

# PLANT RISK ASSESSMENT REPORT



## SECTION 1: PLANT IDENTIFICATION

<b>Report Number:</b>	407/201-13	<b>Assessment Date:</b>	1 <sup>st</sup> February 2013
<b>Company:</b>	Wacker Neuson Pty Ltd	<b>Plant Type:</b>	Tracked Dumper
<b>Make:</b>	Wacker Neuson	<b>Models:</b>	DT05, DT08, DT12, DT15 and DT25
<b>Assessment Purpose:</b>	<input type="checkbox"/> Operational risks associated with the unit as it stands – On site <input type="checkbox"/> Operational risks associated with the unit as it stands – Desk top analysis <input type="checkbox"/> Access Systems <input type="checkbox"/> Modification/s <input checked="" type="checkbox"/> Other : Group assessment of plant type		
<b>Assessed by:</b>	Darren Husson – VEHTEC Pty Ltd		

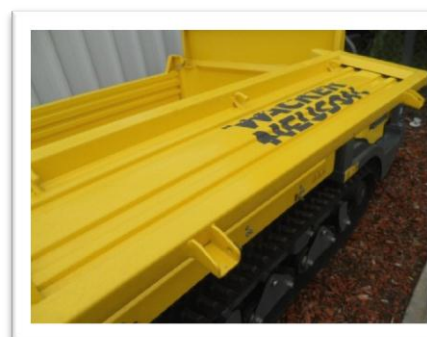
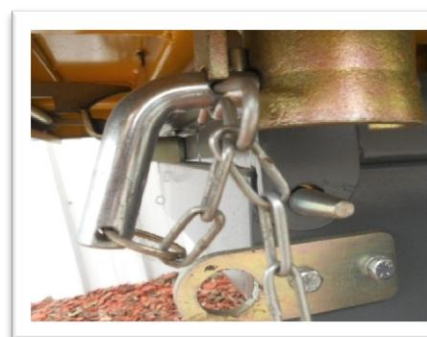
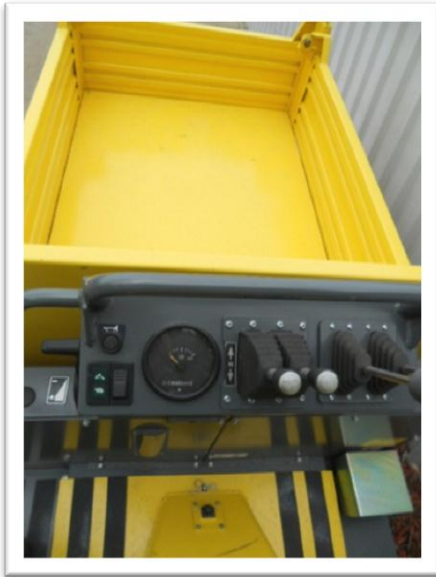


## SECTION 2: PLANT SUMMARY

### Preamble:

The Wacker Neuson range of Tracked Dumpers are specifically designed for tight access , low impact off-road use and can be supplied with a range of factory attachments. Tippers can be front tip, high tip, side tip or swivel tip. Operating widths range from 660mm (DT05) to 1,550mm (DT25 Swivel tip), with the maximum machine payload capacity ranging from 350kg (DT05 high tip) up to 2,500kg (DT25). The units are well decaled with safety and operational instruction. These types of machines are typically hazardous when incorrectly used and/or maintained. Base machines have been assessed without any attachments or payload. This document is intended to highlight Occupational Health Safety and Welfare related risks that may present during on site set up and operation and has been conducted in accordance with the OHS&W Legislation – 2010.

Is the plant designed for its intended use?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<i>Final Sign off by Employer/Owner user - All actions/recommendations complete</i>  Name: _____ Position: _____  Signed: _____ Date: _____
Has the plant been modified from the original design?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Is the plant in good working condition?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Is action required before the plant can be safely used?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Has the required action / remedy been undertaken?	<input type="checkbox"/> Yes <input type="checkbox"/> N/A	



## SECTION 3: RISK ANALYSIS LIKELIHOOD AND CONSEQUENCES

**Table 1. Measure of Likelihood (L)**

Level	Description	Detail
<b>A</b>	Almost Certain	The event is expected to occur in most circumstances
<b>B</b>	Likely	The event will probably occur in most circumstances
<b>C</b>	Moderate	The event should occur at some time
<b>D</b>	Unlikely	The event could occur at some time
<b>E</b>	Rare	The event may occur only in exceptional circumstances

**Table 2. Measure of Consequences or Impact (C)**

Level	Description	Detail
<b>1</b>	Insignificant	No injuries, low financial loss
<b>2</b>	Minor	First Aid treatment, on site release immediately contained, medium financial loss
<b>3</b>	Moderate	Medical treatment required, on site release contained with outside assistance, high financial loss
<b>4</b>	Major	Extensive injuries, loss of production capability, off site release with no detrimental effects, major financial loss
<b>5</b>	Catastrophic	Death, toxic release off site with detrimental effect, huge financial loss

**Table 3. Risk Analysis Matrix (Risk)**

Likelihood	Consequences				
	Insignificant <b>1</b>	Minor <b>2</b>	Moderate <b>3</b>	Major <b>4</b>	Catastrophic <b>5</b>
<b>A</b> (Almost certain)	<b>S</b>	<b>S</b>	<b>H</b>	<b>H</b>	<b>H</b>
<b>B</b> (Likely)	<b>M</b>	<b>S</b>	<b>S</b>	<b>H</b>	<b>H</b>
<b>C</b> (Moderate)	<b>L</b>	<b>M</b>	<b>S</b>	<b>H</b>	<b>H</b>
<b>D</b> (Unlikely)	<b>L</b>	<b>L</b>	<b>M</b>	<b>S</b>	<b>H</b>
<b>E</b> (Rare)	<b>L</b>	<b>L</b>	<b>M</b>	<b>S</b>	<b>S</b>

### Legend:

- **H**= High risk, detailed research and management planning required.
- **S**= Significant risk, senior management attention needed. Continuous review.
- **M**= Moderate risk, management responsibility. Periodic review
- **L**= low risk, manage by routine procedures. Periodic review to ensure risk does not increase.

\*Only hazards with a risk deemed higher than 'low' need to be controlled

## SECTION 4: HAZARD IDENTIFICATION

Hazard Item N°	Hazard Item Observation Detail	Hazard	L	C	Risk
<b>1</b>	<b>Plant in its current state has potential to cause injury/illness due to:</b>				
1.1	Entanglement (Bystander inadvertent involvement with swivel of or raising/lowering tipper or use of attachments. Operator has good vision from operators platform)	Yes	E	3	M
1.2	Puncturing	No			
1.3a	Cutting (Pinch point when closing engine/battery cover, positioning operator step, locating 3 way tipping pins, platform sides and locking dogs where applicable)	Yes	D	3	M
1.3b	(Bystander caught in the swivel of or raising/lowering action of tipper, use of attachments, or movement of the tracked unit)	Yes	E	3	M
1.3c	(Operator raising or lowering the ROPS structure)	Yes	D	3	M
1.4a	Stretching (Operator when accessing operator platform. Grab/hand are fitted providing three points of contact)	Yes	D	3	M
1.4b	(Operator when rip starting DT05)	Yes	D	3	M
1.5	Stabbing	No			
1.6a	Trapping Cutting (Pinch point when closing engine/battery cover, positioning operator step, locating 3 way tipping pins, platform sides and locking dogs where applicable)	Yes	D	3	M
1.6b	(Bystander caught in the swivel of or raising/lowering action of tipper, use of attachments, or movement of the tracked unit)	Yes	E	5	S
1.6c	(Operator raising or lowering the ROPS structure where fitted)	Yes	D	3	M
1.6d	(Unit tipping or rolling over in steep/uneven terrain – or tracks slipping on wet surface – ROPS/FOPS canopy fitted and operators seatbelt to be worn)	Yes	D	4	S
1.7	Abrasion (Bystander caught by product being tipped) (Operator has good vision from operators platform)	Yes	E	3	M
1.8	Engulfment (Bystander caught in product being tipped) (Operator has good vision from operators platform)	Yes	E	3	M
1.9a	Crushing (Pinch point when closing engine/battery cover, positioning operator step, locating 3 way tipping pins, platform sides and locking dogs where applicable)	Yes	E	3	M
1.9b	(Bystander caught in the swivel of or raising/lowering action of tipper, use of attachments, or movement of the tracked unit)	Yes	E	5	S
1.9c	(Operator raising or lowering the ROPS structure where fitted)	Yes	D	3	M
1.9d	(Unit tipping or rolling over in steep/uneven terrain – or tracks slipping on wet surface – ROPS/FOPS canopy fitted and operators seatbelt to be worn)	Yes	D	4	S
1.9e	(Bystander crushed by product being tipped)	Yes	D	4	S
1.10	(Bystander caught in the swivel of or raising/lowering action of tipper, use of attachments, or movement of the tracked unit)	Yes	D	3	M
1.11a	Tearing (Operator when accessing operator platform. Grab/hand are fitted providing three points of contact)	Yes	D	3	M
1.11b	(Operator when rip starting DT05)	Yes	D	3	M
1.12	Asphyxiation	No			
1.13	Slips, Trips (Access is supported by grab/hand rails providing 3 points of contact. Operators are to clean mud and debris from boots before ascending to operator station)	Yes	D	3	M
1.14	Falls (Operator falling from operator platform during operation. Operator seat is fitted with a seat belt, to be used at all times)	Yes	D	2	L
1.15a	Falling Objects (Unsecured loads can fall from the tipper, platform or quick load bucket and impact on bystanders)	Yes	D	4	S
1.15b	Falling Objects (The ROPS rollbar is a fold away design. Use of the ROPS folded down shall be considered carefully)	Yes	D	4	S



1.16	Expelled Parts <b>(No storage allowed on board)</b>	No			
<b>2</b>	<b>Plant in its current or intended state has the potential to create a hazardous condition due to:</b>				
2.1	Pressured Content <b>(Burst hydraulics line – lines are well protected within base units design) (All hydraulic couplings (where fitted) to only be connected / disconnected with engine off and pressure released)</b>	Yes	D	2	L
2.2	Explosion <b>(Battery generates explosive gases – no smoking near battery. Correct battery charging procedures to be employed)</b>	Yes	D	2	L
2.3	Radiation	No			
2.4	Vapour <b>(Open area operator environment - exhaust well vented. Managed by Employer/Owner SOP)</b>	Yes	D	2	L
2.5	Dust <b>(Open operator platform – susceptible to dust from product being transported and/or tipped) (Exposure to be considered as part of the JSA)</b>	Yes	B	1	M
2.6	Moisture <b>(When operated in rainy conditions, risk to be assessed per job) (Exposure to be considered as part of the JSA and managed by Employer/Owner SOP)</b>	Yes	C	1	L
2.7	Gases <b>(Open area operator environment - exhaust well vented)</b>	Yes	D	2	L
2.8	Fire	No			
2.9	Vibration	No			
2.10	Electricity <b>(Raised tipper contacting overhead power lines. Unlikely due to tipper body length and physical constraints)</b>	Yes	E	5	S
2.11	Friction	N/A			
2.12	Ice Formation	N/A			
2.13	Laser Beams	N/A			
2.14	Hot and Cold Parts <b>(Engine when performing maintenance checks, checks to be undertaken when unit is cold. Never open radiator cap when unit is hot)</b>	Yes	E	2	L
2.15	Temperature Extremes <b>(Open area operator environment. Managed by Employer/Owner SOP)</b>	Yes	D	2	L
2.16	Noise (Low dB levels) <b>(Decals on dumpers indicate sound power - Use of noise attenuating PPE should be considered mandatory) (Employer/Owner responsibility)</b>	Yes	A	3	S
<b>Yes / No / N/A</b>					
3	Manual handling requirements have been assessed as acceptable <b>(Lifting points fitted)</b>	Yes			
4	Repetitive, forceful, awkward, sustained movements have been minimised/ eliminated	Yes			
5	The current guard (s) and their condition are adequate for this plant <b>(Designed for application)</b>	Yes			
6	Is the guarding appropriate for all work requirements <b>(Designed for application)</b>	Yes			
7	Operator controls are located for ease of use by operators <b>(Controls located to give operator good vision of task being undertaken)</b>	Yes			
8	Operator controls are identified and marked appropriately	Yes			
9	Emergency stops are clearly marked <b>(Ignition key and stop button)</b>	Yes			
10	Emergency stops are located at the most likely place (s) for emergency use	Yes			
11	The power source of the plant has been designed, constructed, installed, protected, maintained as to minimise the risk of harm to employees <b>(Unit to be maintained as per Operators manual)</b>	Yes			
12	There is provision to lock out the plant, and dissipate energy	Yes			
13	Access platforms/ladders/handrails are provided	Yes			
14	Access to moving parts from the platform can be performed safely	N/A			

15	Access platforms/ladders/handrails provide secure, non-slipping access	Yes			
16	Lighting is adequate for plant operation, maintenance and cleaning at any time <b>(No external work lights fitted) (To be considered as part of the JSA)</b>	No			
17	Noise levels have been assessed as below 85dB(A) <b>(Noise attenuating PPE is required) (Employer/Owner responsibility)</b>	No	D	2	L
18	Personal Protective Equipment (PPE) has been provided for safe operation of this plant <b>(Employer/Owner responsibility)</b>	N/A			
19	PPE requirements are signposted <b>(Employer/Owner responsibility dependant on internal Management Policies)</b>	No			
20	There is provision for safe cleaning of this plant (NB availability of cleaning devices)	N/A			
21	Safe access to areas to be cleaned has been provided	N/A			
22	There is provision for easy and safe scrap removal	Yes			
23	The plant has the potential to jam/block <b>(Tipper system is hydraulically controlled, in the advent of a hose burst the system may jam)</b>	Yes	E	5	S
24	A safe system of work has been established to remove jam/blockage <b>(Only trained operators should attempt to lower the tipper if it is jammed) (Employer/Owner responsibility)</b>	N/A			
25	Safe system of work has been established for any sample retrieval	N/A			
26	There is adequate provision to properly service and routinely grease and oil the plant <b>(Unit to be maintained by appropriately trained personnel)</b>	Yes			
27	Safe systems of work have been established for hazards associated with any necessary maintenance of the plant <b>(Employer/Owner responsibility)</b>	N/A			
28	The rigidity and stability of the plant and supporting structure is adequate. <b>(Unit to be operated within constraints as outlined within the Operators Manual)</b>	Yes			
29	The environment in which the plant is situated has been assessed for its interrelationship with this plant as acceptable <b>(Employer/Owner responsibility)</b>	N/A			
30	Ventilation and/or other air flow needs are adequate	Yes			
31	Static electricity hazards have been assessed and controlled	N/A			
32	Workplace substances associated with the use of the plant have been assessed	N/A			
33	Authorised entry systems for the plant and surrounds have been established	N/A			
34	The upstream and downstream effects of malfunction or unscheduled stoppage of the plant have been considered <b>(Employer/Owner responsibility)</b>	N/A			

## SECTION 5: RISKS AND CONTROLS

Summary of Hazards Identified and solution(s) to adequately manage the respective risk.					
Hazard Item No	Level of Risk		Action Required / Comments		
1.1 1.3a 1.3b 1.3c 1.6a 1.6b 1.6c 1.9a 1.9b 1.9c 1.10	Moderate	Significant	<u>Hazard</u> The operation of the machine and attachments presents entanglement, cutting, trapping, abrasion, engulfment, crushing and shearing hazards.	<u>Action Required</u>	Nil
			<u>Comments</u> Various model dependant attachments are available.		
			<u>Controls</u> Operator is to perform a Jobsite Safety Analysis (JSA) prior to operation of the machine. Work Zone Traffic Management (WZTM) procedures need to be implemented prior to operation.	Responsible Person	Operator
			Non-essential persons and bystanders must be removed from the work zone prior to operation. The operator must select a position for operation that is stable, clear of obstacles and provides a clear view of the work zone.	Due Date	
			Operators are to keep clothes and limbs clear of tipper, tray sides, hinges, 3-way pivots, swivel and scissor lifts when lowering or raising tipping body or other attachments.	Actioned by: (Name & Date)	
			No entry in the area under the tipping body (or machine attachments) is permitted unless the safety prop is engaged.		
			When tipping the operator is to ensure the unit is on level ground, and the tip is initiated as per the manufacturer's guidelines.	Verified by: (Name & Date)	
			The operator is to keep clothing and body clear of ROPS when raising or lowering the ROPS structure. Securing pins are to be used at all times when the ROPS is raised.		
			When undertaking maintenance, care is to be taken when closing the engine and battery cover.		
			<u>Revised Risk Assessment</u> With the above controls in place the risk is considered controlled.		

1.3b 1.6b 1.7 1.8 1.9e	Moderate	Significant	<u>Hazard</u> Bystander caught in tipping action, either by tipper body or product being tipped through the use of an attachment.	<u>Action Required</u>	Nil		
			<u>Comments</u> Various model dependant attachments are available.	Responsible Person	Operator	Due Date	
			<u>Controls</u> Operator to keep bystanders away during operation. Suitable Work Zone Traffic Controls are to be enacted.				
			The operator must select a position for operation that is stable, clear of obstacles and provides a clear view of the work zone.	Actioned by: (Name & Date)			
			When tipping the operator is to ensure the unit is on level ground, and the tip is initiated as per the manufacturer’s guidelines.	Verified by: (Name & Date)			
			<u>Revised Risk Assessment</u> With the above controls in place the risk is considered controlled.				
1.4 1.11 1.13 1.14	Low	Moderate	<u>Hazard</u> Stretching and tearing, slips and trips	<u>Action Required</u>	Nil		
			<u>Comments</u> Some machines have a fold down step for the operators to stand on and are operated standing up.	Responsible Person	Fleet Operator	Due Date	
			The DT05 is manual rip start only.				
			<u>Controls</u> Operators to exit the work platform (where applicable) using the 3 points of contact available. Boots are to be cleared of mud and debris. When starting DT05, operators are to ensure that they are on stable footing and position themselves so that they are not overstretching.	Actioned by: (Name & Date)			
			<u>Revised Risk Assessment</u> With the above controls in place the risk is considered controlled.	Verified by: (Name & Date)			



1.6d 1.9d	Significant	<p><u>Hazard</u> Unit roll over when travelling or tipping in steep or uneven terrain.</p> <p><u>Controls</u> Operator is to perform a Jobsite Safety Analysis (JSA) prior to operation of the tipper body. Work Zone Traffic Management (WZTM) procedures need to be implemented prior to operation.</p> <p>Operators to analyse the area for operation prior to doing so. Tipping body and attachments are only to be operated in terms of the Manufacturers operating instructions.</p> <p>The range has maximum gradeability from 30° to 70°. Refer operator's manual for each model prior to operation in uneven terrain.</p> <p><u>Revised Risk Assessment</u> With the above controls in place the risk is considered controlled.</p>	<u>Action Required</u>	Nil		
			Responsible Person	Operator	Due Date	
			Actioned by: (Name & Date)			
			Verified by: (Name & Date)			
1.15a	Significant	<p><u>Hazard</u> Falling objects.</p> <p><u>Controls</u> Operation of the tipper is to occur only within a designated Work Zone Traffic Management area.</p> <p>When transporting items in tipping body or attachments, the operator shall give consideration to the load, stability and gradient.</p> <p>Care is to be taken when transporting items in the tipping body, or attachments so as not to impact on bystanders.</p> <p><u>Revised Risk Assessment</u> With the above controls in place the risk is considered controlled.</p>	<u>Action Required</u>	Nil		
			Responsible Person	Operator	Due Date	
			Actioned by: (Name & Date)			
			Verified by: (Name & Date)			

1.15b	Significant			<u>Action Required</u>	Nil		
				Responsible Person	Operator	Due Date	
				Actioned by: (Name & Date)			
				Verified by: (Name & Date)			
2.4 2.5 2.6 2.7 2.15 2.16 17	Low Moderate Significant			<u>Action Required</u>	Nil		
				Responsible Person	Operator	Due Date	
				Actioned by: (Name & Date)			
				Verified by: (Name & Date)			

Hazard

Operation without the ROPS deployed.

Comments

Where fitted, the ROPS system can be folded down and the unit can still be operated for limited access sites.

Controls

Careful consideration must be employed for operation with the ROPS in the down position. Controls will need to be instigated within the JSA.

Revised Risk Assessment

With the above controls in place the risk is considered controlled.

Hazard

Environmental hazards

Comments

The operator platform/step is unsheltered from the environment or the load being carried/tipped.

Controls

Operation is only to be within WZTM designated area. Suitably rated PPE is to be worn by the operator at all time when using the machines. Use of noise attenuating PPE to be considered prior to operation.

Employer/Owner SOP to dictate use of machine in wet or extreme weather conditions.

Prior to tipping the operators is to assess the tip site to minimise their exposure to dust.

Revised Risk Assessment

With the above controls in place the risk is considered controlled.

2.10	Significant	High	<u>Hazard</u> Raised tipping body or attachments contacting overhead power lines.	<u>Action Required</u>	Nil		
			<u>Controls</u> Operators to analyse the area for operation prior to doing so. “Look Up and Live” methodology to be used.	Responsible Person	Operator	Due Date	
			Extreme care to be taken when operating around power lines. For tipping operations that need to be conducted around power lines ensure minimum distances are adhered to and utilise a look-out as required.	Actioned by: (Name & Date)			
			Detailed information is available from SA Power Networks: <a href="http://www.sapowernetworks.com.au/centric/corporate/safety/look_up_and_live.jsp">http://www.sapowernetworks.com.au/centric/corporate/safety/look_up_and_live.jsp</a>	Verified by: (Name & Date)			
			<u>Revised Risk Assessment</u> With the above controls in place the risk is considered controlled.				
23	High	High	<u>Hazard</u> Potential to jam or block.	<u>Action Required</u>	Nil		
			<u>Comments</u> The tipper and scissor booms are not fitted with anti-burst valves.	Responsible Person	Operator	Due Date	
			<u>Controls</u> Operator is to perform a Jobsite Safety Analysis (JSA) prior to operation of the excavator. Work Zone Traffic Management (WZTM) procedures need to be implemented prior to operation.	Actioned by: (Name & Date)			
			Bystanders are to keep clear of working machine. Operator is not to lift, move or swing the tipping body or attachments above any person or vehicle. Only trained personnel are to attempt to clear hydraulic jam or blockage.	Verified by: (Name & Date)			
			<b>Anti-Burst Valves are not fitted.</b> Jam/blocks to be cleared as per the Operators Manual. Operators are not to place body or limbs under the tipping body without utilising the safety strut. Clearing of jam/block is only to be undertaken by trained operator or maintenance staff.				
			<u>Revised Risk Assessment</u> With the above controls in place the risk is considered controlled.				

## SECTION 5: CONTROL MEASURES AND TRAINING

### Control Measures

Pre-Operation	A Standard Operating Procedure (SOP) should be developed for the correct use of the units systems and attachments prior to deployment. Complete familiarisation of the Operators Manual and all systems and attachments shall be considered Mandatory.
General Comment	The unit has been assessed as it stands and deemed for off road use only. The unit is intended deployment only with limitations stated within Operators Manual. Appropriate PPE to be worn by the operator as per Employer/Owner Standard Operating Procedures (SOP).
General Operation	This risk assessment does not negate the requirement of the operator/supervisor to conduct an operational risk assessment of this piece of plant for its intended use and its interface with the operators and the suitability of this piece of plant to integrate and complete the required task. <b>Anti-Burst Valves are not fitted, so the machines are not to be operated above or over any person or bystander.</b> This document has been prepared with due care, however cannot be considered complete given the limited knowledge of the intended operational environment. Appropriate PPE to be worn by the operator.
Attachments	The unit has the capacity to be fitted with a variety of attachments. Only OEM attachments (or those authorised by the OEM) should be used on the plant. Non authorised attachments may affect the safety and stability of the plant when in operation. Each attachment may require an additional Risk Assessment to be carried out and/or a revision of this document. Complete familiarity with the attachments Operation Manual shall be considered mandatory prior to operation. Different attachments may impact on current Work Zone Traffic Management paradigms.
Work Zone Traffic Management	This risk assessment has been prepared with the knowledge that effective Work Zone Traffic Management (WZTM) systems will be employed in line with AS1742.3, WHS Act 2012 (SA), WHS Regulations 2012 (SA), Road Traffic Act 1961 and internal Standard Operating Procedures.

### Operator Competencies

Formal Qualifications:	Must comply with the regulations enforced by the WorkSafe authority within the state that the plant is being operated.
Competency Assessed Skills:	Skills must comply with the requirements of the guidelines established by the relevant state based WorkSafe authority and assessed by the state WorkSafe body's authorised assessor.
General Training Instruction:	On the job training by qualified Operator
Experience:	As appropriate and assessed (as above)
Standard Work Procedure (s):	To be developed by the Employer/Owner

## SECTION 7: PLANT INSPECTIONS, MAINTENANCE AND TESTING

Inspection, Maintenance and Testing Requirements	Frequency
Manufacturers Operator and Service manuals as supplied with the unit	Refer Operator Manual
Servicing and Maintenance	As per Manufacturers guidelines
Tracks to be checked for correct tension	Once per month

*\*This is not a definitive list and may need to be revised over time*