RISK ASSESSMENT
TANDEM ASPHALT ROLLERS
TYPES CC series rollers

INDEX

DYNAPAC RISK ASSESSMENT
Tandem Asphalt Rollers,

OBJECTIVE:

The objective of the **Risk Assessment** is to protect the health and safety of persons from all reasonably foreseeable *hazards* arising from Plant, Systems of Work and Use of such Plant as supplied by Dynapac Australia Pty Ltd by;

- Ensuring that all reasonably foreseeable *hazards* associated with the use of Dynapac plant are identified as is reasonably practicable and is assessed and controlled.
- Compliance with the OH&S Act 2000 and the OH&S Regulation 2001.
- Provision of relevant information and training

COMMENTARY:

Employers have obligations under the *Occupational Health and Safety Regulation 2001* to identify any foreseeable hazards that may arise in the workplace and to assess the risk of harm arising from the identified hazards.

Employers then have an obligation to eliminate the hazards. If this is not "reasonably practicable" they must control the risk by implementing measures to lessen the risk of harm to the lowest possible level.

Dynapac has an obligation under Chapter 5 of the *Occupational Health and Safety Act 2000 & the OH&S Regulation 2001* to provide its customers with a risk assessment covering the following;

Division 2
- Design of plant
- Manufacturer of plant
- Sale of Plant
-

The attached Risk Assessment covers this obligation in respect of Plant provided in Australia by Dynapac Australia Pty Ltd.

Dynapac has made every effort possible to provide all the information necessary to identify any reasonably foreseeable hazards that will impact on the use of its plant and on its customers operations and is based on a range of environmental and operational conditions in which the plant is

designed to operate viz.: highway, streets, roads & parking lots, construction and maintenance, large building foundations, airfields, dams, other construction site services & landscaping. *They are not intended for site clearing, overhead demolition or forestry.*
As the operation and use of Tandem Asphalt Rollers may introduce hazards which are site specific, it is the responsibility of the owner/operator to carry out site specific Job Safety & Environment Analysis (JSEA) as identified in the risk assessment.

To assist in this, a standard JSEA form is provided as part of the Risk Assessment package.

In order to fore fill Dynapac's obligation in the ongoing review of the Risk Assessments, the owner/operator of the plant is required to provide to Dynapac, information about the design, manufacture or use of the plant, any faults that have the potential to harm the safety or health of any person.

Where additional faults & resulting potential *hazards* are identified, which result from any accident investigations and incident reports (including near misses), which may indicate that the risk assessment is no longer valid, a Risk Action Plan should be put in place to eliminate or control the risk and a copy should be provided to Dynapac for its risk assessment review.

In addition any Plant faults should be recorded on a Plant Fault Report which is to be submitted to Dynapac & is included in the package.

A proforma action plan is provided, as part of the Risk Assessment package for the owner's/ operator's use.

DISCLAIMER:

Every effort has been made to identify the causes of hazards that pose a risk to the health & safety of the people which may come in contact with the plant supplied by Dynapac. Risk Management covers a diverse range of risks from commercial & legal relationships to management activities & controls. The intent of this assessment is to identify those areas which pose a threat to health & safety.
A risk assessment is part of the process of Risk Management, it is an interactive process consisting of steps which, when undertaken in sequence, enable improvement in decision making. It requires a high degree of monitoring & follow up. As the use of Dynapac equipment can cover a diverse range of situations, it is not always possible to foresee all sources of risk. Owners & Operators are encouraged to continually update Dynapac with information which may impact on the safe use of the plant & to keep abreast of the legislative requirements as applied to Plant.
Dynapac reserves the right to make changes with out notice. Photos & illustrations do not always show standard versions of the plant.
Material contained in this assessment does not imply or contain warranties of any kind.

DEFINITIONS:

Hazard- A source of potential harm or a situation with a potential to cause injury or illness.

Risk- The chance of something happening that will have an impact upon company objectives.

Risk Assessment- The process used to determine the risk management control measures by evaluating and comparing the level of risk against predetermined standards, target risk levels and other criteria.

Where additional hazards are identified, which result from any accident investigations and incident reports (including near misses) which may indicate that the risk assessment is no longer valid, a Risk Action Plan should be put in place to eliminate or control the risk and a copy should be provided to Dynapac for its risk assessment review. A pro forma action plan is provided, as part of the Risk Assessment package for the owner's/ operator's use.

How to use the Risk Assessment:

The following risk assessment is formatted by:

Hazard Category as the page heading, for example Slipping tripping and falling.

Each causal factor is then given an item No.

The cause is identified in the next column with the red heading.

The risk level is ranked, "L", low or "H" High.

The next column is to provide a revision reference.

The central column highlighted in green, list the control measures in place or that need to be implemented to eliminate or minimise the hazard.

The control reference columns highlighted in blue, indicated the reference in the Safety Manual and Instruction Manual.

Clauses are indicated such; 1.5, page numbers 18/ or page and clause numbers 3/5 and service hrs 250hr. The last column indicates the relevant standards which pertain to the control of the hazard.

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Tandem Asphalt Rollers

INDEX OF SIGNIFICANT HAZARDS

Hazards, hazardous situations and hazardous events

Deleted: ¶
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Item	Hazard	Standard EN 500-1:2001
1	**MECHANICAL HAZARDS** due to:	**8**
	-machine parts & work pieces, e.g.: shape, location, mass & stability, mass & velocity, mechanical strength.	
	-accumulation of energy inside the machine e.g.: springs, liquids & gases under pressure, effect of vacuum.	**5.10.2** **5.10.3**
	-crushing hazard	**5.3.2, 5.9.2**
	-shearing hazard	**5.3.1, 5.9**
	-cutting or severing hazard	**5.3.1**
	-drawing in or severing hazard	**5, 5.2.4, 5.9**
	-impact hazard	**5.9**
	-stabbing or puncture hazard	**5.9**
	-friction or abrasion hazard	**5.10.1**
	-high pressure fluid injection or ejection hazard	**5.10.1, 5.10.3**
	-ELECTRICAL HAZARD Due to:	
	-contact of persons with live parts	**5.15.3, 5.15.4, 5.15.5, 5.15.6, 5.15.7**
	-electrostatic phenomena	**5.15, 5.16**
	-Thermal radiation or other phenomena such as projection of molten particles & chemical effects from short circuits & overloads.	**5.14, 5.15**
3	**THERMAL HAZARDS,** resulting in:	
	-burns scalds & other injuries by a possible contact of persons with objects or materials with an extreme high or low temperature, by flames or explosions & by radiation of heat sources	**5.10.1, 5.11, 5.12, 5.14**
	Damage to health by hot or cold working environments	**5.3.2**
4	**HAZARDS GENERATED BY NOISE** resulting in:	
	-hearing loss & other physiological disorders e.g.: loss of balance, loss of awareness.	**5.17.6**
	-interference with speech communication, acoustic signals, etc.	**5.13.1**

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Hazards, hazardous situations and hazardous events

Item	Hazard	Standard EN500-1:2001
5	**HAZARDS GENERATED BY VIBRATION**	
	-whole body vibration, particularly when combined with poor postures	**5.17.3, 5.17.4, 6**
6	**HAZARDS GENERATED BY RADIATION**	
	-low frequency, radio frequency radiation, micro waves	**5.16**
	-infrared, visible & ultraviolet light	**5.5.2.5**
	-laser	**5.5.2.5**
7	**HAZARDS GENERATED BY MATERIALS & SUBSTANCES,** processed or used by the plant:	
	-hazards from contact with/or inhalation of harmful fluids, gases, mists, fumes & dusts	**5.3.2, 5.14**
	-fire or explosion hazard	**5.11, 5.14**
8	**HAZARDS GENERATED BY NEGELECTING ERGONOMIC PRINCIPLES IN MACHINERY DESIGN AS,** e.g. hazards from:	
	-unhealthy postures or excessive effort.	**5.3, 5.4, 5.5**
	-inadequate consideration of hand-arm or foot leg anatomy.	**5.3, 5.4, 5.5**
	-neglected use of personal protection equipment	**6**
	-inadequate local lighting.	**5.3.2**
	-mental stress	**5.17,6**
	-human error, human behavior	**5.5 to 5.18**
	-inadequate design, location or identification of manual controls.	**5.3 to 5.8**
	-inadequate design or location of visual display units.	**5.5**
	-neglecting principals of safety integration	**5.2, 5.3.2, 5.5, 5.7.5**
	-inadequate guards and protection devices	**5.3.2, 5.9**
	-inadequate operating position	**5.3, 5.4, 5.5**
	-inadequate design of adjustment , service &maintenance places &access to these places	**5.5**

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Item	Hazard	Standard EN500-1:2001
9	**COMBINATION OF HAZARDS**	**5.3.1**
10	**UNEXPECTED START-UP, UNEXPECTED OVERRUN/OVERSPEED** (or similar malfunction) from:	
	-failure/disorder of the control system	**5.5**
	-external influences on control system or electrical systems	**5.15, 5.16**
	- errors in soft ware	**5.5, 5.15, 5.16**
	-errors made by the operator (due to mismatch of human characteristics & abilities)	**5.5, 5.6, 5.7, 5.8**
11	**IMPOSSIBILITY OF STOPPING THE PLANT IN THE BEST POSSIBLE CONDITION**	**5.5, 5.7**
12	**FAILURE TO ADEQUATELY REPAIR & MAINTAIN THE PLANT**	
13	**FAILURE OF THE POWER/ENERGY SUPPLY**	**5.5, 5.15**
14	**FAILURE OF CONTROL CIRCUIT**	**5.5, 5.15**
15	**ERRORS OF FITTING**	**5.10.1**
16	**FAILURE TO PROVIDE & WEAR PERSONAL PROTECTION EQUIPMENT**	**6**
17	**FALLING OR EJECTED OBJECTS OR FLUIDS**	**5.10**
18	**MAINTENANCE OF CONTROL MEASURES & SYSTEMS OF WORK**	
19	**SLIP,TRIP& FALL OF PERSONS** (related to the plant)	**5.5.2.7, 5.8**
	ADDITIONAL HAZARDS, HAZARDOUS SITUATIONS & HAZARDOUS EVENTS DUE TO THE MOBILE NATURE OF THE PLANT	
20	**HAZARDS RELATING TO THE TRAVELLING FUNCTIONS OF THE PLANT**	
	-movement of the plant when starting the engine	**5.6**
	-movement without the driver in the driving position	**5.5.2.4, 5.5.2.6**
	-movement without all guards and parts in position	**5.5.2.4, 5.5.2.8**
	-traveling function	**5.2.3, 5.5, 5.6, 5.7**
	-excessive oscillation when moving	**5.2.3**
	-insufficient ability of the plant to be slowed down, stopped & immobilised	**5.7**
	-remote control	**5.5.2.5**

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Item	Hazard	Standard EN500-1:2001
21	**HAZARDS LINKED TO THE WORK POSITION** (including driving position)	
	-fall of persons during access to (or at/from) the drive/work position(s)	**5.8**
	-Exhaust gases/lack of oxygen at the driving/work position	**5.3.1, 5.9.1, 5.14**
	-fire (flammability of the cab, lack of extinguishing means)	**5.11**
	-roll over	**5.10 of EN500-4**
	-insufficient visibility from the drive/work position(s)	**5.3.1**
	Inadequate drive/work lighting	**5.1**
	-inadequate seating	**5.4**
	-noise at the drive/work position(s)	**5.17**
	-vibration at the drive/work position(s)	**6**
	-insufficient means of evacuation/emergency exit	**5.3.2**
22	**HAZARDS DUE TO THE CONTROL SYSTEM**	
	-inadequate design of energy/control circuits	**5.2.3, 5.5, 5.6, 5.7, 5.15**
	-inadequate design of the location of manual controls	**5.5, 5.6, 5.7**
	-inadequate design of the manual controls & their mode of operation	**5.5.2**
23	**HARZARDS DUE TO THE STABILITY OF THE PLANT**	**5.2.6**
24	**HAZARDS DUE TO THE POWER SOURCE AND THE TRANSMISSION OF POWER**	
	-hazards from the engine & the batteries	**5.6.3, 5.15.4, 5.15.5**
	-hazards from transmission of power between machines	
	-hazards from retrieval, transportation, lifting & towing	**5.2.1**
25	**HAZARDS TO & FROM THIRD PERSONS**	
	-unauthorised startup/use	**5.6.2**
	-movement of the plant or part of the plant from its stopping position	**5.5.2.8**
	-lack of/or inadequacy of the visual or acoustic warning devices or means	**5.13**

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Item	Hazard	Standard EN500-1:2001
26	**INSUFFICIENT INSTRUCTIONS FOR THE DRIVER/OPERATOR & SERVICE PERSONAL** due to:	**5.13, 5.17.2, 6**
	-lack of safety, operating & maintenance manuals	
	-inadequate or lack of warning signs & markings	
	-lack of training	
	-inadequate supervision	
	-review of site specific operations and preparation of JSEA	

DYNPAC RISK ASSESSMENT WORKSHEET

Assessment No: CC series rollers

Date of Assessment: October, 2006

Plant Description: Self-Propelled Compactors Type CC, Vibratory Tandem Rollers

HAZARD CATEGORY: SLIPPING, TRIPPING AND FALLING.

Can anyone using the plant, or in the vicinity of the Plant, slip, trip or fall due to:

RISK ASSESSMENT							
Item No	**Causes**	**Risk L/H**	**Rev**	**Control Measures To Reduce Hazard**	**Control Reference**		
					Safety Manual	**Instruction Manual**	**Standard**
1	Uneven or slippery work surfaces	L		Non slip self cleaning access steps Operator Platforms fitted within anti- slip material. Two point access handrails. Always use the three-point grip when entering or exiting machine. Clean boots of mud & debris. Keep work platform clean.	3/1.5 7/2.1.1 24/5.9	3/5	5.3.1 5.8 ISO; 2860 ISO 2867
2	Spillage of chemicals or lubricants	L		Ensure chemicals and lubricants are stored correctly. Provide correct dispensing equipment. Provide facilities for draining of fluids. Clean up all spills immediately. Provide PPE as appropriate.	7/2.1.1 17/4 21/5.4		
3	Lack of correct hand rails & steps	L		Three-point grip design provided with self-cleaning steps. Anti-slip surfaces to be inspected for wear.	3/1.5 24/5.9	3/5	5.3.1 5.8 ISO 2860 ISO 2867
4	Poor house Keeping	L		Ensure cab is kept clean and free of loose objects. Ensure all operational surfaces are kept clean & free of debris.	4/1.13 7/2.1.1 24/5.9	1/ 3/13	
5	Falling from a height	L		For access to high points of the machine use a work platform or approved ladder. Do not work from non-working surfaces. Always use three point grip for accessing and exiting machine	3/1.5	3/5	
6	Holes, penetration or gaps	L		Always ensure cover plates and access covers are in place before operating the machine.	7/2.1.1	1/	

RISK ASSESSMENT, slipping, tripping and falling continued							
Item No	Causes	Risk L/H	Rev	Control measures To Reduce Hazard	Control Reference		
					Safety Manual	Instruction Manual	Standard
7	Collapse of supporting structure	L		Machine designed to international standards for Rops. Always wear seat belts when operating machine. Check Rops.	3/5.6 9/2.1.3	3/6 3/12	5.10 of EN5500-4
8	Site Conditions as appropriate	L		Supervisor to assess & control operations & complete JSEA.	4/1.9, 1.10, 1.11 9/2.1.4	5/	
9	Ignorance of safety, operating & maintenance instructions	L		Ensure correct operator training and assessment. Maintain operator logbook. Be familiar with safety, and instruction manuals	Sections 1 thru 5	1/	5.13, 5.17.2 6

HAZARD CATEGORY: CUTTING, STABBING AND PUNCTURING

Can anyone be cut, stabbed or punctured due to:

RISK ASSESSMENT							
Item No	Causes	Risk L/H	Rev	Control Measures To Reduce Hazard	Control Reference		
					Safety Manual	Instruction Manual	Standard
1	Coming into contact with sharp or flying objects	L		Ensure that machine is free of all loose objects. Check work area for debris or tools or equipment that may be thrown up, or dislodged by the plant. Ensure guards are in place and cab is in good order.	9/2.1.4	3/13	5.3.1 5.9 ISO 3457
2	Coming into contact with moving parts of the plant during testing, inspection, operation, maintenance cleaning or repair of the plant	L		Ensure that all guards are in place especially after maintenance operations. Ensure rigid locking device is used on articulated plant during maintenance and lifting Warning Decals are placed to warn of potential Hazard. Ensure decals are in place & legible	6/1.15 7/2.1.1 19/5.1	3/15 3/13	5.8 5.3.2 5.9 SO3457 EN294
3	The plant, or parts of the plant disintegrating	L		Ensure all moving parts are guarded	19/5.1	1/	ISO3457
4	The mobility of the plant	L		Engine can only be started when in neutral. Hazard beacon and hazard warning lights fitted. Horn fitted. Road lights fitted.		27/ 29/6 39/	5.5 5.6.1 5.6.2 5.7
6	Site conditions as appropriate	L		Supervisor /operator to assess & control operations & complete JSEA	9/2.1.4	5/	
7	Ignorance of safety, operating & maintenance Instructions	L		Ensure correct operator training and assessment. Maintain operator logbook. Be familiar with safety, operating and maintenance manuals.	Sections 1 thru 5	1/ 28	5.13 5.17.2 6

HAZARD CATEGORY: SHEARING

Can anyone's body parts be sheared;

RISK ASSESSMENT							
Item No	Causes	Risk L/H	Rev	Control Measures To Reduce Hazard	Control Reference		
					Safety Manual	Instruction Manual	Standard
1	Between two parts of the plant	H		Before repairs or service lock articulation Ensure warning decals are in place. Ensure plant is locked & tagged out	5/1.15 19/5.1 7/2.1.1	3/13 3/15	5.3.1 5.9 5.13.2
2	Between the plant and a structure	L		Maintain clearances to fixed structures. No passengers allowed on plant Only trained and competent operators to operate plant. ROPS should always be used regardless of the terrain conditions. Avoid operating on risky ground Drive slowly on sharp bends Avoid driving at an angle on slopes Adhere to all operating instructions Use correct transport techniques Adhere to repair and operating procedures Barricade & sign working area	4/1.10 3/1.3 3/1.6 3/1.7 3/1.7 3/1.8 12/2.3.2 13/2.3.3 14/2.4.2 15/3.1 15/3.2 15/3.4	3/3, 3/6, 3/7, 3/8, 3/9, 3/10, 3/11,	
3	Site Conditions as appropriate	L		Supervisor /operator to assess & control operations & complete JSEA	9/2.1.4	5/	
4	Ignorance of safety, operating & maintenance instructions	L		Ensure correct operator training and assessment. Maintain operator logbook. Be familiar with safety, operating and maintenance manuals	Sections 1 thru 5	1/	5.13 5.17.2 6

HAZARD CATEGORY: ENTANGLEMENT

Can anyone's hair, clothing, gloves, cleaning brushes, rags, other cleaning material, necktie or jewellery become entangled?

RISK ASSESSMENT							
Item No	Causes	Risk L/H	Rev	Control Measures To Reduce Hazard	Control Reference		
					Safety Manual	Instruction Manual	Standard
1	With moving parts of the plant	L		Only fully trained and competent operators and service personnel to operate and work on the plant Wear approved work wear. Use all PPE as required Do not wear loose clothing or jewellery when operating or working on the plant Ensure long hair is adequately restrained. Roller scrapers are not accessible from operating position when plant is in motion.	8/2.1 20/5.2		5, 5.2.4 5.9
2	Site conditions	L		Supervisor / operator to assess & control specific site conditions	9/2.1.4		

HAZARD CATEGORY: CRUSHING

Can anyone be crushed due to?

RISK ASSESSMENT							
Item No	Causes	Risk L/H	Rev	Control Measures To Reduce Hazard	Control Reference		
					Safety Manual	Instruction Manual	Standard
1	Material falling off the plant	L		Ensure all tools and equipment and loose items are removed from the plant prior to use	7/2.1.1	1/	5.3.2 5.9.2
2	Uncontrolled or unexpected movement of the plant	L		Installation of: Emergency stop switch (E/S). Neutral start function - after operation of E/S, control lever must be in neutral before E/S is reset to enable forward or reverse motion. Engine to be started with E/S pulled out Failure safe starting and operating system viz; Engine will start with E/S out and drive lever in neutral but forward and reverse motion is prevented. Engine will not start with control in forward or reverse. Engine failure brake on. Hydraulic pressure failure brake on. Electrical failure brake on. If operator stands during operation, a buzzer sounds. After 3 seconds the brakes are activated and the engine stops. In this case, operator should brace for sudden stop. When the roller is in neutral or there is no load on the operator's seat, the automatic brake function is engaged	10/2.2.1	6/ 29/ 34/ 35/	5.5 5.6.1 5.6.2 5.7

RISK ASSESSMENT, crushing continued							
Item No	Causes	Risk L/H	Rev	Control Measures To Reduce Hazard	Control Reference		
					Safety Manual	Instruction Manual	Standard
3	Lack of capacity for the plant to be slowed, stopped or immobilised	L		Installation of: Emergency stop switch (E/S). Neutral start function - after operation of E/S, control lever must be in neutral before E/S is reset to enable forward or reverse motion. Engine to be started with E/S pulled out Failure safe starting and operating system viz; Engine will start with E/S in and drive lever in neutral but forward and reverse motion is prevented. Engine will not start with control in forward or reverse. Engine failure brake on. Hydraulic pressure failure brake on. Electrical failure brake on. If operator stands during operation, a buzzer sounds. After 3 seconds the brakes are activated and the engine stops. In this case, operator should brace for sudden stop. When the roller is in neutral or there is no load on the operator's seat, the automatic brake function is engaged	10/2.2.1	6/ 29/ 34/ 35/	5.5 5.6.1 5.6.2 5.7
4	The plant tipping or rolling	H		Operator to be aware of machine's capacity and limitations. Follow all safety and operating instruction for working on difficult terrain. Only fully trained & competent operators to operate plant All CC types fitted with ROPS	8/2.1.2 12/2.3.2 13/2.3.3	5/	5.5 to 5.8

RISK ASSESSMENT, crushing continued							
Item No	Causes	Risk L/H	Rev	Control Measures To Reduce Hazard	Control Reference		
					Safety Manual	Instruction Manual	Standard
5	Parts of the plant collapsing	L		All CC types fitted with ROPS. Note: In the event that operation of the plant is required in locations with low headroom, ie too low for Rops in position, then a further risk assessment is required before the plant is used in these circumstances.	5.7	1/	5.10.2, .3 EN500-4
6	Coming into contact with moving parts of the plant during testing, inspection, operation, maintenance, cleaning or repair	H		Only fully trained and competent operators and service personnel to operate and work on the plant. Wear approved work wear. Use all PPE as required. Do not wear loose clothing or jewellery when operating or working on the plant. Ensure long hair is adequately restrained. Ensure articulation lock is in place. Plant to be locked & tagged out. Ensure feet are kept away from articulation pivot when operating plant. Note warning decals.	3/ 6/ 18/	23/ 24/	5.10, 8,
7	Being thrown off or under the plant	H		All CC types fitted with ROPS. Operators to wear safety belts. All personnel to keep clear of working plant. No passengers allowed on the plant. Barricade and sign post all working areas. Follow safety and operating instructions when working on difficult terrain. Machine will stop if operator leaves seat.	4/1.12	3/6 6/	5.8

RISK ASSESSMENT, crushing continued							
Item No	Causes	Risk L/H	Rev	Control Measures To Reduce Hazard	Control Reference		
					Safety Manual	Instruction Manual	Standard
8	Being trapped between the plant and fixed structures			Maintain clearances to fixed structures. No passengers allowed on plant Only trained and certified operators to operate plant. ROPS should always be used Avoid operating on risky ground Drive slowly on sharp bends Avoid driving at an angle on slopes Adhere to all operating instructions Use correct transport techniques Adhere to repair and operating procedures Barricade & sign working area	3/ 12/ 13/ 19/	39/	5.13
9	Ignorance of safety, operating & maintenance instructions	L		Ensure correct operator training and assessment. Maintain operator logbook. Be familiar with safety, operating and maintenance manuals	Sections 1 thru 5	1/	5.13, 5.17.2 6
10	Failure of hydraulic steering	H		Only operate plant at recommended speeds			
11	Site conditions	H		Supervisor / operator assess & control operations & complete JSEA	9/2.1.4	5/	

HAZARD CATEGORY: FRICTION

Can anyone be burnt due to?

RISK ASSESSMENT							
Item No	Causes	Risk L/H	Rev	Control Measures To Reduce Hazard	Control Reference		
					Safety Manual	Instruction Manual	Standard
1	Coming into contact with moving parts or surfaces of the plant or material handled by the plant	L		Supervisor & operator to assess & control for site conditions. Conduct task specific JSEA.	9/2.1.4		5.10.1
2	Ignorance of Safety operating & maintenance Instructions	L		Ensure correct operator training and assessment. Maintain operator logbook. Be familiar with safety, operating and maintenance manuals	Sections 1 thru 5	1/	5.13 5.17.2 6

HAZARD CATEGORY: STRIKING

Can anyone be struck by moving objects due to?

RISK ASSESSMENT							
Item No	Causes	Risk L/H	Rev	Control Measures To Reduce Hazard	Control Reference		
					Safety Manual	Instruction Manual	Standard
1	Uncontrolled or unexpected movement of the plant	L		Installation of: Emergency stop switch (E/S). Neutral start function - after operation of E/S, control lever must be in neutral before E/S is reset to enable forward or reverse motion. Engine to be started with E/S pulled out Failure safe starting and operating system viz; Engine will start with E/S out and drive lever in neutral but forward and reverse motion is prevented. Engine will not start with control in forward or reverse. Engine failure brake on. Hydraulic pressure failure brake on. Electrical failure brake on. If operator stands during operation, a buzzer sounds. After 3 seconds the brakes are activated and the engine stops. In this case, operator should brace for sudden stop. When the roller is in neutral or there is no load on the operator's seat, the automatic brake function is engaged	10/2.2.1	6/ 29/ 34/ 35/	5.5 5.6.1 5.6.2 5.7
2	The plant or parts of the plant disintegrating	L		Ensure all moving parts are guarded & guards are replaced after inspection, testing servicing and maintenance	7/2.1.1	1/	ISO3457
3	Mobility of the plant			Fitment of motion alarms and beacons		27/ 29/ 30/	5.2.7 to 5.7

RISK ASSESSMENT, striking continued							
Item No	Causes	Risk L/H	Rev	Control Measures To Reduce Hazard	Control Reference		
					Safety Manual	Instruction Manual	Standard
4	Ignorance of safety operating & maintenance Instructions	L		Ensure correct operator training and assessment. Maintain operator logbook. Be familiar with safety and instruction manuals.	Sections 1 thru 5	1/	
5	Site conditions	H		Supervisor & operator to assess & control for site conditions. Conduct task specific JSEA	9/2.1.4		5.13 5.17.2 6

HAZARD CATEGORY: HIGH PRESSURE FLUID

Can anyone come into contact with fluids under high pressure due to?

RISK ASSESSMENT							
Item No	Causes	Risk L/H	Rev	Control Measures To Reduce Hazard	Control Reference		
					Safety Manual	Instruction Manual	Standard
1	Failure of the plant	H		Pipes fittings and hoses are installed in such a manner that they are protected against mechanical and or thermal damage. Pressure lines passing near the operator's station are installed or covered in such away that the operator is protected in the event of a failure and or rupture in the installation.	21/5.4	1/	5.10.1 5.10.3
2	Failure of hydraulic steering			Operate plant at recommended speeds. Hydraulic failure causes brakes to engage.			
3	Misuse of the plant	L		Ensure correct operator training and assessment. Maintain operator logbook. Be familiar with safety, operating and maintenance manuals. Reassess levels of operator and maintenance personal competencies	8/2.1.2		5.10.2 5.10.3
4	Ignorance of safety, operating & maintenance Instructions	L		Ensure correct operator training and assessment. Maintain operator logbook. Be familiar with safety, operating and maintenance manuals. Reassess levels of operator and maintenance personnel competencies	Sections 1 thru 5	1/	5.13 5.17.2 6

HAZARD CATEGORY: ELECTRICAL

Can anyone be injured by electrical shock or burnt due to:

RISK ASSESSMENT							
Item No	Causes	Risk L/H	Rev	Control Measures To Reduce Hazard	Control Reference		
					Safety Manual	Instruction Manual	Standard
1	Contact of persons with live parts	L		Supervisor & operator to assess & control for site conditions. Conduct task specific JSEA.	9/2.1.4		5.15.3 5.15.4 5.15.5 5.15.6 5.15.7
2	Electro-static phenomena	L		Avoid insulating materials in work clothes, wear only cotton or wool clothing			5.15 5.16
3	Thermal radiation emanating from effects of short circuits and overloads	L		Power systems of plant are all extra low voltage DC and are protected by circuit breakers or fuses. Protection devices are protect by covers to eliminate thermal problems or projection of molten particles			5.15 5.16
4	The plant conducting live electrical conductors	L		Supervisor & operator to assess & control for site conditions. Conduct task specific JSEA Maintain adequate clearance from o/h power lines Isolate or insulate power systems & power lines	9/2.1.4		5.15 5.16
5	The plant working in close proximity to electrical conductors	L		Supervisor & operator to assess & control for site conditions. Conduct task specific JSEA Barricade and sign post work area Maintain clearance to power lines, isolate or insulate power systems	9/2.1.4		5.15 5.16
6	Site conditions	L		Supervisor & operator to assess & control for site conditions. Conduct task specific JSEA	9/2.1.4		

HAZARD CATEGORY: EXPLOSION

Can anyone be injured by explosion of gases, vapors, liquids, dusts or other substances?

RISK ASSESSMENT							
Item No	Causes	Risk L/H	Rev	Control Measures To Reduce Hazard	Control Reference		
					Safety Manual	Instruction Manual	Standard
1	Triggered by the operation of the plant or during inspection and maintenance:	L		When refuelling take all precautions as out lined in safety manual When servicing batteries follow safety and maintenance instructions. Engage a tyre workshop for service and repair to tyres or use certified tyre fitter. Do not carry out weld repairs to rim with tyre fitted Do not weld on tanks or vessels unless correctly drained, cleaned and vented & appropriate procedures are in place.	17/4 22/5.5 22/5.6	66/	5.11, 5.14
2	Incorrect storage of flammable material	L		Always store flammable material in approved cabinets. Maintain store quantities as low as possible.	19/5.1		
3	Maintenance cleaning	L		Never use petrol as a cleaning agent. Use only approved cleaning fluids in conjunction with approved cleaning equipment. No smoking or naked flames	19/5.1		
4	Maintenance welding	L		Do not weld on tanks or vessels unless correctly drained, cleaned and vented & appropriate procedures are in place.	19/5.1		
5	Starting in cold climates using starter leads and auxiliary battery.	L		Strictly follow starting instructions in safety manual. Do not use “Aerostart” or other ether based starting aids or flammable mists or fluids in air intake to assist starting.	11/2.2.3		

HAZARD CATEGORY: ERGONOMIC

Can anyone be injured due to?

RISK ASSESSMENT							
Item No	Causes	Risk L/H	Rev	Control Measures To Reduce Hazard	Control Reference		
					Safety Manual	Instruction Manual	Standard
1	Unhealthy posture postures or excessive efforts	L		The operating position is designed to conform to a high level of visibility of drum on right and left side. Seat is fully adjustable.		33/ 35/	5.3,5.4 5.5 EN25353 EN23411 ISO6682
2	Inadequate consideration of hand-arm or foot-leg anatomy	L		Cab & control designed and configured to comply with best practice ergonomic principles and to standard		33/ 35/	5.3,5.4 5.5
3	Neglecting to use PPE	L		Ensure personnel are trained in the use of PPE. Ensure PPE is suitable for the working conditions likely to be encountered	6/2.1		6
4	Inadequate local lighting	L		Ensure plant lighting is operative. Install additional temporary lighting to suit site requirements			5.3.2
5	Operator stress	L		Low noise and vibration characteristics. Rubber suspension of the operator's platform, drums and diesel engine. Seat is adjustable.		33/ 35/	5.17,6
6	Human error, human behaviour	L		No horse play allowed. Never operate plant whilst intoxicated by alcohol or drugs, or affected by medicine.	6/2.1		5.5 to 5.18
7	Inadequate design location & identification of controls	L		All control locations are configured on best practice ergonomic principals and to standards. Identification symbols are illustrated in the Instruction Manual. Use only fully trained operators, service & maintenance personnel. Assess personnel competencies before assigning work	9/2.1.2 18/5	27/ 28/	5.3 to 5.8

RISK ASSESSMENT, ergonomic continued.							
Item No	Causes	Risk L/H	Rev	Control Measures To Reduce Hazard	Control Reference		
					Safety Manual	Instruction Manual	Standard
8	Inadequate design or location of visual display's	L		Location designed to ergonomic principles and to standard. Locations are illustrated in the Instruction Manual. Use only fully trained & competent operators, service & maintenance personnel. Assess operator competencies before assigning work	9/2.1.2 18/5	27/ 28/	5.5
9	Neglecting principles of safety integration	L		The relationship between safety, availability & ergonomics have been optimised such that safety measures will be maintained during the life time of the plant & does not tempt personnel to defeat safety systems			5.2,5.3.2 5.5,5.6 5.7,6
10	Inadequate guards & protection devices	L		Guards are designed to confirm to standards. Warning decals are used to reinforce hazard locations			5.3.2,5.9
11	Inadequate operating position	L		Spacious ergonomic operating position. Adjustable seat.		33/ 35	5.3,5.4 5.5
12	Inadequate design for serviceability	L		Daily service points are few and easily accessible. The easy to open engine hood contributes to the accessibility. The number of lubrication points has been reduced to a minimum, at the same time as the periods between servicing has been extended. Service points such as air filters, oil filters and oil changes are located and configured to facilitate easy accessibility.		55/ff	5.8

HAZARD CATEGORY: SUFFOCATION

Can anyone be suffocated due to?

RISK ASSESSMENT							
Item No	Causes	Risk L/H	Rev	Control Measures To Reduce Hazard	Control Reference		
					Safety Manual	Instruction Manual	Standard
1	Lack of oxygen, contamination from exhaust gases or atmospheric contamination	L		No welding near plastic, rubber or polyurethane materials. When operating plant indoors connect exhaust pipe to extraction system. If not possible ensure area is provided with air circulation and noxious gas levels and oxygen levels are monitored. The necessary facilities and systems of work are provided and maintained so as to minimise risks to the health & safety of persons operating, maintaining, inspection or cleaning the plant.	19/5.1		5.3.1,5.9.1 5.14 EN292.2
2	Operating plant in confined spaces	H		Do not operate Plant in confined spaces. Seek specialist advice on specific site conditions especially deep excavations such as building foundations.			

HAZARD CATEGORY: HIGH TEMPERATURE OR FIRE

Can anyone come into contact with?

RISK ASSESSMENT							
Item No	Causes	Risk L/H	Rev	Control Measures To Reduce Hazard	Control Reference		
					Safety Manual	Instruction Manual	Standard
1	Objects at high temperature	L		When servicing or inspecting engines which have been operating be aware of the high temperature components such as the exhaust system and engine coolant system	20/5.3	23/	5.10,5.11 5.12,5.14
2	Fire in plant	L		The materials of machine construction are made of fire resistant material.		8/	ISO 3795
3	Servicing of batteries	L		Ensure correct systems of work are in place and only competent person service the batteries. Follow safety procedures as out lined in safety and operating manual	22/5.5	8/	5.11, 5.14
4	Refuelling	L		Follow safety systems of work as per the safety and maintenance manuals.	17/4	66/	5.11, 5.14
5	Welding			When welding on the machine, disconnect battery's negative cable & all electrical connections to alternator, VBS relay, and dash panel. No welding near plastic, rubber or polyurethane materials. Ensure adequate fire fighting equipment is available.	19/5.1		5.11, 5.14
6	Smoking	H		No smoking when refuelling or servicing batteries or in situations that are present a situation for fire. Follow job site & company policy on smoking.	4/1.14 22/5.5		5.11, 5.14
7	Incorrect cleaning procedures	H		Never use petrol as a cleaning agent. Use only approved cleaning fluids in conjunction with approved cleaning equipment. No smoking or naked flames	19/5.1		5.11, 5.14
8	Cold starting with starter leads & auxiliary battery	L		Strictly follow starting instructions in safety manual Do not use "Aerostart" or other ether based starting aids or flammable mists or fluids in air intake to assist starting.	11/2.2.3	9/	5.11, 5.14
9	Inadequate storage of flammable materials	H		Ensure flammable materials quantities are kept to a minimum and always stored in approved flammable storage systems.	19/5.1		5.11, 5.14

HAZARD CATEGORY: THERMAL HAZARDS

Can anyone suffer ill health due to?

RISK ASSESSMENT							
Item No	Causes	Risk L/H	Rev	Control Measures To Reduce Hazard	Control Reference		
					Safety Manual	Instruction Manual	Standard
1	Exposure to high or low temperatures	L		Owner and operator to assess suitability for operating in the site environmental conditions			5.10.1 5.11 5.12 5.14
2	Burns or scalds	L		Follow safety and instruction manuals when: Servicing coolant system. Servicing AC system. Servicing battery and electrical systems. Servicing lubrication & hydraulic systems. When engine hood is open exposing hot engine system components. Wear appropriate PPE. Only fully trained and certified operators, service and maintenance personnel to carry out work. Observe warning decals.	18/5 20/5.2 20/5.3	23/ 62/	5.10.1 5.11 5.12 5.14
3	Cold burns	L		In sub zero environmental conditions do not touch bear metal with exposed fingers. Wear appropriate PPE.			5.3.2

HAZARD CATEGORY: OTHER HAZARDS

Can anyone be injured or suffer ill health due to:

RISK ASSESSMENT							
Item No	Causes	Risk L/H	Rev	Control Measures To Reduce Hazard	Control Reference		
					Safety Manual	Instruction Manual	Standard
1	Noise of plant or associated site equipment	H		The noise level for the operator is comfortably low. Supervisor & operator to assess site specific conditions as the noise level may very depending on what material the plant is working on & any associated plant working in close proximity. Follow site rules	5/1.16 6/2.1	11/	5.17.6
2	Vibration	L		The plant features very low vibration levels in the operator's position achieved through rubber suspension of the operator's platform, cab, drum and diesel engine.		11/	5.17.3 5.17.4 6
3	Low frequency, radio frequency or micro waves	L		Avoid extended use of mobile phones & two-way radios. Do not turn on two-way radios when blasting is taking place. Turn off two-ways & mobile phones when refuelling			5.16
4	Infrared, visible & ultraviolet light	L		Use appropriate PPE to protect personal from exposure to excessive level of sunlight.			5.5.2.5
5	Unexpected start up, overrun /over speed due to failure of control system	L		Seat switch prevents start unless operator in seated position. Control system configured for fail safe operation. All plant is fitted with "fail-safe' brakes that are automatically applied if the engine stops or in the event of hydraulic or electrical faults.		6/ 35/ 40/	5.5
6	Unexpected start up, overrun, overspend due to external influences on electrical equipment	L		All plant is fitted with "fail-safe' brakes that are automatically applied if the engine stops or in the event of hydraulic or electrical faults.			5.15,5.16

RISK ASSESSMENT, other hazards continued							
Item No	Causes	Risk L/H	Rev	Control Measures To Reduce Hazard	Control Reference		
					Safety Manual	Instruction Manual	Standard
7	Unexpected start up, overrun, over speed due to errors made by the operator.	L		Ensure only competent personnel operate, test, service and maintain the plant. Follow all instructions contained in the safety, operating & maintenance manuals	3/1.3 8/2.1.2	1/ 29/	5.5,5.6 5.7,5.8
8	Fitting errors	L		Ensure only competent personnel operate, test, service and maintain the plant. Always check plant for fitness to operate before work. Testing, service & maintenance personnel to ensure that all components are secure in place before operating	3/1.3 6/2.1 7/2.1.1 8/2.1.2 18/5		5.10.1
9	Movement when starting engine	L		Follow starting instructions, make sure that the parking brake (emergency stop) is activated and that all controls are operative. Seat switch prevents start unless operator in seated position	2.2.1	29/	5.6
11	Movement with out driver in position	L		All plant is fitted with “fail-safe’ brakes that are automatically applied if the engine stops or in the event of hydraulic or electrical faults. Seat is fitted with alarm buzzer to indicate driver not in seated position with ignition on & brake off. Engine stops and brakes are applied after 3 seconds.	2.4.2	6/ 29/ 35/ 40/	5.5.2.4 5.5.2.6
12	Movement with out all parts in position	L		Ensure only competent personnel operate, test, service and maintain the plant. Always check plant for fitness to operate before work. Testing, service & maintenance personnel to ensure that all components are secure in place before operating	3/1.3 6/2.1 7/2.1.1 8/2.1.2 18/5	1/	5.5.2.4 5.5.2.8
13	Excessive oscillation when moving	L		Do not attempt sharp turns at high travel speed.			5.2.3

RISK ASSESSMENT, other hazards continued							
Item No	Causes	Risk L/H	Rev	Control Measures To Reduce Hazard	Control Reference		
					Safety Manual	Instruction Manual	Standard
14	Inability of plant to be slowed down stopped or immobilised	L		The control system incorporates an emergency braking system. All plant is fitted with “fail-safe’ brakes that are automatically applied if the engine stops or in the event of hydraulic or electrical faults If operator moves from seated position, a buzzer sounds and after 3 seconds, the engine stops and the brakes are applied.		6/ 29/ 35/ 40/	5.7
15	Insufficient visibility from the drive /work position	L		Visibility offers an excellent view of the drum edges.			5.3.1
16	Inadequate means for evacuation / emergency exit	L		Quick-release seat belt fitted.			5.3.2
17	Lack of stability	L		A very low centre of gravity gives the rollers good stability. Follow safety driving instructions for difficult terrain	4/1.9 4/1.10 4/1.11 9/2.1.4 12/2.3.2 12/2.3.3	5/	5.2.6

RISK ASSESSMENT, other hazards continued							
Item No	Causes	Risk L/H	Rev	Control Measures To Reduce Hazard	Control Reference		
					Safety Manual	Instruction Manual	Standard
19	Retrieval, lifting, transportation and towing	L		Follow detailed procedures in safety manual	15/3.1 to 3.5	49/ 50/	5.2.1
20	Unauthorized start-up/use	L		Engage emergency brake, remove battery isolation switch from under engine hood and lock engine hood. Chock roller when parked for long periods.	14/2.4.1 14/2.4.2		5.6.2
21	Insufficient instructions for the operator, service & maintenance personnel	L		Ensure only fully trained & competent personnel operate, test, service & maintain the plant. Provide information & training to employees, supervisors & managers. Make sure everyone knows what the risks & their controls are, & what practices must be followed	3/1.3 18/5	1/	5.13 5.17.2 6
22	Lack of record keeping	L		Report all accidents, incidents & near misses. Follow up with corrective action. Review preventative measures when new information is obtained about previously unknown fault or hazard & after all accidents. Copy to Dynapac service manager Maintain records relating to health & safety issues of the plant. Transfer records on the sale of the plant unless the plant is sold for scrap or as spare parts for another piece of plant			

HAZARD CATEGORY: DUTIES OF ALL PERSONS

Persons must not:

RISK ASSESSMENT							
Item No	Causes	Risk L/H	Rev	Control Measures To Reduce Hazard	Control Reference		
					Safety Manual	Instruction Manual	Standard
1	Wilfully or recklessly interfere with or misuse anything provided in the interests of health and safety or welfare in pursuance of any requirement in the OH&S Act and Regulation 2001	L		Treat the plant with due care. Report all defects and problems no matter how small. Follow the safety, operating & maintenance manuals. Be correctly trained and be competent in the work tasks assigned. Do not interfere with safety equipment or make any alterations to the plant with out approval.	8/2.1.2		5.3.1,5.9.1 5.14 EN292.2
2	Wilfully place at risk the health and safety of any person at the workplace	L		Be competently trained and follow all the safety rules. Review each job task before commencing work. Supervisors are accountable for making sure that preventative measures are understood, are monitored & are working	8/2.1.2		5.5 to 5.8
3	Employees not complying, to the extent that they are capable, with all the activities carried out in accordance with the provision of the OH&S Act and regulation 2001	L		Ensure all plant personnel are fully trained & competent. Ensure that they know the potentially harmful effects that may arise from the use of the plant. Personnel must be able to recognise the physical 'warning' signs if their health may be affected by work involving the plant eg. Dizziness from fumes, fatigue from high temperatures. Supervisors are accountable for making sure that preventative measures are understood, are monitored & are working	8/2.1.2	1/	

RISK ASSESSMENT, duties of all persons continued							
Item No	Causes	Risk L/H	Rev	Control Measures To Reduce Hazard	Control Reference		
					Safety Manual	Instruction Manual	Standard
4	Employees must report promptly to their employer any matters of which they are aware that may affect the employer's compliance with the provisions of the OH&S Act & Regulation 2001	L		Details of the safety, operating & maintenance manuals, & emergency procedures are fully understood by all persons. Provide refresher training to all persons in operational and emergency procedures, especially after any accident or incident.	All	1/	5.5 to 5.8

HAZARD CATEGORY: CONTROL

RISK ASSESSMENT							
Item No	Causes	Risk L/H	Rev	Control Measures To Reduce Hazard	Control Reference		
					Safety Manual	Instruction Manual	Standard
1	Lack of control measures & safe systems of work	L		Review the hazards & ensure safe systems of work are in place.	All	All	
2	Failure to supervise the use of PPE	L		Ensure correct supervision is in place & personnel are trained in the correct use of PPE.	All	All	
3	Failure to remove persons from identified situations that are reported to be hazardous	L		Review all accident, incidents & near misses & stop work or control the situation to eliminate or reduce the risk.			
4	Failure to carry out JSEA's	L		Always review each job situation & complete a JSEA.			
5	Failure to report & follow up on incident and accidents including near misses	L		Report all accidents, incidents & near misses. Follow up with corrective action.			
6	Failure to ensure that only competent personal are used to operate, test, service & maintain the plant	L		Ensure only fully trained & competent personnel are used to operate, inspect, test & maintain the plant. Regularly reassess & provide refresher training for all personnel.	All	All	
7	Inadequate medical competencies of operators	H		Ensure operators undergo annual checks for cardiac & other medical conditions which affect the operators capacity to operate the plant in a safe manner			

RISK ASSESSMENT, control continued							
Item No	Causes	Risk L/H	Rev	Control Measures To Reduce Hazard	Control Reference		
					Safety Manual	Instruction Manual	Standard
8	Failure to maintain records	H		Records should be kept of risk assessments, accidents & incidents including near misses, maintenance & repair, training, inspections & tests & any other certification required			
9	Longer braking distances when hydraulics are cold	L		Warm up machine before operation.	5/18	37/ 43/	

HAZARD CATEGORY: USE

RISK ASSESSMENT							
Item No	Causes	Risk L/H	Rev	Control Measures To Reduce Hazard	Control Reference		
					Safety Manual	Instruction Manual	Standard
1	Operation of plant by a person that has not received adequate information and training and is not supervised to the extent necessary to minimise risks to health & safety	L		Ensure that all personal are provided with the safety, operational, & maintenance manuals & are trained to achieve the correct level of competency. Retrain if required after any accidents & incidents including near misses. Maintain operators logbook.	3/1.3	1/	5.13 5.17.2 6
2	Failure to assess job specific criteria & risks	L		Always carry out site specific JSEA	7/2.1.1, 9/2.1.3, 9/2.1.4		
3	Incorrect use of PPE	H		PPE is only effective if used in the correct manner. Ensure operators are trained in their correct use.	6/2.1	35/	
4	Incorrect use of Plant	L		Ensure plant is only used for the purpose for which it is designed			
5	Unauthorised alteration or repair of the plant	L		Ensure no unauthorised alteration or repair is made to the Plant. Always consult Dynapac.	8/2.1.2		5.6.2
6	Use of unsafe Plant	L		If the plant becomes unsafe, stop it from being used until the risks have been eliminated or (if this is not practicable) controlled. Ensure routine maintenance, inspections & tests are carried out.	3/1.4	1/	

HAZARD CATEGORY: ENVIRONMENT

RISK ASSESSMENT							
Item No	Causes	Risk L/H	Rev	Control Measures To Reduce Hazard	Control Reference		
					Safety Manual	Instruction Manual	Standard
1	Excessive Noise	H		CC type Plant are designed such as to achieve low noise levels		11/	5.17, 6 5.13.1
2	Fluid spills during servicing & refuelling	H		Filters for hydraulic fluid, engine oil & fuel are located where they are easy to reach & cause the least possible spill. Do not overfill. Always wipe up spilt fluids	17/4 21/5.4	2/	5.8
3	Lack of maintenance	L		Hydraulic hoses deteriorate with age. Examine hoses regularly, replace with original hoses from Dynapac if uncertain as to the durability or wear	21/5.4		5.10.2 5.10.3
4	Incorrect setting of hydraulic system	L		Make sure pressure settings are correct. Too high a pressure can lead to hose rupture.	21/5.4		5.10.2 5.10.3
5	Incorrect disposal of fluids & filters	L		Dispose of all fluids & filters in an approved manner.		2/	

HAZARD CATEGORY MAINTENANCE & REPAIR

RISK ASSESSMENT							
Item No	Causes	Risk L/H	Rev	Control Measures To Reduce Hazard	Control Reference		
					Safety Manual	Instruction Manual	Standard
1	Inadequate facilities & systems of work	L		Provide the necessary facilities & ensure that the necessary systems of work are in place for the safety of the persons doing the work.			
2	Work not carried out in accordance with procedures	L		Ensure work is done in accordance with procedures recommended by the supplier			
3	Failure to maintain safety features	L		Make sure that all safety features & warning devices are maintained & tested	All	All	
4	Damaged plant	H		Seek Dynapac's advice before carrying out repairs Make sure that a competent person assesses & provides advice on damaged plant, & undertakes repair, inspection & testing work. Never repair a ROPS/FOPS after its been damaged	3/1.4 5/1.17	1/	
5	Plant is not stopped & isolated during maintenance & repair	H		Make sure that during maintenance, cleaning & repair, the plant is stopped, isolated & tagged, & and devices and safe systems of work are used to safeguard the people doing the work	All	All	
6	Incorrect use of compressed air	H		Use appropriate PPE when using compressed air. Never use compressed air to clean down your self or other persons			

JOB SAFETY & ENVIRONMENT ANALYSIS

JOB SAFETY & ENVIRONMENT ANALYSIS TITLE	Page.....of.....JSEA.		DATE:	JSEA NO.
	Company:	Name:	I acknowledge that I am aware of my (my organisation's) Obligations under the OH&S Act 2000 & OH&S Regulation2001. ***JSEA completed by (Company Rep)*** **:.....**	
	Location of Work:	Waste Service Contact:	***JSEA Reviewed by;*** **.....**	
Required Personal Protective Safety Equipment			Based on the information supplied in the JSEA and on the Review process, the work is authorised to proceed (***Manager or an authorised Representative):*** **.....**	
SEQUENCE OF BASIC JOB STEPS	**POTENTIAL HAZARDS**		**RECOMMENDED ACTION OR PROCEDURE**	
Break the job down into steps. Each of the steps should Accomplish some major task and be logical.	Identify the hazards associated with each step. Examine each to find possibilities that could lead to an accident.		Using the first two columns as a guide, decide what actions Are necessary to eliminate or minimise the hazards that could Lead to an accident, injury, occupational illness or Environmental harm.	

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RISK ACTION PLAN

ITEM RISK	REF:
SUMMARY-RECOMMENDED RESPONSE AND IMPACT:	

1. PROPOSED ACTION:

2. RESOURCE REQUIREMENTS:

3. RESPONSIBILITIES:

4. TIMING:

5. REPORTING AND MONITORING REQUIRED:

COMPILER:	DATE:	REVIEWER:	DATE:

PLANT FAILURE REPORT	To:	
Responsible:	**Report Date:**	**Failure Report No:**
For Info:	**Failure Date:**	**Yr. Ref:**
Person Reporting:	**State:**	**End User:**
Plant Type	**Plant Serial No.:**	**Operating Hours:**
Broken Part:	**Part No:**	**Part Serial No.:**

Earlier Problem

Yes ☐ No ☐

Common Application

Yes ☐ No ☐

Ambient Temperature

Below 0C ☐
0 to 15 C ☐
16 to 35 C ☐
36 c & over ☐

Ambient condition

Normal ☐
Dusty ☐
Wet ☐

Material

Base coarse	Sand
Sub-base	Silt
Rock fill	Clay
Gravel	Asphalt

Vibration Amplitude

Low 25% 50% 75% High

Part no

Failure Code

Description of Problem:

Probable Cause of Problem:

Indications prior to failure:

Actions from Dynapac:

Risk Assessment updated: Yes ☐ No ☐ **Date:**