- That where provision is made for lubrication, ensure sheave block is adequately lubricated;
- That sheaves are not to be painted in such a manner that free movement is impaired or lubrication points or grease holes are choked. It is especially important that reference marks are not obliterated;
- That after exposure to temperatures exceeding 400˚C, the sheave is to be disposed of.

10.5 Hooks and Rings

a) Where hooks and rings are used, the responsible person shall ensure:

- That hooks are to be fitted with a safety catch;
- That hooks to be used in a chain sling are to have at least the same SWL as the chain;

- That crane hooks are to be able to rotate freely at all times;
- That if a chain hook opening is stretched more than 5% it is to be disposed of;
- That no bent, distorted or stiff hooks are to be used;
- That welding or repairs are not to be performed on damaged hooks; and
- That hooks are not to have any attachments welded to them.

b) Where rings are to be used, the responsible person shall ensure:

- That rings are to have at least the same SWL as the chain, hook and other parts of any sling used;
- That if a ring is damaged or stretched more than 5%, it is to be disposed of; and
- That rings are not to be placed over a hook unless they can hang freely.

10.6 Slings

Slings are to be used in accordance with the following:

- Allow slings, if wet, to naturally dry;
- Ensure slings are protected from sharp edges during lifting;
- Consult sling load charts for configurations not shown on tags;
- Ensure all relevant inspections are undertaken prior to use;
- Do not use slings that are not tagged;
- Do not drop slings from heights;
- Do not use sling if there is any sign of cuts, snagging, heat or chemical damage, excessive wear, or damaged seams;
- Do not tie knots in sling;
- Do not use sling if crossed or twisted around load;
- Do not expose slings to excessive temperatures; and
- Do not allow abrasive or other damaging grit etc., to penetrate the fibres of the sling.

Note: Nylon slings will lose more than 10% of their strength if wet.

10.7 Shackles

Shackles are to be used in accordance with the following:

- Shackles are to have at least the same SWL as the chain, hook and other parts of any sling used;
- Shackles are not to be used unless the markings are legible;
- Bolts and nuts are not to be used in place of the proper shackle pin;
- Shackles permanently attached to lifting devices are to have their pins secured by seizing or mousing;
- Any shackle that is bent, deformed, damaged or worn in the crown or pin by more than 10% is to be disposed of;
- Applications where movement of the load or rope may possibly unscrew the pin are to be avoided;
- To prevent jamming, shackle pins are only to be tightened finger tight then released a quarter turn prior to use; and

- Only shackles that are large enough to accommodate large slings or multiple rings are to be used when lifting loads

10.8 Spreader Bars and Lifting Beams

Spreader bars and Lifting Beams are to be used in accordance with the following:

- That they be engineer designed and certified;
- That they be operated in accordance with manufacturer's instructions; and
- That they be designed so that the load remains stable.

10.9 Manual Chain and Lever Hoists (Chain Blocks & Come Alongs)

Chain Blocks and come-alongs are to be used in accordance with the following:

- The operator is familiar with the operating controls, procedures and warnings;
- The device is securely attached to a suitable support before attaching a load;
- Load slings or other approved attachments are properly sized, rigged and seated in the hook correctly;
- Take up the slack carefully, make sure the load is balanced and the load holding action of the block is secure before continuing;
- Make sure all persons stay clear of the suspended load;
- Maintain a firm footing or otherwise be secured when operating the device;
- Check the brake function by tensioning the device prior to each lifting operation;
- Use hook latches. Latches are to retain slings, chains etc. under slack conditions only.
- Make sure the hook latches are closed and not supporting any parts of the load;
- Avoid swinging the load or hook;
- Inspect the device regularly, replace damaged or worn parts, and keep appropriate records of maintenance.

10.10 Operation of a Chain Block

- Face the hand chain wheel side of the chain block.
- To raise the load, pull hand chain clockwise.
- To lower the load, pull the hand chain counter-clockwise.

NOTE: The clicking sound of the pawl when a load is being raised indicates normal operation.

10.11 Operation of a Lever Hoist

a) Free Chain Operation

- Do not operate the freewheel knob while a load is applied to the lever hoist;
- Do not touch the free-wheeling knob during lifting or lowering a load;
- Always check that the selector is placed in the proper position;
- Set the selector to the "N" position;
- Pull the free-wheel knob out. The knob turns counter-clockwise and "snaps" out;
- Pull the load chain to move the hook to the desired position;
- To reset the lever hoist to operate, rotate the free-wheel knob clockwise while pulling lightly on the load side of the chain. Once the slack is removed, the free-wheel knob

"snaps" in. This resets the brake and allows the lever hoist to be operated with the hand lever.

b) **Lifting and Lowering Operation** – Operating the lever with the selector set to the lifting "UP" or the lowering "DN" position, perform the following:

- Set the selector to the direction of load movement desired and ratchet the hand lever back and forth;
- In lifting mode, the mechanical brake is engaged and supports the load on the pawls when the lever stops;
- In lowering mode, lever operation releases the mechanical brake and lowers the load, when the lever stops, the mechanical brake is engaged and supports the load;
- The brake is always engaged in the lifting and lowering modes.

10.12 Forklift Attachments

Forklift attachments are to be used in accordance with the following:

- Before use a competent person shall check all lifting and structural components of the forklift attachment.
- Before use a competent person shall check all lifting equipment to be used with the attachment.
- Always check the condition of the item or load to be lifted before lifting it.
- Always work within the capacity of the forklift and attachment being used.
- Ensure that the attachment is not of a higher rating than the forklift.
- Always be aware of the extra length that the attachment may add to the forklift.
- When using jib style attachments be cautious of the load swinging and keep the load as close to the floor as possible.

10.13 Spreader Beams

Spreader beams are to be used in accordance with the following

- Before use a competent person shall check the condition of the beam.
- Before use a competent person shall check all lifting equipment to be used with the beam.
- Never extend a beam past its maximum allowable span (where extendable).
- Always remember; the tare weight of the beam will increase the load on the crane or hoist being used.
- Do not attempt to replace or repair any parts of the beam. Any repairs shall be conducted by a competent Lifting Equipment Specialist.
- Before lifting the load, ensure that the adjustment of the beam is even and the locking pins are securely in place.
- Never modify the beam to increase its adjustment range or capacity.
- Never attempt to adjust the beam in any way whilst under load. If the load is uneven in any way it must be lowered, assessed and then adjusted accordingly.
- Always ensure that the sling angles are correct before taking the load.
- Always know the weight of the load and be sure that all lifting equipment has an adequate SWL for the lift.

10.14 Pallet Lifting Devices

Pallet Lifting Devices are to be used in accordance with the following:

- Before use a competent person shall check all lifting and structural components of the pallet lifting device.
- Before use a competent person shall check all lifting equipment to be used with the pallet lifting device.
- Do not lift uneven or unsteady loads.
- Where possible, the load should be wrapped or secured before being lifted.
- Always ensure that all movable components are in the correct position and secure before lifting the load.
- Always travel loads at the lowest possible height to reduce the risk of falling objects harming personnel.
- Always work within the capacity of the crane or hoist being used.
- Always maintain appropriate exclusion zones at all times.
- When moving loads with a crane, care must be taken not to create a swinging load.
- Always use good lifting and rigging techniques when using these items.

10.15 Work Cages

Work Cages are to be used in accordance with the following:

- Before use a competent person shall check all lifting and structural components of the Work Cage.
- Before use a competent person shall inspect all lifting equipment and attachment points.
- Never enter or exit a suspended work cage except in the event of an emergency.
- Always work within the capacity of the crane being used. Ensure you are working within the cranes SWL at the required radius.
- Never use work cages near live plant or equipment.
- Maintain an exclusion zone at all times.
- All personnel within the Work Cage must be attached to the anchorage point via approved fall arrest equipment.
- The crane being used shall be correctly maintained and inspected in accordance with AS2550.1.
- Work cages shall only be used when no other means of transportation is possible. Never use a work cage as a substitute for normal means of transportation.
- Contact between the crane operator and the personnel in the cage must be maintained at all times and the operator shall stay at the crane controls at all times.

10.16 Oxy/Acetylene Lifting Trolleys/Frames

Oxy/acetylene lifting frames shall only be used in accordance with the following:

- Before use a competent person shall check all lifting and structural components of the Lifting Trolley/Frame.
- Before use a competent person shall check all lifting equipment to be used with the Trolley/Lifting Frame.

- Always ensure that the cylinders being moved are secured correctly with safety pins or safety chains in place.
- Always use good lifting and rigging techniques when using these items.

10.17 Goods Cages

Goods Cages are to be used in accordance with the following:

- Before use a competent person shall check all lifting and structural components of the cage.
- Before use a competent person shall check all lifting equipment to be used with the Goods Cage.
- Always know the weight of the load to be lifted.
- Ensure that the load is even before lifting the cage.
- Always ensure that the drop side or swinging gate is closed securely before lifting the cage.
- Ensure that the contents of the cage cannot fall out. Wrapping or other form of securing the contents of the cage may be necessary to ensure load security.

11. Inspection and Maintenance

a) Lifting equipment is to be stored in a dedicated storage area (preferably off the ground), and protected from damage at all times. Note: purpose built hooks or stands may be used to store lifting equipment.

b) A licensed Dogger or Rigger shall inspect all relevant equipment prior to use, and after any incident which may have caused damage, and maintain all Territory Generation lifting equipment stored / used on site in accordance with manufacturer's recommendations, and relevant Australian Standards.

c) Synthetic slings are to be inspected by a licensed dogger or rigger at intervals not exceeding three (3) months.

d) A documented annual inspection and 'Fitness for Use' review is to be undertaken on all Territory Generation owned lifting equipment by a competent person (i.e. Lifting Equipment Specialist).

e) A Lifting Equipment Register is to be maintained which is to include the identification, inspection and maintenance details records for all lifting equipment components. This will be organised by the relevant asset owner for that site.

f) Details of 3 monthly and annual inspections are to be recorded in the site's Lifting Equipment Register by the Lifting Equipment Specialist.

g) A tag is to be fitted to all lifting equipment by the Lifting Equipment Specialist that clearly identifies the item's currency with respect to its fitness for use.

12. Training and Competency

- Dogging and/or Rigging work is only to be undertaken by persons holding a Doggers or Riggers High Risk Work Licence or by authorised trainees who are under the supervision of a person holding a Doggers licence, in accordance with the NT Workplace Health and Safety Regulations.

Attachment 1: Lifting Equipment Disposal Criteria

Lifting Equipment Disposal Criteria	
Lifting Gear Component	**Disposal Criteria –** Equipment is to be immediately removed from service, tagged with an "Out of Service" tag immediately and repaired or disposed of as soon as practicable.
Chain	• If damaged, or if the SWL is not permanently marked or legible
Steel Wire Rope	• Maximum percentage loss of breaking strength identified during certified physical tensile testing; • Maximum number of broken or cracked outer wires is reached (refer – *Attachment 3: Additional Information for Wire Ropes"*); • More than one-third wear of the rope diameter on outer wires; • 15% loss in effective metallic area due to visible combined wire wear and broken or cracked wires; • Evidence of mechanical damage; • Corrosion damage identified by noticeable pitting or loosening of outer wires; • Evidence of complete strand fracture(s); • Rope has been exposed to extreme thermal effects or electrical arcing; • Rope has diminished to 85% or less of nominal rope diameter; • Rope is stretched or elongated; or • Rope is visibly deformed (i.e. kinked, bent, flattened, birdcaged, core extruded, scrubbed, local diameter increase or decrease or waviness).
Sheave Blocks	• If damaged, or SWL is not permanently marked or legible.
Hooks and Rings	• If damaged, or quality grade or SWL is not permanently marked or legible.
Webb and Synthetic Slings	• The label has been removed; • There is damage to any sleeve or protective coating; • A nylon sling comes into contact with acid; • A polyester sling comes into contact with alkaline substances; • A polypropylene sling comes into contact with organic solvent such as paint, coal tar or paint stripper; or • There are visible cuts on the sling.
Chain Slings	• The label has been removed; • Chain links are defective; or • Chain is damaged.
Wire-Coil Flat Slings	• A dangerous condition is suspected; • Labels have been removed; • Any load-bearing wires are excessively damaged; • Wire-coils are not capable of free articulation; • Wire-coils are damaged by chemicals; or • Sleeve or protective coating is damaged.
Wire Rope Slings	• Shows detrimental corrosion; • Is kinked; or • Is known to have been severely overloaded.
Spreader Bars and Beams	• If damaged; or • If the SWL or self-weight is not permanently marked or legible
Shackles	• If damaged; or the SWL is not permanently marked or legible
Hand Chain and Lever hoists	• If after an inspection by a lifting equipment specialist they deem the device to be unserviceable.

Attachment 2: Lifting Equipment Inspection Checklist

Lifting Equipment Inspection Checklist	
Equipment to be Inspected:	**What to Check for:**
Synthetic Slings	• Internal Wear – Caused by repeated flexing, particularly where particles of grit have penetrated into the fibres. • Damage to a fixed protective coating or sleeve can allow abrasive grit easy access to the sling fibres. • Melting or shrinkage of fibres due to high temperatures. • Prolonged exposure to ultraviolet light. This may be indicated by powdering of the outer layer. • Exposure to chemicals – This may be noticed by surface fibres being plucked or rubbed off and there may be local stiffening of the sling. • Cuts to outer protective sheath • Signs of overloading • Damaged seams • SWL tag is in place and legible • Damage to any eyes (where applicable – usually in synthetic web slings)
Steel Wire Rope Slings	• The rope is well lubricated • Broken wires • Surface wear • Kinks • Crushed or flattened sections • Bird-caging and high stranding • Corrosion (rust) • Damaged Ferrules • Damaged thimbles (where fitted) • Stretching or extended lay • Greater than 33% wear on individual wires • Adjacent broken wires • Heat damage • Damage to any eyes • Damage to any end fittings • SWL tag is in place and legible • Any other obvious damage
Shackles	• Ensure all markings are clearly legible • Ensure pin is the correct type (never replace the pin of a shackle with a bolt) • The threads of the pin and body are undamaged and the pin screws freely into position • The body of the pin is not unduly worn and free from distortion, nicks, gouges, cracks and excessive wear • The pin is screwed tightly with the collar and the pin is bedded evenly on the surface of the shackle eye

	• The correct type of pin is used for the application • A bolt type shackle has a split cotter (safety or split pin) attached correctly. • No signs of exposure to high heat or heat treatment (this may affect their Safe Working Limit) • No modification of the shackle by welding, heating or bending (this will affect the SWL)
Eyebolts	• SWL markings are clear and legible • Deformation and cracking • Inspect the inside of the eye for wear • No damaged threads • Ensure thread centre is aligned with the centre of the eye.
Rigging Screws and Turnbuckles	• SWL and other markings are clearly legible • The body and fitting of the rigging screw or turnbuckle is not distorted. • No nicks, grooves, gouges, cracks or corrosion (rust). • No damage to screw threads. • No signs of being over-tightened.
Manual Chain and Lever Hoists	• Deformation, damage, bends or gouges in the neck of the hook • Suspension pin does not show signs of bending, cracking or wear • Ensure that the side and suspension plates are free from cracks, wear and damage • The load chain is free from nicks, gouges, arc burn, twisted or bent links and has less than 10% wear • Safety latches are fitted and working correctly • Check the SWL/WLL tag is fitted and the SWL/WLL is legible
Forklift Attachments	• All SWL and other certification requirements are attached and clearly legible. • Check all lifting and structural components of the forklift attachment. • Excessive Corrosion (rust). • Deformation and cracking of components. • No deep cuts, nicks and gouges. • No signs of heat damage. • No non approved/certified modifications or welding of the beam. • Any other defects.
Spreader Beams, Work Cages and Goods Cages	• SWL and other certification markings attached and clearly legible. • Deformation and cracking of components. • No deep cuts, nicks and gouges. • No signs of heat damage. • Excessive Corrosion (rust) • No non approved/certified modifications or welding of the beam. • Any other defects.