PLANT RISK ASSESSMENT REPORT

VEHTEC
DESIGN | MANAGE | SUSTAIN

SECTION 1: PLANT IDENTIFICATION

Report Number:	407/9087		**Assessment Date:**	13th May 2020
Company:	Wacker Neuson		**Plant Type:**	Dual View Dumpers
Make:	Wacker Neuson		**Variants:**	DV60, DV90
Assessment Purpose:	☒	Operational risks associated with the unit as it stands – On site		
	☐	Operational risks associated with the unit as it stands – Desk top analysis		
	☐	Access Systems		
	☐	Modification/s		
	☒	Other : Group assessment of plant type		
Assessed by:	Darren Husson – VEHTEC Pty Ltd			

SECTION 2: PLANT SUMMARY

Preamble: This Wacker Neuson range of Dual View Dumpers are fitted with a 180° turning operators console (incl. seat) and are specifically designed for construction site use with high clearance and a centre-pivot turning point. As assessed the range is equipped with a ROPS/FOPS certified enclosed cabin. The models assessed have a capacity of either 6,000kg's or 9,000kg's with the variants offering high lift, fixed tip or swivel tipping skips. As standard are a road lighting kit and a reversing camera. This risk assessment covers the configuration at the time of assessment, with consideration of available OEM options, however without modification from the manufacturer's specification. 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 Work Health and Safety Act (SA).

Is the plant designed for its intended use?	☒ **Yes** ☐ **No**	*Final Sign off by Employer/Owner user - All actions/recommendations complete*
Has the plant been modified from the original design?	☐ **Yes** ☒ **No**	Name: _____ Position:_____
Is the plant in good working condition?	☒ **Yes** ☐ **No**	
Is action required before the plant can be safely used?	☒ **Yes** ☐ **No**	Signed: _____Date:_____
Has the required action / remedy been undertaken?	☐ **Yes** ☐ **N/A**	





dual view
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SECTION 3: RISK ANALYSIS LIKELIHOOD AND CONSEQUENCES

Table 1. Measure of Likelihood (L)		
Level	**Description**	**Detail**
A	Almost Certain	The event is expected to occur in most circumstances
B	Likely	The event will probably occur in most circumstances
C	Moderate	The event should occur at some time
D	Unlikely	The event could occur at some time
E	Rare	The event may occur only in exceptional circumstances

Table 2. Measure of Consequences or Impact (C)		
Level	**Description**	**Detail**
1	Insignificant	No injuries, low financial loss
2	Minor	First Aid treatment, on site release immediately contained, medium financial loss
3	Moderate	Medical treatment required, on site release contained with outside assistance, high financial loss
4	Major	Extensive injuries, loss of production capability, off site release with no detrimental effects, major financial loss
5	Catastrophic	Death, toxic release off site with detrimental effect, huge financial loss

Table 3. Risk Analysis Matrix (Risk)					
	Consequences				
Likelihood	Insignificant **1**	Minor **2**	Moderate **3**	Major **4**	Catastrophic **5**
A (Almost certain)	**S**	**S**	**H**	**H**	**H**
B (Likely)	**M**	**S**	**S**	**H**	**H**
C (Moderate)	**L**	**M**	**S**	**H**	**H**
D (Unlikely)	**L**	**L**	**M**	**S**	**H**
E (Rare)	**L**	**L**	**M**	**S**	**S**

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

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.

SECTION 4: HAZARD IDENTIFICATION

Hazard Item N°	Hazard Item Observation Detail	Hazard	L	C	Risk
1	**Plant in its current state has potential to cause injury/illness due to:**				
1.1	Entanglement **(Bystander inadvertent involvement with swivel of or raising/lowering of the skip. Operator has good vision from cabin/operators platform when facing skip – reversing camera fitted if facing away from skip)**	**Yes**	**E**	**3**	**M**
1.2	Puncturing **(Bystander inadvertent involvement with swivel of or raising/lowering of the skip. Operator has good vision from cabin/operators platform when facing skip – reversing camera fitted if facing away from skip)**	**Yes**	**E**	**3**	**M**
1.3a	Cutting **(Pinch point when closing engine/inspection covers and windows and when rotating operators console)**	**Yes**	**D**	**3**	**M**
1.3b	**(Bystander caught in the swivel of or raising/lowering action or tilting mechanism of the skip)**	**Yes**	**D**	**3**	**M**
1.4	Stretching **(Operator when accessing cabin/operator platform. Grab/hand are fitted to assist entry/egress)**	**Yes**	**D**	**3**	**M**
1.5	Stabbing	No			
1.6a	Trapping **(Pinch point when closing engine/inspection covers and windows and when rotating operators console)**	**Yes**	**D**	**3**	**M**
1.6b	**(Bystander caught in the swivel of or raising/lowering action of the skip)**	**Yes**	**E**	**3**	**M**
1.6c	**(Unit tipping or rolling over when tipping in steep/uneven terrain)**	**Yes**	**D**	**4**	**S**
1.6d	**(Wheel nuts coming loose after wheel removal or incorrect tyre air pressures)**	**Yes**	**E**	**3**	**M**
1.7a	Abrasion **(Bystander caught in product being tipped. Operator has good vision from operators platform)**	**Yes**	**E**	**3**	**M**
1.7b	**(Operator inadvertent impact with external mirror when entering the cabin)**	**Yes**	**D**	**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/inspection covers and windows and when rotating operators console)**	**Yes**	**E**	**3**	**M**
1.9b	**(Bystander caught in the swivel of or raising/lowering action of the skip)**	**Yes**	**E**	**3**	**M**
1.9c	**(Unit tipping or rolling over when tipping in steep/uneven terrain)**	**Yes**	**D**	**4**	**S**
1.9d	**(Wheel nuts coming loose after wheel removal or incorrect tyre air pressures)**	**Yes**	**E**	**3**	**M**
1.9e	**(Crush zone when turning. Transport lock to be in place when undertaking maintenance in crush zone and power to be isolated)**	**Yes**	**E**	**4**	**S**
1.10a	Shearing **(Bystander caught in the swivel of or raising/lowering action of the skip)**	**Yes**	**D**	**3**	**M**
1.10b	**(Pinch point when closing engine/inspection covers and windows and when rotating operators console)**	**Yes**	**D**	**3**	**M**
1.11	Tearing **(Operator when accessing cabin/operator platform. Grab/hand are fitted to assist entry/egress)**	**Yes**	**D**	**3**	**M**
1.12	Asphyxiation **(Unit not to be operated within a confined area. Controlled by Employer/Owner SWP)**	**Yes**	**D**	**2**	**L**
1.13	Slips, Trips **(Unit is fitted with access steps that provide residue gaps and adequate tread width. Grab/hand rails are present to assist entry/egress)**	**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 when in operation)**	**Yes**	**D**	**2**	**L**
1.15a	Falling Objects **(Unsecured loads can fall from the skip and impact on bystanders)**	**Yes**	**D**	**4**	**S**

1.15b	**(Wheel nuts that are not tensioned correctly may come loose and cause a runaway wheel which can impact other road users or bystanders)**	**Yes**	**D**	**4**	**S**
1.16	Expelled Parts **(The tow pin shall be correctly and securely restrained before use)**	**Yes**	**D**	**4**	**S**
2	**Plant in its current or intended state has the potential to create a hazardous condition due to:**				
2.1	Pressured Content **(Burst hydraulics line – lines are well protected within base units design)**	**Yes**	**E**	**2**	**L**
2.2	Explosion **(Battery generates explosive gases – no smoking near battery. Correct battery charging procedures to be employed)**	**Yes**	**D**	**2**	**L**
2.3	Radiation	No			
2.4	Vapour **(Exhaust well vented)**	No			
2.5	Dust **(Closed operators environment – all use controlled by Employer/Owner SWP and site policy)**	**Yes**	**D**	**3**	**M**
2.6	Moisture **(Closed operators environment – all use controlled by Employer/Owner SWP and site policy)**	**Yes**	**D**	**3**	**M**
2.7	Gases **(Open area during operation, exhaust well vented)**	No			
2.8	Fire	No			
2.9	Vibration	No			
2.10	Electricity **(Raised skip contacting overhead power lines. Unlikely due to skip length and physical constraints)**	**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 **(Engine when performing maintenance checks, checks to be undertaken when unit is cold. Never open radiator cap when unit is hot)**	**Yes**	**E**	**2**	**L**
2.15	Temperature Extremes **(Open air operational environment, subject to Employer/Owner SWP and internal policies)**	No			
2.16	Noise (Low dB levels) **(Decals on vehicle indicate sound power - Use of noise attenuating PPE should be considered mandatory)**	**Yes**	**A**	**3**	**S**
		Yes / No / N/A			
3	Manual handling requirements have been assessed as acceptable	N/A			
4	Repetitive, forceful, awkward, sustained movements have been minimised/ eliminated	N/A			
5	The current guard (s) and their condition are adequate for this plant **(Designed for application)**	Yes			
6	Is the guarding appropriate for all work requirements **(Designed for application)**	Yes			
7	Operator controls are located for ease of use by operators **(Controls located to give operator good vision of task being undertaken. Controls ,move with operators seat when rotated)**	Yes			
8	Operator controls are identified and marked appropriately	Yes			
9	Emergency stops are clearly marked **(Handbrake and Ignition Key)**	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 **(Unit to be maintained as per Operators manual)**	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 **(Safety lighting and external work lights can be fitted as an option on some models)**	**No**	**E**	**1**	**L**
17	Noise levels have been assessed as below 85dB (A) **(Operators noise level unknown. Noise attenuating PPE to be worn as per Employer/Owner SWP)**	**Yes**	**D**	**2**	**L**
18	Personal Protective Equipment (PPE) has been provided for safe operation of this plant **(Employers responsibility)**	N/A			
19	PPE requirements are signposted **(Employers' responsibility dependant on internal Management Policies)**	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 **(Skip tipping system is hydraulically controlled, in the advent of a hose burst the system may jam)**	**Yes**	**D**	**3**	**M**
24	A safe system of work has been established to remove jam/blockage **(Only trained operators should attempt to lower the skip if it is jammed. Any jam/block should be cleared by a trained technician. Employer/Owner assessment required)**	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 **(Unit to be maintained by appropriately trained personnel)**	Yes			
27	Safe systems of work have been established for hazards associated with any necessary maintenance of the plant **(Employer/Owner responsibility)**	N/A			
28a	The rigidity and stability of the plant and supporting structure is adequate. **(Unit to be STRICTLY operated within constraints as outlined within the Operators Manual)**	**Yes**	**E**	**3**	**M**
28b	(The dumper is fitted with a rear tow point)	**Yes**	**E**	**4**	**S**
29	The environment in which the plant is situated has been assessed for its interrelationship with this plant as acceptable **(Employer/Owner responsibility)**	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 **(Employer/Owner responsibility)**	N/A			

SECTION 5: RISKS AND CONTROLS

<table>
<tr><th colspan="6">Summary of Hazards Identified and solution(s) to adequately manage the respective risk.</th></tr>
<tr><th>Hazard Item No</th><th colspan="2">Level of Risk</th><th colspan="3">Action Required / Comments</th></tr>
<tr><td rowspan="4">1.1
1.2
1.3a
1.3b
1.6a
1.6b
1.7a
1.7b
1.8
1.9a
1.9b
1.9e
1.10a
1.10b</td><td rowspan="4">Moderate</td><td rowspan="4">Significant</td><td rowspan="4">Hazard
Wheel dumper use and skip operation presents entanglement, cutting, trapping, abrasion, crushing and shearing hazards.

Comments
The site must be assessed for its suitability prior to operation of the wheel dumper. The operator has the ability to change the seating (and driving direction) for efficiencies. The dumper is also fitted with a reversing camera to the ‘rear’.

Controls
Operator is to perform a Safe Work Method Statement (SWMS) or Jobsite Safety Analysis (JSA) prior to on-site access and use of the dumper. Work Zone Traffic Management (WZTM) procedures need to be implemented prior to operation. 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.

The operator is to exercise care and vigilance when closing doors, windows and engine cover and when rotating the operator’s console. After rotating the operators console the securing pin is to be fully and securely engaged. Operator shall check this engagement before operating the dumper.

Care is to be taken when entering or exiting from the cabin as the external mirror may pose an impact hazard to the operator if not aware.

When undertaking maintenance, the pivot lockout / transport lock is to be used at all times. Bystanders are to be kept clear of pivot centre. Care to be taken when closing the engine cover.

Revised Risk Assessment
With the above controls in place the risk is considered controlled.</td><td>Action Required</td><td colspan="3">Employ controls. Consider inclusion within a Safe Work Procedure (SWP).</td></tr>
<tr><td>Responsible Person</td><td>Employer/Owner/Operator</td><td>Due Date</td><td>As required</td></tr>
<tr><td>Actioned by:
(Name & Date)</td><td colspan="3"></td></tr>
<tr><td>Verified by:
(Name & Date)</td><td colspan="3"></td></tr>
</table>

1.4 1.11 1.13	Moderate	Hazard Stretching and tearing when entering or egressing from the operator's cabin/platform. Comments Access steps are fitted to facilitate entry and exit from the cabin/operator's platform. These steps are supported by hand rails to allow the operator to access three (3) points of contact. Controls Operators to exit the work platform in the same orientation they entered. Utilise the three points of contact principle. Clean residue mud from boots and steps as required. Revised Risk Assessment With the above controls in place the risk is considered controlled.	Action Required	Employ controls. Consider inclusion within a Safe Work Procedure (SWP).		
			Responsible Person	Employer/Owner/Operator	Due Date	As required
			Actioned by: (Name & Date)			
			Verified by: (Name & Date)			
2.5 2.16 17	Moderate / Significant	Hazard Environmental hazards and Noise Comments Although supplied with an enclosed cabin, the operator has the ability to open side windows and door when in operation. Controls Wheel dumper location must be assessed for its suitability prior to operation. Suitably rated PPE is to be worn by the operator at all time when using the machine. Use of noise attenuating PPE to be worn as per Employer/Owner SWP, site policy and operating procedures. Revised Risk Assessment With the above controls in place the risk is considered controlled.	Action Required	Employ controls. Consider inclusion within a Safe Work Procedure (SWP).		
			Responsible Person	Employer/Owner/Operator	Due Date	As required
			Actioned by: (Name & Date)			
			Verified by: (Name & Date)			

1.6c 1.6d 1.9c 1.9d 1.15a 1.15b 1.16 28a 28b	**Moderate**	**Significant**	Hazard Rollover through incorrect use, falling and expelled objects. Comments By design the dumper articulates for turning around at a central pivot point. No storage facility existing on the tipper outside of any existing designated pockets or facility. A tow point with removable ball/pin is fitted to the 'rear' of the dumper. The dumper is fitted with a ROPS/FOPS certified cabin and is decaled with warning and advise decals Controls Operation of the tipper is to occur only within a designated Work Zone Traffic Management area. Prior to use, the operators shall be fully aware of the implications of the articulated steering and the limitations on tipping and use of the dumper, especially when side tipping (if applicable). The operator shall wear the seat belt at all times when operating the dumper. Operators must ensure that the dumper WLL is strictly respected at all times. Before initiating tipping action, the operator shall ensure that the dumper is positioned as per manufacturer's instruction (Warning decals fitted) and on stable ground. Particular vigilance is required if fitted with side tipping capabilities. Wheel nuts are to be visually checked prior to operation and physically checked after a wheel has been removed for maintenance as per the manufacturer's recommendations. The tow pin shall be securely located and retained prior to use. Operator shall be aware of the tow pin WLL before use and respect the limit all times. Tow point shall only be used in terms of Employer/Owner SWP. No items, tools etc. are to be stored or carried outside of the cabin. Revised Risk Assessment With the above controls in place the risk is considered controlled.	Action Required	Employ controls. Consider inclusion within a Safe Work Procedure (SWP).		
				Responsible Person	Employer/Owner/Operator	Due Date	As required
				Actioned by: (Name & Date)			
				Verified by: (Name & Date)			

<table>
<tr><td rowspan="4">2.10</td><td rowspan="4">Significant</td><td rowspan="4">Hazard
Raised skip body can come into contact with low hanging overhead power lines.

Controls
Operators to analyse the area for operation prior to doing so. “Look Up and Live” methodology to be used.

Extreme care to be taken when operating around power lines. For lifts that need to be conducted around power lines ensure minimum distances are adhered to and utilise a look-out as required.
Detailed information is available from SA Power Networks: http://www.sapowernetworks.com.au/centric/corporate/safety/look_up_and_live.jsp

A suitably rated fire extinguisher shall be fitted before use.

Revised Risk Assessment
With the above controls in place the risk is considered controlled</td><td>Action Required</td><td colspan="3">1. A suitably rated fire extinguisher shall be fitted before use.
2. Employ controls. Consider inclusion within a Safe Work Procedure (SWP).</td></tr>
<tr><td>Responsible Person</td><td>Employer/Owner/Operator</td><td>Due Date</td><td>Immediate</td></tr>
<tr><td>Actioned by:
(Name & Date)</td><td colspan="3">1.
2.</td></tr>
<tr><td>Verified by:
(Name & Date)</td><td colspan="3">1.
2.</td></tr>
<tr><td rowspan="4">23</td><td rowspan="4">Moderate</td><td rowspan="4">Hazard
Jam/block.

Comments
Only to be used for tipping within a Work Zone Traffic Management (WZTM) designated area. In the advent of a mechanical or hydraulic fault the skip may suddenly lower without warning as no hose burst protection is fitted.

Controls
Jam/blocks to be cleared as per the Operators Manual. Operators are not to place body or limbs under the skip without utilising the supplied and attached safety strut. Clearing of jam/block is only to be undertaken by trained operator or maintenance staff.

Revised Risk Assessment
With the above controls in place the risk is considered controlled.</td><td>Action Required</td><td colspan="3">Employ controls. Consider inclusion within a Safe Work Procedure (SWP).</td></tr>
<tr><td>Responsible Person</td><td>Employer/Owner/Operator</td><td>Due Date</td><td>As required</td></tr>
<tr><td>Actioned by:
(Name & Date)</td><td colspan="3"></td></tr>
<tr><td>Verified by:
(Name & Date)</td><td colspan="3"></td></tr>
</table>

SECTION 5: CONTROL MEASURES AND TRAINING

Control Measures

Pre-Operation	A Safe Work Procedure (SWP) should be developed for the correct use of the units systems prior to deployment. Complete familiarisation of the Operators Manual and all systems shall be considered Mandatory.
General Comment	The unit has been assessed as it stands and deemed for on-site use only.
General Operation	The unit is intended for relatively flat ground tipper deployment only. Appropriate PPE to be worn by the operator as directed by Employer/Owner SWP.
Operational Risk	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. This document has been prepared with due care, however cannot be considered complete given the limited knowledge of the intended operational environment. The unit has been supplied to the client's specification as per the purchase order received, and it is assumed the original specification was developed with the operational nature of the vehicle in mind.
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, WH&S Act (SA), WH&S Regulations (SA), Road Traffic Act 1961 and internal Safe Work Procedures.
Continuous Review	This document is not intended to be static, nor is it intended to be considered complete for all situations. This document forms the basis to allow the Employer/Owner of the asset to have an informed position. A system of continuous review should be embraced in line with Management Policies.

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 experienced trainer or operator
Experience:	As appropriate and assessed (as above)
Safe Work Procedure (s):	To be developed by the Employer/Owner

SECTION 6: PLANT INSPECTIONS, MAINTENANCE AND TESTING

Inspection, Maintenance and Testing Requirements	Frequency
Manufacturers Operator and Service manuals as supplied with the unit	Refer Operator Manual
Tyre pressures – refer to Operator Manual or Placard for recommended pressures	Visually - Daily
	Physically - Monthly
Wheel nuts to be checked for correct tension	Visually - Daily

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